

硬质合金旋转刀具

ROTATING TOOLS



2014 / 2015

ph HORN ph



尊敬的客户：

我们宗旨是使用我们的产品为您提供经济可靠的服务和解决方案。

HORN新的旋转刀具样本展现了最全面的槽铣削刀具。在您进行加工任务、面临挑战和完成项目的时候，我们的刀具解决方案、专业知识和技术服务将使我们成为您最佳的合作伙伴。

无论标准产品还是非标产品都可实现短周期生产。

期望将来能与您成功合作。

如有任何需要请联系我们。

谨上

Lothar Horn, CEO

Dear Customer,

Our goal is to offer you the most cost-effective service and solutions possible with the range of products shown in this catalogue.

The new HORN-Catalogue **ROTATING TOOLS** presents the most comprehensive range of groove milling tools available worldwide. Our tooling solutions, expertise and technical advice make us your perfect partner when it comes to performing tasks, facing challenges and completing projects.

Standard and Special Tools are available on very short lead times.

We look forward to a successful mutual cooperation for the future.

Please don't hesitate to contact us in case of any further queries.

Yours sincerely

Lothar Horn, CEO



phorn.de



phorn.com



youtube.com

A	"DC"系列 槽铣削和螺纹铣削 SYSTEM "DC" Groove milling and thread milling cutter		A
B	槽铣削 GROOVE MILLING	M306 / M308 / M311 / M116 M313 / M328 / M332 / M335	B
C	槽铣削 SLOT MILLING	M101	C
D	槽铣削 GROOVE MILLING	M275	D
E	槽铣削 GROOVE MILLING	380 / 381	E
F	槽铣削 GROOVE and SLOT MILLING	M382 / M383 / M310	F
G	螺纹铣削 THREAD MILLING	M275 / M306 / M308 / M310 M311 / M313 / SM328 / 380	G
H	T型槽铣削 MILLING OF T-SLOTS	M311 / M313 / M328	H
J	技术说明 槽铣削 (圆弧插补铣削) TECHNICAL INSTRUCTIONS GROOVE MILLING (by circular interpolation)		J
K	多边形铣削 POLYGON MILLING	M275 / 381	K
L	螺纹旋风铣 THREAD WHIRLING		L
M	可更换刀头的铣削系列"DM"带可更换刀头 MULTI-MILLING SYSTEM "DM" with replaceable cutting heads		M
N	可更换刀头的铣削系列"DG"带可更换刀头 MULTI-MILLING SYSTEM "DG" with replaceable cutting heads		N
O	"DA"/"DAH"系列 铣刀 /大进给铣刀 SYSTEM "DA" / "DAH" Milling cutter / High feed milling cutter		O
P	"DP"/"DS"系列 立铣刀 SYSTEM "DP"/ "DS" Endmill		P
Q	抛光铣削 HIGH POLISH MILLING		Q

质量和环境的承诺 QUALITY AND ENVIRONMENT COMMITMENT

质量=客户满意

Paul Horn公司作为一家硬质合金刀具生产厂商，有着其特殊的责任。

为了成为一家成功的公司，我们必须满足客户对产品和服务的要求，同时也必须实现自我的要求。

为了实现这些目标，Paul Horn公司通过了DIN EN ISO9001质量体系认证。

Quality = Satisfied customers

Paul Horn GmbH, as a manufacturer of carbide cutting tools, has a very special responsibility.

To exist as a successful company, we must meet the demands for both products and services that are set by the customer as well as those that we set ourselves.

To achieve these goals, Paul Horn GmbH has introduced a modern Quality management System according to DIN EN ISO 9001.



环境=我们的未来

一个公司良好的发展不仅决定于它的营业额和利润，也需要得到公众和社会的认可。

在Paul Horn公司，环境保护是重要的企业目标，也是公司政策中无可争议的一部分

在1999年，公司根据ISO14001的要求调整了公司的管理系统，早在1997年我们就通过了EG-ÖG-Audit-VO 1836/93的认证，最终在2000年7月通过了ISO14001认证。

The environment - our future!

To ensure the future being a company, it depends not only on turnover and profit but the acceptance of the company by both the public and the society.

For the Paul Horn GmbH the environment protection is an important corporate target and indisputable part of the corporate policy.

In 1999 we have adjusted our Management System according to the requirements of the ISO 14001. Already in 1997 we have got the validity according to the EG-ÖG-Audit-VO 1836/93. The Management System is certified since July 2000.

BLUECOMPETENCE

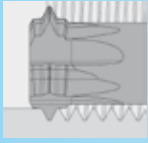
Alliance Member

Partner of the Engineering Industry Sustainability Initiative

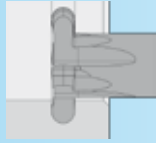
- R** "DD"系列 安装硬质合金可更换钻头的钻杆
SYSTEM "DD" Drill body with indexable carbide drill tip
- S** "URMA"系列 镗孔和面铣削
SYSTEM "URMA" Boring and Face milling
- T** "DR"系列 高性能铰削
SYSTEM "DR" High-performance reaming
- U** 附加设备
ADDITIONAL EQUIPMENT

A

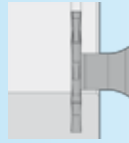
DC 系列 SYSTEM DC



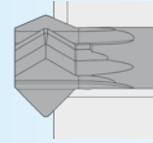
螺纹铣削
Thread milling



槽铣削 圆头
Groove milling Full radius



槽铣削
Groove milling



倒角铣削
Chamfer milling

DCG

螺纹铣削
Thread milling



米制/metric M1 - M12
页/Page A2 - A4



UN #5 - 40, 7/16" - 20
页/Page A5



BS 1/8" - 1/2"
页/Page A6



G 1/16" - 3/8"
页/Page A7

DCR

槽铣削
Groove milling

Ds Ø 4 - 10 mm



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DCN

槽铣削
Groove milling

Ds Ø 4 - 10 mm



页/Page A9

DCX

槽铣削
Groove milling

Ds Ø 20 - 40 mm



页/Page A10

DCF

倒角铣削
Chamfer milling

Ds Ø 2 - 7,5 mm



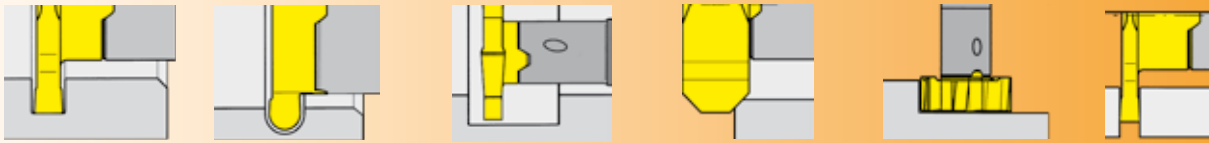
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技术信息

Technical Information

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槽铣削 GROOVE MILLING



槽铣削
<\$NutfraesenLng2>

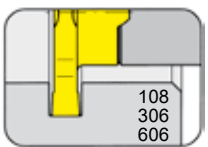
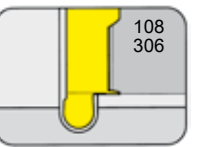
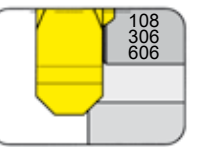
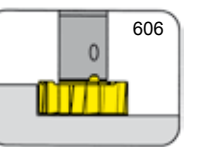
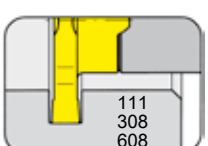
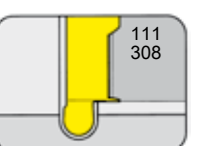
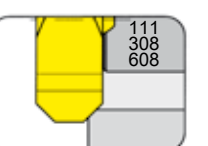
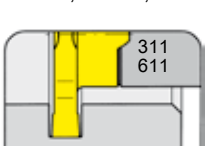
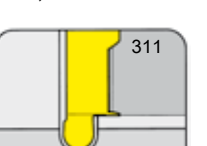
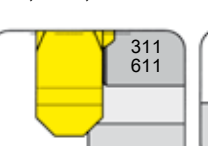
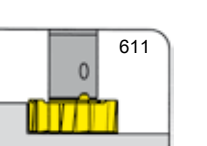
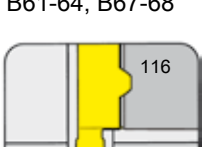
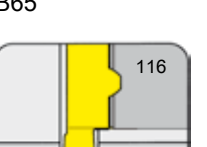
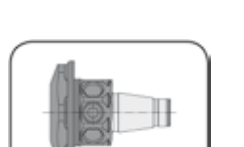
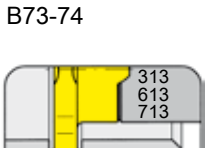
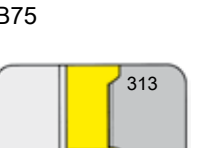
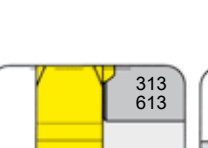
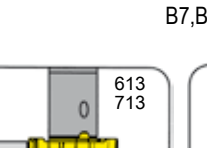
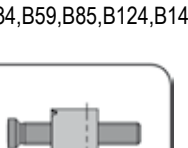
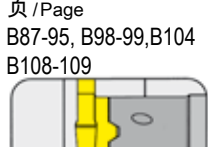
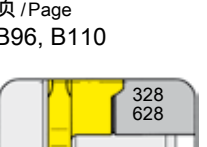
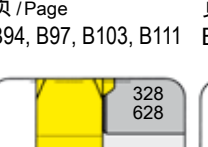
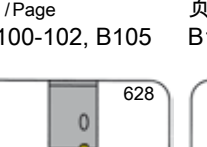
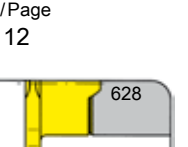
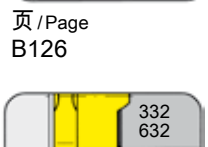
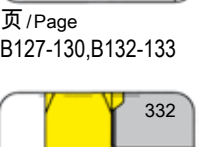
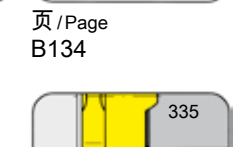
圆头
Full radius

孔铣削
Bore milling

孔铣削
和倒角
Bore milling
and Chamfering

面铣削
Face milling

槽铣削
Slot milling

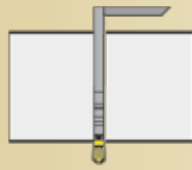
<p>M306 Ds ≥ Ø 9.4/9.6/11.7 mm 铣刀杆 B2-B6, B8 Milling shank</p>	 108 306 606 页 / Page B9-11, B14-21, B24-25	 108 306 页 / Page B12, B22	 108 306 606 页 / Page B13, B23, B27	 606 页 / Page B26, B28	
<p>M308 Ds ≥ Ø 13.4/15.7 mm 铣刀杆 B30-B33, B35 Milling shank</p>	 111 308 608 页 / Page B36-38, B41-44, B47	 111 308 页 / Page B39, B45	 111 308 608 页 / Page B40, B46, B48		
<p>M311 Ds ≥ Ø (15)/17.7 mm 铣刀杆 B50-B58, B60 Milling shank</p>	 311 611 页 / Page B61-64, B67-68	 311 页 / Page B65	 311 611 页 / Page B64, B66, B70	 611 页 / Page B69	
<p>M116 Ds ≥ Ø 20.4 mm 铣刀杆 B72 Milling shank</p>	 116 页 / Page B73-74	 116 页 / Page B75	<p>WFB 常规刀座 用于 Basic holder for 306,308,311,313,328,332</p>		 页 / Page B7, B34, B59, B85, B124, B142
<p>M313 Ds ≥ Ø 21.7 mm 铣刀杆 B78-B84, B86 Milling shank</p>	 313 613 713 页 / Page B87-95, B98-99, B104 B108-109	 313 页 / Page B96, B110	 313 613 页 / Page B94, B97, B103, B111	 613 713 页 / Page B100-102, B105	 页 / Page B112
<p>M328 Ds ≥ Ø 24.8/27.7/28 mm 铣刀杆 B116-B122, B125 Milling shank</p>	 328 628 325 页 / Page B126	 328 628 页 / Page B127-130, B132-133	 328 628 页 / Page B131, B136	 628 页 / Page B135	 628 页 / Page B134
<p>M332 Ds ≥ Ø 31.7/35.7 mm 铣刀杆 B138-B141, B143 Milling shank</p>	 332 632 页 / Page B144-145, B147-150	 332 页 / Page B146	<p>M335 Ds ≥ Ø 34.7 mm 铣刀杆 B152 Milling shank</p>		 335 页 / Page B153

C

槽铣削 SLOT MILLING

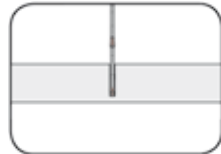


槽铣削
Slot milling



槽铣削
Slot milling

M101
盘铣刀
Disc milling cutter
Ds ≥ Ø 80 mm

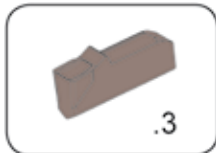


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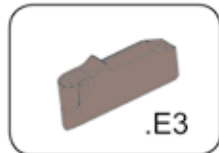


盘铣刀-配合刀柄
Arbor mounted Disc milling cutter
页 / Page C3

S101
刀片
Inserts



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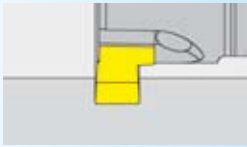


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技术信息
Technical Information

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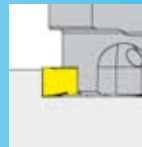
槽铣削 GROOVE MILLING



槽铣削
Groove milling

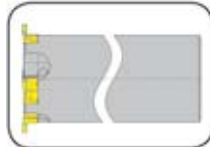


卡簧槽
Circlip grooves



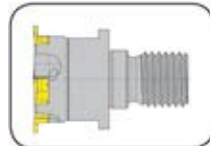
面铣削
Face milling

M275
铣刀杆
Milling shank
Ds Ø 31 mm



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M275
螺纹锁紧型铣刀
Screw-in cutter
Ds Ø 38/48/58/78 mm



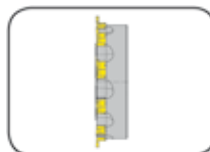
页 / Page D3

M275
铣刀
Milling cutter
Ds Ø 38/48/58/78 mm



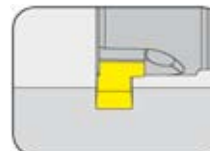
页 / Page D4

R/LM275
盘铣刀
Disc milling cutter
Ds Ø 38/48/58/78 mm

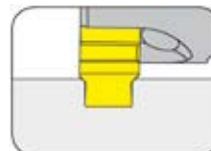


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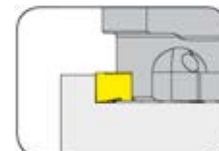
S275
刀片
Inserts



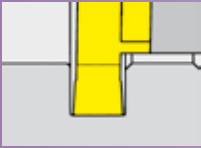
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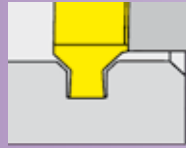
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槽铣削
Groove milling



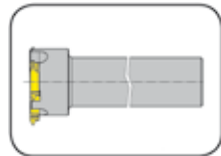
卡簧槽
Circlip grooves

380

铣刀杆

Milling shank

Ds Ø 44 mm



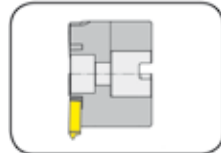
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380

铣刀

Milling cutter

Ds Ø 63 mm



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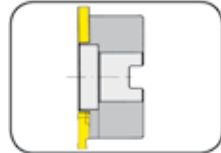
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380

铣刀

Milling cutter

Ds Ø 80 mm



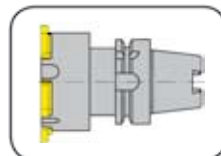
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页 / Page E6

HSK/ABS...380

Ds ≥ 44 mm



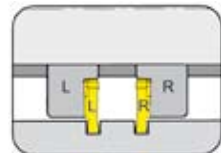
页 / Page E7-E8

R/L381

盘铣刀

Disc milling cutter

Ds Ø 68/80/100 mm

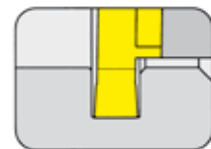
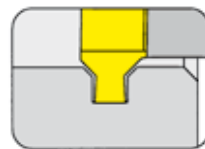


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314

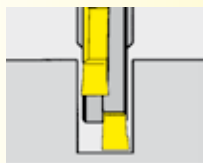
刀片

Inserts

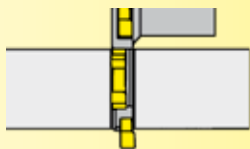
页 / Page
E10-E11页 / Page
E12

槽铣削

GROOVE and SLOT MILLING

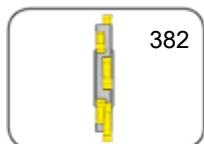


槽铣削
Groove milling

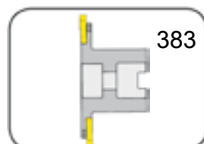


槽铣削
Slot milling

382 / 383
盘铣刀
Disc milling cutter
Ds ≥ Ø 80 mm

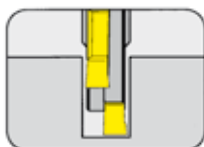


页 / Page F2-F3

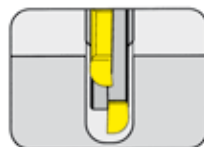


页 / Page F4-F5

314
刀片
Inserts

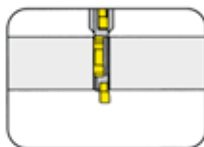


页 / Page F6

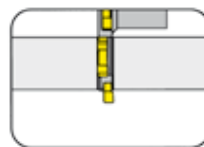


页 / Page F7

M310
槽铣刀
Slotting cutter
Ds ≥ Ø 80,0 mm



页 / Page F10-F11

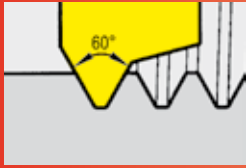


槽铣刀-配合刀柄
Arbor mounted Slot milling cutter
页 / Page F12-F13

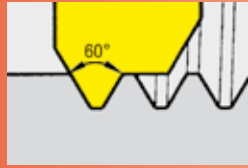
S310
刀片
Inserts



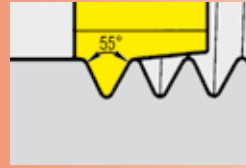
页 / Page F14



非全牙型
Partial profile



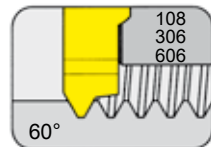
全牙型
Full profile



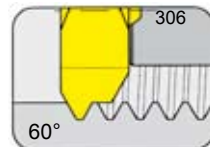
全牙型
Full profile

M306

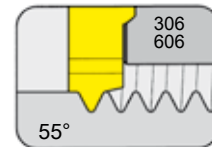
Ds Ø 9,6/9,7/11,7 mm
铣刀杆 G2
Milling shank



非全牙型/Partial profile
页 / Page G4-5, G8



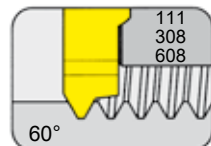
全牙型/Full profile
页 / Page G6



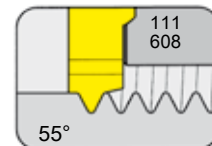
全牙型/Full profile
页 / Page G7, G9

M308

Ds Ø 13,4/15,7 mm
铣刀杆 G10
Milling shank



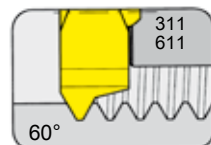
非全牙型/Partial profile
页 / Page G12, G14-15



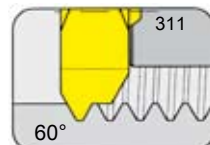
全牙型/Full profile
页 / Page G13, G16

M311

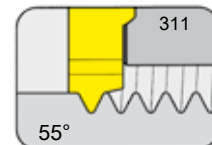
Ds Ø 17,7 mm
铣刀杆 G17
Milling shank



非全牙型/Partial profile
页 / Page G19, G22



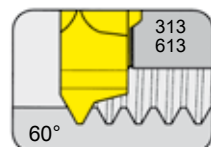
全牙型/Full profile
页 / Page G20



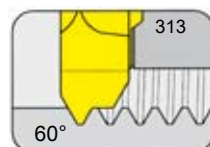
全牙型/Full profile
页 / Page G21

M313

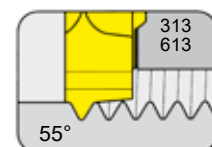
Ds Ø 21,7 mm
铣刀杆 G23-G24
Milling shank



非全牙型/Partial profile
页 / Page G26, G29



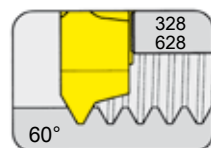
全牙型/Full profile
页 / Page G27



全牙型/Full profile
页 / Page G28, G30

M328/SM328

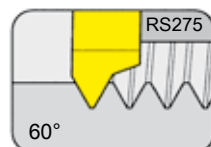
Ds Ø 27,7 mm
铣刀杆 G31-G33
Milling shank



非全牙型/Partial profile
页 / Page G35-36

M275

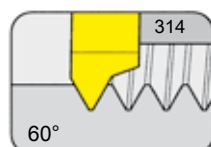
Ds Ø 31/38/48/58 mm
铣刀杆 G37-G38
Milling shank



非全牙型/Partial profile
页 / Page G40

380

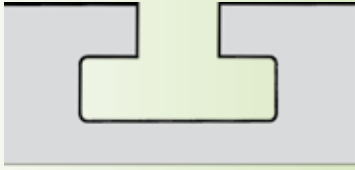
Ds Ø 44/63 mm
铣刀杆 G41-G42
Milling shank



非全牙型/Partial profile
页 / Page G44

T型槽铣削

MILLING OF T-SLOTS



T型槽
T-Slot



倒角
Chamfering

M311/M313/M328
铣刀杆
Milling shank



页 / Page H2, H6, H8

311/313/328
刀片
Inserts



311/313/328
T型槽 / T-Slot
页 / Page H3, H7, H9



311
倒角 / Chamfering
页 / Page H5

技术信息
Technical Information

页 / Page H10

技术说明 槽铣削 (圆弧插补铣削)

TECHNICAL INSTRUCTIONS GROOVE MILLING (by circular interpolation)

J

技术信息
Technical Information

页 / Page J1-J16

K 多边形铣削 POLYGON MILLING



多边形铣刀
Cutter
Ds ≥ Ø 60 mm



Star SR-20J
页/Page K2



Gildemeister
页/Page K3-K5



Index ABC
页/Page K6-K7



NAKAMURA
页/Page K8



A.H. Schütte
页/Page K9-K10



TORNOS
页/Page K11-K12



TRAUB TNL18
页/Page K13



TRAUB TNL 12-7,
TNL26, TKN36
页/Page K14

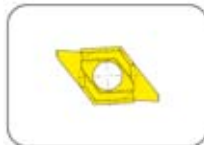


TRAUB TNL 12-7
页/Page K15



TRAUB TNL 12-7
页/Page K16

刀片
Inserts



S275
页/Page K17



314/N314
页/Page K18-K19

技术信息
Technical Information

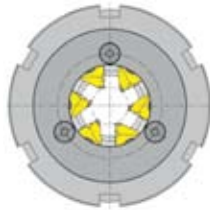
页/Page K20-K26

螺纹旋风铣 THREAD WHIRLING



适用于Swiss机床的螺纹旋风铣
Thread whirling for Swiss type machines

旋风铣刀座
Whirling Head
Ds ≥ Ø 10 mm



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页 / Page L5

订购指南
Order guideline

页 / Page L6



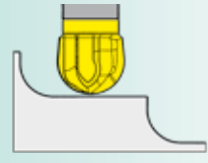
肩铣削/槽铣削
Shoulder milling/Groove milling



倒角
Chamfering



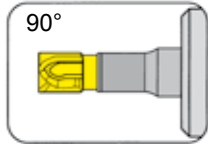
定心/倒角
Centering/Chamfering



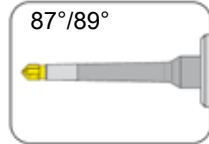
仿形铣
Copy milling

DM008

铣刀杆
Milling shank
Ds Ø 8 mm



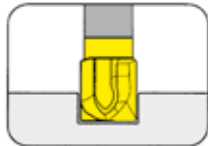
页 / Page M2-M3



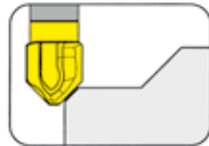
页 / Page M4

DM208

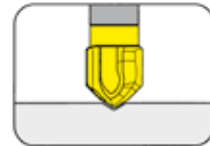
刀片
Cutting insert



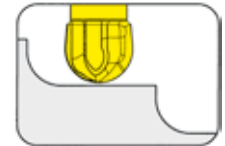
页 / Page M5



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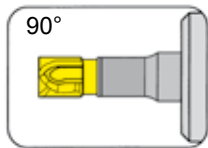
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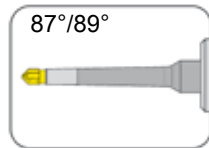
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DM010

铣刀杆
Milling shank
Ds Ø 10 mm



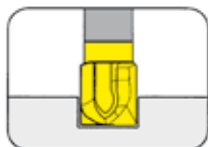
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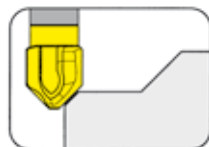
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DM210

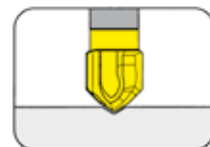
刀片
Cutting insert



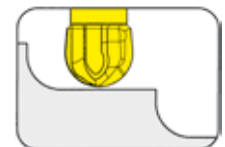
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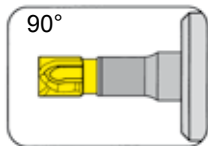
页 / Page M14



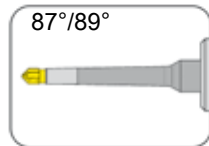
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DM012

铣刀杆
Milling shank
Ds Ø 12 mm



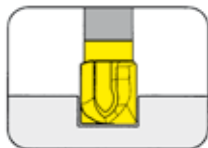
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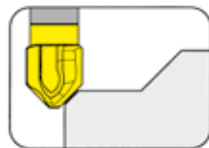
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DM212

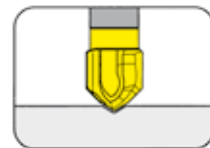
刀片
Cutting insert



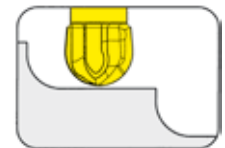
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技术信息
Technical Information

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附加设备
Additional equipment

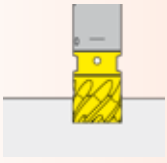
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可更换刀头的铣削系列 DG

MULTI-MILLING SYSTEM DG



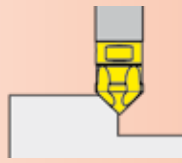
N



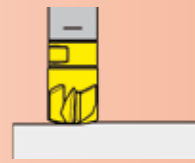
肩铣削/槽铣削
Shoulder milling/Groove milling



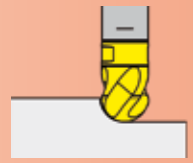
粗立铣
Roughing Endmilling



倒角
Chamfering

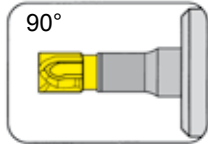


大进给铣削
High Feed Milling

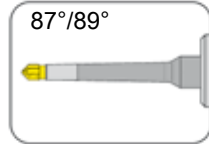


仿形铣
Copy milling

MDG
铣刀杆
Milling shank

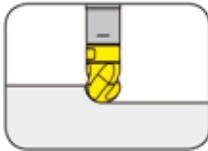


90°
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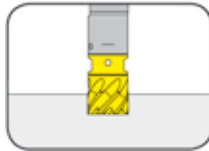


87°/89°
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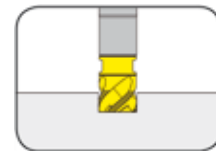
DG
刀片
Cutting insert



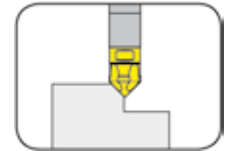
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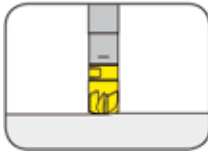
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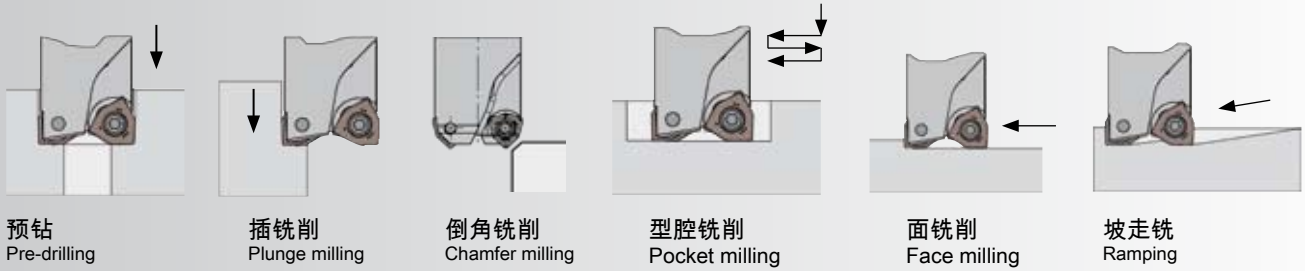
技术信息
Technical Information

页 / Page N13-N14



DA/DAH系列

SYSTEM DA / DAH



预钻
Pre-drilling

插铣削
Plunge milling

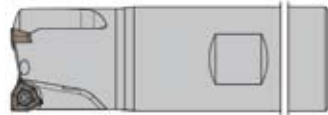
倒角铣削
Chamfer milling

型腔铣削
Pocket milling

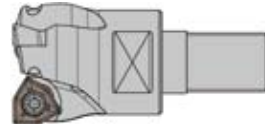
面铣削
Face milling

坡走铣
Ramping

DAM31/DAM32
铣刀杆
Milling shank



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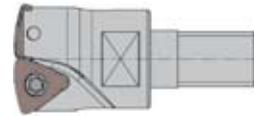


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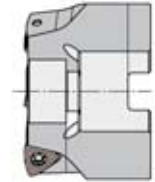
DAHM37
铣刀杆
Milling shank



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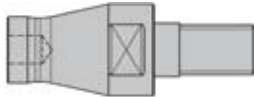
MD
刀柄
Adaptor



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变径
Reducer
页 / Page O10



加长
Extensions
页 / Page O11

DA31/DA32
可转位刀片
Indexable inserts



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DAH37
可转位刀片
Indexable inserts



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技术信息
Technical Information

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DP/DS 系列 立铣刀

SYSTEM DP / DS Endmill



槽铣削
Groove milling

肩铣削
Shoulder milling

仿形铣
Copy milling

倒角铣削
Chamfer milling

槽铣削
Slot milling

型腔铣削
Pocket milling

插铣削
Plunge milling

DP系列 SYSTEM DP

用于
for

P 普通钢
ordinary steels

页 / Page P4-P18

DS系列 SYSTEM DS

用于
for

P 高强度钢
high tensile steels

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S 钴铬
Cobalt Chromium

页 / Page P50-P57

铜
Copper

页 / Page P58-P65

N 石墨
Graphite

页 / Page P66-P75

铝 (合成材料)
Aluminium (Synthetics)

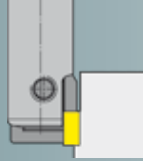
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球头铣削
Ballnose milling

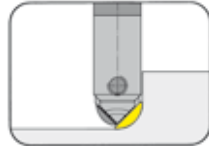


周铣削
Peripheral milling

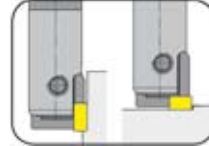


面铣削
Face milling

M117
铣刀杆
Milling shank

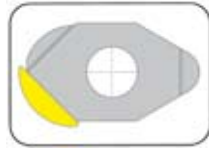


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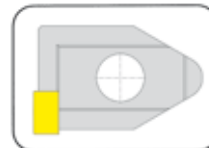


页 / Page Q4-Q6

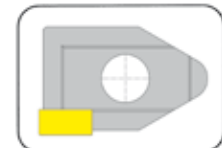
S117
刀片
Insert



页 / Page Q3



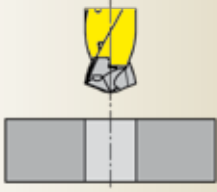
页 / Page Q7



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技术信息
Technical Information

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钻孔
Drilling

DD
钻杆
Drill body
Ds Ø 10.0 - 20.5 mm



页 / Page R2-R4

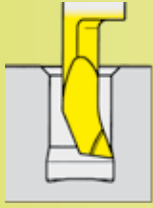
DD2
可换钻头
Indexable drill tip
Ds Ø 10.0 - 20.5 mm



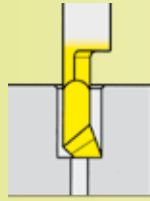
页 / Page R5-R10

技术信息
Technical Information

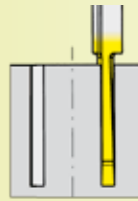
页 / Page R11-R14



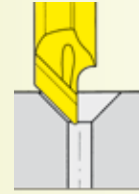
镗孔
Boring



镗孔
Boring

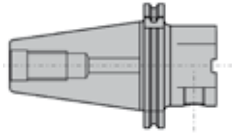


端面切槽
Face Grooving



倒角
Chamfering

URMA
刀柄系列
System adaptors



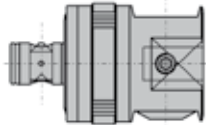
页 / Page S4-S8

- 用于 URMA 精镗头 05
for URMA Fine boring head 05

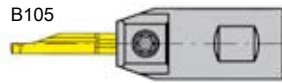
- 用于 URMA IntraMax 49-88
for URMA IntraMax 49-88

- 用于 URMA IntraMax 87-207
for URMA IntraMax 87-207

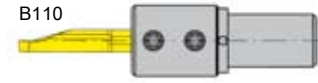
URMA
精镗头 05
Fine boring head 05



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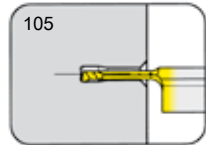


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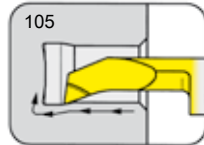


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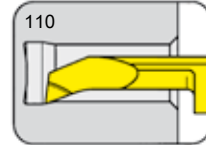
105/110
刀片
Inserts



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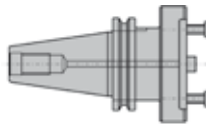


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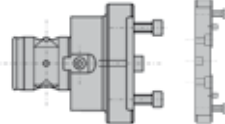


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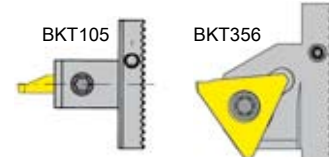
URMA
IntraMax 49-88
Ø 5 - 45 mm



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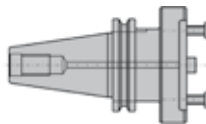


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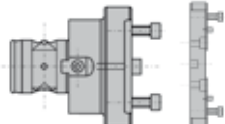


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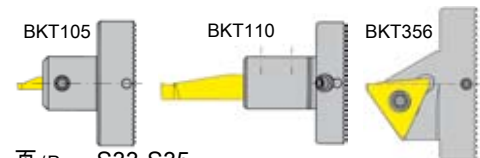
URMA
IntraMax 87-207
Ø 31 - 152 mm



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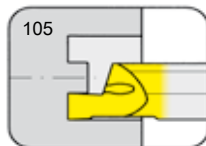


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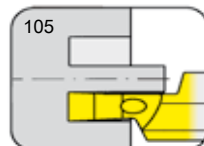


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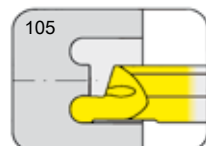
105/A110/315
刀片
Inserts



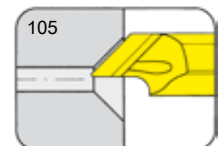
页 / Page S37-S39



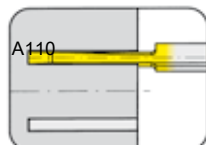
页 / Page S40



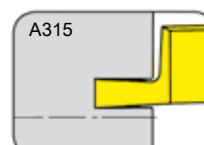
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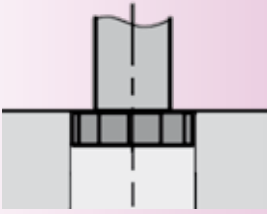
页 / Page S43



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技术信息
Technical Information

页 / Page S45-S48



DR
刀片
Inserts

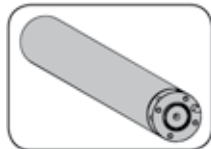


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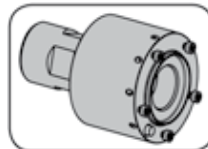


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MDR
铰刀刀杆
Reaming insert holders

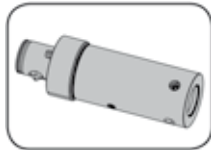


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VDR
刀杆
Shanks



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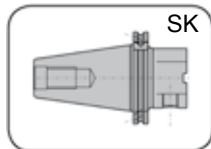
附加设备
Additional equipment

加长 **VAM/VBM** 页 / Page T8
Extension

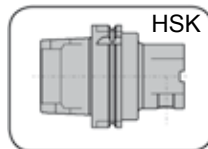
变径套 **RAM/RBM** 页 / Page T9
Reducers

刀杆 **ADR** 页 / Page T10
Adaptor

URMA
刀柄
Adaptor

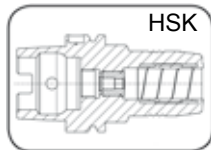


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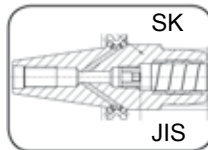


页 / Page T15, T19

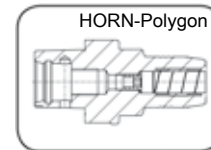
DRHD
刀柄系列
System adaptors



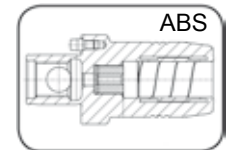
页 / Page T20



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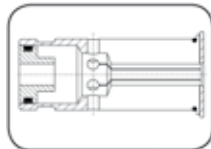


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DRZB
中间套筒
Intermediate sleeves



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技术信息
Technical Information

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DC 系列

- 非全牙型螺纹铣削
- 全牙型螺纹铣削
- 槽铣削
- 倒角铣削



System DC

- Thread milling partial profile
- Thread milling full profile
- Groove milling
- Chamfer milling

DC螺纹铣刀-非全牙型

DC THREAD MILLING CUTTER Partial profile



ISO米制螺纹DIN13-20，非全牙型

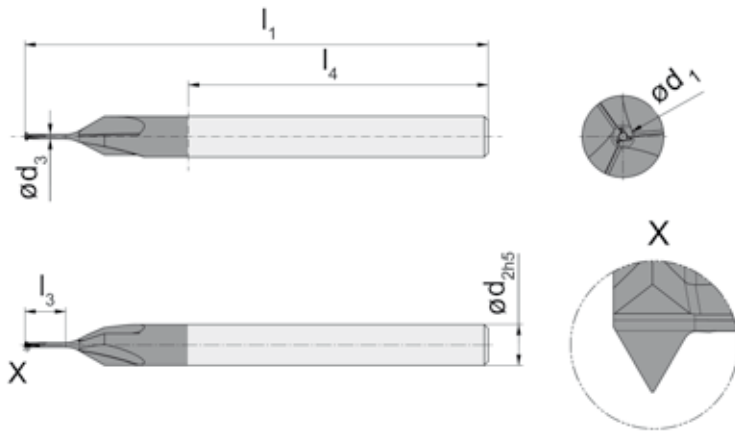
Metric ISO-thread DIN13-20 Partial profile

DCG

螺纹

Thread

M1 - M2.5



产品型号 Part number	螺纹 Thread	D _{min}	Z	P	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCG-3.M1.025.2.1.03	M1	0.75		0.25	0.70		0.33		3		▲	
DCG-3.M11.025.2.1.03	M1.1	0.75		0.25	0.75		0.40		3		▲	
DCG-3.M12.025.2.1.03	M1.2	0.90		0.25	0.80		0.43		3		▲	
DCG-3.M14.025.2.1.03	M1.4	1.10		0.30	1.00		0.43		4		▲	
DCG-3.M16.035.2.1.03	M1.6	1.20	3	0.35	1.10	3	0.53	34	4	22	▲	
DCG-3.M18.035.2.1.03	M1.8	1.50		0.35	1.30		0.73		4		▲	
DCG-3.M2.040.2.1.03	M2	1.70		0.40	1.50		0.93		6		▲	
DCG-3.M22.045.2.1.03	M2.2	1.90		0.45	1.70		1.13		6		▲	
DCG-3.M25.045.2.1.03	M2.5	2.20		0.45	2.00		1.30		8		▲	

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	○	
M	●	
K	●	
N	●	
S	●	
H		

硬质合金牌号
Carbide grades

DC螺纹铣刀-非全牙型

DC THREAD MILLING CUTTER Partial profile

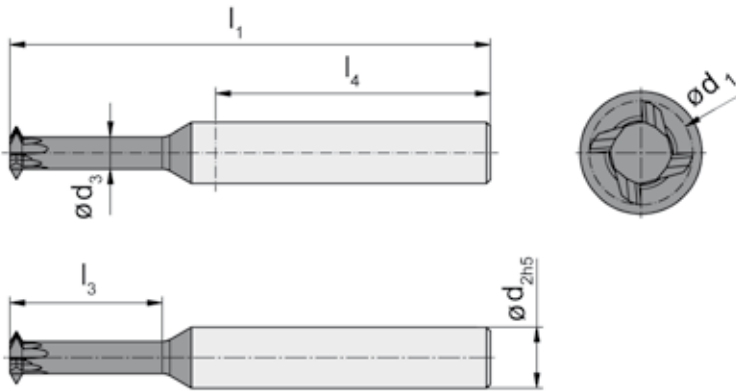


ISO米制螺纹DIN13-20，非全牙型

Metric ISO-thread DIN13-20 Partial profile

DCG

螺纹	Thread	M3 - M12
----	--------	----------



产品型号 Part number	螺纹 Thread	D _{min}	Z	P	P _{max}	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCG.3.M3.025.2.1.04	M3	2.4	3	0.25	0.25	2.0	4	1.45	39	8	22	△	▲
DCG.3.M3.035.2.1.04				0.35	0.35			1.35				△	▲
DCG.3.M3.050.2.1.04				0.50	0.50			1.20				△	▲
DCG.3.M3.5.050.2.1.04	M3.5	2.7	3	0.50	0.60	2.3	4	1.35	39	8	22	△	▲
DCG.3.M4.070.3.1.06	M4	3.3	3	0.70	0.75	2.8	6	1.70	50	10	36	△	▲
DCG.3.M5.050.3.1.06	M5	4.2	3	0.50	0.75	3.6	6	2.50	50	10	36	△	▲
DCG.3.M5.080.3.1.06				0.80	1.00			2.20				△	▲
DCG.4.M6.100.3.1.06	M6	5.0	4	1.00	1.25	4.3	6	2.40	63	10	40	△	▲
DCG.4.M6.100.5.1.06				1.25	1.50			3.40	63	16	40	△	▲
DCG.4.M8.075.5.1.08	M8-M10	6.5	4	0.75	1.00	5.5	8	3.85	63	16	40	△	▲
DCG.4.M8.075.6.1.08				0.75	1.00			3.85	63	20	36	△	▲
DCG.4.M8.075.7.1.08				0.75	1.00			3.85	77	25	40	△	▲
DCG.4.M8.125.6.1.08				1.25	1.50			3.40	63	20	36	△	▲
DCG.4.M8.125.8.1.08				1.25	1.50			3.40	77	30	40	△	▲
DCG.4.M10.150.6.1.08	M10-M12	8.0	4	1.50	1.75	6.8	8	4.10	63	20	36	△	▲
DCG.4.M10.150.8.1.08				1.75	2.00			3.40	77	30	40	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号
Carbide grades

DC螺纹铣刀-全牙型

DC THREAD MILLING CUTTER Full profile



ISO米制螺纹DIN13-20，全牙型

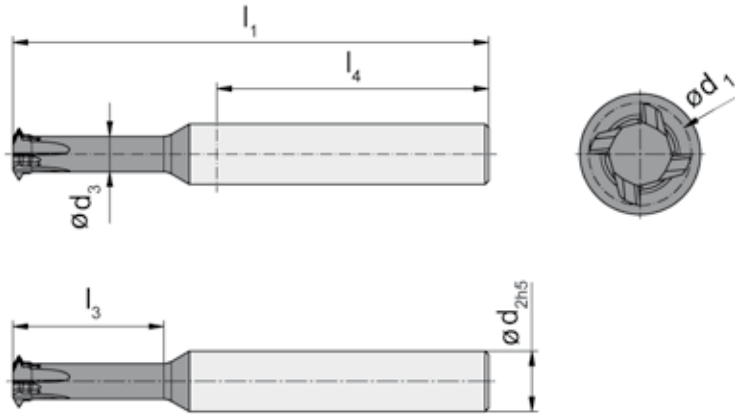
Metric ISO-thread DIN13-20 Full profile

DCG

螺纹

Thread

M3 - M12



产品型号 Part number	螺纹 Thread	D _{min}	Z	P	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCG.3.M3.035.2.2.04	M3	2.4	3	0.35	2.0	4	1.40	39	8	22	△	▲
DCG.3.M3.050.2.2.04				0.50			1.25				△	▲
DCG.3.M35.060.2.2.04	M3.5	2.7	3	0.60	2.3	4	1.80	39	9	22	△	▲
DCG.3.M4.050.3.2.06	M4	3.3	3	0.50	2.8	6	2.50	50	10	36	△	▲
DCG.3.M4.070.3.2.06				0.70			1.90				△	▲
DCG.3.M5.050.3.2.06	M5	4.2	3	0.50	3.6	6	2.85	50	10	36	△	▲
DCG.3.M5.080.3.2.06				0.80			2.50				△	▲
DCG.4.M6.075.5.2.06	M6	5.0	4	0.75	4.2	6	3.10	63	16	40	△	▲
DCG.4.M6.100.5.2.06				1.00			2.80				△	▲
DCG.4.M8.075.5.2.08	M8	6.5	4	0.75	5.5	8	4.30	63	16	40	△	▲
DCG.4.M8.100.5.2.08				1.00			4.00				△	▲
DCG.4.M8.125.5.2.08				1.25			3.70				△	▲
DCG.4.M10.075.6.2.08	M10	8.0	4	0.75	6.8	8	5.60	63	20	36	△	▲
DCG.4.M10.100.6.2.08				1.00			5.40				△	▲
DCG.4.M10.100.7.2.08				1.00			5.40	△	▲			
DCG.4.M10.150.3.2.08				1.50			4.70	△	▲			
DCG.4.M10.150.6.2.08				1.50			4.70	△	▲			
DCG.4.M12.100.6.2.10	M12	10.0	4	1.00	8.0	10	6.30	63	20	36	△	▲
DCG.4.M12.125.8.2.10				1.25			6.10				△	▲
DCG.4.M12.175.6.2.10				1.75			5.50	△	▲			
DCG.4.M12.175.8.2.10				1.75			5.50	△	▲			

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号
Carbide grades

DC螺纹铣刀-Unified

DC THREAD MILLING CUTTER Unified

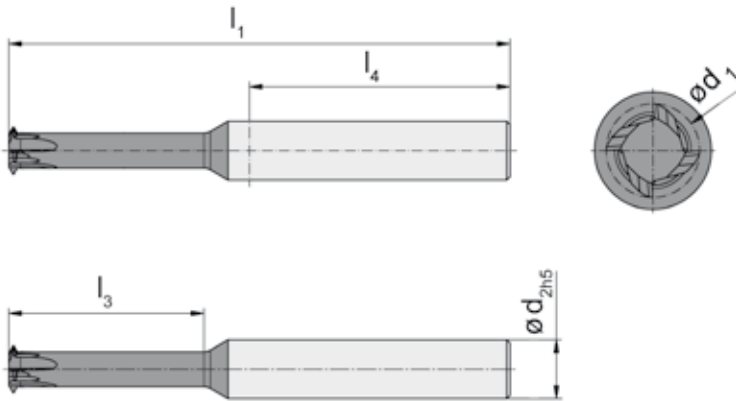


美制统一标准螺纹UNF/UNC/UNEF

American Unified thread UNF / UNC / UNEF

DCG

螺纹	Thread	#5 - 40 7/16" - 20
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产品型号 Part number	螺纹 Thread	D _{min}	Z	P	d ₁	d ₂	l ₁	l ₃	l ₄	MG12	ST35
DCG.3.60.540.2.04	#5 - 40 UNC	2.4		0.635	2.0					△	▲
DCG.3.60.544.2.04	#5 - 44 UNF	2.5	3	0.577	2.0	4	39	8	22	△	▲
DCG.3.60.632.2.04	#6 - 32UNC #8 - 32UNC	2.6		0.794	2.2					△	▲
DCG.3.60.640.2.04	#6 - 40 UNF	2.8	3	0.635	2.3	4	39	8	22	△	▲
DCG.3.60.836.3.06	#8 - 36 UNF	3.4	3	0.706	2.5	6	50	10	36	△	▲
DCG.3.60.1024.3.06	#10 - 24UNC #12 - 24UNC	3.6	3	1.058	2.9	6	50	10	36	△	▲
DCG.4.60.1420.3.06	1/4" - 20 UNC	4.9		1.270	3.5					△	▲
DCG.4.60.1428.3.06	1/4" - 28 UNF	5.3	4	0.907	3.5	6	63	10	40	△	▲
DCG.4.60.51618.3.06	5/16" - 18 UNC	6.4		1.411	4.2					△	▲
DCG.4.60.3816.7.08	3/8" - 16 UNC	7.8	4	1.588	5.5	8	77	25	40	△	▲
DCG.4.60.71614.7.08	7/16" - 14 UNC	9.1	4	1.814	6.8	8	77	25	40	△	▲
DCG.4.60.71620.7.08	7/16" - 20 UNF	9.1	4	1.270	7.2	8	77	30	40	△	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号

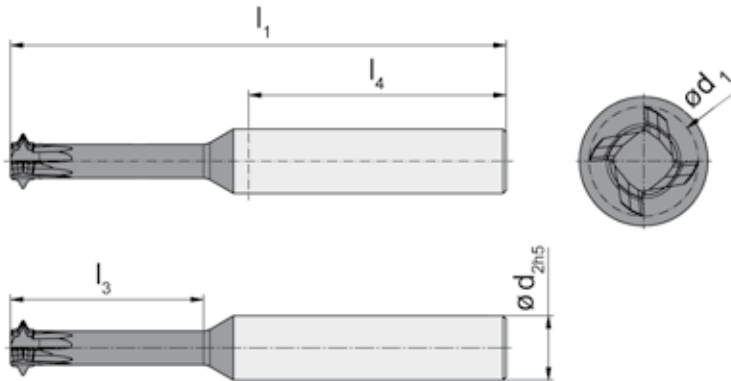
Carbide grades

惠氏螺纹“中等级”BSW/BSF

Whitworth thread "medium class" BSW / BSF

DCG

螺纹	Thread	1/8"-1/2"
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产品型号 Part number	螺纹 Thread	D _{min}	Z	P	d ₁	d ₂	l ₁	l ₃	l ₄	MG12	ST35
DCG-3.55.1840.2.04	1/8" - 40 BSW	2.3	3	0.635	2.0	4	39	8	22	△	▲
DCG-3.55.53232.2.04	5/32" - 32 BSW	2.9	3	0.794	2.3	4	39	8	22	△	▲
DCG-3.55.31624.3.06	3/16" - 24 BSW	3.4	3	1.058	2.8	6	50	10	36	△	▲
DCG-3.55.31632.3.06	3/16" - 32 BSF	3.7	3	0.794	2.8	6	50	10	36	△	▲
DCG-3.55.73224.3.06	7/32" - 24 BSW	4.2	3	1.058	3.6	6	50	10	36	△	▲
DCG-3.55.73228.3.06	7/32" - 28 BSF	4.3	3	0.907	3.6	6	50	10	36	△	▲
DCG-3.55.1420.5.06	1/4" - 20 BSW	4.7	3	1.270	4.0	6	63	16	40	△	▲
DCG-3.55.1426.5.06	1/4" - 26 BSF	5.0	3	0.977	4.2	6	63	16	40	△	▲
DCG-4.55.93226.5.06	9/32" - 26 BSF	5.8	4	0.977	5.0	6	63	16	40	△	▲
DCG-4.55.51618.5.06	5/16" - 18 BSW	6.1	4	1.411	5.2	6	63	16	40	△	▲
DCG-4.55.51622.5.08	5/16" - 22 BSF	6.4	4	1.155	5.3	8	63	16	40	△	▲
DCG-4.55.3816.5.08	3/8" - 16 BSW	7.4	4	1.588	6.3	8	63	16	40	△	▲
DCG-4.55.3820.5.08	3/8" - 20 BSF	7.8	4	1.270	6.5	8	63	16	40	△	▲
DCG-4.55.71614.5.08	7/16" - 14 BSW	8.7	4	1.814	7.2	8	63	16	40	△	▲
DCG-4.55.71614.7.08	7/16" - 14 BSF	8.7	4	1.814	7.2	8	77	25	40	△	▲
DCG-4.55.71618.5.08	7/16" - 18 BSW	9.3	4	1.411	7.5	8	63	16	40	△	▲
DCG-4.55.71618.7.08	7/16" - 18 BSF	9.3	4	1.411	7.5	8	77	25	40	△	▲
DCG-4.55.1212.6.10	1/2" - 12 BSW	9.9	4	2.117	8.5	10	63	20	40	△	▲
DCG-4.55.1212.8.10	1/2" - 12 BSF	9.9	4	2.117	8.5	10	77	30	40	△	▲
DCG-4.55.1216.6.10	1/2" - 16 BSW	10.6	4	1.588	9.5	10	63	20	40	△	▲
DCG-4.55.1216.8.10	1/2" - 16 BSF	10.6	4	1.588	9.5	10	77	30	40	△	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号

Carbide grades

DC螺纹铣刀-惠氏

DC THREAD MILLING CUTTER Whitworth



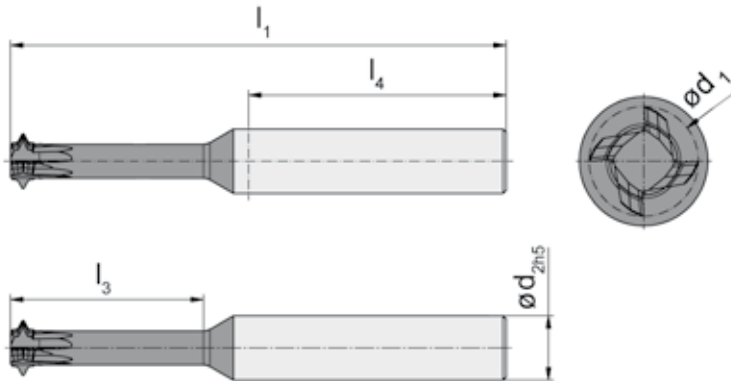
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惠氏管螺纹

Whitworth pipe thread BSP

DCG

螺纹	Thread	G 1/16"-3/8"
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产品型号 Part number	螺纹 Thread	D _{min}	Z	P	d ₁	d ₂	l ₁	l ₃	l ₄	MG12	ST35
DCG.4.55.G116.5.06	G 1/16"	6.5		0.91	5.5	6	63	16	40	△	▲
DCG.4.55.G18.5.08	G 1/8"	8.5		0.91	6.6	8	63	16	40	△	▲
DCG.4.55.G14.6.10	G 1/4"	11.4	4	1.34	9.5	10	63	20	36	△	▲
DCG.4.55.G38.8.10	G 3/8"	14.9		1.34	11.8	12	77	30	40	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号
Carbide grades

DC槽铣刀-圆头

DC GROOVE MILLING CUTTER Full radius

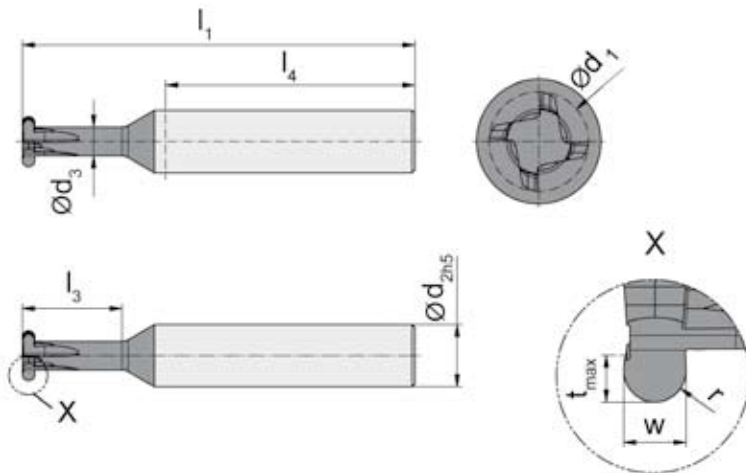


槽铣削

Groove milling

DCR

切削刃Ø	Cutting edge Ø	4.0 - 10.0 mm
圆头	Full radius	r 0.5 - 1.5 mm
槽深	Depth of groove	0.5 - 2.0 mm



产品型号 Part number	Z	w	t _{max}	r	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCR-3.40.10.05.1.06	3	1.0	0.5	0.50	4	6	2.75	50	4	36	△	▲
DCR-3.60.10.05.1.06		1.0		0.50				50	4	36	△	▲
DCR-3.60.10.05.2.06	3	1.0	1.0	0.50	6	6	3.70	63	6	40	△	▲
DCR-3.60.15.75.2.06		1.5		0.75				63	6	40	△	▲
DCR-4.80.15.75.3.08		1.5		0.75					8		△	▲
DCR-4.80.20.10.3.08		2.0		1.00					8		△	▲
DCR-4.80.15.75.5.08	4	1.5	1.5	0.75	8	8	4.60	63	16	40	△	▲
DCR-4.80.20.10.5.08		2.0		1.00					16		△	▲
DCR-4.100.10.05.6.10		1.0		0.50							△	▲
DCR-4.100.15.75.6.10		1.5		0.75							△	▲
DCR-4.100.20.10.6.10	4	2.0	2.0	1.00	10	10	5.50	77	20	55	△	▲
DCR-4.100.25.12.6.10		2.5		1.25							△	▲
DCR-4.100.30.15.6.10		3.0		1.50							△	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号

Carbide grades

DC槽铣刀

DC GROOVE MILLING CUTTER



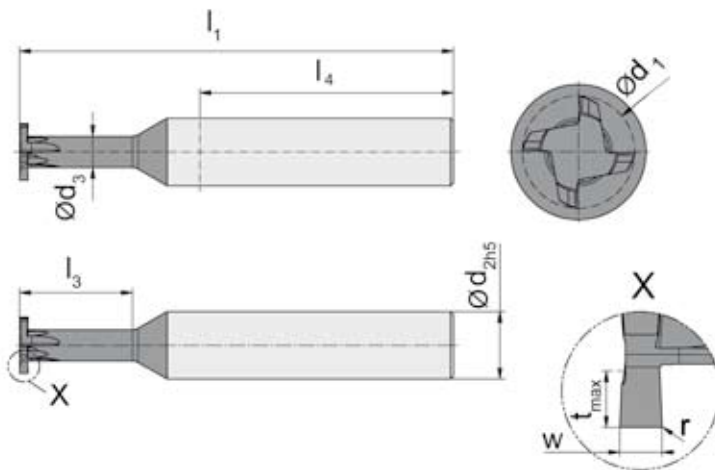
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槽铣削

Groove milling

DCN

切削刃Ø	Cutting edge Ø	4.0 - 10.0 mm
槽宽	Width of groove	0.5 - 3.0 mm
槽深	Depth of groove	0.5 - 2.0 mm



产品型号 Part number	Z	w	t _{max}	r	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCN.3.40.05.00.1.06	3	0.5	0.5	-	4	6	2.8	50	4	36	▲	▲
DCN.3.40.10.00.1.06		1.0									▲	▲
DCN.3.60.10.00.1.06	3	1.0	1.0	-	6	6	3.7	50	4	36	▲	▲
DCN.3.60.10.00.2.06		1.0									▲	▲
DCN.3.60.15.15.2.06		1.5									▲	▲
DCN.4.80.15.15.3.08	4	1.5	1.5	0.15	8	8	4.6	63	8	40	▲	▲
DCN.4.80.20.15.3.08		2.0									▲	▲
DCN.4.80.15.15.5.08		1.5									▲	▲
DCN.4.80.20.15.5.08		2.0									▲	▲
DCN.4.100.10.00.6.10	4	1.0	2.0	-	10	10	5.5	77	20	50	▲	▲
DCN.4.100.15.00.6.10		1.5									▲	▲
DCN.4.100.20.15.6.10		2.0									▲	▲
DCN.4.100.25.15.6.10		2.5									▲	▲
DCN.4.100.30.15.6.10		3.0									▲	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号
Carbide grades

DC槽铣刀

DC GROOVE MILLING CUTTER

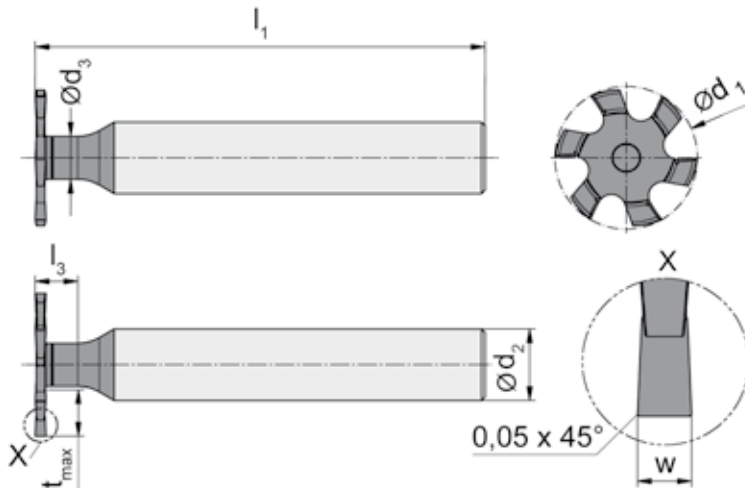


槽铣削

Groove milling

DCX

切削刃Ø	Cutting edge Ø	20.0 - 40.0 mm
槽宽	Width of groove	1.5 - 3.0 mm
槽深	Depth of groove	7.0 - 15.0 mm



产品型号 Part number	Z	w	t _{max}	d ₁	d ₂	d ₃	l ₁	l ₃	AS45
DCX.6.20.150.2.05.10		1.5							▲
DCX.6.20.200.2.05.10	6	2.0	7	20	10	5	63	6	▲
DCX.6.20.250.2.05.10		2.5							▲
DCX.6.25.150.2.06.10		1.5							▲
DCX.6.25.200.2.06.10	6	2.0	9	25	10	6	63	6	▲
DCX.6.25.250.2.06.10		2.5							▲
DCX.6.30.150.4.07.12		1.5							▲
DCX.6.30.200.4.07.12	6	2.0	11	30	12	7	80	9	▲
DCX.6.30.250.4.07.12		2.5							▲
DCX.6.30.300.4.07.12		3.0							▲
DCX.6.35.150.4.08.12		1.5							▲
DCX.6.35.200.4.08.12	6	2.0	13	35	12	8	80	11	▲
DCX.6.35.250.4.08.12		2.5							▲
DCX.6.35.300.4.08.12		3.0							▲
DCX.8.40.150.4.09.12		1.5							▲
DCX.8.40.250.4.09.12	8	2.5	15	40	12	9	80	11	▲
DCX.8.40.300.4.09.12		3.0							▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	●
M	●
K	●
N	○
S	●
H	●

硬质合金牌号

Carbide grades

DC倒角铣刀

DC CHAMFER MILLING CUTTER



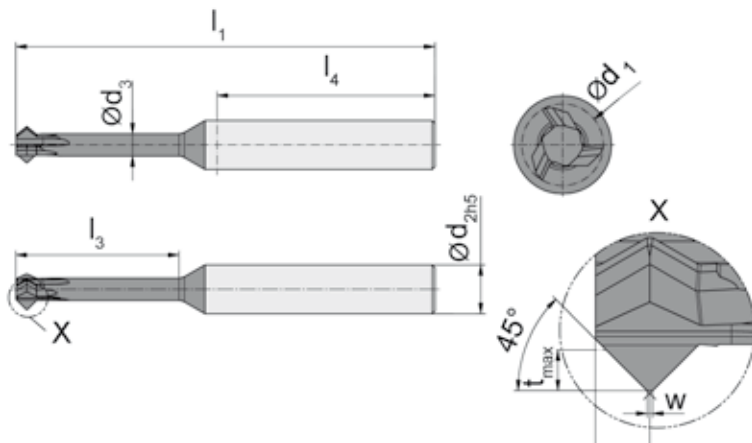
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倒角铣削

Chamfer milling

DCF

切削刃Ø	Cutting edge Ø	2.0 - 7.5 mm
倒角宽度	Width of chamfer	45°
倒角尺寸	Size of chamfer	0.3 - 1.5 mm



产品型号 Part number	Z	w	倒角 Chamfer	t _{max}	d ₁	d ₂	d ₃	l ₁	l ₃	l ₄	MG12	ST35
DCF.3.20.4545.1.04	3	0.2	45°	0.30	2.0	4	1.25	39	4	22	△	▲
DCF.3.30.4545.2.04	3	0.2	45°	0.30	3.0	4	2.10	39	6	22	△	▲
DCF.3.40.4545.3.06	3	0.2	45°	0.75	4.0	6	2.20	50	8	36	△	▲
DCF.3.50.4545.3.06	3	0.2	45°	1.00	5.0	6	2.70	50	10	36	△	▲
DCF.3.60.4545.5.06	3	0.2	45°	1.50	6.0	6	2.80	63	16	40	△	▲
DCF.3.60.4545.6.06	3	0.2	45°	1.50	6.0	6	2.80	63	20	40	△	▲
DCF.3.75.4545.6.08	3	0.2	45°	1.50	7.5	8	4.10	77	20	40	△	▲
DCF.3.75.4545.8.08	3	0.2	45°	1.50	7.5	8	4.10	77	30	40	△	▲
DCF.4.75.4545.8.08	4	0.2	45°	1.50	7.5	8	4.10	77	30	40	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	○	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○

硬质合金牌号
Carbide grades

切削速度标准值 v_c 和进给/齿 f_z
Standard values for cutting speeds v_c and Feed/tooth f_z

材料 Material	硬度 Hardness Brinell (HB)	切削速度 v_c Cutting speed v_c		进给/齿 f_z Feed/tooth f_z				
		MG12	ST35					
P	碳钢 Carbon steel	0,2% C	140		180 - 250	0,01 - 0,03		
		0,4% C	180		160 - 220			
		0,6% C	200		140 - 200			
	合金钢 Alloyed steel	退火 annealed	180		150 - 200			
		淬火 quenched	280					
		淬火 quenched	350					
	高合金钢 high alloyed steel (>5%)	退火 annealed	200		100 - 140			
		硬化 hardened	-					
	铸钢 Cast steel	非合金 unalloyed	180		130 - 170			
合金 alloyed		220						
M	不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200		90 - 150	0,02		
		奥氏体 austenitic	180					
K	灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180		190 - 230	0,01 - 0,03		
		高拉伸强度 high tensile strength	250					
	球墨铸铁 Spheroidal graphite cast iron	铁素体 ferritic	160		160 - 220			
		珠光体 perlitic	250					
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125		160 - 220			
		珠光体 perlitic	225					
N	铝合金 Al-alloys	非热处理 not heat treatable	30-80		可达 max. up to max.	0,02 - 0,04		
		热处理 heat treatable	80-120					
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80		200 - 600			
		热处理 heat treatable	100					
	铜合金 Copper-alloys	非热处理 not heat treatable	90		200 - 400			
		热处理 heat treatable	100					
	S	耐热合金 Heat resistant alloy (Fe)	退火 annealed	200			60 - 120	0,01 - 0,02
			硬化 hardened	275				
耐热合金 Heat resistant alloy (Ni, Co)		退火 annealed	250		30 - 90			
		硬化 hardened	350					

进给率和时间的计算

使用HORN的HTC程序可以简单而方便的计算出所需要的速度和进给。推荐您使用该程序计算切削参数，可以得到最好的切削性能和结果。可以在下页查看其基本功能。

HCT (HORN Circular Technology)

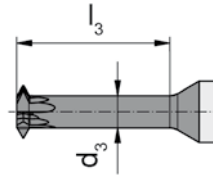
-安全快捷-
您需要的圆弧插补铣槽及直槽铣削的切削参数。
系统要求：Windows 95，可用于CD-ROM上。

常规推荐

铣刀悬伸

尽可能选择最短的夹持装置或铣刀柄，以控制刀具的跳动公差。

大宽度和大悬伸的加工需要特殊的加工方法，例如将槽宽分多次加工出来，以降低切削力，达到最好的加工效果。



铣刀直径

当使用大直径刀具时，刀的直径越接近于孔的直径，加工周期将由于较小的旋转中心和较高的进给率而缩短，通常情况下，刀具的直径由工件的参数和应用设置所决定。

螺纹铣削

使用HORN的螺纹铣刀时螺纹轮廓在满切情况下形成。这时螺纹锥度最小，尤其工件材质为高合金钢时。底孔为盲孔时推荐自底部至顶部的加工方法。否则可能会因为盲孔底部的切屑损坏刀具。

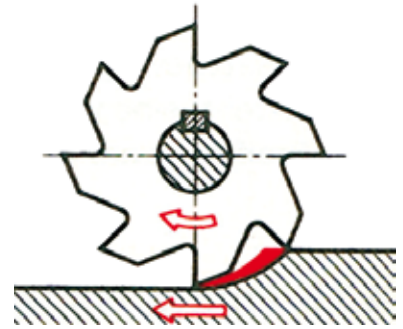
螺纹加工方法推荐：

铣刀直径不能超过螺纹小径的70%，否则会重复切削使整个螺纹尺寸超差。



铣削方向

大多数HORN的铣刀是右手型，加工中推荐硬质合金刀具普遍采用的顺铣方式。

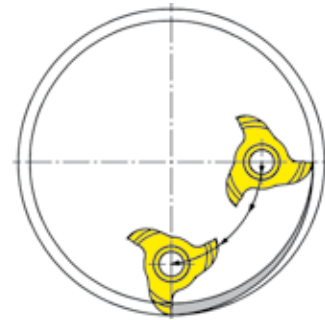


铣入工件

铣削时一个简单的径向切入会产生一个很大的接触角，这将导致振刀，并在之后的切削中一直存在，直到槽底。

推荐切入槽时以切入角 45° 到 180° 至槽底。计算得出的切削参数为满切时，但也适用于其他切削情况。

倾斜角度 $> 45^\circ$



Feed rates and time calculation

It is simple and easy to calculate your speed and feeds using HORN'S HCT programme. We recommend that you calculate the cutting data with this programme as it will provide you with the best cutting performance and results. Basic features of the calculations can be found on the following pages.

HCT (HORN Circular Technology)

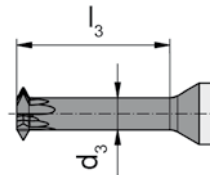
- safe and fast -
Your cutting data for groove milling by circular interpolation of internal and external grooves as well as groove milling of linear grooves.
System requirements from Windows 95.
Available on CD-ROM.

BASIC RECOMMENDATIONS

Overhang of the milling cutter

Select the shortest possible clamping device and milling shank, to control the runout tolerance of the tools.

Large cutting widths in combination with long overhangs require specific manufacturing methods such as dividing the cutting width to achieve the best possible cutting result due to reduced cutting forces.



Diameter of the milling cutter

When using a large diameter cutter, whose relationship is close to the bore diameter, manufacturing cycle time can be reduced, due to the smaller center of rotation and higher feed rates. Many times the rotation of the milling cutter center will be defined by the parameters of the workpiece and the whole application setup.

Thread milling

With HORN thread milling inserts the thread profile is generated in one full cut to the profile depth of the thread. This produces threads with minimal taper especially in high alloyed steels.

In blind holes it is recommended to mill from the bottom to the top. Otherwise there is the risk of damaging the tool because of milling into chips at the bottom of the blind hole.

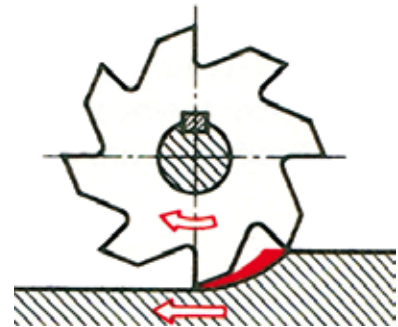
A general recommendation for thread milling:

The milling cutter diameter should not exceed 70% of the minor diameter of the thread. Otherwise recutting of the profile occurs which could bring the whole thread out of tolerance.



Milling direction

Most HORN milling tools are right handed , and it is recommended to use them with the climb milling process as this is generally recommend for carbide tools.

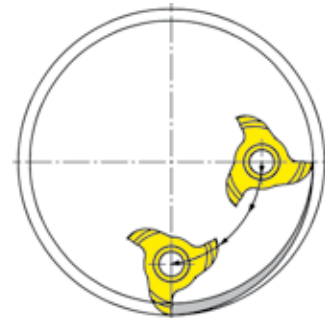


Milling entry into the workpiece

A simple radial entry of the milling cutter creates a very long contact angle which leads to vibrations which will not disappear for the rest of the milling operation and are visual on the bottom of the groove.

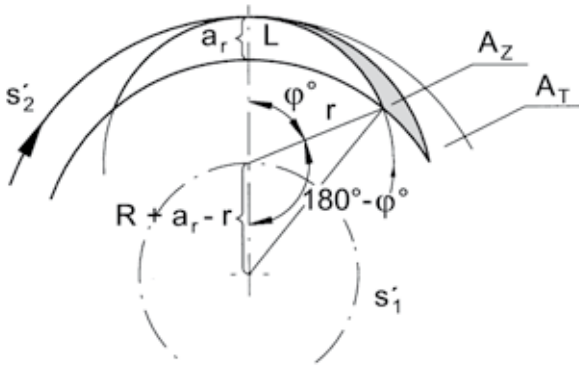
It is recommended to enter the groove with a ramp angle of 45° up to 180° to the maximum depth of cut. The calculated cutting data refers to the milling condition when the insert is in the full cut but can be also used for the entry loop.

Ramp angle $> 45^\circ$



内槽铣削

MILLING OF AN INTERNAL GROOVE



$$\cos [180^\circ - \varphi^\circ] = \frac{r^2 + [R + a_r - r]^2 - R^2}{2r [R + a_r - r]} \longrightarrow 180^\circ - \varphi^\circ \longrightarrow \varphi^\circ$$

$L = \frac{\pi \cdot 2r \cdot \varphi^\circ}{360^\circ} \text{ mm}$	切削长度 Length of cut
$A_z = L \cdot h_m \text{ mm}^2$	切屑面积 Area of chip
$A_T = \pi [(R + a_r)^2 - R^2] \text{ mm}^2$	槽截面的面积 Area of groove section

$t = \frac{A_T}{n \cdot z \cdot A_z} \text{ min}$	加工时间 (用于 A_T) Time for cut (for A_T)
$s'_1 = \frac{\pi \cdot 2 (R - r + a_r)}{t} \text{ mm/min}$	刀具中心的进给 Feed rate of tool centre
$s'_2 = s'_1 \frac{R + a_r}{R - r + a_r} \text{ mm/min}$	刀尖进给 Feed rate of tool tip

规格

Specification

	规格 Specification	ISO 规格 Specification
进给率 Feed rate	s'	v_f
转速 Revolutions	n	n
齿数 Number of teeth	z	z
进给/齿 Feed/tooth	s_z	f_z
切屑中间厚度 medium thickness of chip	h_m	h_m
径向切削深度 radial depth of cut	a_r	a_e

	规格 Specification	ISO 规格 Specification
刀具半径 Radius of cutter	r	r
工件半径 Radius of workpiece	R	R
刀具中心的进给 Feed rate of tool centre	s'_1	v_{f3}
刀尖进给 Feed rate of tool tip	s'_2	v_{f2}

Z = 齿数
Number of teeth

d = 切削刃 Ø [mm]
Cutting edge Ø [mm]

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d \cdot \pi} \text{ [1/min]}$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d \cdot \pi \cdot n}{1000} \text{ [m/min]}$$

f_z = 进给/齿
Feed/tooth

$$f_z = \frac{v_f}{Z \cdot n} \text{ [mm]}$$

f = 每转进给
Feed per revolutions

$$f = f_z \cdot Z \text{ [mm/转] [mm/rev]}$$

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \text{ [mm/min]}$$

注释 / Notes

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

铣刀杆 型号 **M306**

自孔

Ø 10,0 mm



MILLING SHANK type **M306**

from bore

Ø 10,0 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



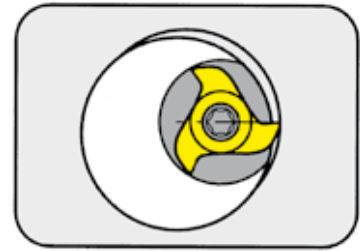
B

铣刀杆 型号

MILLING SHANK Type

M306

带内冷
with through coolant supply



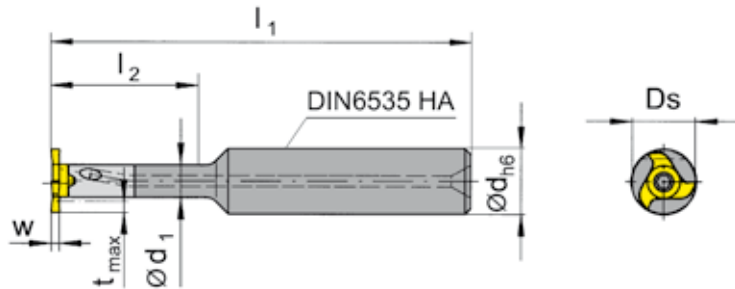
切削刃 \varnothing

Cutting edge \varnothing

Ds 9,6/11,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 108
Type 306
606

产品型号 Part number	l_1	l_2	d_1	d
M306.0012.01A	80	21		
M306.0012.02A	90	30	6.0	12
M306.0012.03A	100	42		
M306.0712.02A	90	30	7.3	12
M306.0716.01A	100	25	7.3	16
M306.0716.02A	110	35		

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

所有刀杆都可以配合右手型或左手型108系列的刀片。
HORN可以返修损坏的铣刀杆基座。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 108.

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.0...	2.6.5T8EP	T8PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



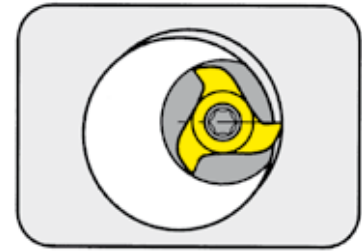
B

铣刀杆 型号

MILLING SHANK Type

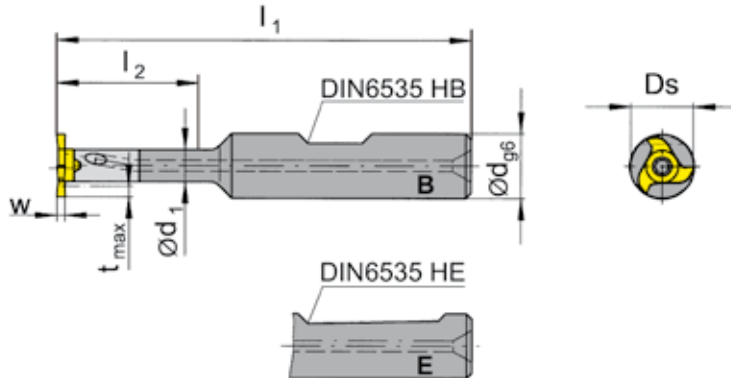
M306

带内冷
with through coolant supply



切削刃Ø Cutting edge Ø Ds 9,6/11,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合 刀片
for use with Insert

型号 108
Type 306
606

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M306.0012.01B	80	21			
M306.0012.02B	90	30	6.0	12	B
M306.0012.03B	100	42			
M306.0712.02B	90	30	7.3	12	B
M306.0716.01B	100	25	7.3	16	B
M306.0012.01E	80	21			
M306.0012.02E	90	30	6.0	12	E
M306.0012.03E	100	42			
M306.0712.02E	90	30	7.3	12	E
M306.0716.01E	100	25	7.3	16	E

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：
所有刀杆都可以配合右手型或左手型108系列的刀片。
HORN可以返修损坏的铣刀杆基座。

Ordering note:
All milling cutter shanks can be used for **right** and **left** hand inserts type 108.

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.0...	2.6.5T8EP	T8PL

槽铣削/面铣削

GROOVE MILLING / FACE MILLING



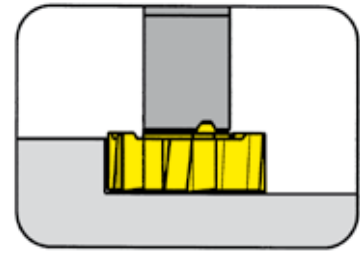
B

铣刀杆 型号

MILLING SHANK Type

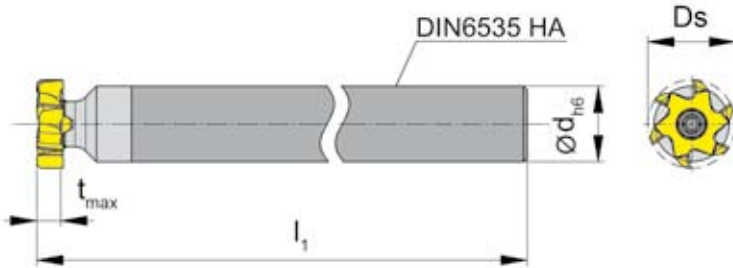
M306

无内冷
no coolant supply



用于筒夹的硬质合金圆柱刀柄
Cylindrical carbide shank for collets

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合 刀片
for use with Insert

型号 606
Type

产品型号 Part number	l_1	d
M306.0707.03A	100	7.5
M306.1010.03A	120	10.0

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：
HORN可以返修损坏的铣刀杆基座。

Ordering note:
Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306....	2.6.5T8EP	T8PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

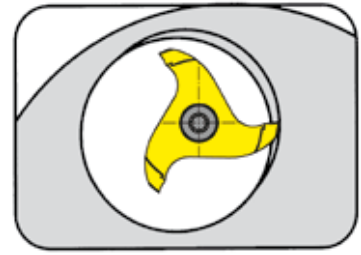


B

铣刀杆 型号

MILLING SHANK Type

M306-ST

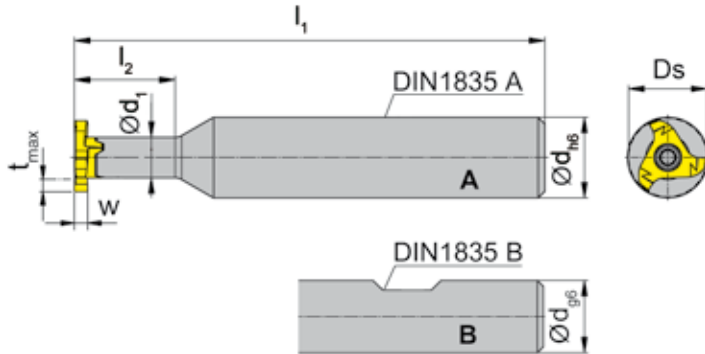


配合筒夹的圆柱钢铣刀杆

Cylindrical steel milling shank for collets

用于CNC车床的圆刀杆

with cylindrical shank for CNC-lathes



配合 刀片

for use with Insert

型号 108
Type 306
606

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M306-ST10.01A	60	15	6	10	A
M306-ST12.01A	70			12	
M306-ST10.01B	60	15	6	10	B
M306-ST12.01B	70			12	

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

所有铣刀杆都适用于右手型和左手型108系列刀片。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 108.

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.ST1...	2.6.5T8EP	T8PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



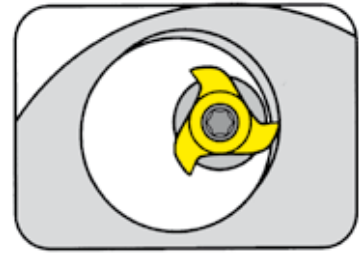
B

铣刀杆 型号

MILLING SHANK Type

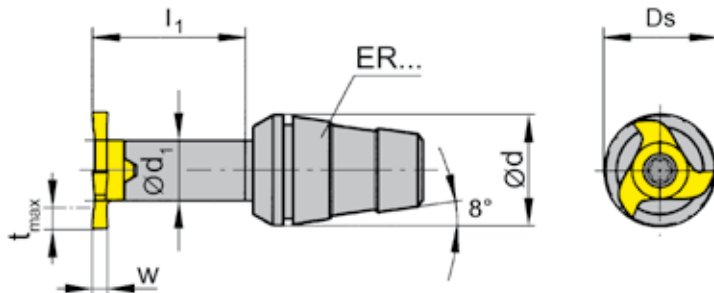
M306.ER

无内冷
no coolant supply



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片

for use with Insert

型号 108
Type 306
606

产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M306.ER11.02	16	6	11	ER11.6499

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

铣刀杆不包含夹紧螺母-需要单独订购 !

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

所有铣刀杆都适用于右手型和左手型108系列刀片。

All milling cutter shanks can be used for **right** and **left** hand inserts type 108.

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.ER11.02	2.6.5T8EP	T8PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

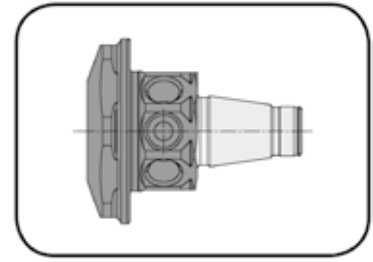


B

常规刀柄 型号

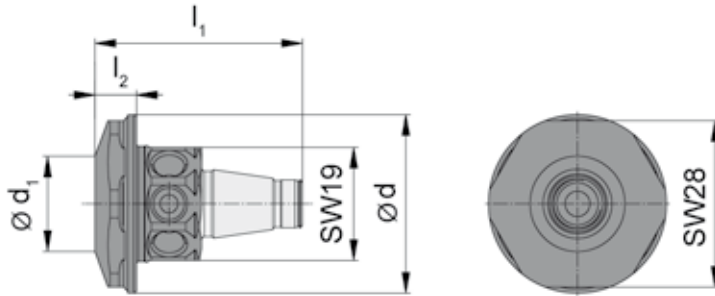
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



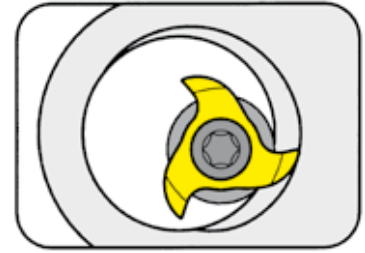
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M306-M

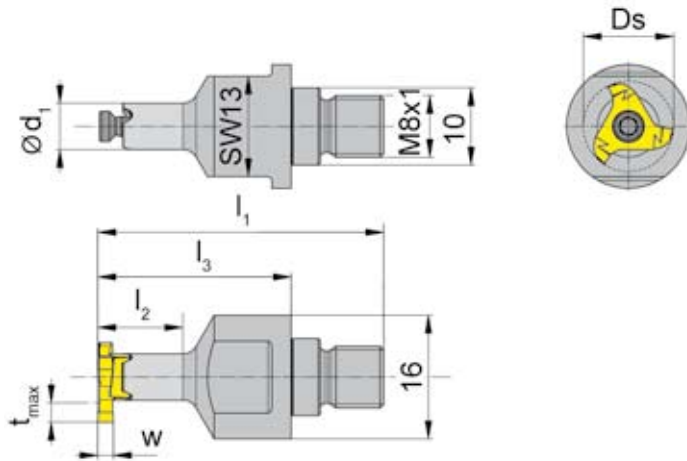
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 108
Type 306
606



产品型号 Part number	l_1	l_2	l_3	d_1
M306.M081.01	37	11	25	6

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.M081.01	2.6.5T8EP	T8PL

槽铣削 (圆弧插补铣削)

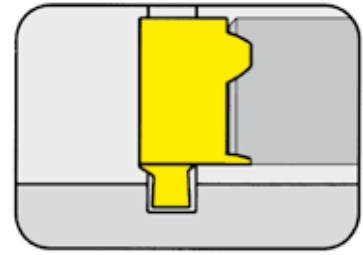
GROOVE MILLING by circular interpolation



B

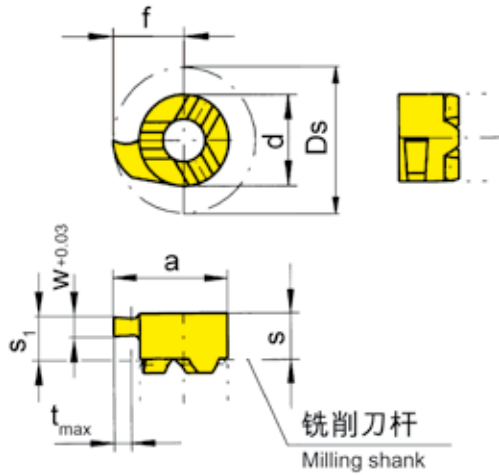
刀片型号
INSERT Type

108



切槽深度可达	Depth of groove up to	1.0 mm
卡簧宽度Nw	Width of circlip Nw	0.7 - 0.9 mm
切削刃Ø	Cutting edge Ø	Ds 9.6 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M306
Type

不能面切削，
有限的切削深度
not face cutting,
limited depth of cut

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	s ₁	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L108.0070.00	0.7	0.74									▲/▲			▲/▲
R/L108.0080.00	0.8	0.84	3.2	3.6	4.8	7.8	6	1	9.6		▲/▲			▲/▲
R/L108.0090.00	0.9	0.94									▲/▲			▲/▲
▲ 库存 / on stock										P	•	•	•	•
● 主要应用 / main recommendation										M	•	•	•	•
○ 可选推荐 / alternative recommendation										K	•	•	•	•
■ 无涂层牌号 / uncoated grades										N	•	•	•	•
■ 涂层牌号 / coated grades										S	•	•	•	•
■ 钎焊/金属陶瓷 / brazed/Cermet										H				

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

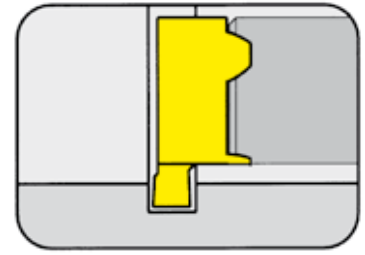


B

刀片 型号

108

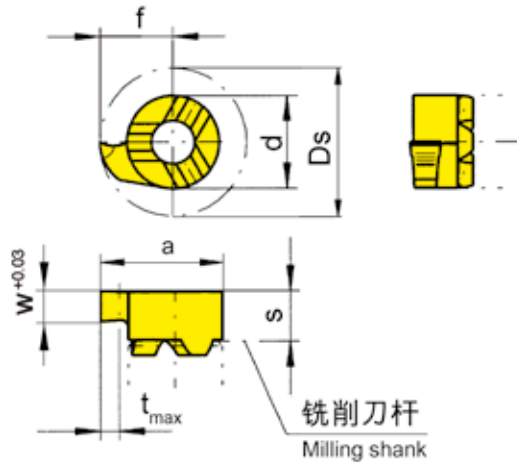
INSERT Type



切槽深度可达	Depth of groove up to	1.0 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 9.6 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M306

Type

R=右手型-如图

R = right hand version shown

L=左手型

L = left hand version

产品型号 Part number	Nw	w	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L108.0110.00	1.1	1.19							▲/▲	▲/▲			▲/▲
R/L108.0130.00	1.3	1.39	3.2	4.8	7.8	6	1	9.6	▲/▲	▲/▲			▲/▲
R/L108.0160.00	1.6	1.69							▲/▲	▲/▲			▲/▲
▲ 库存 / on stock									P	o	•		•
• 主要应用 / main recommendation									M	•	•		•
o 可选推荐 / alternative recommendation									K	•	•		•
■ 无涂层牌号 / uncoated grades									N	•	•		•
■ 涂层牌号 / coated grades									S	•	•		•
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

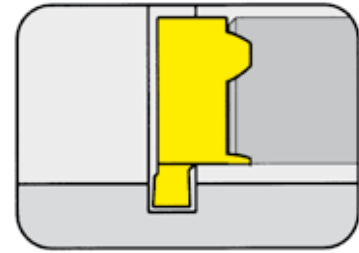
GROOVE MILLING by circular interpolation



B

刀片 型号
INSERT Type

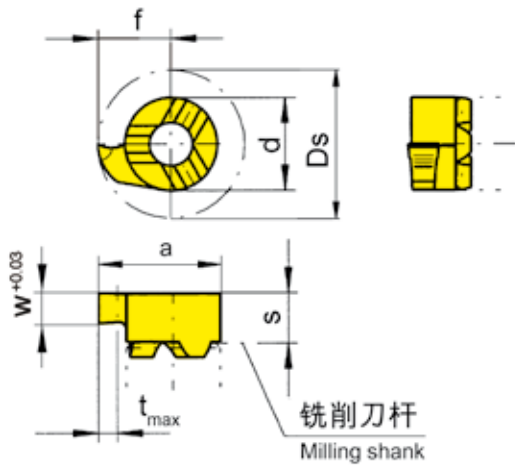
108



切槽深度可达	Depth of groove up to	1.0 mm
槽宽可达	Width of groove up to	1.5 - 2.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 9.6 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	s	f	a	d	t _{max}	Ds		MG12	TN35	TI25	TF45	TH35
R/L108.0150.00	1.5	3.2	4.8	7.8	6	1	9.6		▲/△	▲/▲			▲/△
R/L108.0200.00	2.0								▲/▲	▲/▲			▲/△
									P	o	•	•	•
									M	•	•	•	•
									K	•	•	•	•
									N	•	•	•	•
									S	•	•	•	•
									H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- o 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

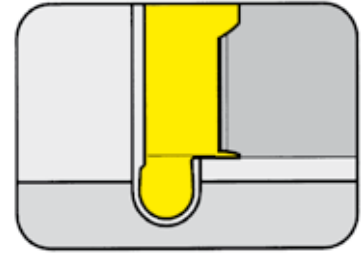


B

刀片型号

108

INSERT Type



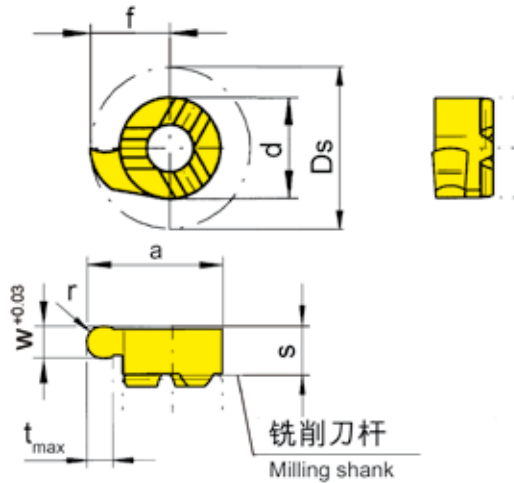
切槽深度可达	Depth of groove up to	1.0 mm
圆头	Full radius	r 0.4 - 0.9 mm
切削刃Ø	Cutting edge Ø	Ds 9.6 mm

配合 铣刀杆

for use with Milling shank

型号 M306

Type



R=右手型-如图

R = right hand version shown

L=左手型

L = left hand version

圆头

Full radius

产品型号 Part number	w	r	s	f	a	d	t _{max}	Ds	硬质合金牌号				
									MG12	TN35	TI25	TF45	TH35
R/L108.0004.08	0.8	0.4							▲/△	▲/▲			▲/▲
R/L108.0006.12	1.2	0.6	3.2	4.8	7.8	6	1	9.6	▲/△	▲/▲			▲/△
R/L108.0009.18	1.8	0.9							▲/△	▲/▲	▲/△		▲/△
▲ 库存 / on stock									P	o	•	•	•
• 主要应用 / main recommendation									M	•	•	•	•
o 可选推荐 / alternative recommendation									K	•	•	•	•
■ 无涂层牌号 / uncoated grades									N	•	•	•	•
■ 涂层牌号 / coated grades									S	•	•	•	•
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

按需提供更多尺寸

Further radii upon request

硬质合金牌号

Carbide grades

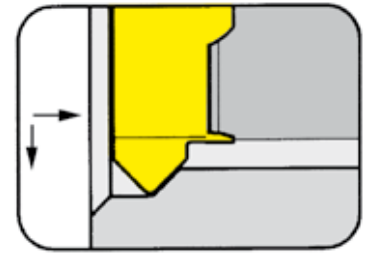
倒角 CHAMFERING



B

刀片型号
INSERT Type

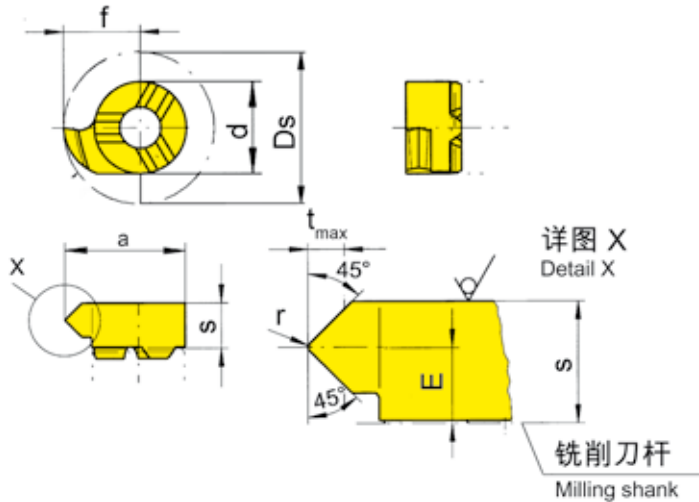
108



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	1.4 mm Ds 9.3 mm
----------------	---	---------------------

配合 铣刀杆
for use with Milling shank

型号 M306
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	E	r	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TA45	TF45	TH35
R/L108.4545.02	1.8	0.2	3.6	4.65	7.65	6	1.4	9.3		▲/▲	▲/▲	▲/		
▲ 库存 / on stock														
● 主要应用 / main recommendation														
○ 可选推荐 / alternative recommendation														
■ 无涂层牌号 / uncoated grades														
■ 涂层牌号 / coated grades														
■ 钎焊/金属陶瓷 / brazed/Cermet														

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

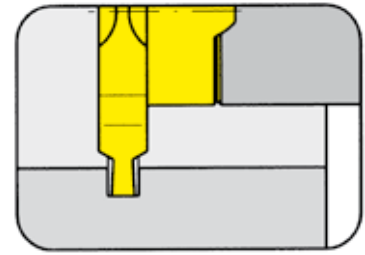


B

刀片 型号

306

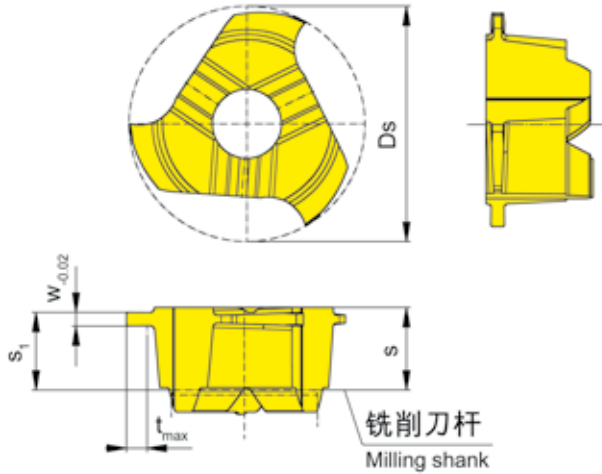
INSERT Type



切槽深度可达	Depth of groove up to	1.15 mm
卡簧宽度Nw	Width of circlip Nw	0.50 - 0.70 mm
切削刃Ø	Cutting edge Ø	Ds 9.70 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M306

Type

不能面切削，
有限的切削深度
not face cutting,
limited depth of cut

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	s ₁	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
306.0050.10.00	0.5	0.57	3.2	3.4	0.85	9.7				▲	
306.0070.10.00	0.7	0.77									
							P			•	
							M			•	
							K			•	
							N			•	
							S			•	
							H				

尺寸单位 : mm

Dimensions in mm

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

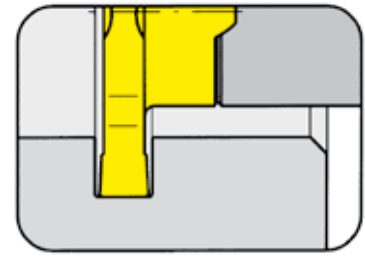
GROOVE MILLING by circular interpolation



B

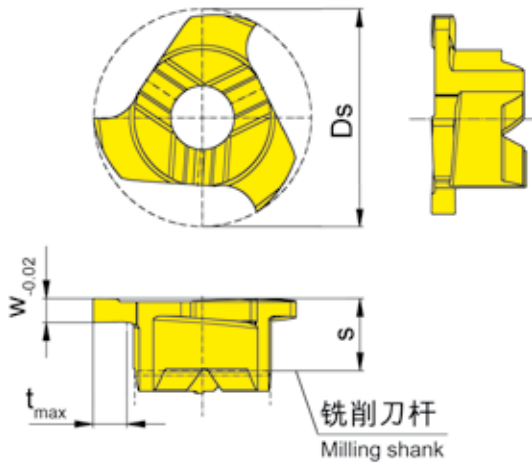
刀片型号
INSERT Type

306



切槽深度可达	Depth of groove up to	1.50 mm
卡簧宽度Nw	Width of circlip Nw	0.80 - 1.60 mm
切削刃Ø	Cutting edge Ø	Ds 9.70 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M306
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
306.0080.10.00	0.8	0.87								▲	
306.0090.10.00	0.9	0.97								▲	
306.0100.10.00	1.0	1.07								▲	
306.0110.10.00	1.1	1.21	3.2	1.5	9.7					▲	
306.0130.10.00	1.3	1.41								▲	▲
306.0160.10.00	1.6	1.71								▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P				•	•
● 主要应用 / main recommendation						M				•	•
○ 可选推荐 / alternative recommendation						K				•	•
■ 无涂层牌号 / uncoated grades						N				•	○
■ 涂层牌号 / coated grades						S				•	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

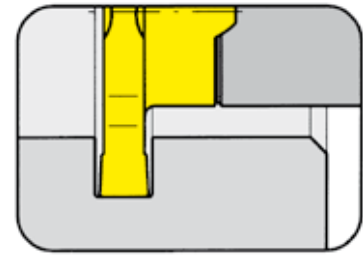


B

刀片 型号

306

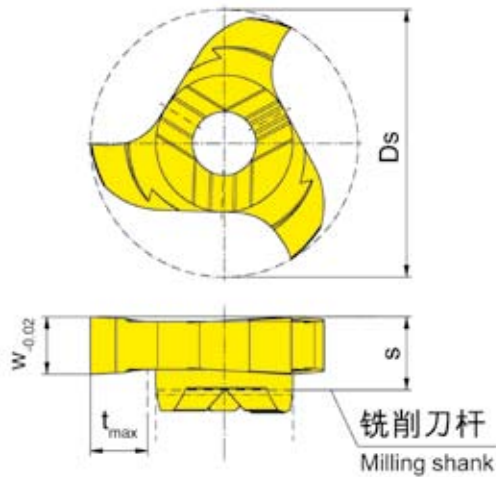
INSERT Type



切槽深度可达	Depth of groove up to	2.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M306

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
306.0110.00	1.1	1.21				▲	▲				▲
306.0130.00	1.3	1.41	3.2	2.5	11.7		▲				
306.0160.00	1.6	1.71					▲				
<ul style="list-style-type: none"> ▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation □ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 						P	○	●	■	■	■
						M	●	●	■	■	■
						K	●	●	■	■	■
						N	●	●	■	■	■
						S	●	●	■	■	■
						H					

尺寸单位 : mm

Dimensions in mm

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

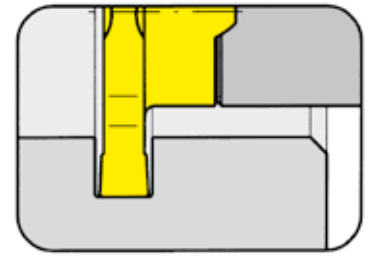
GROOVE MILLING by circular interpolation



B

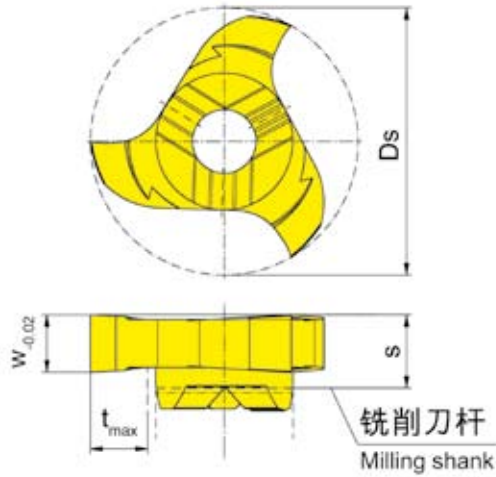
刀片 型号
INSERT Type

306
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	2.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M306
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
306.0110.40	1.1	1.21							▲		
306.0130.40	1.3	1.41	3.2	2.5	11.7				△		
306.0160.40	1.6	1.71							▲		
							P		•		
							M		•		
							K		•		
							N		•		
							S		•		
							H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

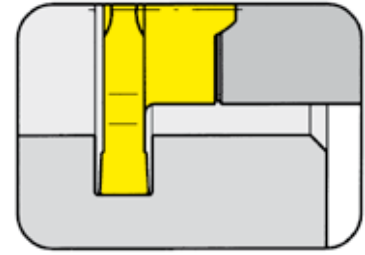


B

刀片 型号

306

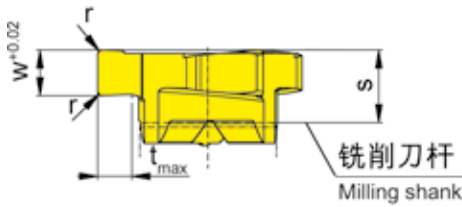
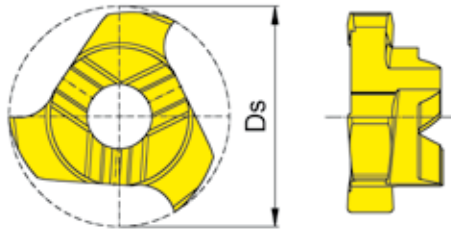
INSERT Type



切槽深度可达	Depth of groove up to	1.5 mm
槽宽	Width of groove	1.5 - 2.0 mm
切削刃Ø	Cutting edge Ø	Ds 9.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
306.0150.10.00	1.5	-	3.2	1.5	9.7				▲	▲	
306.0200.10.00	2.0	0.2	3.2	1.5	9.7				▲	▲	
▲ 库存 / on stock Δ 4周 / 4 weeks						P			•	•	
● 主要应用 / main recommendation						M			•	•	
○ 可选推荐 / alternative recommendation						K			•	•	
■ 无涂层牌号 / uncoated grades						N			•	○	
■ 涂层牌号 / coated grades						S			•	•	
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

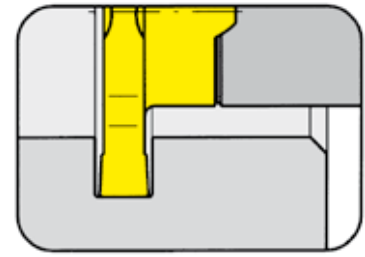
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

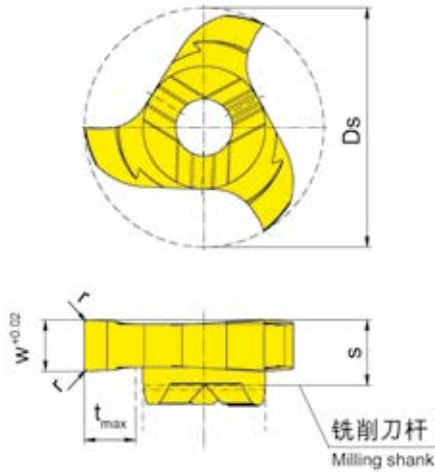
306



切槽深度可达	Depth of groove up to	2.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
306.0150.00	1.5	-				▲	▲			▲	▲
306.0200.00	2.0	0.2	3.2	2.5	11.7	▲	▲			▲	▲
306.0250.00	2.5	0.2				▲	▲			▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	○	●		●	●
● 主要应用 / main recommendation						M	●	●		●	●
○ 可选推荐 / alternative recommendation						K	●	●		●	●
■ 无涂层牌号 / uncoated grades						N	●	●		○	●
■ 涂层牌号 / coated grades						S	●	●		●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



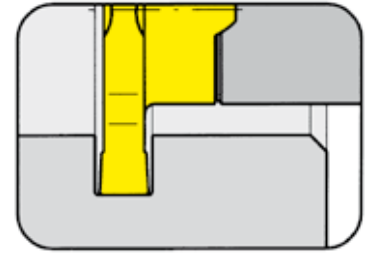
B

刀片型号

INSERT Type

306

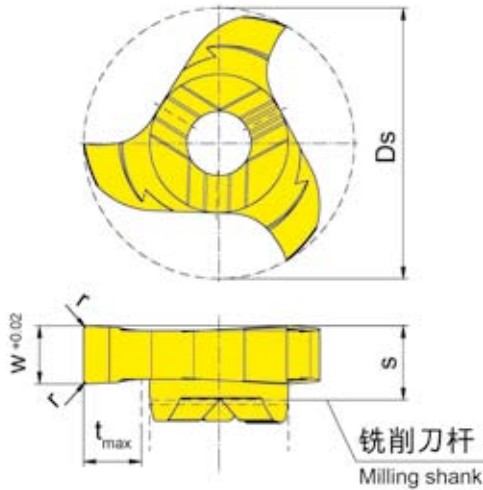
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	2.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
306.0150.40	1.5	-							▲		
306.0200.40	2.0	0.2	3.2	2.5	11.7				▲		
306.0250.40	2.5	0.2							▲		
						P			•		
						M			•		
						K			•		
						N			•		
						S			•		
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

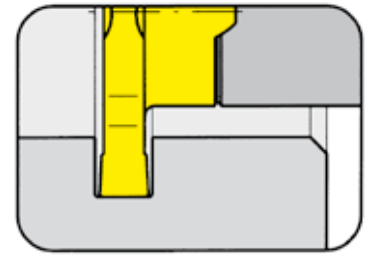


B

刀片 型号

306

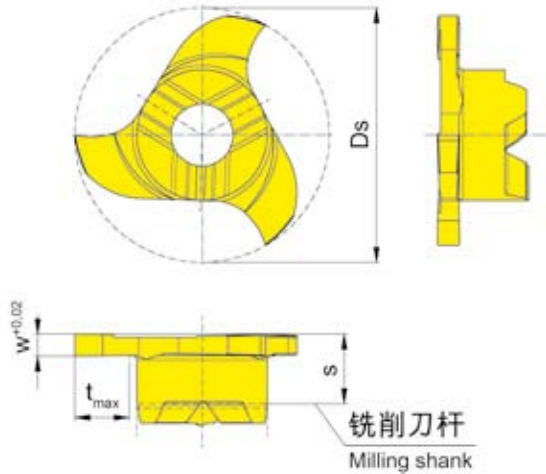
INSERT Type



切槽深度可达	Depth of groove up to	2.5 mm
槽宽	Width of groove	1.0 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
306.0100.1.00	1	3.2	2.5	11.7			▲			
					P		•			
					M		•			
					K		•			
					N		•			
					S		•			
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

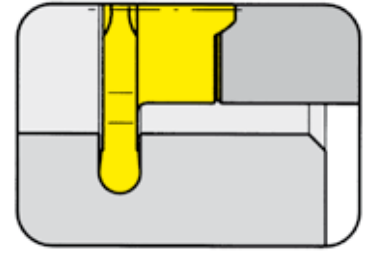


B

刀片 型号

306

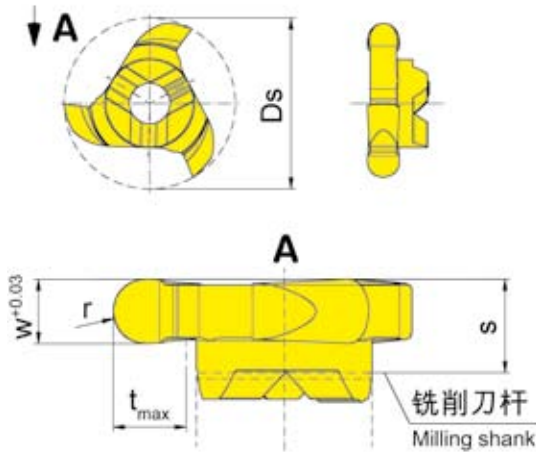
INSERT Type



切槽深度可达	Depth of groove up to	2.5 mm
圆头	Full radius	r 1.1 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version



产品型号 Part number	w	r	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45	TF45
306.0011.22	2.2	1.1	3.2	2.5	11.7		▲	▲		▲	
						P	•	•	•	•	•
						M	•	•	•	•	•
						K	•	•	•	•	•
						N	•	•	•	○	•
						S	•	•	•	•	•
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

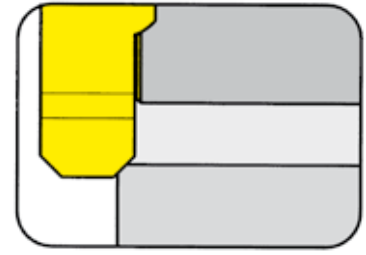


B

刀片 型号

306

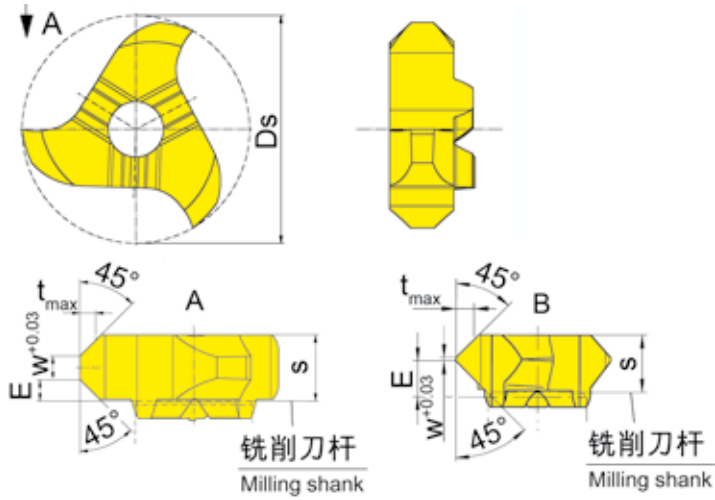
INSERT Type



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	1.4 mm Ds 9,3/11,7 mm
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配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	W	s	t _{max}	E	Ds	规格 Form	MG12	TN35	TI25	TA45	AS45	TF45
306.4545.00	1.2	3.4	0.8	1.1	11.7	A	▲	▲	▲			▲
306.4593.20	0.2	3.4	1.4	1.6	9.3	B			▲			
▲ 库存 / on stock							P	○	●	●	●	●
● 主要应用 / main recommendation							M	●	●	●	●	●
○ 可选推荐 / alternative recommendation							K	●	●	●	●	●
■ 无涂层牌号 / uncoated grades							N	●	●	●	●	●
■ 涂层牌号 / coated grades							S	●	●	●	●	●
■ 钎焊/金属陶瓷 / brazed/Cermet							H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

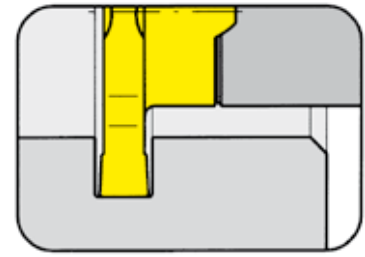


B

刀片 型号

606

INSERT Type



切槽深度可达	Depth of groove up to	2.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

卡簧槽宽度DIN471/472

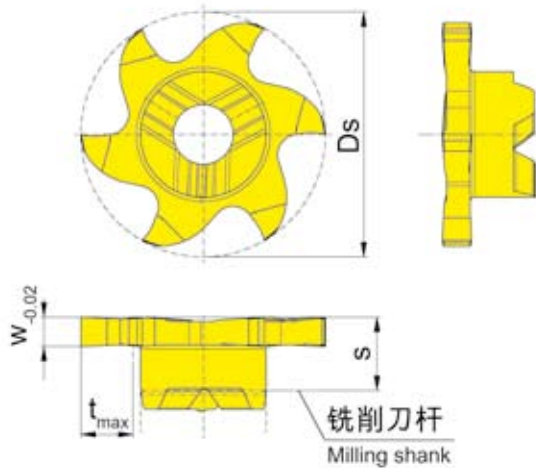
Widths for circlip grooves DIN 471/472

配合 铣刀杆

for use with Milling shank

型号 M306

Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	Ti25	TA45	AS45
606.0110.00	1.1	1.21								▲	
606.0130.00	1.3	1.41	3.5	2.5	11.7					△	
606.0160.00	1.6	1.71								△	△
							P			•	•
							M			•	•
							K			•	•
							N			•	○
							S			•	•
							H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

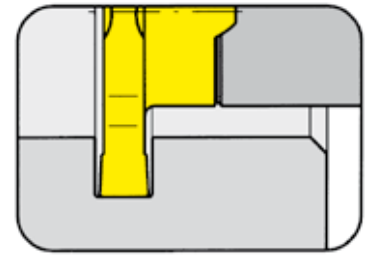
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

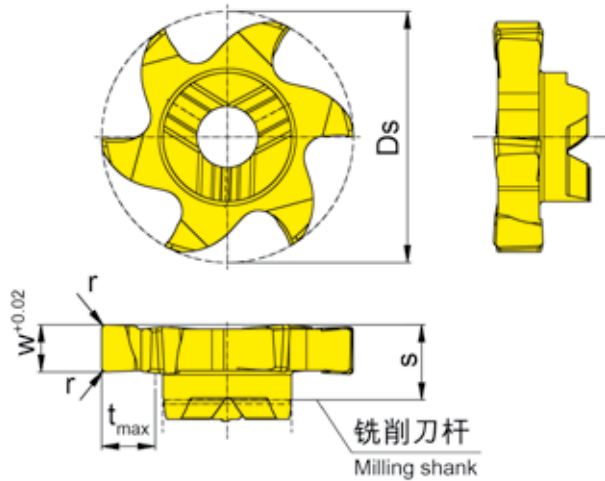
606



切槽深度可达	Depth of groove up to	2.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	Ti25	TA45	AS45
606.0150.00	1.5	-	3.2							▲	▲
606.0200.00	2.0	0.2	3.5	2.5	11.7					▲	▲
606.0250.00	2.5	0.2	3.5							▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P				●	●
● 主要应用 / main recommendation						M				●	●
○ 可选推荐 / alternative recommendation						K				●	●
■ 无涂层牌号 / uncoated grades						N				●	○
■ 涂层牌号 / coated grades						S				●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

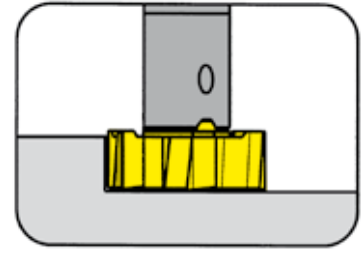
面铣削 FACE MILLING



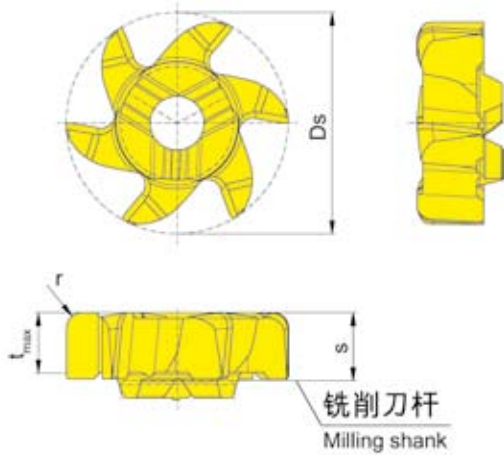
B

刀片 型号
INSERT Type

606



切深可达 切削刃Ø	Depth of cut up to Cutting edge Ø	3.2 mm Ds 11.7 mm
--------------	--------------------------------------	----------------------



配合 铣刀杆
for use with Milling shank

型号 M306
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds		MG12	TN35	TI25	TA45	AS45
606.PLT6.08	3.6	3.2	0.8	11.7				Δ		Δ
						P		•		•
						M		•		•
						K		•		•
						N		•		○
						S		•		•
						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

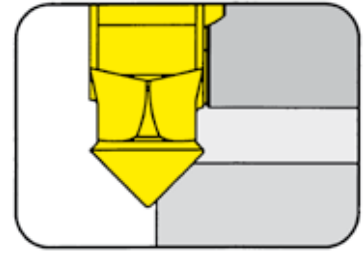
倒角 CHAMFERING



B

刀片型号
INSERT Type

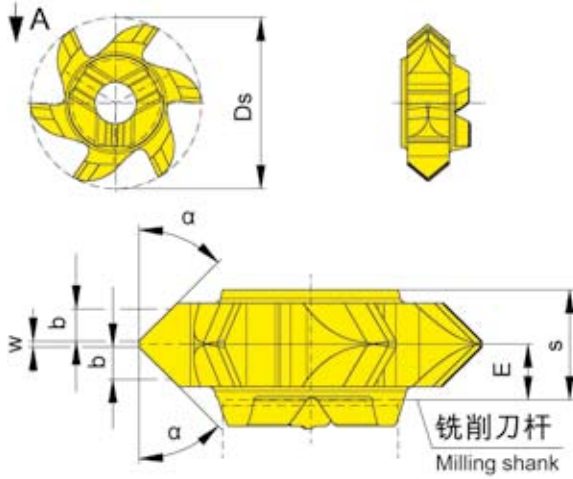
606



倒角宽度 切削刃Ø	Width of chamfer Cutting edge Ø	1.1 - 1.5 mm
		Ds 11.7 mm

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	b	s	E	Ds	α		MG12	TN35	TI25	TA45	AS45
606.1515.20		1.5				15°					△	
606.2020.20		1.5				20°					△	
606.3030.20	0.2	1.5	3.7	1.9	11.7	30°					▲	
606.4545.20		1.1				45°					▲	
<ul style="list-style-type: none"> ▲ 库存 / on stock △ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 							P			●		
							M				●	
							K				●	
							N				●	
							S				●	
							H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

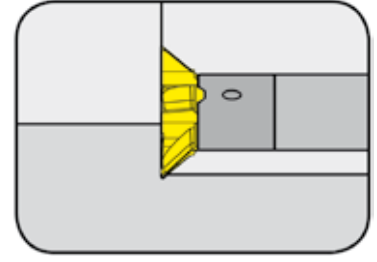
面铣削 FACE MILLING



B

刀片 型号
INSERT Type

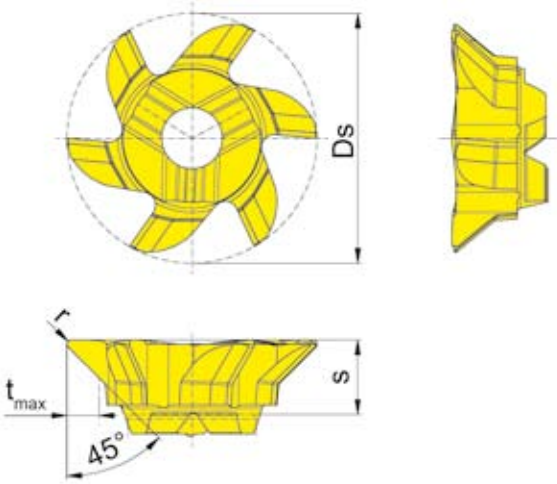
606



切深可达
切削刃Ø

Depth of cut up to
Cutting edge Ø

1.5 mm
Ds 11.7 mm



配合 铣刀杆
for use with Milling shank

型号 M306
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds	MG12	TN35	TI25	TA45	AS45	TF45
606.0045.22	3.5	1.5	0.2	11.7					▲	
					P				•	
					M				•	
					K				•	
					N				○	
					S				•	
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

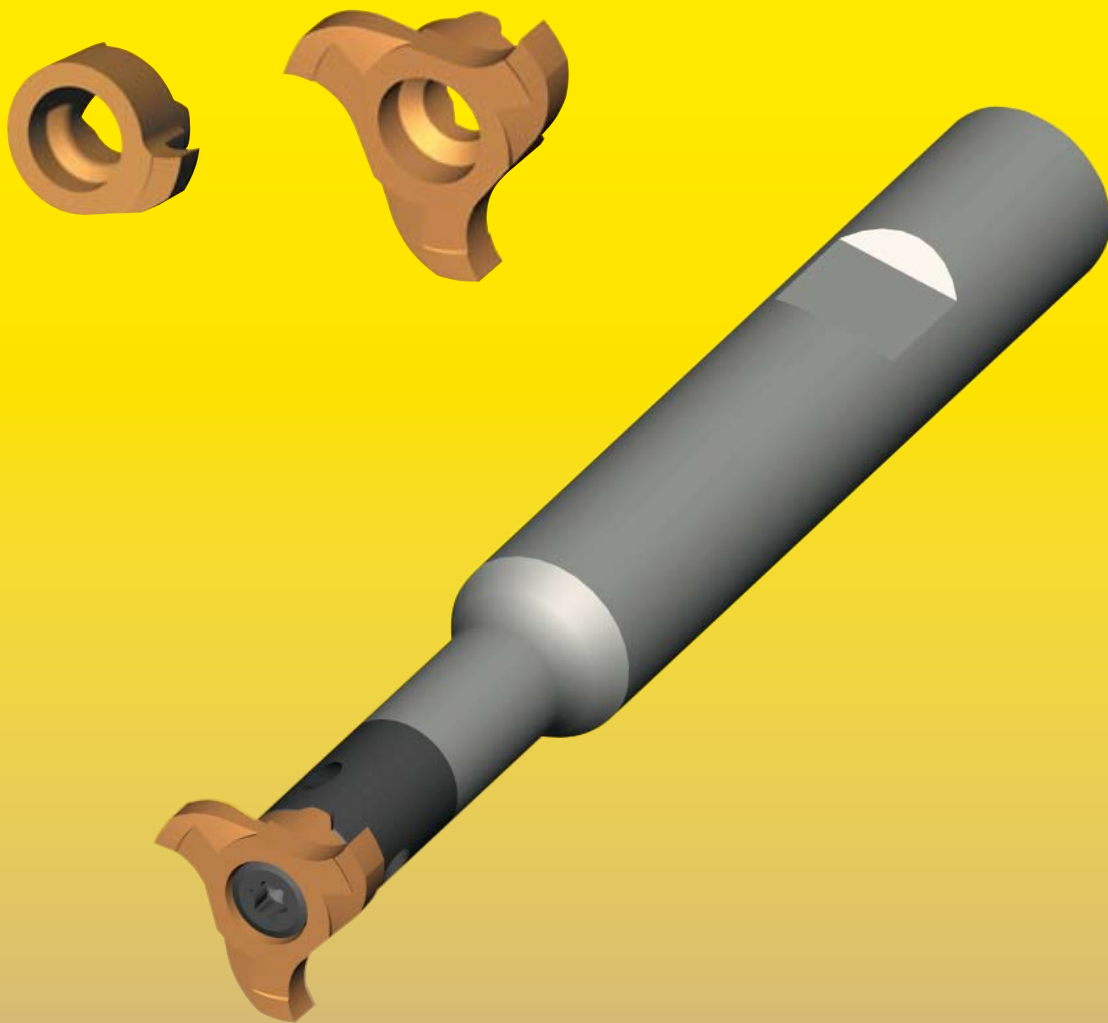
ph HORN ph

B

铣刀杆 型号 **M308**

自孔

Ø 13,7 mm



MILLING SHANK type **M308**

from bore

Ø 13,7 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



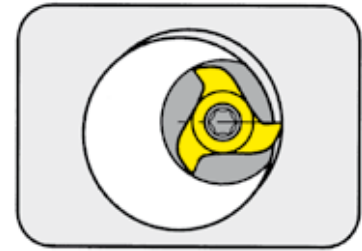
B

铣刀杆 型号

MILLING SHANK Type

M308

带内冷
with through coolant supply



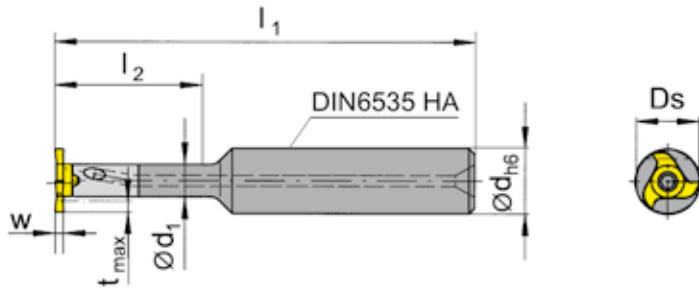
切削刃 \varnothing

Cutting edge \varnothing

Ds 13,4/15,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 111
Type 308
608

产品型号 Part number	l_1	l_2	d_1	d
M308.0012.01A	95	29	8.0	12
M308.0012.02A	110	42		
M308.0012.03A	120	56		
M308.0012.07A	160	-		
M308.1012.02A	110	42	9.5	12
M308.1016.01A	110	33	9.5	16
M308.1016.02A	110	45		
M308.1016.03A	130	64		

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
 w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

所有刀杆都可以配合右手型或左手型111系列的刀片。
HORN可以返修损坏的铣刀杆基座。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 111.

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308....	3.5.12T10EP	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



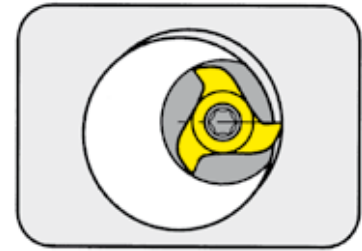
B

铣刀杆 型号

MILLING SHANK Type

M308

带内冷
with through coolant supply



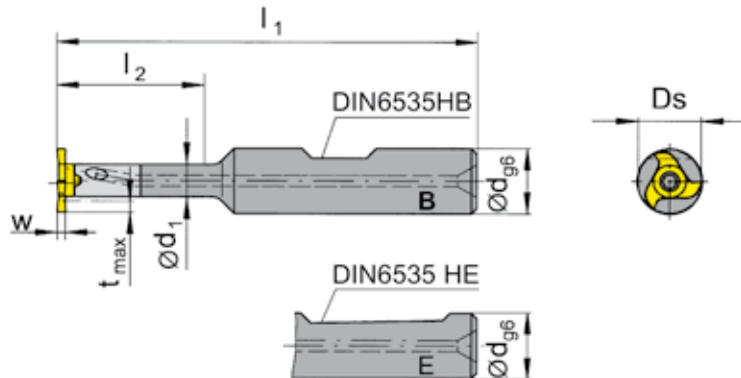
切削刃Ø

Cutting edge Ø

Ds 13,4/15,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 111
Type 308
608

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M308.0012.01B	95	29			
M308.0012.02B	110	42	8.0	12	B
M308.0012.03B	120	56			
M308.1012.02B	110	42	9.5	12	B
M308.1016.01B	110	33			
M308.1016.02B	110	45	9.5	16	B
M308.1016.03B	130	64			
M308.0012.01E	95	29			
M308.0012.02E	110	42	8.0	12	E
M308.0012.03E	120	56			
M308.1012.02E	110	42	9.5	12	E
M308.1016.01E	110	33			
M308.1016.02E	110	45	9.5	16	E
M308.1016.03E	130	64			

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

所有刀杆都可以配合右手型或左手型111系列的刀片。
HORN可以返修损坏的铣刀杆基座。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 111.

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308....	3.5.12T10EP	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

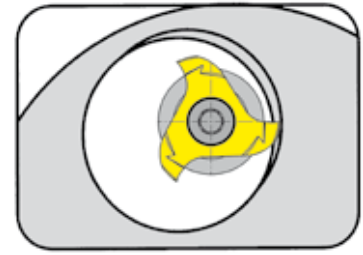


B

铣刀杆 型号

MILLING SHANK Type

M308-ST



配合筒夹的圆柱钢铣刀杆

Cylindrical steel milling shank for collets

用于CNC车床的圆刀杆

with cylindrical shank for CNC-lathes

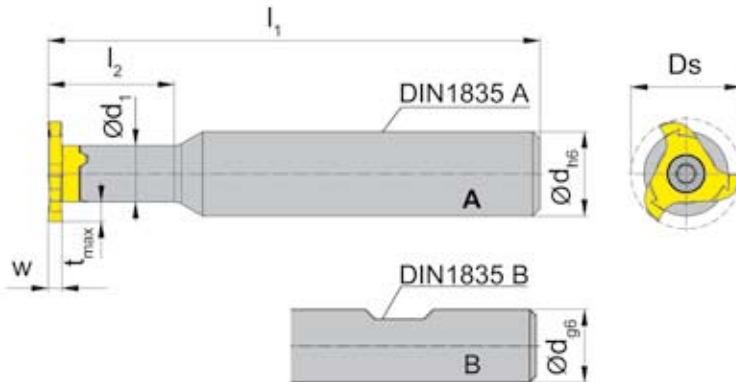
配合 刀片

for use with Insert

型号 111

Type 308

608



产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M308-ST10.01A	60	18		10	A
M308-ST12.01A	70	18	8	12	
M308-ST13.01A	70	26		13	
M308-ST10.01B	60	18	8	10	B
M308-ST12.01B	70			12	

按需提供更多尺寸

Further sizes upon request

w, D_s, t_{max} 见刀片

w, D_s, t_{max} see inserts

尺寸单位 : mm

Dimensions in mm

订货须知 :

所有铣刀杆都适用于右手型和左手型111系列刀片。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 111.

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308.ST1...	3.5.12T10EP	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

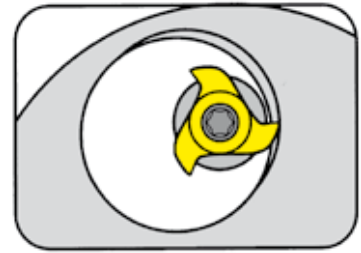


B

铣刀杆 型号

MILLING SHANK Type

M308.ER

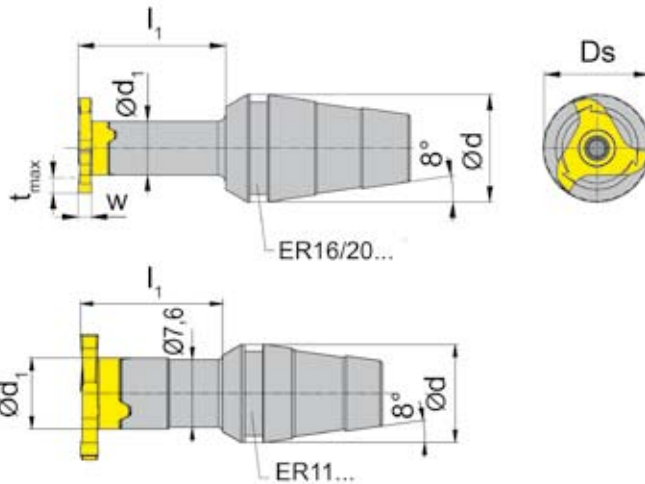


配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes

配合 刀片
for use with Insert

型号 111
Type 308
608



产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M308.ER11.02	16	8	11	ER11.6499
M308.ER16.02	22	8	16	ER16.6499/ERM...
M308.ER20.02	22	8	20	ER20.6499/ERM...

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

铣刀杆不包含夹紧螺母-需要单独订购!

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

所有铣刀杆都适用于右手型和左手型111系列刀片。

All milling cutter shanks can be used for **right** and **left** hand inserts type 111.

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308.ER...	3.5.12T10EP	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

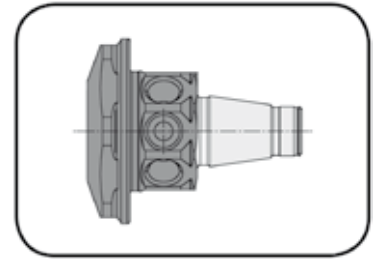


B

常规刀柄 型号

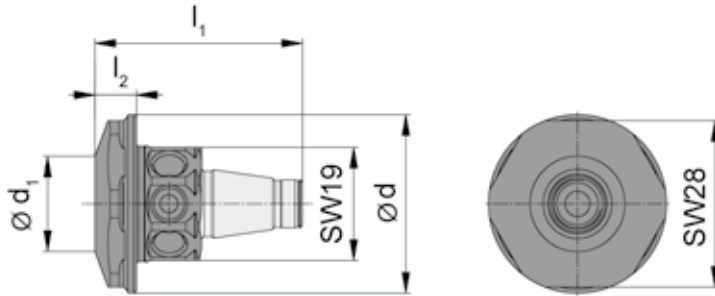
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



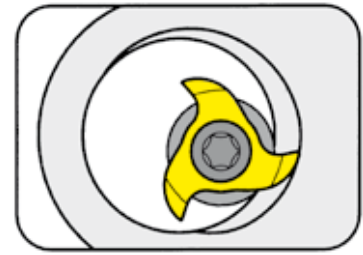
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M308.M

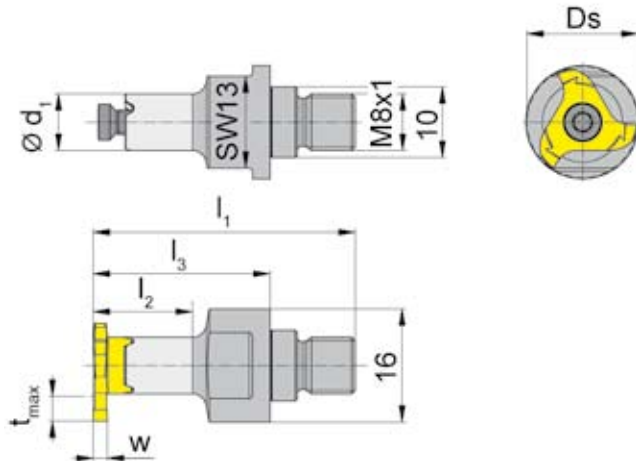
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 111
Type 308
608



产品型号 Part number	l_1	l_2	l_3	d_1
M308.M081.01	37	14	25	8

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308.M081.01	3.5.12T10EP	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

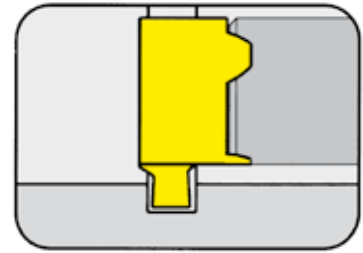


B

刀片 型号

111

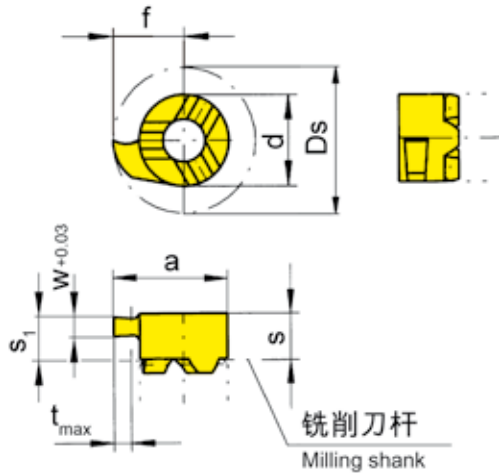
INSERT Type



切槽深度可达	Depth of groove up to	1.5 mm
卡簧宽度Nw	Width of circlip Nw	0.7 - 0.9 mm
切削刃Ø	Cutting edge Ø	Ds 13.4 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M308

Type

不能面切削，
有限的切削深度，
not face cutting,
limited depth of cut

R=右手型-如图

R = right hand version shown

L=左手型

L = left hand version

产品型号 Part number	Nw	w	s ₁	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L111.0070.00	0.7	0.74						1.2			▲/▲			▲/▲
R/L111.0080.00	0.8	0.84	3.95	4.15	6.7	10.7	8	1.3	13.4		▲/▲			▲/▲
R/L111.0090.00	0.9	0.94						1.5		▲/▲	▲/▲			▲/▲
										P	○	●		●
										M	●	●		●
										K	●	●		●
										N	●	●		●
										S	●	●		●
										H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

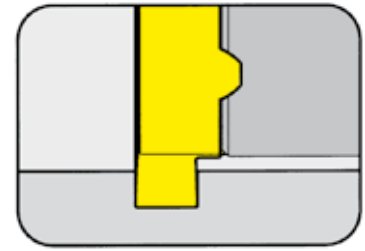
GROOVE MILLING by circular interpolation



B

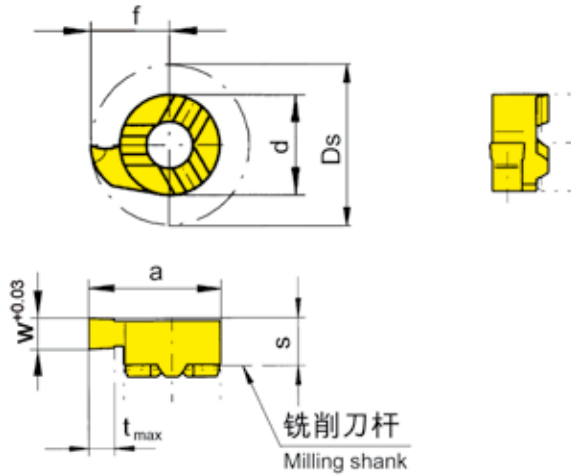
刀片型号
INSERT Type

111



切槽深度可达	Depth of groove up to	2.3 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 13.4 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M308
Type

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L111.0110.00	1.1	1.19							▲/▲	▲/▲			▲/▲
R/L111.0130.00	1.3	1.39	3.95	6.7	10.7	8	2.3	13.4	▲/▲	▲/▲			▲/▲
R/L111.0160.00	1.6	1.69							▲/▲	▲/▲			▲/▲
▲ 库存 / on stock									P	o	•		•
• 主要应用 / main recommendation									M	•	•		•
o 可选推荐 / alternative recommendation									K	•	•		•
■ 无涂层牌号 / uncoated grades									N	•	•		•
■ 涂层牌号 / coated grades									S	•	•		•
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

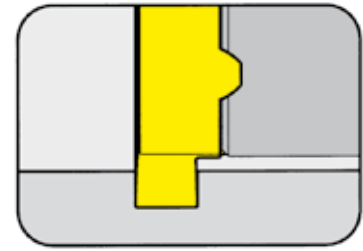


B

刀片型号

111

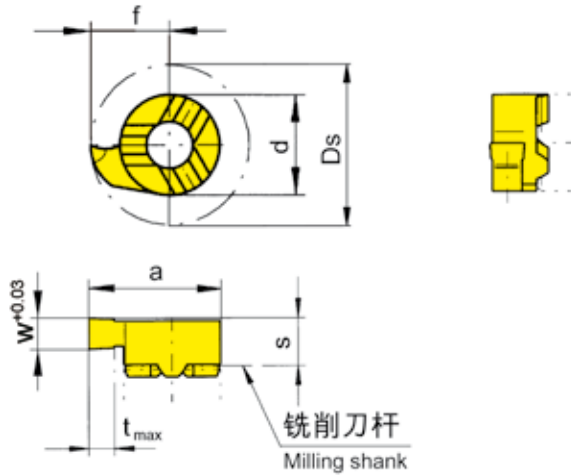
INSERT Type



切槽深度可达	Depth of groove up to	2.3 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 13.4 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	s	f	a	d	t _{max}	Ds	硬质合金牌号				
								MG12	TN35	TI25	TF45	TH35
R/L111.0150.00	1.5							▲/▲	▲/▲			▲/▲
R/L111.0200.00	2.0							▲/▲	▲/▲			▲/▲
R/L111.0250.00	2.5	3.95	6.7	10.7	8	2.3	13.4	▲/▲	▲/▲			▲/▲
R/L111.0300.00	3.0							▲/▲	▲/▲			▲/▲
								P	○	●		●
								M	●	●		●
								K	●	●		●
								N	●	●		●
								S	●	●		●
								H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

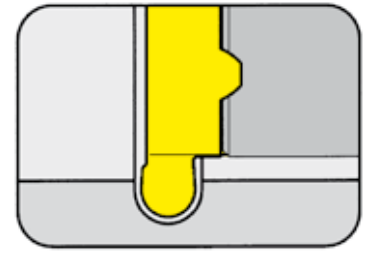
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

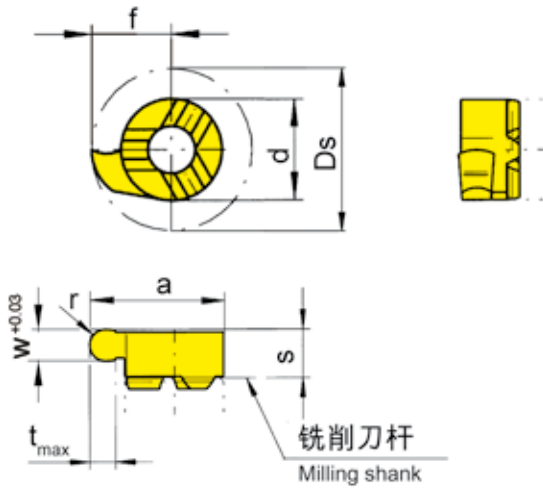
111



切槽深度可达	Depth of groove up to	2.3 mm
圆头	Full radius	r 0.4 - 1.5 mm
切削刃Ø	Cutting edge Ø	Ds 13.4 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

圆头
Full radius

产品型号 Part number	w	r	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L111.0004.08	0.8	0.4								▲/▲			▲/▲
R/L111.0006.12	1.2	0.6							▲/▲	▲/▲			▲/▲
R/L111.0009.18	1.8	0.9	3.95	6.7	10.7	8	2.3	13.4	▲/▲	▲/▲			▲/▲
R/L111.0010.20	2.0	1.0							▲/▲	▲/▲			▲/▲
R/L111.0015.30	3.0	1.5							▲/▲	▲/▲			▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	○	●			●
M	●	●			●
K	●	●			●
N	●	●			●
S	●	●			●
H					

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

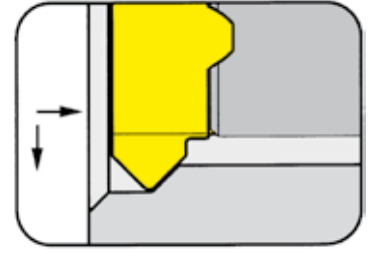
倒角 CHAMFERING



B

刀片型号
INSERT Type

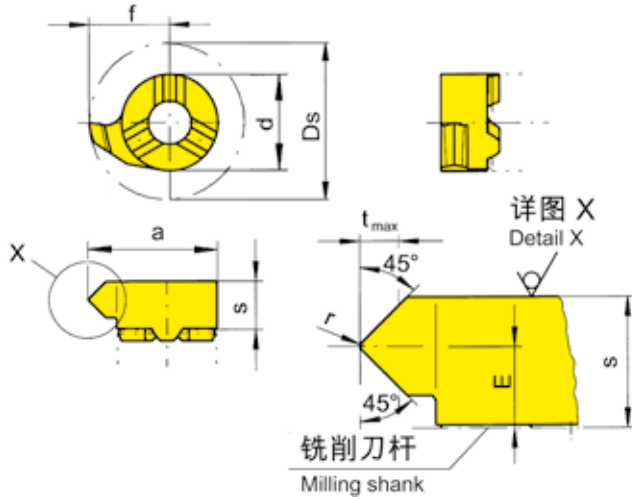
111



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	1.5 mm Ds 13.4 mm
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配合 铣刀杆
for use with Milling shank

型号 M308
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	E	r	s	f	a	d	t _{max}	Ds		MG12	TN35	TI25	TF45	TH35
R/L111.4545.02	2.4	0.2	4.15	6.7	10.7	8	1.5	13.4			▲/▲			
										P	•			
										M	•			
										K	•			
										N	•			
										S	•			
										H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

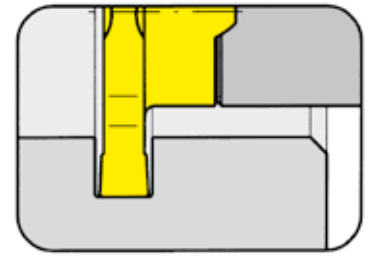
GROOVE MILLING by circular interpolation



B

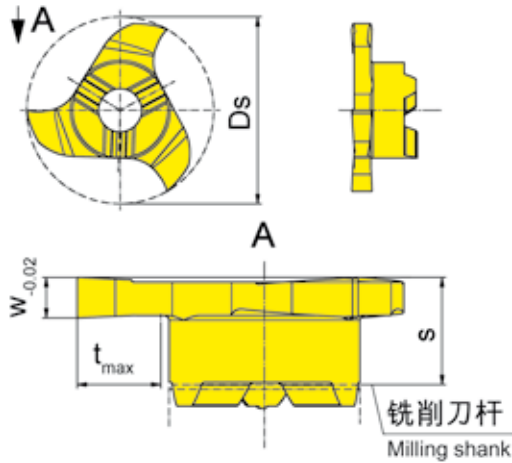
刀片型号
INSERT Type

308



切槽深度可达	Depth of groove up to	3.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M308
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
308.0110.00	1.1	1.21					▲				▲
308.0130.00	1.3	1.41	4.5	3.5	15.7		▲			△	△
308.0160.00	1.6	1.71					▲			△	△
▲ 库存 / on stock △ 4周 / 4 weeks						P	•	•	•	•	•
• 主要应用 / main recommendation						M	•	•	•	•	•
○ 可选推荐 / alternative recommendation						K	•	•	•	•	•
■ 无涂层牌号 / uncoated grades						N	•	•	•	○	•
■ 涂层牌号 / coated grades						S	•	•	•	•	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



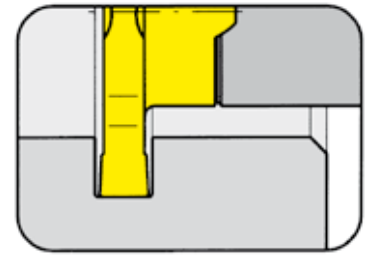
B

刀片 型号

INSERT Type

308

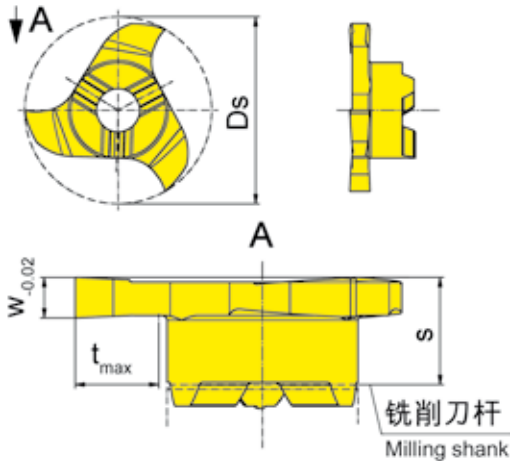
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	3.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M308

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
308.0110.40	1.1	1.21							Δ		
308.0130.40	1.3	1.41	4.5	3.5	15.7				Δ		
308.0160.40	1.6	1.71							Δ		
▲ 库存 / on stock Δ 4周 / 4 weeks						P			•		
● 主要应用 / main recommendation						M			•		
○ 可选推荐 / alternative recommendation						K			•		
■ 无涂层牌号 / uncoated grades						N			•		
■ 涂层牌号 / coated grades						S			•		
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm

Dimensions in mm

硬质合金牌号

Carbide grades

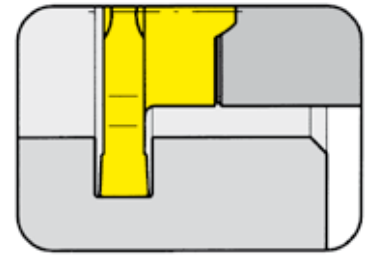
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

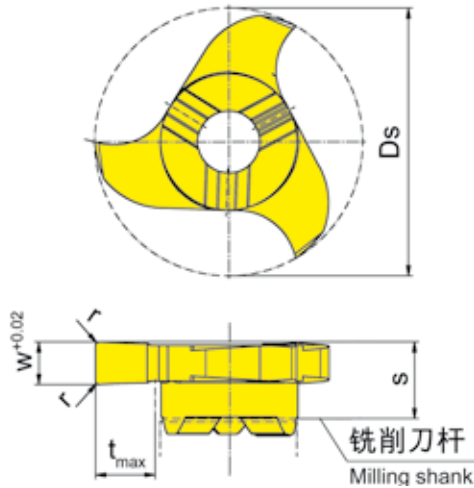
刀片型号 **308**
INSERT Type



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
308.0150.00	1.5	-				▲	▲			▲	▲
308.0200.00	2.0	0.2	4.5	3.5	15.7	▲	▲			▲	▲
308.0250.00	2.5	0.2				▲	▲			▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	○	●	●	●	●
● 主要应用 / main recommendation						M	●	●	●	●	●
○ 可选推荐 / alternative recommendation						K	●	●	●	●	●
■ 无涂层牌号 / uncoated grades						N	●	●	●	○	●
■ 涂层牌号 / coated grades						S	●	●	●	●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



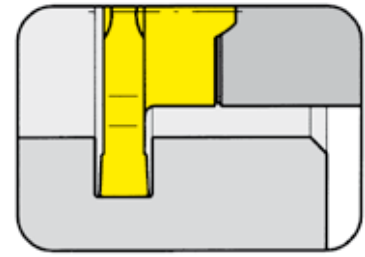
B

刀片 型号

INSERT Type

308

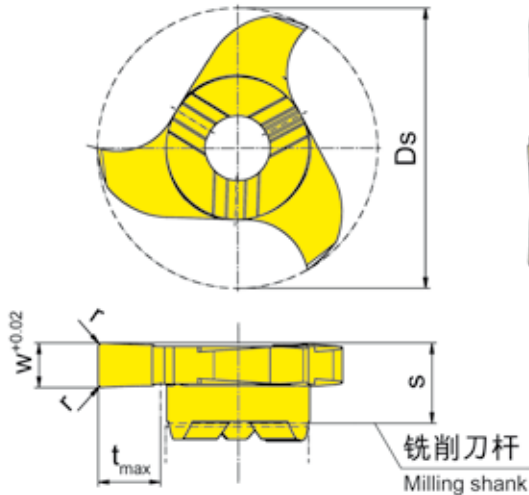
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
308.0150.40	1.5	-							▲		
308.0200.40	2.0	0.2	4.5	3.5	15.7				▲		
308.0250.40	2.5	0.2							▲		
▲ 库存 / on stock Δ 4周 / 4 weeks						P			•		
● 主要应用 / main recommendation						M			•		
○ 可选推荐 / alternative recommendation						K			•		
■ 无涂层牌号 / uncoated grades						N			•		
■ 涂层牌号 / coated grades						S			•		
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm

Dimensions in mm

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

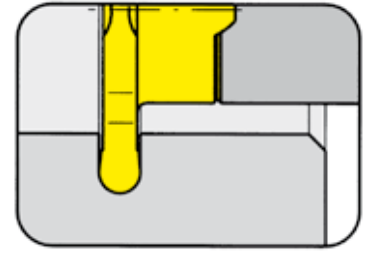
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

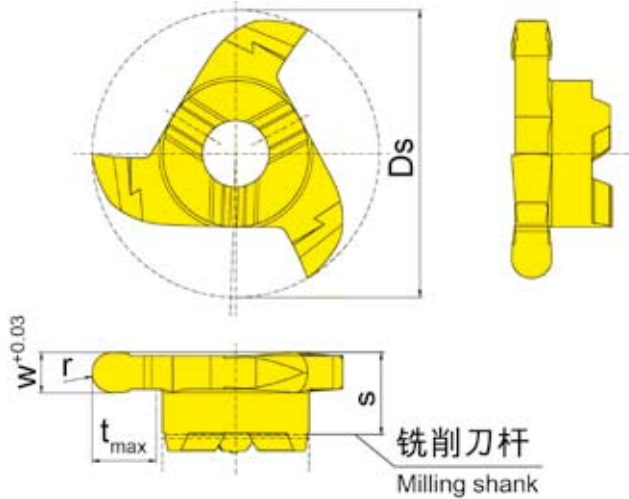
308



切槽深度可达	Depth of groove up to	3.5 mm
圆头	Full radius	r 1.1 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



铣削刀杆
Milling shank

图示=右手型
Picture = right hand cutting version



产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA45	AS45	TF45
308.0011.22	2.2	1.1	4.5	3.5	15.7		▲			▲	▲
						P	•	•	•	•	•
						M	•	•	•	•	•
						K	•	•	•	•	•
						N	•	•	○	•	•
						S	•	•	•	•	•
						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

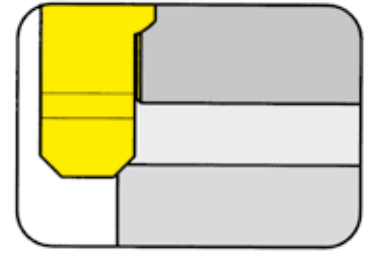
倒角 CHAMFERING



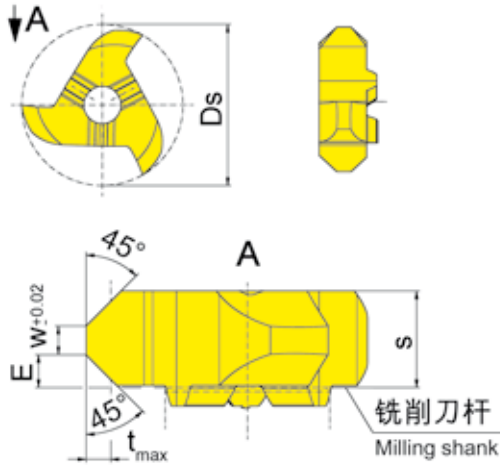
B

刀片 型号
INSERT Type

308



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	1.2 mm Ds 15.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M308
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	E	Ds		MG12	TN35	TI25	TA45	AS45
308.4545.00	1.4	4.7	1.2	1.6	15.7			▲			
						P		•			
						M		•			
						K		•			
						N		•			
						S		•			
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

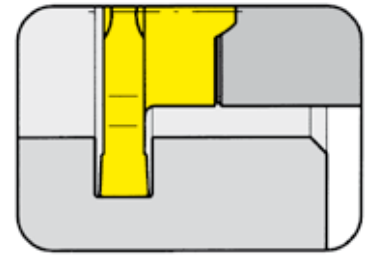
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

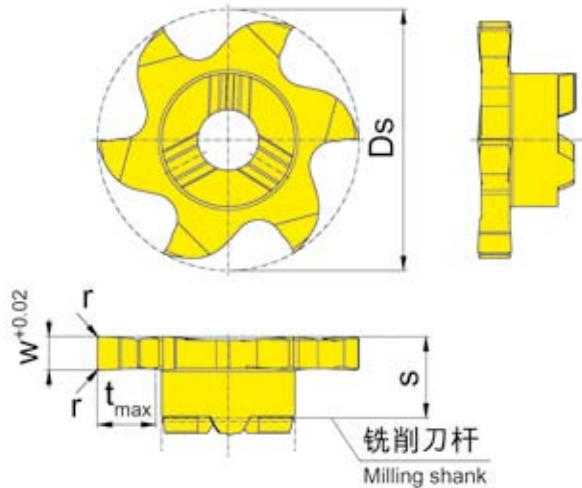
608



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 15.7 mm

配合 铣刀杆
for use with Milling shank

型号 M308
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号				
						MG12	TN35	TI25	TA45	AS45
608.0150.00	1.5	-						▲		△
608.0200.00	2.0	0.2	4.9	3.5	15.7			▲		▲
608.0250.00	2.5	0.2						▲		▲
▲ 库存 / on stock △ 4周 / 4 weeks						P		•		•
• 主要应用 / main recommendation						M		•		•
○ 可选推荐 / alternative recommendation						K		•		•
■ 无涂层牌号 / uncoated grades						N		•		○
■ 涂层牌号 / coated grades						S		•		•
■ 钎焊/金属陶瓷 / brazed/Cermet						H				

尺寸单位 : mm
Dimensions in mm

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号
Carbide grades

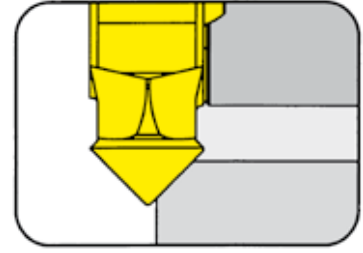
倒角 CHAMFERING



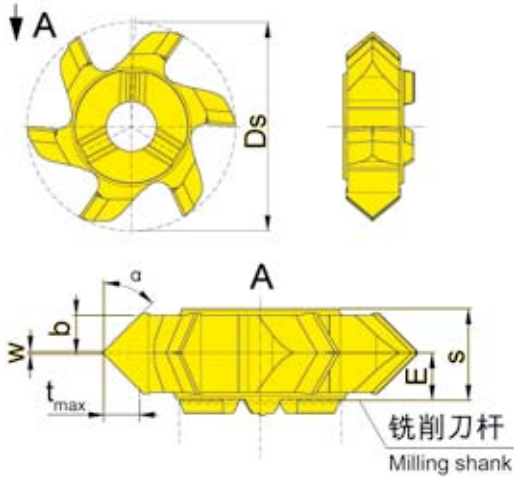
B

刀片 型号
INSERT Type

608



倒角宽度 切削刃Ø	Width of chamfer Cutting edge Ø	1.7 - 2.2 mm
		Ds 15.7 mm



配合 铣刀杆
for use with Milling shank

型号 M308
Type

图示=右手型
Picture = right hand cutting version

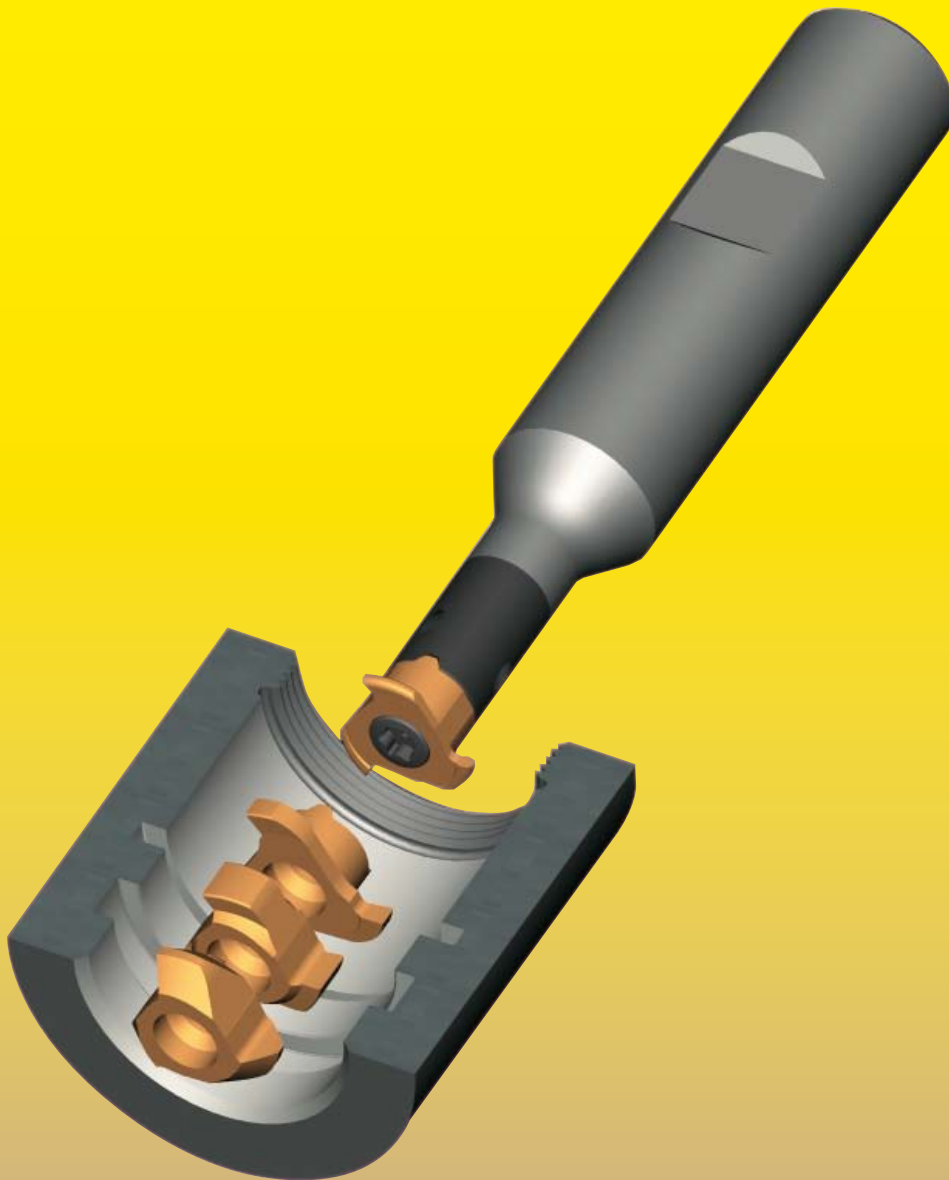
产品型号 Part number	w	b	s	t _{max}	E	Ds	α		MG12	TN35	TI25	TA45	AS45
608.1515.20		2.2		0.6			15°					△	
608.2020.20		2.2		0.8			20°					△	
608.3030.20	0.2	2.2	5.1	1.3	2.6	15.7	30°					△	
608.4545.20		1.7		1.7			45°				▲		
▲ 库存 / on stock △ 4周 / 4 weeks								P			•	•	
● 主要应用 / main recommendation								M			•	•	
○ 可选推荐 / alternative recommendation								K			•	•	
■ 无涂层牌号 / uncoated grades								N			•	•	
■ 涂层牌号 / coated grades								S			•	•	
■ 钎焊/金属陶瓷 / brazed/Cermet								H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

铣刀杆 型号 **M311**
自孔

Ø 18,0 mm



MILLING SHANK type **M311**
from bore

Ø 18,0 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



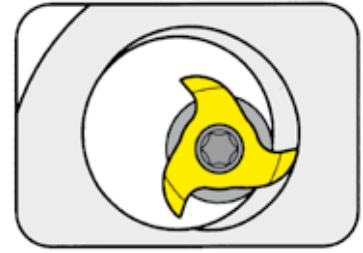
B

铣刀杆 型号

MILLING SHANK Type

M311

带内冷
with through coolant supply



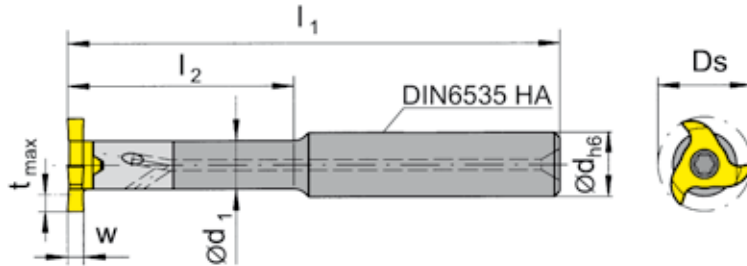
切削刃Ø

Cutting edge Ø

Ds 17.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 311

Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.0012.01A	100	32	9	12
M311.0012.02A	100	45		
M311.0012.03A	120	64		
M311.0016.01A	100	32	9	16
M311.0016.02A	110	45		
M311.0016.03A	130	64		
M311.1316.01A	110	32	13	16
M311.1316.02A	130	45		
M311.1316.03A	145	64		

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
 w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311....	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



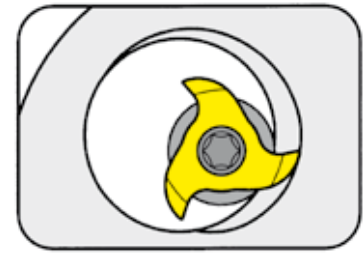
B

铣刀杆 型号

MILLING SHANK Type

M311

带内冷
with through coolant supply



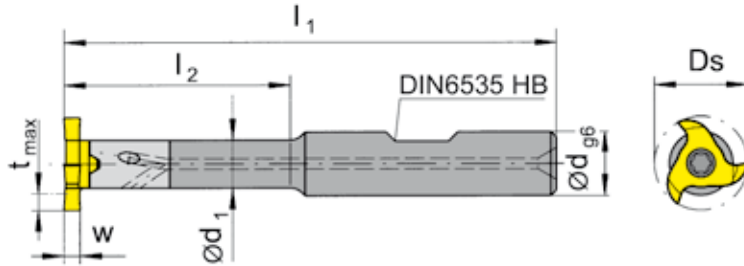
切削刃Ø

Cutting edge Ø

Ds 17.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 311

Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.0012.01B	100	32		
M311.0012.02B	100	45	9	12
M311.0012.03B	120	64		
M311.0016.01B	100	32		
M311.0016.02B	110	45	9	16
M311.0016.03B	130	64		
M311.1316.01B	110	32		
M311.1316.02B	130	45	13	16
M311.1316.03B	145	64		

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311....	4.14T15P	T15PQ

槽铣削/面铣削

GROOVE MILLING / FACE MILLING

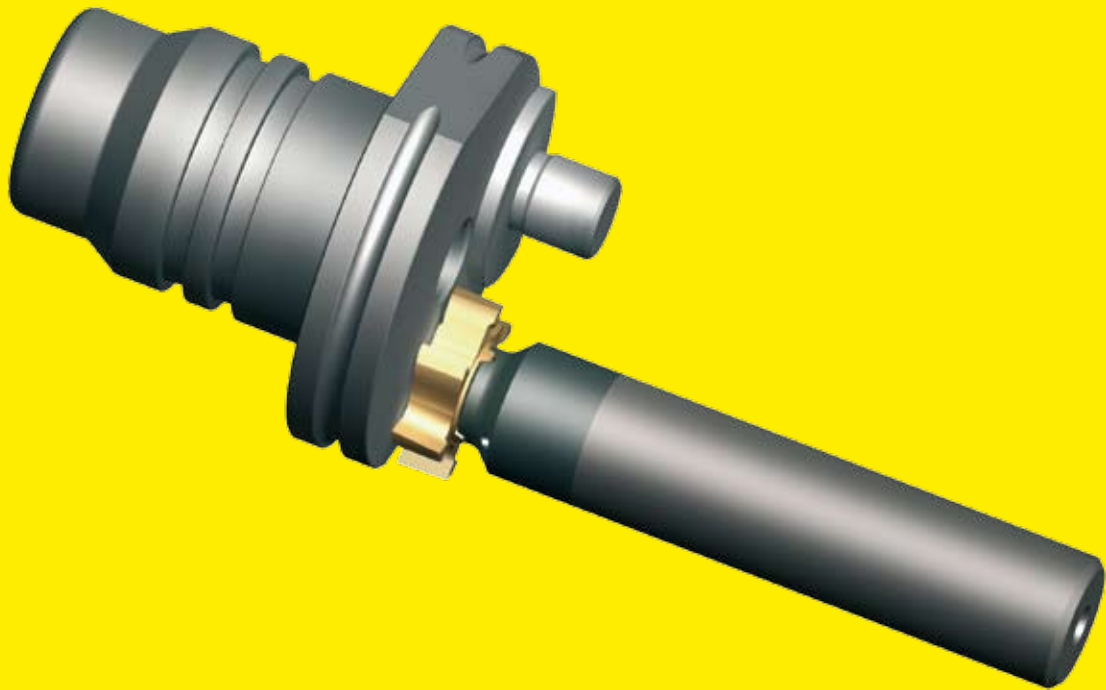


B

铣刀杆 型号

M311/M313/M328

切削刃 \varnothing 17,7 / 21,7 / 27,7 mm



MILLING SHANK type

M311/M313/M328

Cutting edge \varnothing 17,7 / 21,7 / 27,7 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



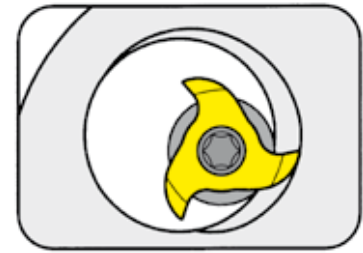
B

铣刀杆 型号

MILLING SHANK Type

M311

带内冷
with through coolant supply



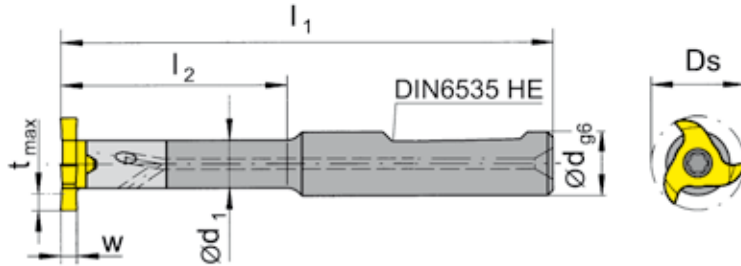
切削刃Ø

Cutting edge Ø

Ds 17.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 311

Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.0012.01E	100	32		
M311.0012.02E	100	45	9	12
M311.0012.03E	120	64		
M311.0016.01E	100	32		
M311.0016.02E	110	45	9	16
M311.0016.03E	130	64		
M311.1316.01E	110	32		
M311.1316.02E	130	45	13	16
M311.1316.03E	145	64		

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311....	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

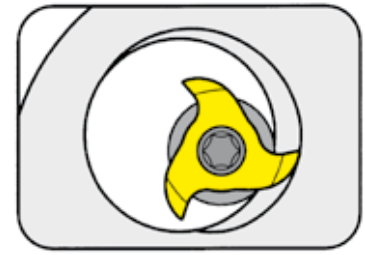


B

铣刀杆 型号

MILLING SHANK Type

M311.ST

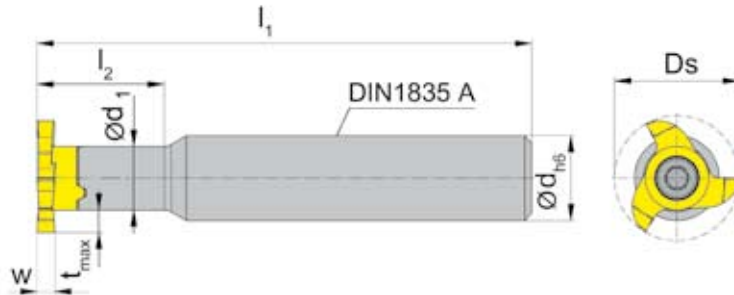


配合筒夹的圆柱钢铣刀杆

Cylindrical steel milling shank for collets

用于CNC车床的圆刀杆

with cylindrical shank for CNC-lathes



配合 刀片

for use with Insert

型号 311

Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.ST10.01A	60	18	9	10
M311.ST12.01A	70	18	9	12
M311.ST13.01A	70	26	9	13
M311.ST16.01A	80	26	9	16

按需提供更多尺寸

Further sizes upon request

w, D_s, t_{max} 见刀片

w, D_s, t_{max} see inserts

尺寸单位 : mm

Dimensions in mm

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.ST1...	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

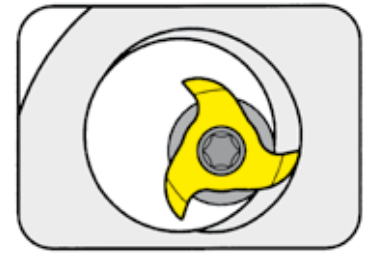


B

铣刀杆 型号

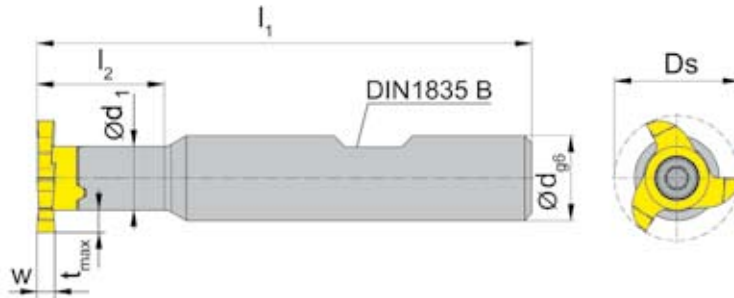
MILLING SHANK Type

M311.ST



带夹紧平面的圆柱钢铣刀杆
Cylindrical steel milling shank with clamping flat

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 刀片
for use with Insert

型号 311
Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.ST10.01B	60	18	9	10
M311.ST12.01B	70	18	9	12

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.ST1...	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

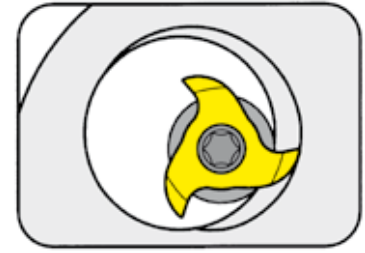


B

铣刀杆 型号

MILLING SHANK Type

M311.ST

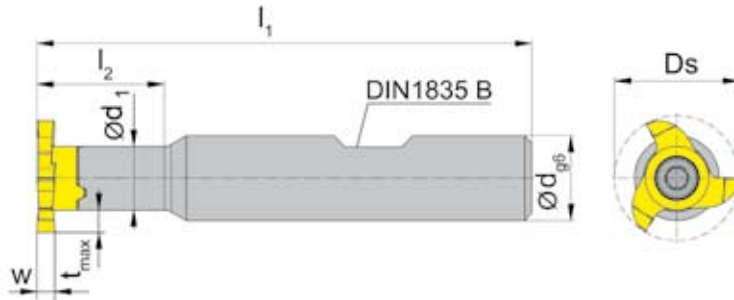


带夹紧平面的圆柱钢铣刀杆

Cylindrical steel milling shank with clamping flat

用于CNC车床的圆刀杆

with cylindrical shank for CNC-lathes



配合 刀片

for use with Insert

型号 311

Type 611

产品型号 Part number	l_1	l_2	d_1	d
M311.ST10.01B	60	18	9	10
M311.ST12.01B	70	18	9	12

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.ST1...	4.14T15P	T15PQ

槽铣削/面铣削

GROOVE MILLING / FACE MILLING



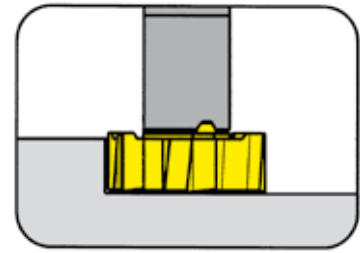
B

铣刀杆 型号

MILLING SHANK Type

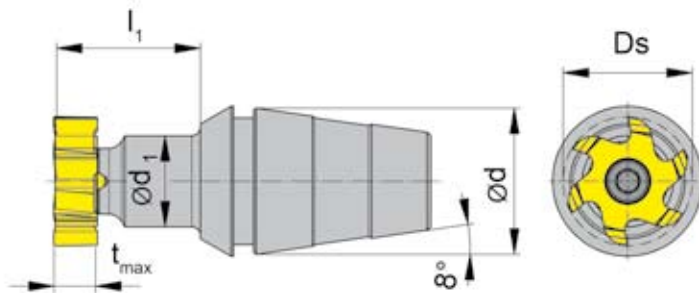
M311.ER

无内冷
no coolant supply



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片
for use with Insert

型号 311
Type 611

产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M311.ER20.14.01	19.7	12.5	20	ER20.6499/ERM...
M311.ER25.14.01	19.7	14.5	25	ER25.6499

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

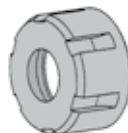
铣刀杆不包含夹紧螺母-需要单独订购 !

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.ER2...	4.14T15P	T15PQ

槽铣削/面铣削

GROOVE MILLING / FACE MILLING

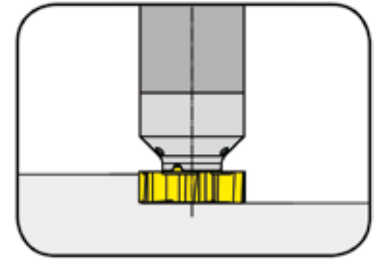


B

铣刀杆 型号

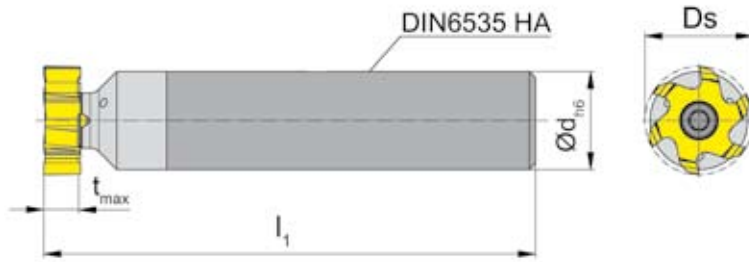
MILLING SHANK Type

M311



用于筒夹的硬质合金圆柱刀柄
Cylindrical carbide shank for collets

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 刀片
for use with Insert

型号 311
Type 611

产品型号 Part number	l_1	d
M311.0012.D.00A	80	12
M311.0016.D.00A	80	16

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.001...	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

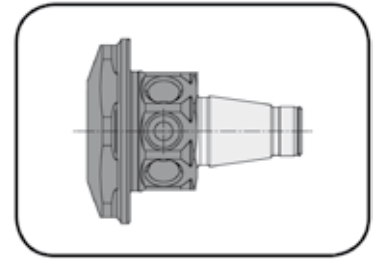


B

常规刀柄 型号

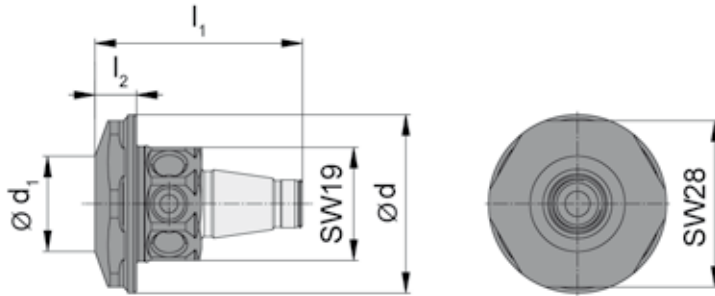
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



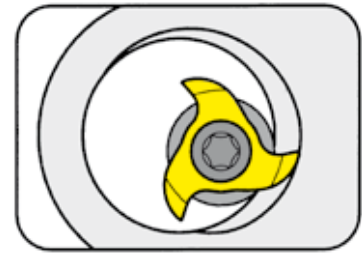
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M311.M

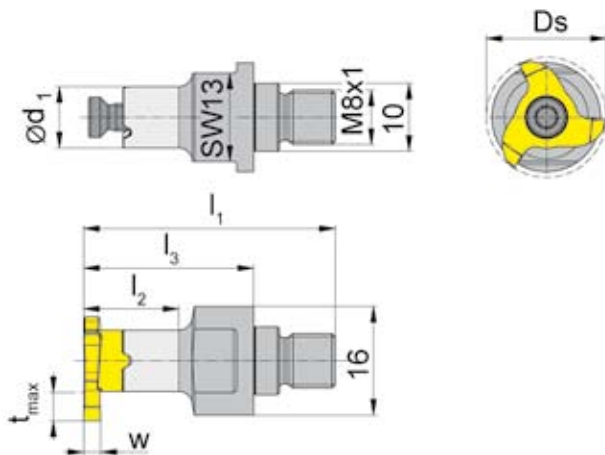
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 311
Type 611



产品型号 Part number	l_1	l_2	l_3	d_1
M311.M081.01	37	14	25	9

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.M081.01	4.14T15P	T15PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

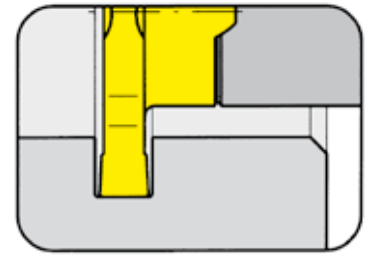


B

刀片型号

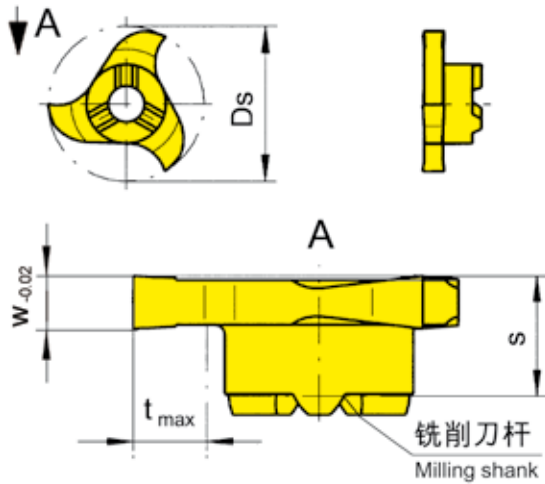
311

INSERT Type



切槽深度可达	Depth of groove up to	3.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
311.0110.00	1.1	1.21						▲			
311.0130.00	1.3	1.41	5.75	3.5	17.7			▲			△
311.0160.00	1.6	1.71						▲			△
						P	•	•	•	•	•
						M	•	•	•	•	•
						K	•	•	•	•	•
						N	•	•	•	•	○
						S	•	•	•	•	•
						H					

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



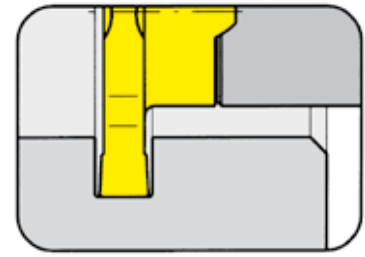
B

刀片 型号

INSERT Type

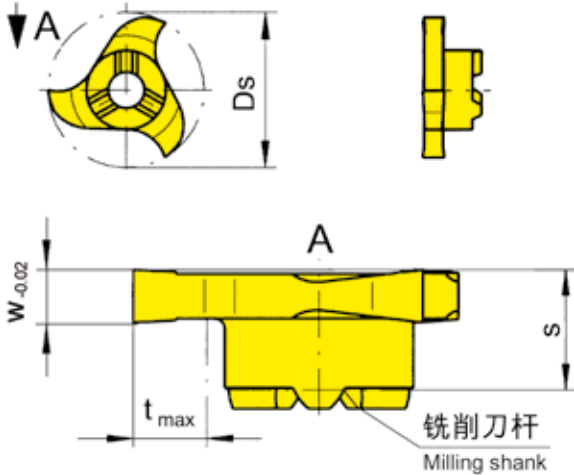
311

铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	3.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
311.0110.40	1.1	1.21							▲		
311.0130.40	1.3	1.41	5.75	3.5	17.7				△		
311.0160.40	1.6	1.71							△		
						P			•		
						M			•		
						K			•		
						N			•		
						S			•		
						H					

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

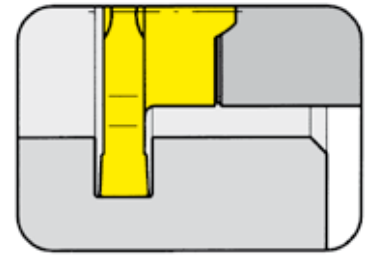
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

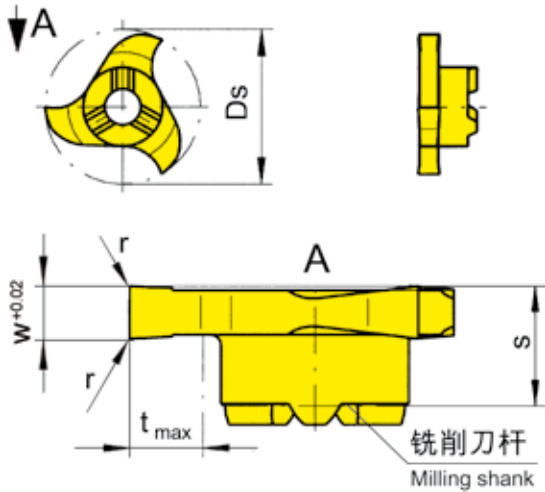
311



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
311.0150.00	1.5	-						▲			▲
311.0200.00	2.0	0.2	5.75	3.5	17.7	▲	▲				▲
311.0250.00	2.5	0.2				▲	▲				▲
311.0300.00	3.0	0.2				▲	▲				▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	○	●			●
● 主要应用 / main recommendation						M	●	●			●
○ 可选推荐 / alternative recommendation						K	●	●			●
■ 无涂层牌号 / uncoated grades						N	●	●			○
■ 涂层牌号 / coated grades						S	●	●			●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



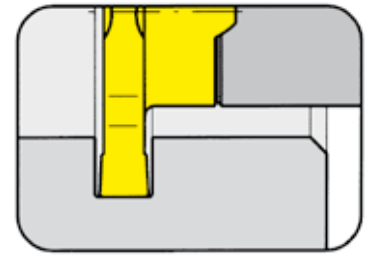
B

刀片 型号

INSERT Type

311

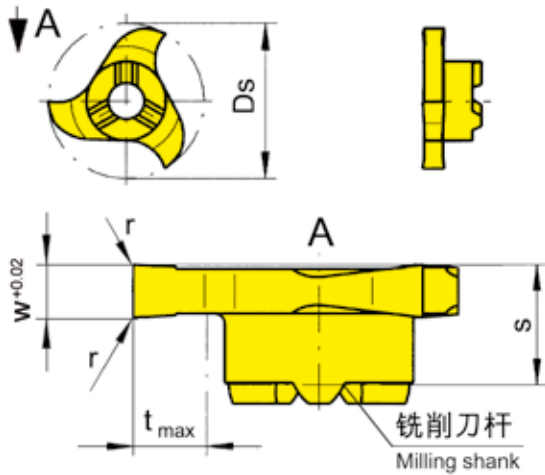
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
311.0150.40	1.5	-							▲		
311.0200.40	2.0	0.2	5.75	3.5	17.7				▲		
311.0250.40	2.5	0.2							▲		
311.0300.40	3.0	0.2							▲		
							P		•		
							M		•		
							K		•		
							N		•		
							S		•		
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

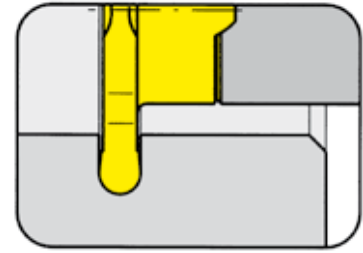
GROOVE MILLING by circular interpolation



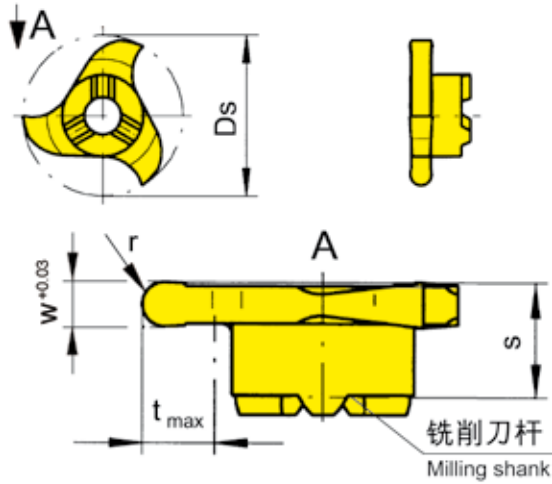
B

刀片型号
INSERT Type

311



切槽深度可达	Depth of groove up to	3.5 mm
圆头	Full radius	r 1.1 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm



配合 铣刀杆
for use with Milling shank

型号 M311
Type

圆头
Full radius

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
311.0011.22	2.2	1.1	5.75	3.5	17.7			▲			▲
							P	•	•	•	•
							M	•	•	•	•
							K	•	•	•	•
							N	•	•	•	○
							S	•	•	•	•
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

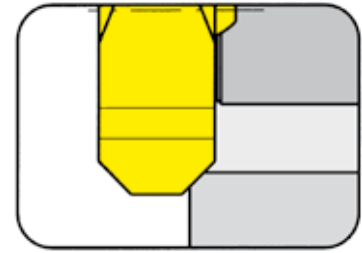


B

刀片型号

311

INSERT Type



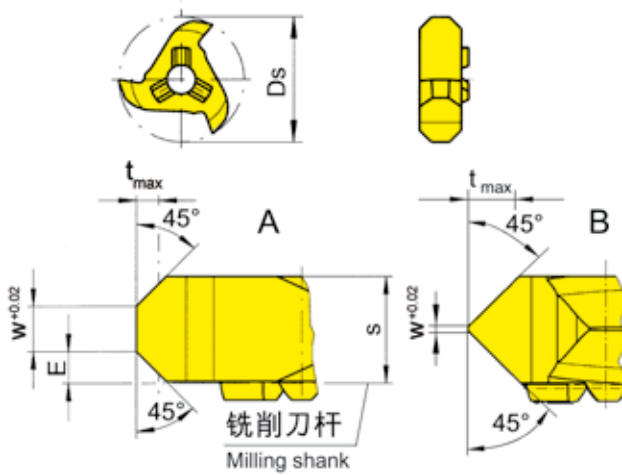
倒角规格尺寸
切削刃Ø

Size of chamfer up to
Cutting edge Ø

2.5 mm
Ds 15,0/17,7 mm

配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	W	S	t _{max}	E	Ds	规格 Form	MG12	TN35	TI25	TA45	AS45
311.4545.00	2.5	5.95	1.4	1.70	17.7	A		▲			
311.4545.20	0.2	5.95	2.5	2.95	15.0	B		▲	▲		
▲ 库存 / on stock Δ 4周 / 4 weeks							P	•	•		
• 主要应用 / main recommendation							M	•	•		
○ 可选推荐 / alternative recommendation							K	•	•		
■ 无涂层牌号 / uncoated grades							N	•	•		
■ 涂层牌号 / coated grades							S	•	•		
■ 钎焊/金属陶瓷 / brazed/Cermet							H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

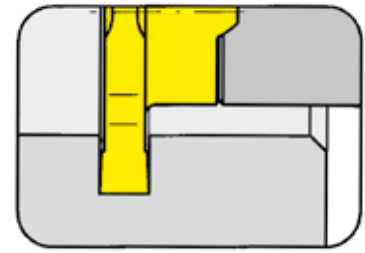
GROOVE MILLING by circular interpolation



B

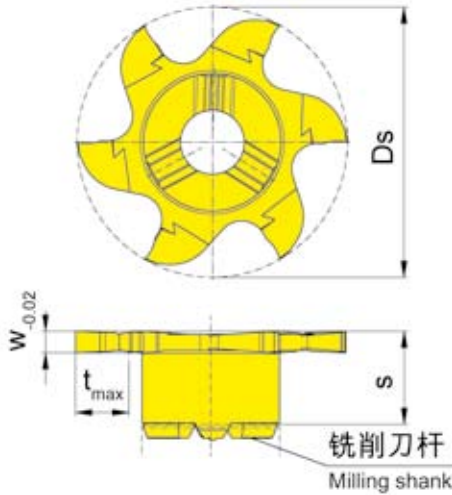
刀片型号
INSERT Type

611



切槽深度可达	Depth of groove up to	3.5 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s	t _{max}	Ds	硬质合金牌号					
						MG12	TN35	TI25	TA43	TA45	AS45
611.0110.00	1.1	1.21						▲			
611.0130.00	1.3	1.41	6.1	3.5	17.7			▲			▲
611.0160.00	1.6	1.71						▲			△
▲ 库存 / on stock △ 4周 / 4 weeks						P		•			•
• 主要应用 / main recommendation						M		•			•
○ 可选推荐 / alternative recommendation						K		•			•
■ 无涂层牌号 / uncoated grades						N		•			○
■ 涂层牌号 / coated grades						S		•			•
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

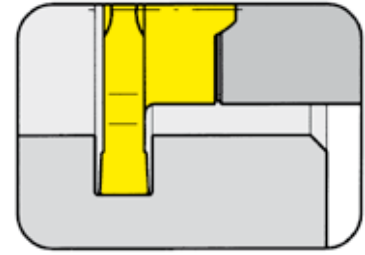


B

刀片 型号

611

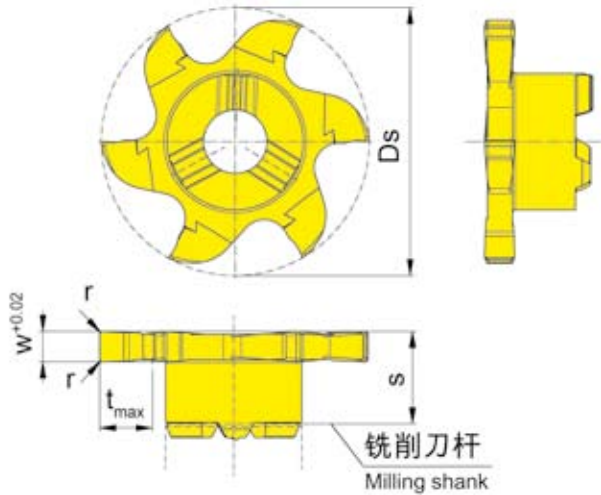
INSERT Type



切槽深度可达	Depth of groove up to	3.5 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 17.7 mm

配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
611.0150.00	1.5	-							▲		△
611.0200.00	2.0	0.2	6.1	3.5	17.7				▲		▲
611.0250.00	2.5	0.2							▲		▲
611.0300.00	3.0	0.2							▲		▲
▲ 库存 / on stock △ 4周 / 4 weeks						P			•		•
● 主要应用 / main recommendation						M			•		•
○ 可选推荐 / alternative recommendation						K			•		•
■ 无涂层牌号 / uncoated grades						N			•		○
■ 涂层牌号 / coated grades						S			•		•
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

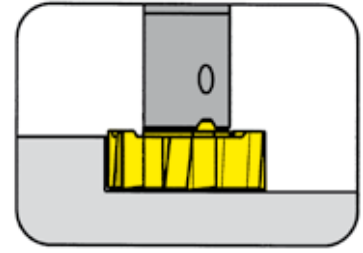
面铣削 FACE MILLING



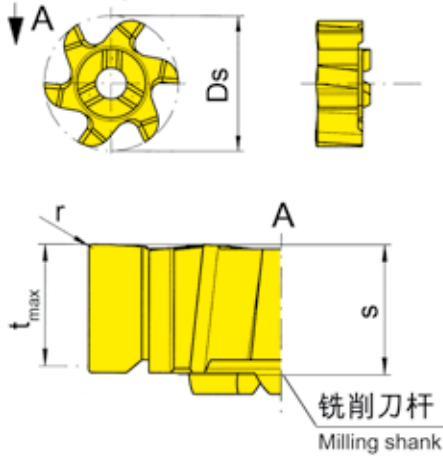
B

刀片型号
INSERT Type

611



切深可达 切削刃Ø	Depth of cut up to Cutting edge Ø	5.7 mm Ds 17.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds	MG12	TN35	TI25	TA45	AS45	TF45
611.PL61.62	6.1	5.7	0.2	17.7			▲		▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks					P		•		•	•
• 主要应用 / main recommendation					M		•		•	•
○ 可选推荐 / alternative recommendation					K		•		•	•
■ 无涂层牌号 / uncoated grades					N		•		○	•
■ 涂层牌号 / coated grades					S		•		•	•
■ 钎焊/金属陶瓷 / brazed/Cermet					H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

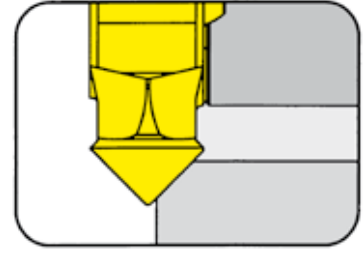
倒角 CHAMFERING



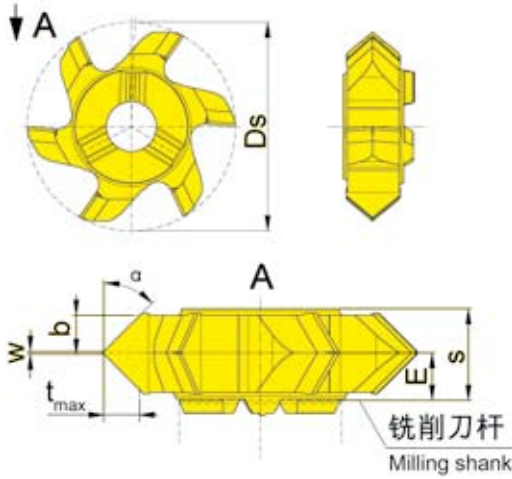
B

刀片 型号
INSERT Type

611



倒角宽度 切削刃Ø	Width of chamfer Cutting edge Ø	2.3 - 2.8 mm Ds 17.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	b	s	t _{max}	E	Ds	α		MG12	TN35	TI25	TA45	AS45
611.1515.20		2.8		0.75			15°					△	
611.2020.20		2.8		1.00			20°					△	
611.3030.20	0.2	2.8	6.3	1.60	3.2	17.7	30°					△	
611.4545.20		2.3		2.30			45°				▲		
▲ 库存 / on stock △ 4周 / 4 weeks								P			•	•	
● 主要应用 / main recommendation								M			•	•	
○ 可选推荐 / alternative recommendation								K			•	•	
■ 无涂层牌号 / uncoated grades								N			•	•	
■ 涂层牌号 / coated grades								S			•	•	
■ 钎焊/金属陶瓷 / brazed/Cermet								H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

铣刀杆 型号 M116

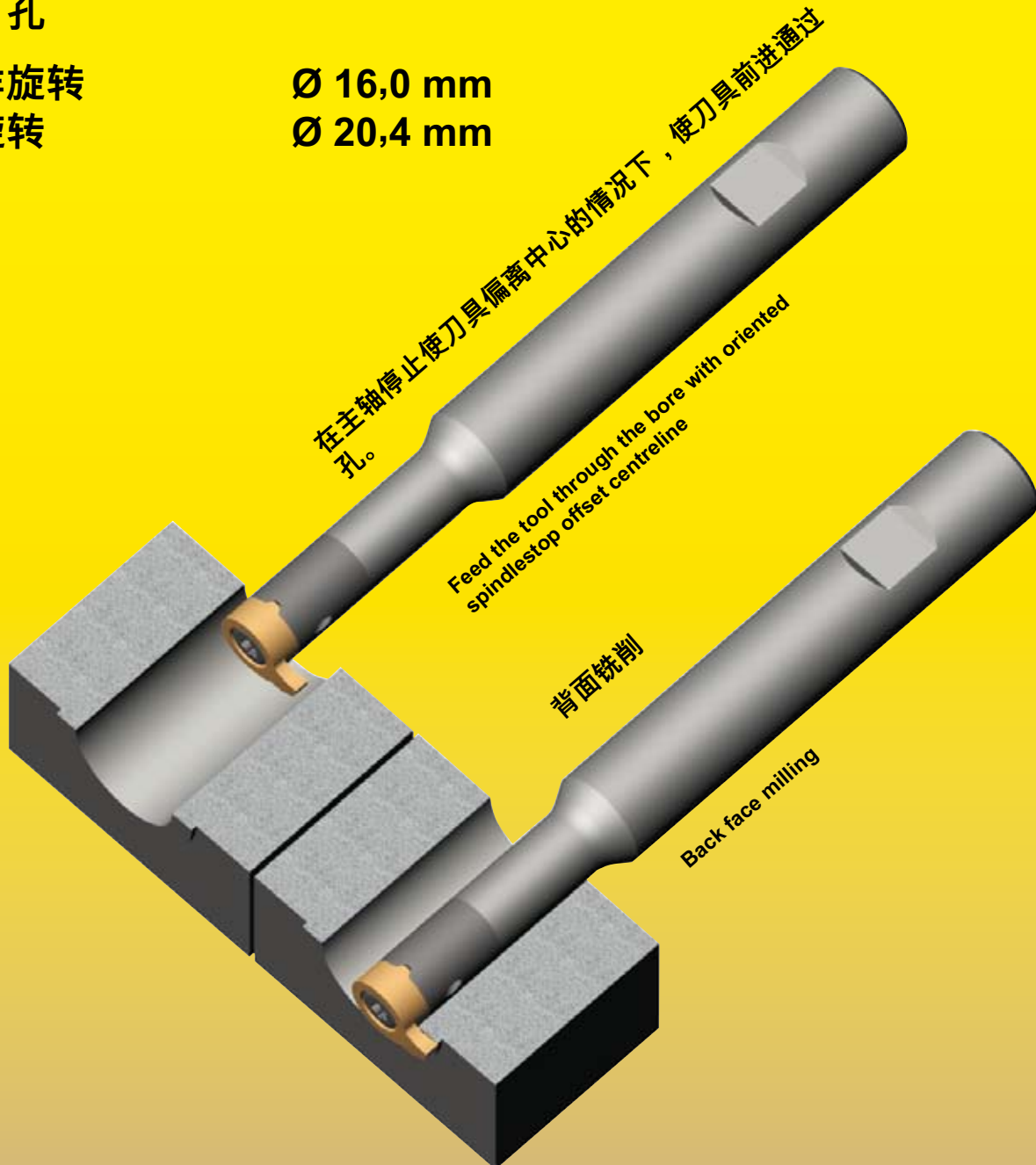
自孔

非旋转

Ø 16,0 mm

旋转

Ø 20,4 mm



MILLING SHANK type M116

from bore

non rotating

Ø 16,0 mm

rotating

Ø 20,4 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



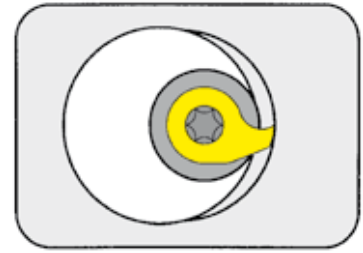
B

铣刀杆 型号

MILLING SHANK Type

M116

带内冷
with through coolant supply



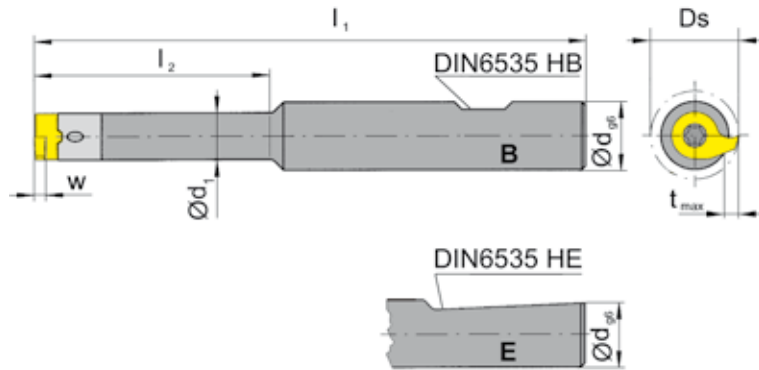
切削刃Ø

Cutting edge Ø

Ds 20,4 (16) mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 116

Type

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M116.0012.01B M116.0012.02B	130	40 56	11	12	B
M116.0016.01B M116.0016.02B M116.0016.03B	130 130 150	40 56 80	11	16	B
M116.0016.01E M116.0016.02E M116.0016.03E	130 130 150	40 56 80	11	16	E

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

注意Ø16mm条件:

只有当主轴停止并偏心通过孔进行背铣时。

Note from Ø 16 mm:

Only back face milling with oriented spindlestop offset of centerline.

订货须知:

所有刀杆都可以配合右手型或左手型116系列的刀片。

HORN可以返修损坏的铣刀杆基座。

Ordering note:

All milling cutter shanks can be used for **right** and **left** hand inserts type 116.

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M116.001...	5.13T20EP	T20PQ

槽铣削 (圆弧插补铣削)

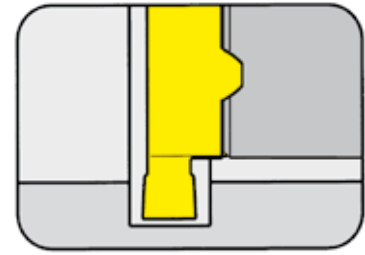
GROOVE MILLING by circular interpolation



B

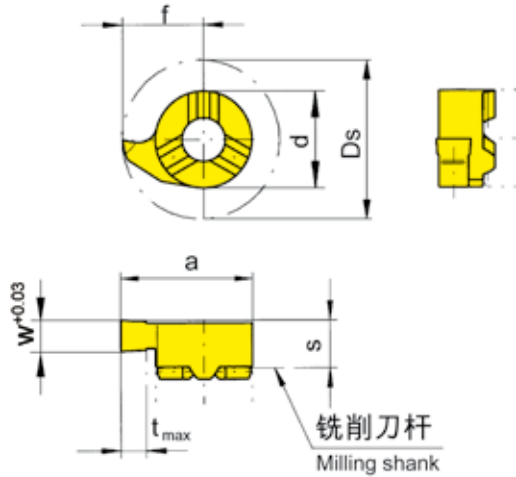
刀片型号
INSERT Type

116



切槽深度可达	Depth of groove up to	4.3 mm
卡簧宽度Nw	Width of circlip Nw	1.1 - 1.6 mm
切削刃Ø	Cutting edge Ø	Ds 20.4 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M116
Type

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	s	f	a	d	t _{max}	Ds		MG12	TN35	TI25	TF45	TH35
R/L116.0110.00	1.1	1.19								▲/▲	▲/▲			▲/▲
R/L116.0130.00	1.3	1.39	5.3	10.2	15.7	11	4.3	20.4		▲/▲	▲/▲			▲/▲
R/L116.0160.00	1.6	1.69								▲/▲	▲/▲			▲/▲
										P	○	●		●
										M	●	●		●
										K	●	●		●
										N	●	●		●
										S	●	●		●
										H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

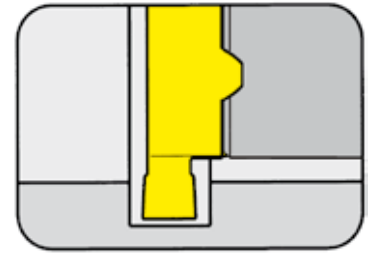


B

刀片 型号

116

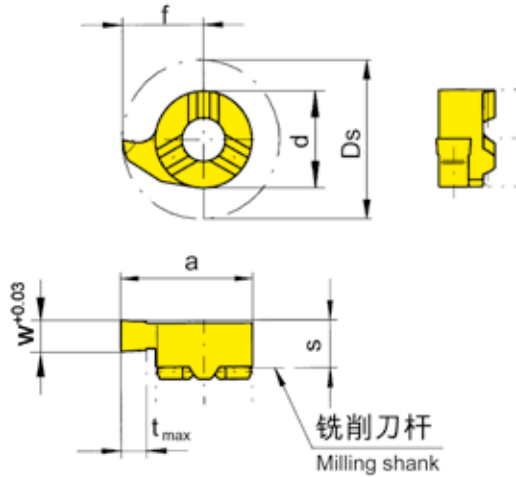
INSERT Type



切槽深度可达	Depth of groove up to	4.3 mm
槽宽	Width of groove	2.0 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 20.4 mm

配合 铣刀杆
for use with Milling shank

型号 M116
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	s	f	a	d	t _{max}	Ds	MG12	TN35	TI25	TF45	TH35
R/L116.0200.00	2.0							▲/▲	▲/▲			▲/▲
R/L116.0250.00	2.5							▲/▲	▲/▲			▲/▲
R/L116.0300.00	3.0	5.3	10.2	15.7	11	4.3	20.4	▲/▲	▲/▲			▲/▲
R/L116.0350.00	3.5							▲/▲	▲/▲			▲/▲
R/L116.0400.00	4.0							▲/▲	▲/▲			▲/▲
▲ 库存 / on stock Δ 4周 / 4 weeks								P	o	•		•
• 主要应用 / main recommendation								M	•	•		•
o 可选推荐 / alternative recommendation								K	•	•		•
■ 无涂层牌号 / uncoated grades								N	•	•		•
■ 涂层牌号 / coated grades								S	•	•		•
■ 钎焊/金属陶瓷 / brazed/Cermet								H				

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

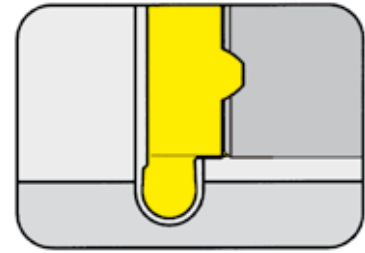
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

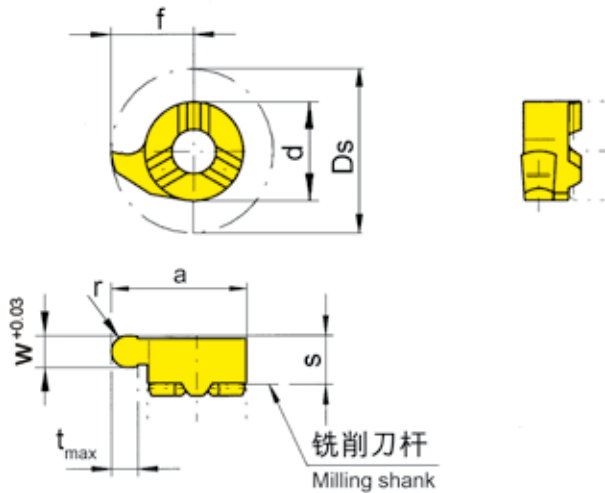
116



切槽深度可达	Depth of groove up to	4.3 mm
圆头	Full radius	r 0.9 - 2.0 mm
切削刃Ø	Cutting edge Ø	Ds 20.4 mm

配合 铣刀杆
for use with Milling shank

型号 M116
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

圆头
Full radius

产品型号 Part number	w	r	s	f	a	d	t _{max}	Ds	涂层牌号 / Coated grades				
									MG12	TN35	TI25	TF45	TH35
R/L116.0009.18	1.8	0.9							▲/▲	▲/▲			▲/▲
R/L116.0011.22	2.2	1.1							▲/▲	▲/▲			▲/▲
R/L116.0015.30	3.0	1.5	5.3	10.2	15.7	11	4.3	20.4	▲/▲	▲/▲			▲/▲
R/L116.0020.40	4.0	2.0							▲/▲	▲/▲			▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

	P	M	K	N	S	H
MG12	○	●	●	●	●	●
TN35	●	●	●	●	●	●
TI25	●	●	●	●	●	●
TF45	●	●	●	●	●	●
TH35	●	●	●	●	●	●

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

齿轮铣削

M275非标铣刀，使用S275可转位刀片和KM刀柄。

材质: **20MnCr5**

切削参数:

$V_c = 220 \text{ m/min}$

$f_z = 0.03 \text{ mm}$



Gear milling

Special milling cutter type M275 with indexable inserts type S275 and KM arbor.

Material: 20MnCr5

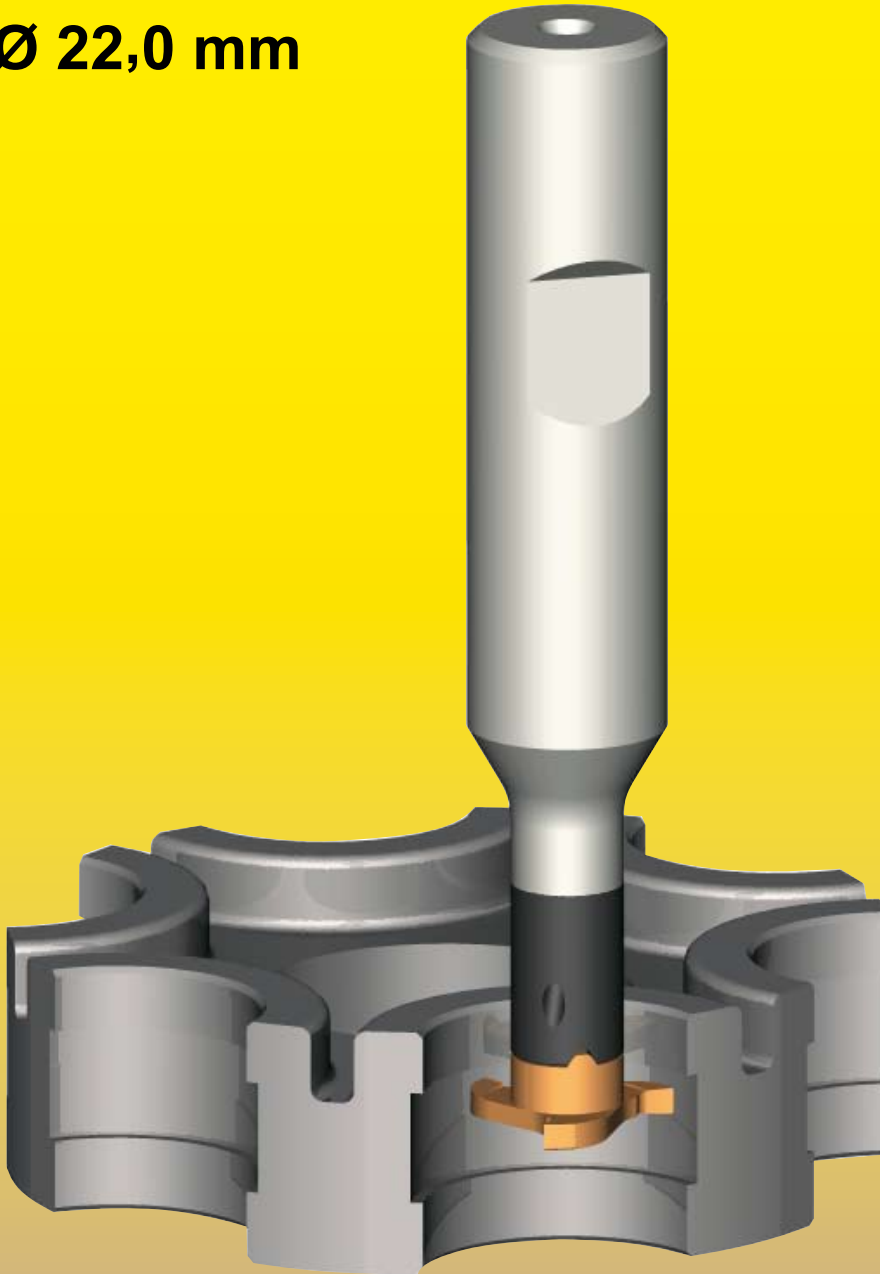
Cutting data:

$v_c = 220 \text{ m/min}$

$f_z = 0,03 \text{ mm}$

铣刀杆 型号 **M313**
自孔

Ø 22,0 mm



MILLING SHANK type **M313**
from bore

Ø 22,0 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



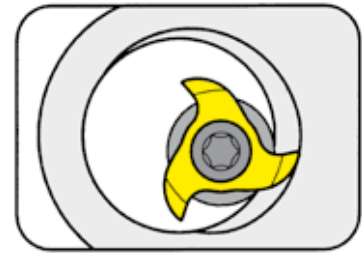
B

铣刀杆 型号

MILLING SHANK Type

M313

带内冷
with through coolant supply



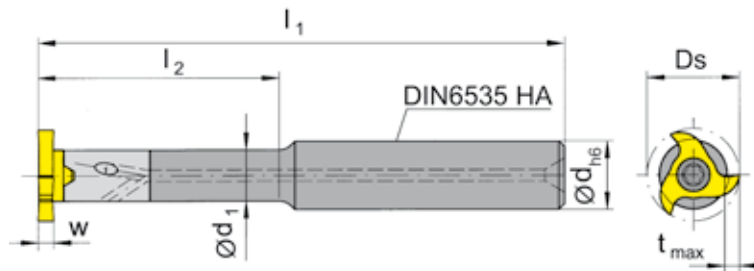
切削刃 \varnothing

Cutting edge \varnothing

Ds 21.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 313

Type 613

713

产品型号 Part number	l_1	l_2	d_1	d
M313.0012.01A	100	-	-	12
M313.0012.02A	130	-	-	12
M313.0016.01A	100	42	12	16
M313.0016.02A	130	60	12	16
M313.0016.03A	160	85	12	16

按需提供更多尺寸

Further sizes upon request

w, Ds, t_{max} 见刀片

w, Ds, t_{max} see inserts

尺寸单位：mm

Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.001...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



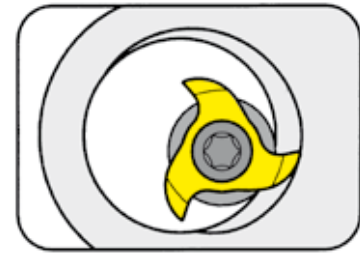
B

铣刀杆 型号

MILLING SHANK Type

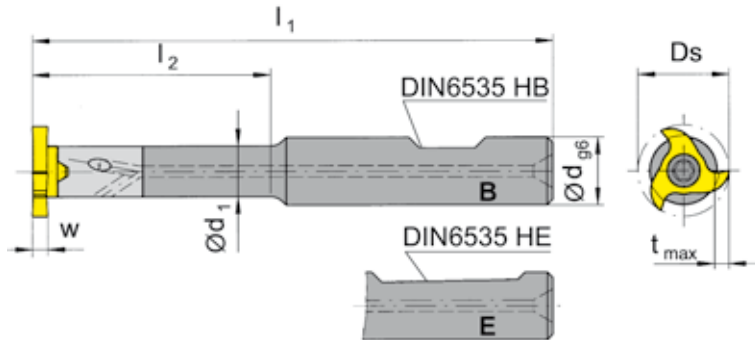
M313

带内冷
with through coolant supply



切削刃Ø	Cutting edge Ø	Ds 21.7 mm
------	----------------	------------

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合 刀片
for use with Insert

型号 313
Type 613
713

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M313.0012.01B	100	-	-	12	B
M313.0012.02B	130	-	-	12	B
M313.0016.01B	100	42	-	16	B
M313.0016.02B	130	60	12	16	B
M313.0016.03B	160	85	12	16	B
M313.0012.01E	100	-	-	12	E
M313.0012.02E	130	-	-	12	E
M313.0016.01E	100	42	-	16	E
M313.0016.02E	130	60	12	16	E
M313.0016.03E	160	85	12	16	E

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.001...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

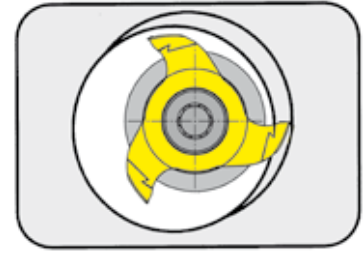


B

铣刀杆 型号

MILLING SHANK Type

M313-ST

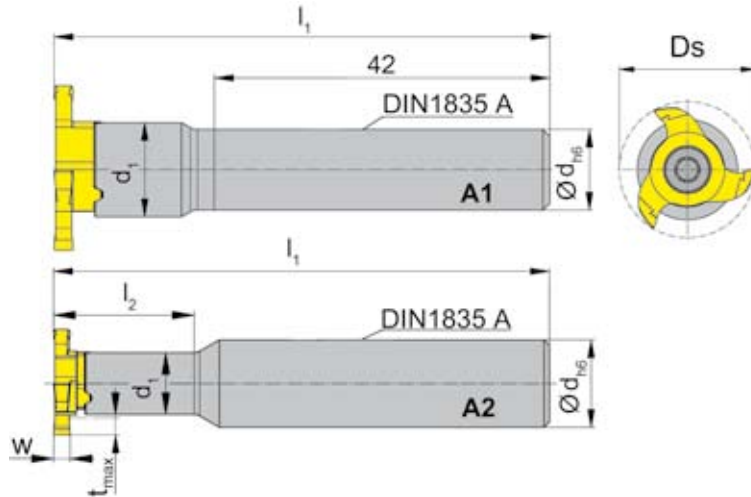


配合筒夹的圆柱钢铣刀杆

Cylindrical steel milling shank for collets

用于CNC车床的圆刀杆

with cylindrical shank for CNC-lathes



配合 刀片

for use with Insert

型号 313

Type 613

713

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M313-ST10.01A	60	-	11.3	10	A1
M313-ST12.01A	70	18	11.3	12	A2
M313-ST13.01A	70	26	11.3	13	A2
M313-ST16.01A	80	26	11.3	16	A2

按需提供更多尺寸

Further sizes upon request

w, D_s, t_{max} 见刀片

w, D_s, t_{max} see inserts

尺寸单位 : mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.ST1...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

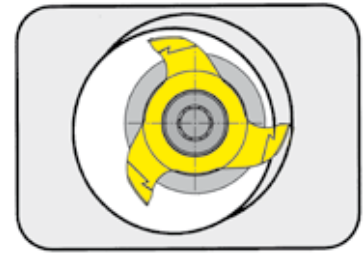
GROOVE MILLING by circular interpolation



B

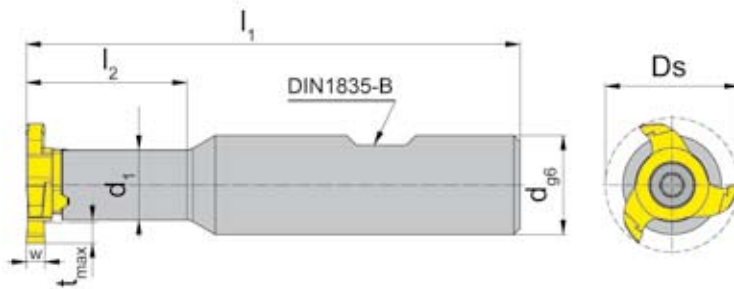
铣刀杆 型号
MILLING SHANK Type

M313-ST



带夹紧平面的圆柱钢铣刀杆
Cylindrical steel milling shank with clamping flat

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 刀片
for use with Insert

型号 313
Type 613
713

产品型号 Part number	l_1	l_2	d_1	d
M313-ST12.01B	70	18	11.3	12

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.ST12.01B	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



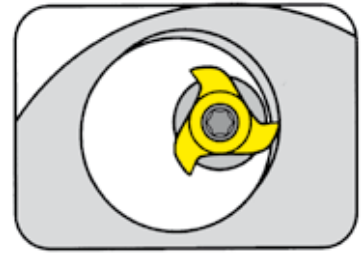
B

铣刀杆 型号

MILLING SHANK Type

M313.ER

无内冷
no coolant supply

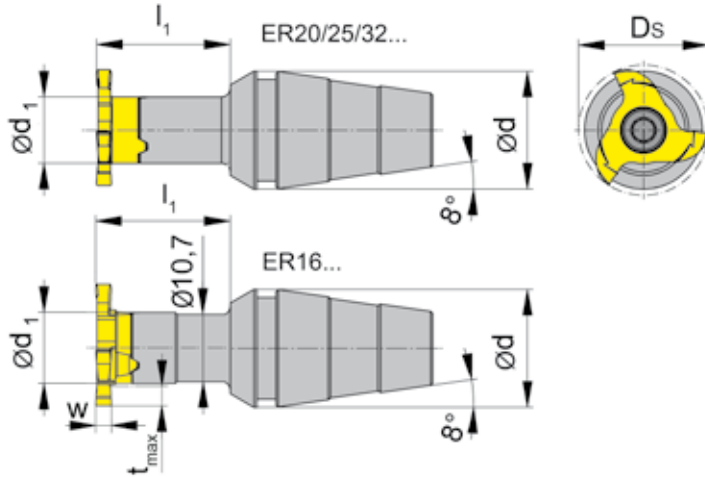


配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes

配合 刀片
for use with Insert

型号 313
Type 613
713



产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M313.ER16.01 M313.ER16.02	20 30	11.3	16	ER16.6499/ERM...
M313.ER20.01 M313.ER20.02	20 30	11.3	20	ER20.6499/ERM...
M313.ER25.02	30	11.3	25	ER25.6499
M313.ER32.02	30	11.3	32	ER32.6499

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

铣刀杆不包含夹紧螺母-需要单独订购 !

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.ER...	5.14T20P	T20PQ

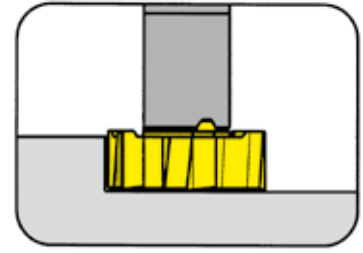
面铣削 FACE MILLING



B

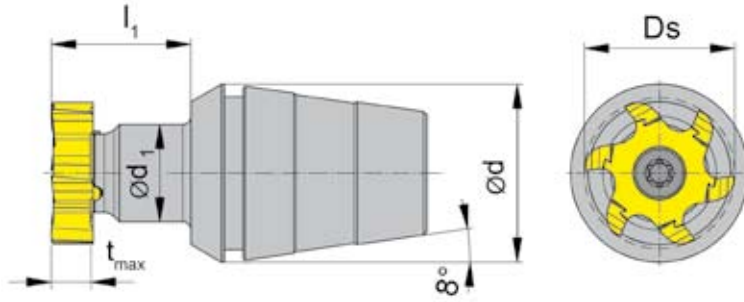
铣刀杆 型号
MILLING SHANK Type

M313.ER
无内冷
no coolant supply



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片
for use with Insert

型号 313
Type 613
713

产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M313.ER25.14.01	19.7	14	25	ER25.6499
M313.ER32.14.01	19.7	14	32	ER32.6499

按需提供更多尺寸
Further sizes upon request

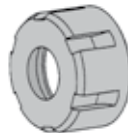
t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知：
铣刀杆不包含夹紧螺母-需要单独订购！

Ordering note:
Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.ER...	5.14T20P	T20PQ

槽铣削/面铣削

GROOVE MILLING / FACE MILLING

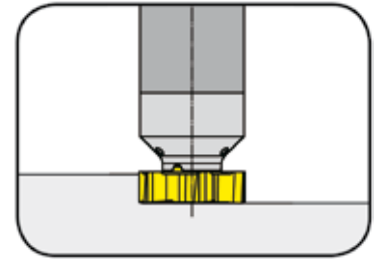


B

铣刀杆 型号

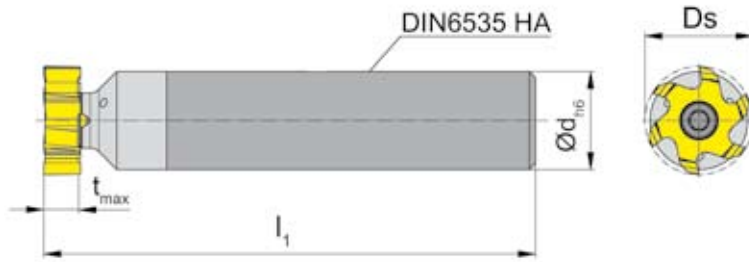
MILLING SHANK Type

M313



用于筒夹的硬质合金圆柱刀柄
Cylindrical carbide shank for collets

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 刀片
for use with Insert

型号 313
Type 613
713

产品型号 Part number	l_1	d
M313.0016.D.00A	80	16
M313.0020.D.00A	80	20

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.00...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

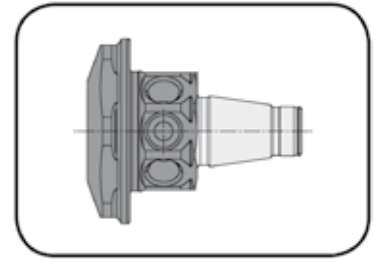


B

常规刀柄 型号

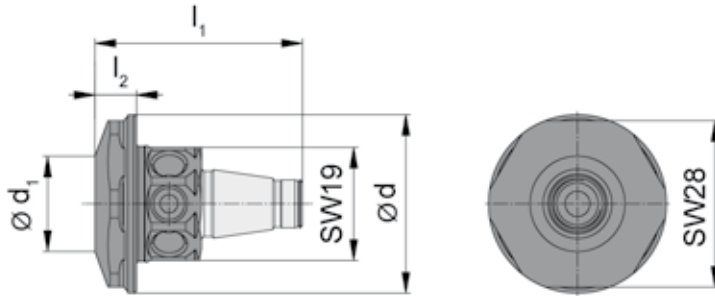
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



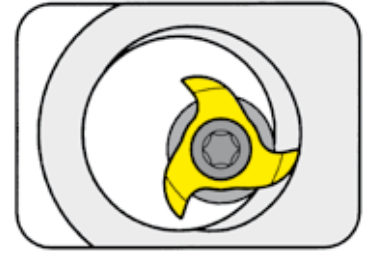
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M313.M

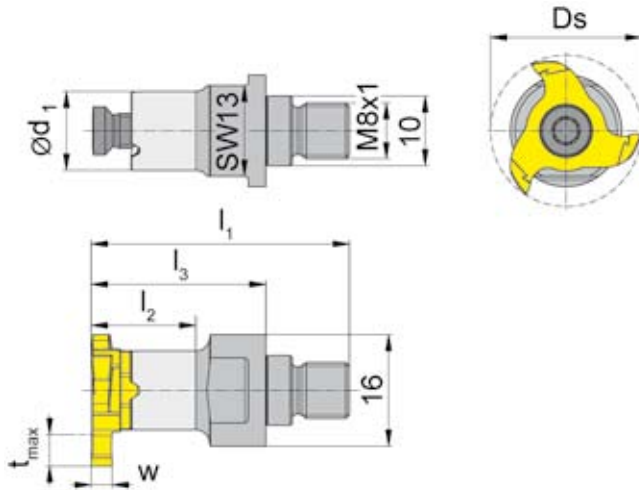
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 313
Type 613
713



产品型号 Part number	l_1	l_2	l_3	d_1
M313.M081.01	37	15	25	11.3

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.M081.01	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

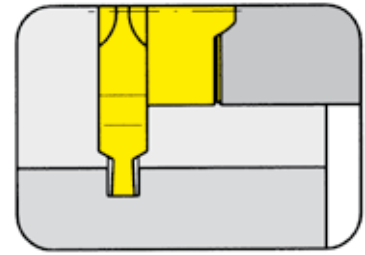
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

313

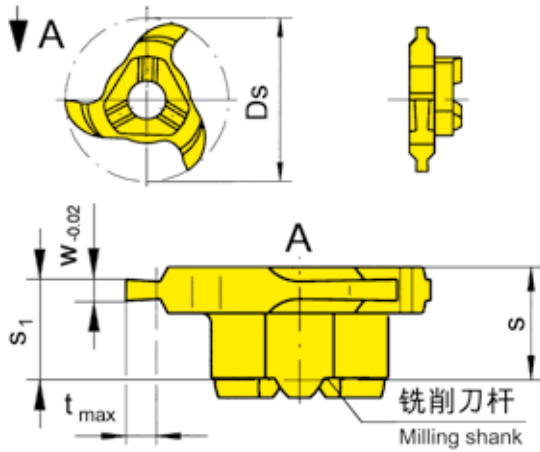


切槽深度可达	Depth of groove up to	2.5 mm
卡簧宽度Nw	Width of circlip Nw	0.7 - 1.1 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	s ₁	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
313.0070.00	0.7	0.77			1.5			▲			
313.0080.00	0.8	0.87			1.7			▲			
313.0090.00	0.9	0.97	5.6	5.9	1.9	21.7	Δ	▲			
313.0100.00	1.0	1.07			2.2			▲			
313.0110.00	1.1	1.21			2.5			▲			
▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet							P	○	●		
							M	●	●		
							K	●	●		
							N	●	●		
							S	●	●		
							H				

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

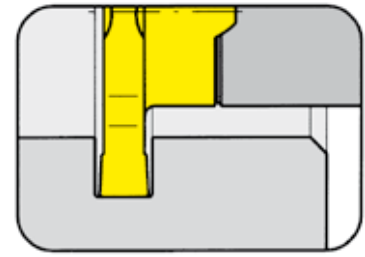


B

刀片型号

313

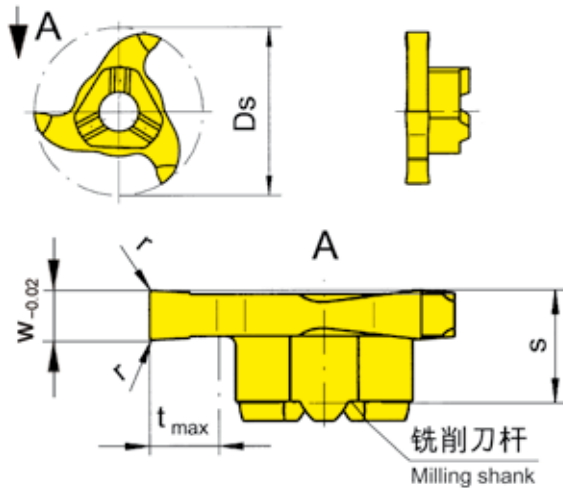
INSERT Type



切槽深度可达	Depth of groove up to	4.50 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 5.15 mm
切削刃Ø	Cutting edge Ø	Ds 21.70 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M313

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	r	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
313.0130.00	1.30	1.41	-	5.7	4.5	21.7	▲	▲			▲
313.0160.00	1.60	1.71	-	5.7	4.5	21.7	▲	▲			▲
313.0185.00	1.85	1.96					▲	▲			▲
313.0215.00	2.15	2.26					▲	▲			▲
313.0265.00	2.65	2.76					▲	▲			▲
313.0315.00	3.15	3.26	0.2	5.7	4.5	21.7	▲	▲			▲
313.0415.00	4.15	4.26					▲	▲			▲
313.0515.00	5.15	5.26					▲	▲			▲
▲ 库存 / on stock Δ 4周 / 4 weeks							P	○	●		●
● 主要应用 / main recommendation							M	●	●		●
○ 可选推荐 / alternative recommendation							K	●	●		●
■ 无涂层牌号 / uncoated grades							N	●	●		○
■ 涂层牌号 / coated grades							S	●	●		●
■ 钎焊/金属陶瓷 / brazed/Cermet							H				

硬质合金牌号
Carbide grades

尺寸单位 : mm

Dimensions in mm

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

刀片313.0415.00和313.0515.00

仅用于l₂=max.42mm的刀杆

Inserts 313.0415.00 and 313.0515.00

only with toolholder dimension l₂ = max. 42 mm

槽铣削 (圆弧插补铣削)

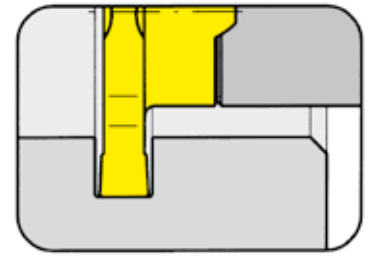
GROOVE MILLING by circular interpolation



B

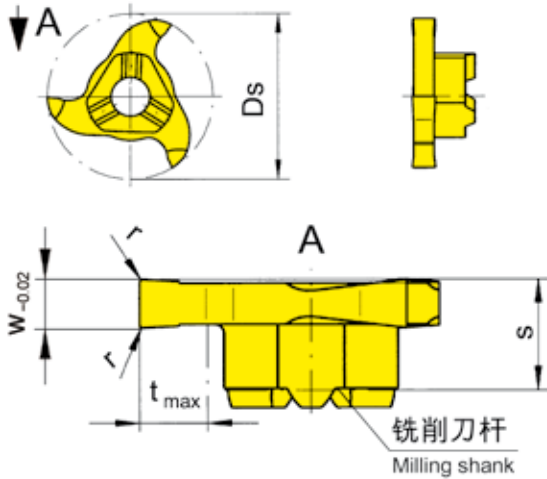
刀片型号
INSERT Type

313
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	4.50 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 5.15 mm
切削刃Ø	Cutting edge Ø	Ds 21.70 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	r	s	t _{max}	Ds	MG12	TN35	Ti25	TA45	AS45
313.0130.40	1.30	1.41	-	5.7	4.5	21.7			▲		
313.0160.40	1.60	1.71	-	5.7	4.5	21.7			▲		
313.0185.40	1.85	1.96							▲		
313.0215.40	2.15	2.26							▲		
313.0265.40	2.65	2.76							▲		
313.0315.40	3.15	3.26	0.2	5.7	4.5	21.7			▲		
313.0415.40	4.15	4.26					Δ		▲		
313.0515.40	5.15	5.26					▲		▲		

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	○	●	■	■
M	●	●	■	■
K	●	●	■	■
N	●	●	■	■
S	●	●	■	■
H				

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

刀片313.0415.40和313.0515.40
仅用于l₂=max.42mm的刀杆
Inserts 313.0415.40 and 313.0515.40
only with toolholder dimension l₂ = max. 42 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

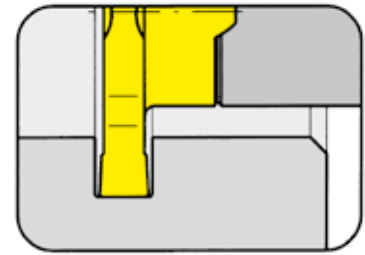


B

刀片 型号

L313

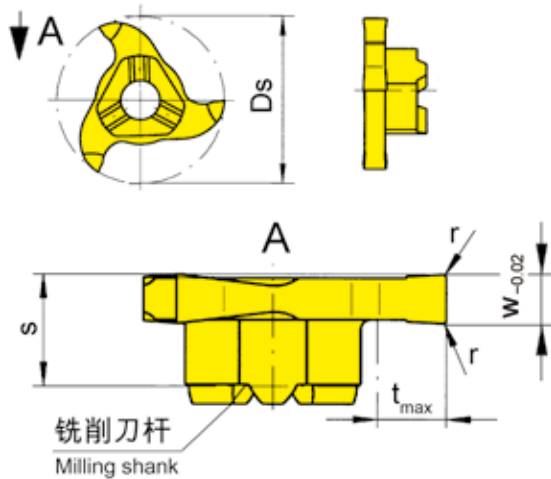
INSERT Type



切槽深度可达	Depth of groove up to	4.50 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 5.15 mm
切削刃Ø	Cutting edge Ø	Ds 21.70 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M313

Type

图示=左手型切削

Picture = left hand cutting version

产品型号 Part number	Nw	w	r	s	t _{max}	Ds	硬质合金牌号				
							MG12	TN35	TI25	TA45	AS45
L313.0130.00	1.30	1.41	-	5.7	4.5	21.7					Δ
L313.0160.00	1.60	1.71	-	5.7	4.5	21.7					Δ
L313.0185.00	1.85	1.96									Δ
L313.0215.00	2.15	2.25					Δ		Δ		Δ
L313.0265.00	2.65	2.76									Δ
L313.0315.00	3.15	3.26	0.2	5.7	4.5	21.7					Δ
L313.0415.00	4.15	4.26									Δ
L313.0515.00	5.15	5.26									Δ
▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet							P	○	●	●	●
							M	●	●	●	●
							K	●	●	●	●
							N	●	●	●	○
							S	●	●	●	●
							H				

尺寸单位 : mm

Dimensions in mm

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

刀片L313.0415.00和L313.0515.00

仅用于 $l_2 = \max. 42\text{mm}$ 的刀杆

Inserts L313.0415.00 and L313.0515.00

only with toolholder dimension $l_2 = \max. 42\text{ mm}$

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

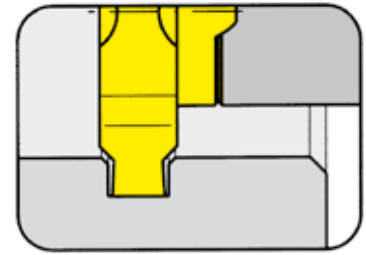
GROOVE MILLING by circular interpolation



B

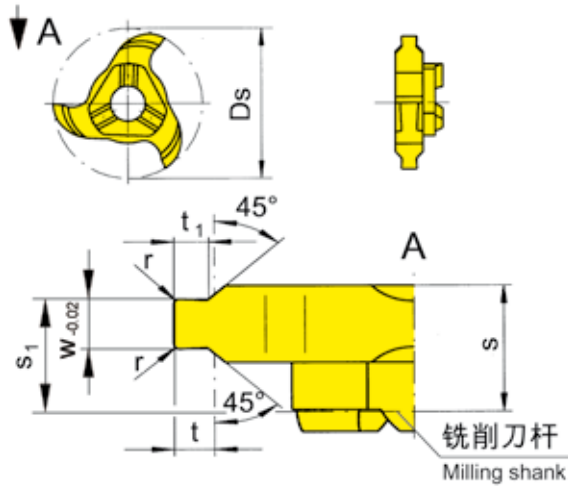
刀片型号
INSERT Type

313



切槽深度可达	Depth of groove up to	2.5 mm
卡簧宽度Nw	Width of circlip Nw	1.10 - 4.15 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合 铣刀杆
for use with Milling shank

型号 M313
Type

带倒角
with chamfering

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Nw	w	r	t ₁	s ₁	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
313.1105.30	1.10	1.21		0.47	5.07		0.50				▲			
313.1307.30	1.30	1.41		0.65	5.17		0.70				▲			△
313.1308.30	1.30	1.41	-	0.81	5.17	5.9	0.85	21.7			▲			△
313.1609.35	1.60	1.71		0.81	5.07		0.85				▲			△
313.1610.35	1.60	1.71		0.95	5.07		1.00				▲			△
313.1812.35	1.85	1.96		1.21	5.19		1.25				▲			△
313.2115.35	2.15	2.26		1.45	5.34		1.50				▲		△	△
313.2616.45	2.65	2.76		1.45	5.09		1.50				▲			△
313.2617.45	2.65	2.76	0.2	1.70	5.09	5.9	1.75	21.7			▲			△
313.3118.45	3.15	3.26		1.70	5.34		1.75				▲			△
313.4120.55	4.15	4.26		1.95	5.34		2.00				▲			△
313.4125.55	4.15	4.26		2.45	5.34		2.50				▲			△
										P	●	●	●	●
										M	●	●	●	●
										K	●	●	●	●
										N	●	●	●	○
										S	●	●	●	●
										H				

尺寸单位 : mm
Dimensions in mm

刀片313.4120.55和313.4125.55
仅用于l₂=max.42mm的刀杆
Inserts 313.4120.55 and 313.4125.55
only with toolholder dimension l₂ = max. 42 mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

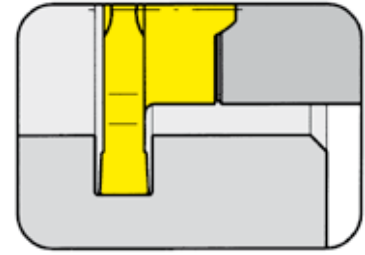


B

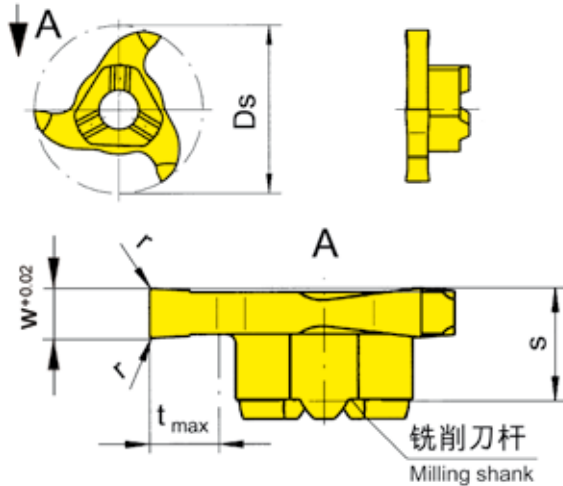
刀片型号

313

INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.5 - 6.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
313.0150.00	1.5	-	5.7	4.5	21.7	▲	▲			▲
313.0150.01	1.5	0.1	5.7	4.5	21.7					▲
313.0200.00	2.0					▲	▲			▲
313.0250.00	2.5					▲	▲	▲		▲
313.0300.00	3.0					▲	▲			▲
313.0350.00	3.5	0.2	5.7	4.5	21.7	▲	▲	▲		▲
313.0400.00	4.0					▲	▲			▲
313.0500.00	5.0					▲	▲			▲
313.0600.00	6.0	0.2	6.9	4.5	21.7	▲	▲			▲
▲ 库存 / on stock						○	●	●	●	●
● 主要应用 / main recommendation						●	●	●	●	●
○ 可选推荐 / alternative recommendation						○				
■ 无涂层牌号 / uncoated grades										
■ 涂层牌号 / coated grades										
■ 钎焊/金属陶瓷 / brazed/Cermet										

尺寸单位 : mm
Dimensions in mm

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

订货须知 :
刀片313.0600.00带断屑

Ordering note:
Insert 313.0600.00 with chip divider!

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

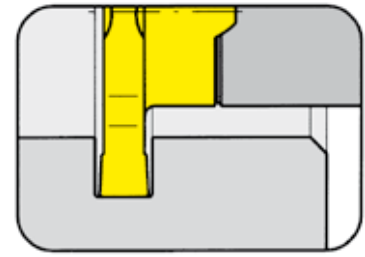
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

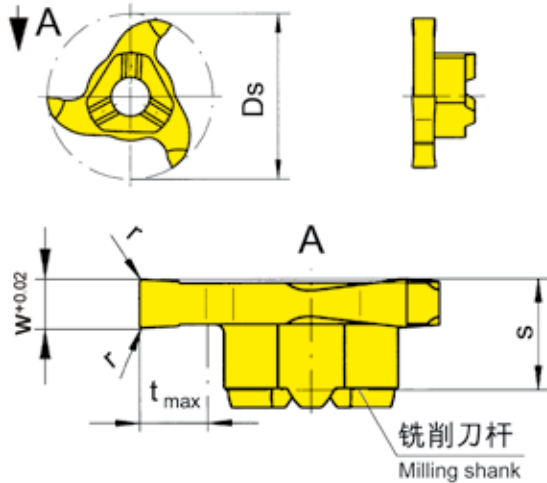
313
铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.5 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
313.0150.40	1.5	-							▲		
313.0200.40	2.0	0.2							▲		
313.0250.40	2.5	0.2	5.7	4.5	21.7				▲		
313.0300.40	3.0	0.2							▲		
313.0400.40	4.0	0.2							▲		
						P			•		
						M			•		
						K			•		
						N			•		
						S			•		
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

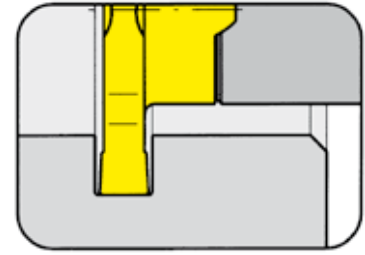


B

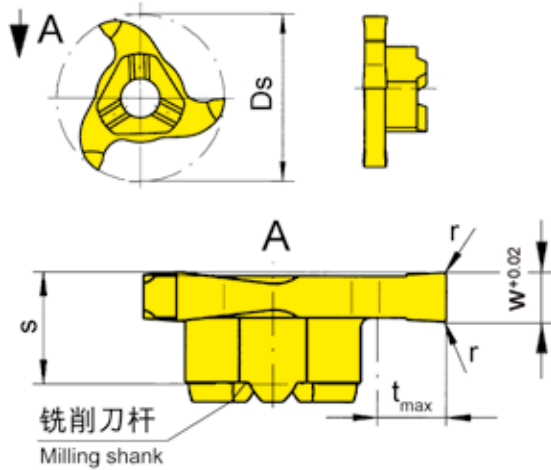
刀片型号

L313

INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.5 - 6.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm



配合 铣刀杆

for use with Milling shank

型号 M313

Type

图示=左手型切削

Picture = left hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
L313.0150.00	1.5	-	5.7	4.5	21.7					Δ
L313.0150.01	1.5	0.1	5.7	4.5	21.7					Δ
L313.0200.00	2.0		5.7							Δ
L313.0250.00	2.5		5.7							Δ
L313.0300.00	3.0		5.7							Δ
L313.0350.00	3.5	0.2	5.7	4.5	21.7	Δ		Δ		Δ
L313.0400.00	4.0		5.7							Δ
L313.0500.00	5.0		5.7							Δ
L313.0600.00	6.0		6.9							Δ
▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet						P	○	●	●	●
						M	●	●	●	●
						K	●	●	●	●
						N	●	●	○	○
						S	●	●	●	●
						H				

尺寸单位 : mm

Dimensions in mm

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

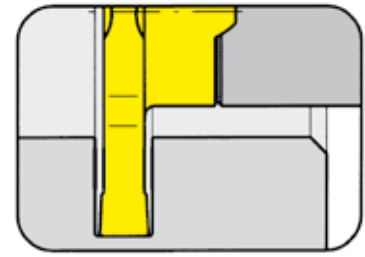
GROOVE MILLING by circular interpolation



B

刀片 型号
INSERT Type

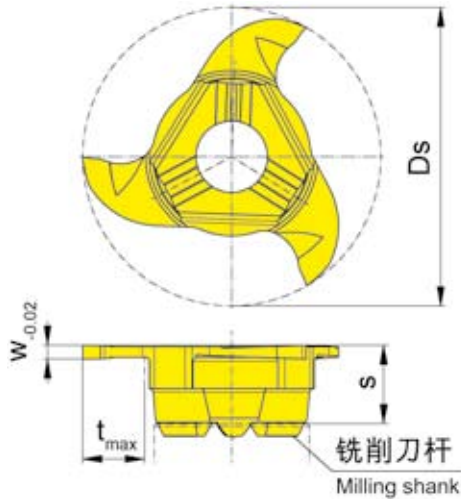
313



切槽深度可达	Depth of groove up to	4.5 mm
槽宽可达	Width of groove up to	1.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



铣削深度增加
increased milling depth

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
313.0100.1.00	1	5.7	4.5	21.7			▲	▲		
▲ 库存 / on stock						P	•	•		
• 主要应用 / main recommendation						M	•	•		
○ 可选推荐 / alternative recommendation						K	•	•		
■ 无涂层牌号 / uncoated grades						N	•	•		
■ 涂层牌号 / coated grades						S	•	•		
■ 钎焊/金属陶瓷 / brazed/Cermet						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

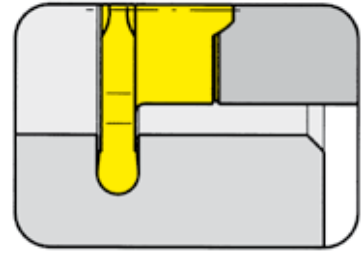


B

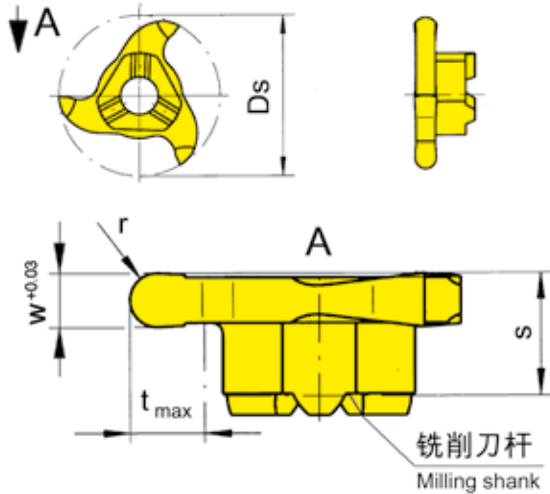
刀片型号

313

INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
圆头	Full radius	r 0.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version



产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号				
						MG12	TN35	TI25	TA45	AS45
313.0005.10	1.0	0.5					▲			▲
313.0010.20	2.0	1.0					▲			▲
313.0014.28	2.8	1.4					▲			▲
313.0015.30	3.0	1.5	5.7	4.5	21.7		▲			▲
313.0020.40	4.0	2.0					▲			▲
313.0025.50	5.0	2.5					▲			▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	○	○
S	●	●	●	●
H				

硬质合金牌号
Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

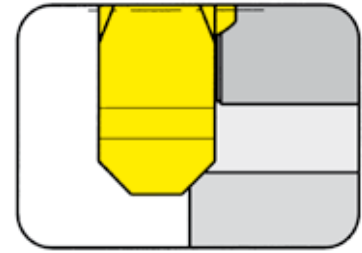


B

刀片型号

INSERT Type

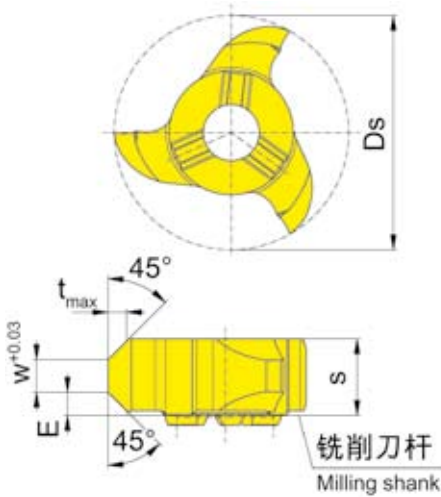
313



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	3.0 mm Ds 21.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	E	Ds	MG12	TN35	TI25	TA45	AS45
313.4545.30.00	2.6	9.4	3.0	3.60	21.7				△	
313.4545.00	3.0	7.1	1.7	2.15	21.7		▲			
▲ 库存 / on stock △ 4周 / 4 weeks						P	•		•	
• 主要应用 / main recommendation						M	•		•	
○ 可选推荐 / alternative recommendation						K	•		•	
■ 无涂层牌号 / uncoated grades						N	•		•	
■ 涂层牌号 / coated grades						S	•		•	
■ 钎焊/金属陶瓷 / brazed/Cermet						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

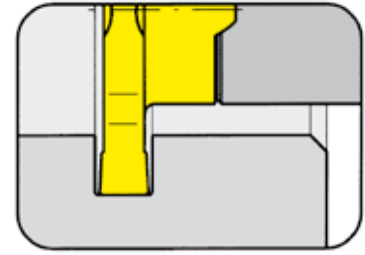


B

刀片 型号

613

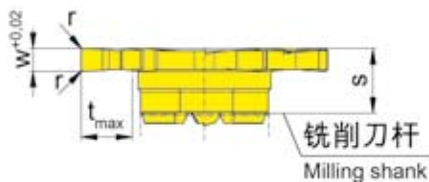
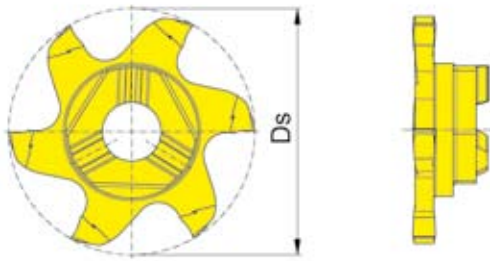
INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.5 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	MG12	TN35	TI25	TA45	AS45
613.0150.00	1.5	-						▲		△
613.0200.00	2.0	0.2						▲		▲
613.0250.00	2.5	0.2	5.7	4.5	21.7			▲		▲
613.0300.00	3.0	0.2						▲		▲
613.0400.00	4.0	0.2						▲		▲
						P		•		•
						M		•		•
						K		•		•
						N		•		○
						S		•		•
						H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P		•		•
M		•		•
K		•		•
N		•		○
S		•		•
H				

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

刀片613.0400.00

仅用于l₂=max.42mm的刀杆

Insert 613.0400.00

only with toolholder dimension l₂ = max. 42 mm

槽铣削 (圆弧插补铣削)

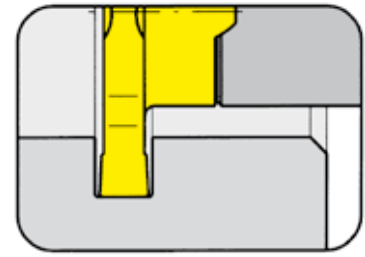
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

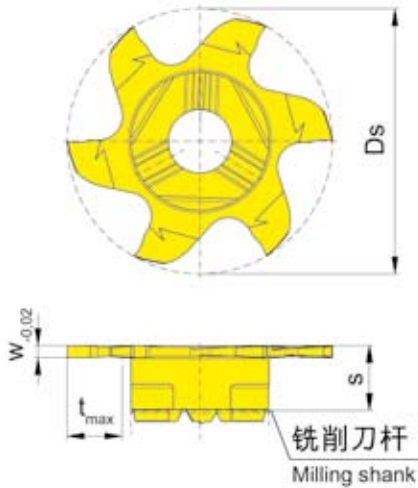
613



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
613.0100.1.00	1	5.3	4.5	21.7				▲		
					P			•		
					M			•		
					K			•		
					N			•		
					S			•		
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

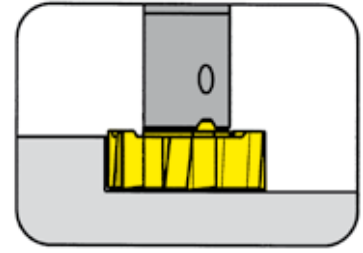
面铣削 FACE MILLING



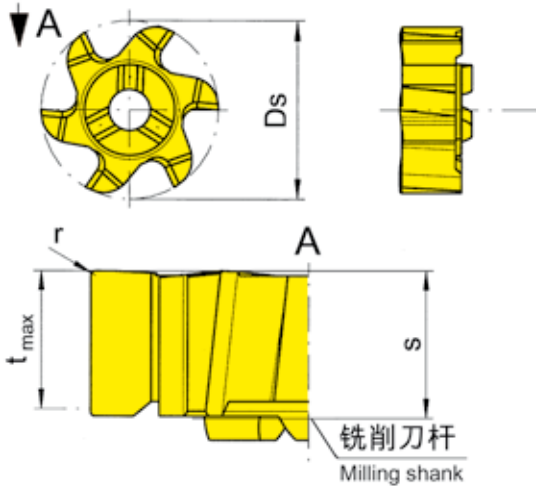
B

刀片型号
INSERT Type

613



切深可达 切削刃Ø	Depth of cut up to Cutting edge Ø	5.7 mm Ds 21.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds	MG12	TN35	TI25	TA45	AS45	TF45
613.PL61.62	6.1	5.7	0.2	21.7			▲		▲	▲
▲ 库存 / on stock Δ 4周 / 4 weeks					P		•		•	•
• 主要应用 / main recommendation					M		•		•	•
○ 可选推荐 / alternative recommendation					K		•		•	•
■ 无涂层牌号 / uncoated grades					N		•		○	•
■ 涂层牌号 / coated grades					S		•		•	•
■ 钎焊/金属陶瓷 / brazed/Cermet					H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

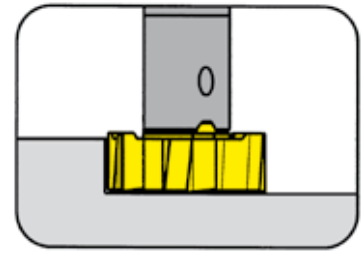
面铣削 FACE MILLING



B

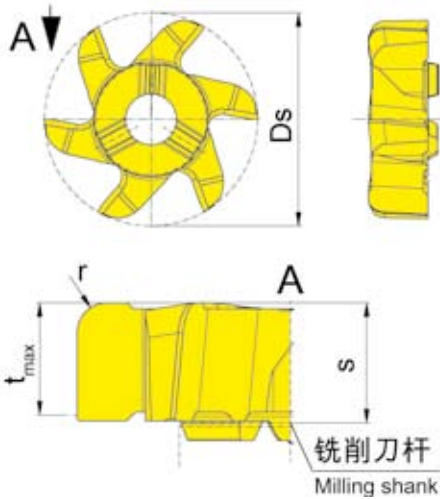
刀片型号
INSERT Type

613



切深可达 5.7 mm
切削刃Ø Ds 21.7 mm

Depth of cut up to 5.7 mm
Cutting edge Ø Ds 21.7 mm



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds		MG12	TN35	TI25	TA45	AS45
613.PLT6.15	6.1	5.7	1.5	21.7				△		▲
					P			•		•
					M			•		•
					K			•		•
					N			•		○
					S			•		•
					H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

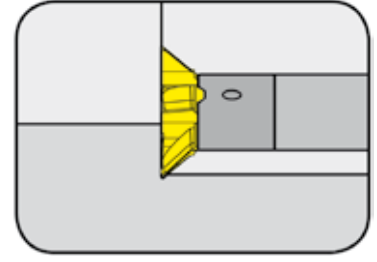
面铣削 FACE MILLING



B

刀片 型号
INSERT Type

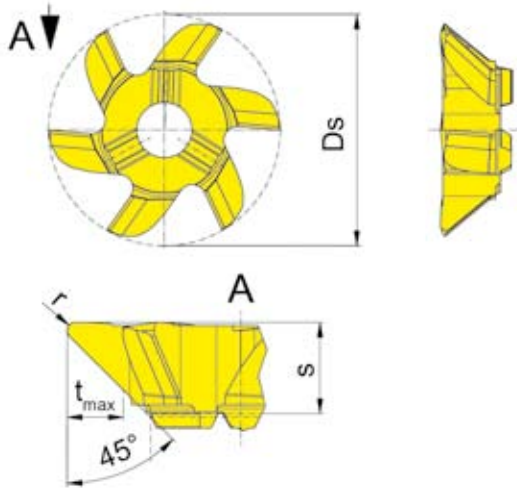
613



切深可达
切削刃Ø

Depth of cut up to
Cutting edge Ø

3.5 mm
Ds 21.7 mm



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds	MG12	TN35	TI25	TA45	AS45	TF45
613.0045.25	5.7	3.5	0.5	21.7					▲	
					P				•	
					M				•	
					K				•	
					N				○	
					S				•	
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

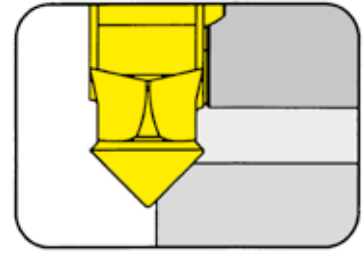
倒角 CHAMFERING



B

刀片型号
INSERT Type

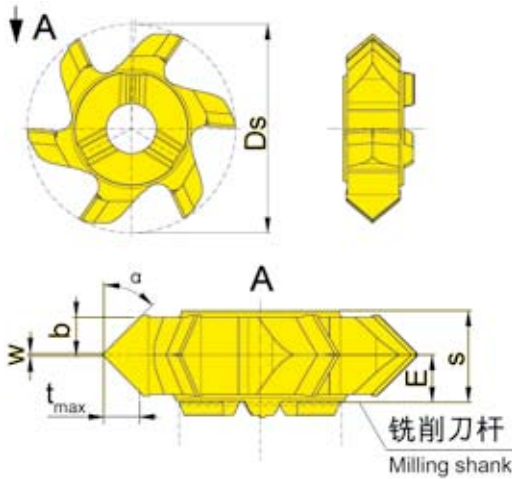
613



倒角宽度 切削刃Ø	Width of chamfer Cutting edge Ø	2.5 - 2.7 mm Ds 21.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	b	s	t _{max}	E	Ds	α		MG12	TN35	TI25	TA45	AS45
613.1515.20		2.7		0.75			15°					▲	
613.2020.20		2.7		1.00			20°					▲	
613.3030.20	0.2	2.7	6.3	1.60	3.3	21.7	30°					▲	
613.4545.20		2.5		2.50			45°				▲		
▲ 库存 / on stock Δ 4周 / 4 weeks								P			●	●	
● 主要应用 / main recommendation								M			●	●	
○ 可选推荐 / alternative recommendation								K			●	●	
■ 无涂层牌号 / uncoated grades								N			●	●	
■ 涂层牌号 / coated grades								S			●	●	
■ 钎焊/金属陶瓷 / brazed/Cermet								H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

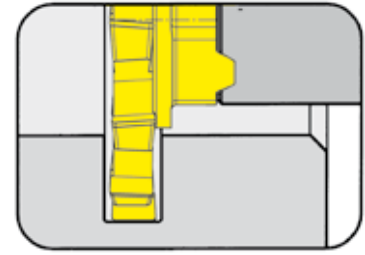


B

刀片 型号

713

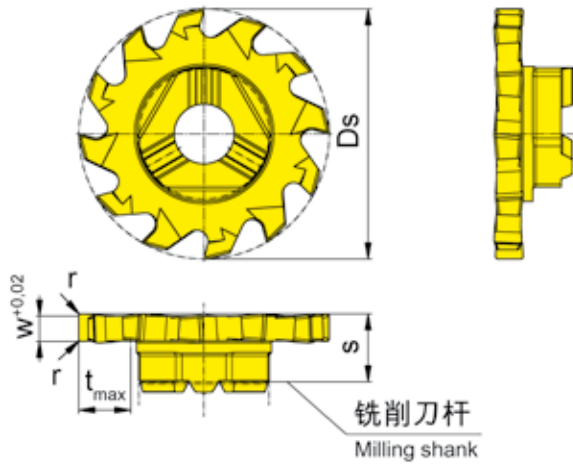
INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.0 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	Z		MG12	TN35	TI25	TA45	AS45
713.0100.00	1.0	-								▲		
713.0150.00	1.5	-								▲		
713.0200.00	2.0	0.2	5.9	4.5	21.7	12				▲		
713.0250.00	2.5	0.2								▲		
713.0300.00	3.0	0.2								▲		
							P			•		
							M			•		
							K			•		
							N			•		
							S			•		
							H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

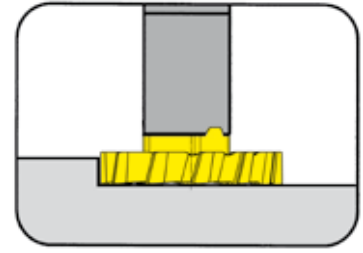
面铣削 FACE MILLING



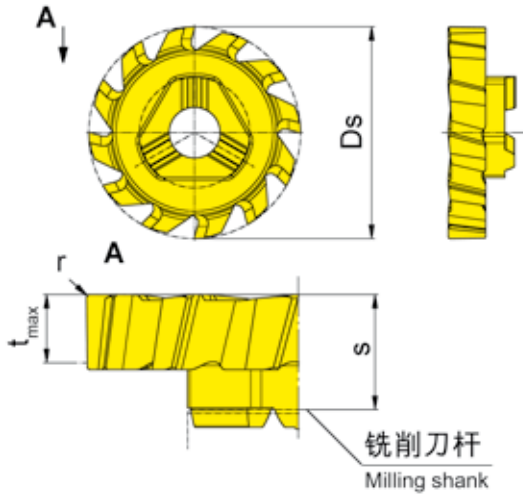
B

刀片型号
INSERT Type

713



切深可达 切削刃Ø	Depth of cut up to Cutting edge Ø	3.5 mm Ds 21.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Z	Ds		MG12	TN35	TI25	TA45	AS45
713.PL35.15.02	5.9	3.5	0.2	12	21.7				▲		
							P		•		
							M		•		
							K		•		
							N		•		
							S		•		
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



硬质合金铣刀柄拥有出色的抗振性能，从而刚性更好，非常适合于PCD刀片。



Carbide milling cutter shanks offer excellent antivibration properties, resulting in greater rigidity, ideally suited for holding PCD tipped inserts.

306,308,311,313及328系列的PCD刀片都可按照客户要求
进行生产，我们可提供中间宽度尺寸以及各种复杂轮廓的PCD刀
片。

PCD tipped inserts of the 306, 308, 311, 313 and 328 range are
manufactured according to customers requirements. Intermediate widths as
well as complicated forms are all part of our product range.



HTC程序计算得出的切削参数可以保证HORN铣槽刀具表现出
最佳和最经济的性能。

Cutting data calculated from our HCT programme guarantees both
optimum and economical performance of the HORN groove milling tools.



313系列刀片加工双槽



**Double grooving
with insert type 313**

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

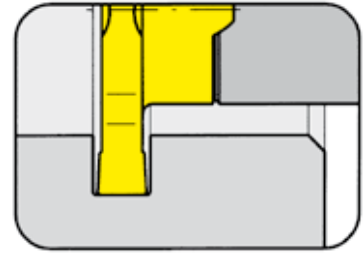


B

刀片 型号

313.D

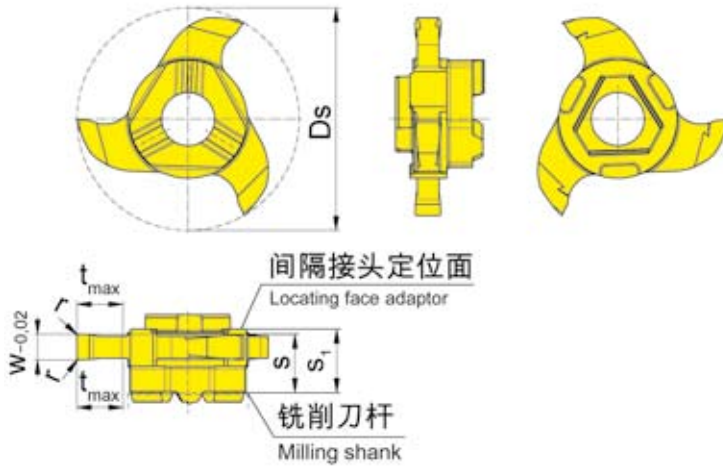
INSERT Type



切槽深度可达	Depth of groove up to	4.50 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 3.15 mm
切削刃Ø	Cutting edge Ø	Ds 21.70 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M313

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	r	s	s ₁	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
313.D.0130.00	1.30	1.41	-							▲			▲
313.D.0160.00	1.60	1.71	-							▲			▲
313.D.0185.00	1.85	1.96	0.2							▲			▲
313.D.0215.00	2.15	2.26	0.2	5.7	6.2	4.5	21.7			▲			▲
313.D.0265.00	2.65	2.76	0.2							▲			▲
313.D.0315.00	3.15	3.26	0.2							▲			▲
▲ 库存 / on stock Δ 4周 / 4 weeks									P	●			●
● 主要应用 / main recommendation									M	●			●
○ 可选推荐 / alternative recommendation									K	●			●
■ 无涂层牌号 / uncoated grades									N	●			○
■ 涂层牌号 / coated grades									S	●			●
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm

Dimensions in mm

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号

Carbide grades

槽铣削 (圆弧插补铣削)

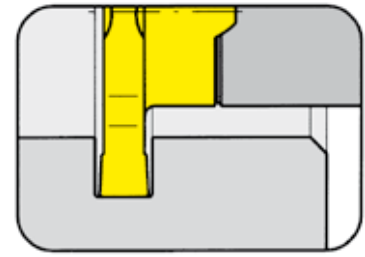
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

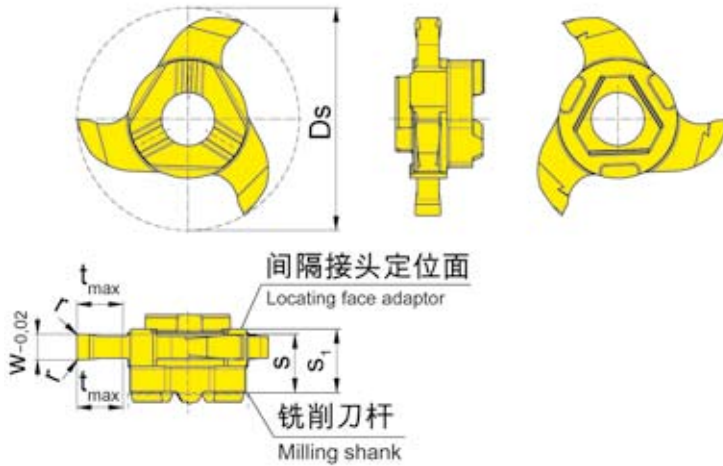
313.D



切槽深度可达	Depth of groove up to	4.5 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	W	r	s	s ₁	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
313.D.0150.00	1.5	-							▲			▲
313.D.0150.01	1.5	0.1							▲			▲
313.D.0200.00	2.0	0.2	5.7	6.2	4.5	21.7			▲			▲
313.D.0250.00	2.5	0.2							▲			▲
313.D.0300.00	3.0	0.2							▲			▲
							P		●			●
							M		●			●
							K		●			●
							N		●			○
							S		●			●
							H					

尺寸单位 : mm
Dimensions in mm

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

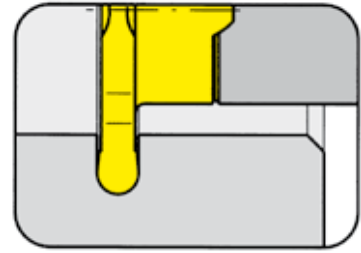


B

刀片 型号

313.D

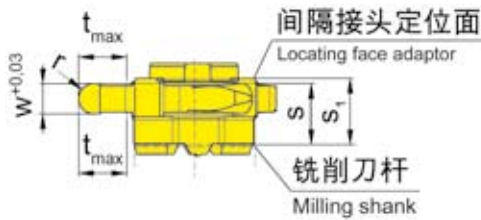
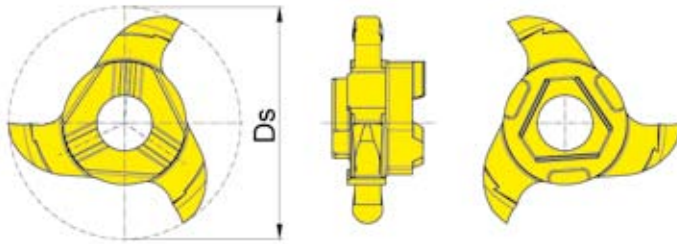
INSERT Type



切槽深度可达	Depth of groove up to	4.5 mm
圆头	Full radius	r 0.5 - 1.5 mm
切削刃Ø	Cutting edge Ø	Ds 21.7 mm

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version



产品型号 Part number	W	r	s	s ₁	t _{max}	Ds	硬质合金牌号				
							MG12	TN35	TI25	TA45	AS45
313.D.0005.10	1.0	0.5						▲			▲
313.D.0010.20	2.0	1.0						▲			▲
313.D.0014.28	2.8	1.4	5.7	6.2	4.5	21.7		▲			▲
313.D.0015.30	3.0	1.5						▲			▲
▲ 库存 / on stock Δ 4周 / 4 weeks							P	●			●
● 主要应用 / main recommendation							M	●			●
○ 可选推荐 / alternative recommendation							K	●			●
■ 无涂层牌号 / uncoated grades							N	●			○
■ 涂层牌号 / coated grades							S	●			●
■ 钎焊/金属陶瓷 / brazed/Cermet							H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

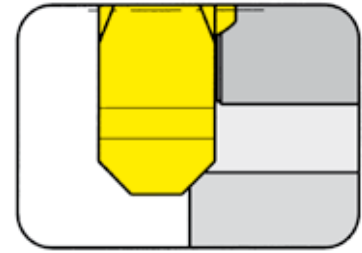


B

刀片 型号

313.D

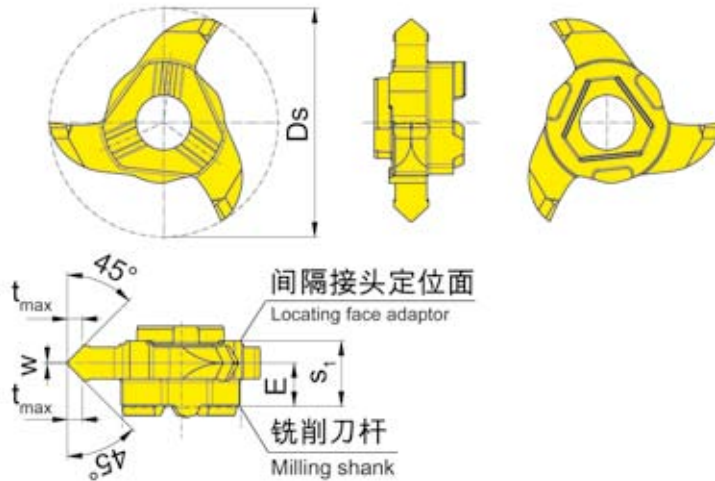
INSERT Type



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	1.4 mm Ds 21.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s ₁	t _{max}	E	Ds		MG12	TN35	Ti25	TA45	AS45
313.D.4545.00	0.2	6.2	1.4	4.1	21.7			▲			▲
							P	•			•
							M	•			•
							K	•			•
							N	•			○
							S	•			•
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

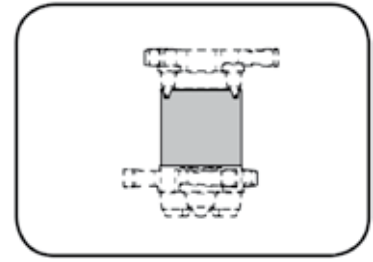


B

接头 型号

Z313

ADAPTOR Type



配合313.D... 刀片的接头

Adaptor for inserts type 313.D...

刀杆材料：钢

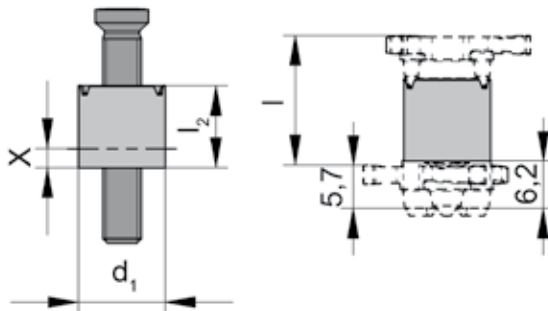
Material of shank: Steel

配合 刀片

for use with Insert

型号 313

Type



产品型号 Part number	l	l ₂	X	d ₁
Z.313.0011.057	9.9	3.7 - 5.7	0 - 2.0	11.3
Z.313.0011.082	11.9	5.7 - 8.2	0 - 2.5	
Z.313.0011.107	14.4	8.2 - 10.7	0 - 2.5	

按需提供更多尺寸

Further sizes upon request

尺寸单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

接头 Adaptor	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
Z.313.0011.057	5.26T20P	T20PQ
Z.313.0011.082	5.28T20P	T20PQ
Z.313.0011.107	5.30T20P	T20PQ

如果需要，连接件Z.313.0011...可以通过车削或磨削减少“X”方向上的尺寸。螺钉不变。



If required, the connecting pieces Z.313.0011... can be reduced by the dimension "X" through hard turning or grinding. The screw will not change.



刀片 型号

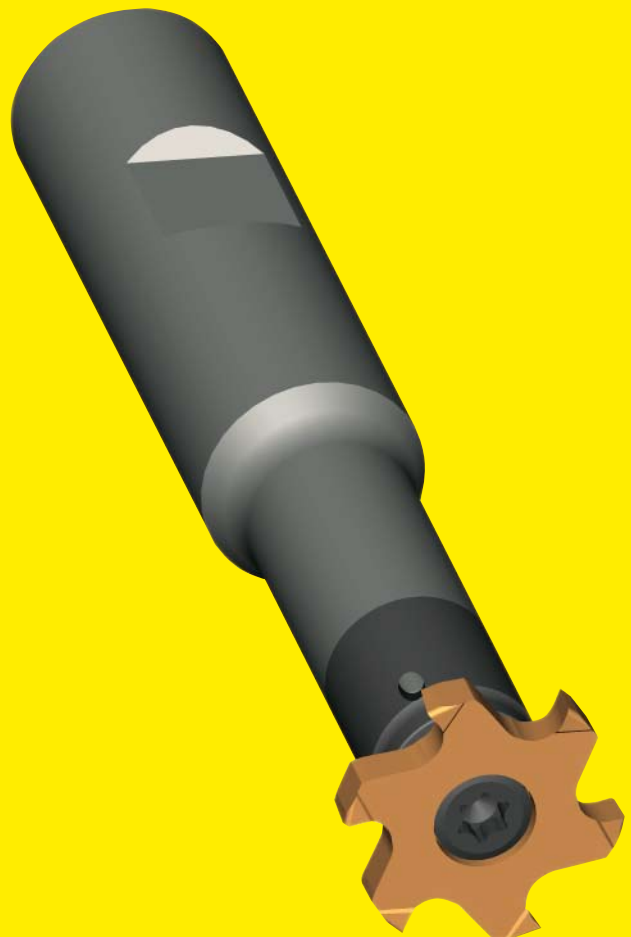
606 / 608 / 611 / 613 / 628 / 632 / 636

- 切削直径 \varnothing 15.7 / 17.7 / 21.7 / 27.7 mm
槽深2.3 / 3.5 / 4.5 / 4.3 mm
- 刀片适合的刀杆
M308 / M311 / M313 / M328
- 正轴向定位增加强度
- 6个切削刃缩短加工周期
- 大的容屑空间有利于切屑控制
- 增加产能

Inserts type

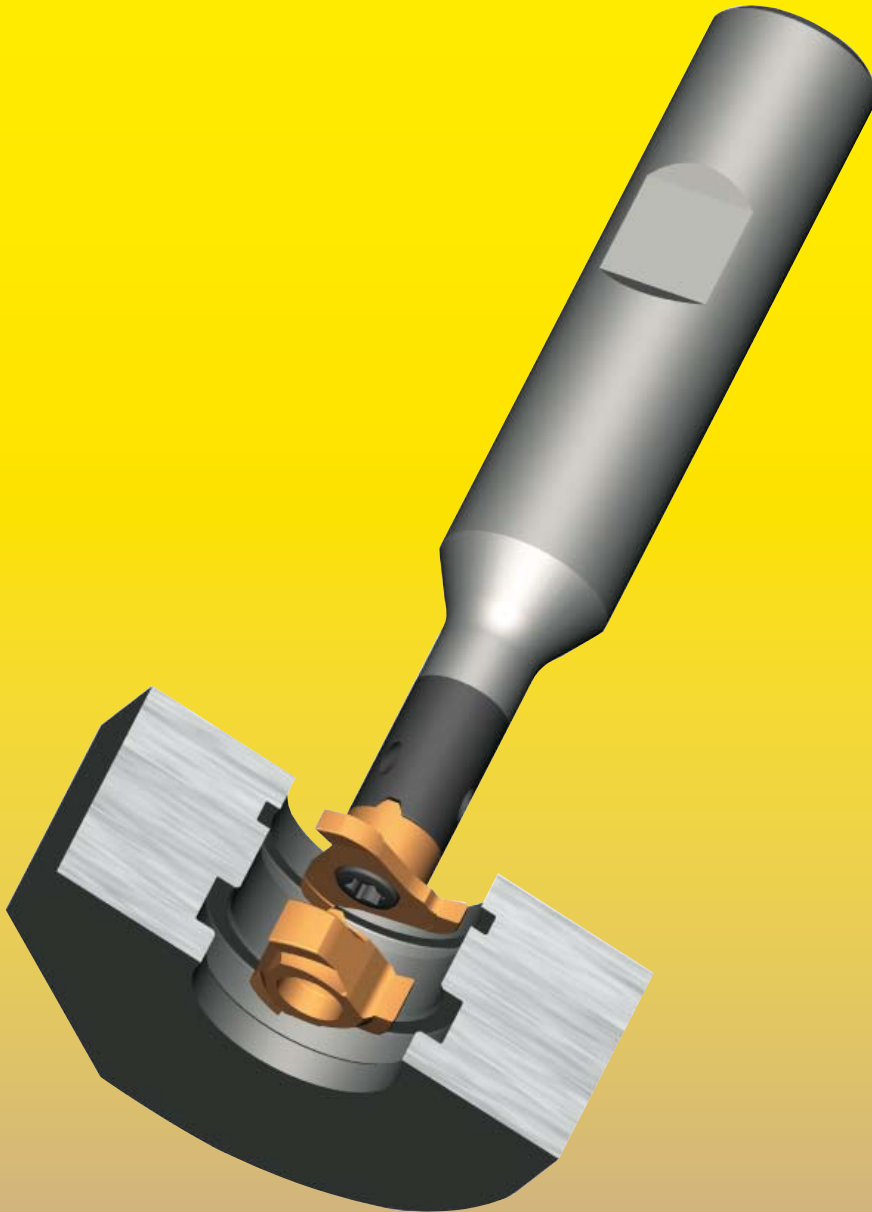
606 / 608 / 611 / 613 / 628 / 632 / 636

- cutting edge \varnothing 11,7 up to 35,7 mm,
depth of groove depends on the type
- insert seating suits toolholder
M308 / M311 / M313 / M328 / M332
- positive axial location for increased strength
- 6-cutting edges for minimised cycle time
- large chip space for good swarf control
- increased productivity



铣刀杆 型号 **M328**
自孔

Ø 28,0 mm



MILLING SHANK type **M328**
from bore

Ø 28,0 mm

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



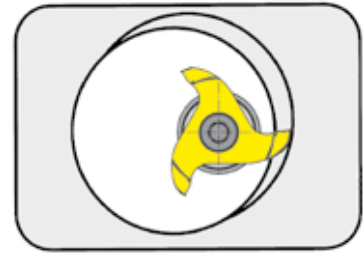
B

铣刀杆 型号

MILLING SHANK Type

M328

带内冷
with through coolant supply



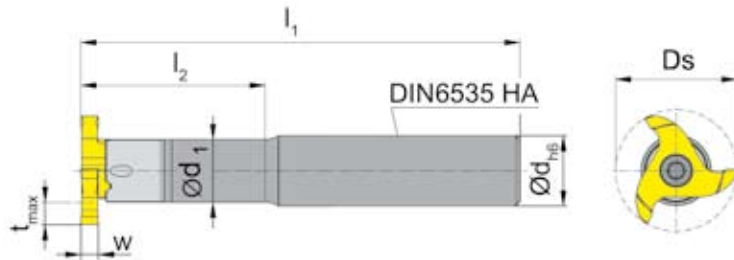
切削刃 \varnothing

Cutting edge \varnothing

Ds 24,8/27,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 325
Type 328
628

产品型号 Part number	l_1	l_2	d_1	d
M328.0016.01A	100	42	14.3	16
M328.0016.02A	130	60		
M328.0016.03A	160	85		
M328.0020.01A	100	42	14.3	20
M328.0020.02A	130	60		
M328.0020.03A	160	85		

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
 w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.00...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



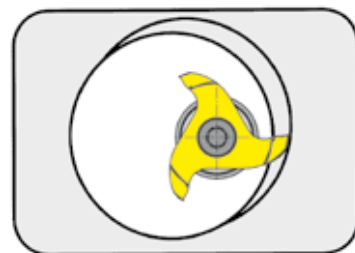
B

铣刀杆 型号

MILLING SHANK Type

M328

带内冷
with through coolant supply

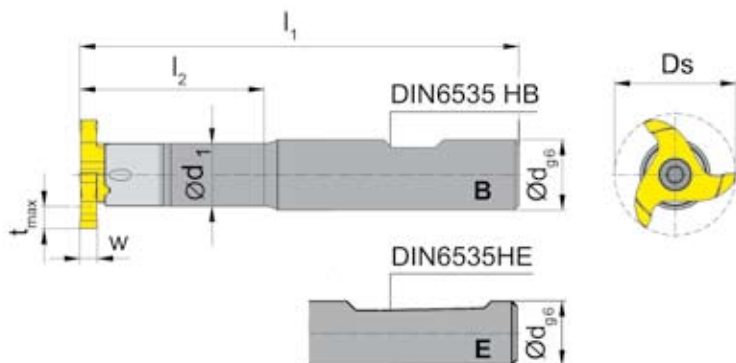


切削刃Ø	Cutting edge Ø	Ds 24,8/27,7 mm
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刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance

配合 刀片
for use with Insert

型号 325
Type 328
628



产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M328.0016.01B	100	42	14.3	16	B
M328.0016.02B	130	60			
M328.0016.03B	160	85			
M328.0020.01B	100	42	14.3	20	B
M328.0020.02B	130	60			
M328.0020.03B	160	85			
M328.0016.01E	100	42	14.3	16	E
M328.0016.02E	130	60			
M328.0016.03E	160	85			
M328.0020.01E	100	42	14.3	20	E
M328.0020.02E	130	60			
M328.0020.03E	160	85			

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.00...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



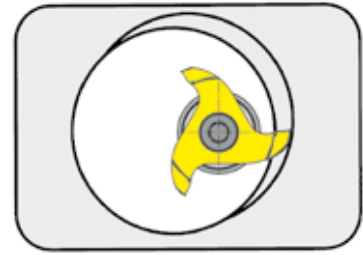
B

铣刀杆 型号

MILLING SHANK Type

M328

带内冷
with through coolant supply



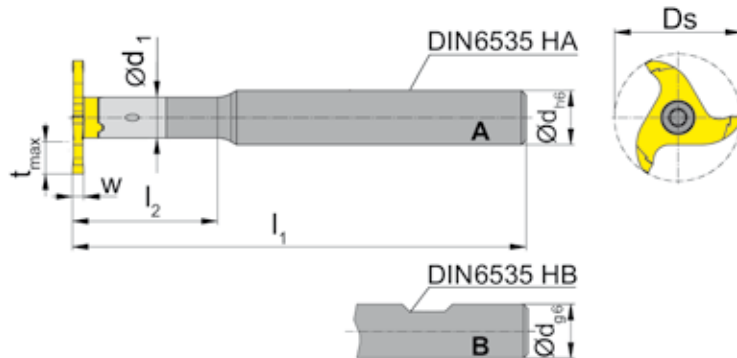
切削刃Ø

Cutting edge Ø

Ds 28,0 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 328

Type 628

适用于增大切深的刀片

for inserts with increased milling depth

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M328.0909.01A*	120	-	-	9	A
M328.0912.01A	100	32	9	12	A
M328.0912.01B	100	32	-	12	B

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

*=无内冷!

* = no through coolant supply!

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.09...	5.14T20P	T20PQ

槽铣削/面铣削 GROOVE MILLING / FACE MILLING

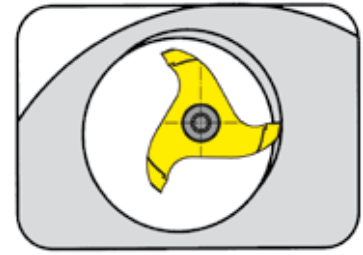


B

铣刀杆 型号

M328.ST

MILLING SHANK Type

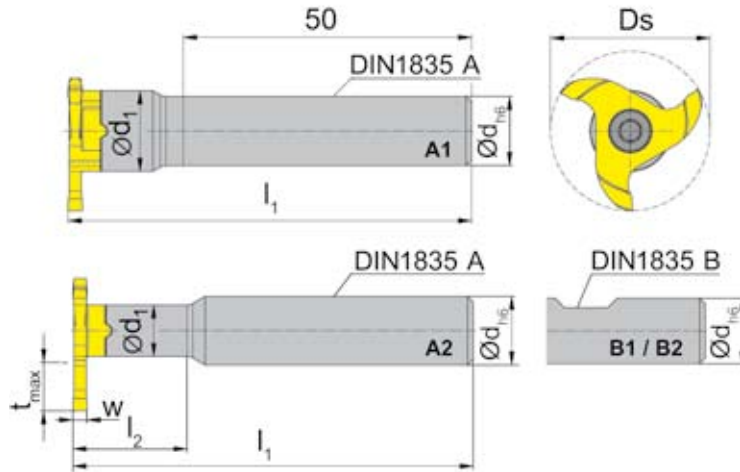


配合筒夹的圆柱钢铣刀杆
Cylindrical steel milling shank for collets

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes

配合 刀片
for use with Insert

型号 325
Type 328
628



产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M328.ST12.01A M328.ST13.01A	70	-	14	12 13	A1
M328.ST12.2.01A M328.ST16.01A M328.ST20.01A	70 90 100	20 36 36	9 14 14	12 16 20	A2
M328.ST12.01B M328.ST12.2.01B	70 70	- 20	14 9	12 12	B1 B2

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位: mm
Dimensions in mm

铣刀杆M328.ST12.2.01A和M328.ST.13.2.01A用于安装增大切深的刀片!
Milling shanks M328.ST12.2.01A and M328.ST13.2.01A are usable for inserts with increased milling depth!

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.ST...	5.14T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



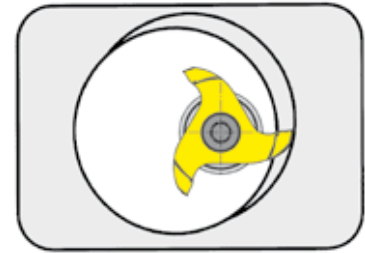
B

铣刀杆 型号

MILLING SHANK Type

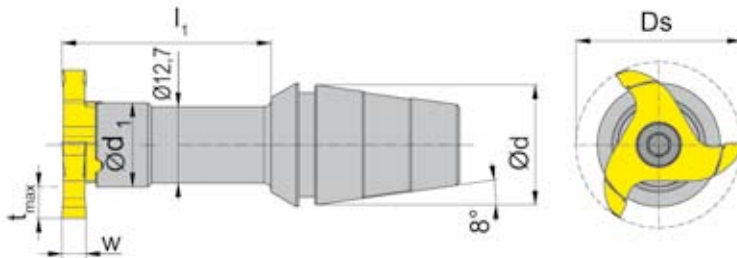
M328.ER

无内冷
no coolant supply



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片
for use with Insert

型号 328
Type 628

产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M328.ER20.02	35	14	20	ER20.6499/ERM...
M328.ER25.02	35	14	25	ER25.6499
M328.ER32.02	35	14	32	ER32.6499

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

铣刀杆不包含夹紧螺母-需要单独订购!

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.ER...	5.14T20P	T20PQ

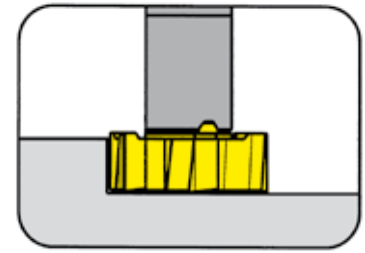
面铣削 FACE MILLING



B

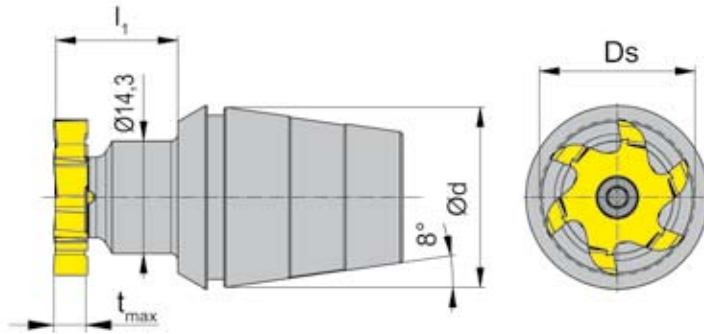
铣刀杆 型号
MILLING SHANK Type

M328.ER
无内冷
no coolant supply



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片
for use with Insert

型号 325
Type 328
628

产品型号 Part number	l_1	d	锁紧螺母 Clamping nut
M328.ER25.16.01	21.7	25	ER25.6499
M328.ER32.16.01	21.7	32	ER32.6499

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知：
铣刀杆不包含夹紧螺母-需要单独订购！

Ordering note:
Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.ER...	5.14T20P	T20PQ

槽铣削/面铣削

GROOVE MILLING / FACE MILLING

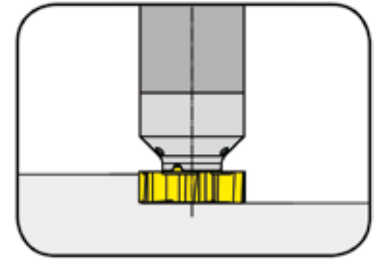


B

铣刀杆 型号

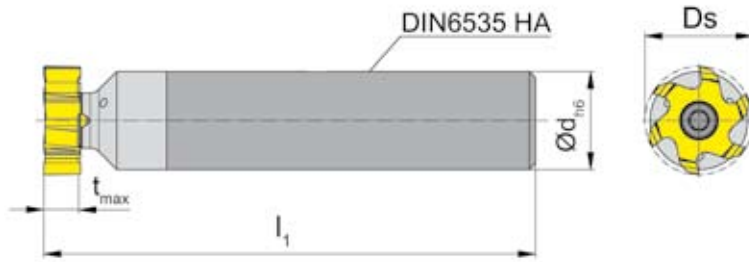
MILLING SHANK Type

M328



用于筒夹的硬质合金圆柱刀柄
Cylindrical carbide shank for collets

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 刀片
for use with Insert

型号 328
Type 628

产品型号 Part number	l_1	d
M328.0016.D.00A	80	16
M328.0020.D.00A	80	20

按需提供更多尺寸
Further sizes upon request

t_{max} 和Ds见刀片
 t_{max} and Ds see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.00...	5.14T20P	T20PQ

系列 **S275 / S276**

小径加工的定制解决方案



System **S275 / S276**

Customized solutions in small diameter ranges.

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

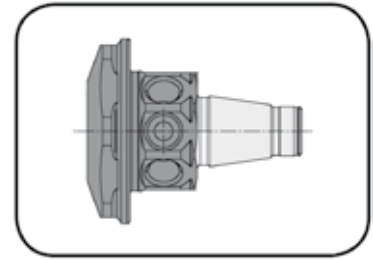


B

常规刀柄 型号

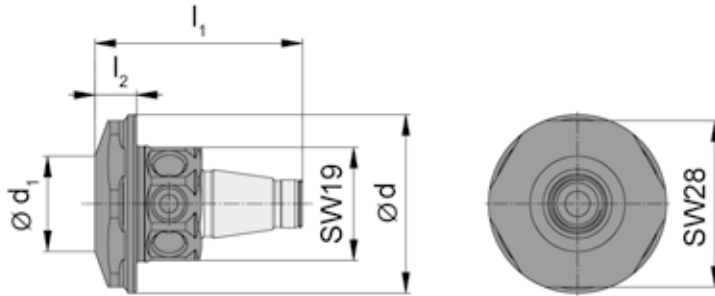
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



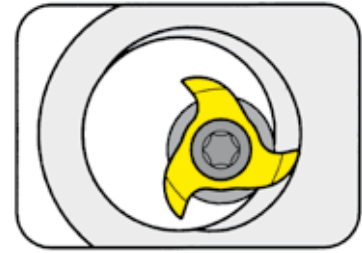
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M328.M

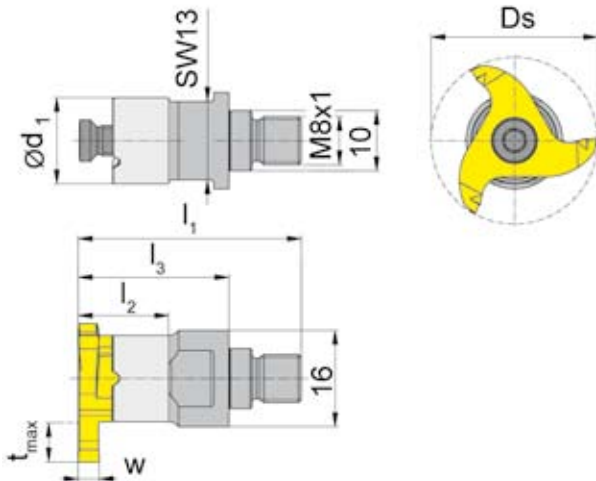
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 328
Type 628



产品型号 Part number	l_1	l_2	l_3	d_1
M328.M081.01	37	15	25	14.3

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.M081.01	5.14T20P	T20PQ

孔铣削

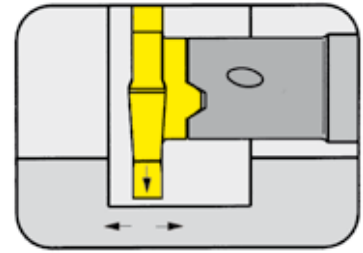
MILLING OF BORES



B

刀片 型号
INSERT Type

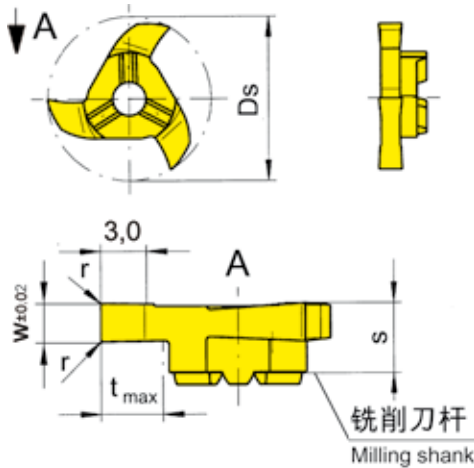
325



切槽深度可达
切削刃Ø

Depth of groove up to
Cutting edge Ø

5.0 mm
Ds 24.8 mm



配合 铣刀杆
for use with Milling shank

型号 M328
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
325.0350.52	3.5	0.2	5.7	5	24.8			▲			▲
▲ 库存 / on stock							P	•	•	•	•
• 主要应用 / main recommendation							M	•	•	•	•
○ 可选推荐 / alternative recommendation							K	•	•	•	•
■ 无涂层牌号 / uncoated grades							N	•	•	•	○
■ 涂层牌号 / coated grades							S	•	•	•	•
■ 钎焊/金属陶瓷 / brazed/Cermet							H				

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades

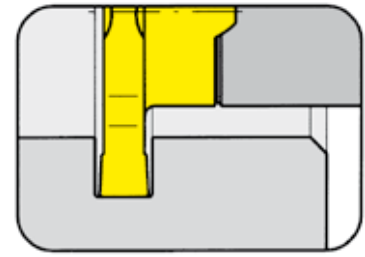
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

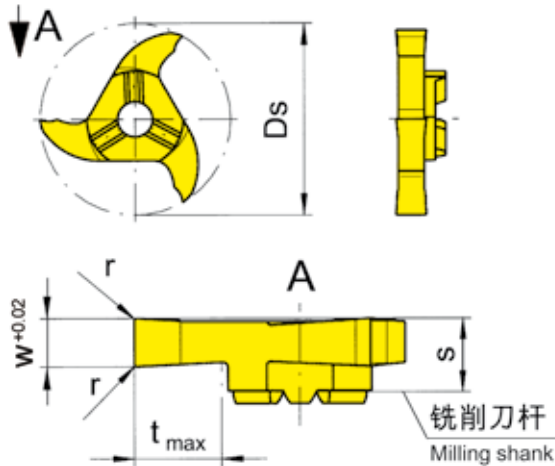
刀片 型号 **328**
INSERT Type



切槽深度可达	Depth of groove up to	6.5 mm
槽宽	Width of groove	2.0 - 10.0 mm
切削刃Ø	Cutting edge Ø	Ds 27.7 mm

配合 铣刀杆
for use with Milling shank

型号 M328
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	MG12	TN35	Ti25	TA45	AS45
328.0200.00	2.0	0.2	5.7	6.5	27.7		▲			▲
328.0250.00	2.5		5.7			▲		▲		
328.0300.00	3.0		5.7			▲		▲		
328.0350.00	3.5		5.7			▲		▲		
328.0400.00	4.0		5.7			▲		▲		
328.0500.00	5.0		5.7			▲		▲		
328.0600.00	6.0		7.0			▲		▲		
328.1000.00	10.0		10.0			▲		▲		
						P	•	•	•	•
						M	•	•	•	•
						K	•	•	•	•
						N	•	•	•	○
						S	•	•	•	•
						H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

Insert **328.1000.00** with staggered tooth (Z=1)
Insert **328.1000.00** with staggered tooth (Z=1) and insert **328.0600.00** with chip divider (Z=3)! For the insert **328.1000.00** please use only the longer screw 5.13T20P.

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



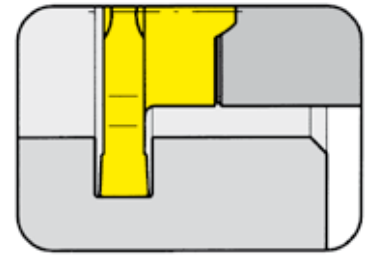
B

刀片 型号

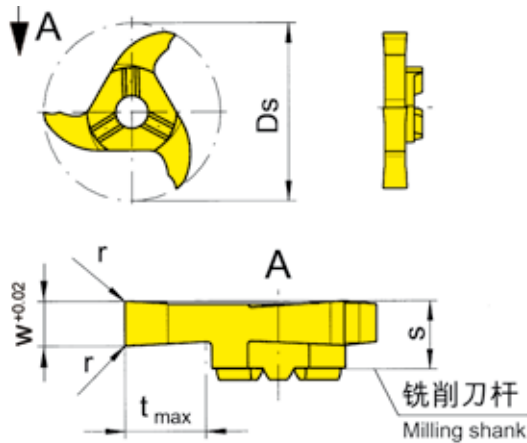
INSERT Type

328

铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	6.5 mm
槽宽	Width of groove	2.5 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 27.7 mm



配合 铣刀杆

for use with Milling shank

型号 M328

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
328.0250.40	2.5								▲		
328.0300.40	3.0								▲		
328.0350.40	3.5	0.2	5.7	6.5	27.7				▲		
328.0400.40	4.0								▲		
							P		•		
							M		•		
							K		•		
							N		•		
							S		•		
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

注意事项 :

可以提供浅切深的槽宽0.5mm以下的刀片。

Note:

Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

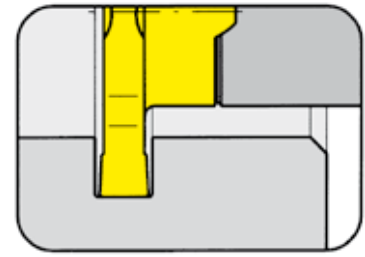


B

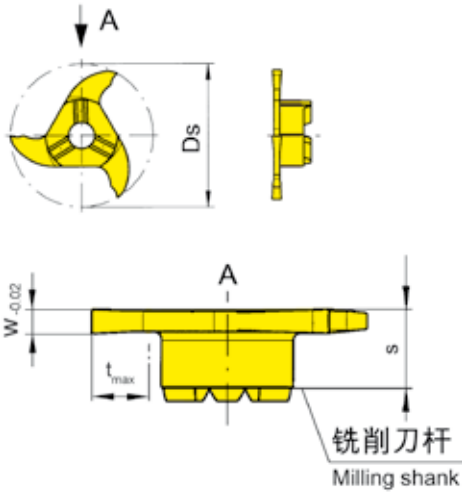
刀片 型号

328

INSERT Type



切槽深度可达	Depth of groove up to	5.00 mm
槽宽	Width of groove	0.82 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 27.70 mm



配合 铣刀杆
for use with Milling shank

型号 M328
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
328.0082.1.00	0.82	5.7	5	27.7			▲	▲		
					P		•	•		
					M		•	•		
					K		•	•		
					N		•	•		
					S		•	•		
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

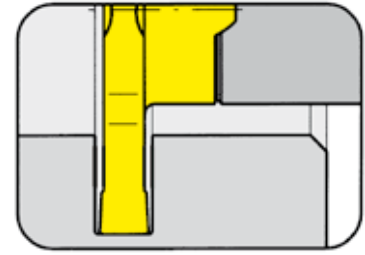


B

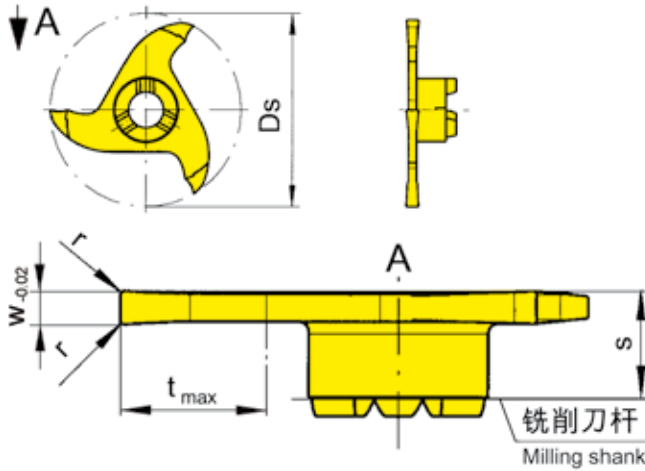
刀片 型号

328

INSERT Type



切槽深度可达	Depth of groove up to	9.3 mm
槽宽	Width of groove	1.1 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 28.0 mm



配合 铣刀杆

for use with Milling shank

- 型号 M328.0909.01A
 Type M328.0912.01A
 M328.0912.01B
 M328.ST12.2.01A
 M328.ST12.2.01B

图示=右手型

Picture = right hand cutting version

铣削深度增加
increased milling depth

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
328.0110.2.00	1.10	0.20						▲	▲		
328.0120.2.00	1.20	0.20						▲	▲		
328.0132.2.00	1.32	0.15						▲	▲		
328.0150.2.00	1.50	0.20	5.7	9.3	28			▲	▲		▲
328.0160.2.00	1.60	0.20						▲	▲		▲
328.0200.2.00	2.00	0.20						▲	▲		▲
328.0250.2.00	2.50	0.20						▲	▲		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	○
S	●	●	●	●
H				

硬质合金牌号
Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

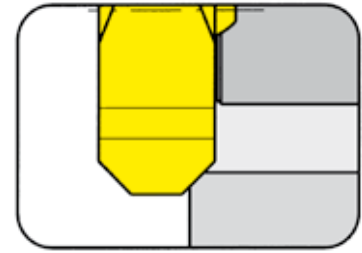


B

刀片 型号

328

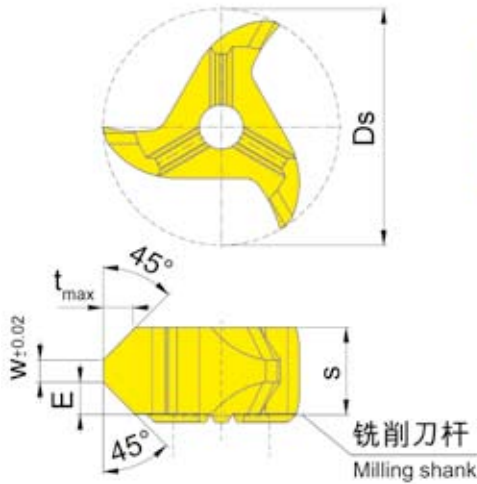
INSERT Type



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	3.5 mm Ds 27.7 mm
----------------	---	----------------------

配合 铣刀杆
for use with Milling shank

型号 M328
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	E	Ds		MG12	TN35	TI25	TA45	AS45
328.4545.35.00	2.6	10.2	3.5	3.8	27.7					▲	
							P			•	
							M			•	
							K			•	
							N			•	
							S			•	
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

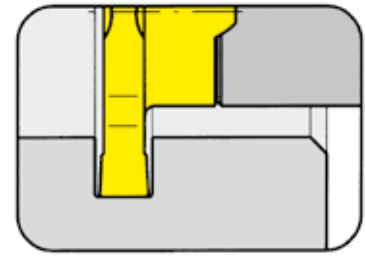


B

刀片型号

628

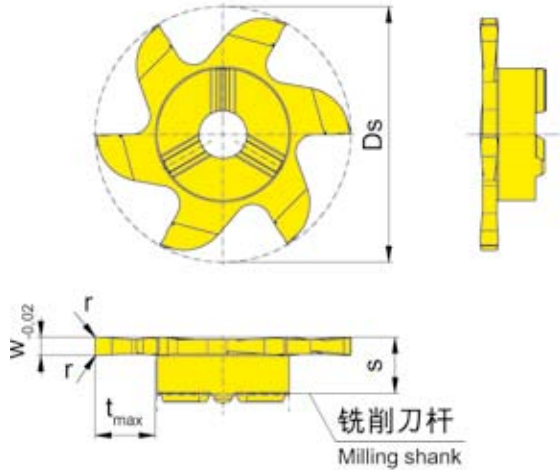
INSERT Type



切槽深度可达	Depth of groove up to	6.5 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 2.65 mm
切削刃Ø	Cutting edge Ø	Ds 27.7 mm

卡簧槽宽度DIN471/472

Widths for circlip grooves DIN 471/472



配合 铣刀杆

for use with Milling shank

型号 M328

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Nw	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
628.0130.00	1.30	1.41	-							▲		▲
628.0160.00	1.60	1.71	-							▲		△
628.0185.00	1.85	1.96	0.2	6.1	6.5	27.7				▲		△
628.0215.00	2.15	2.26	0.2							▲		▲
628.0265.00	2.65	2.76	0.2							▲		△
							P			•		•
							M			•		•
							K			•		•
							N			•		○
							S			•		•
							H					

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

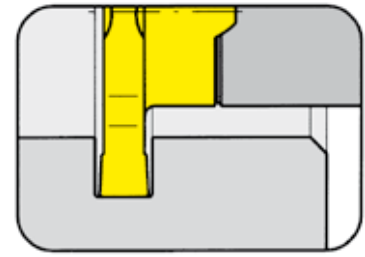
GROOVE MILLING by circular interpolation



B

刀片型号
INSERT Type

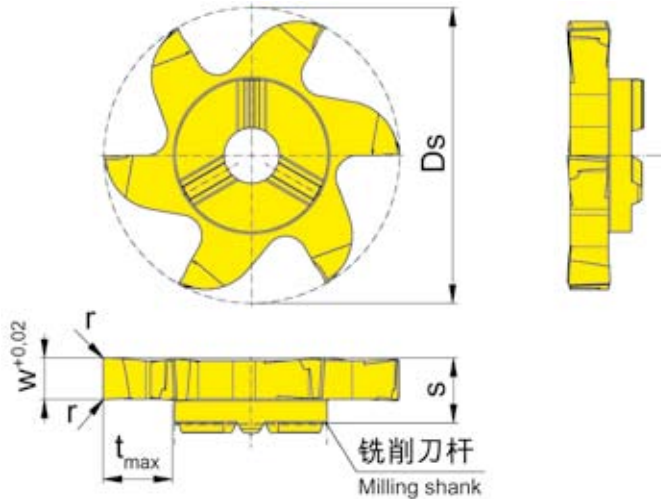
628



切槽深度可达	Depth of groove up to	6.5 mm
槽宽	Width of groove	2.5 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 27.7 mm

配合 铣刀杆
for use with Milling shank

型号 M328
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号				
						MG12	TN35	TI25	TA45	AS45
628.0250.00	2.5							▲		▲
628.0300.00	3.0							▲		▲
628.0350.00	3.5	0.2	6.1	6.5	27.7			▲		▲
628.0400.00	4.0							▲		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P		•		•
• 主要应用 / main recommendation						M		•		•
○ 可选推荐 / alternative recommendation						K		•		•
■ 无涂层牌号 / uncoated grades						N		•		○
■ 涂层牌号 / coated grades						S		•		•
■ 钎焊/金属陶瓷 / brazed/Cermet						H				

尺寸单位 : mm
Dimensions in mm

注意事项 :
可以提供浅切深的槽宽0.5mm以下的刀片。

Note:
Inserts for widths of groove down to 0,5 mm can be delivered only with reduced depth upon request.

刀片628.0400.00

仅用于 $l_2 = \max. 42\text{mm}$ 的刀杆

Insert 628.0400.00

only with toolholder dimension $l_2 = \max. 42\text{ mm}$

硬质合金牌号
Carbide grades

槽铣削 SLOT MILLING

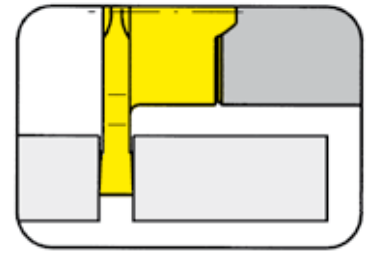


B

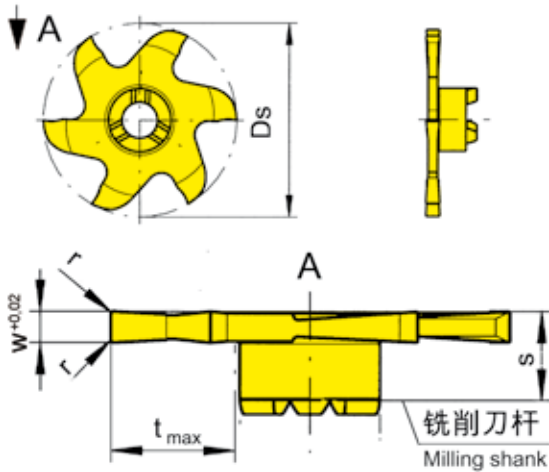
刀片 型号

628

INSERT Type



切槽深度可达	Depth of groove up to	9.3 mm
槽宽	Width of groove	1.2 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 28.0 mm



配合 铣刀杆
for use with Milling shank

型号 M328.0909.01A
Type M328.0912.01A
M328.0912.01B
M328.ST12.2.01A
M328.ST12.2.01B

图示=右手型
Picture = right hand cutting version

铣削深度增加
increased milling depth

产品型号 Part number	w	r	s	t _{max}	Ds	硬质合金牌号				
						MG12	TN35	TI25	TA45	AS45
628.0120.2.00	1.2							▲		▲
628.0150.2.00	1.5							▲		▲
628.0160.2.00	1.6							▲		▲
628.0200.2.00	2.0	0.2	6.1	9.3	28			▲		▲
628.0240.2.00	2.4							▲		▲
628.0250.2.00	2.5							▲		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P		•		•
• 主要应用 / main recommendation						M		•		•
○ 可选推荐 / alternative recommendation						K		•		•
■ 无涂层牌号 / uncoated grades						N		•		○
■ 涂层牌号 / coated grades						S		•		•
■ 钎焊/金属陶瓷 / brazed/Cermet						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

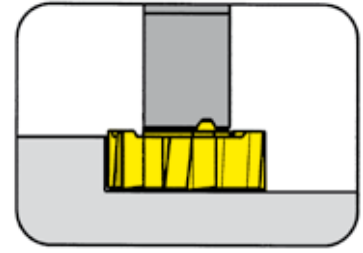
面铣削 FACE MILLING



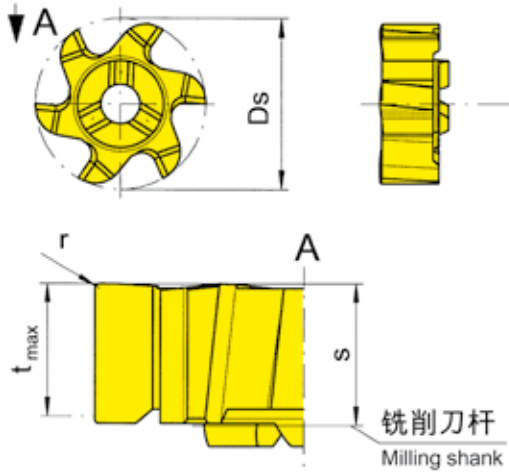
B

刀片型号
INSERT Type

628



切深可达 切削刃Ø	Depth of cut up to Cutting edge Ø	5.7 mm Ds 27.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M328
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	s	t _{max}	r	Ds	MG12	TN35	TI25	TA45	AS45	TF45
628.PL61.62	6.1	5.7	0.2	27.7			▲		▲	▲
					P		•		•	•
					M		•		•	•
					K		•		•	•
					N		•		○	•
					S		•		•	•
					H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

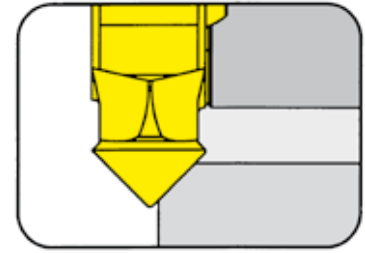
倒角 CHAMFERING



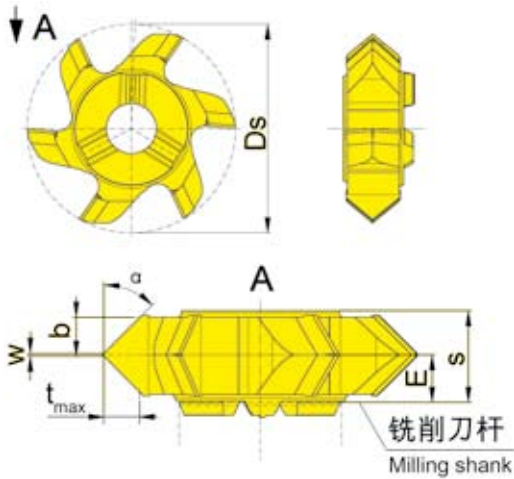
B

刀片 型号
INSERT Type

628



倒角宽度 切削刃Ø	Width of chamfer Cutting edge Ø	2.8 mm Ds 27.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M328
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	b	s	t _{max}	E	Ds	α		MG12	TN35	Ti25	TA45	AS45
628.3030.20	0.2	2.8	6.3	1.6	3.2	27.7	30°					▲	
628.4545.20				2.8			45°				▲		
▲ 库存 / on stock									P			●	
● 主要应用 / main recommendation									M			●	
○ 可选推荐 / alternative recommendation									K			●	
■ 无涂层牌号 / uncoated grades									N			●	
■ 涂层牌号 / coated grades									S			●	
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

ph HORN ph

B

铣刀杆 型号 **M332**

自孔

Ø 32,0 mm



MILLING SHANK type **M332**

from bore

Ø 32,0 mm

B137

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



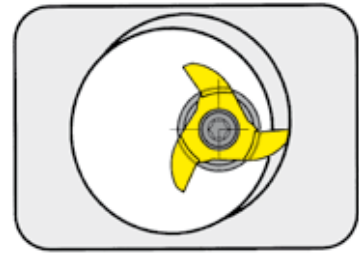
B

铣刀杆 型号

MILLING SHANK Type

M332

带内冷
with through coolant supply



切削刃Ø

Cutting edge Ø

Ds 31.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance

配合 刀片

for use with Insert

型号 332

Type 632

636



图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M332.0016.01A	100	42	14.3	16	A
M332.0016.02A	130	60			
M332.0016.03A	160	85			
M332.0020.01A	100	42	14.3	20	A
M332.0020.02A	130	60			
M332.0020.03A	160	85			
M332.0016.01B	100	42	14.3	16	B
M332.0016.02B	130	60			
M332.0016.03B	160	85			
M332.0020.01B	100	42	14.3	20	B
M332.0020.02B	130	60			
M332.0020.03B	160	85			

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M332.00...	5.17T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



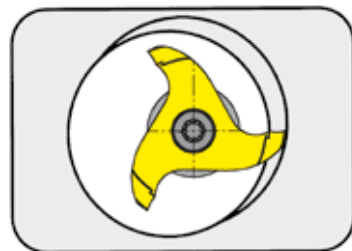
B

铣刀杆 型号

MILLING SHANK Type

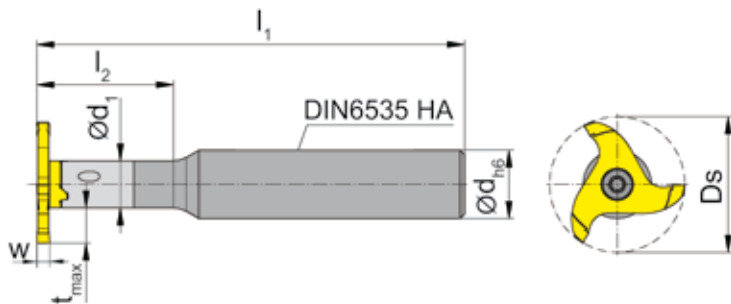
M332

带内冷
with through coolant supply



切削刃Ø	Cutting edge Ø	Ds 31.7 mm
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刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合 刀片
for use with Insert

型号 332
Type 632
636

适用于增大切深的刀片
for inserts with increased milling depth

图示=右手型
Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d
M332.0012.2.01A	100	32	11	12
M332.0016.2.01A	100	32	11	16

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
 w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：
HORN可以返修损坏的铣刀杆基座。

Ordering note:
Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M332.001...	5.17T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



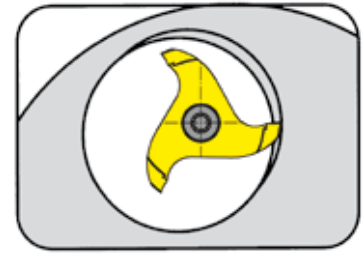
B

铣刀杆 型号

MILLING SHANK Type

M332-ST

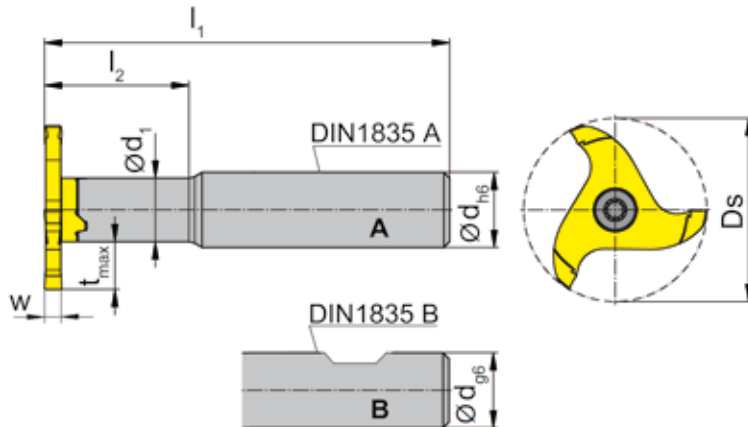
无内冷
no coolant supply



配合筒夹的圆柱钢铣刀杆
Cylindrical steel milling shank for collets

配合 刀片
for use with Insert

型号 332
Type 632
636



图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M332-ST12.2.01A M332-ST13.2.01A	70	25	11.0	12 13	A
M332-ST16.01A M332-ST20.01A	90 100	36	14.3	16 20	A
M332-ST12.2.01B	70	25	11.0	12	B

按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

注意事项 :

铣刀杆 M332.ST12.2.01A和 M332.ST13.2.01A适用于增加铣削深度的刀片 !

Note:

Milling shanks M332-ST12.2.01A, M332-ST12.2.01B and M332-ST13.2.01A are usable for inserts with increased milling depth!

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M332.ST...	5.17T20P	T20PQ

槽铣削 (圆弧插补铣削)

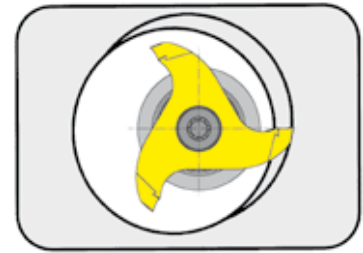
GROOVE MILLING by circular interpolation



B

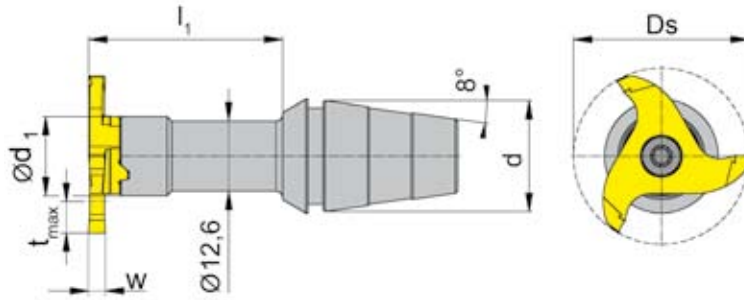
铣刀杆 型号
MILLING SHANK Type

M332.ER



配合筒夹DIN6499 - A (8°) 的铣刀杆
Milling shanks for collet chucks DIN6499-A (8°)

用于CNC车床的ER锥柄
with ER taper for CNC-lathes



配合 刀片
for use with Insert

型号 332
Type 632
636

图示=右手型
Picture = right hand cutting version

产品型号 Part number	l_1	d_1	d	锁紧螺母 Clamping nut
M332.ER20.02	35	14.3	20	ER20.6499/ERM20.6499

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

订货须知 :

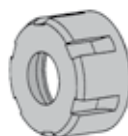
铣刀杆不包含夹紧螺母-需要单独订购 !

Ordering note:

Clamping nut is not combined with milling shank - separate order required!

螺丝的扭矩规格 , 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M332.ER20.02	5.17T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

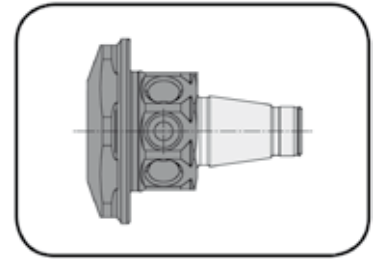


B

常规刀柄 型号

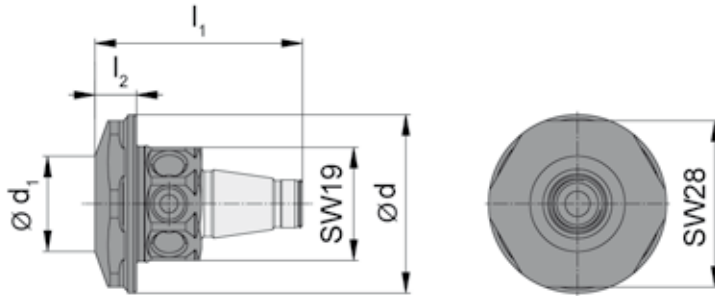
BASIC HOLDER Type

WFB



配合螺纹锁紧铣刀的WFB.20常规刀柄
Basic holder WFB.20 for screw-in cutter

配合螺纹锁紧铣刀
for use with Screw-in cutter



型号 M306.M081...
Type M308.M081...
M311.M081...
M313.M081...
M328.M081...
M332.M081...

产品型号 Part number	l_1	l_2	d_1	d
WFB.2012.M081.01	35	7	16	30

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm



槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



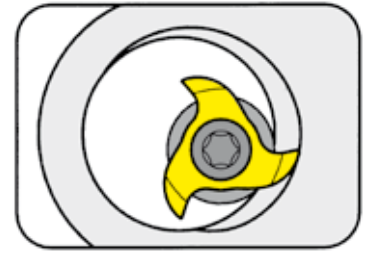
B

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

M332.M

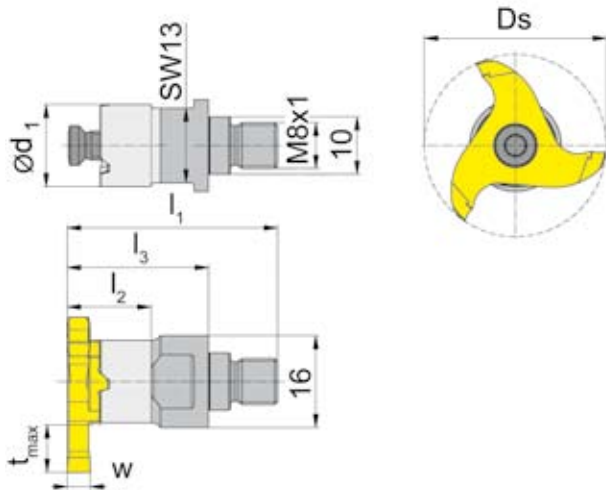
无内冷
no coolant supply



配合WFB.20刀柄的螺纹锁紧铣刀
Screw-in Cutter for basic holder type WFB.20

配合 刀片
for use with Insert

型号 332
Type 632
636



产品型号 Part number	l_1	l_2	l_3	d_1
M332.M081.01	37	15	25	14.3

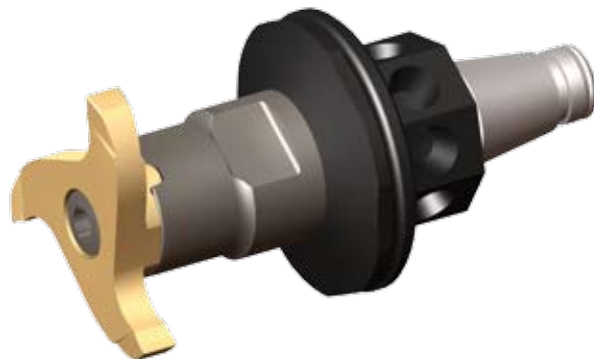
按需提供更多尺寸
Further sizes upon request

w, D_s, t_{max} 见刀片
 w, D_s, t_{max} see inserts

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

常规刀柄“WFB.20”
Basic shank “WFB.20”



附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M332.M081.01	5.17T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

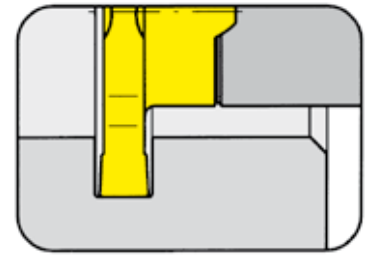


B

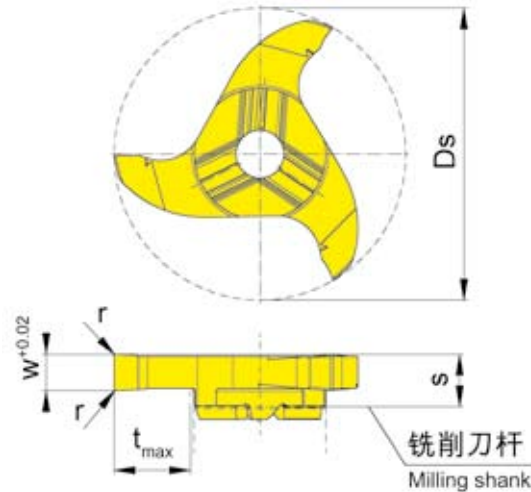
刀片 型号

332

INSERT Type



切槽深度可达	Depth of groove up to	8.3 mm
槽宽	Width of groove	2.0 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 31.7 mm



配合 铣刀杆
for use with Milling shank

型号 M332
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
332.0200.00	2.0								▲		△
332.0250.00	2.5								▲		△
332.0300.00	3.0	0.2	5.7	8.3	31.7				▲		△
332.0350.00	3.5								▲		△
332.0400.00	4.0								▲		△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P		●	●
M		●	●
K		●	●
N		●	○
S		●	●
H			

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

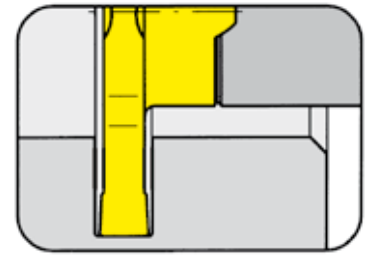


B

刀片 型号

332

INSERT Type

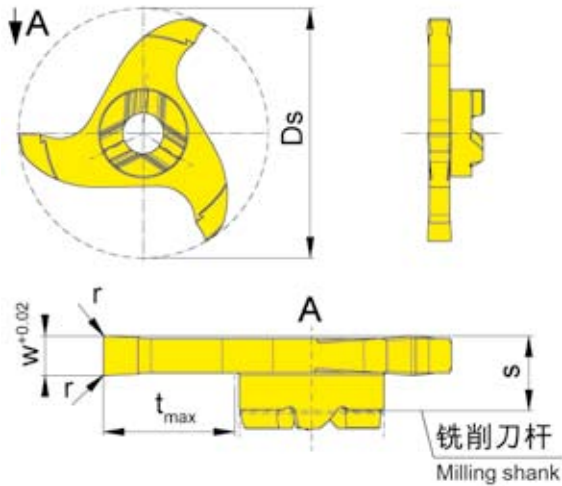


切槽深度可达	Depth of groove up to	10.0 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 31.7 mm

配合 铣刀杆

for use with Milling shank

型号 M332.0012.2.01A
 Type M332.0016.2.01A
 M332.ST12.2.01A
 M332.ST12.2.01B



图示=右手型

Picture = right hand cutting version

铣削深度增加
 increased milling depth

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
332.0150.2.00	1.5								▲		△
332.0160.2.00	1.6								▲		△
332.0200.2.00	2.0	0.2	5.7	10	31.7				▲		△
332.0250.2.00	2.5								▲		△
332.0300.2.00	3.0								▲		△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P		●	●
M		●	●
K		●	●
N		●	○
S		●	●
H			

尺寸单位 : mm
 Dimensions in mm

硬质合金牌号
 Carbide grades

扩孔和倒角

MILLING OF BORES and CHAMFERING

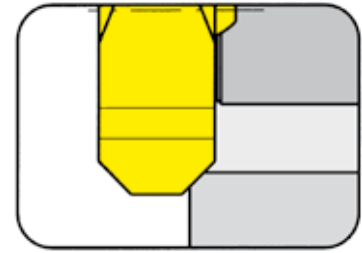


B

刀片 型号

332

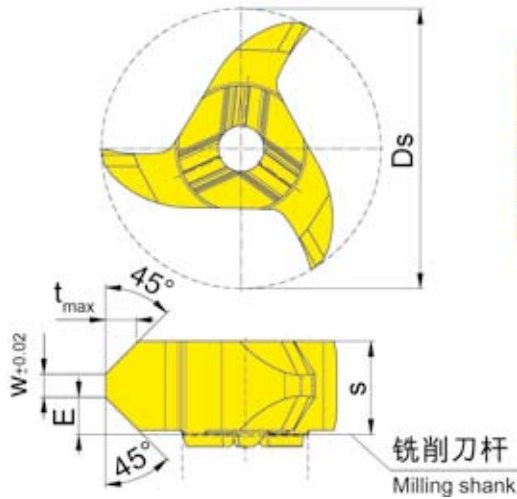
INSERT Type



倒角规格尺寸 切削刃Ø	Size of chamfer up to Cutting edge Ø	3.5 mm Ds 31.7 mm
----------------	---	----------------------

配合 铣刀杆
for use with Milling shank

型号 M332
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	s	t _{max}	E	Ds		MG12	TN35	TI25	TA45	AS45
332.4545.35.00	2.6	10.6	3.5	4.25	31.7					Δ	
						P				•	
						M				•	
						K				•	
						N				•	
						S				•	
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

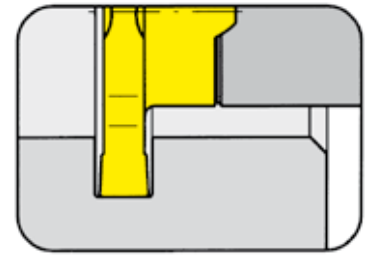
GROOVE MILLING by circular interpolation



B

刀片 型号
INSERT Type

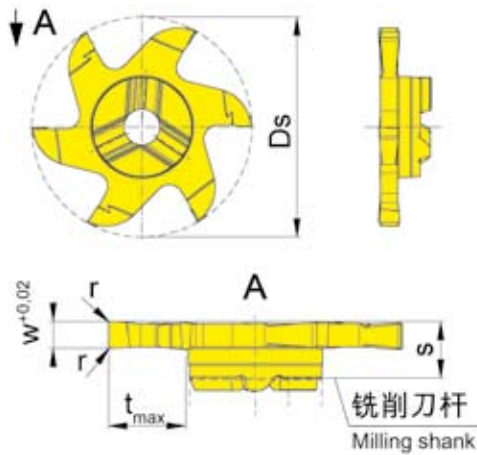
632



切槽深度可达	Depth of groove up to	8.3 mm
槽宽	Width of groove	2.0 - 4.0 mm
切削刃Ø	Cutting edge Ø	Ds 31.7 mm

配合 铣刀杆
for use with Milling shank

型号 M332
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds	涂层 / Coating				
						MG12	TN35	TI25	TA45	AS45
632.0200.00	2.0								▲	△
632.0250.00	2.5								△	△
632.0300.00	3.0	0.2	6.1	8.3	31.7				▲	△
632.0400.00	4.0								▲	▲
						P			●	●
						M			●	●
						K			●	●
						N			●	○
						S			●	●
						H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

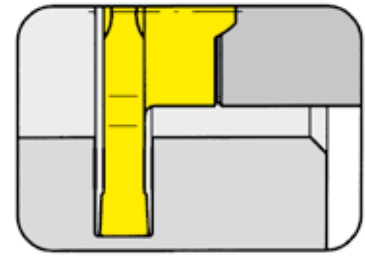


B

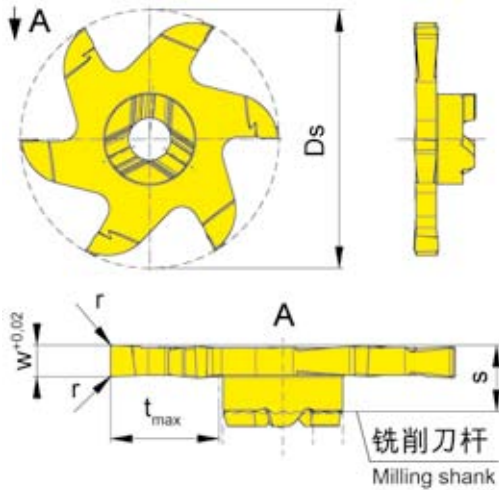
刀片型号

632

INSERT Type



切槽深度可达	Depth of groove up to	10.0 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 31.7 mm



配合 铣刀杆

for use with Milling shank

型号 M332.0012.2.01A
Type M332.0016.2.01A
M332.ST12.2.01A
M332.ST12.2.01B

图示=右手型

Picture = right hand cutting version

铣削深度增加

increased milling depth

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
632.0150.2.00	1.5									▲	△
632.0160.2.00	1.6									▲	△
632.0200.2.00	2.0	0.2	6.1	10	31.7					▲	△
632.0250.2.00	2.5									▲	△
632.0300.2.00	3.0									▲	△
▲ 库存 / on stock △ 4周 / 4 weeks						P				●	●
● 主要应用 / main recommendation						M				●	●
○ 可选推荐 / alternative recommendation						K				●	●
■ 无涂层牌号 / uncoated grades						N				●	○
■ 涂层牌号 / coated grades						S				●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

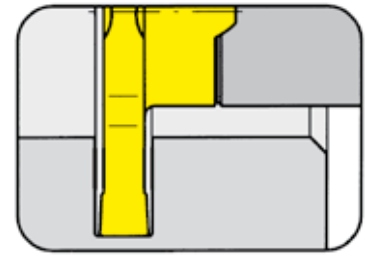
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

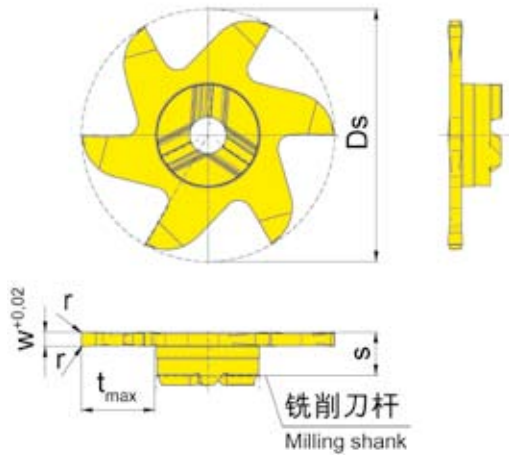
刀片型号 **636**
INSERT Type



切槽深度可达	Depth of groove up to	10.2 mm
槽宽	Width of groove	1.5 - 3.0 mm
切削刃Ø	Cutting edge Ø	Ds 35.7 mm

配合 铣刀杆
for use with Milling shank

型号 M332
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	Ti25	TA45	AS45
636.0150.00	1.5	0.1								▲	△
636.0200.00	2.0	0.2								▲	△
636.0250.00	2.5	0.2	6.1	10.2	35.7					▲	△
636.0300.00	3.0	0.2								▲	△
▲ 库存 / on stock △ 4周 / 4 weeks						P				●	●
● 主要应用 / main recommendation						M				●	●
○ 可选推荐 / alternative recommendation						K				●	●
■ 无涂层牌号 / uncoated grades						N				●	○
■ 涂层牌号 / coated grades						S				●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

注意事项 :
请考虑刀杆定位面直径Ød₁

Note:
Please consider pocket seat Ø d₁ of the milling shank!

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

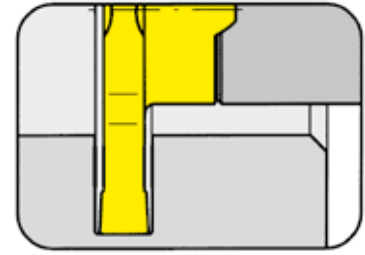


B

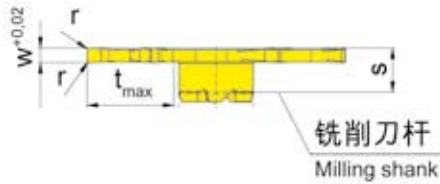
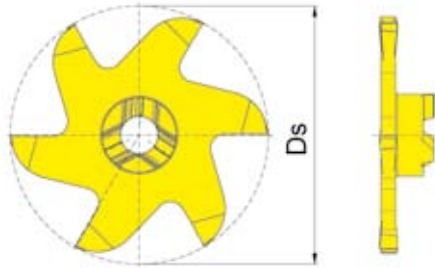
刀片 型号

636

INSERT Type



切槽深度可达	Depth of groove up to	12.0 mm
槽宽	Width of groove	1.5 - 2.5 mm
切削刃Ø	Cutting edge Ø	Ds 35.7 mm



配合 铣刀杆
for use with Milling shank

型号 M332.0012.2.01A
Type M332.0016.2.01A
M332.ST12.2.01A
M332.ST12.2.01B

图示=右手型
Picture = right hand cutting version

铣削深度增加
increased milling depth

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	TA45	AS45
636.0150.2.00	1.5	0.1								▲	△
636.0200.2.00	2.0	0.2	6.1	12	35.7					▲	△
636.0250.2.00	2.5	0.2								▲	△
▲ 库存 / on stock △ 4周 / 4 weeks						P				●	●
● 主要应用 / main recommendation						M				●	●
○ 可选推荐 / alternative recommendation						K				●	●
■ 无涂层牌号 / uncoated grades						N				●	○
■ 涂层牌号 / coated grades						S				●	●
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

注意事项 :
请考虑刀杆定位面直径Ød₁

Note:
Please consider pocket seat Ø d₁ of the milling shank!

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

ph HORN ph

B

铣刀杆 型号 **M335**

自孔

Ø 35,0 mm



MILLING SHANK type **M335**

from bore

Ø 35,0 mm

B151

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



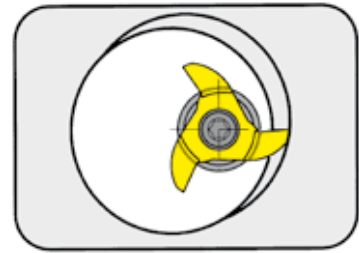
B

铣刀杆 型号

MILLING SHANK Type

M335

带内冷
with through coolant supply



切削刃 \varnothing

Cutting edge \varnothing

Ds 34.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance

配合 刀片

for use with Insert

型号 335

Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M335.0020.01A	100	40	17.5	20	A
M335.0020.02A	130	60			
M335.0020.01B	100	40	17.5	20	B
M335.0020.02B	130	60			
M335.0020.02E	130	60	17.5	20	E

按需提供更多尺寸
Further sizes upon request

w, Ds, t_{max} 见刀片
w, Ds, t_{max} see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M335.0020.0...	6.17T25P	T25PQ

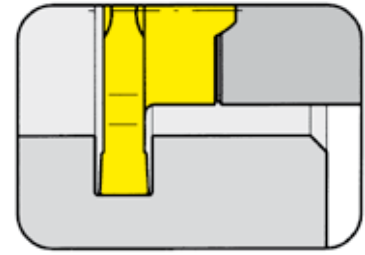
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



B

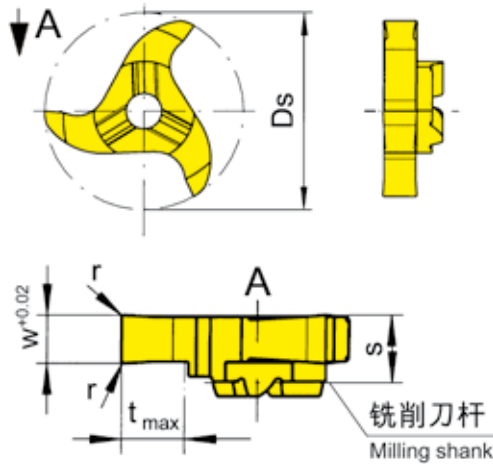
刀片型号 **335**
INSERT Type



切槽深度可达	Depth of groove up to	8.0 mm
槽宽	Width of groove	2.0 - 6.0 mm
切削刃Ø	Cutting edge Ø	Ds 34.7 mm

配合 铣刀杆
for use with Milling shank

型号 M335
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	w	r	s	t _{max}	Ds		MG12	TN35	TI25	AS45	TF45
335.0200.00	2								△	△	
335.0300.00	3								▲	▲	
335.0400.00	4	0.2	8.7	8	34.7				▲	▲	
335.0500.00	5								▲	▲	
335.0600.00	6								▲	▲	
▲ 库存 / on stock △ 4周 / 4 weeks						P			•	•	
• 主要应用 / main recommendation						M			•	•	
○ 可选推荐 / alternative recommendation						K			•	•	
■ 无涂层牌号 / uncoated grades						N			•	○	
■ 涂层牌号 / coated grades						S			•	•	
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

根据要求：
8.0-15.0mm宽度刀片仅用于特殊轮廓刀片，而且要取决于被加工工件的材质。

Upon request:
Insert widths of 8.0 - 15.0 mm are only available as special profiled inserts. Use of these widths depend from the workpiece material to be machined.

铣刀头 型号 280

使用可转位刀片227系列

- 槽深可达10mm
- 槽宽可达8mm
- 径向可调
- 微小的跳动公差



MILLING HEAD type 280

with indexable inserts type 227

- depth of groove up to 10 mm
- width of groove up to 8 mm
- with radial adjustment
- excellent run-out

盘铣刀 型号 **M101**
切削刃 \varnothing 自 80 mm



DISC MILLING CUTTER type **M101**
Cutting edge \varnothing from 80 mm

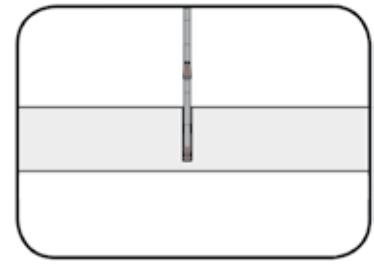
槽铣削 SLOT MILLING



盘铣刀 型号

M101

DISC MILLING CUTTER Type

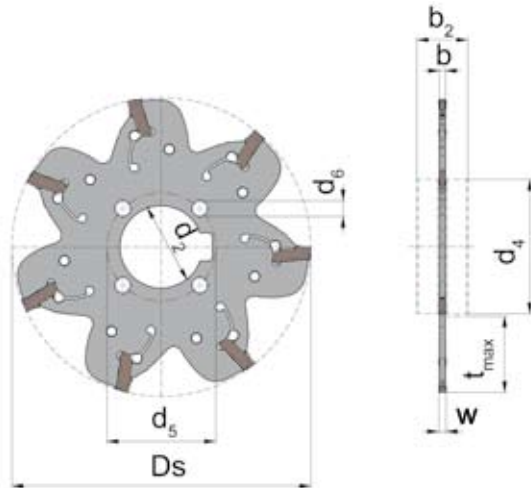


铣削深度可达	Depth of milling up to	33.0 mm
槽宽	Width of groove	1.6 - 2.3 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	80.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合刀片
for use with Insert

型号 S101
Type



图示=右手型
Picture = right hand cutting version

盘式铣刀系列
Type disc milling cutter

产品型号 Part number	Z	Ds	t _{max}	b	d ₂	d ₄	d ₅	d ₆	b ₂	尺寸规格 Size	槽宽 Width of groove
M101.0080.22.16	7	80	20		22	36	29	4.25	13.3	16	1.6 - 1.8
M101.0100.22.16	9	100	30	1.3	22	36	29	4.25	13.3		
M101.0125.32.16	11	125	33		32	55	45	6.25	21.3		
M101.0080.22.20	7	80	20		22	36	29	4.25	13.6	20	2.0 - 2.3
M101.0100.22.20	9	100	30	1.6	22	36	29	4.25	13.6		
M101.0125.32.20	11	125	33		32	55	45	6.25	21.6		

按需提供更多尺寸
Further sizes upon request

w见刀片
w see inserts

尺寸单位：mm
Dimensions in mm

注意事项：
扳手P101.01和传动垫圈组不包括在铣刀内-需另行订购！

Note:
Wrench P101.01 and the driving collar set are not combined with slotting cutter - separate order required!

附件
Spare parts

盘铣刀 Disc milling cutter	传动垫圈组 Driving collar set	扳手 Wrench
M101.0...16/20	020.22.06.36	P101.01
M101.0125.32.16/20	020.32.10.55	P101.01

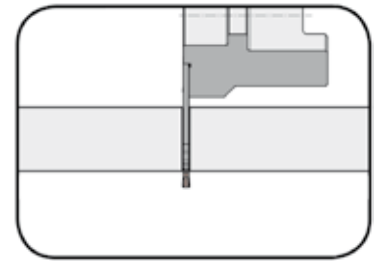
槽铣削 SLOT MILLING



盘铣刀 型号

M101

DISC MILLING CUTTER Type



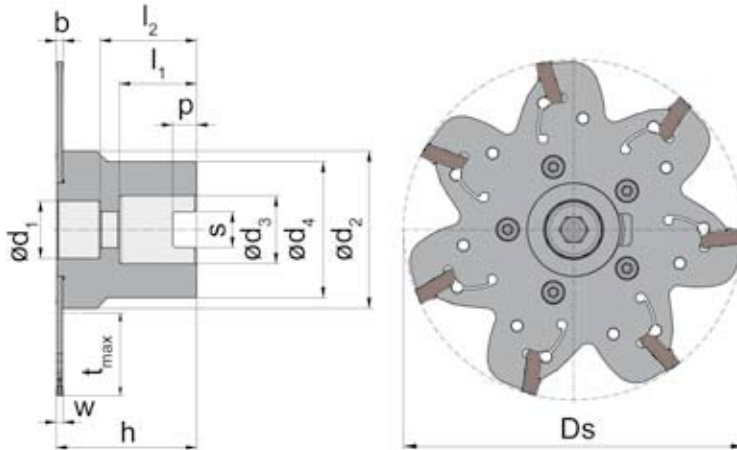
C

铣削深度可达	Depth of milling up to	28.0 mm
槽宽	Width of groove	1.6 - 2.3 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	80.0 mm

配合刀柄式铣刀，符合DIN8030-标准
Arbor mounted cutter as per DIN 8030-A

配合刀片
for use with Insert

型号 S101
Type



配合刀柄
Type arbor mounted

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	h	b	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	s	p	尺寸规格 Size	槽宽 Width of groove
M101.0080.A16.16	7	80	20	33	1.3	13.5	37.0	16	32.0	18	22.7	8.4	5.6	16	1.6 - 1.8
M101.0100.A22.16	9	100	28	37		18.5	40.5	22	40.5	20	24.7	10.4	6.3		
M101.0080.A16.20	7	80	20	33	1.6	13.5	37.0	16	32.0	18	22.7	8.4	5.6	20	2.0 - 2.3
M101.0100.A22.20	9	100	28	37		18.5	40.5	22	40.5	20	24.7	10.4	6.3		

按需提供更多尺寸
Further sizes upon request

w见刀片
w see inserts

尺寸单位：mm
Dimensions in mm

注意事项：

P101.01扳手不包括在铣刀中-需另行订购！

Note:

Wrench **P101.01** is not combined with slotting cutter - separate order required!

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

盘铣刀 Disc milling cutter	刀板 Blade	螺钉 Screw	螺钉 Screw	垫圈 Washer	法兰 Flange	扳手 Wrench
M101.0080.A16.16	M101.0080.28.16	DIN912-M8x25	030.3543.T8P	020.0813.3438	020.0016.32.13	P101.01
M101.0080.A16.20	M101.0080.28.20	DIN912-M8x25	030.3543.T8P	020.0813.3438	020.0016.32.16	P101.01
M101.0100.A22.16	M101.0100.28.16	DIN912-M10x25	030.3543.T8P	DIN433-10.5-St	020.0022.40.13	P101.01
M101.0100.A22.20	M101.0100.28.20	DIN912-M10x25	030.3543.T8P	DIN433-10.5-St	020.0022.40.16	P101.01

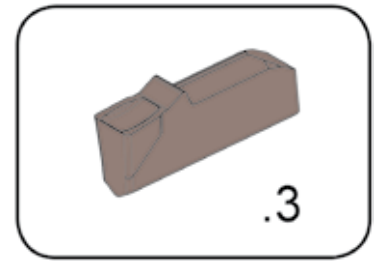
槽铣削

GROOVE MILLING



刀片 型号
INSERT Type

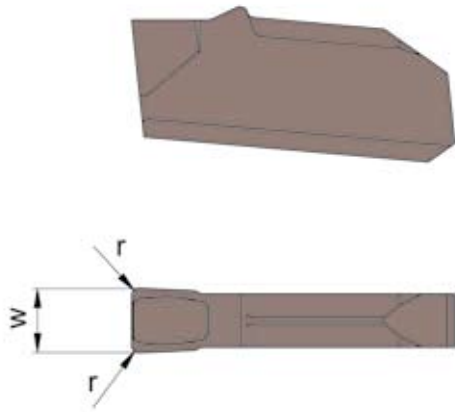
S101
带断屑槽
with chip forming



铣削宽度 Width of milling 1.6 - 2.0 mm

配合 盘铣刀
for use with Disc milling cutter

型号 M101
Type



产品型号 Part number	w	r	尺寸规格 Size	TI25	TA45	AS45
S101.0160.315	1.6	0.15	16			▲
S101.0200.320	2.0	0.20	20			▲
▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet				P		●
				M		●
				K		●
				N		○
				S		●
				H		

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

槽铣削

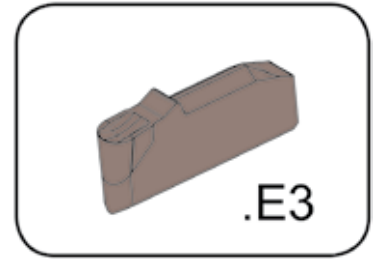
GROOVE MILLING



刀片型号
INSERT Type

S101

带断屑槽
with chip forming

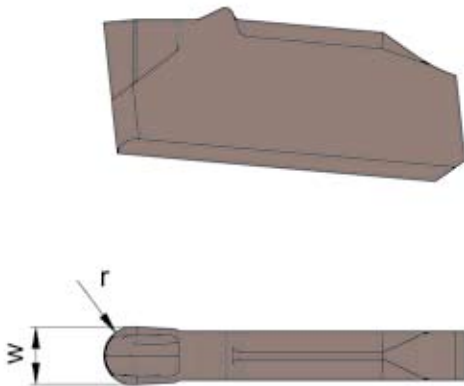


C

圆头	Full radius	0.8 - 1.0 mm
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配合 盘铣刀
for use with Disc milling cutter

型号 M101
Type



圆头
Full radius

产品型号 Part number	w	r	尺寸规格 Size	TI25	TA45	AS45
S101.0160.E3.R08	1.6	0.8	16			▲
S101.0200.E3.R10	2.0	1.0	20			▲
▲ 库存 / on stock Δ 4周 / 4 weeks				P		●
● 主要应用 / main recommendation				M		●
○ 可选推荐 / alternative recommendation				K		●
■ 无涂层牌号 / uncoated grades				N		○
■ 涂层牌号 / coated grades				S		●
■ 钎焊/金属陶瓷 / brazed/Cermet				H		

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

- 只能使用常规铣削，避免切屑阻塞
- 更换刀片后，初始接触需降低进给率50%
- Use only conventional milling to avoid chip jamming
- After changing inserts reduce the feed rate by 50% for initial contact

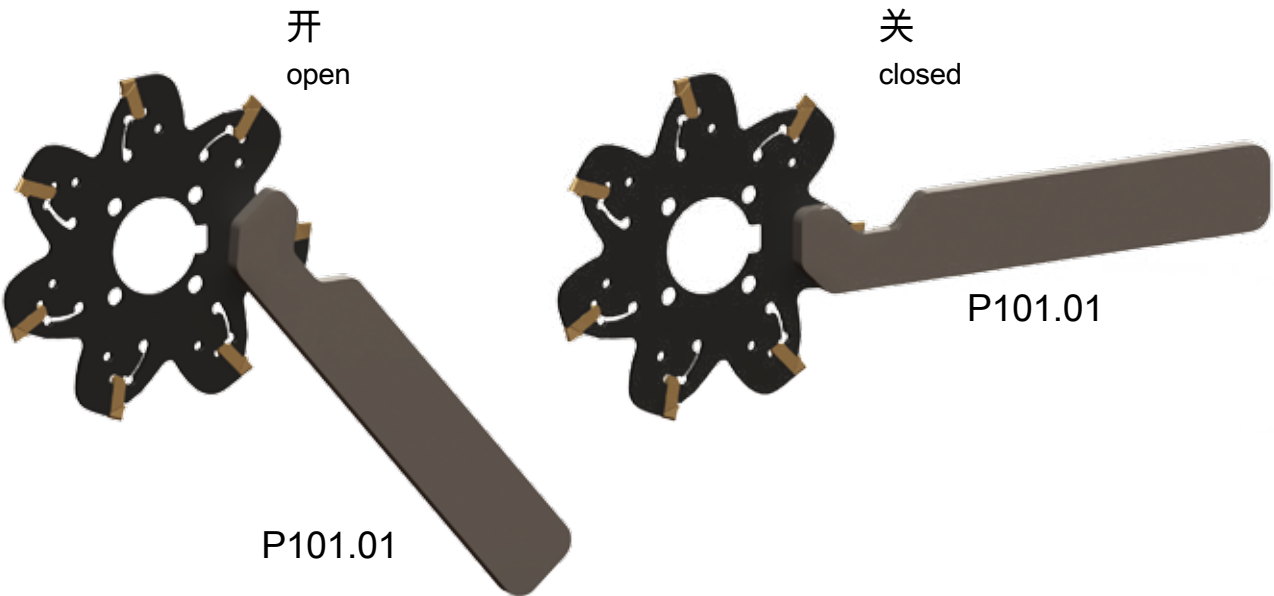
使用HTC计算进给率所需的切削速 v_c 和中间厚度 h_m 的标准值

Standard values for cutting speeds v_c and medium thickness h_m for calculating feed rates by calculating cutting program »HCT«.

材料 Material	硬度 Hardness Brinell (HB)	v_c (m/min)	h_m (mm)		
			AS45		
P 碳钢 Carbon steel	0.2% C	140	200	0.02 - 0.05	
	0,4% C	180	170		
	0,6% C	200	130		
	合金钢 Alloyed steel	退火 annealed	180	130	0.02 - 0.03
		淬火 quenched	280	100	
			350	80	
	高合金钢 high alloyed steel (>5%)	退火 annealed	200	80	0.02 - 0.03
铸钢 Cast steel	非合金 unalloyed	180	160	0.02 - 0.03	
	合金 alloyed	220	100		
M 不锈钢 Stainless steel	马氏体，铁素体 martensitic, ferritic	200	120	0.02 - 0.03	
	奥氏体 austenitic	180	100		
K 灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180	90	0.01 - 0.03	
	高拉伸强度 high tensile strength	250	80		
	球墨铸铁 Spheroidal graphite cast iron	铁素体 ferritic	160		90
		珠光体 perlitic	250		50
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125		90
		珠光体 perlitic	225		100
N 铝合金 Al-alloys	非热处理 not heat treatable	30-80	200	0.01 - 0.08	
	热处理 heat treatable	80-120	200		
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80		200
		热处理 heat treatable	100		170
	铜合金 Copper-alloys	非热处理 not heat treatable	90		100
		热处理 heat treatable	100		90
S 耐热合金 Heat resistant alloy (Fe)	退火 annealed	200	70	0.01 - 0.02	
	硬化 hardened	275	-		
	耐热合金 Heat resistant alloy (Ni. Co)	退火 annealed	250		30
		硬化 hardened	350		-

定位夹紧扳手 P101.01

Setting position clamping wrench P101.01



请注意最大转速！

Please note the max. revolutions!

Ø 盘铣刀 Ø Disc milling cutter	最大转速 n_{max} max. Revolutions n_{max}
Ø 80 mm	800 1/min
Ø 100 mm	640 1/min
Ø 125 mm	510 1/min

C

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



头部槽铣削-HSK系统

型号 389

OVER GROOVING HEAD
with attachment HSK

type



例如：刹车泵

材质: GG25

刀具参数:

切削刃 \varnothing Ds = 39 mm

齿数 Z=6

切削参数:

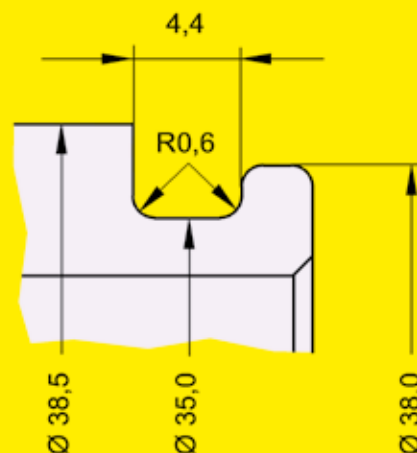
$v_c = 180$ m/min

$v_{f3} = 3913$ mm/min

$t_g = 1.92$ s

槽型

Profile of groove



Example: Wheel cylinder

Material: GG25

Tool data:

Cutting edge \varnothing Ds = 39 mm

Number of teeth Z = 6

Cutting data:

$v_c = 180$ m/min

$v_{f3} = 3913$ mm/min

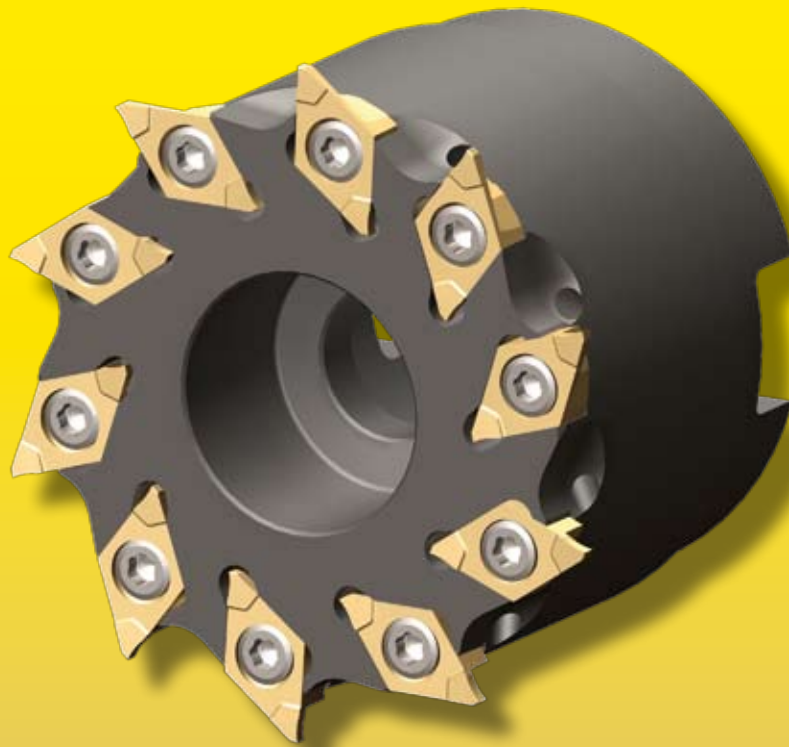
$t_g = 1,92$ s

槽铣削系列 275

自切削刃 \varnothing

31 mm

例如：
铣刀 M275.0078.A32.14
切削刃 \varnothing 78 mm



Groove milling with System **275**
from Cutting edge \varnothing

31 mm

Example:
Milling cutter M275.0078.A32.14
Cutting edge \varnothing 78 mm

D

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

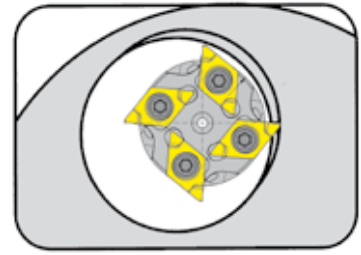


铣刀杆 型号

MILLING SHANK Type

M275

带内冷
with through coolant supply



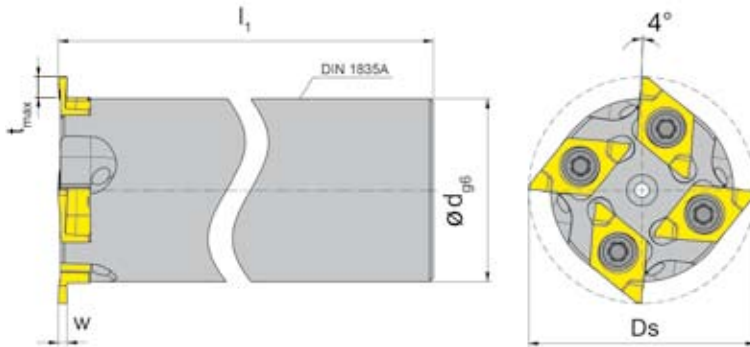
切削刃Ø

Cutting edge Ø

Ds 31 mm

刀杆材料：钢 (不推荐热缩夹持)

Material of shank: Steel (not recommended for shrink fitting)



配合 可转位刀片

for use with Indexable insert

型号 S275

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	l ₁	d
M275.031.D25.3.04A	4	31	125	25

按需提供更多尺寸
Further sizes upon request

w和t_{max} 见刀片
w and t_{max} see inserts

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M275.031.D25.3.04A	3.5-10-T10P	T10PL

槽铣削 (圆弧插补铣削)

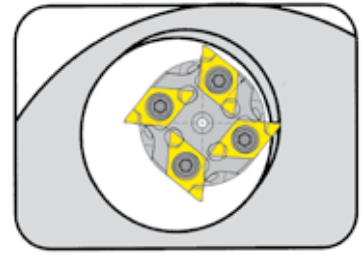
GROOVE MILLING by circular interpolation



螺纹锁紧铣刀 型号
SCREW-IN CUTTER Type

M275

带内冷
with through coolant supply



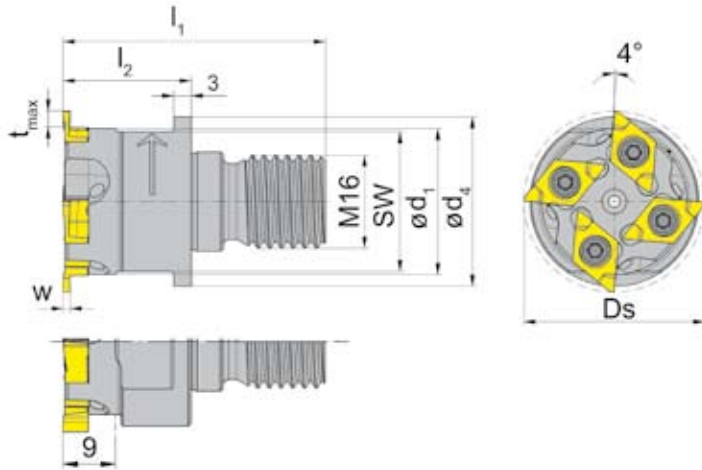
D

切削刃Ø Cutting edge Ø Ds 31 / 36 mm

刀杆材料：钢
Material of shank: Steel

配合 可转位刀片
for use with Indexable insert

型号 S275
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	l_1	l_2	d_1	d_4	SW
M275.031.M16.1.04	4	31	45	22	25	29	24
M275.036.M16.1.04	4	36	45	22	30	29	27

按需提供更多尺寸
Further sizes upon request

w和 t_{max} 见刀片
w and t_{max} see inserts

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M275.03...	3.5.10.T10P	T10PL

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

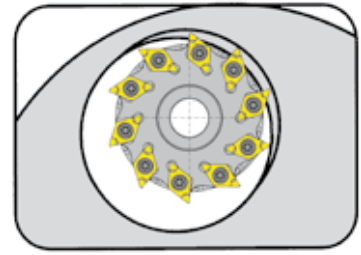


铣刀 型号

MILLING CUTTER Type

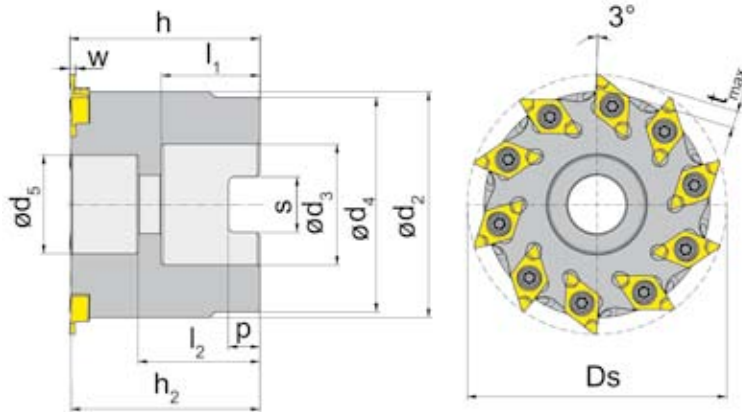
M275

带内冷
with through coolant supply



切削刃Ø Cutting edge Ø Ds 38/48/58/78 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138



配合 可转位刀片
for use with Indexable insert

型号 S275
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	h	h ₂	d ₂	d ₃	d ₄	d ₅	l ₁	l ₂	s	p
M275.0038.A16.05	5	38	33.0	32.7	32.0	16	32.0	13.5	18	22.7	8.4	5.6
M275.0048.A22.08	8	48	37.0	36.7	40.5	22	40.5	18.5	20	24.7	10.4	6.3
M275.0058.A27.10	10	58	42.5	42.2	50.0	27	48.0	22.0	22	27.2	12.4	7.0
M275.0078.A32.14	14	78	50.0	49.7	3.5	32	58.0	33.0	25	36.7	14.4	8.0

按需提供更多尺寸
Further sizes upon request

w和t_{max}见刀片
w and t_{max} see inserts

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀 Milling cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
M275.0038.A16.05	DIN912-M8x25	3.5.10.T10P	T10PL	020.0813.3438
M275.0048.A22.08	DIN912-M10x25	3.5.10.T10P	T10PL	DIN433-10.5-St
M275.0058.A27.10	DIN912-M12x30	3.5.10.T10P	T10PL	DIN433-13-St
M275.0078.A32.14	DIN7984-M16x35	3.5.10.T10P	T10PL	DIN433-17-St

槽铣削 (圆弧插补铣削)

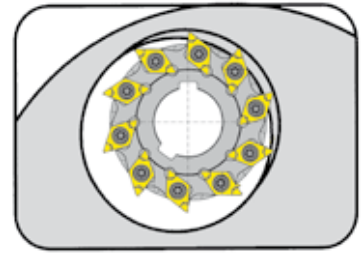
GROOVE MILLING by circular interpolation



盘铣刀 型号

DISC MILLING CUTTER Type

M275

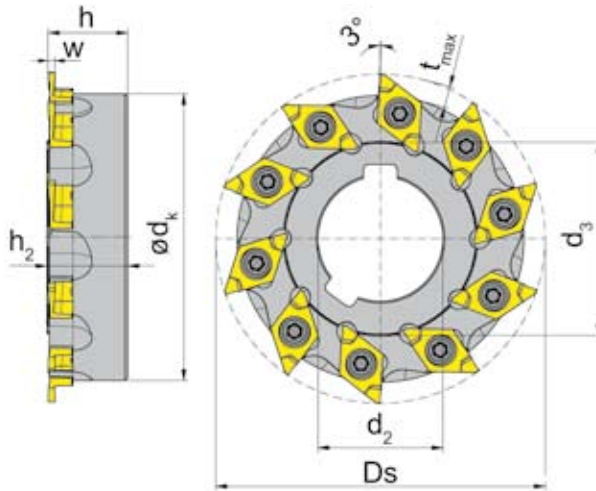


切削刃Ø	Cutting edge Ø	Ds 58/78/98 mm
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孔(d_2)带纵向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 S275
Type



R=右手型-如图
R = right hand cutting version shown

L=左手型
L = left hand cutting version

产品型号 Part number	Z	Ds	h	h_2	d_3	d_2	d_k
R/LM275.0058.S22.10	10	58	14	14.2	34	22	50.5
R/LM275.0078.S27.14	14	78	16	16.2	43	27	70.5
R/LM275.0098.S32.16	16	98	20	20.2	48	32	90.5

按需提供更多尺寸
Further sizes upon request

w和 t_{max} 见刀片
w and t_{max} see inserts

尺寸单位: mm
Dimensions in mm

注明R或L型
State R or L version

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

盘铣刀 Disc milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
R/LM275.00...	3.5.10.T10P	T10PL

槽铣削 (圆弧插补铣削)

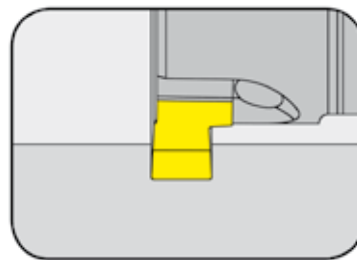
GROOVE MILLING by circular interpolation



可转位刀片 型号

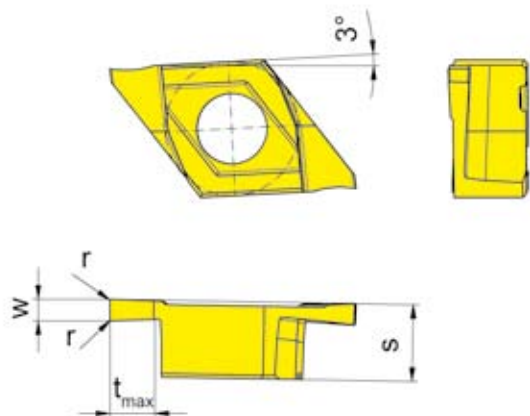
INDEXABLE INSERT Type

S275



切槽深度可达	Depth of groove up to	2.50 mm
卡簧宽度Nw	Width of circlip Nw	1.10 - 3.15 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



配合铣削刀杆
for use with Milling tool

型号 M275
Type

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	r	s	t _{max}	MG12	TN35	TI25	TA45	AS45
R/LS275.0110.00	1.10	1.20	0.10	4.3	2.5					▲/▲
R/LS275.0130.00	1.30	1.40	0.10			▲/▲				
R/LS275.0160.00	1.60	1.70	0.10			▲/▲				
R/LS275.0185.00	1.85	1.95	0.15			▲/▲				
R/LS275.0215.00	2.15	2.25	0.15			▲/▲				
R/LS275.0265.00	2.65	2.75	0.15			▲/▲				
R/LS275.0315.00	3.15	3.25	0.15	▲/▲						

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P					●
M					●
K					●
N					○
S					●
H					

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

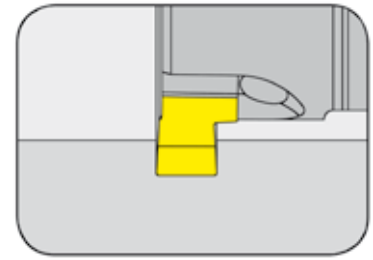


可转位刀片 型号

INDEXABLE INSERT Type

S275

铝加工
machining of aluminium

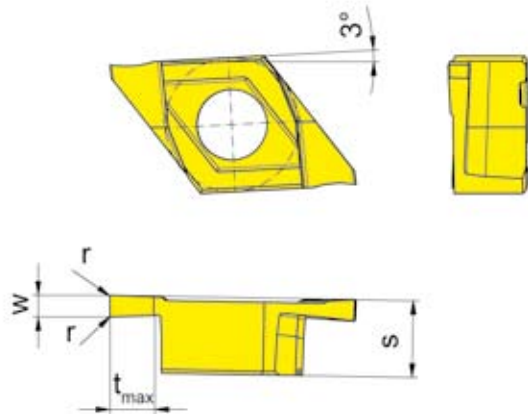


切槽深度可达	Depth of groove up to	2.50 mm
卡簧宽度Nw	Width of circlip Nw	1.10 - 3.15 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472

配合铣削刀杆
for use with Milling tool

型号 M275
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	r	s	t _{max}	MG12	TN35	TI25	TA45	AS45
R/LS275.0110.40	1.10	1.20	0.10	4.3	2.5				▲/▲	
R/LS275.0130.40	1.30	1.40	0.10			▲/▲				
R/LS275.0160.40	1.60	1.70	0.10			▲/▲				
R/LS275.0185.40	1.85	1.95	0.15			▲/▲				
R/LS275.0215.40	2.15	2.25	0.15			▲/▲				
R/LS275.0265.40	2.65	2.75	0.15			▲/▲				
R/LS275.0315.40	3.15	3.25	0.15	▲/▲						

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P			●	
M			●	
K			●	
N			●	
S			●	
H				

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

槽铣削 (圆弧插补铣削)

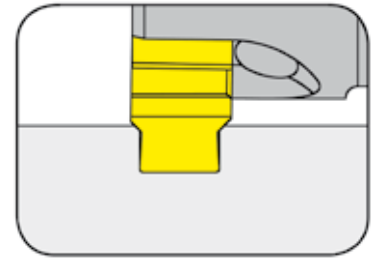
GROOVE MILLING by circular interpolation



可转位刀片 型号

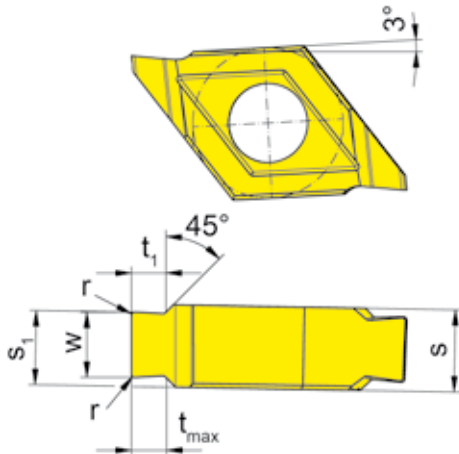
INDEXABLE INSERT Type

S275



切槽深度可达 Depth of groove up to 1.75 mm
 卡簧宽度Nw Width of circlip Nw 1.10 - 3.15 mm

卡簧槽宽度DIN471/472-带倒角
 Widths for circlip grooves DIN 471/472 with chamfer



配合铣削刀杆
 for use with Milling tool

型号 M275
 Type

R=右手型-如图
 R = right hand version shown

L=左手型
 L = left hand version

产品型号 Part number	Nw	w	r	t ₁	s	s ₁	t _{max}	MG12	TN35	TI25	TA45	AS45
R/LS275.1105.41	1.10	1.20	0.10	0.47	4.1	3.17	0.50					▲/▲
R/LS275.1308.41	1.30	1.40	0.10	0.81				▲/▲				
R/LS275.1610.41	1.60	1.70	0.10	0.95				▲/▲				
R/LS275.1812.41	1.85	1.95	0.15	1.21				▲/▲				
R/LS275.2115.41	2.15	2.25	0.15	1.45				▲/▲				
R/LS275.2617.41	2.65	2.75	0.15	1.70				▲/▲				
R/LS275.3118.41	3.15	3.25	0.15	1.70	3.70	1.75					▲/▲	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P				●
M				●
K				●
N				○
S				●
H				

硬质合金牌号
 Carbide grades

尺寸单位 : mm
 Dimensions in mm

注明R或L型
 State R or L version

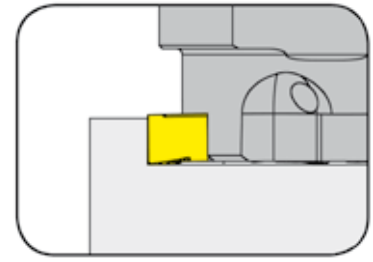
面铣削 FACE MILLING



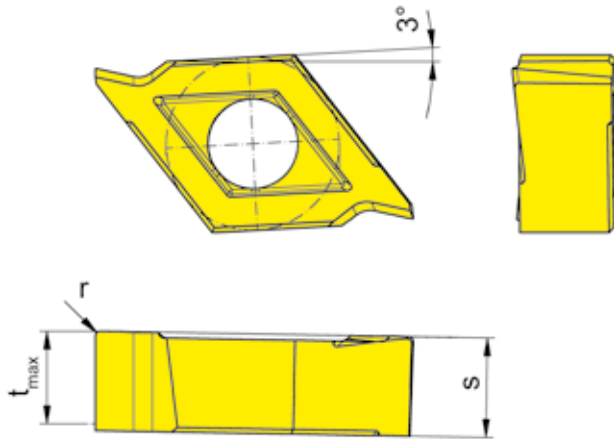
可转位刀片 型号

INDEXABLE INSERT Type

RS275



切深可达 Depth of cut up to 4.0 mm



配合铣削刀杆
for use with Milling tool

型号 M275
Type

R=右手型-如图
R = right hand version shown

产品型号 Part number	s	t _{max}	r	MG12	TN35	TI25	TA45	AS45
RS275.PL43.52	4.3	4	0.2					▲
▲ 库存 / on stock Δ 4周 / 4 weeks				P				•
● 主要应用 / main recommendation				M				•
○ 可选推荐 / alternative recommendation				K				•
■ 无涂层牌号 / uncoated grades				N				○
■ 涂层牌号 / coated grades				S				•
■ 钎焊/金属陶瓷 / brazed/Cermet				H				

尺寸单位 : mm
Dimensions in mm

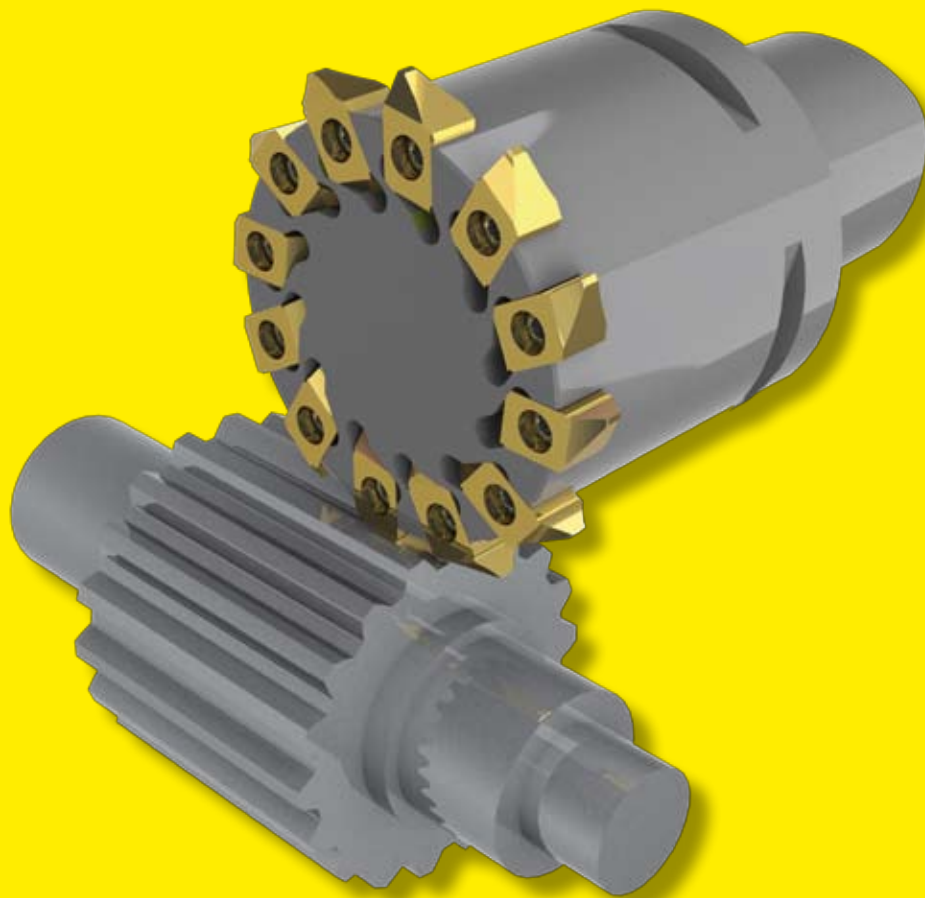
硬质合金牌号
Carbide grades



齿轮铣削

例如：

- 单牙齿槽
- HORN多边形刀杆



Gear milling

Example:

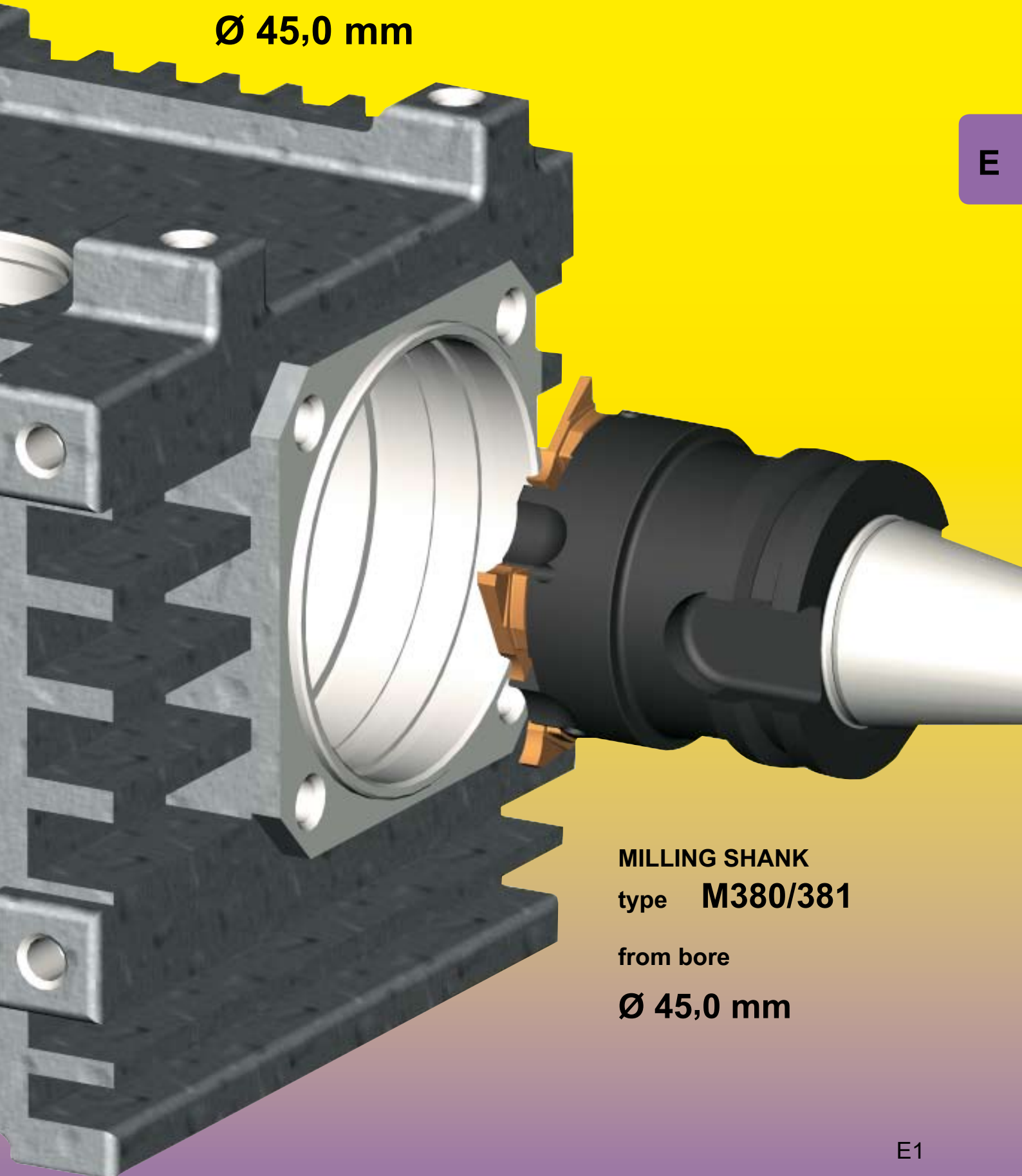
- Single tooth spline profile
- backend HORN Polygon shank

槽铣削 (圆弧插补铣削)
GROOVE MILLING by circular interpolation



铣刀杆 型号 **M380/381**
自孔

Ø 45,0 mm



E

MILLING SHANK
type **M380/381**

from bore

Ø 45,0 mm

槽铣削 (圆弧插补铣削)

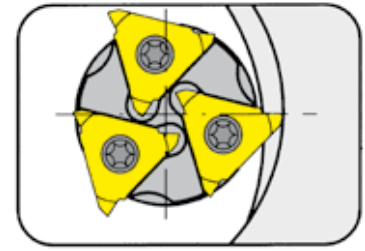
GROOVE MILLING by circular interpolation



铣刀杆 型号

380

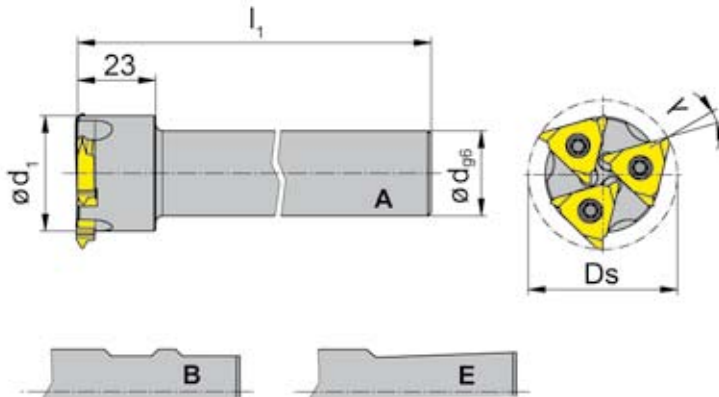
MILLING SHANK Type



切槽深度可达	Depth of groove up to	4.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 44.0 mm

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	l ₁	d ₁	d	λ	规格 Form
380.0044.03A	3	44	4	125	34	25	14°	A
380.0044.03B	3	44	4	125	34	25	14°	B
380.0044.03E	3	44	4	125	34	25	14°	E

按需提供更多尺寸

Further sizes upon request

尺寸单位 : mm

Dimensions in mm

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
380.0044.03...	5.12T20P	T20PQ

槽铣削 (圆弧插补铣削)

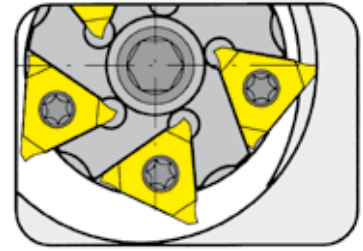
GROOVE MILLING by circular interpolation



铣刀 型号

380

MILLING CUTTER Type

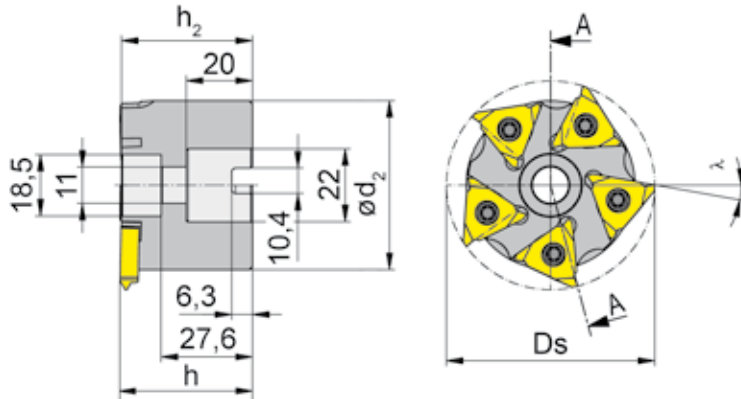


切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃Ø	Cutting edge Ø	Ds 63.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	h	h ₂	d ₂	λ
380.0063.05	5	63	5	40	39.6	51	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀 Milling cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
380.0063.05	10.25.912	5.12T20P	T20PQ	10.5.433

E

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

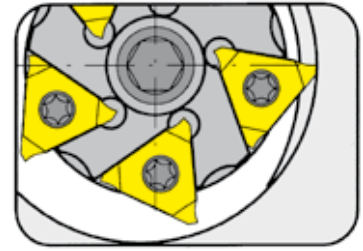


铣刀 型号

MILLING CUTTER Type

380...IK

带内冷
with through coolant supply

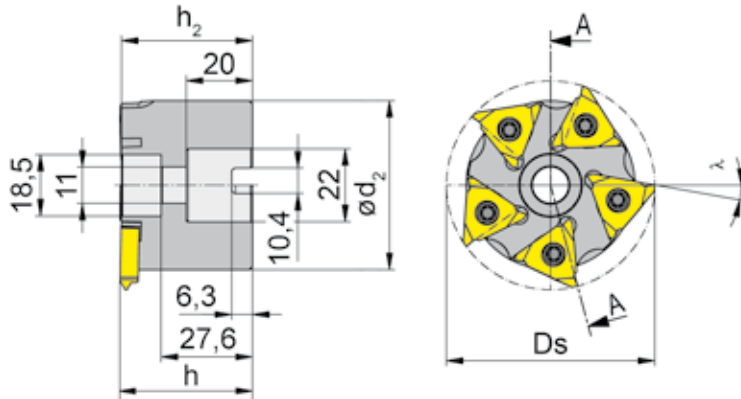


切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 63.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

IK=内冷
IK=through coolant supply

产品型号 Part number	Z	Ds	t_{max}	h	h_2	d_2	λ
380.0063.05IK	5	63	5	40	39.6	51	10°

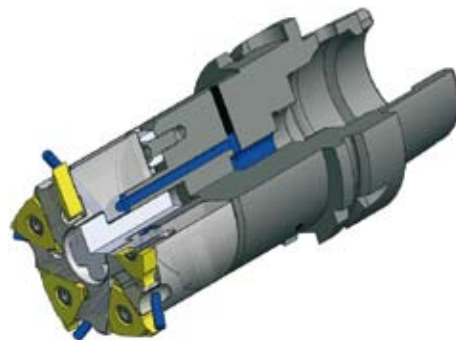
按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

订货须知:
铣刀不包含铣刀柄-需单独订购!

Ordering note:
Milling arbor is not combined with milling cutter - separate order required!



附件
Spare parts

铣刀 Milling cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
380.0063.05IK	10.25.912	5.12T20P	T20PQ	10.5.433

槽铣削 (圆弧插补铣削)

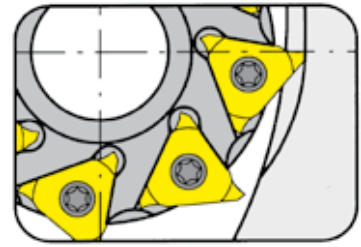
GROOVE MILLING by circular interpolation



铣刀 型号

380

MILLING CUTTER Type

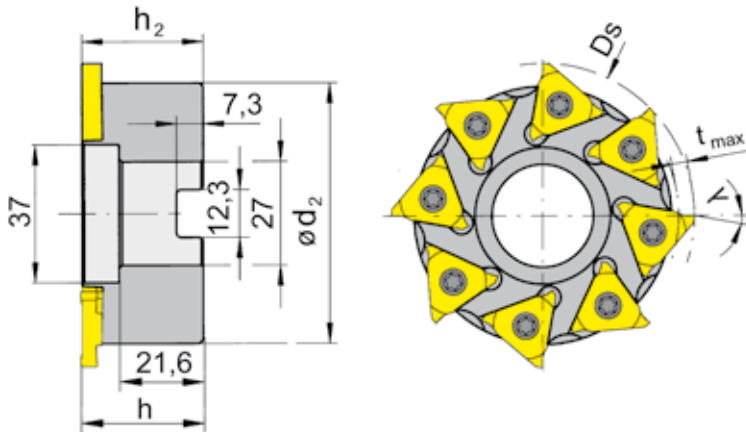


切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 80.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	h	h ₂	d ₂	λ
380.0080.08	8	80	5	32	31.6	68	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀 Milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
380.0080.08	5.12T20P	T20PQ

E

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

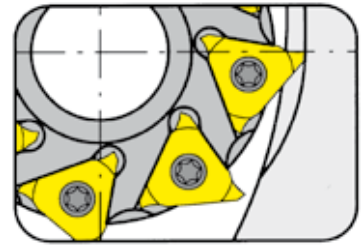


铣刀 型号

MILLING CUTTER Type

380...IK

带内冷
with through coolant supply

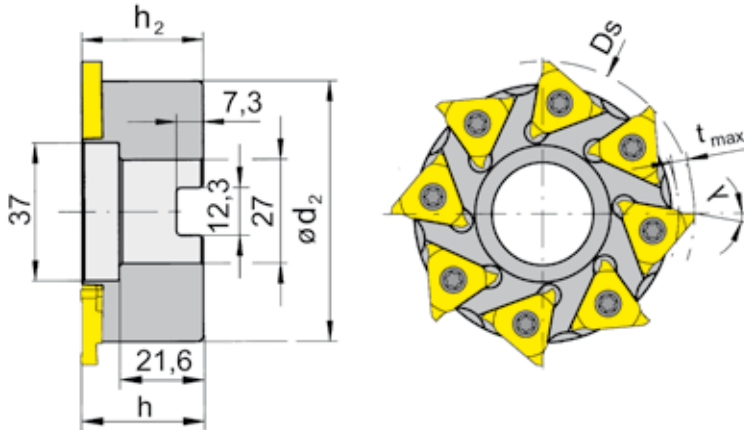


切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 80.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

IK=内冷
IK=through coolant supply

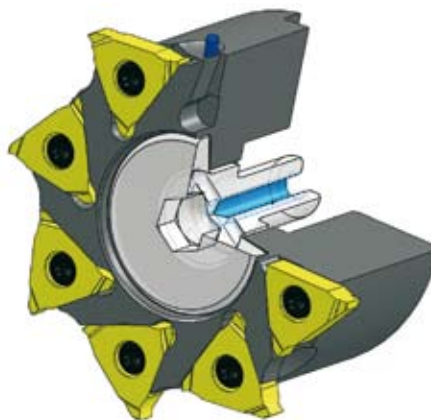
产品型号 Part number	Z	Ds	t _{max}	h	h ₂	d ₂	λ
380.0080.08IK	8	80	5	40	39.8	68	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

订货须知:
螺钉030.0012.0726不包含在铣刀中-需单独订购!
Ordering note:
Bolt screw 030.0012.0726 is combined with the milling cutter.



附件
Spare parts

铣刀 Milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
380.0080.08IK	5.12T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

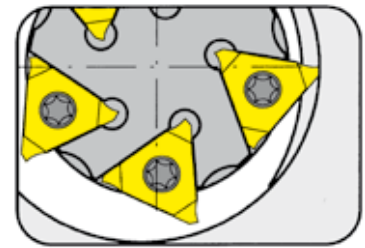


铣刀 型号

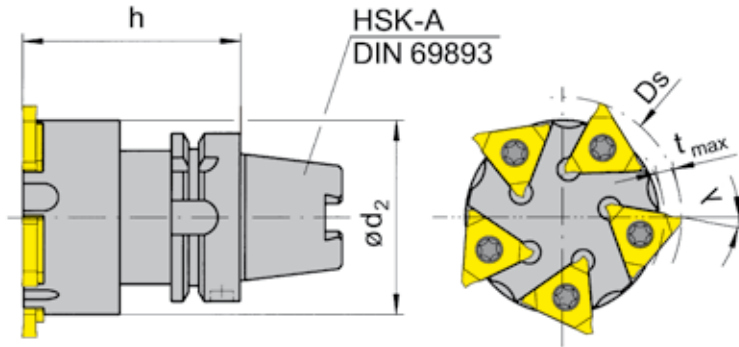
MILLING CUTTER Type

HSK..380

带内冷
with through coolant supply



切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 44.0 mm



配合 可转位刀片
for use with Indexable insert

型号 314
Type

E

图示=右手型
Picture = right hand cutting version

HSK-接口系列
HSK-coupling system

产品型号 Part number	Z	Ds	t_{max}	h	d_2	λ
HSK-32-380.0044.03	3	44	4.0	55	34	14°
HSK-40-380.0050.04	4	50	4.5	55	40	14°
HSK-40-380.0063.05	5	63	5.0	55	51	10°
HSK-50-380.0063.05	5	63	5.0	65	51	10°
HSK-50-380.0080.08	8	80	5.0	65	68	10°
HSK-63-380.0080.08	8	80	5.0	70	68	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀 Milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
HSK-...	5.12T20P	T20PQ

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

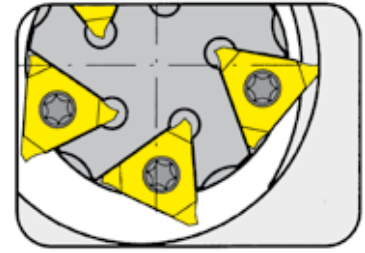


铣刀 型号

MILLING CUTTER Type

ABS..380

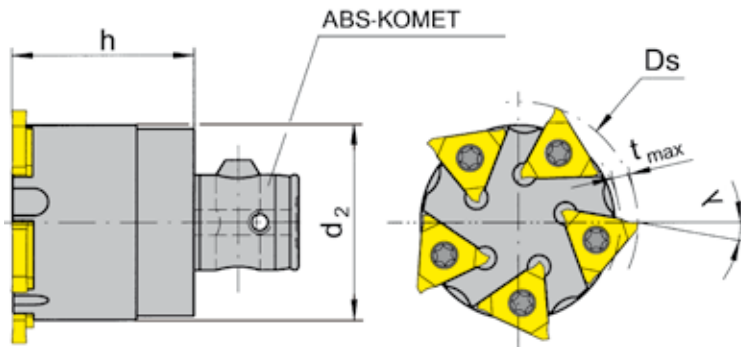
带内冷
with through coolant supply



切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 44.0 mm

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

ABS-接口系列
KOMET许可证
ABS-coupling system
Licence KOMET

产品型号 Part number	Z	Ds	t _{max}	h	d ₂	λ
ABS-32-380.0044.03	3	44	4.0	35	34	14°
ABS-40-380.0050.04	4	50	4.5	40	40	14°
ABS-40-380.0063.05	5	63	5.0	40	51	10°
ABS-50-380.0063.05	5	63	5.0	50	51	10°
ABS-50-380.0080.08	8	80	5.0	50	68	10°
ABS-63-380.0080.08	8	80	5.0	63	68	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀 Milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	ABS系列 ABS set
ABS-32-380.0044.03	5.12T20P	T20PQ	ABS-32-ES-M3
ABS-40-380.00...04/05	5.12T20P	T20PQ	ABS-40-ES-M3
ABS-50-380.00...05/08	5.12T20P	T20PQ	ABS-50-ES-M3
ABS-63-380.0080.08	5.12T20P	T20PQ	ABS-63-ES-M3

槽铣削 (圆弧插补铣削)

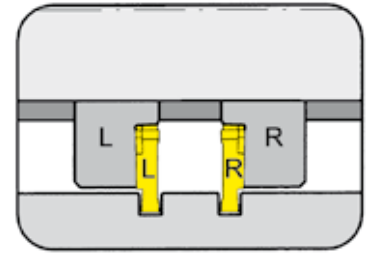
GROOVE MILLING by circular interpolation



盘铣刀 型号

381

DISC MILLING CUTTER Type



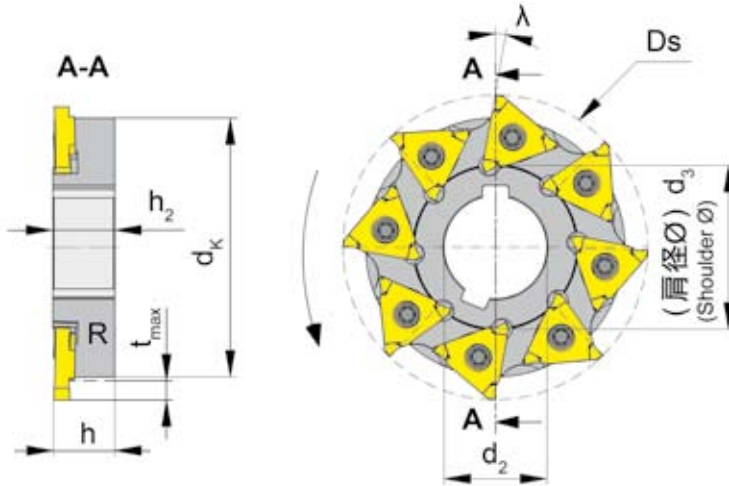
切槽深度可达	Depth of groove up to	5.0 mm
槽宽可达	Width of groove up to	6.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 63.0 mm

孔(d_2)带轴向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type

E



R=右手切削-左侧安装
R = right hand cutting - left side mounted

L=左手型切削-右侧安装
L = left hand cutting - right side mounted

产品型号 Part number	Z	Ds	h	h ₂	d ₃	d ₂	d _k	λ	t _{max}
R/L381.0063.05	5	63	14	14.2	34	22	51	14°	5
R/L381.0080.08	8	80	16	16.2	43	27	68	10°	5
R/L381.0100.10	10	100	20	20.2	48	32	88	10°	5

注明R或L型
State R or L version

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

盘铣刀 Disc milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
R/L381.0...	5.12T20P	T20PQ

槽铣削 (圆弧插补铣削)

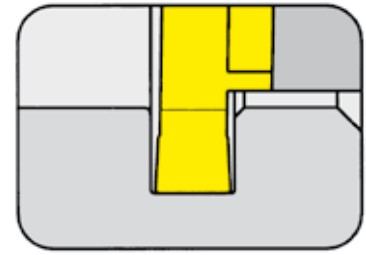
GROOVE MILLING by circular interpolation



可转位刀片 型号

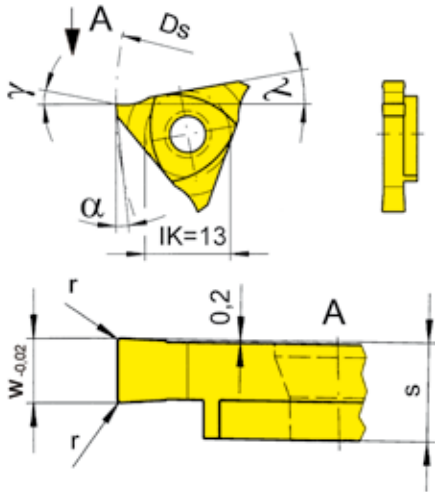
INDEXABLE INSERT Type

314



切槽深度可达 Depth of groove up to 5.00 mm
 卡簧宽度Nw Width of circlip Nw 1.30 - 5.15 mm

卡簧槽宽度DIN471/472
 Widths for circlip grooves DIN 471/472



R=右手型-如图
 R = right hand version shown

L=左手型
 L = left hand version

配合 铣刀
 for use with Milling cutter

型号 380
 Type 381
 ABS..380
 HSK..380

槽型决定于安装角度 λ
 Geometries depending on angle of seating λ

λ	γ	α
10°	15°	6°
14°	11°	10°

产品型号 Part number	Nw	w	r	s	MG12	TN35	TI25	TA45	AS45	
R/L314.0130.00	1.30	1.41	0.10	5.4		▲/▲			▲/▲	
R/L314.0160.00	1.60	1.71	0.10			▲/▲			▲/▲	
R/L314.0185.00	1.85	1.96	0.15			▲/▲			▲/▲	
R/L314.0215.00	2.15	2.26	0.15	5.4	▲/	▲/▲			▲/▲	
R/L314.0265.00	2.65	2.76			▲/	▲/▲	▲/			▲/▲
R/L314.0315.00	3.15	3.26			▲/	▲/▲	▲/			▲/▲
R/L314.0415.00	4.15	4.26			▲/	▲/▲	▲/			▲/▲
R/L314.0515.00	5.15	5.26			▲/	▲/▲	▲/			▲/▲
							▲/	▲/▲	▲/	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
 Dimensions in mm

注明R或L型
 State R or L version

P	○	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	●	●	●	●	○
S	●	●	●	●	●
H					

硬质合金牌号
 Carbide grades

槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation

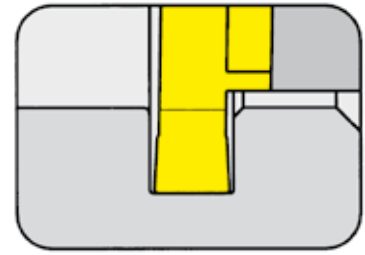


可转位刀片 型号

INDEXABLE INSERT Type

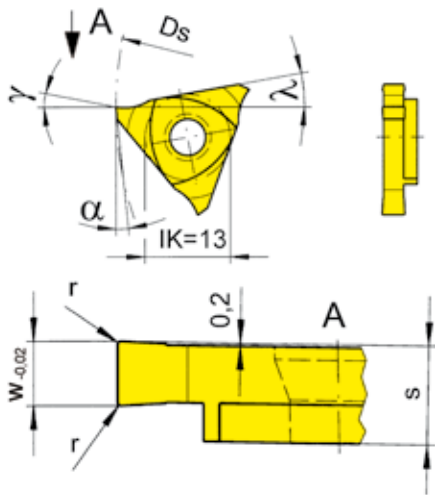
314

铝加工
machining of aluminium



切槽深度可达	Depth of groove up to	5.00 mm
卡簧宽度Nw	Width of circlip Nw	1.30 - 5.15 mm

卡簧槽宽度DIN471/472
Widths for circlip grooves DIN 471/472



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

配合 铣刀
for use with Milling cutter

型号 380
Type 381
ABS..380
HSK..380

槽型决定于安装角度 λ
Geometries depending on angle of seating λ

λ	γ	α
10°	15°	6°
14°	11°	10°

产品型号 Part number	Nw	w	r	s	MG12	TN35	TI25	TA45	AS45	
R/L314.0130.40	1.30	1.41	0.10	5.4			△/			
R/L314.0160.40	1.60	1.71					△/	△/		
R/L314.0185.40	1.85	1.96	0.15	5.4		△/	△/			
R/L314.0215.40	2.15	2.26					△/	△/		
R/L314.0265.40	2.65	2.76					▲/	▲/		
R/L314.0315.40	3.15	3.26					▲/△	▲/		
R/L314.0415.40	4.15	4.26					▲/	▲/		
R/L314.0515.40	5.15	5.26					▲/△	▲/		

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P	●	●		
M	●	●		
K	●	●		
N	●	●		
S	●	●		
H				

硬质合金牌号
Carbide grades

E

槽铣削 (圆弧插补铣削)

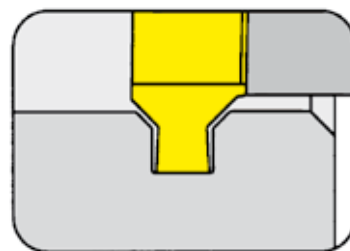
GROOVE MILLING by circular interpolation



可转位刀片 型号

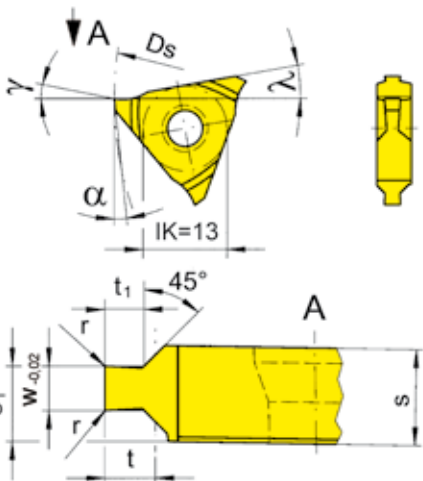
INDEXABLE INSERT Type

314



切槽深度可达 Depth of groove up to 3.00 mm
卡簧宽度Nw Width of circlip Nw 1.10 - 5.15 mm

卡簧槽宽度DIN471/472-带倒角
Widths for circlip grooves DIN 471/472 with chamfer



配合 铣刀
for use with Milling cutter

型号 380
Type 381
ABS..380
HSK..380

槽型决定于安装角度 λ
Geometries depending on angle of seating λ

λ	γ	α
10°	15°	6°
14°	11°	10°

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	Nw	w	r	t ₁	s	s ₁	t _{max}	MG12	TN35	TI25	TA45	AS45
R/L314.1105.54	1.10	1.21		0.49		4.52	0.50		Δ/			
R/L314.1307.54	1.30	1.41		0.67		4.62	0.70		Δ/			Δ/Δ
R/L314.1308.54	1.30	1.41	0.10	0.83	5.45	4.62	0.85		Δ/			Δ/Δ
R/L314.1609.54	1.60	1.71		0.83		4.52	0.85		▲/Δ			▲/Δ
R/L314.1610.54	1.60	1.71		0.97		4.52	1.00		Δ/▲			Δ/▲
R/L314.1812.54	1.85	1.96		1.23		4.64	1.25		▲/▲			▲/▲
R/L314.2115.54	2.15	2.26		1.47		4.79	1.50		▲/▲			▲/▲
R/L314.2616.54	2.65	2.76		1.47		4.54	1.50		▲/▲			▲/▲
R/L314.2617.54	2.65	2.76	0.15	1.72	5.45	4.54	1.75		▲/▲			▲/▲
R/L314.3118.54	3.15	3.26		1.72		4.79	1.75		▲/Δ			▲/▲
R/L314.4120.54	4.15	4.26		1.97		4.99	2.00		▲/			▲/Δ
R/L314.4125.54	4.15	4.26		2.47		4.99	2.50		▲/			▲/Δ
R/L314.5130.61	5.15	5.26	0.15	2.97	6.10	5.85	3.00		▲/			▲/Δ
▲ 库存 / on stock Δ 4周 / 4 weeks								P	•			•
• 主要应用 / main recommendation								M	•			•
○ 可选推荐 / alternative recommendation								K	•			•
■ 无涂层牌号 / uncoated grades								N	•			○
■ 涂层牌号 / coated grades								S	•			•
■ 钎焊/金属陶瓷 / brazed/Cermet								H				

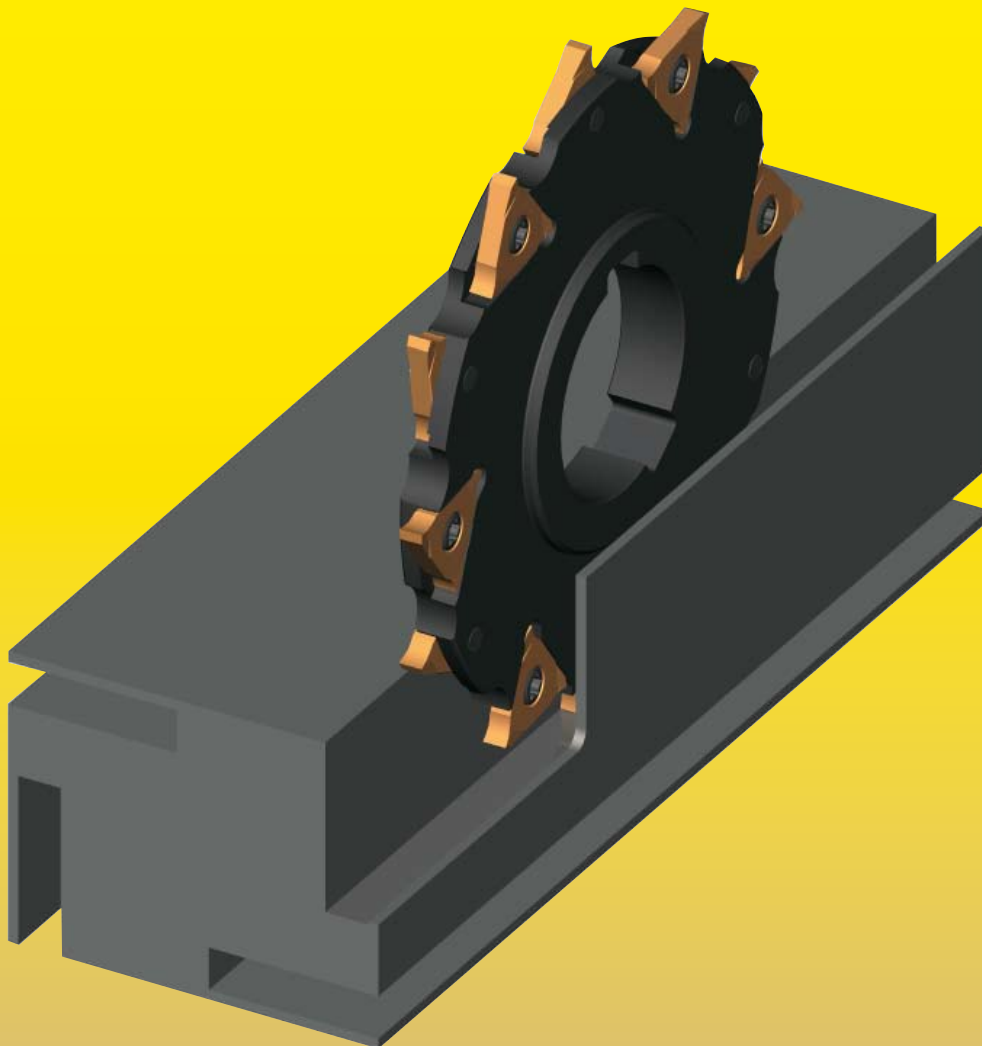
尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

盘铣刀型号 382 / 383

- 适用于钢和轻合金的通用断屑槽型
- 10°正前角
- 最好的排屑性能
- 出色的切削性能和表面光洁度



F

DISC MILLING CUTTER type 382 / 383

- universal geometry for steel and light alloys
- 10° positive top rake
- best swarf evacuation
- outstanding cutting performance and surface finish

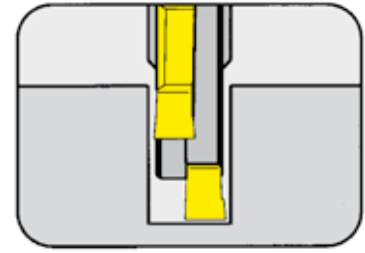
槽铣削 GROOVE MILLING



盘铣刀 型号

382

DISC MILLING CUTTER Type

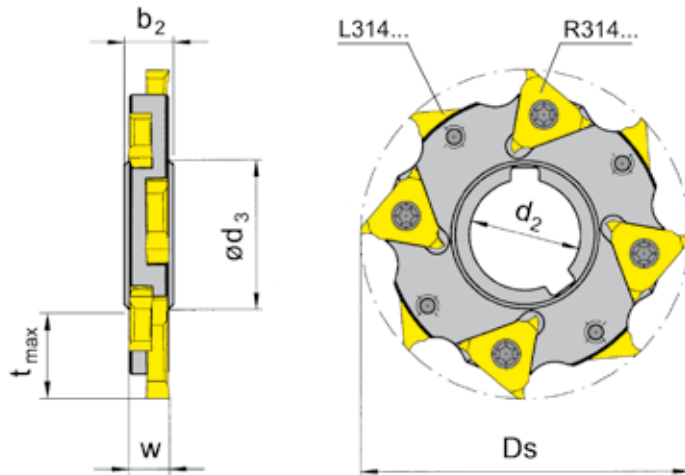


切槽深度可达	Depth of groove up to	50.0 mm
槽宽可达	Width of groove up to	12.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 80.0 mm

孔(d_2)带纵向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t_{max}	w	d_2	d_3	b_2	右手型刀片 right hand insert	左手型刀片 left hand insert
382.0080.27.06	8	80	21.0	6	27	36	10	4x R314.6032.00	4x L314.6032.00
382.0080.27.08				8				4x R314.8043.00	4x L314.8043.00
382.0080.27.10				10				4x R314.0054.00	4x L314.0054.00
382.0100.32.06	10	100	25.5	6	32	47	10	5x R314.6032.00	5x L314.6032.00
382.0100.32.08				8				5x R314.8043.00	5x L314.8043.00
382.0100.32.10				10				5x R314.0054.00	5x L314.0054.00
382.0125.40.06	12	125	32.5	6	40	58	10	6x R314.6032.00	6x L314.6032.00
382.0125.40.08				8				6x R314.8043.00	6x L314.8043.00
382.0125.40.10				10				6x R314.0054.00	6x L314.0054.00
382.0125.40.12				12				2x4 R314.0054.00	4x L314.0054.00
382.0160.40.06	16	160	50.0	6	40	58	10	8x R314.6032.00	8x L314.6032.00
382.0160.40.08	8			8x R314.8043.00				8x L314.8043.00	
382.0160.40.10	10			8x R314.0054.00				8x L314.0054.00	
382.0160.40.12	14			8x R314.0054.00				8x L314.0054.00	
	15			2x5 R314.0054.00				5x L314.0054.00	

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

盘铣刀 Disc milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
382.0...06	5F.06T15P	T15PQ
382.0...08	5F.08T20P	T20PQ
382.0...10/12	5.10T20P	T20PQ

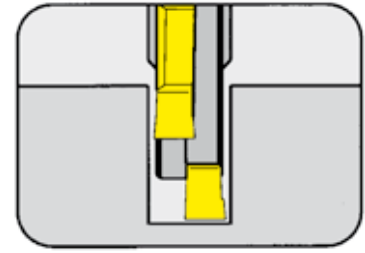
槽铣削 GROOVE MILLING



盘铣刀 型号

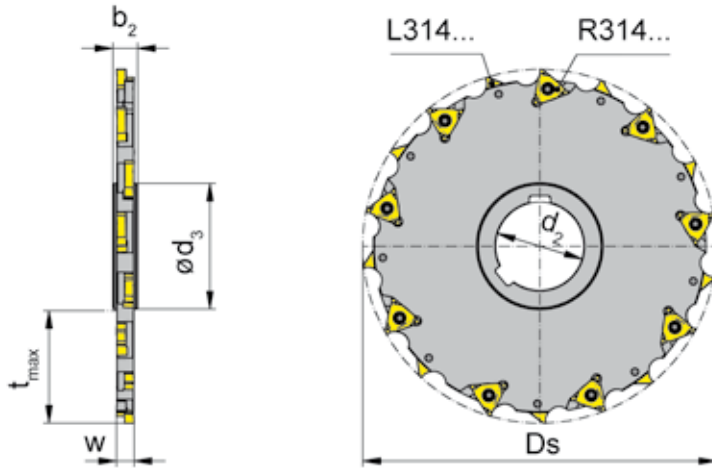
382

DISC MILLING CUTTER Type



槽深	Depth of groove	63.5 mm
槽宽	Width of groove	6.0 - 14.0 mm
切削刃 \varnothing	Cutting edge \varnothing	Ds 200.0 mm

孔(d_2)带纵向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138



配合 可转位刀片
for use with Indexable insert

型号 314
Type

F

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	w	d ₂	d ₃	b ₂	右手型刀片 right hand insert	左手型刀片 left hand insert
382.0200.50.06	18	200	63.5	6	50	71	10	9x R314.6032.00	9x L314.6032.00
382.0200.50.08				8				9x R314.8043.00	9x L314.8043.00
382.0200.50.10				10				9x R314.0054.00	9x L314.0054.00
382.0200.50.12				12				2x6 R314.0054.00	6x L314.0054.00
382.0200.50.14				14				2x6 R314.0054.00	6x L314.0054.00

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

盘铣刀 Disc milling cutter	螺钉 Fixing screw	TORX PLUS® 扳手 TORX PLUS® Wrench
382.0200.50.06	5F.06T15P	T15PQ
382.0200.50.08	5F.08T20P	T20PQ
382.0200.50.10/12/14	5.10T20P	T20PQ

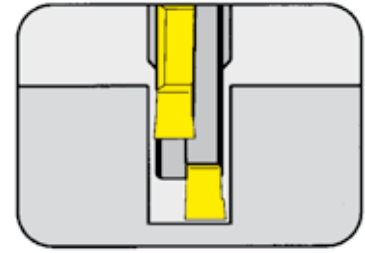
槽铣削 GROOVE MILLING



盘铣刀 型号

383

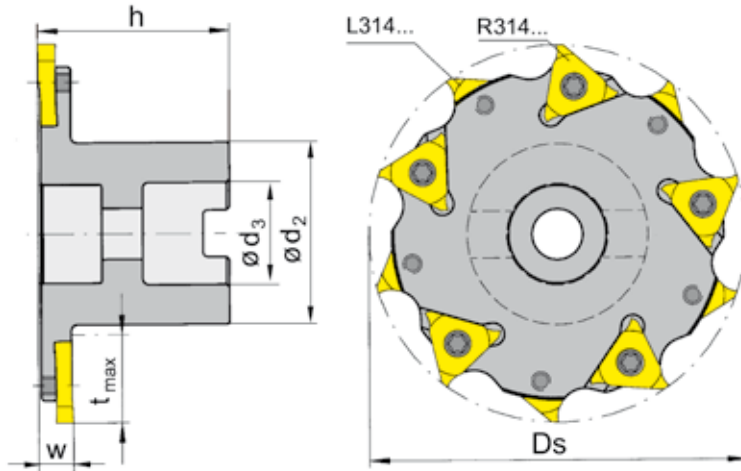
DISC MILLING CUTTER Type



切槽深度可达	Depth of groove up to	25.0 mm
槽宽可达	Width of groove up to	10.0 mm
切削刃Ø	Cutting edge Ø	Ds 100.0 mm

孔(d₃)带DIN138标准双键槽

Bore (d₃) with cross keyway to DIN 138



配合 可转位刀片
for use with Indexable insert

型号 314
Type

F

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	w	h	d ₂	d ₃	右手型刀片 right hand insert	左手型刀片 left hand insert
383.0100.27.06				6				5x R314.6032.00	5x L314.6032.00
383.0100.27.08	10	100	25	8	50	48	27	5x R314.8043.00	5x L314.8043.00
383.0100.27.10				10				5x R314.0054.00	5x L314.0054.00

按需提供更多尺寸

Further sizes upon request

尺寸单位: mm

Dimensions in mm

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

盘铣刀 Disc milling cutter	螺钉 Fixing screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
383.0100.27.06	12.30.912	5F.06T15P	T15PQ
383.0100.27.08	12.30.912	5F.08T20P	T20PQ
383.0100.27.10	12.30.912	5.10T20P	T20PQ

槽铣削

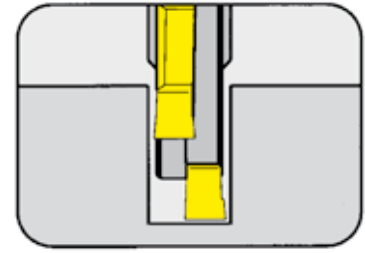
GROOVE MILLING



盘铣刀 型号

383

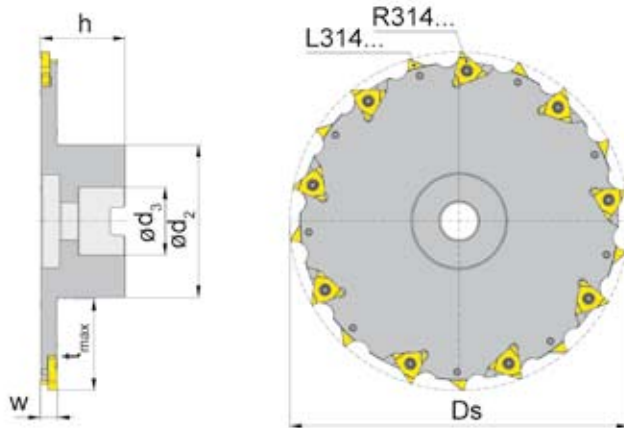
DISC MILLING CUTTER Type



切槽深度可达	Depth of groove up to	54.0 mm
槽宽可达	Width of groove up to	12.0 mm
切削刃Ø	Cutting edge Ø	Ds 200.0 mm

孔(d₃)带DIN138标准双键槽

Bore (d₃) with cross keyway to DIN 138



配合 可转位刀片
for use with Indexable insert

型号 314
Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	t _{max}	w	h	d ₂	d ₃	右手型刀片 right hand insert	左手型刀片 left hand insert
383.0200.40.06	18	200	54	6	50	90	40	9x R314.6032.00	9x L314.6032.00
383.0200.40.08				8				9x R314.8043.00	9x L314.8043.00
383.0200.40.10				10				9x R314.0054.00	9x L314.0054.00
383.0200.40.12				12				2x6 R314.0054.00	6x L314.0054.00

按需提供更多尺寸

Further sizes upon request

尺寸单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

盘铣刀 Disc milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
383.0200.40.06	5F.06T15P	T15PQ
383.0200.40.08	5F.08T20P	T20PQ
383.0200.40.10/12	5.10T20P	T20PQ

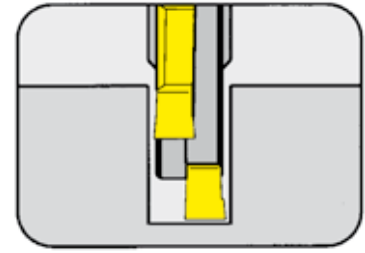
槽铣削

GROOVE MILLING



可转位刀片 型号
INDEXABLE INSERT Type

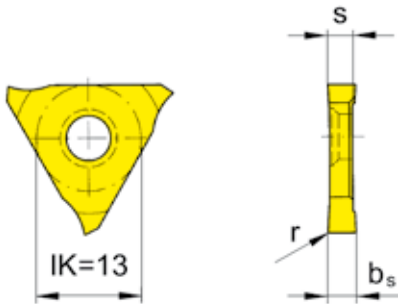
314/N314



槽宽	Width of groove	6.0 - 14.0 mm
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配合 盘铣刀
for use with Disc milling cutter

型号 382
Type 383



F

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	s	b _s	MG12	TN35	TI25	TA45	AS45
R/L314.6032.00	6	0.2	2.7	3.2		▲/▲	▲/▲		▲/▲
R/L314.8043.00	8	0.2	4.1	4.3		▲/▲	▲/▲		▲/▲
R/L314.0054.00	10/12/14	0.2	5.2	5.4		▲/▲	▲/▲		▲/▲
N314.0056.00	-	0.2	5.2	5.6		▲			▲
					P	•	•	•	•
					M	•	•	•	•
					K	•	•	•	•
					N	•	•	•	○
					S	•	•	•	•
					H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R, L或N型
State R, L or N version

注意事项 :
标准刀片N314.0056.00用于非标刀盘。

Note:
Standard insert N314.0056.00 for use with special cutters.

硬质合金牌号
Carbide grades

槽铣削

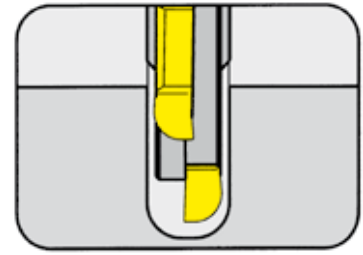
GROOVE MILLING



可转位刀片 型号

INDEXABLE INSERT Type

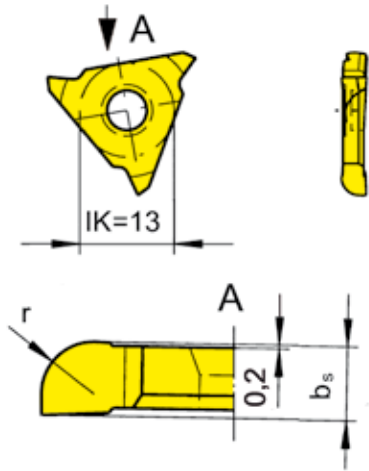
314



槽宽	Width of groove	6.0 - 10.0 mm
----	-----------------	---------------

配合 盘铣刀
for use with Disc milling cutter

型号 382
Type 383



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	b _s	MG12	TN35	TI25	TA45	AS45
R/L314.0320.20	6	2.0	3.20			▲/▲		▲/▲
R/L314.0430.20	8	2.0	4.30			▲/▲		▲/▲
R/L314.0430.25	8	2.5	4.30			▲/▲		▲/▲
R/L314.0540.20	10	2.0	5.43			▲/▲		▲/▲
R/L314.0540.25	10	2.5	5.44			▲/▲		▲/▲
R/L314.0540.40	10	4.0	5.47			▲/▲		▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P		●		●
M		●		●
K		●		●
N		●		○
S		●		●
H				

硬质合金牌号
Carbide grades



转臂轴承铣槽

M275系列铣刀装置同时装有各种加工直径的刀盘，直接安装在带内冷的HSK刀柄上。所有操作切槽和端面加工一步完成。多主轴走心机上，长度的调整通过垫圈来实现。

以下实例为转臂轴承的加工详情：

工件材质: **C45**

切削参数：

$v_c = 140 \text{ m/min}$

$v_f = 0,5 \text{ mm/min}$



Groove milling on swivel bearings

Set of milling cutters type M275 with different cutting diameters. Mounted on a HSK arbor with through coolant supply. All operations - Grooving and Facing - are done in one step. For multispindle use on transfer lines, the length adjustment is achieved by spacers.

The example shows a detail of a swivel bearing with tool.

Material: C45

Cutting data:

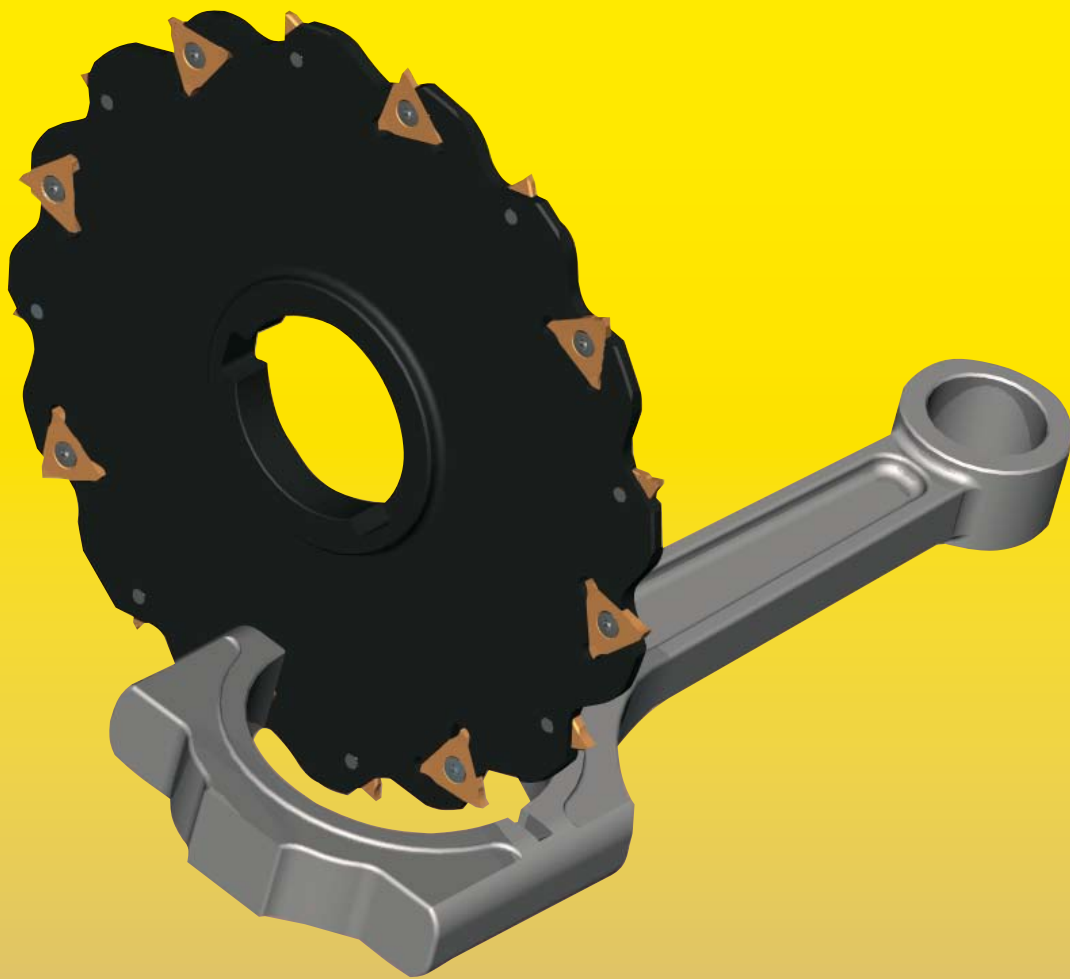
$v_c = 140 \text{ m/min}$

$v_f = 0,5 \text{ mm/min}$

槽铣削 型号 M310

切削宽度 3 mm \varnothing 80 - 160 mm

切削宽度 4 和 5 mm \varnothing 80 - 200 mm



F

SLOTING CUTTER type M310

Width of cut 3 mm \varnothing 80 - 160 mm

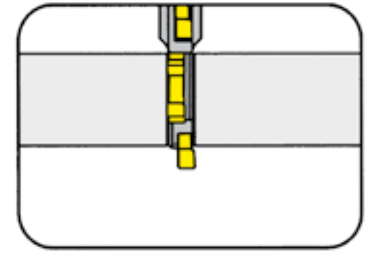
Width of cut 4 and 5 mm \varnothing 80 - 200 mm

槽铣削 SLOT MILLING



槽铣刀 型号 SLOTTING CUTTER Type

M310

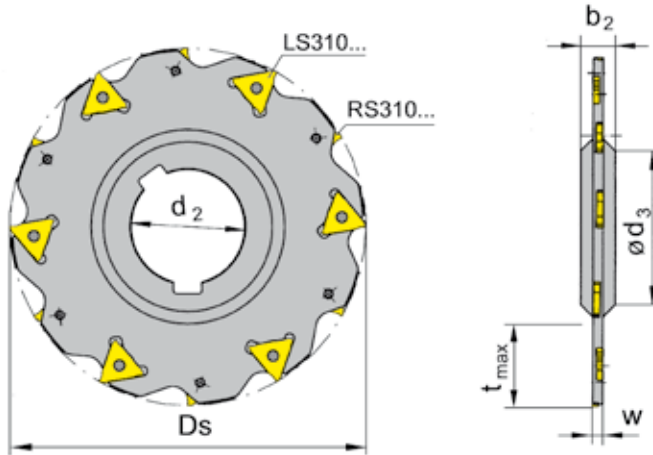


铣削深度可达	Depth of milling up to	50.0 mm
槽宽	Width of slot	3.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 80.0 mm

孔(d_2)带纵向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 S310
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t_{max}	w	d_2	d_3	b_2	右手型刀片 right hand insert	左手型刀片 left hand insert
M310.0080.27.03	8	80	18	3	27	40	8	4x RS310.3017.00	4x LS310.3017.00
M310.0100.32.03	10	100	25		32	46	8	5x RS310.3017.00	5x LS310.3017.00
M310.0125.40.03	12	125	32		40	54	10	6x RS310.3017.00	6x LS310.3017.00
M310.0160.40.03	16	160	50		40	54	10	8x RS310.3017.00	8x LS310.3017.00

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

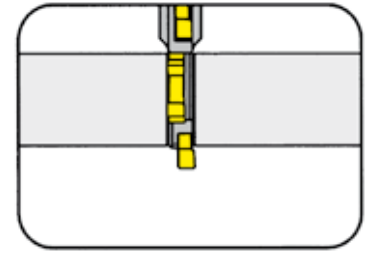
槽铣刀 Slotting cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M310.0...	030.0324.T7P	T7PL

槽铣削 SLOT MILLING



槽铣刀 型号 SLOTTING CUTTER Type

M310

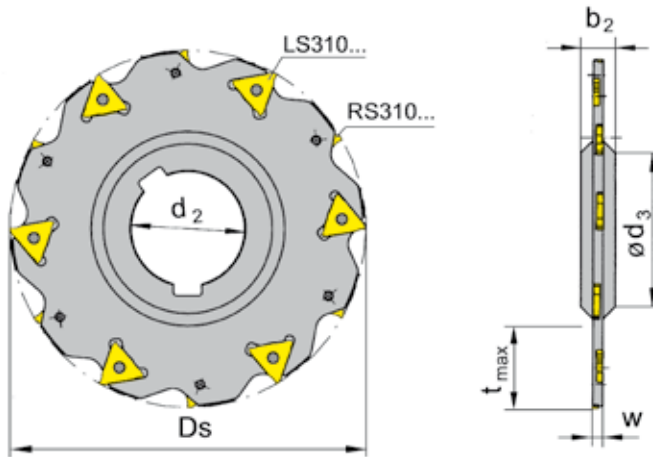


铣削深度可达	Depth of milling up to	70.0 mm
槽宽	Width of slot	4.0 - 5.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 80.0 mm

孔(d_2)带纵向DIN138标准键槽
Bore (d_2) with longitudinal keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 S310
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	t_{max}	w	d_2	d_3	b_2	右手型刀片 right hand insert	左手型刀片 left hand insert
M310.0080.27.04	8	80	18		27	40	8	4x RS310.4023.00	4x LS310.4023.00
M310.0100.32.04	10	100	25		32	46	8	5x RS310.4023.00	5x LS310.4023.00
M310.0125.40.04	12	125	32	4	40	54	10	6x RS310.4023.00	6x LS310.4023.00
M310.0160.40.04	16	160	50		40	54	10	8x RS310.4023.00	8x LS310.4023.00
M310.0200.40.04	20	200	70		40	54	10	10x RS310.4023.00	10x LS310.4023.00
M310.0080.27.05	8	80	18		27	40	8	4x RS310.5028.00	4x LS310.5028.00
M310.0100.32.05	10	100	25		32	46	8	5x RS310.5028.00	5x LS310.5028.00
M310.0125.40.05	12	125	32	5	40	54	10	6x RS310.5028.00	6x LS310.5028.00
M310.0160.40.05	16	160	50		40	54	10	8x RS310.5028.00	8x LS310.5028.00
M310.0200.40.05	20	200	70		40	54	10	10x RS310.5028.00	10x LS310.5028.00

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

槽铣刀 Slotting cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M310.0...04	030.3535.T8P	T8PQ
M310.0...05	030.3543.T8P	T8PQ

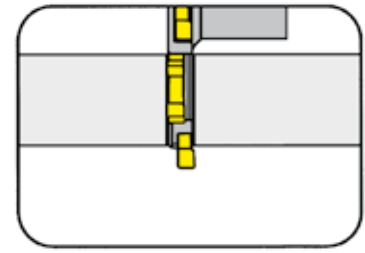
F

槽铣削 SLOT MILLING



槽铣刀 型号 SLOTING CUTTER Type

M310

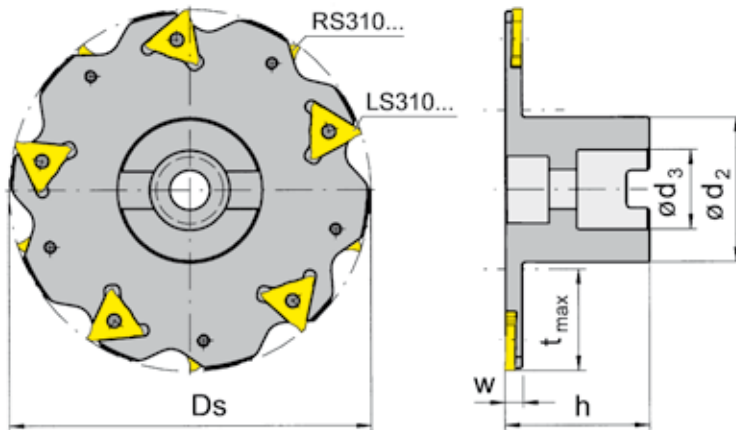


铣削深度可达	Depth of milling up to	44.0 mm
槽宽	Width of slot	3.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 100.0 mm

孔(d_3)带DIN138标准双键槽
Bore (d_3) with cross keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 S310
Type



图示=右手型
Picture = right hand cutting version

配合刀柄

Type arbor mounted

产品型号 Part number	Z	Ds	t_{max}	w	h	d_2	d_3	右手型刀片 right hand insert	左手型刀片 left hand insert
M310.1100.27.03	10	100	25.0			48	27	5x RS310.3017.00	5x LS310.3017.00
M310.1125.27.03	12	125	35.7			48	27	6x RS310.3017.00	6x LS310.3017.00
M310.1125.32.03	12	125	32.5	3	50	58	32	6x RS310.3017.00	6x LS310.3017.00
M310.1125.40.03	12	125	26.5			70	40	6x RS310.3017.00	6x LS310.3017.00
M310.1160.40.03	16	160	44.0			70	40	8x RS310.3017.00	8x LS310.3017.00

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

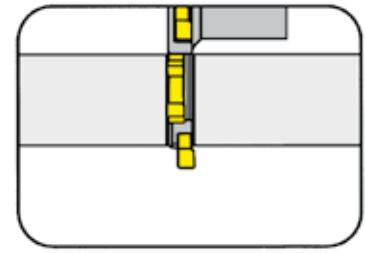
槽铣刀 Slotting cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
M310.11...03	DIN912-M12x35	030.0324.T7P	T7PL	DIN433-13-St
M310.1125.32.03	DIN7984-M16x35	030.0324.T7P	T7PL	DIN433-17-St
M310.11...03	DIN7984-M20x40	030.0324.T7P	T7PL	DIN433-21-St

槽铣削 SLOT MILLING



槽铣刀 型号 SLOTTING CUTTER Type

M310

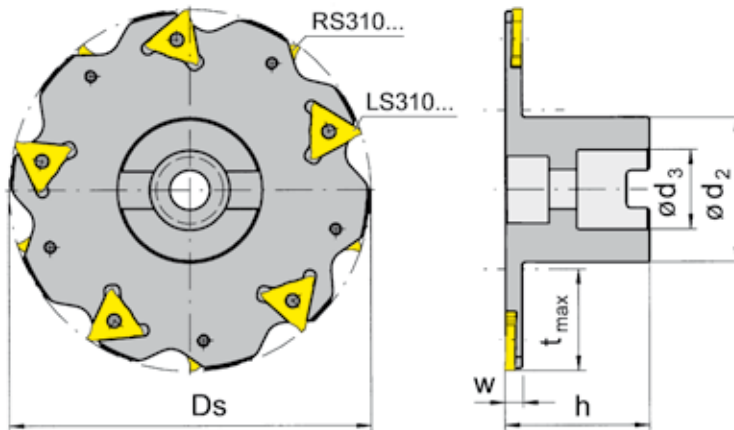


铣削深度可达	Depth of milling up to	64.0 mm
槽宽	Width of slot	4.0 - 5.0 mm
切削刃直径 \varnothing 自	Cutting edge \varnothing from	Ds 100.0 mm

孔(d_3)带DIN138标准双键槽
Bore (d_3) with cross keyway to DIN 138

配合 可转位刀片
for use with Indexable insert

型号 S310
Type



图示=右手型
Picture = right hand cutting version

配合刀柄

Type arbor mounted

产品型号 Part number	Z	Ds	t_{max}	w	h	d_2	d_3	右手型刀片 right hand insert	左手型刀片 left hand insert
M310.1100.27.04	10	100	25.0	4	50	48	27	5x RS310.4023.00	5x LS310.4023.00
M310.1125.27.04	12	125	37.5			48	27	6x RS310.4023.00	6x LS310.4023.00
M310.1125.32.04	12	125	32.5			58	32	6x RS310.4023.00	6x LS310.4023.00
M310.1125.40.04	12	125	26.5			70	40	6x RS310.4023.00	6x LS310.4023.00
M310.1160.40.04	16	160	44.0			70	40	8x RS310.4023.00	8x LS310.4023.00
M310.1200.40.04	20	200	64.0	5	50	70	40	10x RS310.4023.00	10x LS310.4023.00
M310.1100.27.05	10	100	25.0			48	27	5x RS310.5028.00	5x LS310.5028.00
M310.1125.27.05	12	125	37.5			48	27	6x RS310.5028.00	6x LS310.5028.00
M310.1125.32.05	12	125	32.5			58	32	6x RS310.5028.00	6x LS310.5028.00
M310.1125.40.05	12	125	26.5			70	40	6x RS310.5028.00	6x LS310.5028.00
M310.1160.40.05	16	160	44.0	70	40	8x RS310.5028.00	8x LS310.5028.00		
M310.1200.40.05	20	200	64.0	70	40	10x RS310.5028.00	10x LS310.5028.00		

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

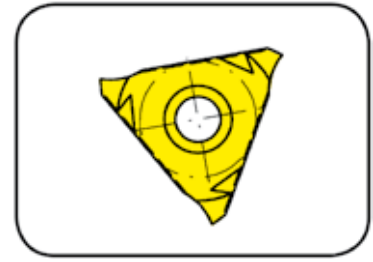
槽铣刀 Slotting cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
M310.1100.27.04	DIN912-M12x35	030.3535.T8P	T8PQ	DIN433-13-St
M310.1100.27.05	DIN912-M12x35	030.3543.T8P	T8PQ	DIN433-13-St
M310.1125....04	DIN7984-M16x35	030.3535.T8P	T8PQ	DIN433-17-St
M310.1125....05	DIN7984-M16x35	030.3543.T8P	T8PQ	DIN433-17-St
M310.1...04	DIN7984-M20x40	030.3535.T8P	T8PQ	DIN433-21-St
M310.1...05	DIN7984-M20x40	030.3543.T8P	T8PQ	DIN433-21-St

槽铣削 SLOT MILLING



可转位刀片 型号
INDEXABLE INSERT Type

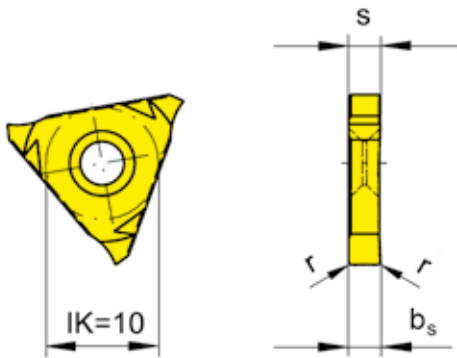
S310



槽宽	Width of groove	3.0 - 5.0 mm
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配合 槽铣刀
for use with Slotting cutter

型号 M310
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	s	b _s	MG12	TN35	TI25	TA45	AS45	TF45
R/LS310.3017.00	3.000	0.20	1.6	1.7					▲/▲	
R/LS310.3118.00	3.175	0.15	1.6	1.8					▲/▲	
R/LS310.4023.00	4.000	0.20	2.2	2.3		▲/▲			▲/▲	▲/
R/LS310.5028.00	5.000	0.20	2.7	2.8		▲/▲			▲/▲	▲/▲
▲ 库存 / on stock										
● 主要应用 / main recommendation										
○ 可选推荐 / alternative recommendation										
无涂层牌号 / uncoated grades										
涂层牌号 / coated grades										
钎焊/金属陶瓷 / brazed/Cermet										
P						●			●	●
M						●			●	●
K						●			●	●
N						●			○	●
S						●			●	●
H										

尺寸单位 : mm
Dimensions in mm

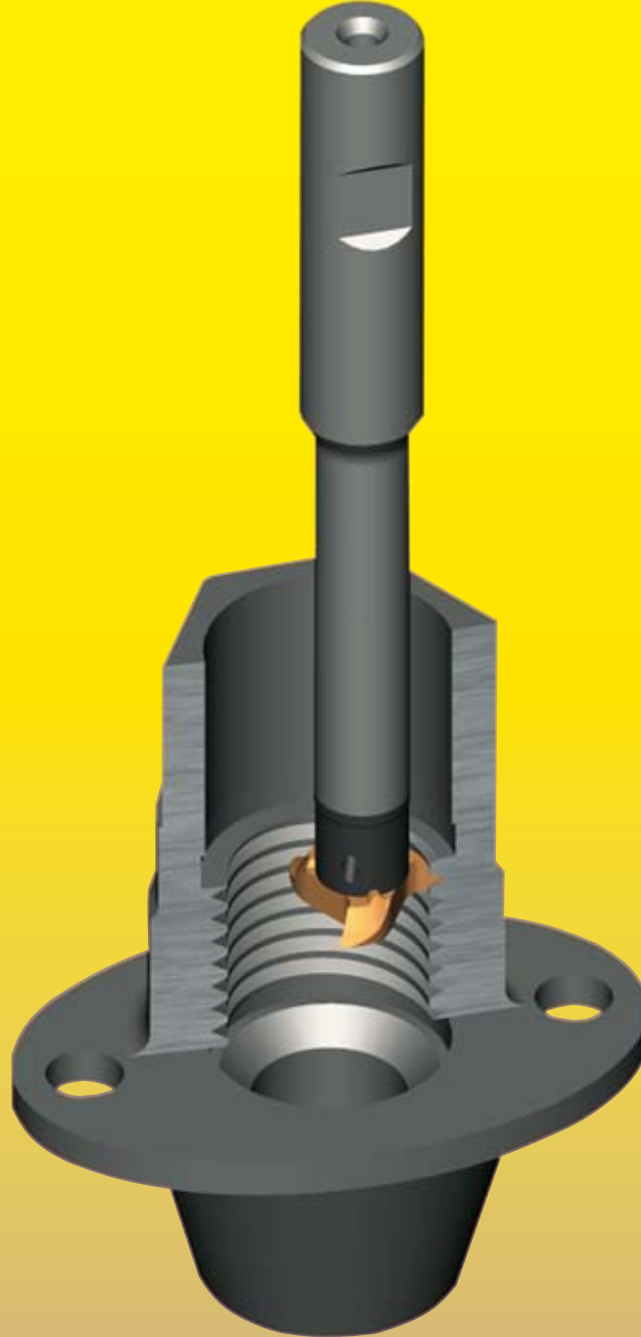
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

F

螺纹铣削 (圆弧插补铣削)

- 高圆柱度
- 稳定的铣削轮廓
- 简单的检测
- 高强度材料



G

Thread milling (by circular interpolation)

- high cylindricity
- constant milled profile
- simple checking of thread
- in high strength material

螺纹铣削 (内圆)

THREAD MILLING (internal)

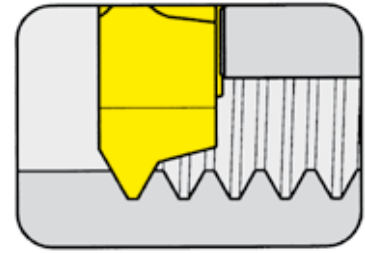


铣刀杆 型号

MILLING SHANK Type

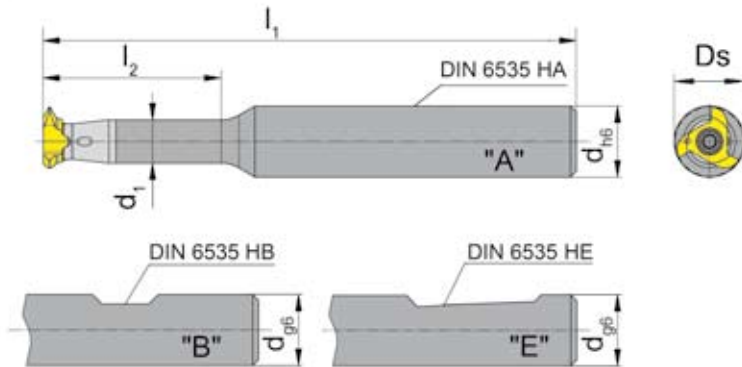
M306

带内冷
with through coolant supply



切削刃直径 \varnothing 自 Cutting edge \varnothing from Ds 9.6/9.7/11.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合 刀片
for use with Insert

型号 108
Type 306
606

G

图示=右手型
Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M306.0712.02A	90	30	7.3	12	A
M306.0716.01A	100	25		16	
M306.0716.02A	110	35		16	
M306.0712.02B	90	30	7.3	12	B
M306.0716.01B	100	25		16	
M306.0716.02B	110	35		16	
M306.0712.02E	90	30	7.3	12	E
M306.0716.01E	100	25		16	
M306.0716.02E	110	35		16	

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：
HORN可以返修损坏的铣刀杆基座。

Ordering note:
Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M306.071...	2.6.5T8EP	T8PL

螺纹刀片的选择

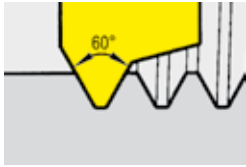
Selection for thread inserts

型号 108, 306, 606

type

非全牙型，米制 型号 108, 306, 606

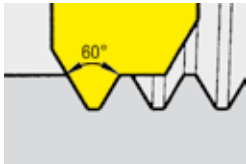
Partial profile, metric type 108, 306, 606



螺距 / Pitch P	0.5	(0.75)	1.0	(1.25)	1.5	(1.75)	2.0	2.5	3.0
公称直径 / Nominal diameter									
型号 / type 108 / Ds 9.6									
R/L 108.0205.01	≥ 12	≥ 12							
R/L 108.0510.01			≥ 14	≥ 14					
R/L 108.0815.01					≥ 16	≥ 16			
型号 / type 306 / Ds 10.0									
306.0515.01	≥ 12	≥ 12	≥ 13	≥ 13	≥ 14				
306.1020.01							≥ 16		
型号 / type 306 / Ds 11.7									
306.0815.01					≥ 18				
306.0720.01			≥ 16	≥ 16	≥ 16	≥ 16	≥ 16		
306.2530.01								≥ 20	≥ 20
型号 / type 606 / Ds 10.0									
606.0515.01	≥ 12	≥ 12	≥ 13	≥ 13	≥ 14				
型号 / type 606 / Ds 11.7									
606.0720.01			≥ 16	≥ 16	≥ 16	≥ 16	≥ 16		

全牙型，米制螺纹 型号 306

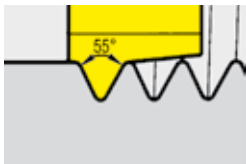
Full profile, metric type 306



螺距 / Pitch P	1.5	2.0	2.5	3.0	3.5
公称直径 / Nominal diameter					
型号 / type 306 / Ds 11.7					
306.0815.02	≥ 22				
型号 / type 306 / Ds 10.0					
306.1020.02		≥ 24			

全牙型，惠氏螺纹 型号 306, 606

Full profile, Whitworth type 306, 606



每英寸齿数 / tpi	19	14	11
螺纹 / Thread			
型号 / type 306 / Ds 9.7			
306.5519.10.02	G $\frac{1}{4}$ "		
型号 / type 306 / Ds 11.7			
306.5519.02	G $\frac{3}{8}$ "		
306.5514.02		G $\frac{1}{2}$ "	
306.5511.02			G1"
型号 / type 606 / Ds 9.7			
606.5519.10.02	G $\frac{1}{4}$ "		
型号 / type 606 / Ds 11.7			
606.5519.02	G $\frac{3}{8}$ "		
606.5514.02		G $\frac{1}{2}$ "	

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.

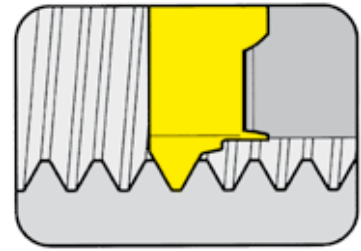
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile



刀片型号
INSERT Type

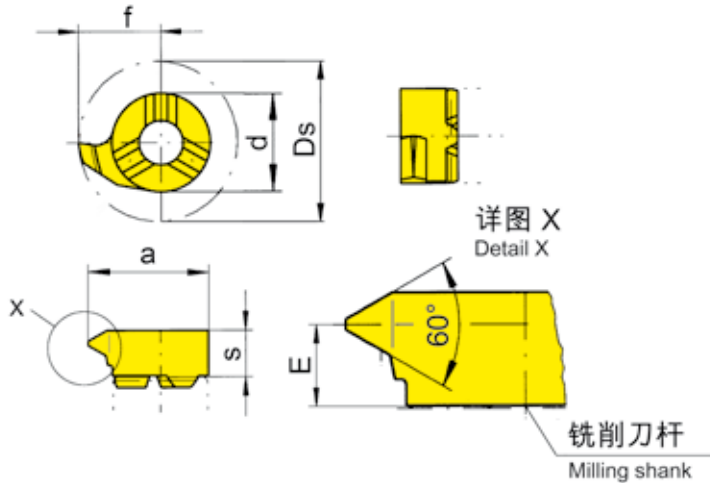
108



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.50 - 1.75 mm Ds 9.60 mm
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配合 铣刀杆
for use with Milling shank

型号 M306
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	f	a	d	Ds	ISO米制螺纹				
									MG12	TN35	TI25	TF45	TH35
R/L108.0205.01	0.5	0.75	2.8						▲/△	▲/▲			▲/△
R/L108.0510.01	1.0	1.25	2.8	3.6	4.8	7.8	6	9.6	▲/△	▲/▲	▲/△		▲/▲
R/L108.0815.01	1.5	1.75	2.6						▲/▲	▲/▲			▲/▲
▲ 库存 / on stock △ 4周 / 4 weeks									P	○	●	●	●
● 主要应用 / main recommendation									M	●	●	●	●
○ 可选推荐 / alternative recommendation									K	●	●	●	●
■ 无涂层牌号 / uncoated grades									N	●	●	●	●
■ 涂层牌号 / coated grades									S	●	●	●	●
■ 钎焊/金属陶瓷 / brazed/Cermet									H	●	●	●	●

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

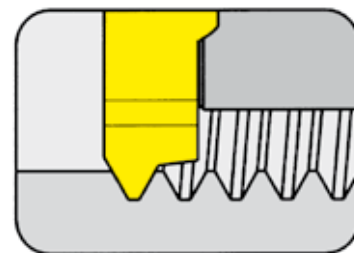
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile



刀片型号
INSERT Type

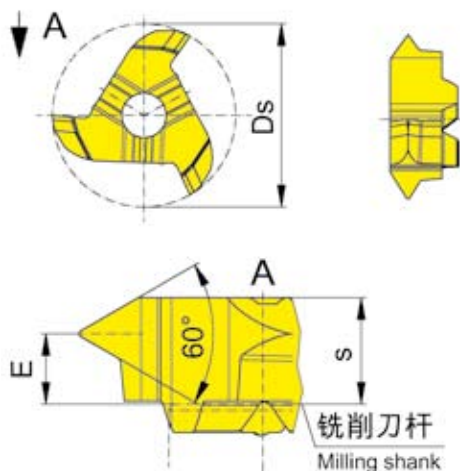
306



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.5 - 3.0 mm Ds 10.0/11.7 mm
------------	-------------------------	-----------------------------------

配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	ISO米制螺纹					
						MG12	TN35	TI25	TA45	AS45	TF45
306.0515.01	0.5	1.5	2.30	3.4	10.0				▲		
306.1020.01	2.0	2.0	2.20								
306.0720.01	1.0	2.0	1.95	3.4	11.7		▲	▲			▲
306.0815.01	1.5	1.5	2.25			▲	▲				
306.2530.01	2.5	3.0	1.70			▲	▲				▲
						P	•	•	•	•	•
						M	•	•	•	•	•
						K	•	•	•	•	•
						N	•	•	•	•	•
						S	•	•	•	•	•
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



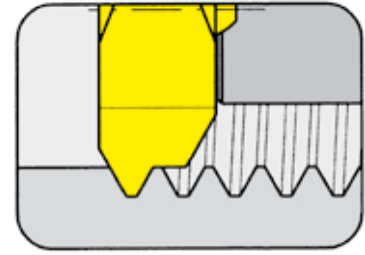
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile



刀片 型号
INSERT Type

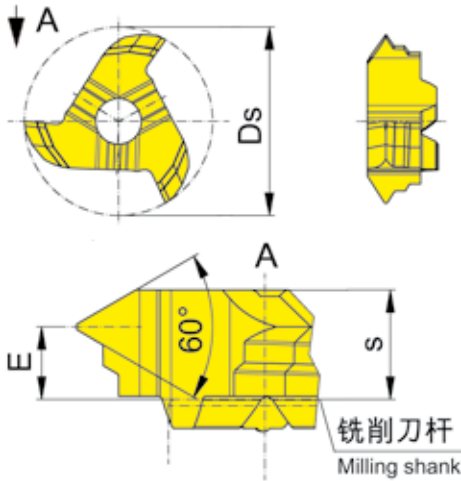
306



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 2.0 mm Ds 10/11.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	E	s	Ds		MG12	TN35	Ti25	TA45	AS45
306.0815.02	1.5	2.25	3.4	11.7					Δ	
306.1020.02	2.0	2.20	3.4	10.0					Δ	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P				●	
M				●	
K				●	
N				●	
S				●	
H					

硬质合金牌号
Carbide grades

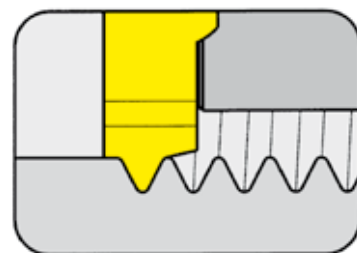
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

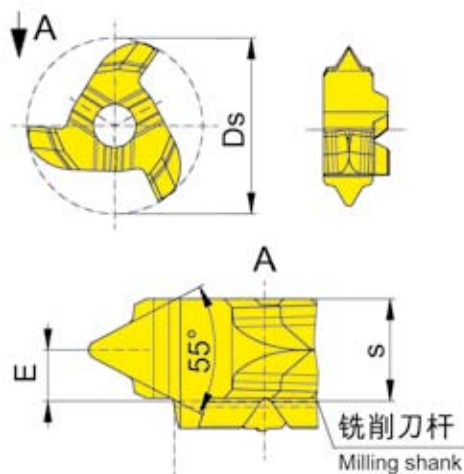


刀片 型号
INSERT Type

306



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	11 - 19 Ds 9.7/11.7 mm
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图示=右手型
Picture = right hand cutting version

配合 铣刀杆
for use with Milling shank

型号 M306
Type

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds
306.5519.10.02	19	2.2	3.4	9.7
306.5511.02	11	1.7		
306.5514.02	14	2.0	3.4	11.7
306.5519.02	19	2.2		

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

	MG12	TN35	TI25	TA45	AS45
P				▲	
M				▲	
K				▲	
N				▲	
S				▲	
H					

硬质合金牌号
Carbide grades



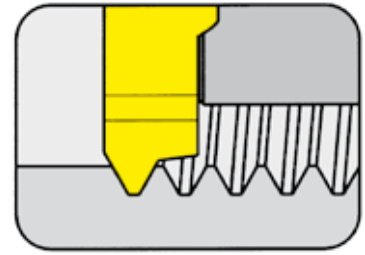
螺纹铣削 (内圆) ，非全牙型

THREAD MILLING (internal) Partial profile



刀片型号
INSERT Type

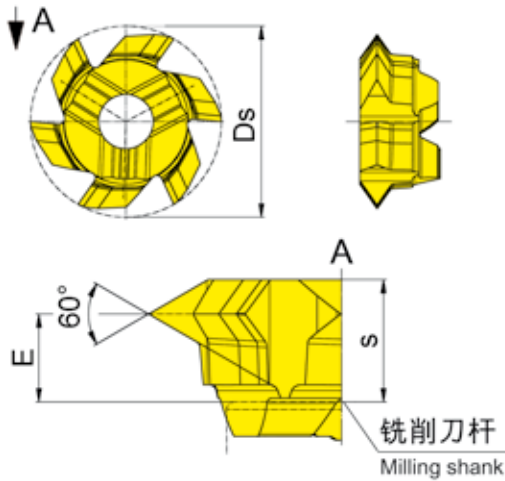
606



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.5 - 2.0 mm Ds 10.0/11.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M306
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds		MG12	TN35	TI25	TA45	AS45
606.0515.01	0.5	1.5	2.30	3.15	10.0					▲	
606.0720.01	1.0	2.0	1.95	3.15	11.7					▲	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P				●	
M				●	
K				●	
N				●	
S				●	
H					

硬质合金牌号
Carbide grades

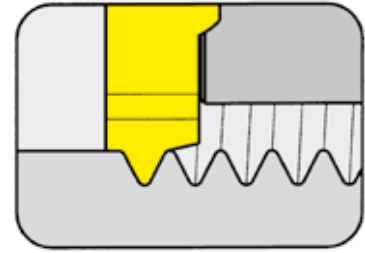
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

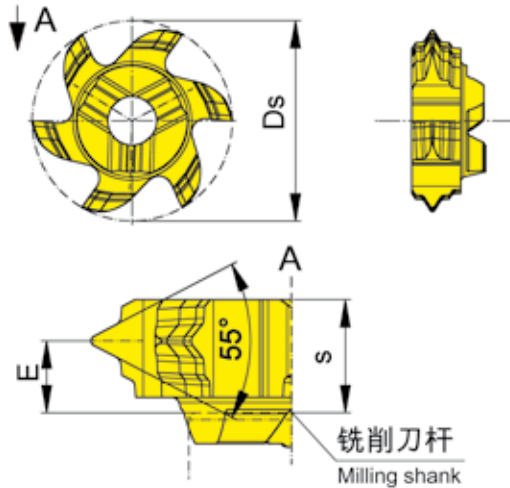


刀片型号
INSERT Type

606



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	14 - 19 Ds 9.7/11.7 mm
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图示=右手型
Picture = right hand cutting version

配合 铣刀杆
for use with Milling shank

型号 M306
Type

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds	MG12	TN35	TI25	TA45	AS45
606.5519.10.02	19	2.1	3.3	9.7				▲	
606.5514.02	14	2.0	3.3	11.7				▲	
606.5519.02	19	2.1	3.3	11.7				▲	
					P			●	
					M			●	
					K			●	
					N			●	
					S			●	
					H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



螺纹铣削 (内圆)

THREAD MILLING (internal)

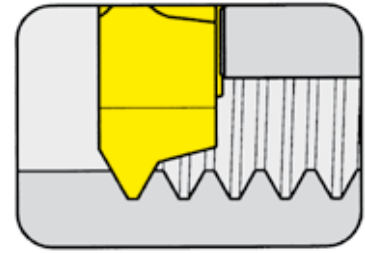


铣刀杆 型号

MILLING SHANK Type

M308

带内冷
with through coolant supply



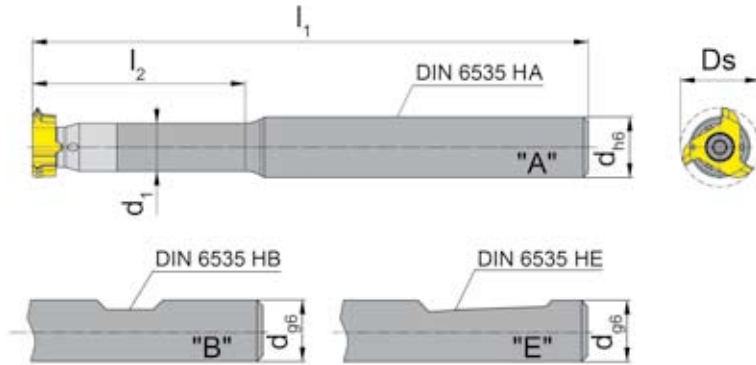
切削刃Ø

Cutting edge Ø

Ds 13.4/15.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 111
Type 308
608

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M308.0012.07A	160	-	8.0	12	A
M308.1012.02A	110	42	9.5	12	A
M308.1016.01A	110	33		16	
M308.1016.02A	110	45		16	
M308.1016.03A	130	64		16	
M308.1012.02B	110	42	9.5	12	B
M308.1016.01B	110	33		16	
M308.1016.02B	110	45		16	
M308.1016.03B	130	64		16	
M308.1012.02E	110	42	9.5	12	E
M308.1016.01E	110	33		16	
M308.1016.02E	110	45		16	
M308.1016.03E	130	64		16	

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

附件 que specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M308....	3.5.12T10EP	T10PL

螺纹刀片的选择

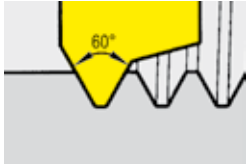
Selection for thread inserts

型号 111, 308, 608

type

非全牙型，米制 型号 111, 308

Partial profile, metric type 111, 308



螺距 / Pitch P	0.5	(0.75)	1.0	(1.25)	1.5	(1.75)	2.0	2.5	3.0
公称直径 / Nominal diameter									
型号 / type 111 / Ds 13.4									
R/L111.0205.01	≥ 18	≥ 16							
R/L111.0510.01			≥ 18	≥ 18					
R/L111.0815.01					≥ 20	≥ 20			
R/L111.1020.01							≥ 22		
R/L111.1325.01								≥ 24	
型号 / type 308 / Ds 13.2									
308.1325.01								≥ 18	
型号 / type 308 / Ds 15.7									
308.0815.01					≥ 22				
308.0720.01			≥ 20	≥ 20	≥ 20	≥ 20	≥ 20		
308.2530.01								≥ 24	≥ 24

非全牙型，米制 型号 608

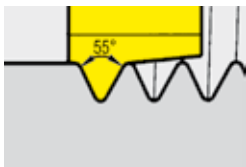
Partial profile, metric type 608



螺距 / Pitch P	0.5	(0.75)	1.0	(1.25)	1.5	(1.75)	2.0	2.5	3.0
公称直径 / Nominal diameter									
型号 / type 608 / Ds 13.2									
608.1325.01								≥ 18	
型号 / type 608 / Ds 15.7									
608.0720.01			≥ 20	≥ 20	≥ 20	≥ 20	≥ 20		
608.2530.01								≥ 24	≥ 24

全牙型，惠氏螺纹 型号 111, 608

Full profile, Whitworth type 111, 608



每英寸齿数 / tpi	19	14
	公称直径 / Nominal diameter	
型号 / type 111 / Ds 13.4		
111.5519.02	≥ 18	
111.5514.02		≥ 21
型号 / type 608 / Ds 13.5		
螺纹 / Thread		
608.5514.02		G $\frac{1}{2}$ " / G $\frac{3}{4}$ "

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.



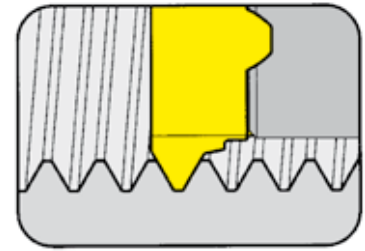
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile



刀片型号
INSERT Type

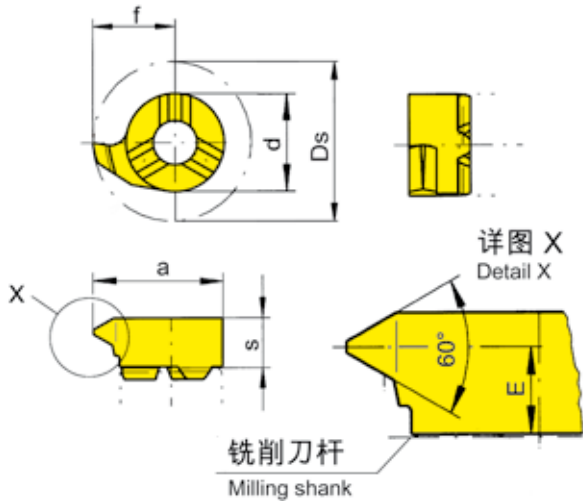
111



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.5 - 2.5 mm Ds 13.4 mm
------------	-------------------------	------------------------------

配合 铣刀杆
for use with Milling shank

型号 M308
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	f	a	d	Ds		MG12	TN35	Ti25	TF45	TH35
R/L111.0205.01	0.5	0.75	3.5								▲/▲			▲/▲
R/L111.0510.01	1.0	1.25	3.3								▲/▲			▲/▲
R/L111.0815.01	1.5	1.75	3.3	4.15	6.7	10.7	8	13.4			▲/▲			▲/▲
R/L111.1020.01	2.0	2.00	3.0								▲/▲			▲/▲
R/L111.1325.01	2.5	2.50	2.8							Δ/Δ	▲/▲			▲/

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P	○	●	■	■	■
M	●	●	■	■	■
K	●	●	■	■	■
N	●	●	■	■	■
S	●	●	■	■	■
H					

硬质合金牌号
Carbide grades

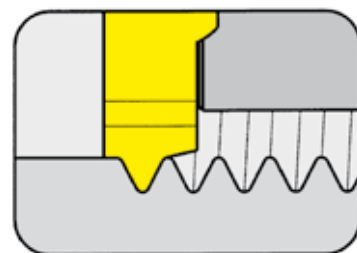
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile



刀片型号
INSERT Type

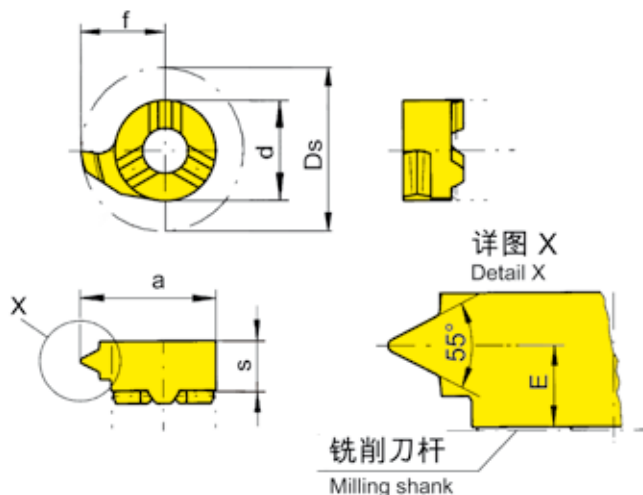
111



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	14 - 19 Ds 13.4 mm
---------------	------------------------------------	-----------------------

配合 铣刀杆
for use with Milling shank

型号 M308
Type



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999



产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	f	a	d	Ds		MG12	TN35	TI25	TF45	TH35
R/L111.5514.02	14	2.5	4.15	6.7	10.7	8	13.4			▲/▲			
R/L111.5519.02	19	2.9	4.15	6.7	10.7	8	13.4			▲/▲			
									P	•			
									M	•			
									K	•			
									N	•			
									S	•			
									H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

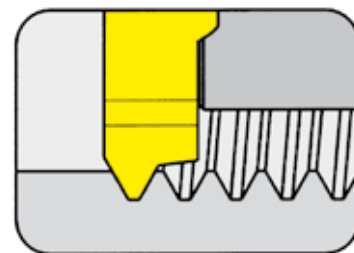
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile



刀片 型号
INSERT Type

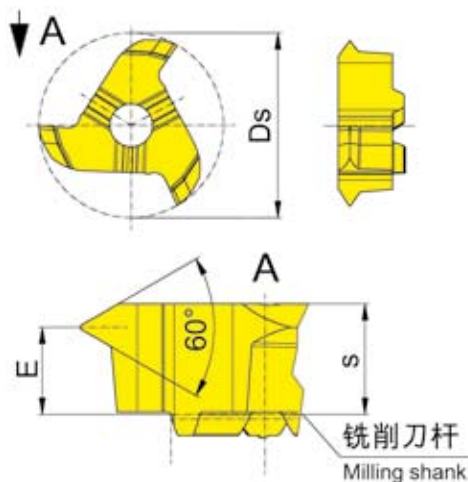
308



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.0 - 3.0 mm Ds 13,2/15,7 mm
------------	-------------------------	-----------------------------------

配合 铣刀杆
for use with Milling shank

型号 M308
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	ISO米制螺纹				
						MG12	TN35	TI25	TA45	AS45
308.1325.01	2.5	2.5	3.3	4.7	13.2				▲	
308.0720.01	1.0	2.0	3.3				▲			
308.0815.01	1.5	1.5	3.7	4.7	15.7		▲			
308.2530.01	2.5	3.0	2.7				▲			
						P	•		•	
						M	•		•	
						K	•		•	
						N		•		•
						S		•		•
						H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

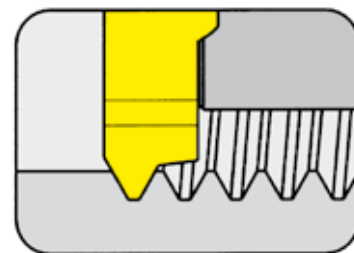
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile

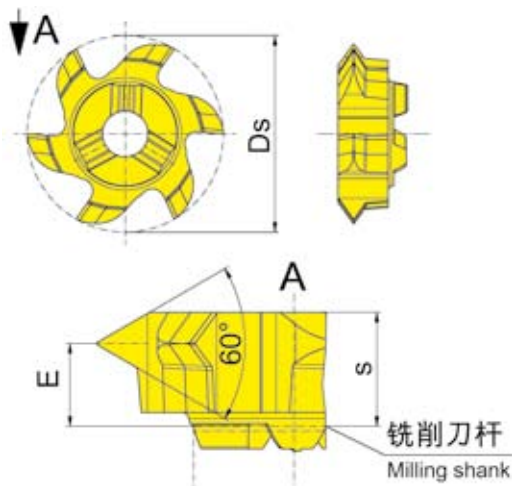


刀片 型号
INSERT Type

608



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.0 - 3.0 mm Ds 13,2/15,7 mm
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配合 铣刀杆
for use with Milling shank

型号 M308
Type

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds		MG12	TN35	TI25	TA45	AS45
608.1325.01	2.5	2.5	3.3	4.55	13.2					▲	
608.0720.01	1.0	2.0	3.3	4.55	15.7				▲		
608.2530.01	2.5	3.0	2.9	4.55	15.7				▲		
						P			•	•	
						M			•	•	
						K			•	•	
						N			•	•	
						S			•	•	
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



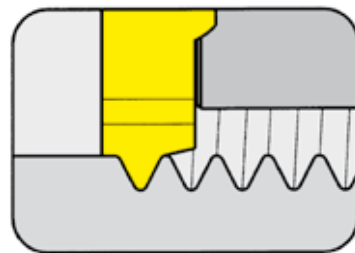
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

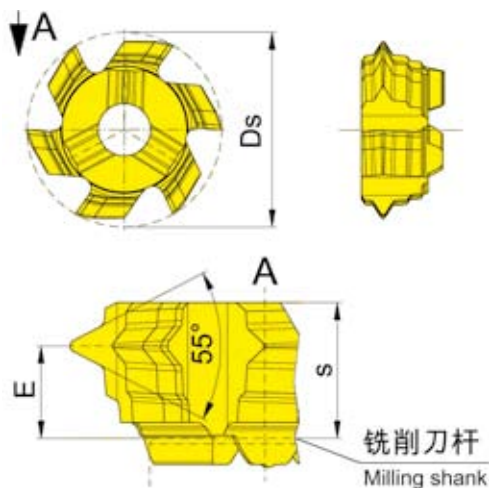


刀片型号
INSERT Type

608



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	14 Ds 13.5 mm
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配合 铣刀杆
for use with Milling shank

型号 M308
Type

G

图示=右手型
Picture = right hand cutting version

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds		MG12	TN35	TI25	TA45	AS45
608.5514.02	14	3.2	4.7	13.5					▲	
						P			•	
						M			•	
						K			•	
						N			•	
						S			•	
						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

螺纹铣削 (内圆)

THREAD MILLING (internal)

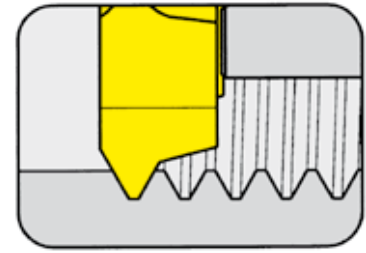


铣刀杆 型号

MILLING SHANK Type

M311

带内冷
with through coolant supply

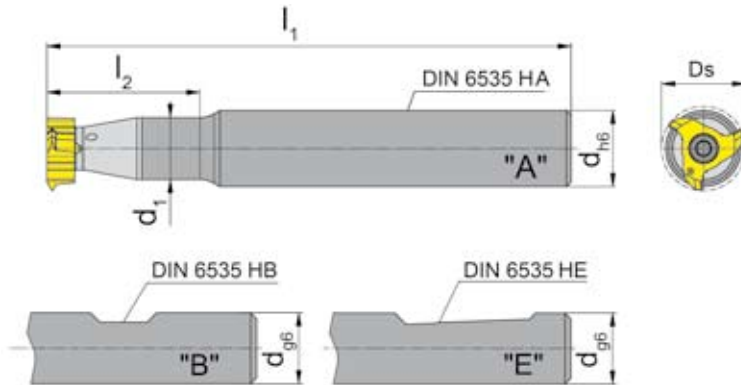


切削刃Ø	Cutting edge Ø	Ds 17.7 mm
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刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance

配合 刀片
for use with Insert

型号 311
Type 611



图示=右手型
Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M311.0012.05A	130	20	9	12	A
M311.1316.01A	110	32			
M311.1316.02A	130	45	13	16	A
M311.1316.03A	145	64			
M311.1316.01B	110	32			
M311.1316.02B	130	45	13	16	B
M311.1316.03B	145	64			
M311.1316.01E	110	32			
M311.1316.02E	130	45	13	16	E
M311.1316.03E	145	64			

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：
HORN可以返修损坏的铣刀杆基座座。

Ordering note:
Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311....	4.14T15P	T15PQ

螺纹刀片的选择

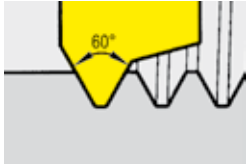
Selection for thread inserts

型号 311, 611

type

非全牙型，米制 型号 311, 611

Partial profile, metric type 311, 611



螺距 / Pitch P	0.5	(0.75)	1.0	(1.25)	1.5	(1.75)	2.0	2.5	3.0	3.5
公称直径 / Nominal diameter										
型号 / type 311 / Ds 17.7										
311.0515.01	≥ 20	≥ 20	≥ 20	≥ 20	≥ 22					
311.0510.01			≥ 22							
311.0720.01			≥ 22	≥ 22	≥ 22	≥ 22	≥ 22			
311.0815.01					≥ 24					
311.1020.01							≥ 28			
311.1325.01								≥ 34		
311.1630.01									≥ 34	
311.1835.01										≥ 34
311.2535.01								≥ 28	≥ 24	≥ 26
型号 / type 611 / Ds 17.7										
611.0515.01	≥ 20	≥ 20	≥ 20	≥ 20	≥ 22					
611.0720.01			≥ 22	≥ 22	≥ 22	≥ 22	≥ 22			
611.2535.01								≥ 28	≥ 24	≥ 26

全牙型，米制螺纹 型号 311

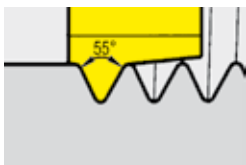
Full profile, metric type 311



螺距 / Pitch P	1.5	(1.75)	2.0	2.5	3.0	3.5
公称直径 / Nominal diameter						
型号 / type 311 / Ds 17.7						
311.0815.02	≥ 23					
311.0917.02		≥ 24.5				
311.1020.02			≥ 25.5			
311.1325.02				≥ 28.5		
311.1630.02					≥ 32	
311.1835.02						≥ 35

全牙型，惠氏螺纹 型号 311

Full profile, Whitworth type 311



每英寸齿数 / tpi	14	11
公称直径 / Nominal diameter		
型号 / type 311 / Ds 17.7		
311.5514.02	G ³ / ₄ "	
311.5511.02		G1"

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.

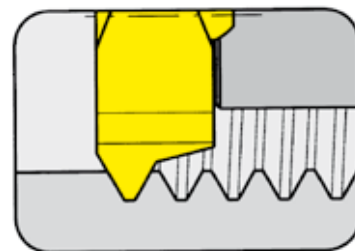
螺纹铣削 (内圆) ，非全牙型

THREAD MILLING (internal) Partial profile

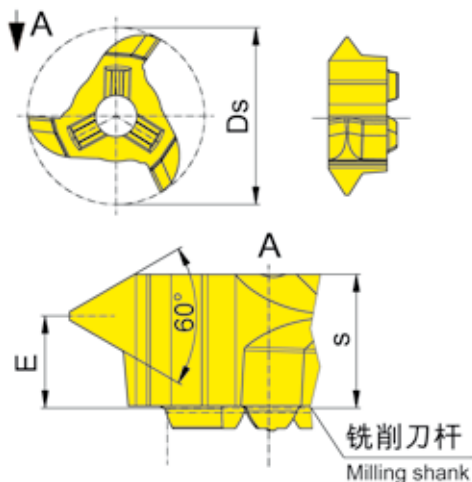


刀片型号
INSERT Type

311



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.5 - 3.5 mm Ds 17.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	ISO米制螺纹				
						MG12	TN35	TI25	TA45	AS45
311.0515.01	0.5	1.5	4.8						△	
311.0510.01	1.0	1.0	5.0				△			
311.0720.01	1.0	2.0	4.6				▲			
311.0815.01	1.5	1.5	4.8				▲			
311.1020.01	2.0	2.0	4.6	5.95	17.7		▲			
311.1325.01	2.5	2.5	4.4				▲			
311.2535.01	2.5	3.5	3.7				▲			
311.1630.01	3.0	3.0	4.3				▲			
311.1835.01	3.5	3.5	4.1				▲			
						P	•		•	
						M	•		•	
						K	•		•	
						N	•		•	
						S	•		•	
						H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



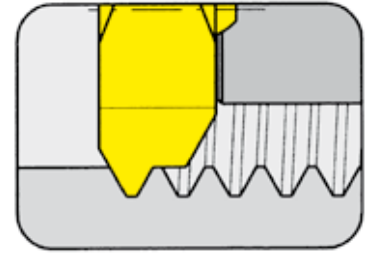
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile



刀片 型号
INSERT Type

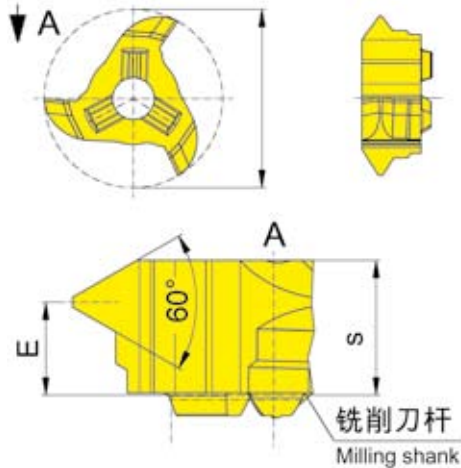
311



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 3.5 mm Ds 17.7 mm
------------	-------------------------	------------------------------

配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	E	s	Ds	MG12	TN35	TI25	TA45	AS45
311.0815.02	1.5	4.8	5.95	17.7		▲			
311.1020.02	2.0	4.6			▲				
311.1325.02	2.5	4.4			△				
311.1630.02	3.0	4.3			▲				
311.1835.02	3.5	4.1			△				
					P	•			
					M	•			
					K	•			
					N	•			
					S	•			
					H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

G

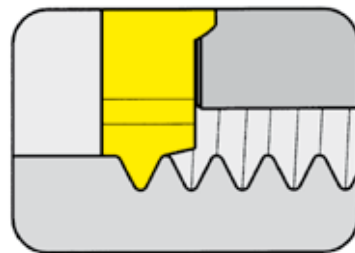
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

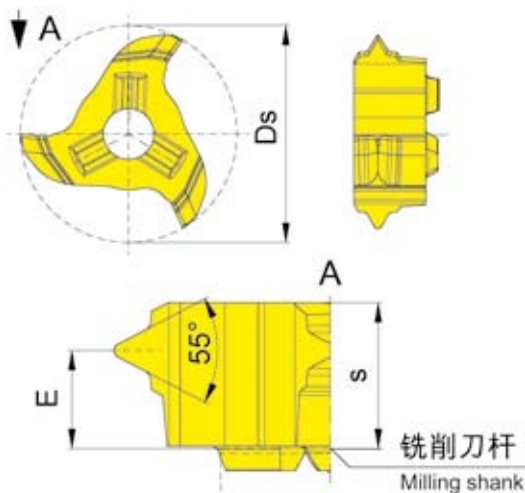


刀片型号
INSERT Type

311



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	11 - 14 Ds 17.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type

图示=右手型
Picture = right hand cutting version

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds		MG12	TN35	TI25	TA45	AS45
311.5511.02	11	4.00	5.95	17.7			▲	▲	▲	
311.5514.02	14	4.35					▲	▲	▲	
					P		•	•	•	
					M		•	•	•	
					K		•	•	•	
					N		•	•	•	
					S		•	•	•	
					H					

▲ 库存 / on stock Δ 4周 / 4 weeks
 ● 主要应用 / main recommendation
 ○ 可选推荐 / alternative recommendation
 ■ 无涂层牌号 / uncoated grades
 ■ 涂层牌号 / coated grades
 ■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



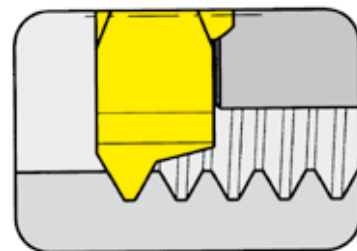
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile

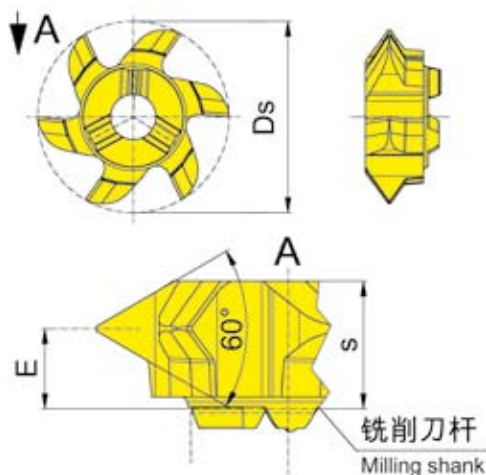


刀片 型号
INSERT Type

611



螺距 切削刃Ø	Pitch Cutting edge Ø	P 0.5 - 3.5 mm Ds 17.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type

G

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds		MG12	TN35	TI25	TA45	AS45
611.0515.01	0.5	1.5	4.8							▲	
611.0720.01	1.0	2.0	4.6	5.75	17.7				▲		
611.2535.01	2.5	3.5	3.7						▲		
						P			•	•	
						M			•	•	
						K			•	•	
						N			•	•	
						S			•	•	
						H					

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

螺纹铣削 (内圆)

THREAD MILLING (internal)

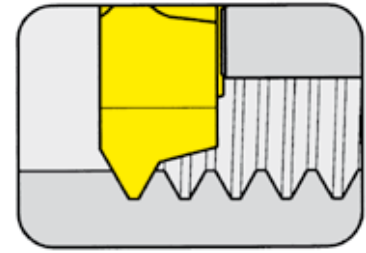


铣刀杆 型号

MILLING SHANK Type

M313

带内冷
with through coolant supply



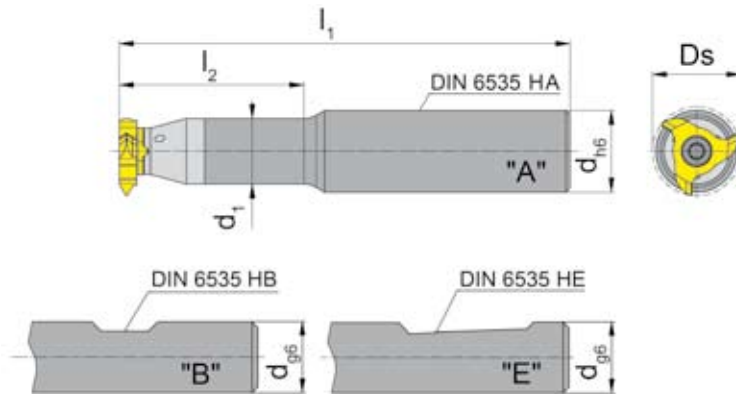
切削刃Ø

Cutting edge Ø

Ds 21.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 313

Type 613

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M313.1620.01A	110	45	16	20	A
M313.1620.02A	130	65			
M313.1620.03A	160	85			
M313.1620.01B	110	45	16	20	B
M313.1620.02B	130	65			
M313.1620.03B	160	85			
M313.1620.01E	110	45	16	20	E
M313.1620.02E	130	65			
M313.1620.03E	160	85			

按需提供更多尺寸

Further sizes upon request

Ds见刀片

Ds see inserts

尺寸单位：mm

Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.1620.0...	5.14T20P	T20PQ

螺纹铣削 (内圆)

THREAD MILLING (internal)

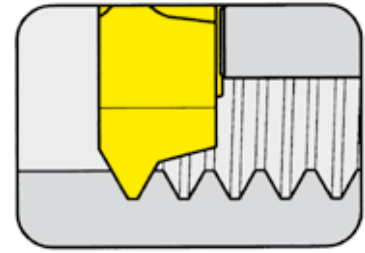


铣刀杆 型号

MILLING SHANK Type

M313

带内冷
with through coolant supply



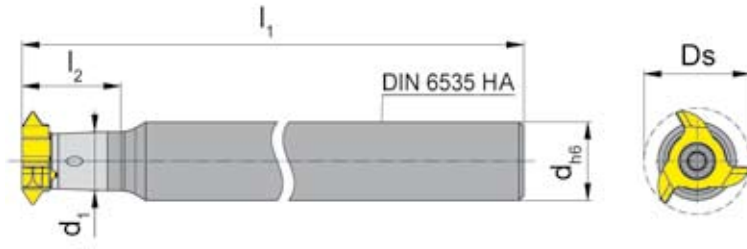
切削刃Ø

Cutting edge Ø

Ds 21.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 313

Type 613

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d
M313.0016.07A	160	20	12	16

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.0016.07A	5.14T20P	T20PQ

螺纹刀片的选择

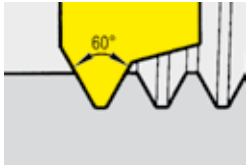
Selection for thread inserts

型号 313, 613

type

非全牙型，米制 型号 313, 613

Partial profile, metric type 313, 613



螺距 / Pitch P	1.0	(1.25)	1.5	(1.75)	2.0	2.5	3.0	3.5	4.0	4.5
公称直径 / Nominal diameter										
型号 / type 313 / Ds 21.7										
313.0720.01	≥ 27	≥ 26	≥ 26	≥ 26	≥ 26					
313.0815.01			≥ 30							
313.1020.01					≥ 32					
313.1630.01							≥ 36			
313.1835.01								≥ 36		
313.2140.01									≥ 36	
313.2445.01										≥ 38
313.2545.01						≥ 33	≥ 32	≥ 30	≥ 30	≥ 30
型号 / type 613 / Ds 21.7										
613.0720.01	≥ 27	≥ 26	≥ 26	≥ 26	≥ 26					
613.2545.01						≥ 33	≥ 32	≥ 30	≥ 30	≥ 30

全牙型，米制螺纹 型号 313

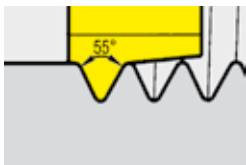
Full profile, metric type 313



螺距 / Pitch P	1.5	2.0	3.0	3.5	4.0	4.5
公称直径 / Nominal diameter						
型号 / type 313 / Ds 21.7						
313.0815.02	≥ 27					
313.1020.02		≥ 30				
313.1630.02			≥ 37			
313.1835.02				≥ 40		
313.2140.02					≥ 44	
313.2445.02						≥ 48

全牙型，惠氏螺纹 型号 313, 613

Full profile, Whitworth type 313, 613



每英寸齿数 / tpi	11	8	6
公称直径 / Nominal diameter			
型号 / type 313 / Ds 21.7			
313.5508.02		≥ 40	
313.5506.02			≥ 48
螺紋 / Thread			
型号 / type 313 / Ds 21.7			
313.5511.02	G1"		
型号 / type 613 / Ds 21.7			
613.5511.02	G1"		

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.



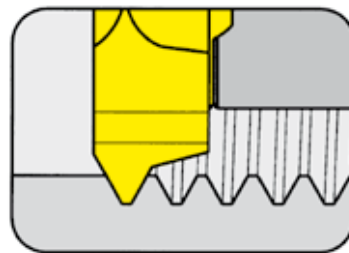
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile



刀片 型号
INSERT Type

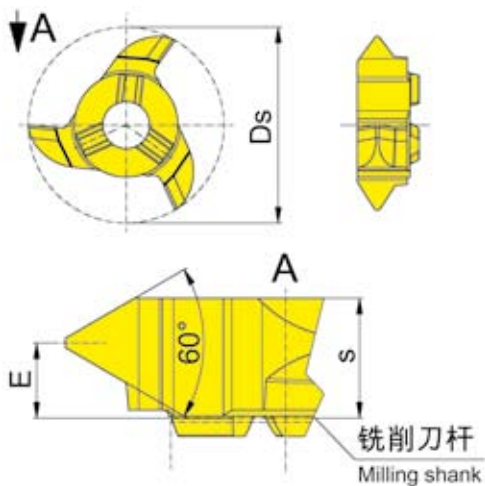
313



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.0 - 4.5 mm Ds 21.7 mm
------------	-------------------------	------------------------------

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	ISO米制螺纹				
						MG12	TN35	TI25	TA45	AS45
313.0720.01	1.0	2.0	4.6	5.9	21.7		▲			
313.0815.01	1.5	1.5	4.8			▲				
313.1020.01	2.0	2.0	4.6			▲				
313.1630.01	3.0	3.0	4.3			▲				
313.1835.01	3.5	3.5	4.1			▲				
313.2140.01	4.0	4.0	3.9			▲				
313.2445.01	4.5	4.5	3.7			▲				
313.2545.01	2.5	4.5	3.7			▲				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

	MG12	TN35	TI25	TA45	AS45
P		●			
M		●			
K		●			
N		●			
S		●			
H					

硬质合金牌号
Carbide grades

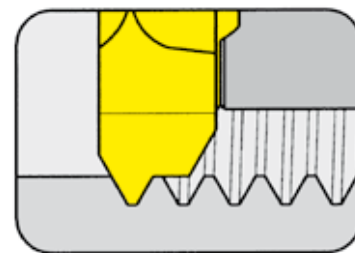
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

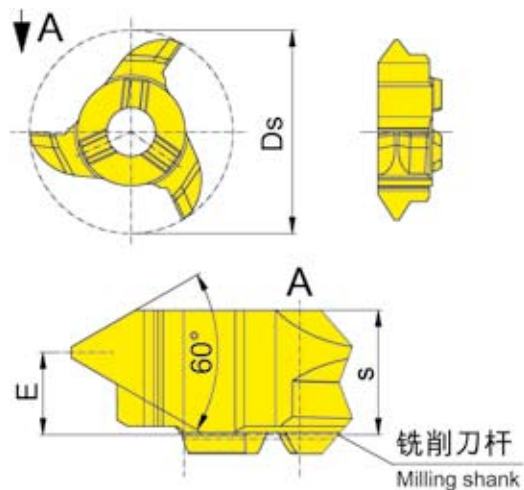


刀片型号
INSERT Type

313



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 4.5 mm Ds 21.7 mm
------------	-------------------------	------------------------------



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	E	s	Ds	ISO米制螺纹				
					MG12	TN35	TI25	TA45	AS45
313.0815.02	1.5	4.8	5.9	21.7		▲			
313.1020.02	2.0	4.6			▲				
313.1630.02	3.0	4.3			▲				
313.1835.02	3.5	4.1			△				
313.2140.02	4.0	3.9			▲				
313.2445.02	4.5	3.8			▲				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



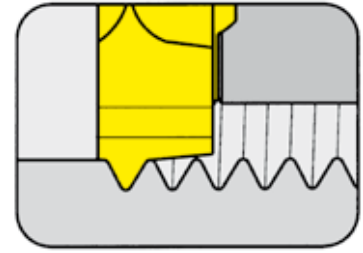
螺纹铣削 (内圆) ，全牙型

THREAD MILLING (internal) Full profile



刀片型号
INSERT Type

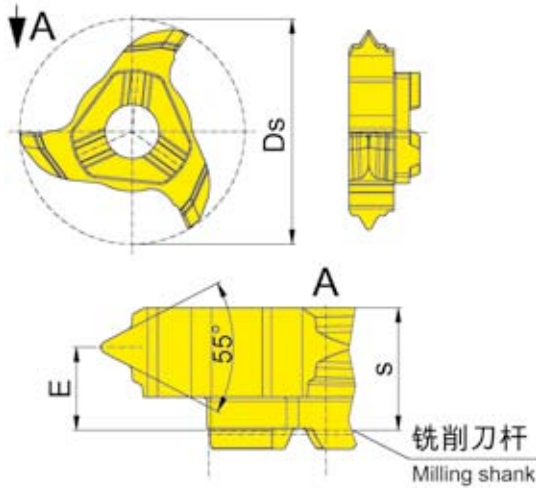
313



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	6/8/11 Ds 21.7 mm
---------------	------------------------------------	----------------------

配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds	MG12	TN35	TI25	TA45	AS45
313.5506.02	6	3.0				△			
313.5508.02	8	3.6	5.9	21.7		△			
313.5511.02	11	4.0				▲			
<ul style="list-style-type: none"> ▲ 库存 / on stock △ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 					P	•			
					M	•			
					K	•			
					N	•			
					S	•			
					H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

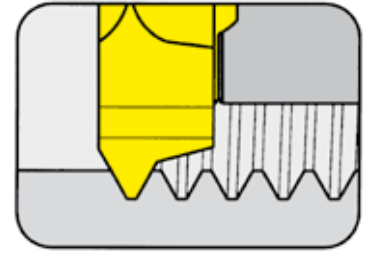
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile

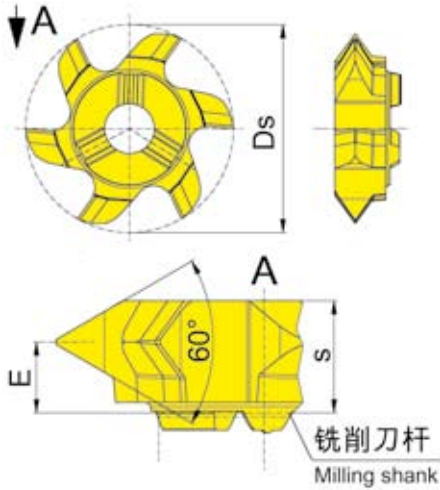


刀片 型号
INSERT Type

613



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.0 - 4.5 mm Ds 21.7 mm
------------	-------------------------	------------------------------



配合 铣刀杆
for use with Milling shank

型号 M313
Type

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds
613.0720.01	1.0	2.0	4.6	5.60	21.7
613.2545.01	2.5	4.5	3.7	5.75	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

	MG12	TN35	Ti25	TA45	AS45
P			▲		
M			▲		
K			●		
N			●		
S			●		
H					

硬质合金牌号
Carbide grades



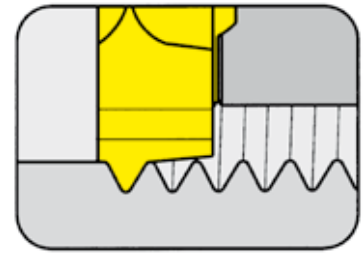
螺纹铣削 (内圆) , 全牙型

THREAD MILLING (internal) Full profile

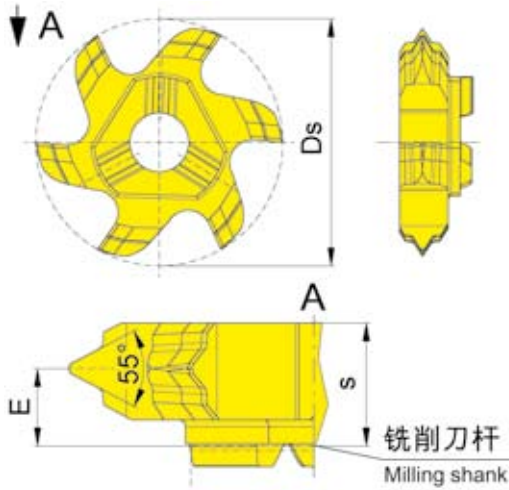


刀片 型号
INSERT Type

613



每英寸牙数 切削刃Ø	Threads per inch Cutting edge Ø	11 Ds 21.7 mm
---------------	------------------------------------	------------------



配合 铣刀杆
for use with Milling shank

型号 M313
Type

惠氏管螺纹
DIN ISO228;(259)和2999
Whitworth pipe thread as per
DIN ISO 228; (259) and 2999

图示=右手型
Picture = right hand cutting version

产品型号 Part number	每英寸螺牙数 Threads per Inch	E	s	Ds		MG12	TN35	TI25	TA45	AS45
613.5511.02	11	3.4	5.4	21.7				Δ	Δ	
						P		•	•	
						M		•	•	
						K		•	•	
						N		•	•	
						S		•	•	
						H				

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

螺纹铣削 (内圆)

THREAD MILLING (internal)

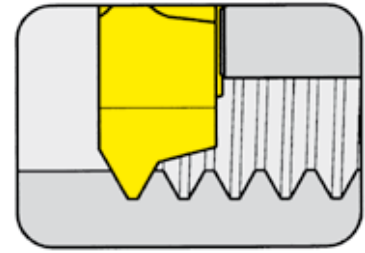


铣刀杆 型号

MILLING SHANK Type

M328

带内冷
with through coolant supply



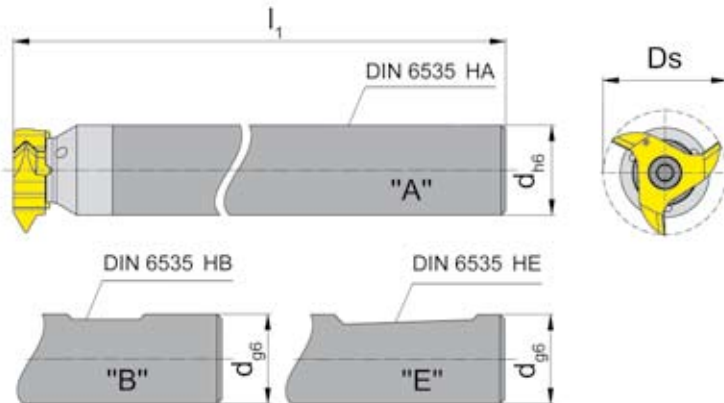
切削刃Ø

Cutting edge Ø

Ds 27.7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 328

Type 628

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	d	规格 Form
M328.0020.D.05A	145	20	A
M328.0020.D.06A	160		
M328.0020.D.07A	180		
M328.0020.D.05B	145	20	B
M328.0020.D.06B	160		
M328.0020.D.07B	180		
M328.0020.D.05E	145	20	E
M328.0020.D.06E	160		
M328.0020.D.07E	180		

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.0020.D.0...	5.17T20P	T20PQ

螺纹铣削 (内圆)

THREAD MILLING (internal)

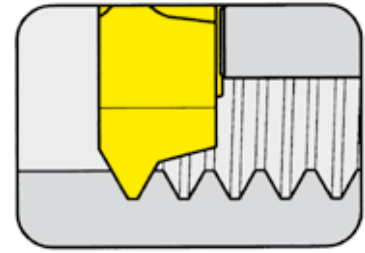


铣刀杆型号

MILLING SHANK Type

M328

带内冷
with through coolant supply



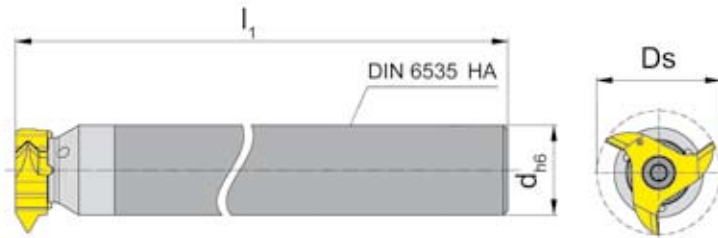
切削刃Ø

Cutting edge Ø

Ds 24,8/27,7 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 328

Type 628

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	d
M328.0020.10A	250	20

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.0020.10A	5.14T20P	T20PQ

螺纹铣削 (内圆)

THREAD MILLING (internal)

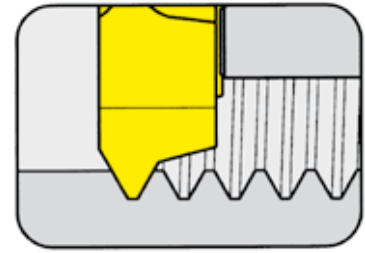


铣刀杆 型号

MILLING SHANK Type

SM328

带内冷
with through coolant supply



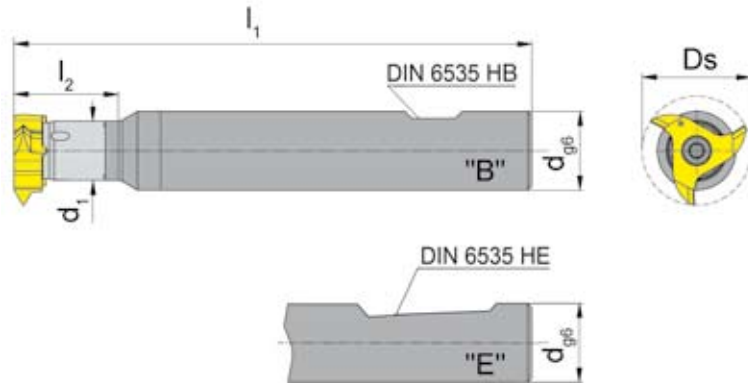
切削刃Ø

Cutting edge Ø

Ds 27.7 mm

刀杆材质：钨基合金 - 良好的抗振性能

Material of shank: tungsten alloy (giving good vibration resistance)



配合 刀片

for use with Insert

型号 328

Type 628

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
SM328.0020.05B	130	25	15	20	B
SM328.0020.06B	145	-	20		
SM328.0020.07B	160	25	15		
SM328.0020.08B	200	-	20		
SM328.0020.05E	130	25	15	20	E
SM328.0020.06E	145	-	20		
SM328.0020.07E	160	25	15		
SM328.0020.08E	200	-	20		

按需提供更多尺寸

Further sizes upon request

Ds见刀片

Ds see inserts

尺寸单位：mm

Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
SM328.0020.0...	5.17T20P	T20PQ

螺纹刀片的选择

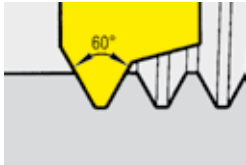
Selection for thread inserts

型号 328, 628

type

非全牙型，米制 型号 328, 628

Partial profile, metric type 328, 628



螺距/ Pitch P	1.0	(1.25)	1.5	(1.75)	2.0	2.5
公称直径 / Nominal diameter						
型号 / type 328 / Ds 27.7						
328.0720.01	≥ 32	≥ 32	≥ 32	≥ 32	≥ 32	
328.1525.01			≥ 34	≥ 34	≥ 34	≥ 34
型号 / type 628 / Ds 27.7						
628.1525.01			≥ 34	≥ 34	≥ 34	≥ 34

螺距/ Pitch P	3.0	3.5	4.0	4.5	5.0	5.5	6.0
公称直径 / Nominal diameter							
型号 / type 328 / Ds 27.7							
328.3050.01	≥ 40	≥ 38	≥ 38	≥ 38	≥ 38		
328.5060.01					≥ 48	≥ 46	≥ 44
型号 / type 628 / Ds 27.7							
628.3050.01	≥ 40	≥ 38	≥ 38	≥ 38			
628.5060.01					≥ 48	≥ 46	≥ 44

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.

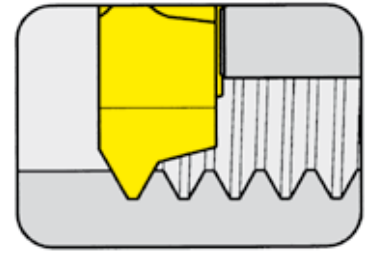
螺纹铣削 (内圆) , 非全牙型

THREAD MILLING (internal) Partial profile

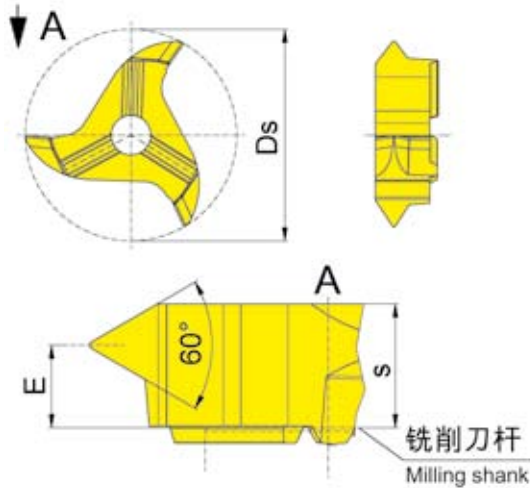


刀片 型号
INSERT Type

328



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.0 - 6.0 mm Ds 27.7 mm
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配合 铣刀杆
for use with Milling shank

型号 M328
Type SM328

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	MG12	TN35	TI25	TA45	AS45
328.0720.01	1.0	2.0	4.6	5.95	27.7		▲			
328.1525.01	1.5	2.5	4.3	5.95			▲			
328.3050.01	3.0	5.0	4.8	7.20			▲	▲		
328.5060.01	5.0	6.0	4.4	7.20			▲			
						P	•	•		
						M	•	•		
						K	•	•		
						N	•	•		
						S	•	•		
						H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



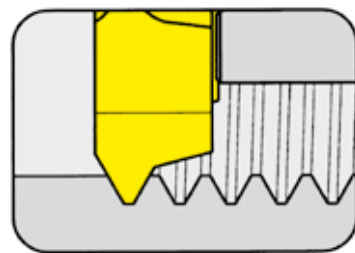
螺纹铣削 (内圆) ，非全牙型

THREAD MILLING (internal) Partial profile



刀片 型号
INSERT Type

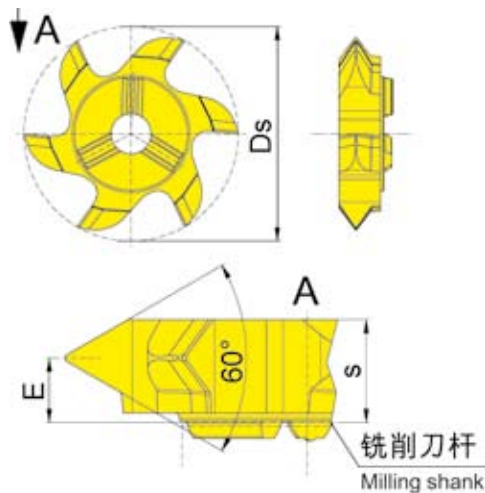
628



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 6.0 mm Ds 27.7 mm
------------	-------------------------	------------------------------

配合 铣刀杆
for use with Milling shank

型号 M328
Type SM328



图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds		MG12	TN35	TI25	TA45	AS45
628.1525.01	1.5	2.5	4.8	6.00	27.7				▲		
628.3050.01	3.0	5.0	3.7	5.75					▲		
628.5060.01	5.0	6.0	3.2	5.75					▲		
▲ 库存 / on stock Δ 4周 / 4 weeks						P			•		
● 主要应用 / main recommendation						M			•		
○ 可选推荐 / alternative recommendation						K			•		
■ 无涂层牌号 / uncoated grades						N			•		
■ 涂层牌号 / coated grades						S			•		
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

螺纹铣削 (内圆)

THREAD MILLING (internal)

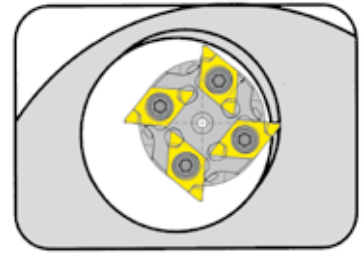


铣刀杆 型号

MILLING SHANK Type

M275

带内冷
with through coolant supply



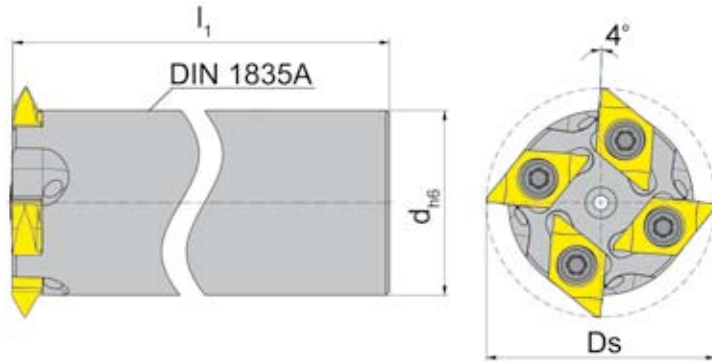
切削刃Ø

Cutting edge Ø

31.0 mm

刀杆材料：钢 (不推荐使用热缩方式夹持)

Material of shank: Steel (not recommended for shrink fitting)



配合 可转位刀片

for use with Indexable insert

型号 RS275

Type

G

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	l ₁	d
M275.031.D25.3.04A	4	31	125	25

按需提供更多尺寸

Further sizes upon request

尺寸单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M275.031.D25.3.04A	3.5-10-T10P	T10PL

螺纹铣削 (内圆)

THREAD MILLING (internal)

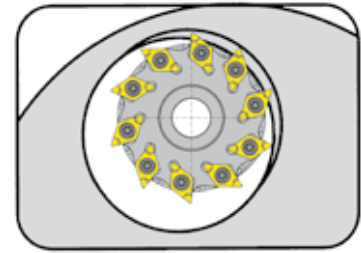


铣刀 型号

MILLING CUTTER Type

M275

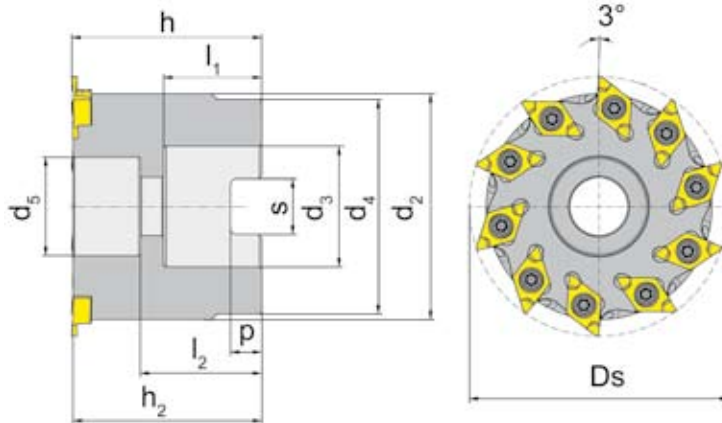
带内冷
with through coolant supply



切削刃Ø

Cutting edge Ø

38 / 48 / 58 mm



配合 可转位刀片
for use with Indexable insert

型号 S275
Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	h	h ₂	d ₂	d ₃	d ₄	d ₅	l ₁	l ₂	s	p
M275.0038.A16.05	5	38	33.0	32.7	32.0	16	32.0	13.5	18	22.7	8.4	5.6
M275.0048.A22.08	8	48	37.0	36.7	40.5	22	40.5	18.5	20	24.7	10.4	6.3
M275.0058.A27.10	10	58	42.5	42.2	50.0	27	48.0	22.0	22	27.2	12.4	7.0

按需提供更多尺寸

Further sizes upon request

尺寸单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀 Milling cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
M275.0038.A16.05	DIN912-M8x25	3.5.10.T10P	T10PL	020.0813.3438
M275.0048.A22.08	DIN912-M10x25	3.5.10.T10P	T10PL	DIN433-10.5-St
M275.0058.A27.10	DIN912-M12x30	3.5.10.T10P	T10PL	DIN433-13-St

螺纹刀片的选择

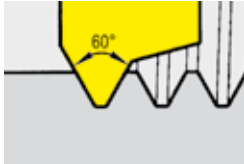
Selection for thread inserts

型号 S275

type

非全牙型，米制 型号 S275

Partial profile, metric type S275



螺距 / Pitch P	1.5	2.0	2.5	3.0	3.5
公称直径 / Nominal diameter					
型号 / type S275 / Ds 31					
RS275.1535.01	≥ 45				
型号 / type S275 / Ds 38					
RS275.1535.01	≥ 54				
型号 / type S275 / Ds 48					
RS275.1535.01	≥ 70				
型号 / type S275 / Ds 58					
RS275.1535.01	≥ 83				



注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.

螺纹铣削 (内圆) , 非全牙型

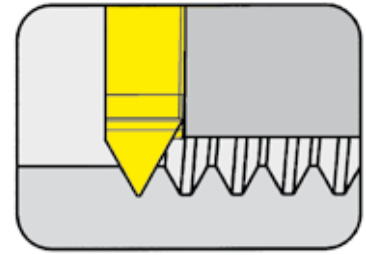
THREAD MILLING (internal) Partial profile



可转位刀片 型号

INDEXABLE INSERT Type

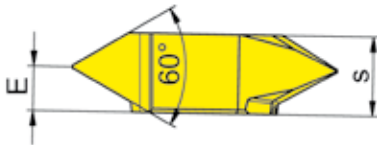
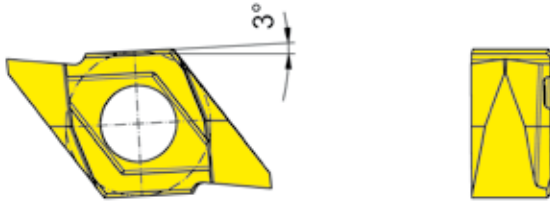
RS275



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 3.5 mm Ds 31/38/48/58 mm
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配合 铣刀杆
for use with Milling shank

型号 M275
Type



R=右手型-如图
R = right hand version shown

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	MG12	TN35	TI25	TA45	AS45	TF45
RS275.1535.01	1.5	3.5	2.3	4.1	31/38/48/58				▲		
▲ 库存 / on stock Δ 4周 / 4 weeks						P			•		
● 主要应用 / main recommendation						M			•		
○ 可选推荐 / alternative recommendation						K			•		
■ 无涂层牌号 / uncoated grades						N			•		
■ 涂层牌号 / coated grades						S			•		
■ 钎焊/金属陶瓷 / brazed/Cermet						H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

G

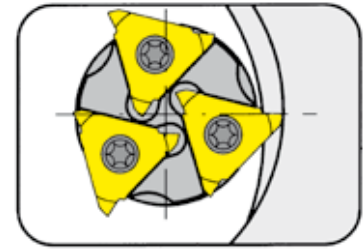
螺纹铣削 (内圆)

THREAD MILLING (internal)



铣刀杆 型号
MILLING SHANK Type

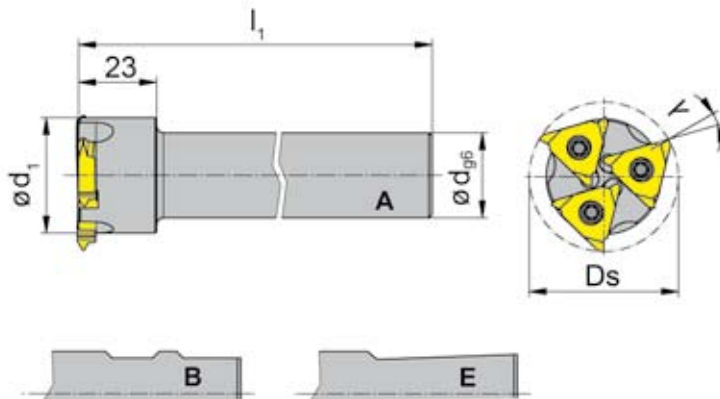
380



切削刃Ø

Cutting edge Ø

Ds 44.0 mm



配合 可转位刀片
for use with Indexable insert

型号 R314
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	l_1	d_1	d	λ	规格 Form
380.0044.03A	3	44	125	34	25	14°	A
380.0044.03B	3	44	125	34	25	14°	B
380.0044.03E	3	44	125	34	25	14°	E

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
380.0044.03...	5.12T20P	T20PQ

螺纹铣削 (内圆)

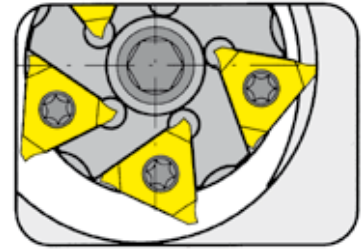
THREAD MILLING (internal)



铣刀 型号

380

MILLING CUTTER Type



切削刃 \varnothing

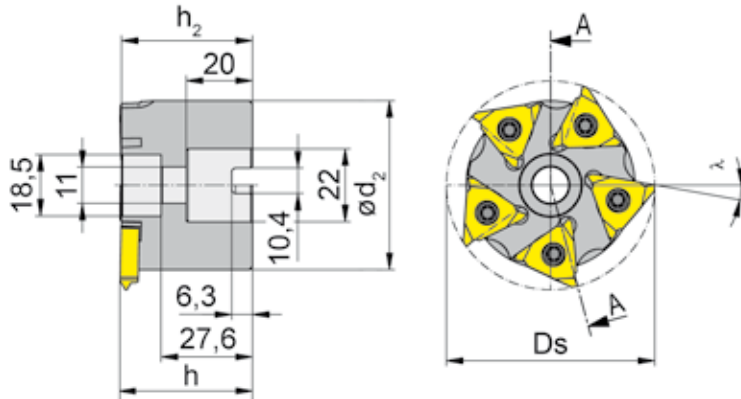
Cutting edge \varnothing

Ds 63.0 mm

中心孔和键槽均依据DIN138标准
Cutterhole and cross keyway as per DIN 138

配合 可转位刀片
for use with Indexable insert

型号 R314
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Z	Ds	h_2	d_2	λ
380.0063.05	5	63	39.6	51	10°

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀 Milling cutter	螺钉 Screw	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	垫圈 Washer
380.0063.05	10.25.912	5.12T20P	T20PQ	10.5.433

螺纹刀片的选择

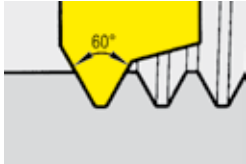
Selection for thread inserts

型号 314

type

非全牙型，米制 型号 314

Partial profile, metric type 314



螺距 / Pitch P	1.5	2.0	2.5	3.0	4.0	5.0	5.5	6.0
公称直径 / Nominal diameter								
型号 / type 314 / Ds 44								
R314.1535.01	≥ 52	≥ 50	≥ 50	≥ 50				
R314.2140.01					≥ 72			
R314.3260.01								≥ 85
R314.4060.01					≥ 65		≥ 56	≥ 64
型号 / type 314 / Ds 63								
R314.1535.01	≥ 72	≥ 70	≥ 70	≥ 70				
R314.2140.01					≥ 95			
R314.3260.01								≥ 110
R314.4060.01					≥ 88			≥ 80

注意:

如果工件公称直径小于推荐的数值，铣削后轮廓形状将错误。

Attention:

Recutting of the milling tool will create profile errors if the nominal diameter of the component will be smaller than recommended.



螺纹铣削 (内圆) , 非全牙型

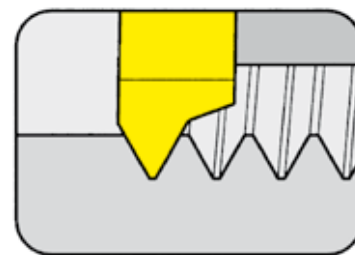
THREAD MILLING (internal) Partial profile



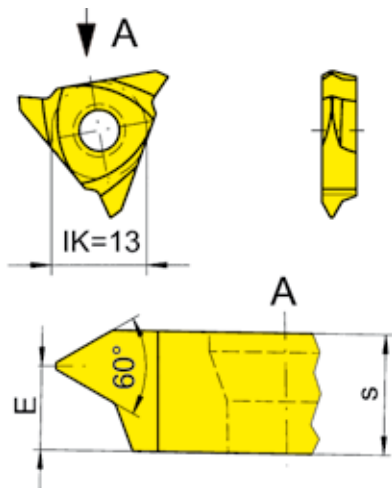
可转位刀片 型号

INDEXABLE INSERT Type

314



螺距 切削刃Ø	Pitch Cutting edge Ø	P 1.5 - 6.0 mm Ds 44.0 mm
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配合 铣刀杆
for use with Milling shank

型号 380
Type

G

图示=右手型
Picture = right hand cutting version

ISO米制螺纹
Metric ISO thread

产品型号 Part number	P	P _{max}	E	s	Ds	MG12	TN35	TI25	TA45	AS45
R314.1535.01	1.5	3.5	3.3				▲			
R314.2140.01	4.0	4.0	3.0	5.45	44		▲			
R314.4060.01	4.0	6.0	2.7				▲			
R314.3260.01	6.0	6.0	2.7	5.45	63		▲			
						P	•			
						M	•			
						K	•			
						N	•			
						S	•			
						H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

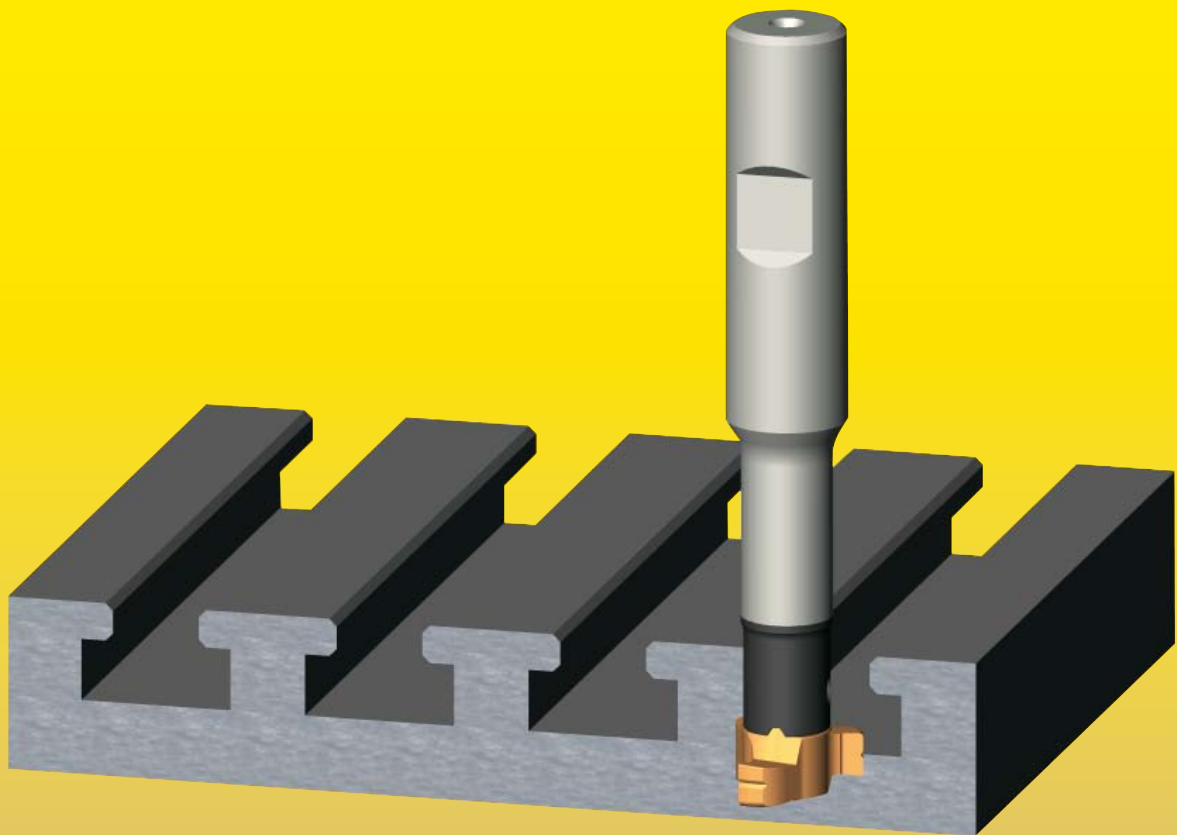
尺寸单位 : mm
Dimensions in mm

注意事项 :
R314.3260.01仅适用于380.0063.05铣刀
Note:
R314.3260.01 only for milling cutter 380.0063.05

硬质合金牌号
Carbide grades

出色的切屑排出，使用冷却液清除。

Excellent removal of chips, flushed by through coolant supply.



H

T型槽铣削

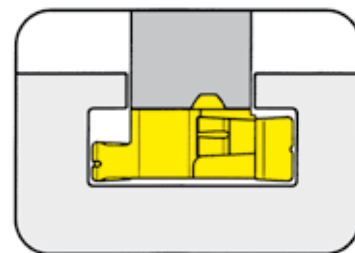
MILLING OF T-SLOTS



铣刀杆 型号

MILLING SHANK Type

M311



切削刃Ø

Cutting edge Ø

Ds 17.0 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

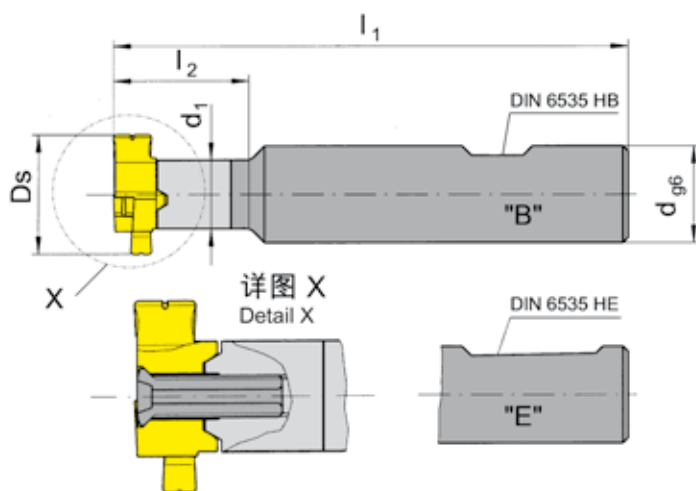
Material of shank: Carbide - Giving a good vibration resistance

配合 刀片

for use with Insert

型号 311

Type



图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M311.0016.00B	90	25	9	16	B
M311.0016.00E	90	25	9	16	E

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M311.0016.00...	4.16T15KP	T15PQ

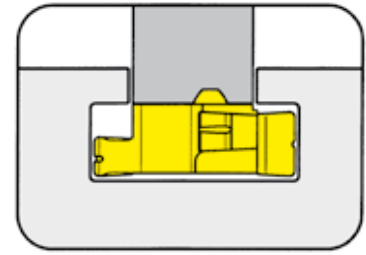
T型槽铣削

MILLING OF T-SLOTS

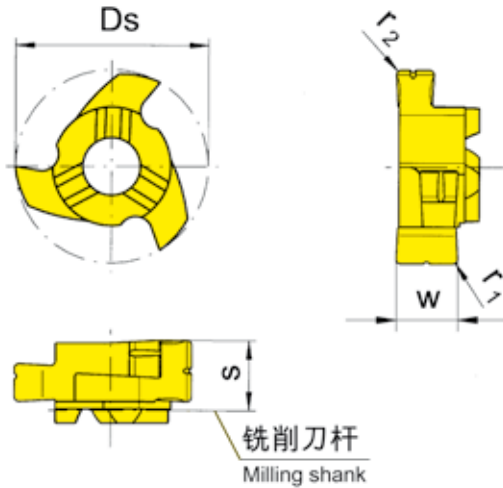


刀片 型号
INSERT Type

311

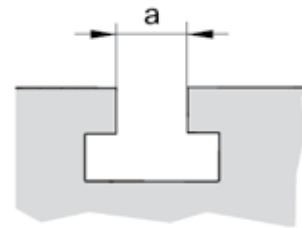


DIN650T型槽 切削刃Ø	T-Slots DIN 650 Cutting edge Ø	a 10.0 mm Ds 17.0 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	w	s	r ₁	r ₂	a	MG12	TN35	Tl25	TA45	AS45
311.1016.00	17	7.2	7.7	0.5	0.8	10			▲		△
							P		•		•
							M		•		•
							K		•		•
							N		•		○
							S		•		•
							H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades



制动钳铣槽刀

使用非标314系列同时加工两个槽。

专为制动钳加工设计的非标铣刀。

由于刀片在非标380铣刀头中的位置，使刀片切削刃上无需断屑。

刀柄具有良好的抗振性。

加工槽的圆度可达

appr. 0.02 mm (.0008")

材料: **GGG40**

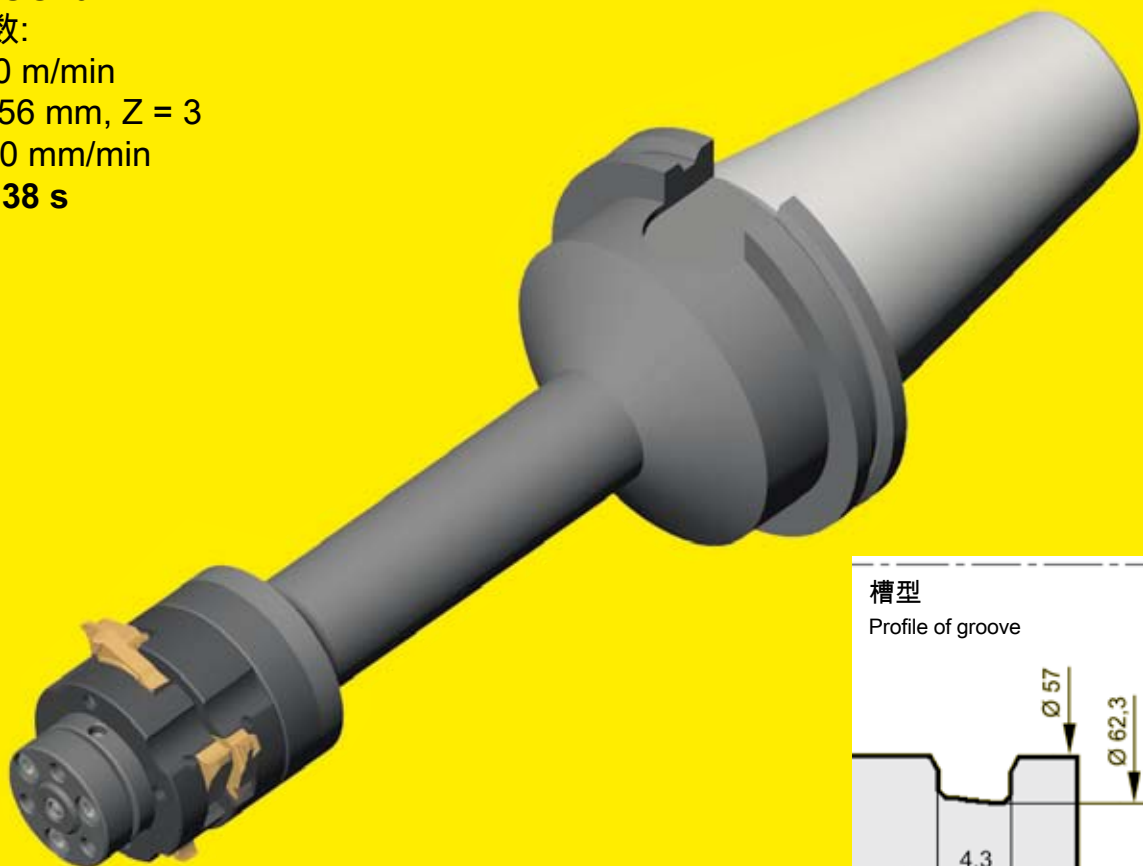
切削参数:

$V_c = 140$ m/min

铣刀 $\varnothing 56$ mm, Z = 3

$V_{f3} = 130$ mm/min

tg = **10.38 s**



H

Groove milling on brake caliper

Simultaneous milling of two grooves with special insert type 314.

Special design of the milling cutter body due to the form of the brake caliper.

Because of the position of the inserts in the special milling heads type 380 it is not necessary to perform the cutting edges of the inserts with a chip divider.

The shank shows a good vibration resistance.

Possible roundness of the machined grooves appr. 0,02 mm (.0008")

Material: **GGG40**

Cutting data:

$v_c = 140$ m/min

$v_{f3} = 130$ mm/min (cutter center)

Milling cutter $\varnothing 56$ mm, Z = 3

tg = **10.38 s**

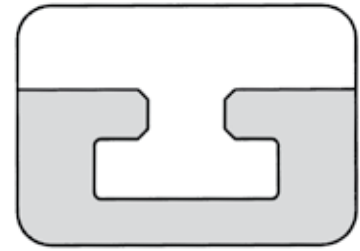
T形槽倒角

CHAMFERING OF T-SLOTS

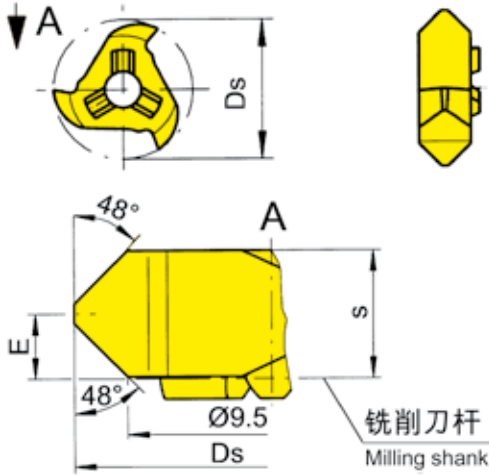


刀片型号
INSERT Type

311

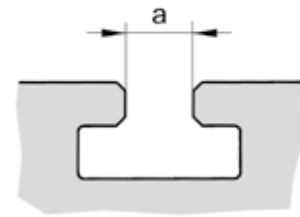


DIN650T型槽 切削刃Ø	T-Slots DIN 650 Cutting edge Ø	a 10/12/14 mm Ds 15.8 mm
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配合 铣刀杆
for use with Milling shank

型号 M311
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	s	E	MG12	TN35	Ti25	TA45	AS45
311.4216.00	15.8	5.95	3			▲		
▲ 库存 / on stock Δ 4周 / 4 weeks				P		•		
● 主要应用 / main recommendation				M		•		
○ 可选推荐 / alternative recommendation				K		•		
■ 无涂层牌号 / uncoated grades				N		•		
■ 涂层牌号 / coated grades				S		•		
■ 钎焊/金属陶瓷 / brazed/Cermet				H				

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades



T型槽铣削

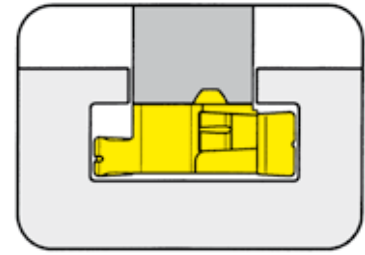
MILLING OF T-SLOTS



铣刀杆 型号

MILLING SHANK Type

M313



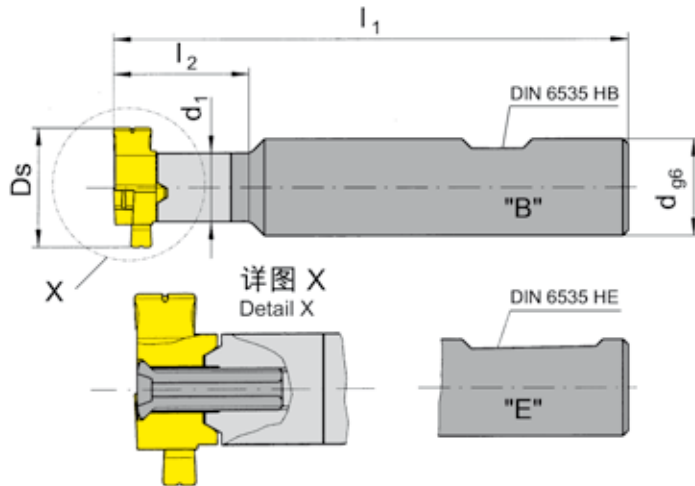
切削刃Ø

Cutting edge Ø

Ds 20.0 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 313

Type

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M313.0016.00B	93	30	11.5	16	B
M313.0016.00E	93	30	11.5	16	E

按需提供更多尺寸
Further sizes upon request

Ds见刀片
Ds see inserts

尺寸单位：mm
Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M313.0016.00...	5.13T20KP	T20PQ

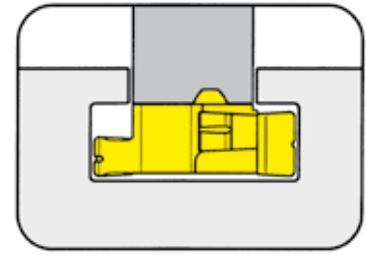
T型槽铣削

MILLING OF T-SLOTS

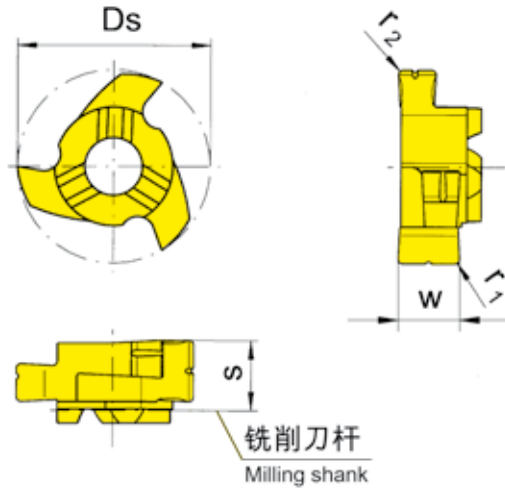


刀片型号
INSERT Type

313

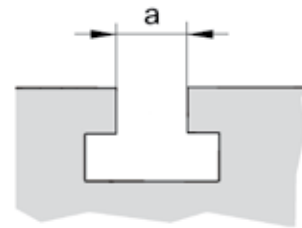


DIN650T型槽 切削刃Ø	T-Slots DIN 650 Cutting edge Ø	a 12.0 mm Ds 20.0 mm
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配合 铣刀杆
for use with Milling shank

型号 M313
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	w	s	r ₁	r ₂	a	MG12	TN35	TI25	TA45	AS45
313.1219.00	20	8.2	8.7	0.5	0.8	12			▲		△
							P		•		•
							M		•		•
							K		•		•
							N		•		○
							S		•		•
							H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades



T型槽铣削

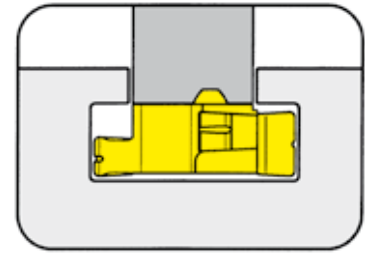
MILLING OF T-SLOTS



铣刀杆 型号

MILLING SHANK Type

M328



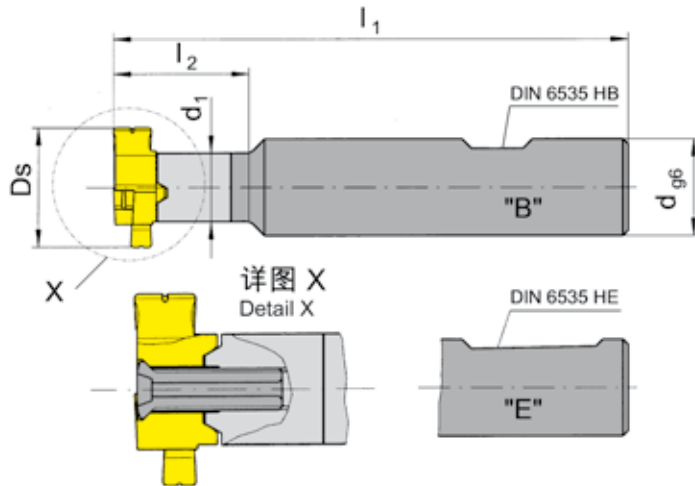
切削刃Ø

Cutting edge Ø

Ds 24.0 mm

刀杆材质：整体硬质合金 - 良好的抗振性能

Material of shank: Carbide - Giving a good vibration resistance



配合 刀片

for use with Insert

型号 328

Type

H

图示=右手型

Picture = right hand cutting version

产品型号 Part number	l_1	l_2	d_1	d	规格 Form
M328.0020.00B	104	35	13.5	20	B
M328.0020.00E	104	35	13.5	20	E

按需提供更多尺寸

Further sizes upon request

Ds见刀片

Ds see inserts

尺寸单位：mm

Dimensions in mm

订货须知：

HORN可以返修损坏的铣刀杆基座。

Ordering note:

Milling cutter shanks with damaged seating can be repaired by HORN.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M328.0020.00...	5.13T20KP	T20PQ

H8

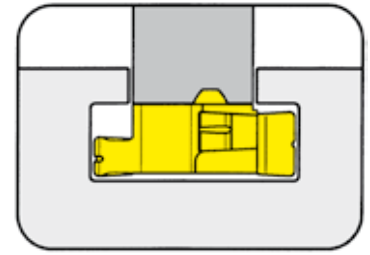
T型槽铣削

MILLING OF T-SLOTS

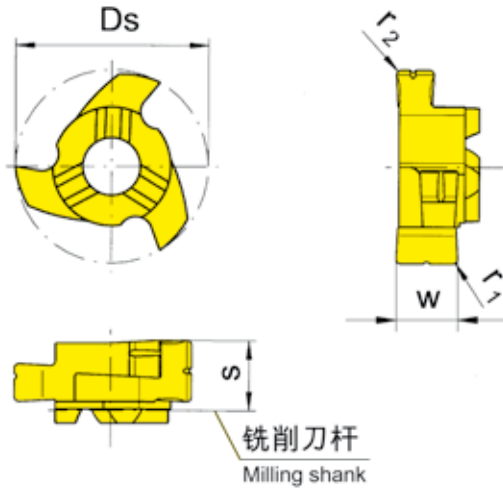


刀片型号
INSERT Type

328

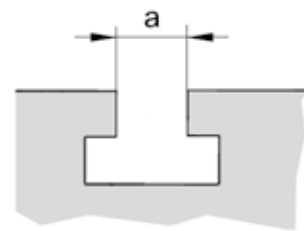


DIN650T型槽 切削刃Ø	T-Slots DIN 650 Cutting edge Ø	a 14.0 mm Ds 24.0 mm
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配合 铣刀杆
for use with Milling shank

型号 M328
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	w	s	r ₁	r ₂	a	MG12	TN35	Ti25	TA45	AS45
328.1423.00	24	9.2	9.8	0.5	1	14			▲		△
							P		•		•
							M		•		•
							K		•		•
							N		•		○
							S		•		•
							H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

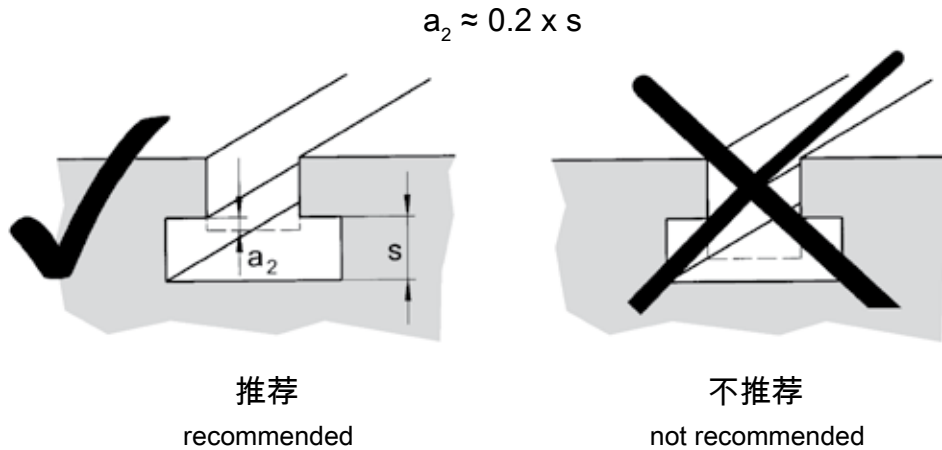
按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades



应用技术

Application Technology



切削参数

CUTTING DATA

T型槽铣削

MILLING OF T-SLOTS

工件材质 Workpiece material	刀具材质 Cutting material	v_c (m/min)	f_z (mm), Z=1 Ds 17 mm	f_z (mm), Z=1 Ds 20-24 mm
碳钢 Carbon steel	TI25	200 - 300	0.03 - 0.06	0.05 - 0.08
合金钢 Alloyed steel	TI25	140 - 220	0.02 - 0.04	0.03 - 0.05
灰铸铁 Grey cast iron	TI25	100 - 160	0.03 - 0.06	0.05 - 0.10

切削参数

CUTTING DATA

T型槽倒角

CHAMFERING OF T-SLOTS

工件材质 Workpiece material	刀具材质 Cutting material	v_c (m/min)	f_z (mm), Z=3
碳钢 Carbon steel	TI25	300 - 400	0.10 - 0.13
合金钢 Alloyed steel	TI25	180 - 300	0.13 - 0.21
灰铸铁 Grey cast iron	TI25	140 - 240	0.16 - 0.27

该切削参数只适用于防振的标准硬质合金刀杆

The cutting data is only valid for standard carbide toolholders (shanks) listed in this chapter.

进给率和时间的计算

使用HORN的HTC程序可以简单而方便的计算出所需要的速度和进给。推荐您使用该程序计算切削参数，可以得到最好的切削性能和结果。可以在下页查看其基本功能。

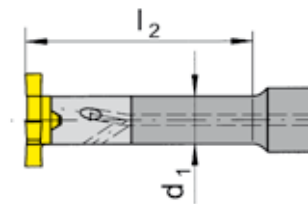
HCT (HORN Circular Technology)

-安全快捷-
您需要的圆弧插补铣槽及直槽铣削的切削参数。
系统要求：Windows 95，可用于CD-ROM上。

常规推荐

铣刀悬伸

尽可能选择最短的夹持装置或铣刀柄，以控制刀具的跳动公差。
大宽度和大悬伸的加工需要特殊的加工方法，例如将槽宽分多次加工出来，以降低切削力，达到最好的加工效果。



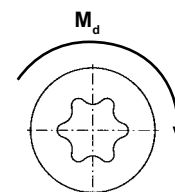
铣刀直径

当使用大直径刀具时，刀的直径越接近于孔的直径，加工周期将由于较小的旋转中心和较高的进给率而缩短，通常情况下，刀具的直径由工件的参数和应用设置所决定。



夹紧螺丝的拧紧扭矩

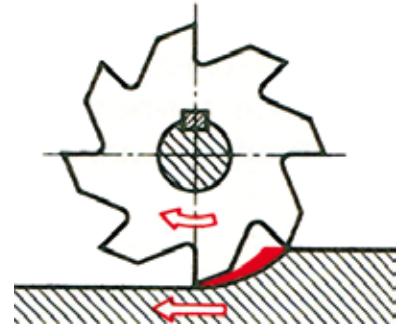
推荐使用扭矩扳手，不要使用附加润滑剂如铜膏，会产生负面影响或者影响夹紧力。所有的螺钉已附着润滑剂。



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铣削方向

大多数HORN的铣刀是右手型，加工中推荐硬质合金刀具普遍采用的顺铣方式。

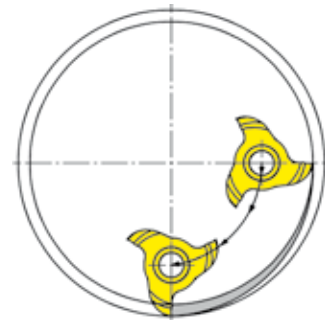


铣入工件

铣削时一个简单的径向切入会产生一个很大的接触角，这将导致振刀，并在之后的切削中一直存在，直到槽底。

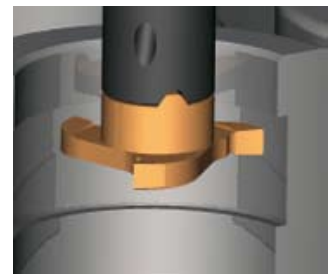
推荐切入槽时以切入角 45° 到 180° 至槽底。计算得出的切削参数为满切时，但也适用于其他切削情况。

倾斜角度 $> 45^\circ$



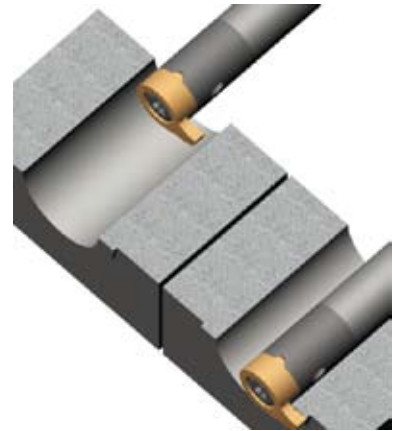
孔铣削和偏移铣削使用螺旋插补铣

HORN铣削刀片有圆形断屑槽，这意味着轴向切深超过2mm后切削角将是负的。当螺旋插补铣削时铣刀的切削深度被限定在2mm以内。大切深需要非标断屑槽，如有问题请联系我们。



单刃刀片

当刀片的切削直径比孔径大时，在不旋转的情况下刀具通过孔可以加工背面的倒角或平面。这时单刃刀具没有径向和轴向跳动。

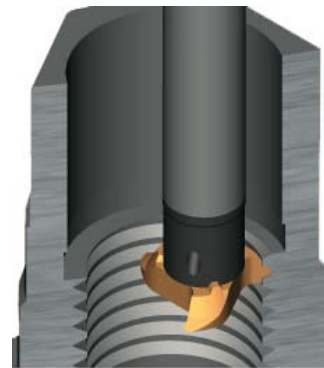


螺纹铣削

使用HORN的螺纹铣刀时螺纹轮廓在满切情况下形成。这时螺纹锥度最小，尤其工件材质为高合金钢时。底孔为盲孔时推荐自底部至顶部的加工方法。否则可能会因为盲孔底部的切屑损坏刀具。

螺纹加工方法推荐：

铣刀直径不能超过螺纹小径的70%，否则会重复切削使整个螺纹尺寸超差。



Feed rates and time calculation

It is simple and easy to calculate your speed and feeds using HORN'S HCT programme. We recommend that you calculate the cutting data with this programme as it will provide you with the best cutting performance and results. Basic features of the calculations can be found on the following pages.

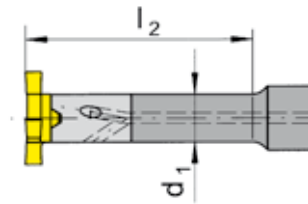
HCT (HORN Circular Technology)

- safe and fast -
Your cutting data for groove milling by circular interpolation of internal and external grooves as well as groove milling of linear grooves.
System requirements from Windows 95.
Available on CD-ROM.

BASIC RECOMMENDATIONS

Overhang of the milling cutter

Select the shortest possible clamping device and milling shank, to control the runout tolerance of the tools. Large cutting widths in combination with long overhangs require specific manufacturing methods such as dividing the cutting width to achieve the best possible cutting result due to reduced cutting forces.



Diameter of the milling cutter

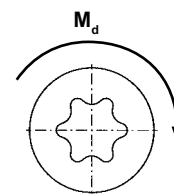
When using a large diameter cutter, whose relationship is close to the bore diameter, manufacturing cycle time can be reduced, due to the smaller center of rotation and higher feed rates. Many times the rotation of the milling cutter center will be defined by the parameters of the workpiece and the whole application setup.



Clamping torque of the screws

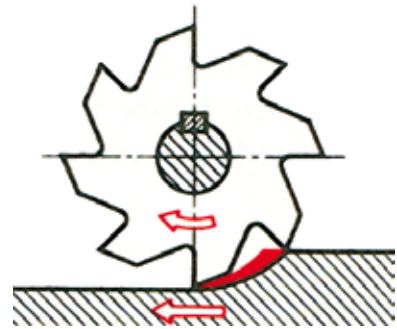
We recommend to use a torque screw driver to achieve the indicated torque values per insert and tool type. Additional additives such as copper paste are not permitted. This will have a negative effect and change the clamping forces.

All clamping screws are already coated with additives.



Milling direction

Most HORN milling tools are right handed , and it is recommended to use them with the climb milling process as this is generally recommend for carbide tools.

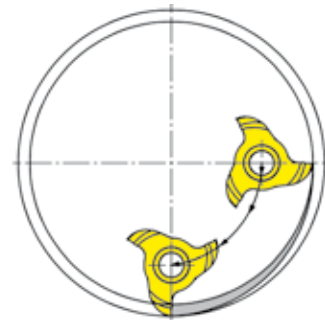


Milling entry into the workpiece

A simple radial entry of the milling cutter creates a very long contact angle which leads to vibrations which will not disappear for the rest of the milling operation and are visual on the bottom of the groove.

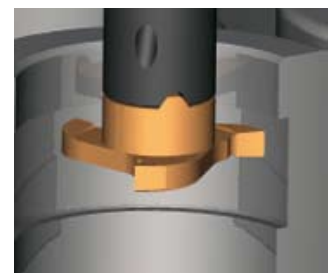
It is recommended to enter the groove with a ramp angle of 45° up to 180° to the maximum depth of cut. The calculated cutting data refers to the milling condition when the insert is in the full cut but can be also used for the entry loop.

Ramp angle $> 45^\circ$



Bore milling and offset milling by helical interpolation

HORN milling inserts are manufactured with a round chip breaker. This means that beyond a depth of cut of 2 mm in axial direction the insert gets a negative cutting angle. Milling inserts are limited to a depth of cut of 2 mm when used for helical interpolation. Larger depths of cut can only be produced when choosing special chip breakers. Please contact us in case of any further questions.



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Single edged inserts

When entering through a bore off centre and without rotating it is possible to generate back chamfers and flats with inserts having a larger cutting diameter than the bore diameter. Single edged cutters have no run out tolerance.



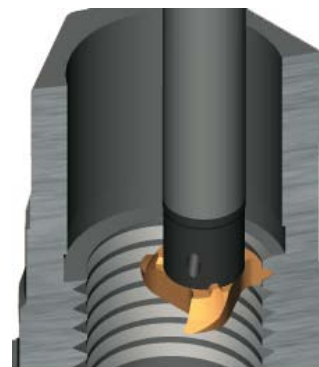
Thread milling

With HORN thread milling inserts the thread profile is generated in one full cut to the profile depth of the thread. This produces threads with minimal taper especially in high alloyed steels.

In blind holes it is recommended to mill from the bottom to the top. Otherwise there is the risk of damaging the tool because of milling into chips at the bottom of the blind hole.

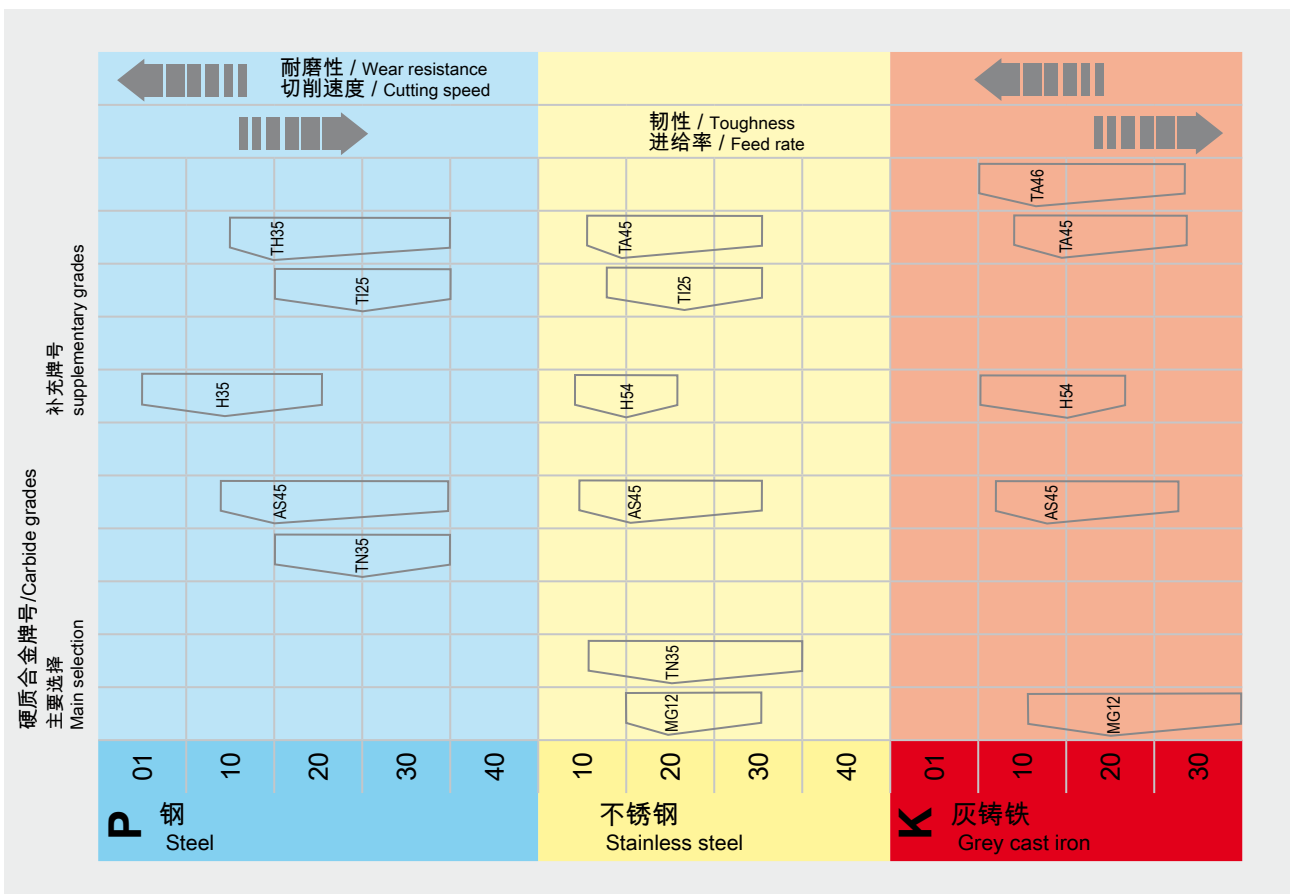
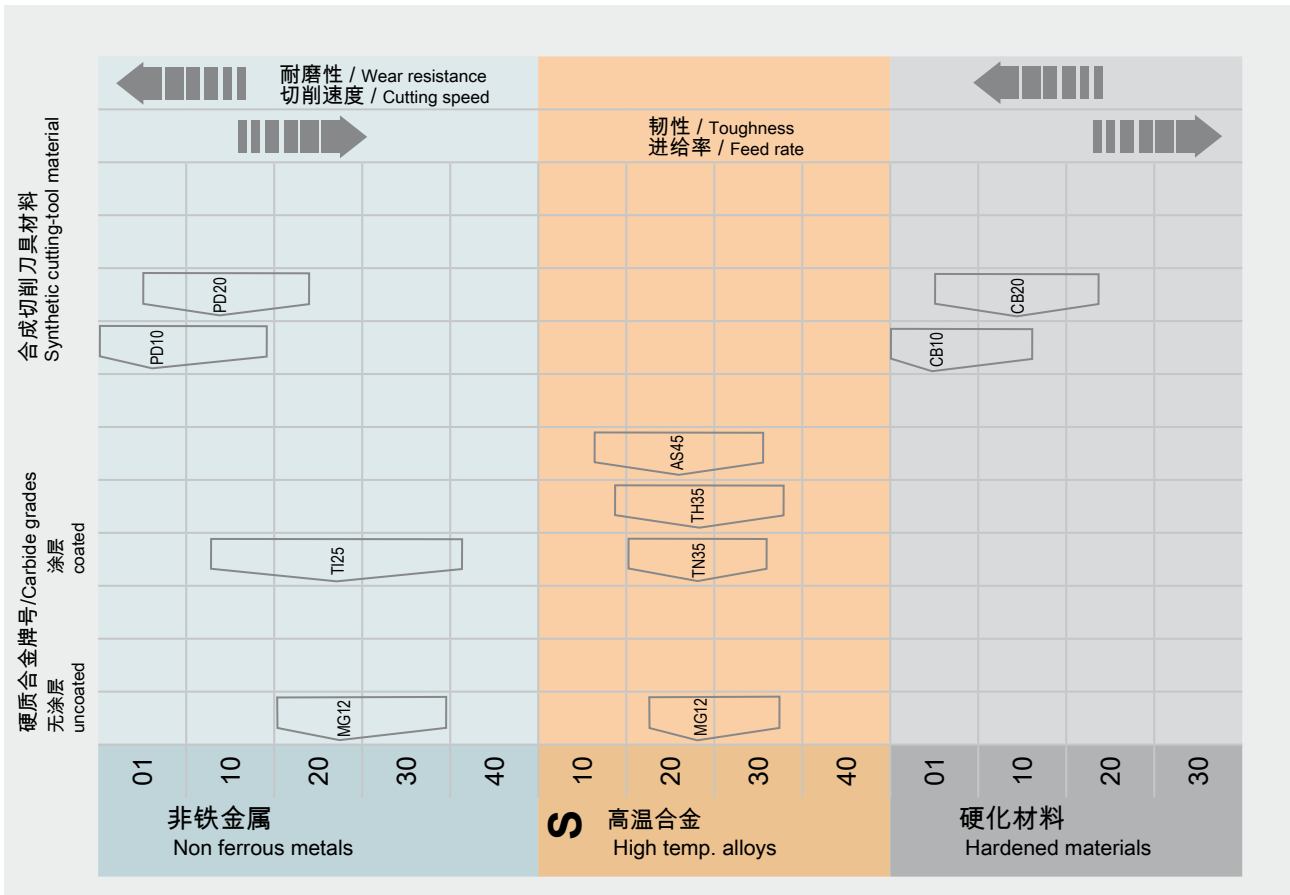
A general recommendation for thread milling:

The milling cutter diameter should not exceed 70% of the minor diameter of the thread. Otherwise recutting of the profile occurs which could bring the whole thread out of tolerance.



硬质合金牌号的选择

CHOICE OF CARBIDE GRADES



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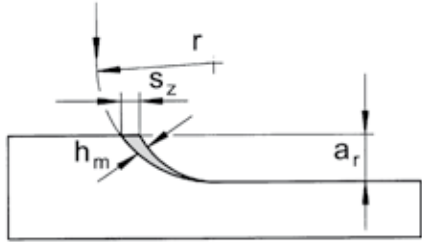
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



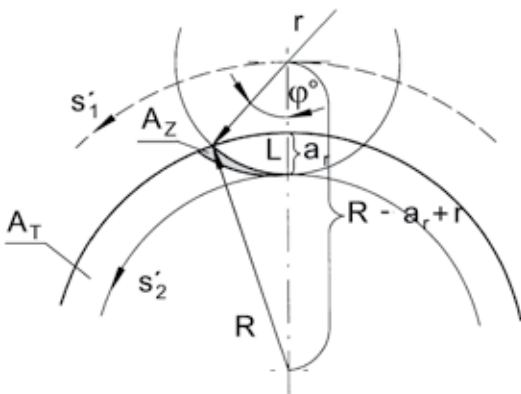
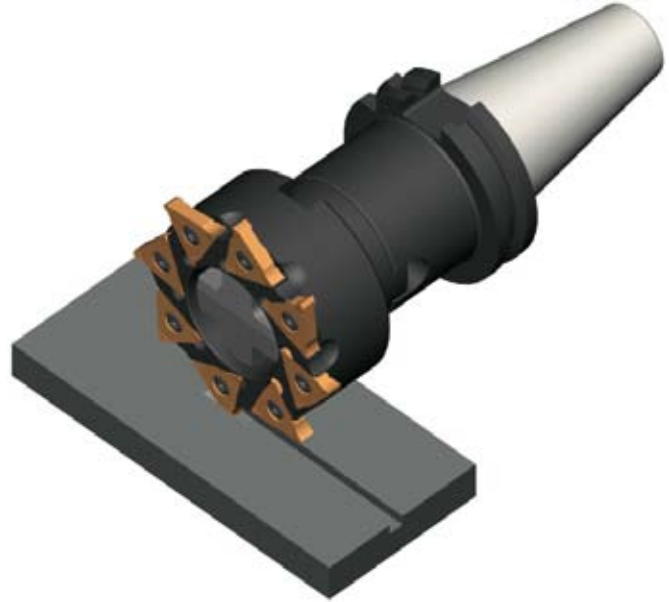
直槽铣削-外部

MILLING OF A LINEAR GROOVE - EXTERNAL



$$s_z = h_m \sqrt{\frac{2r}{a_r}}$$

$$s = n \cdot z \cdot s_z \text{ mm/min}$$



$$\cos \varphi^\circ = \frac{r^2 + [R + r - a_r]^2 - R^2}{2r [R + r - a_r]} \rightarrow \varphi^\circ$$

$L = \frac{\pi \cdot 2r \cdot \varphi^\circ}{360^\circ} \text{ mm}$	切削长度 Length of cut	$t = \frac{A_T}{n \cdot z \cdot A_z} \text{ min}$	加工时间 (用于 A_T) Time for cut (for A_T)
$A_z = L \cdot h_m \text{ mm}^2$	切屑面积 Area of chip	$s'_1 = \frac{\pi \cdot 2 (R+r-a_r)}{t} \text{ mm/min}$	刀具中心的进给 Feed rate of tool centre
$A_T = \pi [R^2 - (R-a_r)^2] \text{ mm}^2$	槽截面的面积 Area of groove section	$s'_2 = s'_1 \frac{R - a_r}{R + r - a_r} \text{ mm/min}$	刀尖进给 Feed rate of tool tip



HCT (HORN Circular Technology)

-安全快捷-
您需要的圆弧插补铣槽及直槽铣削的切削参数。
系统要求：Windows 95，可用于CD-ROM上。

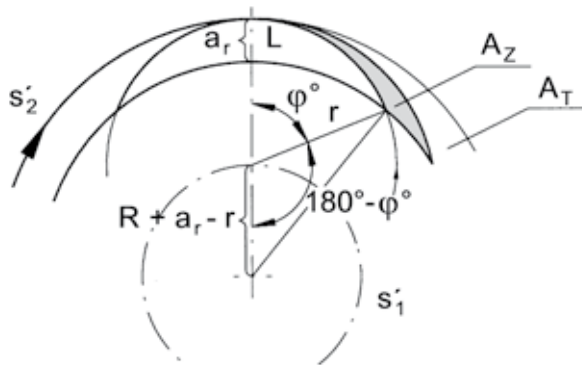
槽铣削 (圆弧插补铣削)

GROOVE MILLING by circular interpolation



内槽铣削

MILLING OF AN INTERNAL GROOVE



$$\cos [180^\circ - \varphi^\circ] = \frac{r^2 + [R + a_r - r]^2 - R^2}{2r [R + a_r - r]} \longrightarrow 180^\circ - \varphi^\circ \longrightarrow \varphi^\circ$$

$L = \frac{\pi \cdot 2r \cdot \varphi^\circ}{360^\circ} \text{ mm}$	切削长度 Length of cut
$A_z = L \cdot h_m \text{ mm}^2$	切屑面积 Area of chip
$A_T = \pi [(R + a_r)^2 - R^2] \text{ mm}^2$	槽截面的面积 Area of groove section

$t = \frac{A_T}{n \cdot z \cdot A_z} \text{ min}$	加工时间 (用于 A_T) Time for cut (for A_T)
$s'_1 = \frac{\pi \cdot 2 (R - r + a_r)}{t} \text{ mm/min}$	刀具中心的进给 Feed rate of tool centre
$s'_2 = s'_1 \frac{R + a_r}{R - r + a_r} \text{ mm/min}$	刀尖进给 Feed rate of tool tip

规格

Specification

	规格 Specification	ISO 规格 Specification
进给率 Feed rate	s'	v_f
转速 Revolutions	n	n
齿数 Number of teeth	z	z
进给/齿 Feed/tooth	s_z	f_z
切屑中间厚度 medium thickness of chip	h_m	h_m
径向切削深度 radial depth of cut	a_r	a_e

	规格 Specification	ISO 规格 Specification
刀具半径 Radius of cutter	r	r
工件半径 Radius of workpiece	R	R
刀具中心的进给 Feed rate of tool centre	s'_1	v_{f3}
刀尖进给 Feed rate of tool tip	s'_2	v_{f2}



HCT (HORN Circular Technology)

- safe and fast -

Your cutting data for groove milling by circular interpolation of internal and external grooves as well as groove milling of linear grooves.

System requirements from Windows 95. Available on CD-ROM.

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螺钉扭矩

TORQUE OF SCREWS



以下扭矩适用于刀片的螺钉，我们建议对螺钉不要额外使用润滑剂（如铜膏）。
关于扭矩扳手，见章节辅助装置

Following torques are allowed for screws of inserts. We recommend to use no additional gliding means (such as copper paste) for screws. For torque screw drivers please see chapter additional equipment.

型号 type	螺钉 Screw	M _d Nm	夹紧扳手 Clamping wrench	刀板 Blade
380	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
381.0...	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
382...06	5F.06T15P	5.0 - 5.5	T15PQ	DT15PK
382...08	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
382...10/12/14	5.10T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
383...06	5F.06T15P	5.0 - 5.5	T15PQ	DT15PK
383...08	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
383...10/12	5.10T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
ABS	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
ADR.01...	C009000	0.75	T6W	DT6K
ADR.02/03...	C009001	1.5	T8L	DT8K
ADR.04/05/06...	C009002	1.5	T8L	DT8K
B105/BKT105	6.075T15P	5.0	T15PQ	DT15PK
B110/BKT110	6.075T15P	5.0	T15PQ	DT15PK
BKT356	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
DAHM	030.3070.T10P	3.0	T10PL	DT10PK
DAM31...02B	030.2541.T8P	1.3	T8PL	DT8PK
DAM31...03A/B	030.2547.T8P	1.3	T8PL	DT8PK
DAM31...04A/B	030.2553.T8P	1.3	T8PL	DT8PK
DAM31...05A/B	030.2557.T8P	1.3	T8PL	DT8PK
DAM32...02A/B	030.3562.T10P	3.5	T10PL	DT10PK
DAM32.025.D...03A/B	030.3569.T10P	3.5	T10PL	DT10PK
DAM32.032.D...03A/B	030.3576.T10P	3.5	T10PL	DT10PK
DAM32.417...03B	030.3569.T10P	3.5	T10PL	DT10PK
DRHD	6.075T15P	5.0	T15PQ	DT15PK
HSK	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.A...	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
L381.D080...	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
L381.D086...	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.G070...	5.10T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.G080...	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
L381.G086/090/098	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.G090...	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.N090...	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
L381.S...	5.15T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
L381.T...	5F.08T20P	5.0 - 5.5	T20PQ	DT20PK
L381.X090...	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
LM275.D...	030.357P.315	2.5 - 3.0	T10PL	DT10PK

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螺钉扭矩

TORQUE OF SCREWS



以下扭矩适用于刀片的螺钉，我们建议对螺钉不要额外使用润滑剂（如铜膏）。
关于扭矩扳手，见章节辅助装置

Following torques are allowed for screws of inserts. We recommend to use no additional gliding means (such as copper paste) for screws. For torque screw drivers please see chapter additional equipment.

型号 type	螺钉 Screw	M _d Nm	夹紧扳手 Clamping wrench	刀板 Blade
M116	5.13T20EP	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
M117K...05	030.265P.0821	1.2	T8PL	DT8PK
M117K...07	030.265P.0819	1.2	T8PL	DT8PK
M117K...09	030.400P.0227	4.3	T15PQ	DT15PK
M117.MD10...	030.400P.0227	4.3	T15PQ	DT15PK
M117U...05	030.265P.0818	1.2	T8PL	DT8PK
M117U...07	2.6.5T8EP	1.2	T8PL	DT8PK
M117P...05	030.265P.0818	1.2	T8PL	DT8PK
M117P...07	2.6.5T8EP	1.2	T8PL	DT8PK
M275	3.5.10T10P	2.5 - 3.0	T10PL	DT10PK
M306	2.6.5T8EP	1.2	T8PL	DT8PK
M308	3.5.12T10EP	3.0	T10PL	DT10PK
M310...03	030.0324.T7P	1.2	T7PL	DT7PK
M310...04	030.3535.T8P	2.0	T8PL	DT8PK
M310...05	030.3543.T8P	2.0	T8PL	DT15PK
M311	4.14T15P	5.0	T15PQ	DT15PK
M311...00.B/E	4.16T15KP	5.0	T15PQ	DT15PK
M313	5.14T20P	6.5	T20PQ	DT20PK / DT20PQ
M313...00.B/E	5.15T20KP	6.5	T20PQ	DT20PK / DT20PQ
M328	5.14T20P	6.5	T20PQ	DT20PK / DT20PQ
M328...00.B/E	5.13T20KP	6.5	T20PQ	DT20PK / DT20PQ
M328.0020.D...	5.17T20P	6.5	T20PQ	DT20PK / DT20PQ
M332	5.17T20P	6.5	T20PQ	DT20PK / DT20PQ
M335	6.17T25P	12.0	T25PQ	DT20PQ
MDR.01...	C009000	0.75	T6W	DT6K
MDR.02/03...	C009001	1.5	T8L	DT8K
MDR.04/05/06...	C009002	1.5	T8L	DT8K
MDR.08/09/10...	C009004	3.5	T15Q	DT15K
R381.X090...	5.12T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
R381.X073...	5F.08T20P	6.0 - 6.5	T20PQ	DT20PK / DT20PQ
RM275.D...	030.357P.315	2.5 - 3.0	T10PL	DT10PK
RM275.T...	3.510.T10P	2.5 - 3.0	T10PL	DT10PK
SM328	5.17T20P	6.5	T20PQ	DT20PK / DT20PQ
Z313...057	5.26T20P	6.5	T20PQ	DT20PK / DT20PQ
Z313...082	5.28T20P	6.5	T20PQ	DT20PK / DT20PQ
Z313...107	5.30T20P	6.5	T20PQ	DT20PK / DT20PQ

尺寸 Dimensions				产品型号 Part number	刀片 Inserts	使用 Use	页 Page		
l_1	d_{g6}	l_2	d_1					Typ	t_{max}
130	12	40	11	M116.0012.01B	116	4.3	20.4		A66
130	12	56	11	M116.0012.02B					
130	16	40	11	M116.0016.01B/E					
130	16	56	11	M116.0016.02B/E					
150	16	80	11	M116.0016.03B/E					
125	25	-	25	M275.031.D25.3.04A	S275	2.5	31		D2 G37
80	12	21	6	M306.0012.01A/B/E	108/306/606	1.0/2.5	9.6/11.7		B2-3
90	12	30	6	M306.0012.02A/B/E					
100	12	42	6	M306.0012.03A/B/E					
100	7.5	-	-	M306.0707.03A		ap max 3.2	11.7		B4
120	10	-	-	M306.1010.03A					
90	12	30	7.3	M306.0712.02A/B/E		0.7/2.0	9.6/11.7		B2-3 G2
100	16	25	7.3	M306.0716.01A/B/E					
110	16	35	7.3	M306.0716.02A/B/E		1.0/2.5	9.6/11.7		B6 B8 B5
16	11	-	6	M306.ER11.02					
37	16	11	6	M306.M081.01					
60	10	15	6	M306.ST10.01A/B					
70	12	15	6	M306.ST12.01A/B					
95	12	29	8	M308.0012.01A/B/E		111/308/608	2.3/3.5	13.4/15.7	
110	12	42	8	M308.0012.02A/B/E					
120	12	56	8	M308.0012.03A/B/E					
160	12	-	12	M308.0012.07A					
110	12	42	9.5	M308.1012.02A/B/E					
110	16	33	9.5	M308.1016.01A/B/E					
110	16	33	9.5	M308.1016.02A/B/E					
110	16	33	9.5	M308.1016.03A/B/E					
16	11	-	8	M308.ER11.02					
22	16	-	8	M308.ER16.02					
22	20	-	8	M308.ER20.02					
37	16	14	8	M308.M081.01					
60	10	18	8	M308.ST10.01A/B					
70	12	18	8	M308.ST12.01A/B					
70	13	26	8	M308.ST13.01A					
100	12	32	9	M311.0012.01A/B/E	311/611	3.5	17.7		B50-51,53 G17 -
100	12	45	9	M311.0012.02A/B/E					
120	12	64	9	M311.0012.03A/B/E					
130	12	20	9	M311.0012.05A		ap max 5.7	17.7		B58
130	12	20	9	SM311.0012.05B/E					
80	12	-	-	M311.0012.D.00A	311	-	17		H2
80	16	-	-	M311.0016.D.00A					
90	16	25	9	M311.0016.00B/E	311/611	3.5	17.7		B50-51,53
100	16	32	9	M311.0016.01A/B/E					
110	16	45	9	M311.0016.02A/B/E					
130	16	64	9	M311.0016.03A/B/E		-	17.7		G17
110	16	32	13	M311.1316.01A/B/E					
130	16	45	13	M311.1316.02A/B/E					
145	16	64	13	M311.1316.03A/B/E					

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尺寸 Dimensions				产品型号 Part number	Typ	刀片 Inserts		使用 Use	页 Page		
l_1	d_{g6}	l_2	d_1			t_{max}	Ds				
22	11	-	9	M311.ER11.02	311/611	3.5	17.7		B56		
22	16	-	9	M311.ER16.02							
22	20	-	9	M311.ER20.02							
22	25	-	9	M311.ER25.02							
19.7	20	-	12.5	M311.ER20.14.01		ap max 5.7		17.7		B72	
19.7	25	-	14.5	M311.ER25.14.01							
37	16	14	9	M311.M081.01		3.5		17.7		B54-55	
60	10	18	9	M311.ST10.01A/B							
70	12	18	9	M311.ST12.01A/B							
70	13	26	9	M311.ST13.01A							
80	16	26	9	M311.ST16.01A							
130	12	-	-	SM313.0012.00B/E	313/613		4.5/3.2				
130	16	25	12	SM313.0016.00B/E							
100	12	-	-	M313.0012.01A/B/E		4.5/3.2	21.7		B78-79		
130	12	-	-	M313.0012.02A/B/E							
93	16	30	11.5	M313.0016.00B/E	313	-	20		H6		
90	16	23	12	SM313.0016.00B/E							
100	16	42	12	M313.0016.01A/B/E	313/613	4.5/3.2	21.7		B78-79		
130	16	60	12	M313.0016.02A/B/E							
160	16	85	12	M313.0016.03A/B/E		-		21.7		G24	
160	16	20	12	M313.0016.07A							
130	16	20	12	SM313.0016.05B/E		4.5/3.2		21.7		-	
160	16	20	12	SM313.0016.07B/E							
80	16	-	-	M313.0016.D00A		313/613		ap max 5.7	21.7		B84
80	20	-	-	M313.0032.D00A							
110	20	45	16	M313.1620.01A/B/E		313/613		-	21.7		G23
130	20	65	16	M313.1620.02A/B/E							
160	20	85	16	M313.1620.03A/B/E							
20	16	-	11.3	M313.ER16.01	313/613	4.5	21.7		B82		
30	16	-	11.3	M313.ER16.02							
20	20	-	11.3	M313.ER20.01							
30	20	-	11.3	M313.ER20.02							
30	25	-	11.3	M313.ER25.02							
30	32	-	11.3	M313.ER32.02							
19.7	25	-	14	M313.ER25.14.01						613	ap max 5.7
19.7	32	-	14	M313.ER32.14.01							
37	16	15	11.3	M313.M081.01	313/613	4.5	21.7		B86		
60	10	-	11.3	M313.ST10.01A	313/613	4.5	21.7		B80-81		
70	12	18	11.3	M313.ST12.01A/B							
70	13	26	11.3	M313.ST13.01A							
80	16	26	11.3	M313.ST16.01A							
80	16	-	-	M328.0016.D.00A	328/628	ap max 5.7	27.7		B122		
80	20	-	-	M328.0020.D.00A							



尺寸 Dimensions				产品型号 Part number	刀片 Inserts			使用 Use	页 Page
l_1	d_{g6}	l_2	d_1		Typ	t_{max}	Ds		
100	16	42	14.3	M328.0016.01A/B/E	325/328/628	5/6.5/9.3	24.8/27.7		B116-117
130	16	60	14.3	M328.0016.02A/B/E					
160	16	85	14.3	M328.0016.03A/B/E					
100	20	42	14.3	M328.0020.01A/B/E					
130	20	60	14.3	M328.0020.02A/B/E					
160	20	85	14.3	M328.0020.03A/B/E					
104	20	35	13.5	M328.0020.00B/E	328	-	24		H8
100	20	25	15	SM328.0020.00B/E					-
130	20	25	15	SM328.0020.05B/E	328/628	-	27.7		G33
145	20	-	20	SM328.0020.06B/E					
160	20	25	15	SM328.0020.07B/E					
200	20	-	20	SM328.0020.08B/E					
250	20	-	-	M328.0020.10A					
145	20	-	-	M328.0020.D.05A/B/E					
160	20	-	-	M328.0020.D.06A/B/E					
180	20	-	-	M328.0020.D.07A/B/E					
120	9	-	-	M328.0909.01A					
100	12	32	9	M328.0912.01A					
94.3	12	26.3	-	M328.0912.01B					
37	16	15	14.3	M328.M081.01		6.5	27.7		B125
35	20	-	14	M328.ER20.02		6.5			
35	25	-	14	M328.ER25.02					
35	32	-	14	M328.ER32.02					
21.7	25	-	-	M328.ER25.16.01	325/328/628	ap max 5.7	24.8/27.7		A121
21.7	32	-	-	M328.ER32.16.01					
70	12	-	14	M328.ST12.01A/B	325/328/628	5.0/6.5	24.8/27.7		B119
70	12	20	9	M328.ST12.2.01A/B					
70	13	-	14	M328.ST13.01					
90	16	36	14	M328.ST16.01					
100	20	36	14	M328.ST20.01					
100	12	32	11	M332.0012.2.01A	332/632/636	10.0	31.7		B139
100	16	32	11	M332.0016.2.01A					
100	16	42	16	M332.0016.01A/B					
130	16	60	16	M332.0016.02A/B					
160	16	85	16	M332.0016.03A/B					
100	20	42	20	M332.0020.01A/B					
130	20	60	20	M332.0020.02A/B					
160	20	85	20	M332.0020.03A/B					
35	20	-	14.3	M332.ER20.02					
70	12	25	11	M332.ST12.2.01A/B					
70	13	25	11	M332.ST13.2.01A					
90	16	36	14.3	M332.ST16.01A					
100	20	36	14.3	M332.ST20.01A					
100	20	40	17.5	M335.0020.01A/B		335			
130	20	60	17.5	M335.0020.02A/B/E					
125	25	23	34	380.0044.03A/B/E	314	4.0	44		E2 G41

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切削参数

CUTTING DATA



使用HTC计算进给率所需的切削速 v_c 和中间厚度 h_m 的标准值

Standard values for cutting speeds v_c and medium thickness h_m for calculating feed rates by calculating cutting program »HCT«.

材料 Material	硬度 Hardness Brinell (HB)	切削速度 v_c Cutting speed v_c				切屑中间厚度 h_m medium thickness of chip h_m				
		MG12	TN35 TI25 TH35	AS45 TA45	*H35	刀片型号 / Insert Type 108.111.116. 306-336. 606-636				
						非常稳定 very rigid	稳定 rigid	不稳定 not rigid		
P	碳钢 Carbon steel	0.2% C	140	-	240	240	200-350	0.05	0.03	0.01
		0.4% C	180	-	210	210	200-300			
		0.6% C	200	-	160	160	150-250			
	合金钢 Alloyed steel	退火 annealed	180	-	150	150	180			
		淬火 quenched	280	-	120	120	160			
		淬火 quenched	350	-	70	70	-			
	高合金钢 high alloyed steel (>5%)	退火 annealed	200	-	70	70	-			
		硬化 hardened	-	-	-	-	-			
	铸钢 Cast steel	非合金 unalloyed	180	80	180	180	-			
合金 alloyed		220	70	120	120	-				
M	不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200	80	130	130	-			
		奥氏体 austenitic	180	70	120	120	-			
K	灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180	70	100	100	-			
		高拉伸强度 high tensile strength	250	60	90	90	-			
	球墨铸铁 Spheroidal gra- phite cast iron	铁素体 ferritic	160	70	100	120	-			
		珠光体 perlitic	250	-	60	60	-			
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125	60	100	100	-			
珠光体 perlitic		225	70	120	120	-				
N	铝合金 Al-alloys	非热处理 not heat treatable	30-80	550	800	-	-			
		热处理 heat treatable	80-120	220	300	-	-			
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80	220	300	-	-			
		热处理 heat treatable	100	100	200	-	-			
	铜合金 Copper-alloys	非热处理 not heat treatable	90	120	-	-	-			
		热处理 heat treatable	100	100	-	-	-			
S	耐热合金 Heat resistant alloy (Fe)	退火 annealed	200	40	80	80	-			
		硬化 hardened	275	30	-	-	-			
	耐热合金 Heat resistant alloy (Ni. Co)	退火 annealed	250	20	40	40	-			
		硬化 hardened	350	15	-	-	-			

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切削参数

CUTTING DATA



使用HTC计算进给率所需的切削速 v_c 和中间厚度 h_m 的标准值

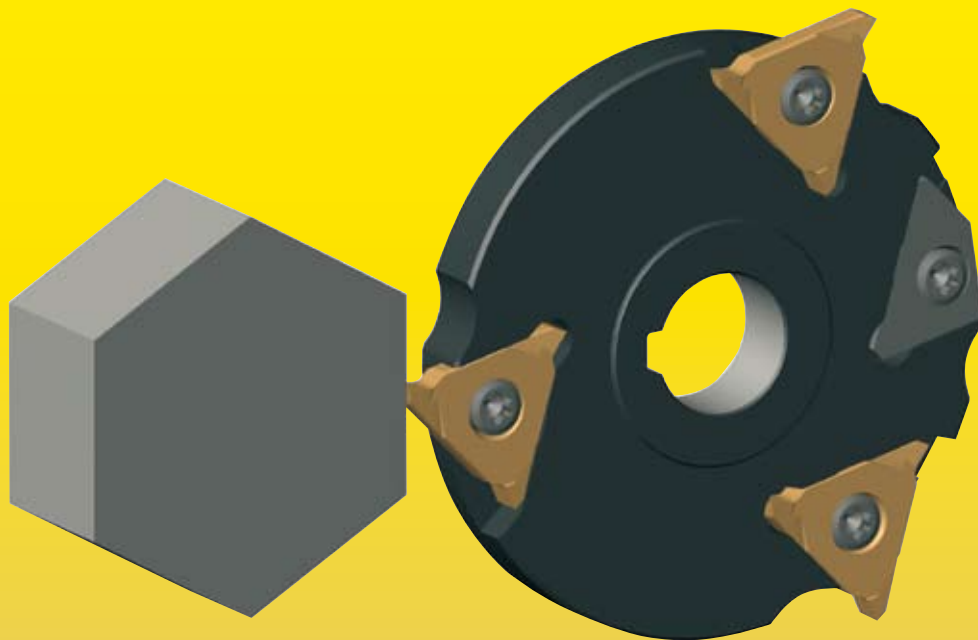
Standard values for cutting speeds v_c and medium thickness h_m for calculating feed rates by calculating cutting program »HCT«.

材料 Material	硬度 Hardness Brinell (HB)	切削速度 v_c Cutting speed v_c				切屑中间厚度 h_m medium thickness of chip h_m				
		MG12	TN35 TI25 TH35	AS45 TA45	*H35	可转位刀片系列 / Indexable Insert Type S310 / 314 / S275				
						非常稳定 very rigid	稳定 rigid	不稳定 not rigid		
P 碳钢 Carbon steel	0.2% C	140	-	240	240	200-350	0.1	0.05	0.03	
	0.4% C	180	-	210	210	200-300				
	0.6% C	200	-	160	160	150-250				
	合金钢 Alloyed steel	退火 annealed	180	-	150	150				180
		淬火 quenched	280	-	120	120				160
		淬火 quenched	350	-	70	70				-
	高合金钢 high alloyed steel (>5%)	退火 annealed	200	-	70	70	-	-	-	-
		硬化 hardened	-	-	-	-	-			
	铸钢 Cast steel	非合金 unalloyed	180	80	180	180	-	-	-	-
		合金 alloyed	220	70	120	120	-			
M 不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200	80	130	130	-	-	-	-	
	奥氏体 austenitic	180	70	120	120	-				
K 灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180	70	100	100	-	0.1	0.05	0.03	
	高拉伸强度 high tensile strength	250	60	90	90	-				
	球墨铸铁 Spheroidal gra- phite cast iron	铁素体 ferritic	160	70	100	120				-
		珠光体 perlitic	250	-	60	60				-
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125	60	100	100				-
		珠光体 perlitic	225	70	120	120				-
N 铝合金 Al-alloys	非热处理 not heat treatable	30-80	550	800	-	-	-	-	-	
	热处理 heat treatable	80-120	220	300	-	-				
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80	220	300	-				-
		热处理 heat treatable	100	100	200	-				-
	铜合金 Copper-alloys	非热处理 not heat treatable	90	120	-	-				-
		热处理 heat treatable	100	100	-	-				-
S 耐热合金 Heat resistant alloy (Fe)	退火 annealed	200	40	80	80	-	-	-	-	
	硬化 hardened	275	30	-	-	-				
	耐热合金 Heat resistant alloy (Ni, Co)	退火 annealed	250	20	40	40				-
		硬化 hardened	350	15	-	-				-

仅314系列刀片材质可为金属陶瓷
*Cermet only indexable insert type 314 available

铣刀

用于可加工多边形的机床上



K

Cutter

For use on lathes with ability to machine polygon profiles.

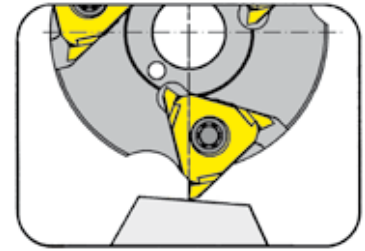
多边形铣削

POLYGON MILLING



铣刀 型号
CUTTER Type

381

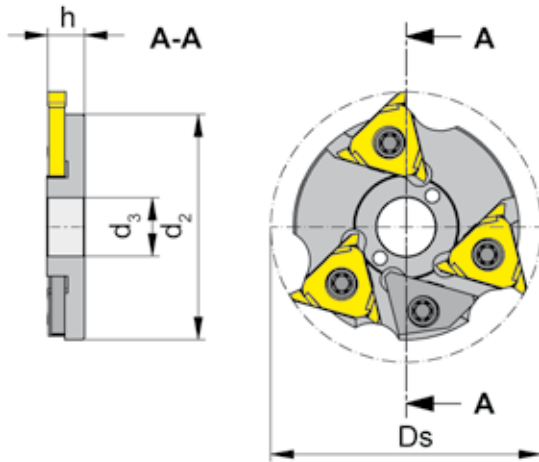


切削刃Ø

Cutting edge Ø

Ds 60 mm

用于机床：Star SR-20J
for machine: Star SR-20J



图示=左手型切削
Picture = left hand cutting version

配合刀片N314-MK40-20
for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
L381.A060.13.04	N314...	60	50	13	8.2	4.5	Star SR-20J

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.A060.13.04	5F.08T20P	T20PQ	N314.AT30.HM

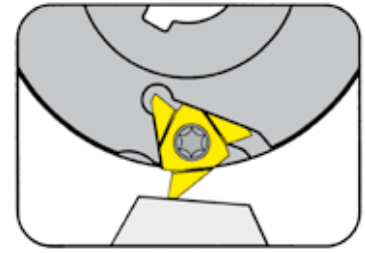
多边形铣削

POLYGON MILLING



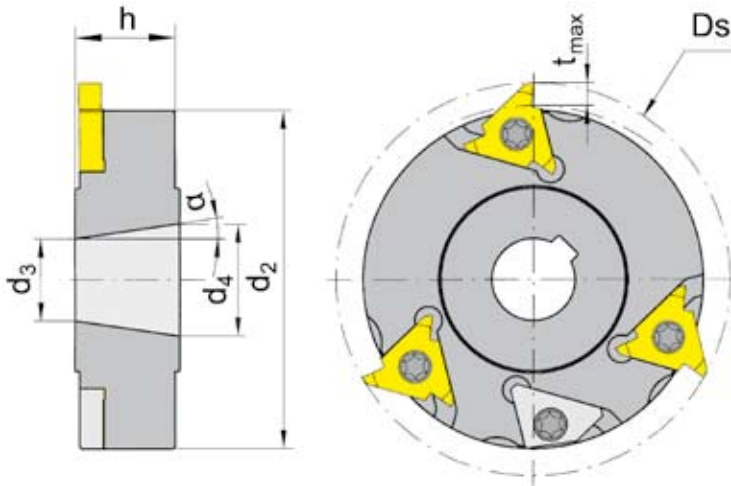
铣刀 型号
CUTTER Type

381



切削刃Ø Cutting edge Ø Ds 70/86/98 mm

适用机床 : **Gildemeister**
for machine: **Gildemeister**



图示=左手型切削
Picture = left hand cutting version

用于刀片 **L314.MK50...**
for inserts **L314.MK50...**

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	α	t _{max}	机床型号 Machine type
L381.G070.15.04	L314...	70	58	11.5	15.0	15	8°16'	5	GLD25/GD32
L381.G086.25.04	L314...	86	74	18.0	24.7	23	8°16'	5	GM20-6.-35-8/GMC35
L381.G098.26.04	L314...	98	86	20.0	25.8	23	8°32'	5	GM35-6.-35-8.-42-6/GMC35

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.G070.15.04 L381.G0...04	5.10T20P 5.12T20P	T20PQ T20PQ	N314.AT40.HM N314.AT40.HM



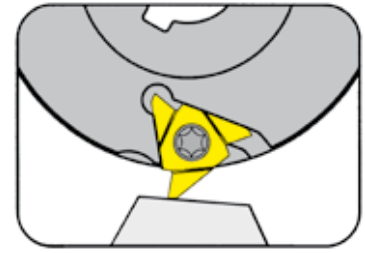
多边形铣削

POLYGON MILLING



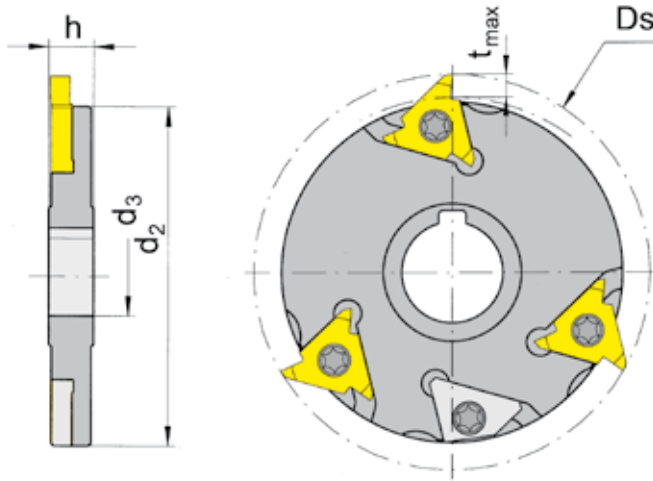
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	Ds 80 mm
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适用机床：Gildemeister
for machine: Gildemeister



图示=左手型切削
Picture = left hand cutting version

配合刀片N314-MK40-20
for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	t _{max}	机床型号 Machine type
L381.G080.16.04	N314...	80	68	16	16	9	5	SPRINT 20/32

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.G080.16.04	5F.08T20P	T20PQ	L314.AT30.HM

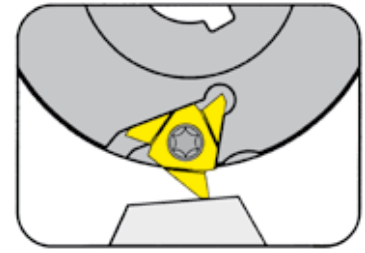
多边形铣削

POLYGON MILLING



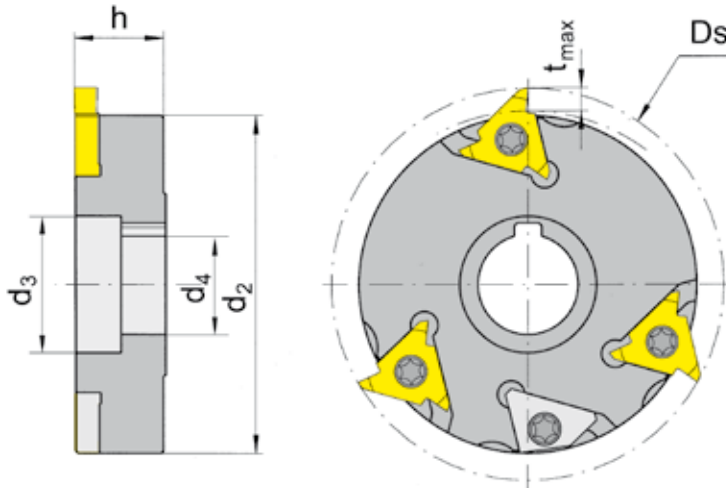
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	Ds 90 mm
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适用机床：Gildemeister
for machine: Gildemeister



图示=左手型切削
Picture = left hand cutting version

用于刀片 L314.MK50...
for inserts L314.MK50...

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	t _{max}	机床型号 Machine type
L381.G090.22.04	L314...	90	78	30	22	20	5	SPRINT32L/-42L

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.G090.22.04	5.12T20P	T20PQ	N314.AT40.HM



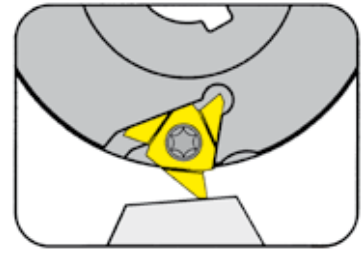
多边形铣削

POLYGON MILLING



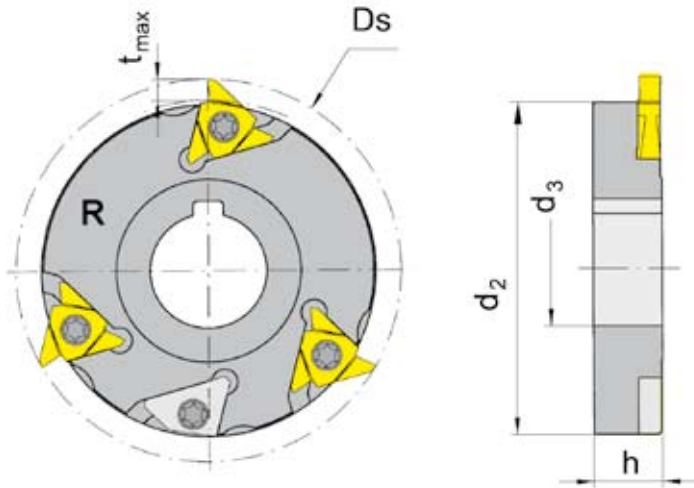
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	Ds 90 mm
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适用机床：INDEX
for machine: INDEX



图示=右手型
Picture = right hand cutting version

R=右手型
R = right hand version

用于刀片R/L314-MK50...
for inserts R/L314-MK50...

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
L381.X090.27.04 R381.X090.27.04	L314... R314...	90	78	27	16.2	5	Index ABC

注明R或L型
State R or L version

尺寸单位：mm
Dimensions in mm

按需提供更多尺寸
Further sizes upon request

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
R/L381.X090.27.04	5.12T20P	T20PQ	020.0314.1531

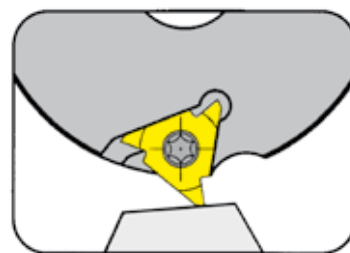
多边形铣削

POLYGON MILLING



铣刀 型号
CUTTER Type

381

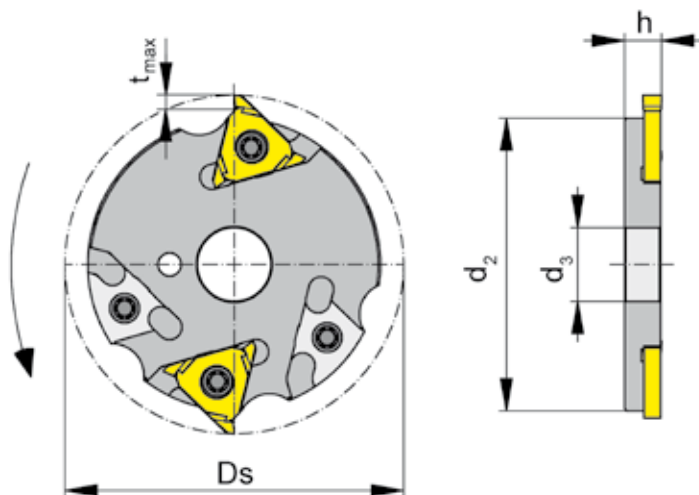


切削刃Ø

Cutting edge Ø

Ds 73.5 mm

适用机床：INDEX
for machine: INDEX



图示=右手型
Picture = right hand cutting version

配合刀片N314-MK40-20
for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
R381.X073.16.04	N314...	73.5	63.5	16	8	5	INDEX MS25

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
R381.X073.16.04	5F.08T20P	T20PQ	R314.AT30.HM

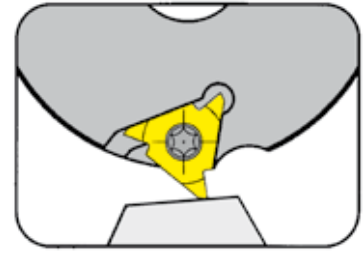
多边形铣削

POLYGON MILLING



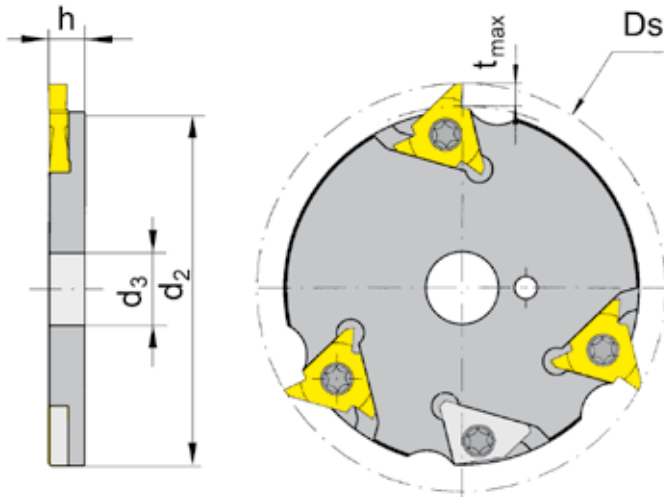
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	90.0 mm
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适用机床：Nakamura
for machine: Nakamura



图示=左手型切削
Picture = left hand cutting version

配合刀片N314-MK40-20
for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
L381.N090.16.04	N314...	90	80	16	7.8	5	WT250

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

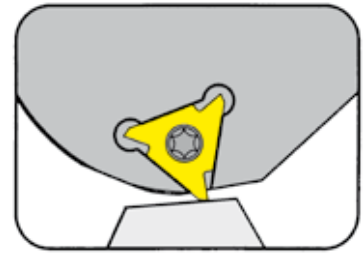
铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.N090.16.04	5F.08T20P	T20PQ	L314.AT30.HM

多边形铣削 POLYGON MILLING



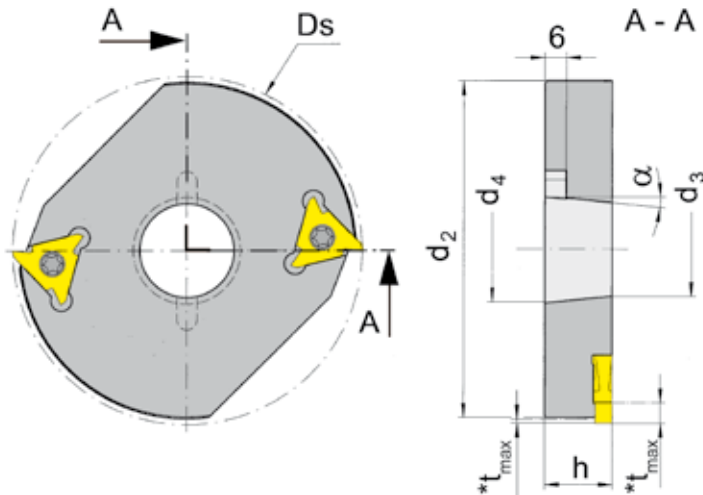
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	Ds 78/98/118 mm
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适用机床 : A.H. Schütte
for machine: A.H. Schütte



图示=左手型切削
Picture = left hand cutting version

配合刀片L314-MK70-M0
for insert L314-MK70-M0

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	α	t _{max}	机床型号 Machine type
L381-S078-30-02	L314...	78	66.0	26.3	30.1	19	5°42'38"	*	SG18.SG20.AG18
L381-S098-30-02	L314...	98	94.6	26.3	30.1	19	5°42'38"	*	SG20/SF26.-S.-L/SE18/AF26.32
L381-S118-30-02	L314...	118	115.0	26.3	30.1	19	5°42'38"	*	SF32.42.51.67/AF42

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

注意事项 :
增强型接口 , 可轴向进给

Note:
reinforced pocket, feed in axial direction

* t_{max} 侧铣削=5.0mm/槽铣削=1.2mm
* t_{max} Side Milling = 5,0 mm / Groove Milling = 1,2 mm

螺丝的扭矩规格 , 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
L381.S...	5.15T20P	T20PQ

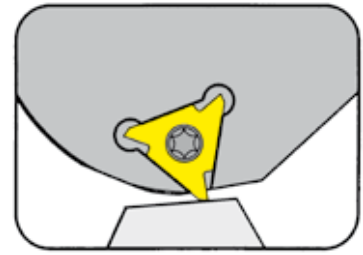


多边形铣削 POLYGON MILLING



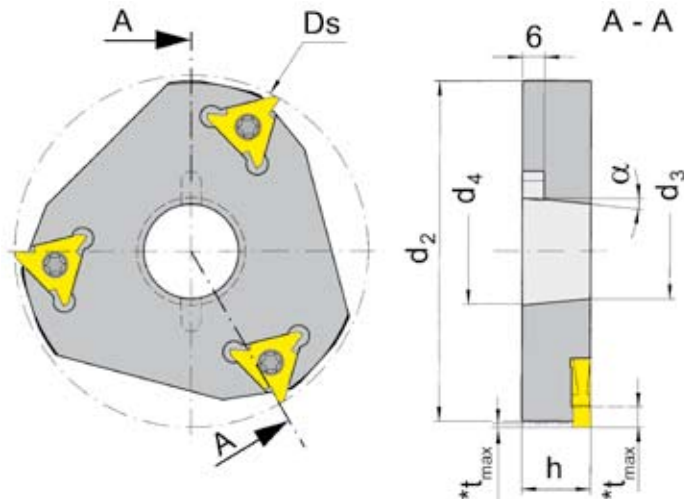
铣刀 型号
CUTTER Type

381



切削刃Ø Cutting edge Ø Ds 79/98/118 mm

适用机床：A.H. Schütte
for machine: A.H. Schütte



图示=左手型切削
Picture = left hand cutting version

配合刀片L314-MK70-M0
for insert L314-MK70-M0

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	α	t _{max}	机床型号 Machine type
L381.S078.30.03	L314...	78	77.0	26.3	30.1	19	5°42'38"	*	SG18.SG20.AG18
L381.S098.30.03	L314...	98	94.6	26.3	30.1	19	5°42'38"	*	SG20/SF26.-S.-L/SE18/AF26.32
L381.S118.30.03	L314...	118	115.0	26.3	30.1	19	5°42'38"	*	SF32.42.51.67/AF42

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

注意事项：
增强型接口，可轴向进给

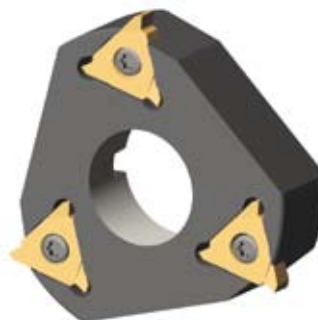
Note:
reinforced pocket, feed in axial direction

* t_{max} 侧铣削=5.0mm/槽铣削=1.2mm
* t_{max} Side Milling = 5,0 mm / Groove Milling = 1,2 mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
L381.S...	5.15T20P	T20PQ



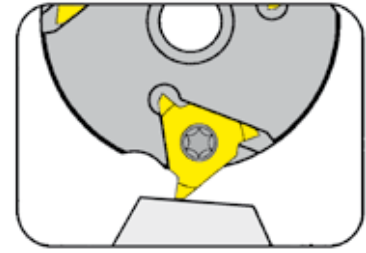
多边形铣削

POLYGON MILLING



铣刀 型号
CUTTER Type

381

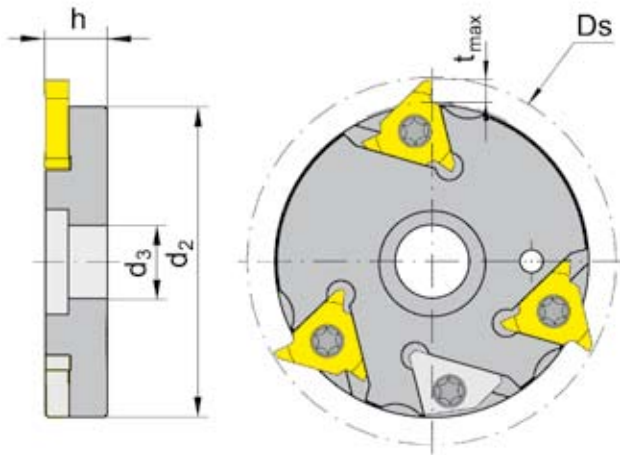


切削刃Ø

Cutting edge Ø

Ds 80 mm

适用机床：Tornos
for machine: Tornos



图示=左手型切削
Picture = left hand cutting version

配合刀片N314-MK40-20
for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
L381.D080.16.04	N314...	80	57.5	16	13.6	5	DECO 2000/ DECO 13/20/26

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.D080.16.04	5F.08T20P	T20PQ	L314.AT30.HM

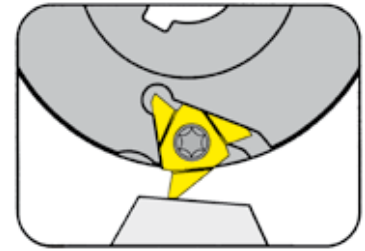
多边形铣削

POLYGON MILLING



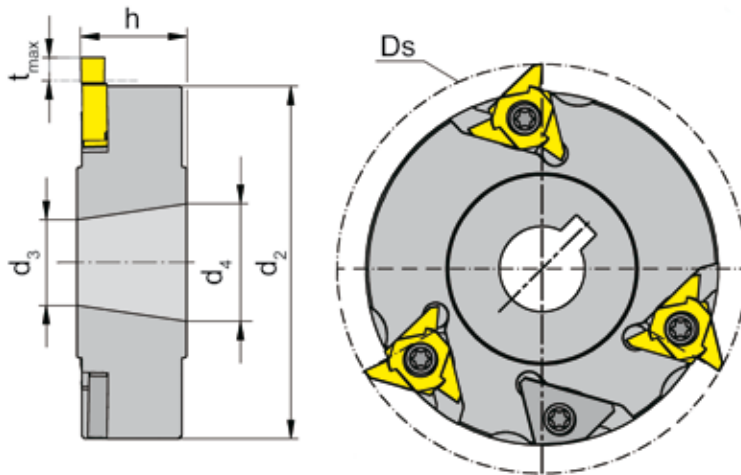
铣刀 型号
CUTTER Type

381



切削刃Ø	Cutting edge Ø	Ds 86 mm
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适用机床 : Tornos
for machine: Tornos



图示=左手型切削
Picture = left hand cutting version

用于刀片 L314.MK50...
for inserts L314.MK50...

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	d ₄	h	t _{max}	机床型号 Machine type
L381.D086.25.04	L314...	86	74	18	24.7	23	5	Tornos Multi-Deco

按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.D086.25.04	5.12T20P	T20PQ	N314.AT40.HM



多边形铣削

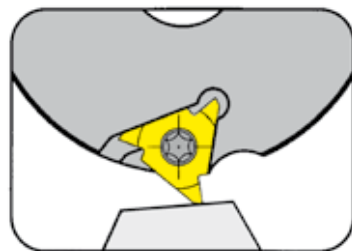
POLYGON MILLING



铣刀 型号

381

CUTTER Type



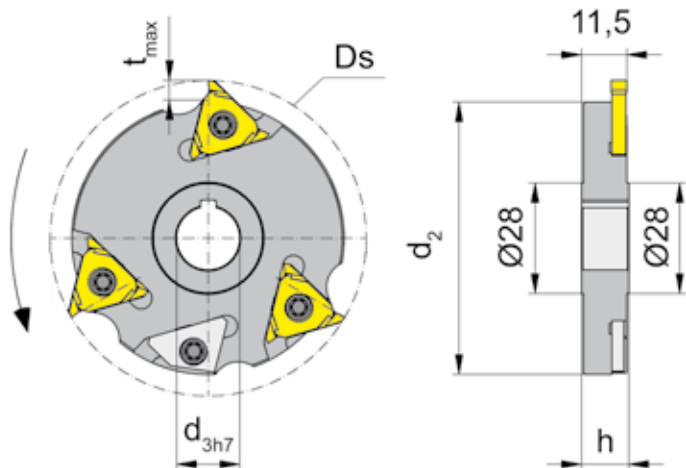
切削刃Ø

Cutting edge Ø

Ds 80.0 mm

适用机床: Traub

for machine: Traub



图示=右手型

Picture = right hand cutting version

配合刀片N314-MK40-20

for insert N314-MK40-20

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
R381.T080.16.04	N314...	80	69	16	12	5	TRAUB TNL18

按需提供更多尺寸

Further sizes upon request

尺寸单位: mm

Dimensions in mm

螺丝的扭矩规格, 详见技术说明。

For torque specifications of the screw, please see Technical Instructions.



附件

Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
R381.T080.16.04	5F.08T20P	T20PQ	R314.AT40.HM

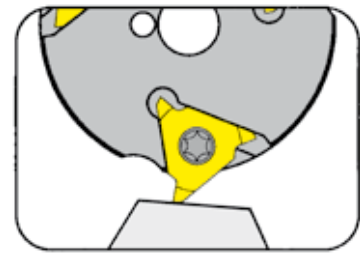
多边形铣削

POLYGON MILLING



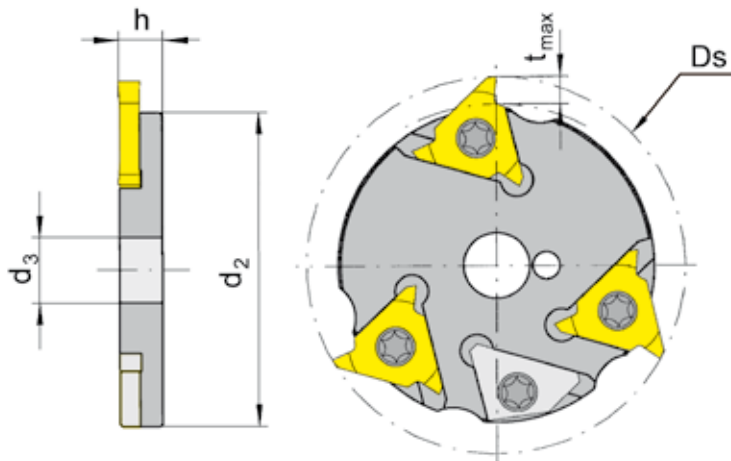
铣刀 型号
CUTTER Type

381



切削刃Ø Cutting edge Ø Ds 69 mm

适用机床: **Traub**
for machine: **Traub**



图示=左手型切削
Picture = left hand cutting version

配合刀片 **N314-MK40-20**
for insert **N314-MK40-20**

产品型号 Part number	刀片 Insert	Ds	d ₂	d ₃	h	t _{max}	机床型号 Machine type
L381.T069.12.04	N314...	69	57.5	12	8	5	TNL12-7/TNL26/TNK36

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
L381.T069.12.04	5F.08T20P	T20PQ	L314.AT30.HM

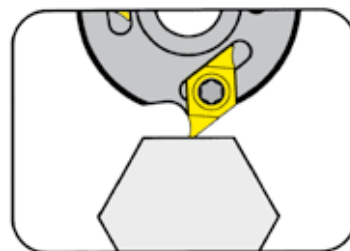
多边形铣削

POLYGON MILLING



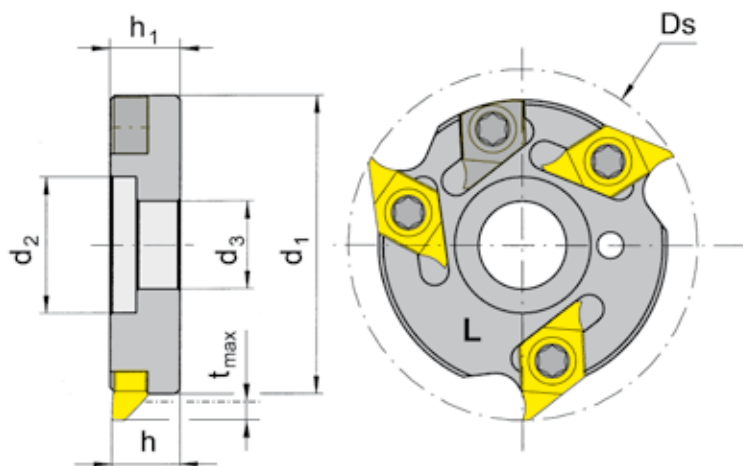
铣刀 型号
CUTTER Type

M275



切削刃Ø	Cutting edge Ø	Ds 40 mm
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适用机床：Tornos
for machine: Tornos



图示=左手型切削
Picture = left hand cutting version

L=左手型
L = left hand version

配合刀片R/LS275.MK13.M0
for insert R/LS275.MK13.M0

产品型号 Part number	刀片 Insert	Ds	d ₁	d ₂	d ₃	h	h ₁	t _{max}	机床型号 Machine type
LM275.D040.10.04 RM275.D040.10.04	LS275... RS275...	40	33	15.5	10	7.9	8	3	DECO 7/10

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	平衡块 Balance element
LM275.D040.10.04 RM275.D040.10.04	030.357P.315 030.357P.315	T10PL T10PL	LS275.AT41.HM RS275.AT41.HM

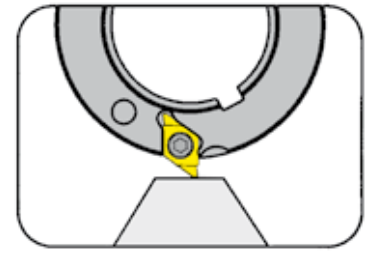


多边形铣削 POLYGON MILLING



铣刀 型号
CUTTER Type

M275

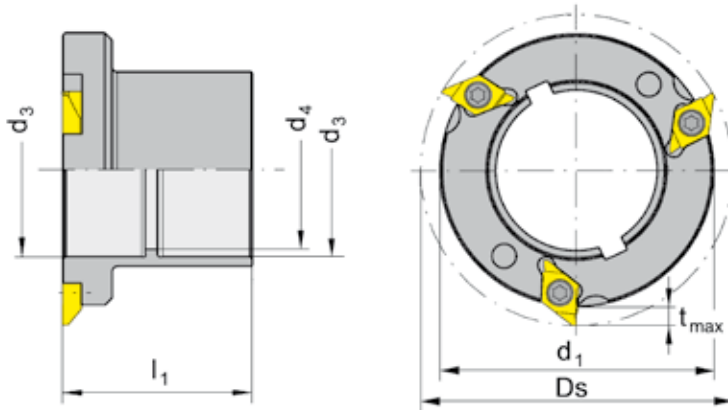


切削刃Ø

Cutting edge Ø

Ds 64 mm

适用机床: Traub
for machine: Traub



图示=右手型
Picture = right hand cutting version

配合刀片RS275-MK13-M0
for insert RS275-MK13-M0

产品型号 Part number	刀片 Insert	Ds	d ₁	l ₁	d ₃	d ₄	t _{max}	机床型号 Machine type
RM275.T064.33.03	RS275...	64	56	39	36	33	3	TNL12-7 副主轴/subspindle

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

螺丝的扭矩规格, 详见技术说明。
For torque specifications of the screw, please see Technical Instructions.



附件
Spare parts

铣刀 Cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
RM275.T064.33.03	3.5.10.T10P	T10PL

多边形铣削

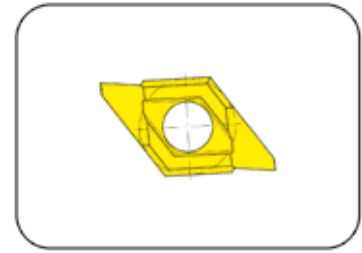
POLYGON MILLING



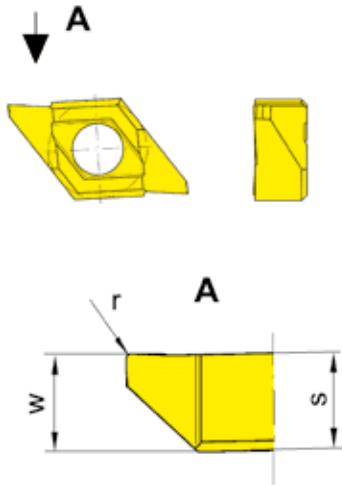
可转位刀片 型号

INDEXABLE INSERT Type

S275



铣削宽度	Width of milling	4.0 mm
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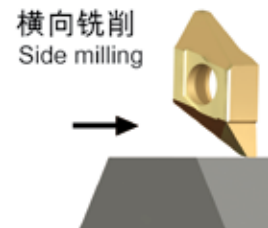


R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

配合 铣刀
for use with Cutter

型号 M275
Type



产品型号 Part number	w	s	r		MG12	TN35	Ti25	TA45	AS45
R/LS275.MK13.M0	4	3.9	0.2				▲/▲		▲/▲
▲ 库存 / on stock Δ 4周 / 4 weeks					P		•		•
● 主要应用 / main recommendation					M		•		•
○ 可选推荐 / alternative recommendation					K		•		•
■ 无涂层牌号 / uncoated grades					N		•		○
■ 涂层牌号 / coated grades					S		•		•
■ 钎焊/金属陶瓷 / brazed/Cermet					H				

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

按需提供更多尺寸
Further sizes upon request

硬质合金牌号
Carbide grades

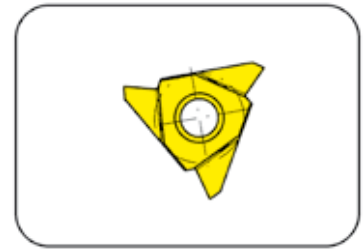


多边形铣削 POLYGON MILLING

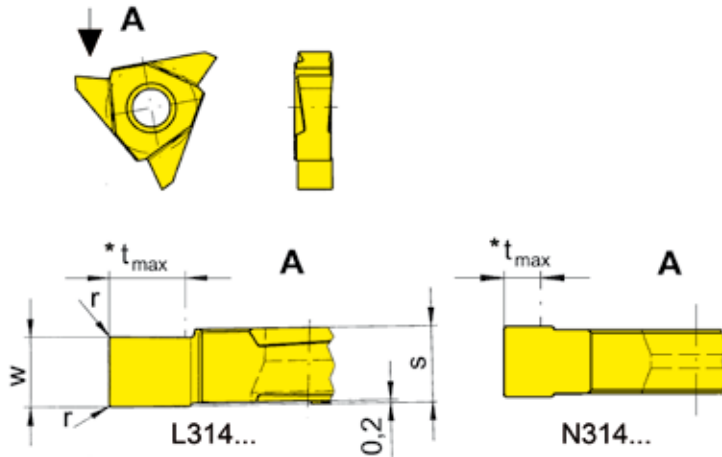


可转位刀片 型号
INDEXABLE INSERT Type

314/N314

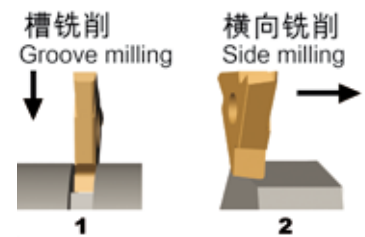


铣削宽度	Width of milling	4.0 - 7.0 mm
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配合 铣刀
for use with Cutter

型号 381
Type



产品型号 Part number	w	s	r	Operation Operation	硬质合金牌号				
					MG12	TN35	TI25	TA45	AS45
N314.MK40.20	4	3.6	-	1 + 2	▲		▲		▲
R/L314.MK50.20	5	5.2	0.15	1 + 2			▲/▲		▲/▲
L314.MK70.M0	7	7.4	0.15	1 + 2		▲	▲		▲
▲ 库存 / on stock Δ 4周 / 4 weeks					P	○	●	●	●
● 主要应用 / main recommendation					M	●	●	●	●
○ 可选推荐 / alternative recommendation					K	●	●	●	●
■ 无涂层牌号 / uncoated grades					N	●	●	●	○
■ 涂层牌号 / coated grades					S	●	●	●	●
■ 钎焊/金属陶瓷 / brazed/Cermet					H				

尺寸单位 : mm

Dimensions in mm

注明R, L或N型

State R, L or N version

按需提供更多尺寸

Further sizes upon request

硬质合金牌号

Carbide grades

* t _{max}	槽铣削 (1) Groove Milling	横向铣削 (2) Side Milling
N314.MK40.20		2,5
R/L314.MK50.20	见铣刀杆 / see cutter	5,0
L314.MK70.M0		5,0

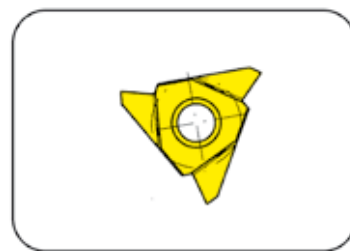
多边形铣削 POLYGON MILLING



可转位刀片 型号

INDEXABLE INSERT Type

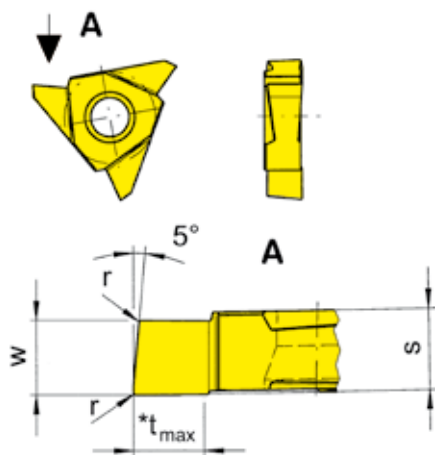
314



铣削宽度

Width of milling

5.0 - 5.4 mm



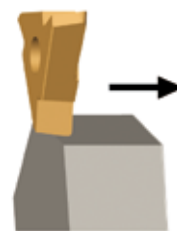
配合 铣刀

for use with Cutter

型号 381

Type

横向铣削
Side milling



L=左手型-如图

L = left hand version shown

R=右手型

R = right hand version

产品型号 Part number	w	s	r	t _{max}	MG12	TN35	TI25	TA45	AS45
R/L314.MK50.5.20	5.0	5.4	0.15	5			▲/▲		▲/
L314.MK50.20L	5.4	5.4	0.60	5			▲		▲
R314.MK50.20L							▲	▲	
▲ 库存 / on stock Δ 4周 / 4 weeks					P		•		•
• 主要应用 / main recommendation					M		•		•
○ 可选推荐 / alternative recommendation					K		•		•
■ 无涂层牌号 / uncoated grades					N		•		○
■ 涂层牌号 / coated grades					S		•		•
■ 钎焊/金属陶瓷 / brazed/Cermet					H				

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

按需提供更多尺寸

Further sizes upon request

硬质合金牌号
Carbide grades



多边形铣削的工作原理

多边形铣削介绍了使用多边形铣削刀具在CNC车床、Swiss机床或多主轴机床上加工旋转工件。

工件（主轴）和铣刀（动力座）必须同步转动。

该操作仅仅适用于常规铣削！

面数决定于工件和铣刀的转速比以及铣刀上的刀片数量。

当转速为2:1时，产生的平面为微凸型。这形状误差适合大多数应用，例如对边型。

当转速为1:1时，平面凸起较大，将不适合对边型。

当转速为3:1时，平面有较大的凹陷，也不适合对边型。

根据这一点可知，工件上的平面数是刀片数的两倍。

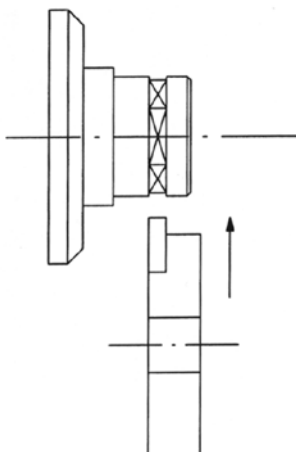
必须通过参数计算平面形状：

1. 多边形铣刀的铣削直径
2. 对边型尺寸
3. 工件加工前直径
4. 面数
5. 工件和铣刀的转速比

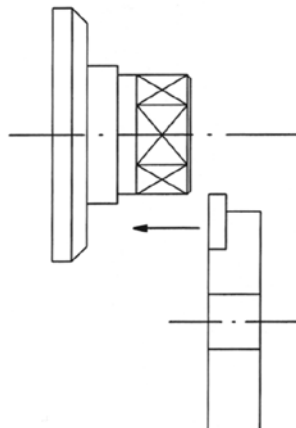
可通过切槽或车削加工出这些平面，通过仿形去倒角（去毛刺）。



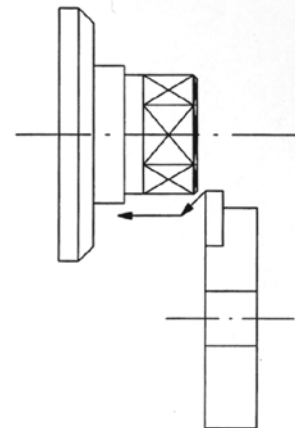
槽铣削



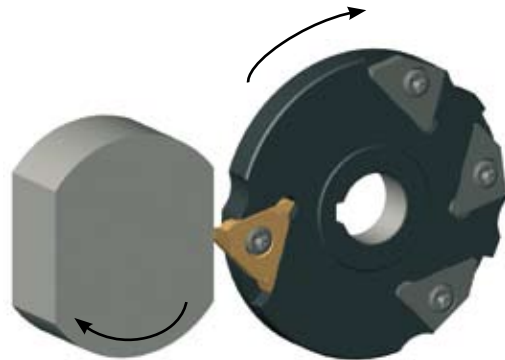
横向铣削



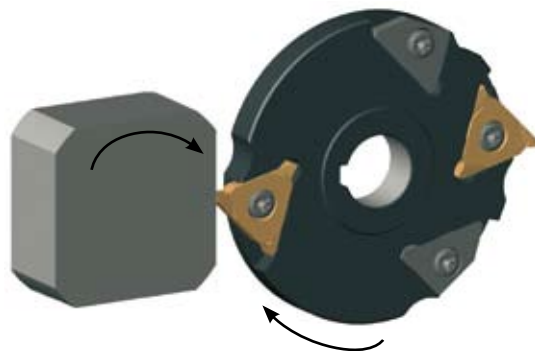
仿形和横向铣削



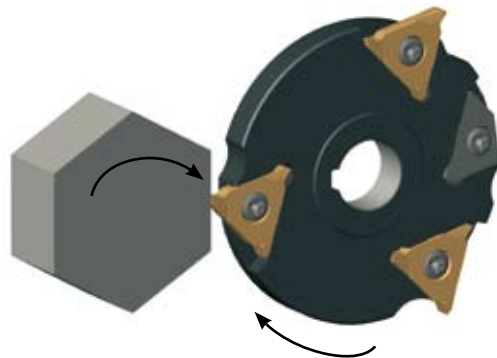
两面体，使用1个刀片，刀盘转速 2:1 主轴转速.



四面体，使用2个刀片. 刀盘转速 2:1 主轴转速.



六面体，使用3个刀片，刀盘转速 2:1 主轴转速.



K

The concept of Polygon Milling

Polygon milling describes the manufacturing of flats while rotating components with polygon milling cutters on CNC lathes, Swiss Automatics lathes or Multi Spindle machines. The component (main spindle) and the milling cutter (live tool) have to run with synchronized rotations.

The operation only works in conventional milling!

The number of flats depends on the rotation ratio between component and milling cutter as well as on the number of inserts of the milling cutter.

At a revolution ratio of 2:1, the shape of the produced flats are little convex. The form error is suitable for most applications such as across-flats.

At a revolution ratio of 1:1, the shape of the produced flats are heavily convex. This shape is not suitable for across-flats.

At a revolution ratio of 3:1, the shape of the produced flats are heavily concave. This shape is as well not suitable for across-flats.

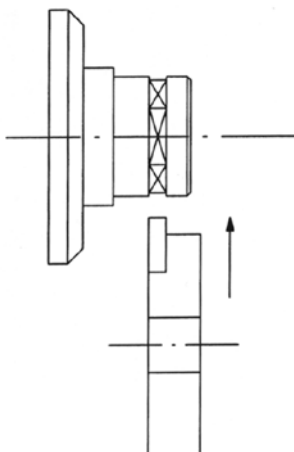
According to this, the number of flats at the component is twice the number of cutting inserts on the milling cutter.

To calculate the shape of the flats following parameter are necessary:

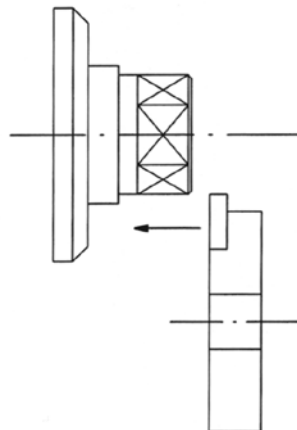
1. Cutting diameter of the polygon milling cutter
2. Across-flats dimension
3. Premachined diameter of the component
4. Number of flats
5. Revolution ratio of component and milling cutter

The flats can be produced by grooving or by turning. Chamfers can be produced by profiling (deburring).

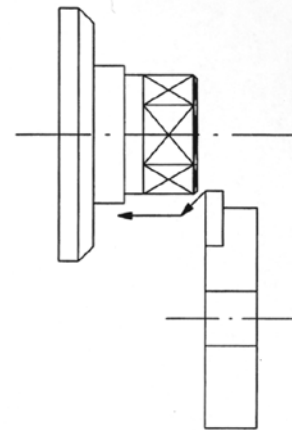
Groove milling



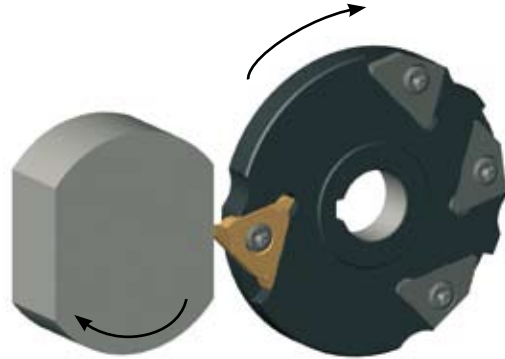
Side milling



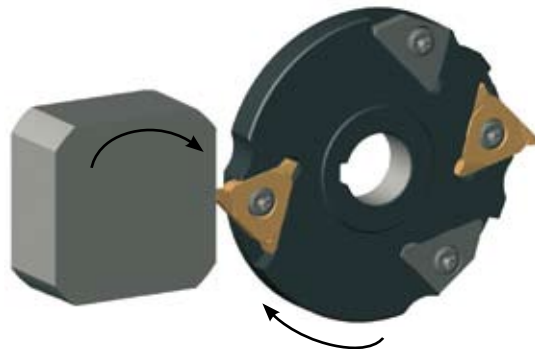
Profiling and Side milling



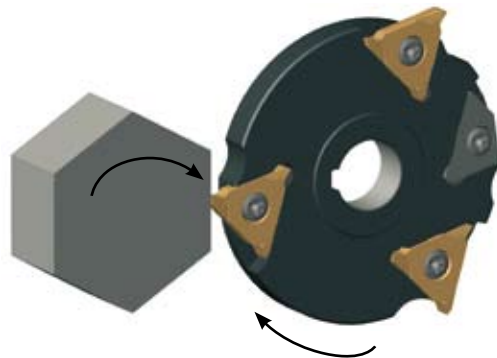
Two flats machined with 1 cutting edge. Revolution ratio 2:1 to the main spindle.



Four flats machined with 2 cutting edges. Revolution ratio 2:1 to the main spindle.



Six flats machined with 3 cutting edges. Revolution ratio 2:1 to the main spindle.



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规格	铣刀上刀片数量	比率=刀具 : 主轴	生成的平面
	1	1 : 1	不适合, 大凸面
	2 1	1 : 1 2 : 1	不适合, 小凸面 非常适合, 小凸面
	3 2 1	1 : 1 1.5 : 1 3 : 1	不适合, 凸面 适合, 凹面 非常适合, 小凹面
	2 1	2 : 1 4 : 1	非常适合, 小凸面 不适合, 凹面
	3 2 1	1.66 : 1 2.5 : 1 5 : 1	适合, 凸面 非常适合, 小凹面 不适合, 凹面
	3 2	2 : 1 3 : 1	非常适合, 小凸曲面 不适合, 凹曲面
	4 2	2 : 1 4 : 1	非常适合, 小凸曲面 不适合, 凹曲面

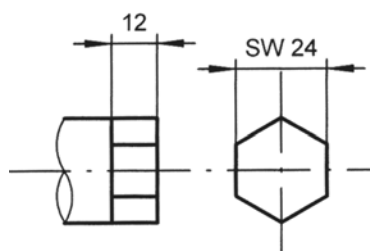
切削参数

材料	牌号	v_c m/min	进给率 f_z mm	
			横向铣削	槽铣削
Al	MG12	500 - 1000	0,10 - 0,20	0,05 - 0,10
Ms58	MG12	500 - 1000	0,10 - 0,20	0,05 - 0,10
9SMnPb28	TI25	200 - 500	0,08 - 0,15	0,04 - 0,08
16MnCr5/C45	TI25	150 - 250	0,05 - 0,10	0,03 - 0,05

进给率值仅仅适合横向铣削！
切槽工艺中进给率需降低30 - 50 %，同时受刀片宽度影响。

例如：
横向铣削
材料: 钢

铣刀 \varnothing 90 mm
SW 24 mm (\varnothing 27,7 mm)
 $v_{c\text{eff}} = 448,00$ m/min
 $f_z = 0,08$ mm
3 刃, $l = 2:1$
边长: 12 mm
节拍: $\sim 2,19$ s



工具:
 $n_{wz} = 1372,00$ mm⁻¹
 $v_{c\text{wz}} = 388,25$ mm/min
工件:
 $n_{ws} = 686,00$ mm⁻¹
 $v_{c\text{ws}} = 59,75$ mm/min

Form	No. of inserts on the cutter	Ratio = Tool:Spindel	Flats
	1	1 : 1	not suitable, heavily convex
	2 1	1 : 1 2 : 1	not suitable, convex very suitable, little convex
	3 2 1	1 : 1 1.5 : 1 3 : 1	not suitable, convex suitable, convex very suitable, little concave
	2 1	2 : 1 4 : 1	very suitable, little convex not suitable, concave
	3 2 1	1.66 : 1 2.5 : 1 5 : 1	suitable, convex very suitable, little concave not suitable, concave
	3 2	2 : 1 3 : 1	very suitable, little convex not suitable, concave
	4 2	2 : 1 4 : 1	very suitable, little convex not suitable, concave

Cutting data

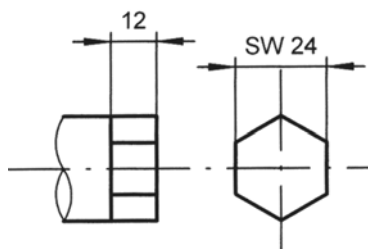
Material	Grades	v_c m/min	Feed rate f_z mm	
			Side milling	Groove milling
Al	MG12	500 - 1000	0,10 - 0,20	0,05 - 0,10
Ms58	MG12	500 - 1000	0,10 - 0,20	0,05 - 0,10
9SMnPb28	TI25	200 - 500	0,08 - 0,15	0,04 - 0,08
16MnCr5/C45	TI25	150 - 250	0,05 - 0,10	0,03 - 0,05

Feed rate values only valid for side milling process!

At groove milling process the feed rate has to be reduced by 30 - 50 %, depending on the insert width!

Example:
Side milling
Material: Steel

Cutter \varnothing 90 mm
SW 24 mm (\varnothing 27,7 mm)
 $v_{c\text{eff}} = 448,00$ m/min
 $f_z = 0,08$ mm
3 Cutting edges, $l = 2:1$
Flat length: 12 mm
Cycle time: $\sim 2,19$ s



Tool:
 $n_{wz} = 1372,00$ mm⁻¹
 $v_{c\text{wz}} = 388,25$ mm/min

Workpiece:
 $n_{ws} = 686,00$ mm⁻¹
 $v_{c\text{ws}} = 59,75$ mm/min

生产厂商 Machine manufacturer	机床 Machine	铣刀 Cutter	可转位刀片 Indexable inserts	Z	n _{max} n _{max} 铣刀 Milling cutter
Gildemeister	GD32	L381.G070.15.04	L314.MK50.20 TN35	2/3	13,000 min-1
Gildemeister	GLD25	L381.G070.15.04	L314.MK50.20 TN35	2/3	13,000 min-1
Gildemeister	GM20-6	L381.G086.25.04	L314.MK50.20 TN35	2/3	11,000 min-1
Gildemeister	GM26-6	L381.G080.16.04	L314.MK40.20 TN35	2/3	12,000 min-1
Gildemeister	GM35-6	L381.G098.26.04	L314.MK50.20 TN35	2/3	10,000 min-1
Gildemeister	GM35-8	L381.G086.25.04	L314.MK50.20 TN35	2/3	11,000 min-1
Gildemeister	GM35-8	L381.G098.26.04	L314.MK50.20 TN35	2/3	10,000 min-1
Gildemeister	GM42-6	L381.G098.26.04	L314.MK50.20 TN35	2/3	10,000 min-1
Gildemeister	GMC35	L381.G086.25.04	L314.MK50.20 TN35	2/3	11,000 min-1
Gildemeister	GMC35	L381.G098.26.04	L314.MK50.20 TN35	2/3	10,000 min-1
Gildemeister	SPRINT20/32	L381.G080.16.04	L314.MK40.20 TN35	2/3	12,000 min-1
Gildemeister	SPRINT32L	L381.G090.22.04	L314.MK50.20 TN35	2/3	13,000 min-1
Gildemeister	SPRINT44L	L381.G090.22.04	L314.MK50.20 TN35	2/3	13,000 min-1
INDEX	ABC	R381.X090.27.04	R314.MK50.20 TN35	2/3	11,000 min-1
INDEX	ABC	L381.X090.27.04	L314.MK50.20 TN35	2/3	11,000 min-1
INDEX	MS25	L381.X073.16.04	N314.MK40.20 TN35	2/3	13,000 min-1
NAKAMURA	WT250	L381.N090.16.04	N314.MK40.20 TN35	2/3	11,000 min-1
Alfred H. Schütte	AF26	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	AF26	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	AF32	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	AF32	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	AF42	L381.S118.30.03	L314.MK70.M0 TN35	3	12,000 min-1*
Alfred H. Schütte	AF42	L381.S118.30.02	L314.MK70.M0 TN35	2	12,000 min-1*
Alfred H. Schütte	AG18	L381.S078.30.03	L314.MK70.M0 TN35	3	20,000 min-1*
Alfred H. Schütte	AG18	L381.S078.30.02	L314.MK70.M0 TN35	2	20,000 min-1*
Alfred H. Schütte	SE18	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	SE18	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	SF20	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	SF20	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	SF26L	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	SF26L	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	SF26	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	SF26S	L381.S098.30.03	L314.MK70.M0 TN35	3	15,000 min-1*
Alfred H. Schütte	SF26S	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	SF26	L381.S098.30.02	L314.MK70.M0 TN35	2	15,000 min-1*
Alfred H. Schütte	SF32	L381.S118.30.03	L314.MK70.M0 TN35	3	12,000 min-1*
Alfred H. Schütte	SF32	L381.S118.30.02	L314.MK70.M0 TN35	2	12,000 min-1*
Alfred H. Schütte	SF42	L381.S118.30.03	L314.MK70.M0 TN35	3	12,000 min-1*
Alfred H. Schütte	SF42	L381.S118.30.02	L314.MK70.M0 TN35	2	12,000 min-1*
Alfred H. Schütte	SF51	L381.S118.30.03	L314.MK70.M0 TN35	3	12,000 min-1*
Alfred H. Schütte	SF51	L381.S118.30.02	L314.MK70.M0 TN35	2	12,000 min-1*
Alfred H. Schütte	SF67	L381.S118.30.03	L314.MK70.M0 TN35	3	12,000 min-1*
Alfred H. Schütte	SF67	L381.S118.30.02	L314.MK70.M0 TN35	2	12,000 min-1*
Alfred H. Schütte	SG18	L381.S078.30.03	L314.MK70.M0 TN35	3	20,000 min-1*
Alfred H. Schütte	SG18	L381.S078.30.02	L314.MK70.M0 TN35	2	20,000 min-1*
Alfred H. Schütte	SG20	L381.S078.30.03	L314.MK70.M0 TN35	3	20,000 min-1*
Alfred H. Schütte	SG20	L381.S078.30.02	L314.MK70.M0 TN35	2	20,000 min-1*
TORNOS	Deco7/10	R/LM275.D040.10.04	R/LS275.MK13.M0 TN35	2/3	15,000 min-1
TORNOS	Deco13	L381.D080.16.04	N314.MK40.20 TN35	2/3	12,000 min-1
TORNOS	Deco20	L381.D080.16.04	N314.MK40.20 TN35	2/3	12,000 min-1
TORNOS	Deco26	L381.D080.16.04	N314.MK40.20 TN35	2/3	12,000 min-1
TORNOS	Deco2000	L381.D080.16.04	N314.MK40.20 TN35	2/3	12,000 min-1
TORNOS	Multi Deco	L381.D086.25.04	L314.MK50.20 TN35	3	15,000 min-1
TRAUB	TNL12-7	RM275.T064.33.03	RS275.MK13.M0TN35	3	13,000 min-1
TRAUB	TNL12-7	L381.T069.12.04	N314.MK40.20 TN35	2/3	13,000 min-1
TRAUB	TNL26	L381.T069.12.04	N314.MK40.20 TN35	2/3	13,000 min-1
TRAUB	TNK36	L381.T069.12.04	N314.MK40.20 TN35	2/3	13,000 min-1

多边形铣削的更详细要求
Polygon cutter for further machines upon request.

增强型卡槽

* reinforced pocket

适用于Swiss机床的螺纹旋风铣

Thread whirling for Swiss type machines



安装于旋风铣上的可转位刀片

Indexable carbide inserts for Whirling Heads



双头
Two starts



可转位刀片系列 314
轮廓深度 可达 $t = 6$ mm, $w = 5.4 / 6.5 / 7.5$ mm
Indexable Insert Type 314
Depth of profile 可达 $t = 6$ mm, $w = 5.4 / 6.5 / 7.5$ mm



单头
One start



可转位刀片系列 S302
轮廓深度 可达 $t = 4.3$ mm, $w = 4.4 / 5.4 / 6.1$ mm
Indexable Insert Type S302
Depth of profile up to $t = 4.3$ mm, $w = 4.4 / 5.4 / 6.1$ mm



双头
Two starts

根据完整的螺纹外形尺寸，精确的加工出客户所需的特殊轮廓

To manufacture accurate customer specific profiles, the complete thread form data is required .

模块化刀具系统：

对于机床上换刀空间有限的解决方案。刀体和夹紧螺母取下后，刀柄仍在机床上，这样可换位刀片就可在机床外更换。

Modular Tooling System:

The solution for tool changes on machines with limited handling space. The basic holder will remain on the machine while the cutter body is removed with the clamping nut. The indexable inserts can now be changed outside the machine without interference.



可根据要求选择其他组合，需要以下数据：

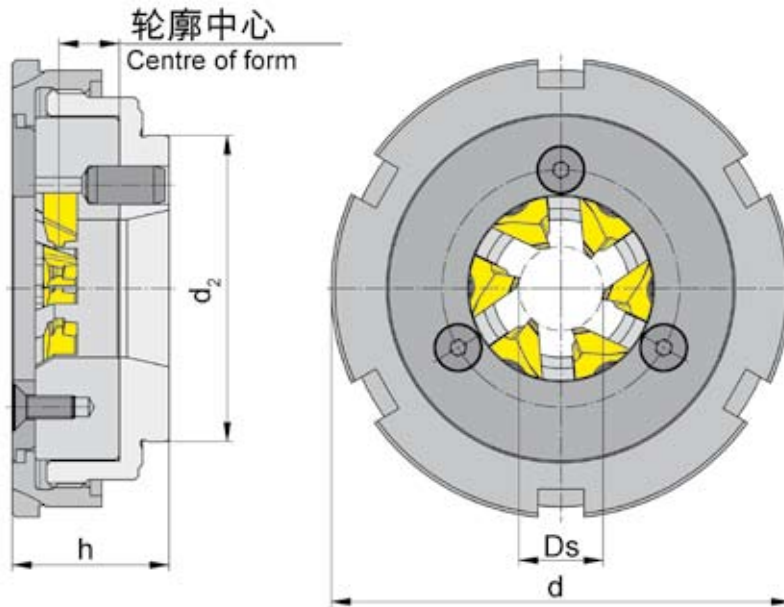
- 旋风铣刀头的切削直径
- 旋风铣刀头的最大外径
- 旋风铣刀头的最大切削倾斜角

当您订购时，请提供您的旋风铣系统的品牌和型号。

Other combinations are available upon request. The following data will be required:

- required cutting diameter of the whirling head
- maximum outer diameter of the whirling head
- maximum tilt angle of the whirling system

Please also supply the Make and Model number of your whirling system when placing a purchase order.



产品型号 Part number	*轮廓中心 *Centre of form	Z	Ds	d	h	d ₂	刀片 Insert	机床类型 Model number of machine
标准刀具 (现货) Standard tools (ex stock)								
M302.AM12.40.06	11.9		12	47 (52)	20.7	40	S302	Star SV12/20ECAS20
M302.DM11.0.40.06	7.8	6	11	60	20.5	40	S302	Tornos Deco 2000/13a/20
M302.AM12.T.40.06	5.0		12	60	17.0	40	S302	Star SR20III
非标刀具 (交期6周) Special tools (delivery 6 weeks)								
006.0050.1348	15.0	6	14	67	18.0	50	S302	Traub TNL 26

* 轮廓中心决定于单个刀片
* The centre of form depends on the individual insert.

尺寸单位: mm
Dimensions in mm

当您订购时, 请提供您的旋风铣系统的品牌和型号。
Please also supply the Make and Model number of your whirling system when placing a purchase order.



整体式系统:
最高的精度和刚性

Monobloc System:
means maximum precision and rigidity



可根据要求选择其他组合，需要以下数据：

- 旋风铣刀头的切削直径
- 旋风铣刀头的最大外径
- 旋风铣刀头的最大切削倾斜角

当您订购时，请提供您的旋风铣系统的品牌和型号。

Other combinations are available upon request. The following data will be required:

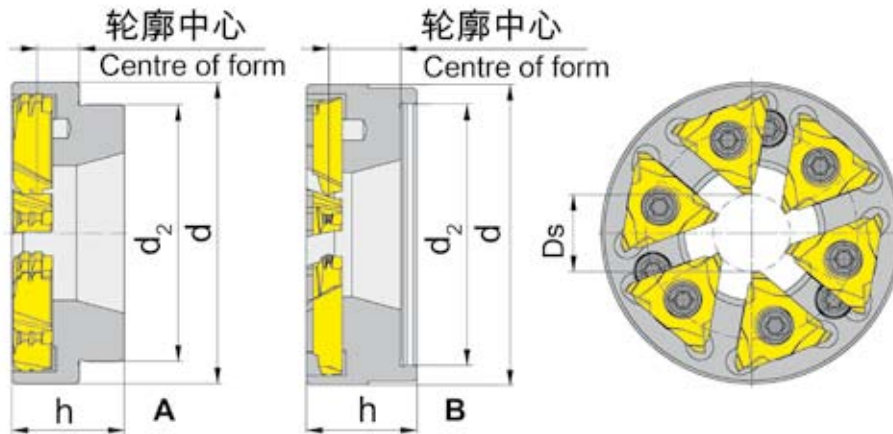
- required cutting diameter of the whirling head
- maximum outer diameter of the whirling head
- maximum tilt angle of the whirling system

Please also supply the Make and Model number of your whirling system when placing a purchase order.

整体式系统

MONOBLOC SYSTEM

L389 / M302



产品型号 Part number	*轮廓中心 *Centre of form	Z	Ds	d	h	d ₂	刀片 Insert	机床类型 / 装置 Model number of machine / Unit	类型 type
标准刀具 (现货) Standard tools (ex stock)									
L389.D014.40.06	12.750	6	14.0	57.2	21.0	40.000	314	Tornos DECO 2000/20a	A
M302.T025.54.06	11.000	6	25.0	106.0	24.1	53.975	S302	Traub TNL 26 / Front unit	A
M302.T010.37.06	6.700	6	10.0	73.55	16.5	36.990	S302	Traub TNL 12 / Front unit	A
M302.C012.33.06	8.000	6	12.0	46.9	15.5	33.000	S302	Citizen L20/M20/M32 / Whirling unit BTW-1000	A
M302.C012.40.06	11.000	6	12.0	46.0	17.0	45.000	S302	Citizen Cincom M16 / Whirling unit PCM: MSW-101 Whirling unit PCM: LSW-215-1000 Nexturn SA20 / SA32 / Whirling unit PCM: NESA-32-SWG15	B
M302.A012.40.06	6.575	6	12.0	47.0	17.5	40.000	S302	Star SV/SR20/ECAS20 / Whirling unit 42173	A
M302.W012.36.06	8.500	6	12.0	43.8	21.5	32.000	S302	Device WTO TN762004 / Whirling unit WTO TN762004	A
M302.C112.40.06	10.000	6	12	46.0	15.5	40.000	S302	Citizen - Jarvis / LTR-0128/-0132/-0139/-0168/-0183	A
非标刀具 (交期6周) Special tools (delivery 6 weeks)									
M302.0013.0124	-	6	13.5	62.0	18.0	62.000	S302	Gildemeister Speed 2018	A

* 轮廓中心决定于单个刀片

* The centre of form depends on the individual insert.

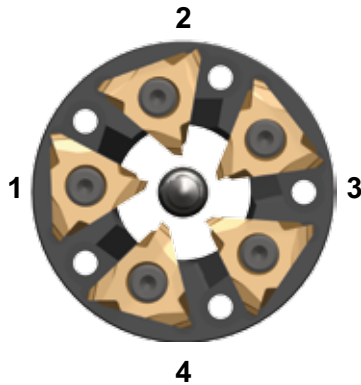
尺寸单位: mm

Dimensions in mm

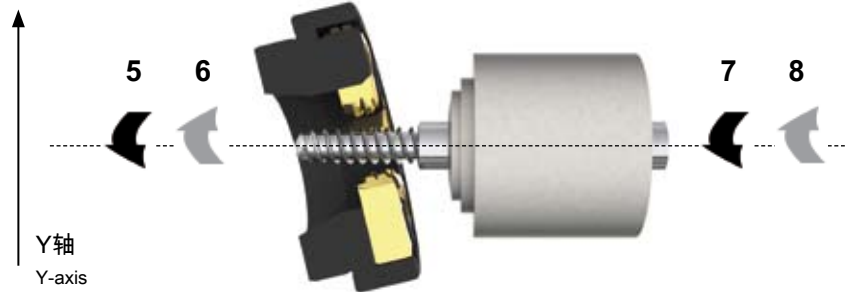
当您订购时, 请提供您的旋风铣系统的品牌和型号。

Please also supply the Make and Model number of your whirling system when placing a purchase order.

切削位置
Cutting location



旋风铣装置的旋转方向
Turning direction of whirling unit



棒料的旋转方向
Turning direction of bar

机床规格 Machine specifications	
生产厂商 Machine manufacturer	
机床类型 Model number of machine	
动力座生产厂商 Machine manufacturer driven tools	
型号 动力座 Type driven tools	
Y轴 Y-axis	<input type="checkbox"/> 是 / yes <input type="checkbox"/> 不 / no
高压冷却 High pressure coolant	<input type="checkbox"/> 是 / yes <input type="checkbox"/> 不 / no
旋风铣装置的旋转方向 Turning direction of whirling unit	<input type="checkbox"/> 5 <input type="checkbox"/> 6
棒料的旋转方向 Turning direction of bar	<input type="checkbox"/> 7 <input type="checkbox"/> 8
切削位置 Cutting location	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4

材料 Material	
规格 (DIN) Specification (DIN)	
棒料直径 Bar diameter	Ø
螺纹 Thread	
轮廓图 Profile drawing	
单头 One start	
双头 Two starts	

可换刀头的DM铣削系列

- 角和槽铣削
- 倒角
- 定心和倒角
- 仿形铣削



M

Multi-Milling DM-System

- Corner and Groove Milling
- Chamfering
- Centering and Chamfering
- Copy Milling

槽铣削

GROOVE MILLING

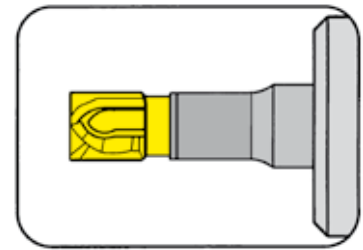


铣刀杆 型号

MILLING SHANK Type

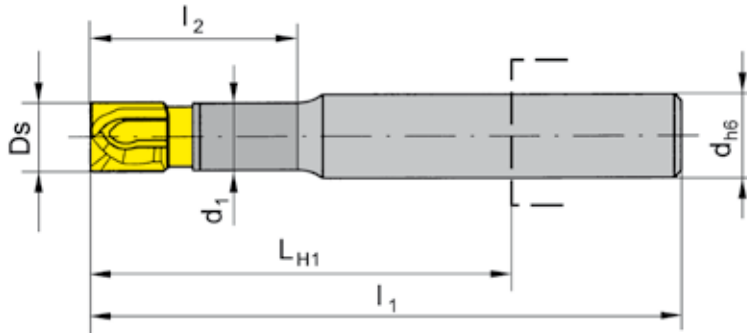
DM008

无内冷
no coolant supply



90°刀杆，热缩夹持
Shank 90° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM208
Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁
DM008.0008.02A	8	91.8	21.8	7.7	8	55.8
DM008.0010.02A	8	91.8	21.8	7.7	10	51.8
DM008.0012.02A	8	101.8	26.8	7.7	12	56.8
DM008.0016.02A	8	101.8	26.8	7.7	16	53.8

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。

刀片只能使用对应的S.DM08（见配件页）扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.

The cutting insert can only be exchanged by use of the correct clamping wrench S.DM08. For more details and torque specifications please see page M29-M30.

M

槽铣削

GROOVE MILLING

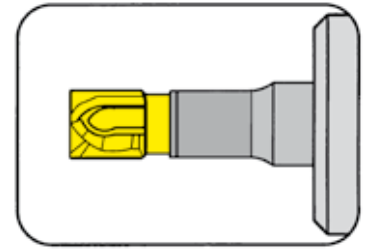


铣刀杆 型号

MILLING SHANK Type

DM008

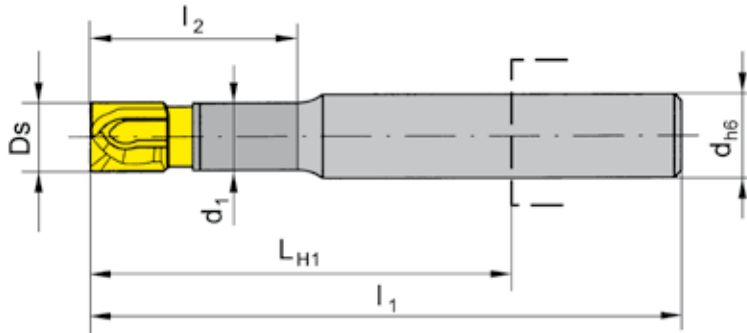
无内冷
no coolant supply



90°刀杆，不推荐热缩夹持
Shank 90° - not recommended for shrinking

刀杆材料：钢

Material of shank: Steel



配合 刀片

for use with Cutting insert

型号 DM208

Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁
DM008.ST08.01A	8	71.8	21.8	7.7	8	35.8

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。

刀片只能使用对应的S.DM08（见配件页）扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.

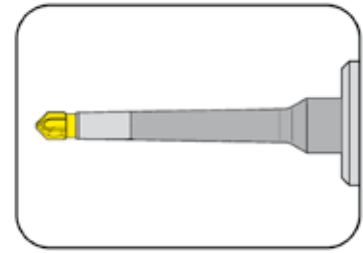
The cutting insert can only be exchanged by use of the correct clamping wrench S.DM08. For more details and torque specifications please see page M29-M30.

铣刀杆 型号

MILLING SHANK Type

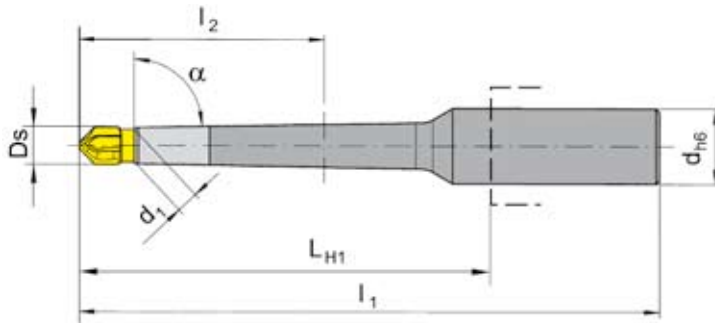
DM008

无内冷
no coolant supply



87°/89°刀柄-热缩夹持
Shank 87° / 89° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM208
Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁	α
DM008.0010.87.02A	8	96.8	15.65	7.7	10	56.8	87°
DM008.0012.87.02A	8	96.8	15.65	7.7	12	51.8	87°
DM008.0012.89.02A		126.8	21.40			81.8	89°
DM008.0016.87.02A	8	126.8	15.65	7.7	16	76.8	87°
DM008.0016.89.02A		151.8	21.40			101.8	89°

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。

刀片只能使用对应的S.DM08（见配件页）扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.

The cutting insert can only be exchanged by use of the correct clamping wrench S.DM08. For more details and torque specifications please see page M29-M30.

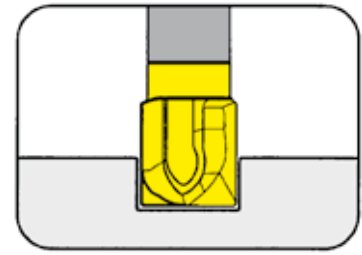
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片型号
CUTTING INSERT Type

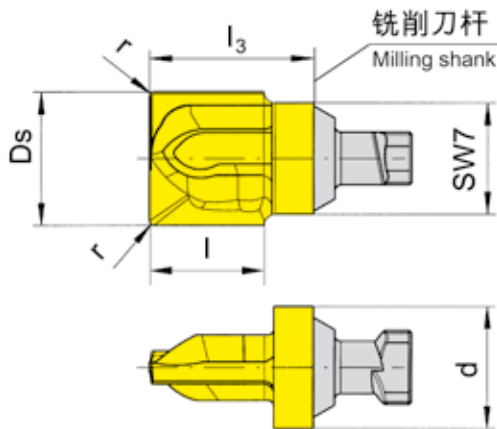
DM208



槽宽自 Width of groove from 8.0 mm

配合 铣刀杆
for use with Milling shank

型号 DM008
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM.208.0080.00.00	8	7.7	-	7.6	11.8		△
DM.208.0080.02.00			0.2			△	
DM.208.0080.03.00			0.3			△	
DM.208.0080.04.00			0.4			▲	
DM.208.0080.10.00			1.0			△	
DM.208.0080.16.00			1.6			△	
<ul style="list-style-type: none"> ▲ 库存 / on stock △ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 						P	●
						M	●
						K	●
						N	●
						S	●
						H	

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

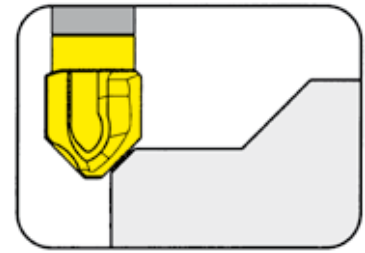


倒角 CHAMFERING



刀片型号
CUTTING INSERT Type

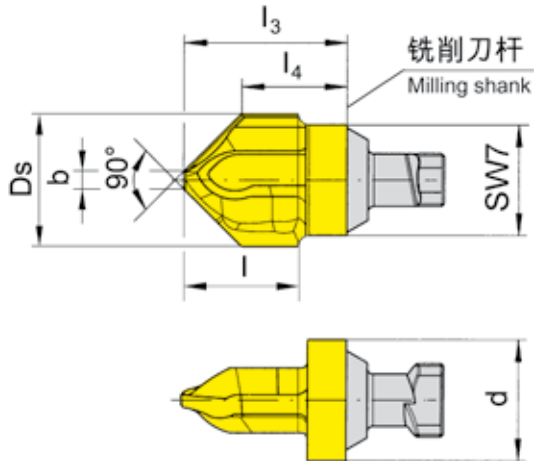
DM208



倒角可达 Chamfering up to 3 x 45 °

配合 铣刀杆
for use with Milling shank

型号 DM008
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l	l ₃	l ₄	b	MG12	TH35
DM.208.4545.00.00	8	7.7	7.6	11.8	8.35	1		▲
▲ 库存 / on stock Δ 4周 / 4 weeks							P	•
● 主要应用 / main recommendation							M	•
○ 可选推荐 / alternative recommendation							K	•
■ 无涂层牌号 / uncoated grades							N	•
■ 涂层牌号 / coated grades							S	•
■ 钎焊/金属陶瓷 / brazed/Cermet							H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

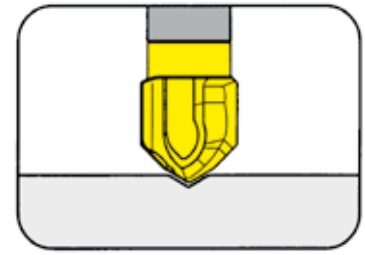


定心和倒角 CENTERING and CHAMFERING



刀片 型号
CUTTING INSERT Type

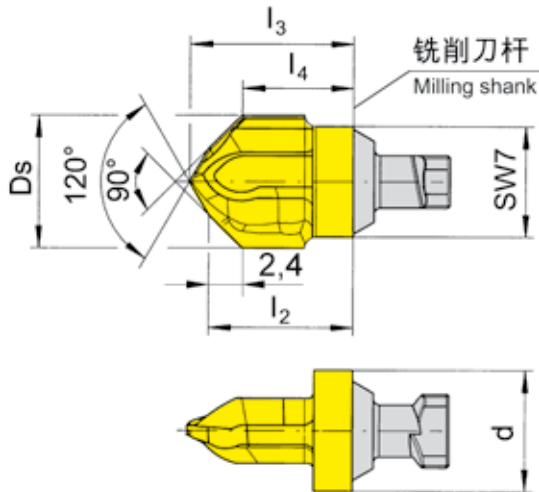
DM208



顶角	Point angle	120° / 90°
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配合 铣刀杆
for use with Milling shank

型号 DM008
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l ₂	l ₃	l ₄	MG12	TH35
DM.208.3045.00.00	8	7.7	10.4	11.8	8.3		▲
▲ 库存 / on stock						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



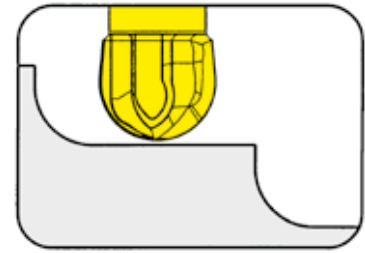
仿形铣削

COPY MILLING



刀片 型号
CUTTING INSERT Type

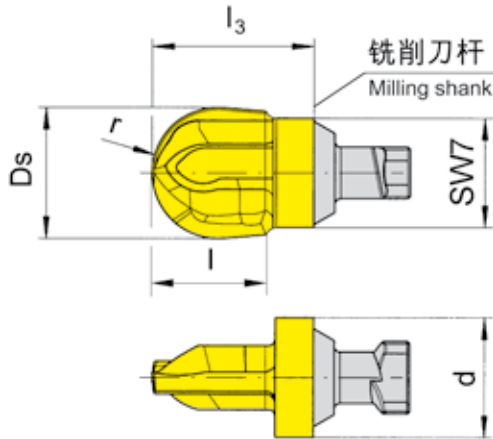
DM208



仿形半径	Copy radius	r 4.0 mm
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配合 铣刀杆
for use with Milling shank

型号 DM008
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM.208.0080.40.00	8	7.7	4	7.5	11.8		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

M

槽铣削

GROOVE MILLING

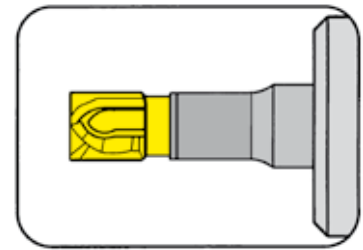


铣刀杆 型号

MILLING SHANK Type

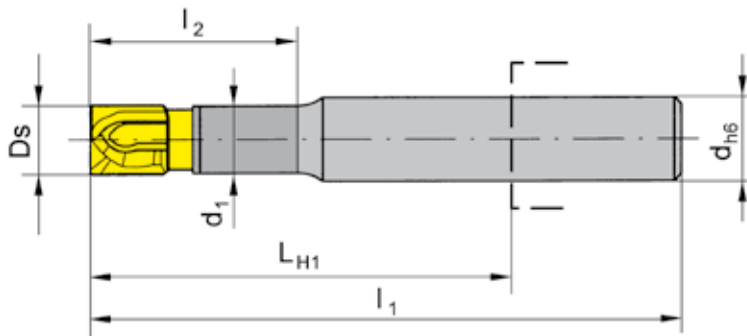
DM010

无内冷
no coolant supply



90°刀杆，热缩夹持
Shank 90° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM210
Type

产品型号 Part number	Ds	l_1	l_2	d_1	d	LH_1
DM010.0010.02A	10	94.6	29.6	9.6	10.0	54.6
DM010.0012.12A	10	104.6	29.6	9.6	12.0	59.6
DM010.0095.05A	10	124.6	34.6	9.6	9.5	84.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

锁紧扳手和附件需要单独订购。
更换刀片需要使用配套的扳手S.DM10 (见附件页)

Spare parts
The clamping wrench and spare parts need to be ordered separately.
The cutting insert can only be exchanged by use of the correct clamping wrench S.DM10. For more details and torque specifications please see page M29-M30.

M

槽铣削

GROOVE MILLING

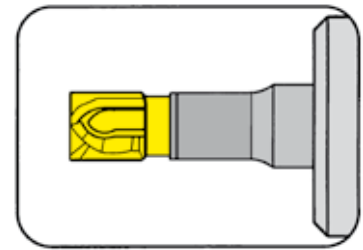


铣刀杆 型号

MILLING SHANK Type

DM010

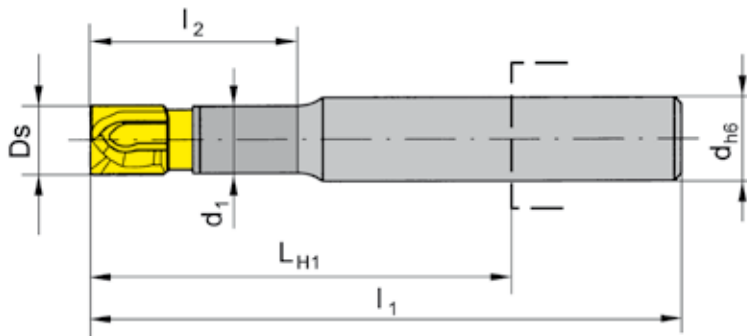
无内冷
no coolant supply



90°刀杆，不推荐热缩夹持
Shank 90° - not recommended for shrinking

刀杆材料：钢

Material of shank: Steel



配合 刀片

for use with Cutting insert

型号 DM210

Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁
DM010.ST10.01A	10	79.6	24.6	9.6	10	39.6
DM010.ST12.02A	10	84.6	29.6	9.6	12	39.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

锁紧扳手和附件需要单独订购。

更换刀片需要使用配套的扳手S.DM10 (见附件页)

Spare parts

The clamping wrench and spare parts need to be ordered separately.

The cutting insert can only be exchanged by use of the correct clamping wrench S.DM10. For more details and torque specifications please see page M29-M30.

M

槽铣削

GROOVE MILLING

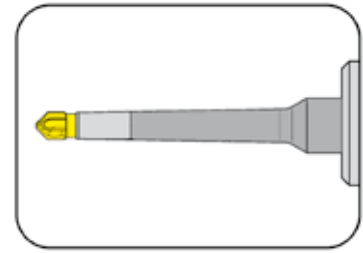


铣刀杆 型号

MILLING SHANK Type

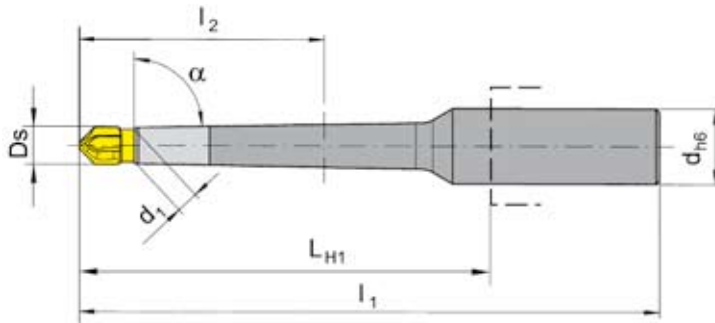
DM010

无内冷
no coolant supply



87°/89°刀柄-热缩夹持
Shank 87° / 89° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM210
Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁	α
DM010.0012.87.02A	10	99.6	19.4	9.6	12	54.6	87°
DM010.0012.89.05A		129.6	27.0			84.6	89°
DM010.0016.87.05A	10	129.6	19.4	9.6	16	81.6	87°
DM010.0016.89.07A		154.6	27.0			106.6	89°
DM010.0020.87.04A	10	114.6	19.4	9.6	20	64.6	87°
DM010.0020.89.07A		174.6	27.0			124.6	89°

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

锁紧扳手和附件需要单独订购。
更换刀片需要使用配套的扳手S.DM10 (见附件页)

Spare parts

The clamping wrench and spare parts need to be ordered separately.
The cutting insert can only be exchanged by use of the correct clamping wrench S.DM10. For more details and torque specifications please see page M29-M30.

M

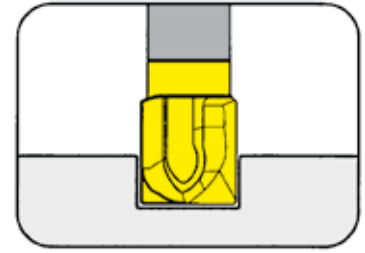
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片型号
CUTTING INSERT Type

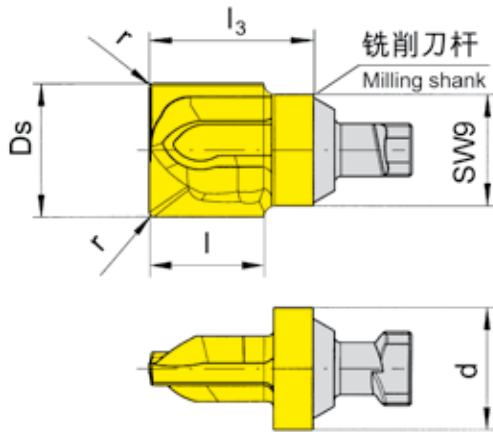
DM210



槽宽自 Width of groove from 10.0 mm

配合 铣刀杆
for use with Milling shank

型号 DM010
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM.210.0100.00.00	10	9.7	-	10	14.6		△
DM.210.0100.03.00			0.3				▲
DM.210.0100.04.00			0.4				▲
DM.210.0100.10.00			1.0				▲
DM.210.0100.20.00			2.0				△
DM.210.0100.30.00			3.0				▲
DM.210.0100.40.00			4.0				△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	●
K	●
N	●
S	●
H	

硬质合金牌号
Carbide grades

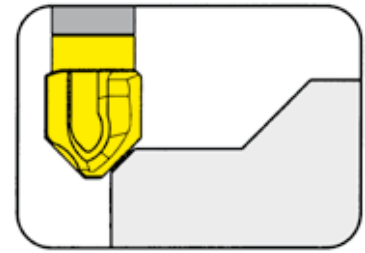
M

倒角 CHAMFERING



刀片 型号
CUTTING INSERT Type

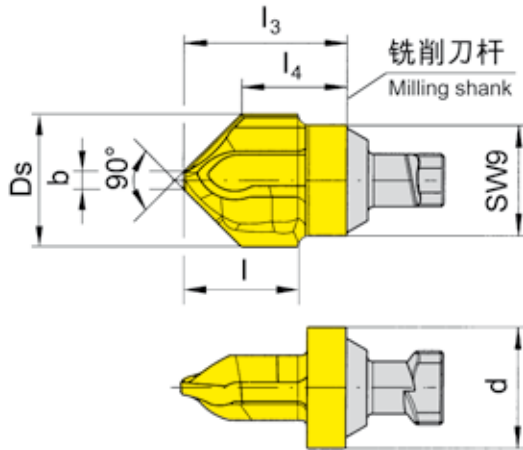
DM210



倒角可达 Chamfering up to 4,5 x 45 °

配合 铣刀杆
for use with Milling shank

型号 DM010
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l	l ₃	l ₄	b	MG12	TH35
DM.210.4545.00.00	10	9.7	10	14.6	9.9	1		▲
▲ 库存 / on stock Δ 4周 / 4 weeks							P	•
● 主要应用 / main recommendation							M	•
○ 可选推荐 / alternative recommendation							K	•
■ 无涂层牌号 / uncoated grades							N	•
■ 涂层牌号 / coated grades							S	•
■ 钎焊/金属陶瓷 / brazed/Cermet							H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

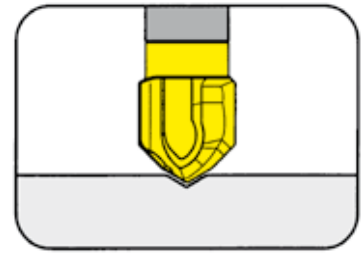


定心和倒角 CENTERING and CHAMFERING



刀片 型号
CUTTING INSERT Type

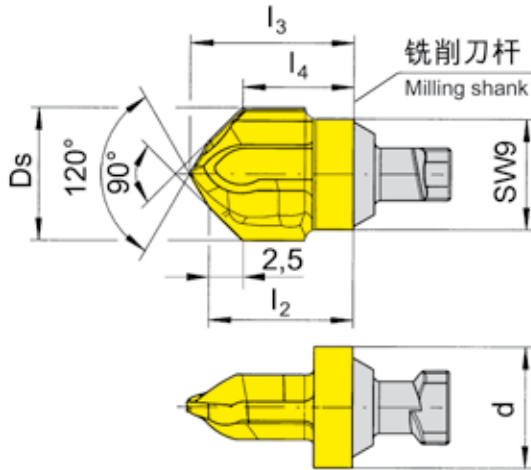
DM210



顶角	Point angle	120° / 90°
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配合 铣刀杆
for use with Milling shank

型号 DM010
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l ₂	l ₃	l ₄	MG12	TH35
DM.210.3045.00.00	10	9.7	13.2	14.6	10.7		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

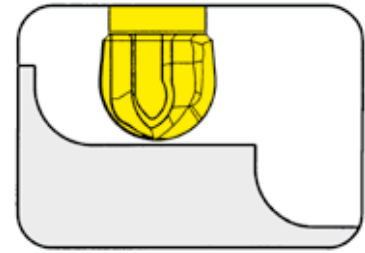
M

仿形铣削 COPY MILLING



刀片 型号
CUTTING INSERT Type

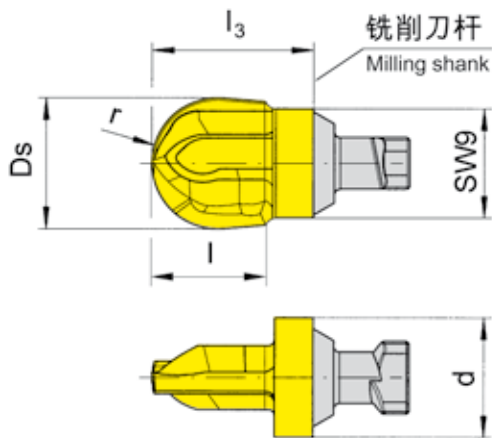
DM210



仿形半径	Copy radius	r 5.0 mm
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配合 铣刀杆
for use with Milling shank

型号 DM010
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM.210.0100.50.00	10	9.7	5	11	14.6		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades



槽铣削

GROOVE MILLING

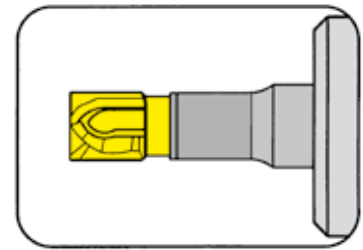


铣刀杆 型号

MILLING SHANK Type

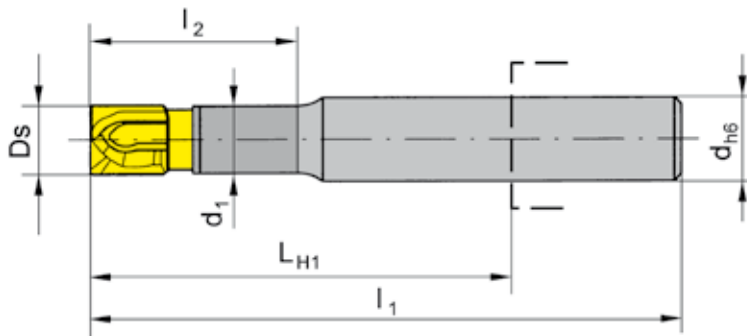
DM012

带内冷
with through coolant supply



90°刀杆，热缩夹持
Shank 90° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM212
Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁
DM012.0012.02A	12	104.6	29.6	11.5	12	59.6
DM012.0016.04A	12	114.6	59.6	11.5	16	66.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。
刀片只能使用对应的S.DM12（见配件页）扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.
The cutting insert can only be exchanged by use of the correct clamping wrench S.DM12. For more details and torque specifications please see page M29-M30.

M

槽铣削

GROOVE MILLING

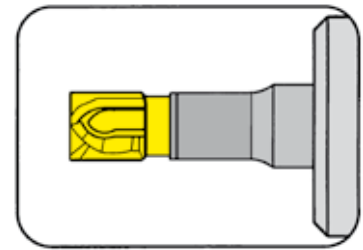


铣刀杆 型号

MILLING SHANK Type

DM012

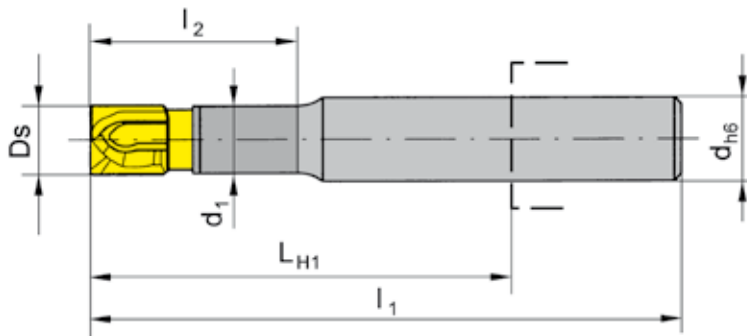
带内冷
with through coolant supply



90°刀杆，不推荐热缩夹持
Shank 90° - not recommended for shrinking

刀杆材料：钢

Material of shank: Steel



配合 刀片

for use with Cutting insert

型号 DM212

Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁
DM012.ST12.02A	12	89.6	24.6	11.5	12	44.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。

刀片只能使用对应的S.DM12（见配件页）扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.

The cutting insert can only be exchanged by use of the correct clamping wrench S.DM12. For more details and torque specifications please see page M29-M30.

槽铣削

GROOVE MILLING

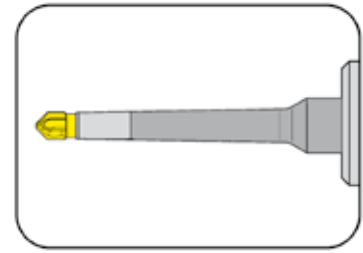


铣刀杆 型号

MILLING SHANK Type

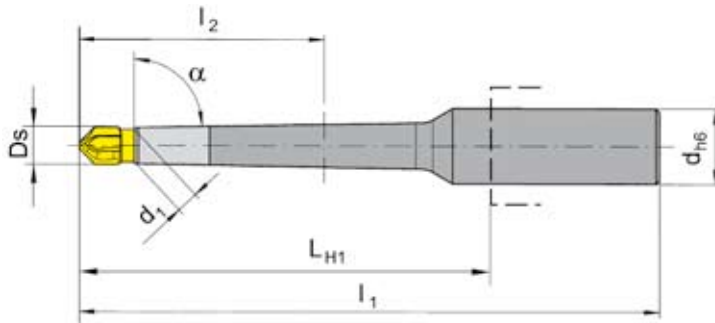
DM012

带内冷
with through coolant supply



87°/89°刀柄-热缩夹持
Shank 87° / 89° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DM212
Type

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d	LH ₁	α
DM012.0016.87.04A	12	114.6	20.3	11.5	16	66.6	87°
DM012.0016.89.07A		154.6	29.9			106.6	89°
DM012.0020.87.04A	12	114.6	20.3	11.5	20	64.6	87°
DM012.0020.89.07A		174.6	29.9			124.6	89°

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和配件需要单独购买。

刀片只能使用对应的S.DM12 (见配件页) 扳手才能更换。更多信息和扭矩规格详见M29-M30页。

Spare parts

The clamping wrench and spare parts need to be ordered separately.

The cutting insert can only be exchanged by use of the correct clamping wrench S.DM12. For more details and torque specifications please see page M29-M30.

M

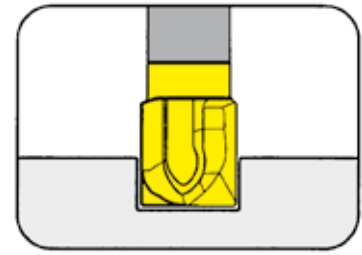
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片型号
CUTTING INSERT Type

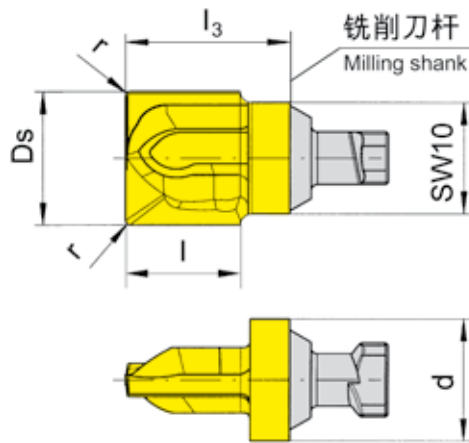
DM212



槽宽自 Width of groove from 12.0 mm

配合 铣刀杆
for use with Milling shank

型号 DM012
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM-212-0120-00.00	12	11	-	10	14.6		▲
DM-212-0120-03.00			0.3			▲	
DM-212-0120-04.00			0.4			△	
DM-212-0120-08.00			0.8			▲	
DM-212-0120-20.00			2.0			△	
DM-212-0120-30.00			3.0			▲	
<ul style="list-style-type: none"> ▲ 库存 / on stock △ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 						P	●
						M	●
						K	●
						N	●
						S	●
						H	

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

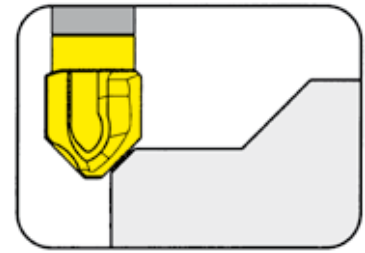


倒角 CHAMFERING



刀片型号
CUTTING INSERT Type

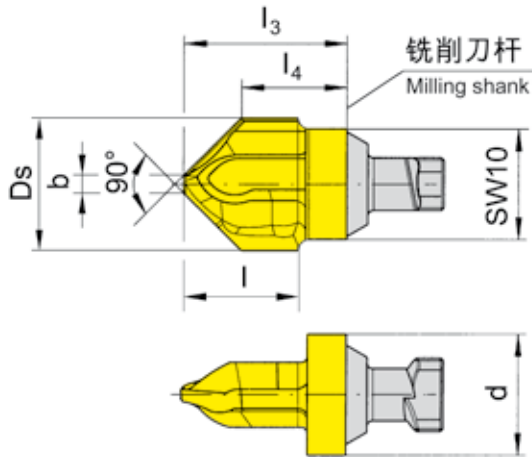
DM212



倒角	Chamfering	45°
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配合 铣刀杆
for use with Milling shank

型号 DM012
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l	l ₃	l ₄	b	MG12	TH35
DM.212.4545.00.00	12	11	10	14.6	9	1		▲
▲ 库存 / on stock Δ 4周 / 4 weeks							P	•
● 主要应用 / main recommendation							M	•
○ 可选推荐 / alternative recommendation							K	•
■ 无涂层牌号 / uncoated grades							N	•
■ 涂层牌号 / coated grades							S	•
■ 钎焊/金属陶瓷 / brazed/Cermet							H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

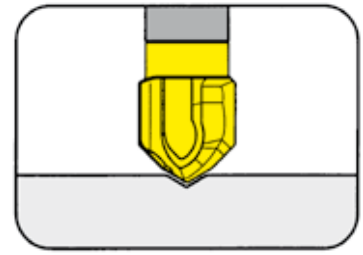
M

定心和倒角 CENTERING and CHAMFERING



刀片型号
CUTTING INSERT Type

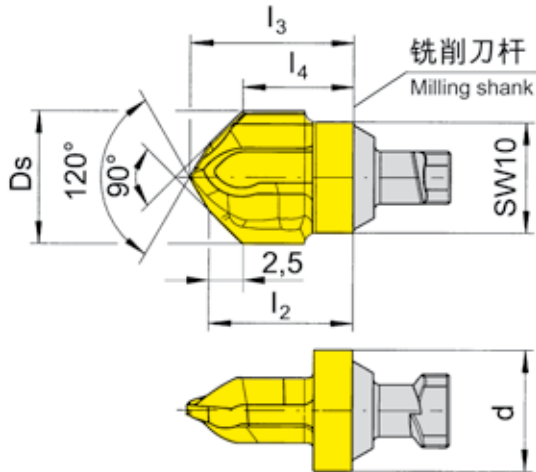
DM212



顶角	Point angle	120° / 90°
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配合 铣刀杆
for use with Milling shank

型号 DM012
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	l ₂	l ₃	l ₄	MG12	TH35
DM.212.3045.00.00	12	11	12.6	14.6	10.1		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

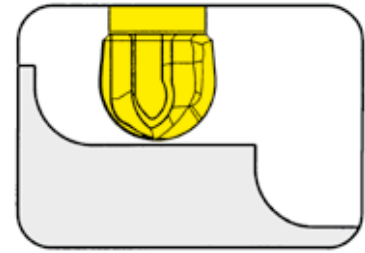


仿形铣削 COPY MILLING



刀片 型号
CUTTING INSERT Type

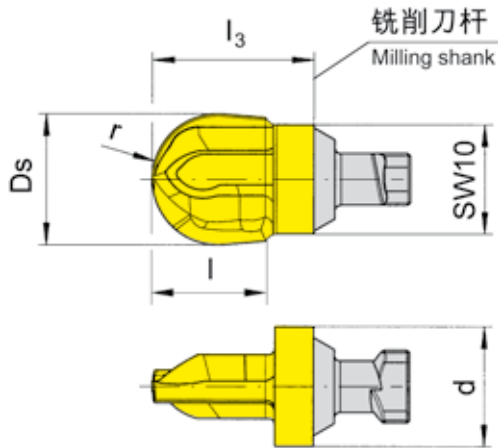
DM212



仿形半径	Copy radius	r 6.0 mm
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配合 铣刀杆
for use with Milling shank

型号 DM012
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	d	r	l	l ₃	MG12	TH35
DM.212.0120.60.00	12	11	6	10	14.6		▲
▲ 库存 / on stock Δ 4周 / 4 weeks						P	•
● 主要应用 / main recommendation						M	•
○ 可选推荐 / alternative recommendation						K	•
■ 无涂层牌号 / uncoated grades						N	•
■ 涂层牌号 / coated grades						S	•
■ 钎焊/金属陶瓷 / brazed/Cermet						H	•

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

M

硬质合金槽铣刀优选顺铣。

槽铣削和侧面铣削的加工条件：

切屑的平均厚度定义了每齿进给，如果不需要使用铣刀的全宽，建议增加 v_c 和 f_z 。

特殊情况下，切削参数表中给出了 a_e/D 。

a_p = 铣削深度
 a_e = 铣削宽度
 D = 铣刀直径 \varnothing

仿形铣削的加工条件：

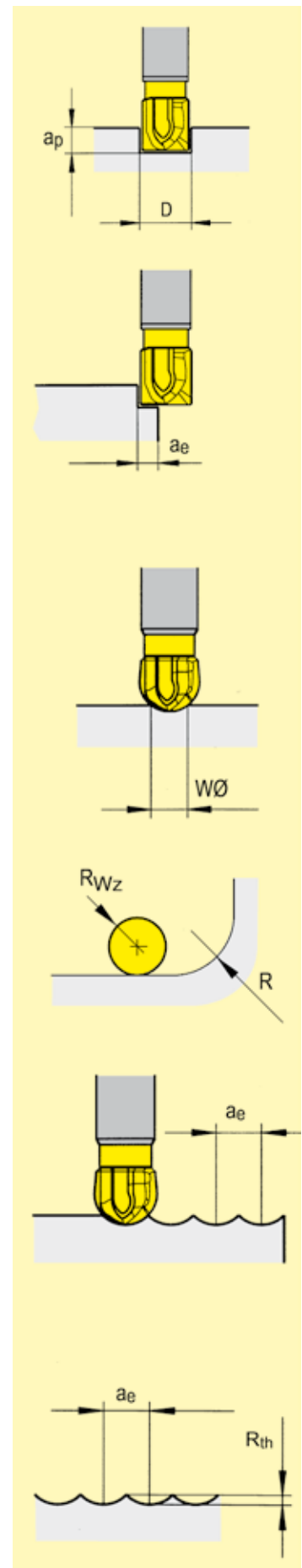
圆头铣刀切削直径($W\varnothing$)和切深 a_p 相等，并影响进给率。

加工型腔和轮廓的铣刀半径要比型腔或轮廓拐角半径小 $R > R_{Wz}$

在型腔角落或底部时切削直径方向的压力角增大，这将影响切削厚度 h_m ，在这种情况下对于全切需要选用合适的进给率，通常使用较小进给率。

通过选择正确的铣削宽度，仿形铣削时的行距以及合适的切削速度和进给，都可影响表面质量和粗糙度。

$$R_{th} = \frac{D}{2} - \sqrt{\frac{D^2 - a_e^2}{4}}$$



M

Carbide Groove Milling Tools are preferably used for climb milling.

Cutting conditions for groove and side milling:

The medium chip thickness h_m defines the feed rate per tooth. If you do not use the full width of the milling cutter it is recommended to increase v_c and f_z .

Examples for specific conditions a_e/D are shown in the cutting data table.

a_p = depth of milling
 a_e = working width
 D = milling cutter \varnothing

Cutting conditions for copy milling:

The working diameter ($W\varnothing$) of a full radius milling cutter is equal to the cutting depth a_p and influences all relevant feed rates.

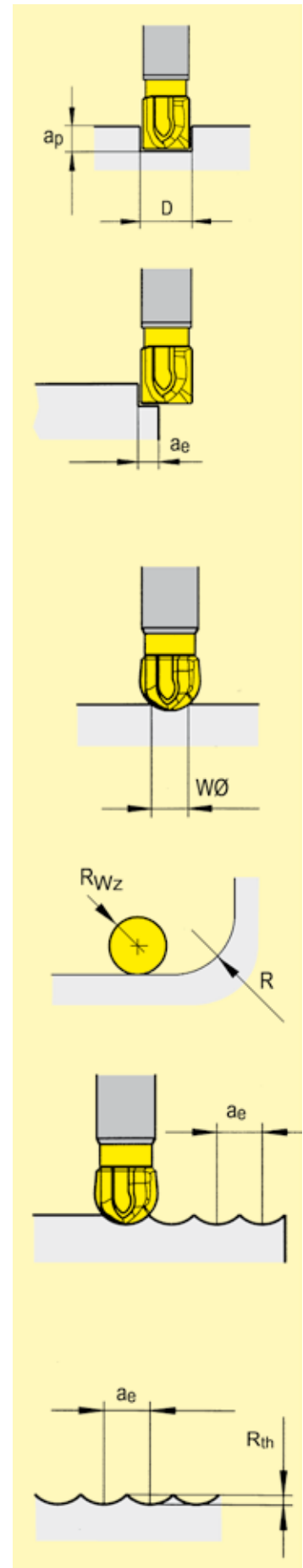
For pocket or contour milling always choose the cutting diameter of the milling cutter smaller than the resulting radius in the corners of the pocket or the contour.

$$R > R_{Wz}$$

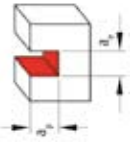
In the corners and the bottom of the pocket the normal pressure angle respectively the working diameter of the milling cutter shows a considerable increase which also reflects the medium chip thickness h_m . In this case please use the proposed feed rates for the full cut. This will result in using lower feed rates.

You can influence the surface quality and roughness of the component considering the right milling widths, the correct lane distance during copy milling and of course the proposed speeds and feeds.

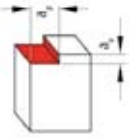
$$R_{th} = \frac{D}{2} - \sqrt{\frac{D^2 - a_e^2}{4}}$$



适于硬质合金牌号TH35的切削参数



槽铣削
 $a_{pmax} = 0.5 \times D$
 $a_e = D$



肩铣削
 $a_{pmax} = 0.25 \times D$
 $a_e < 0.25 \times D$

ISO	材料	硬度 HRC	$a_e / D = 25\%$				$a_e / D = 10\%$				$a_e / D = 5\%$				f_z (mm)	h_m
			v_c m/min	D (mm)	f_z (mm)	h_m	v_c m/min	D (mm)	f_z (mm)	h_m	v_c m/min	D (mm)	f_z (mm)	h_m		
P	非合金钢	125	280-220		0.02	0.01	0.03	0.01	0.01	320-260	8	0.04	0.01	0.01	0.01	0.01
	非合金钢	190	260-200		0.02	0.01	0.03	0.01	300-250	8	0.04	0.01	0.01	0.01	0.01	
	低合金钢	200	230-180	8	0.04	0.02	0.06	0.02	270-230	8	0.08	0.02	0.02	0.02	0.02	
	低合金钢	300	230-180		0.06	0.03	0.09	0.03	270-230		0.12	0.03	0.03	0.03	0.03	
	高合金钢	200	130-120						190-150							
M	不锈钢 马氏体	240	100-60						140-120							
	不锈钢 奥氏体	180	80-50						80-70							
K	可锻铸铁 铁素体	130	190-140		0.04	0.02	0.06	0.02	220-160		0.09	0.02	0.02	0.02	0.02	
	可锻铸铁 珠光体	230	150-110	10	0.07	0.03	0.10	0.03	180-120	10	0.14	0.03	0.03	0.03	0.03	
	球墨铸铁 铁素体/珠光体	180	160-120		0.11	0.05	0.16	0.05	180-140		0.23	0.05	0.05	0.05	0.05	
	球墨铸铁 珠光体	260	140-100						170-130							
	灰铸铁	160	170-100						180-120							
N	铝合金	90	650-400		0.04	0.02	0.06	0.02	800-600		0.09	0.02	0.02	0.02	0.02	
	高温合金 Ni/Co基	350	60-15	12	0.09	0.04	0.14	0.04	60-15	12	0.20	0.04	0.04	0.04	0.04	
S	钛合金	350	90-45		0.13	0.06	0.20	0.06	90-45		0.29	0.06	0.06	0.06	0.06	
	钛基合金	350	90-45						90-45							

$$v_f = n \cdot f_z \cdot z \text{ mm/min}$$

进给率

$$f_z = hm \sqrt{\frac{2r}{a_e}}$$

进给率计算
进给/齿

v_c 决定于刀具直径和机床的最大转速。



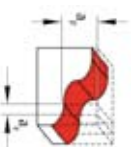
适于硬质合金牌号TH35的切削参数

ISO	材料	硬度	V _c m/min	D (mm)	a _p (mm)	WØ	a _e / D					V _c m/min	D (mm)	a _p (mm)	WØ	进给率				
							10% f _z (mm)	20% f _z (mm)	40% f _z (mm)	50% f _z (mm)	2% f _z (mm)					5% f _z (mm)	10% f _z (mm)	15% f _z (mm)		
P	非合金钢	125	280-360	8	2.5	0.9xD	0.18	0.13	0.10	0.09	300-380	8	0.7	0.45xD	0.09	0.19	0.13	0.11		
	非合金钢	190	250-320				0.18	0.13	0.10	0.09	270-340				0.09	0.19	0.13	0.11		
	低合金钢	200	230-300				0.20	0.16	0.13	0.13	250-320				0.09	0.25	0.17	0.15		
P	低合金钢	300	190-270	0.5	1.0	0.83xD	0.20	0.16	0.13	0.13	210-290	0.2	0.29xD	0.09	0.25	0.17	0.15			
	高合金钢	200	120-170				0.23	0.22	0.15	0.15	140-190			0.09	0.25	0.25	0.20			
M	不锈钢 马氏体	240	150-200	10	3.0	0.9xD	0.20	0.15	0.11	0.10	140-190	1.0	0.6xD	0.1	0.20	0.14	0.12			
	不锈钢 奥氏体	180	120-170				0.20	0.15	0.11	0.10	200-360			0.1	0.20	0.14	0.12			
K	可锻铸铁 铁素体	130	180-300	1.5	2.0	0.8xD	0.25	0.17	0.13	0.13	200-360	0.5	0.45xD	0.1	0.25	0.18	0.15			
	可锻铸铁 珠光体	230	240-360				0.25	0.17	0.13	0.13	260-380			0.1	0.25	0.18	0.15			
	球墨铸铁 铁素体/珠光体	180	270-400				0.30	0.20	0.17	0.17	300-450			0.1	0.25	0.25	0.25			
	球墨铸铁 珠光体	260	180-250				0.30	0.20	0.17	0.17	200-300			0.1	0.25	0.25	0.25			
N	铝合金	90	1000	12	4.0	0.9xD	0.25	0.16	0.12	0.12	200-360	1.0	0.55xD	0.12	0.25	0.17	0.14			
	铝合金 Ni/Co基	350	60-15				0.25	0.16	0.12	0.12	1000			0.12	0.25	0.17	0.14			
S	合金 钛基合金	350	90-45	1.0	1.5	0.65xD	0.30	0.20	0.16	0.16	60-15	0.3	0.3xD	0.12	0.30	0.20	0.18			
	合金 钛基合金	350	90-45				0.35	0.25	0.20	0.20	90-45			0.12	0.30	0.25	0.25			

仿形铣
▽



仿形铣
▽▽



V_c 决定于刀具直径和机床的最大转速。

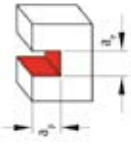
进给率计算
进给/齿

$$f_z = hm \sqrt{\frac{2r}{a_e}}$$

进给率

$$v_f = n \cdot f_z \cdot z \text{ mm/min}$$

Cutting data for carbide grade TH35



Shoulder milling
 $a_{pmax} = 0,25 \times D$
 $a_e < 0,25 \times D$

Groove milling
 $a_{pmax} = 0,5 \times D$
 $a_e = D$

ISO	Material	Hardness H _{RC}	a _e / D = 25%				a _e / D = 10%				a _e / D = 5%						
			v _c m/min	D (mm)	f _z (mm)	h _m (mm)	v _c m/min	D (mm)	f _z (mm)	h _m (mm)	v _c m/min	D (mm)	f _z (mm)	h _m (mm)			
P	unalloyed steel	125	280-220		0,02	0,01	300-260		0,03	0,01	320-260		0,04	0,01	260-200		0,01
	unalloyed steel	190	260-200		0,02	0,01	280-240		0,03	0,01	300-250		0,04	0,01	230-180		0,01
	low alloyed steel	200	230-180	8	0,04	0,02	250-220	8	0,06	0,02	270-230	8	0,08	0,02	170-140	8	0,02
	low alloyed steel	300	230-180		0,06	0,03	250-220		0,09	0,03	270-230		0,12	0,03	170-140		0,03
	high alloyed steel	200	130-120				180-140				190-150				130-100		
M	Stainless steel martenitic	240	100-60			140-120				160-120				100-60			
	Stainless steel austenitic	180	80-50			80-70				90-70				80-50			
K	Malleable cast iron ferritic	130	190-140		0,04	0,02	220-160		0,06	0,02	240-170		0,09	0,02	160-110		0,02
	Malleable cast iron perlritic	230	150-110	10	0,07	0,03	180-120	10	0,10	0,03	190-130	10	0,14	0,03	130-90	10	0,03
	Spheroidal graphite cast iron ferritic/perlitic	180	160-120		0,11	0,05	180-140		0,16	0,05	190-150		0,23	0,05	140-100		0,05
	Spheroidal graphite cast iron perlitic	260	140-100				160-120				170-130				120-80		
	Grey cast iron	160	170-100				180-120				180-140				160-100		
N	Al-alloys	90	650-400		0,04	0,02	800-600		0,06	0,02	1000-800		0,09	0,02	400-600		0,02
	Super alloy Ni/Co based	350	60-15	12	0,09	0,04	60-15	12	0,14	0,04	60-15	12	0,20	0,04	60-15	12	0,04
S	Alloy Titanium based alloy	350	90-45		0,13	0,06	90-45		0,20	0,06	90-45		0,29	0,06	90-45		0,06

v_c is depending on the tool diameter and therefore of the maximum numbers of revolutions of the machine.

Feed rate calculation:
 Feed/tooth $f_z = hm \sqrt{\frac{2r}{a_e}}$
 Feed rate $v_f = n \cdot f_z \cdot z$ mm/min



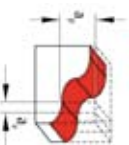
Cutting data for carbide grade TH35

ISO	Material	Hardness HRC	V _c m/min	D (mm)	a _p (mm)	WØ	a _e / D					V _c m/min	D (mm)	a _p (mm)	WØ	a _e / D															
							10% f _z (mm)	20% f _z (mm)	40% f _z (mm)	50% f _z (mm)	2% f _z (mm)					5% f _z (mm)	10% f _z (mm)	15% f _z (mm)													
un alloyed steel	un alloyed steel	125	280-360	8	2.5	0.9xD	0.18	0.13	0.10	0.09	300-360	8	0.7	0.45xD	0.09	0.19	0.13	0.11													
																			2.0	0.83xD	0.18	0.13	0.10	0.09	270-340	0.5	0.46xD	0.09	0.19	0.13	0.11
																			1.5	0.75xD	0.20	0.16	0.13	0.13	250-320	0.3	0.36xD	0.09	0.25	0.17	0.15
																			1.0	0.83xD	0.20	0.16	0.13	0.13	210-290	0.2	0.29xD	0.09	0.25	0.17	0.15
																			0.5	0.54xD	0.23	0.22	0.15	0.15	140-190	0.1	0.21xD	0.09	0.25	0.25	0.20
Stainless steel martensitic	Stainless steel martensitic	240	150-200	10	3.0	0.9xD	0.20	0.15	0.11	0.10	140-190	1.0	0.6xD	0.1	0.20	0.14	0.12														
																		2.5	0.85xD	0.20	0.15	0.11	0.10	200-360	0.8	0.55xD	0.1	0.20	0.14	0.12	
Stainless steel austenitic	Stainless steel austenitic	180	120-170	10	2.0	0.8xD	0.25	0.17	0.13	0.13	200-360	0.5	0.45xD	0.1	0.25	0.18	0.15														
																		1.5	0.7xD	0.25	0.17	0.13	0.13	0.3	0.35xD	0.1	0.25	0.18	0.15		
Malleable cast iron ferritic	Malleable cast iron ferritic	230	240-360	10	1.0	0.6xD	0.30	0.20	0.17	0.17	260-380	0.1	0.2xD	0.1	0.25	0.25	0.25														
																		0.30	0.20	0.17	0.17	0.17	0.17	0.1	0.25	0.25	0.25	0.25			
Spheroidal graphite cast iron ferritic/perlitic	Spheroidal graphite cast iron ferritic/perlitic	180	270-400	10	4.0	0.9xD	0.25	0.16	0.12	0.12	300-450	1.0	0.55xD	0.12	0.25	0.17	0.14														
																		3.0	0.85xD	0.25	0.16	0.12	0.12	0.8	0.5xD	0.12	0.25	0.17	0.14		
Spheroidal graphite cast iron perlitic	Spheroidal graphite cast iron perlitic	260	180-250	12	2.0	0.75xD	0.30	0.20	0.16	0.16	200-300	0.5	0.4xD	0.12	0.20	0.18	0.18														
																		1.5	0.65xD	0.30	0.20	0.16	0.16	0.3	0.3xD	0.12	0.30	0.20	0.18		
Grey cast iron	Grey cast iron	160	180-300	12	3.0	0.85xD	0.25	0.16	0.12	0.12	200-360	1.0	0.55xD	0.12	0.25	0.17	0.14														
																		2.0	0.75xD	0.30	0.20	0.16	0.16	0.8	0.5xD	0.12	0.25	0.17	0.14		
Al-alloys	Al-alloys	90	1000	12	2.0	0.75xD	0.30	0.20	0.16	0.16	1000	0.5	0.4xD	0.12	0.20	0.18	0.18														
																		1.5	0.65xD	0.30	0.20	0.16	0.16	0.3	0.3xD	0.12	0.30	0.20	0.18		
Super alloy Ni/Co based	Super alloy Ni/Co based	350	60-15	12	1.0	0.55xD	0.35	0.25	0.20	0.20	60-15	0.1	0.2xD	0.12	0.30	0.25	0.25														
																		0.35	0.25	0.20	0.20	0.20	0.20	0.1	0.2xD	0.12	0.30	0.25	0.25		
Alloy Titanium based alloy	Alloy Titanium based alloy	350	90-45	12	1.0	0.55xD	0.35	0.25	0.20	0.20	90-45	0.1	0.2xD	0.12	0.30	0.25	0.25														
																		0.35	0.25	0.20	0.20	0.20	0.20	0.1	0.2xD	0.12	0.30	0.25	0.25		

Copy milling
▽



Copy milling
▽▽



V_c is depending on the tool diameter and therefore of the maximum numbers of revolutions of the machine.

Feed rate calculation:
Feed/teeth

$$f_z = hm \sqrt{\frac{2r}{a_e}}$$

Feed rate

$$V_f = n \cdot f_z \cdot z \text{ mm/min}$$



D 28 VL
2 - 8 Nm

带刻度的扭矩扳手
-扭矩可调
-屏幕显示调整扭矩

扭矩无极调节，符合人体工程学的多组件手柄，轻而紧凑的设计，当达到设定扭矩时单击信号按钮。
(标准: EN ISO 6798, BS EN 26789, ASME B 107.14.M.)
(精度: $\pm 6\%$)

Torque screw driver with scale
- variable torque setting
- adjusted torque is shown on display

The Torque can be adjusted with a special torque setter (included).
Ergonomical form gives perfect handling abilities. Audible signal when set torque is reached.
(Standard: EN ISO 6798, BS EN 26789, ASME B 107.14.M.)
(Precision: $\pm 6\%$)



ED 28 VL

扭矩设定器

设定扭矩的设备
柄部：醋酸纤维材质，表面为细微结构
刃部：八角形，硬化处理，镀锌

Torque setter

Device for setting the required torque.
Handle: Celluloseacetat with micro structured surface
Blade: Octogonal (8 flats) blade, hardened galvanized



D14ZBK

通用钻套

适用于S-DM08、S-DM10及S-DM12，也用于所有的C6.3和E6.3(1/4")
钻头

刀头：高品质铬钒钢，经过硬化处理，镀铬。
刀颈：不锈钢
应用：用于固定扭矩，扭矩标与柄部。

Universal Bitholder
For S-DM08, S-DM10 and S-DM12 also
for all C6,3 and E6,3 (1/4") Bits

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.
Collar: Stainless steel
Utilization: For controlled screw setting with definite torque in combination with torque screw driver handle.



14ZQK

通用T型刀柄的钻套

适用于S-DM08、S-DM10及S-DM12，也用于所有的C6.3和E6.3(1/4")
钻头

刀头：高品质铬钒钢，经硬化处理，镀铬
刀颈：不锈钢
应用：开关控制

Universal Bitholder with T-handle
For S-DM08, S-DM10 and S-DM12
also for all C6,3 and E6,3 (1/4") Bits

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.
Collar: Stainless steel
Utilization: For controlled opening



S-DM8

扭矩设定 4 Nm
Torque for setting



夹紧扳手 SW7
用于可换刀头铣刀杆 DM8

Clamping wrench SW7
for multi milling shank DM8

S-DM10

扭矩设定 6 Nm
Torque for setting



夹紧扳手 SW9
用于可换刀头铣刀杆 DM10

Clamping wrench SW9
for multi milling shank DM10

S-DM12

扭矩设定 6 Nm
Torque for setting



夹紧扳手 SW10
用于可换刀头铣刀杆 DM12

Clamping wrench SW10
for multi milling shank DM12

DG铣削系列

- 中心加工和槽铣削
- 倒角和定心加工
- 仿形铣削
- 大进给铣削



Milling system DG for

- Centre cutting and groove milling
- Chamfering and centering
- Copy milling
- High feed milling

槽铣削

GROOVE MILLING

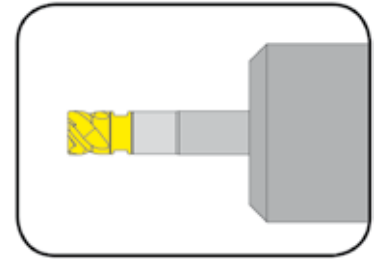


铣刀杆 型号

MILLING SHANK Type

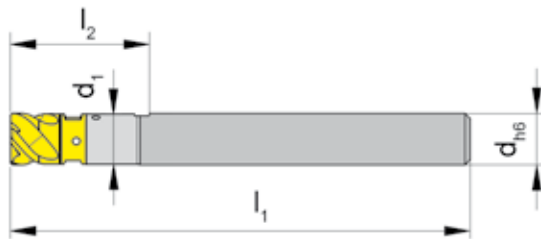
MDG

带内冷
with through coolant supply



90°刀杆，热缩夹持
Shank 90° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide



配合 刀片
for use with Cutting insert

型号 DGF
Type DGFF
DGH
DGK
DGM
DGR
DGRR

产品型号 Part number	Ds	l ₁	l ₂	d ₁	d
MDG.10.0010.90.01.A	10	101.8	56.8	9.8	10
MDG.12.0012.90.01.A	12	114.3	59.3	11.7	12
MDG.16.0016.90.01.A	16	129.8	64.8	15.6	16
MDG.20.0020.90.01.A	20	150.3	70.3	19.5	20

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页N14。

Spare parts

Wrenches and additional equipment are not combined with the milling shank. Separate order required!
For more details and torque specifications please see the technical data on page N14.

槽铣削

GROOVE MILLING

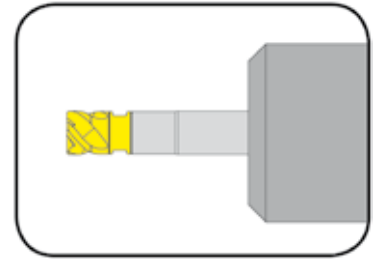


铣刀杆 型号

MILLING SHANK Type

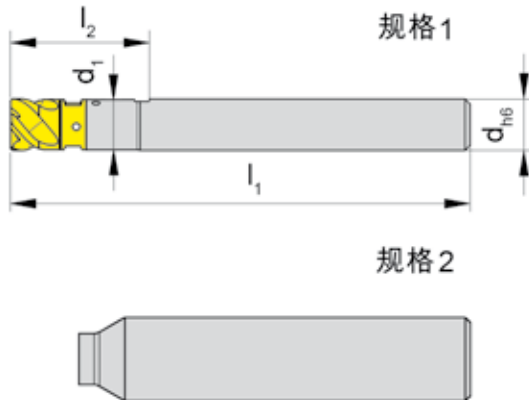
MDG

带内冷
with through coolant supply



90°刀杆，不推荐热缩夹持
Shank 90° - not recommended for shrinking

刀杆材料：钢
Material of shank: Steel



配合 刀片
for use with Cutting insert

型号
Type

- DGF
- DGFF
- DGH
- DGK
- DGM
- DGR
- DGRR

产品型号 Part number	Ds	l_1	l_2	d_1	d	规格 Form
MDG-10-ST10-90.01.A	10	91.8	36.8	9.8	10	1
MDG-10-ST16-90.01.A			19.8			16
MDG-12-ST12-90.01.A	12	109.3	44.3	11.7	12	1
MDG-12-ST16-90.01.A			99.3			16
MDG-16-ST16-90.01.A	16	134.8	49.8	15.6	16	1
MDG-16-ST20-90.01.A			104.8			20
MDG-20-ST20-90.01.A	20	150.3	60.3	19.5	20	1
MDG-20-ST25-90.01.A			110.3			25

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页N14。

Spare parts

Wrenches and additional equipment are not combined with the milling shank. Separate order required!
For more details and torque specifications please see the technical data on page N14.

槽铣削

GROOVE MILLING

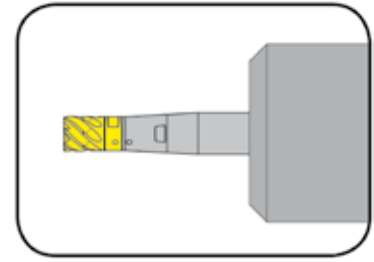


铣刀杆 型号

MILLING SHANK Type

MDG

带内冷
with through coolant supply

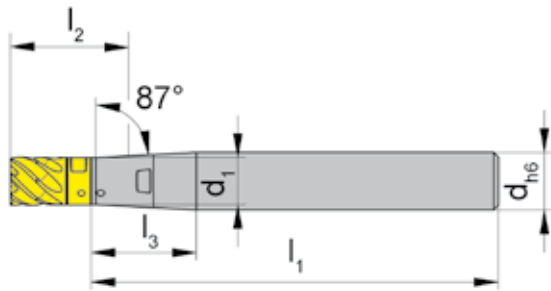


87°刀杆，热缩夹持
Shank 87° - shrink fit

刀杆材质：硬质合金
Material of shank: Carbide

配合 刀片
for use with Cutting insert

型号 DGF
Type DGFF
DGH
DGK
DGM
DGR
DGRR



产品型号 Part number	Ds	l ₁	l ₂	l ₃	d ₁	d
MDG.10.0012.87.01.A	10	85	19.7	22	9.8	12
MDG.12.0016.87.01.A	12	100	23.1	42	11.7	16
MDG.16.0020.87.01.A	16	100	29.6	43	15.6	20

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

配件

扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页N14。

Spare parts

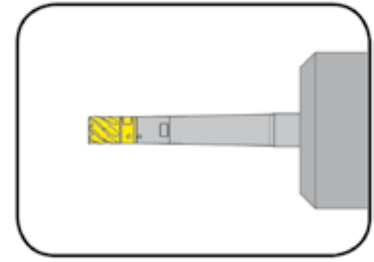
Wrenches and additional equipment are not combined with the milling shank. Separate order required!
For more details and torque specifications please see the technical data on page N14.

铣刀杆 型号

MILLING SHANK Type

MDG

带内冷
with through coolant supply

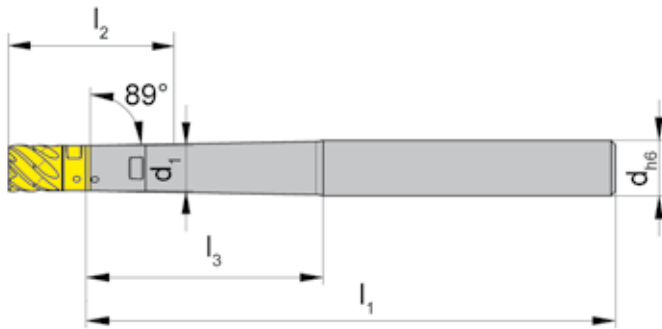


89°刀柄, 热缩夹持
Shank 89° - shrink fit

刀杆材质: 硬质合金
Material of shank: Carbide

配合 刀片
for use with Cutting insert

型号 DGF
Type DGFF
DGH
DGK
DGM
DGR
DGRR



产品型号 Part number	Ds	l ₁	l ₂	l ₃	d ₁	d
MDG.10.0012.89.01.A	10	115	23.5	50	9.8	12
MDG.12.0016.89.01.A	12	140	28.8	50	11.7	16
MDG.16.0020.89.01.A	16	160	37.2	75	15.6	20

按需提供更多尺寸
Further sizes upon request

尺寸单位: mm
Dimensions in mm

配件

扳手和附加设备不包含在铣削刀杆中, 需另行订购!
更多细节和扭矩规格详见技术参考页N14。

Spare parts

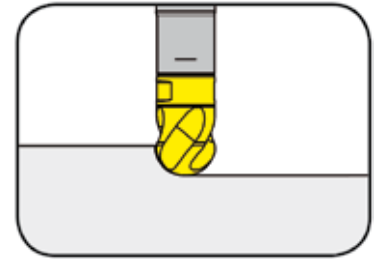
Wrenches and additional equipment are not combined with the milling shank. Separate order required!
For more details and torque specifications please see the technical data on page N14.

仿形铣削 COPY MILLING



刀片型号
CUTTING INSERT Type

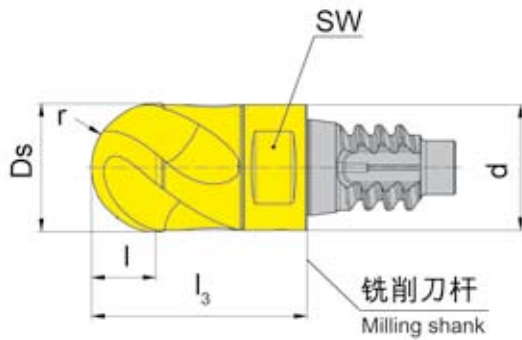
DGK



180°球头铣刀头
Ballnose milling head 180°

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



图示=右手型
Picture = right hand cutting version

端面加工切削刃过中心
face cutting edge
cutting across centre

产品型号 Part number	系列 System	SW	Z	Ds	d	r	l	l ₃	MG24	AN2P
DGK.2.10.1000.00 DGK.4.10.1000.00	DG10	8	2 4	10	9.8	5	5.5	16.8		▲
DGK.2.12.1200.00 DGK.4.12.1200.00	DG12	10	2 4	12	11.7	6	6.5	19.3		▲
DGK.2.16.1600.00 DGK.4.16.1600.00	DG16	13	2 4	16	15.6	8	8.5	24.8		▲
DGK.2.20.2000.00 DGK.4.20.2000.00	DG20	17	2 4	20	19.5	10	12.0	30.3		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades

N

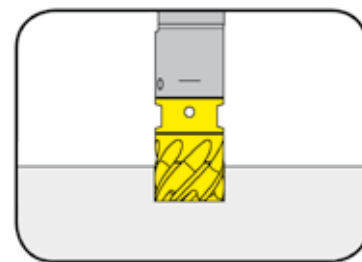
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片型号
CUTTING INSERT Type

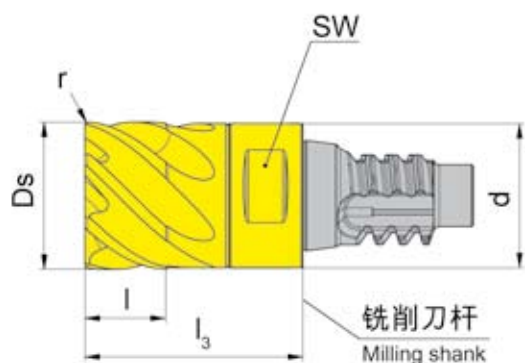
DGM



多刃
multiple fluted

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



图示=右手型
Picture = right hand cutting version

端面加工切削刃不过中心
face cutting edge
not cutting across centre

产品型号 Part number	系列 System	SW	Z	Ds	d	r	l	l ₃	MG24	AN2P
DGM.7.10.1000.02.0	DG10	8	7	10	9.8	0.2	5.5	16.8		▲
DGM.7.10.1000.10.0										
DGM.7.12.1200.02.0	DG12	10	7	12	11.7	0.2	6.5	19.3		▲
DGM.7.12.1200.10.0										
DGM.9.16.1600.02.0	DG16	13	9	16	15.6	0.2	9.0	24.8		▲
DGM.9.16.1600.10.0										
DGM.9.20.2000.02.0	DG20	17	9	20	19.5	0.2	11.0	30.3		▲
DGM.9.20.2000.10.0										

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades



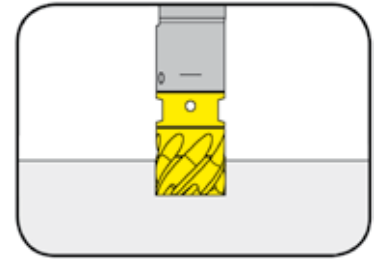
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片 型号
CUTTING INSERT Type

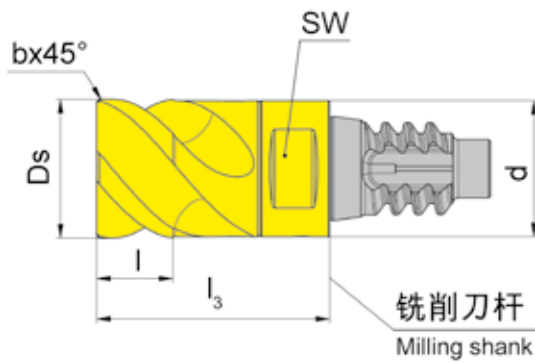
DGF



带刀尖倒角的刀片
Cutting insert with corner chamfer

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



端面加工切削刃过中心
face cutting edge
cutting across centre

图示=右手型
Picture = right hand cutting version

产品型号 Part number	系列 System	SW	Z	Ds	d	l	l ₃	b	MG24	AN2P
DGF.3.10.1000.02.00	DG10	8	3	10	9.8	5.5	16.8	0.20		▲
DGF.3.12.1200.02.00	DG12	10	3	12	11.7	6.5	19.3	0.20		▲
DGF.4.16.1600.02.00	DG16	13	4	16	15.6	8.5	24.8	0.20		▲
DGF.4.20.2000.03.00	DG20	17	4	20	19.5	12.0	30.3	0.25		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades

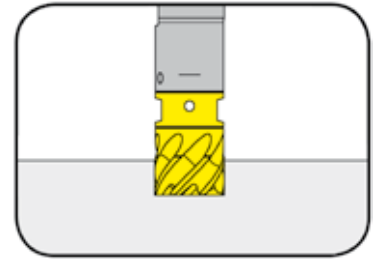
角铣削和槽铣削

CORNER and GROOVE MILLING



刀片型号
CUTTING INSERT Type

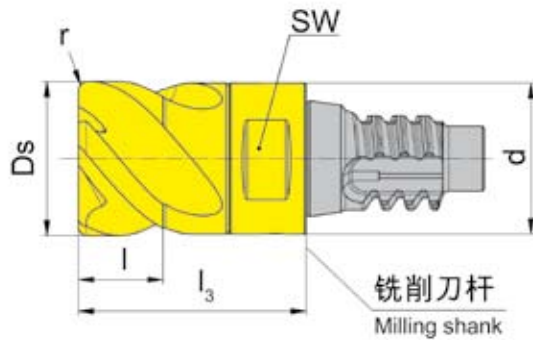
DGR



带刀尖圆角的刀片
Cutting insert with corner radius

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



端面加工切削刃过中心
face cutting edge
cutting across centre

图示=右手型
Picture = right hand cutting version

产品型号 Part number	系列 System	SW	Z	Ds	d	r	l	l ₃	MC24	AN2P
DGR-3.10.1000.05.00	DG10	8	3	10	9.8	0.5	5.5	16.8		
DGR-3.10.1000.10.00			3			1.0				
DGR-4.10.1000.05.00			4			0.5				
DGR-4.10.1000.10.00			4			1.0				
DGR-3.12.1200.05.00	DG12	10	3	12	11.7	0.5	6.5	19.3		
DGR-4.12.1200.05.00			4			0.5				
DGR-4.12.1200.10.00			4			1.0				
DGR-5.16.1600.05.00	DG16	13	5	16	15.6	0.5	8.5	24.8		
DGR-5.16.1600.10.00						1.0				
DGR-5.16.1600.15.00						1.5				
DGR-5.16.1600.20.00						2.0				
DGR-5.20.2000.05.00	DG20	17	5	20	19.5	0.5	12.0	30.3		
DGR-5.20.2000.10.00						1.0				
DGR-5.20.2000.15.00						1.5				
DGR-5.20.2000.20.00						2.0				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号 Carbide grades	MC24	AN2P
P	●	▲
M	●	▲
K	○	▲
N	○	▲
S	○	▲
H	○	▲

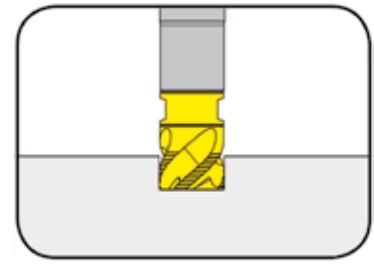
N

粗加工立铣刀 ROUGHING ENDMILL



刀片 型号
CUTTING INSERT Type

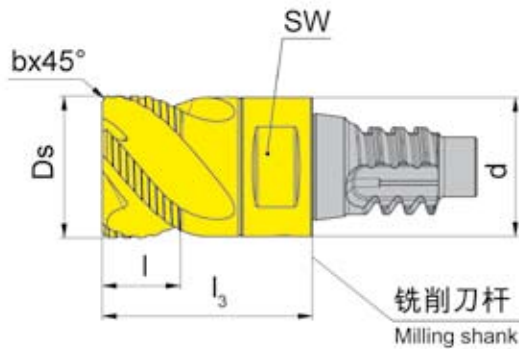
DGRR



带刀尖圆角的刀片
Cutting insert with corner radius

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



端面加工切削刃过中心
face cutting edge
cutting across centre

图示=右手型
Picture = right hand cutting version

产品型号 Part number	系列 System	SW	Z	Ds	d	l	l ₃	b	MG24	AN2P
DGRR.3.10.1000.00	DG10	8	3	10	9.8	5.5	16.8	0.3		▲
DGRR.4.10.1000.00			4							
DGRR.3.12.1200.00	DG12	10	3	12	11.7	6.5	19.3	0.5		▲
DGRR.4.12.1200.00			4							
DGRR.5.16.1600.00	DG16	13	5	16	15.6	8.5	24.8	0.5		▲
DGRR.5.20.2000.00	DG20	17	5	20	19.5	12.0	30.3	0.5		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

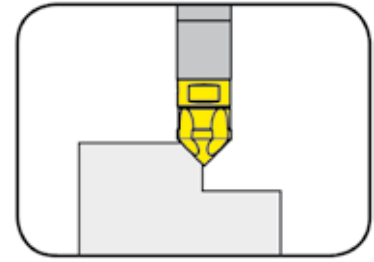
N

倒角 CHAMFERING



刀片型号
CUTTING INSERT Type

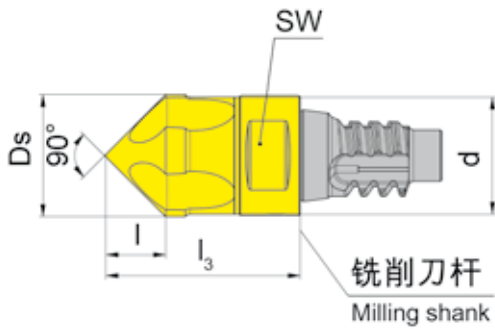
DGFF



倒角角度	Angle of chamfer	45 °
------	------------------	------

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



图示=右手型
Picture = right hand cutting version

端面加工切削刃不过中心
face cutting edge
not cutting across centre

产品型号 Part number	系列 System	SW	Z	Ds	d	l	l ₃	MG24	AN2P
DGFF.4.10.45.00	DG10	8	4	10	9.8	4.5	16.8		▲
DGFF.4.12.45.00	DG12	10	4	12	11.7	5.5	19.3		▲
DGFF.6.16.45.00	DG16	13	6	16	15.6	7.5	24.8		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

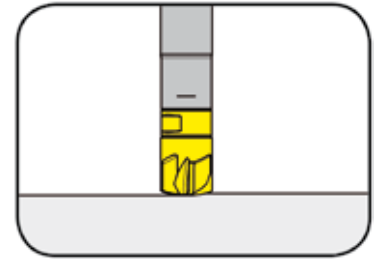
P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades

N

刀片 型号
CUTTING INSERT Type

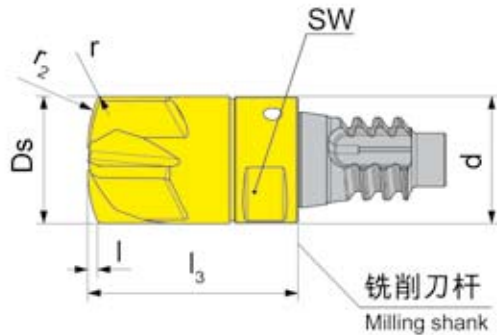
DGH



带刀尖圆角的刀片
Cutting insert with corner radius

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



图示=右手型
Picture = right hand cutting version

端面加工切削刃不过中心
face cutting edge
not cutting across centre

产品型号 Part number	系列 System	SW	Z	Ds	d	r	r ₂	r _{theo}	l	l ₃	MG24	AN2P
DGH.4.10.1000.00	DG10	8	4	10	9.8	0.5	10	1.07	0.7	16.8		▲
DGH.4.12.1200.00	DG12	10	4	12	11.7	0.5	13	1.18	0.8	19.3		▲
DGH.4.16.1600.00	DG16	13	4	16	15.6	0.8	20	1.38	1.0	24.8		▲
DGH.4.20.2000.00	DG20	17	4	20	19.5	0.8	24	1.96	1.2	30.3		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	●
K	○
N	○
S	○
H	○

硬质合金牌号
Carbide grades

切削参数

CUTTING DATA



推荐切削速度
recommended cutting speeds

材料 Material		硬度 Hardness Brinell (HB)	肩铣削 Shoulder milling $a_p < 0.5 \times D_s$ $a_e < 0.3 \times D_s$	肩铣削 Shoulder milling $a_p < 0.5 \times D_s$ $a_e < 1.0 \times D_s$	槽铣削 Groove milling $a_p < 0.5 \times D_s$	仿形铣 Copy milling $a_p < 0.02 \times D_s$	
			v_c (m/min)	v_c (m/min)	v_c (m/min)	v_c (m/min)	
P	碳钢 Carbon steel	0.2% C	140	250	180	160	350
		0.4% C	180	220	160	140	320
		0.6% C	200	200	140	130	300
	合金钢 Alloyed steel	退火 annealed	180	200	150	130	280
		淬火 quenched	280				
	高合金钢 high alloyed steel (>5%)	退火 annealed	200	140	100	90	180
硬化 hardened		-					
铸钢 Cast steel	非合金 unalloyed	180	170	130	120	280	
	合金 alloyed	220					
M	不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200	150	90	80	180
		奥氏体 austenitic	180				
K	灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180	230	190	170	280
		高拉伸强度 high tensile strength	250				
	球墨铸铁 Spheroidal graphite cast iron	铁素体 ferritic	160	220	160	140	300
		珠光体 perlitic	250				
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125	220	160	140	320
		珠光体 perlitic	225				
N	铝合金 Al-alloys	非热处理 not heat treatable	30-80	可达 max. up to max.	可达 max. up to max.	可达 max. up to max.	可达 max. up to max.
		热处理 heat treatable	80-120				
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80	600	200	180	600
		热处理 heat treatable	100				
	铜合金 Copper-alloys	非热处理 not heat treatable	90	600	200	180	600
		热处理 heat treatable	100				
S	耐热合金 Heat resistant alloy (Fe)	退火 annealed	200	80	60	50	80
		硬化 hardened	275				
	耐热合金 Heat resistant alloy (Ni. Co)	退火 annealed	250	45	35	30	60
		硬化 hardened	350				

N

推荐进给率

recommended feed rate

肩铣削 Shoulder milling		肩铣削 Shoulder milling		槽铣削 Groove milling		仿形铣 Copy milling	
$a_p < 0.5 \times D_s$ $a_e < 0.3 \times D_s$		$a_p < 0.5 \times D_s$ $a_e < 1.0 \times D_s$		$a_p < 0.5 \times D_s$		$a_p < 0.02 \times D_s$	
Ds (mm)	f _z (mm)	f _z (mm)	f _z (mm)	f _z (mm)	f _z (mm)	f _z (mm)	f _z (mm)
10	0.06	0.04	0.03	0.03	0.13		
12	0.09	0.05	0.04	0.04	0.14		
16	0.1	0.07	0.06	0.06	0.16		
20	0.12	0.08	0.07	0.07	0.19		

扭矩设定

Torque for setting

系列 System	扭矩设定 (Nm) Torque for setting (Nm)	扳手规格 Wrench size SW	扳手 Combination wrench	扭矩扳手 Torque wrench		
				应用 Application	有效范围 Effective range	用于小型系列 for small series
DG10	12	8	S.DG1012	D.DG1001	D0525VK 5 - 25 Nm	D1050VK 10 - 50 Nm
DG12	18	10		D.DG1201		
DG16	25	13	S.DG1620	D.DG1601	D20100VK 20 - 100 Nm	
DG20	42	17		D.DG2001		

安装说明

1. 擦净铣刀杆和刀片接触面及密封面上的所有灰尘。
2. 使用夹具夹紧铣刀柄
3. 涂少量润滑油在刀片的螺纹，锥面和密封面上。
4. 将刀片插到刀杆上，根据标记手动压紧刀片。**注意：小心划伤！**
5. 使用扭矩扳手将刀片拧紧到刀杆上，使用推荐扭矩

Assembly instruction

1. Remove any dirt from the interface and seating surface of the milling cutter shank and cutting insert.
2. Grip milling cutter shank in jig.
3. Apply lubricant sparingly to thread, taper and seat surface of cutting insert.
4. Insert cutting insert into shank and clamp it manually according to mark.
Attention: risk of injury!
5. Tighten cutting insert in milling cutter shank with a torque wrench, using the recommended torque.

Note:

The use of lubricant reduces friction between cutting insert and tool holder. For optimum radial and axial run-out precision it is crucial that interfaces and seat surfaces are clean. Applying the recommended tightening torque for gripping cutting inserts guarantees the correct insert fit.

新一代铣削刀具 The Generation of Milling Tools

DA 系列 DA System



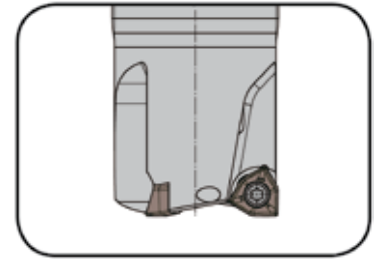
DAH 系列 DAH System



铣刀杆 型号

MILLING SHANK Type

DAM31/DAM32



切削刃Ø

Cutting edge Ø

16/20/25/32 mm

刀杆材料：钢（不推荐使用热缩方式夹持）

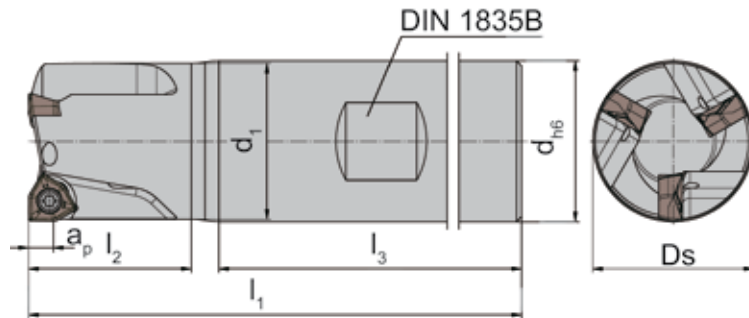
Material of shank: Steel (not recommended for shrink fitting)

配合 可转位刀片

for use with Indexable insert

型号 DA31

Type DA32



产品型号 Part number	Z	Ds	ap	l ₁	l ₂	l ₃	d ₁	d	刀片 Insert
DAM31.016.D163.02B	2	16	3.0	79	17	54	15	16	DA31.016...
DAM31.020.D204.03B	3	20		86	21	59	19	20	DA31.020...
DAM31.025.D255.04B	4	25		97	27	64	24	25	DA31.025...
DAM31.032.D326.05B	5	32		106	32	68	31	32	DA31.032...
DAM32.020.D205.02B	2	20	4.8	87	22	19	19	20	DA32.020...
DAM32.025.D256.03B	3	25		102	32	64	24	25	DA32.025...
DAM32.032.D327.03B	3	32		106	32	68	31	32	DA32.032...

Ø25mm以上为2个夹持面
from Ø 25 mm 2 clamping flats

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

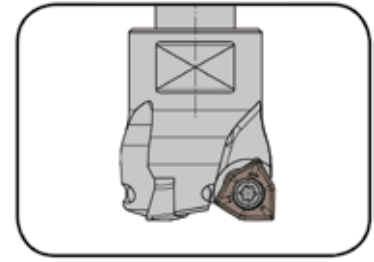
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM31.016.D163.02B	030.2541.T8P	T8PL
DAM31.020.D204.03B	030.2547.T8P	T8PL
DAM31.025.D255.04B	030.2553.T8P	T8PL
DAM31.032.D326.05B	030.2557.T8P	T8PL
DAM32.020.D205.02B	030.3562.T10P	T10PL
DAM32.025.D256.03B	030.3569.T10P	T10PL
DAM32.032.D327.03B	030.3576.T10P	T10PL

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

DAM31/DAM32



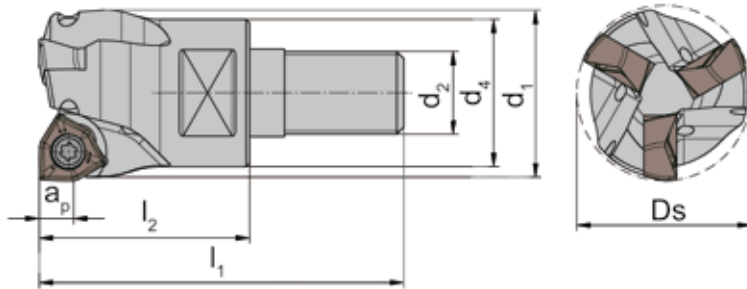
切削刃Ø

Cutting edge Ø

16/20/25/32 mm

刀杆材料：钢

Material of shank: Steel



配合 可转位刀片

for use with Indexable insert

型号 DA31

Type DA32

产品型号 Part number	Z	Ds	a _p	l ₁	l ₂	d ₁	d ₂	d ₄	SW	刀片 Insert
DAM31.016.M083.02B	2	16	3.0	38	20	15	M8	13	10	DA31.016...
DAM31.020.M104.03B	3	20		45	25	19	M10	18	15	DA31.020...
DAM31.025.M125.04B	4	25		52	30	24	M12	21	17	DA31.025...
DAM31.032.M166.05B	5	32		58	35	31	M16	29	24	DA31.032...
DAM32.020.M104.02B	2	20	4.8	45	25	19	M10	18	15	DA32.020...
DAM32.025.M125.03B	3	25		52	30	24	M12	21	17	DA32.025...
DAM32.032.M166.03B	3	32		58	35	31	M16	29	24	DA32.032...

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM31.016.M083.02B	030.2541.T8P	T8PL
DAM31.020.M104.03B	030.2547.T8P	T8PL
DAM31.025.M125.04B	030.2553.T8P	T8PL
DAM31.032.M166.05B	030.2557.T8P	T8PL
DAM32.020.M104.02B	030.3562.T10P	T10PL
DAM32.025.M125.03B	030.3569.T10P	T10PL
DAM32.032.M166.03B	030.3576.T10P	T10PL

倒角 CHAMFERING

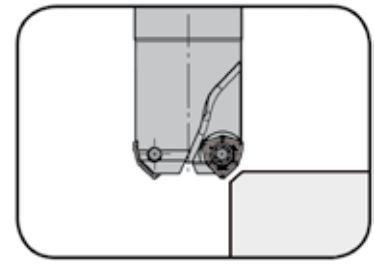


铣刀杆 型号

MILLING SHANK Type

DAM31/DAM32

用于45°铣削和倒角
for 45° Milling and Chamfering



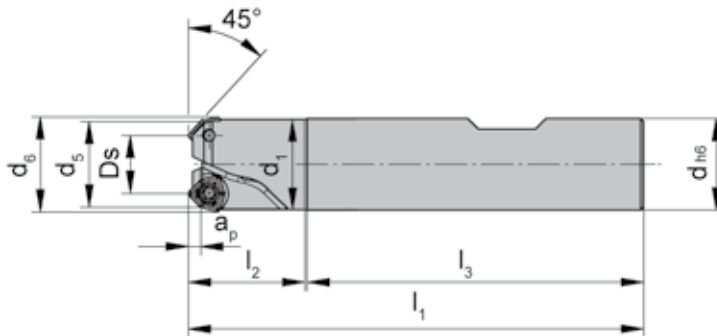
切削刃Ø Cutting edge Ø 10.4/14.4/17.6 mm

刀杆材料：钢（不推荐使用热缩方式夹持）

Material of shank: Steel (not recommended for shrink fitting)

配合 可转位刀片
for use with Indexable insert

型号 DA31
Type DA32



产品型号 Part number	Z	Ds	a _p	l ₁	l ₂	l ₃	d ₁	d	d ₅	d ₆	刀片 Insert
DAM31.411.D163.02B	2	10.4	2.0	80	20.0	59	15.8	16	15	16.9	DA31.016...
DAM31.414.D204.03B	3	14.4	2.0	87	23.0	62	18.8	20	19	20.9	DA31.020...
DAM32.417.D256.03B	3	17.6	3.2	103	34.5	67	24.8	25	24	28.3	DA32.025...

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM31.411.D163.02B	030.2541.T8P	T8PL
DAM31.414.D204.03B	030.2547.T8P	T8PL
DAM32.417.D256.03B	030.3569.T10P	T10PL

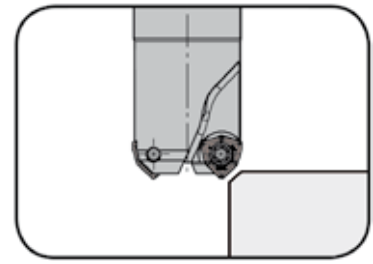
倒角 CHAMFERING



螺纹锁紧铣刀 型号
SCREW-IN CUTTER Type

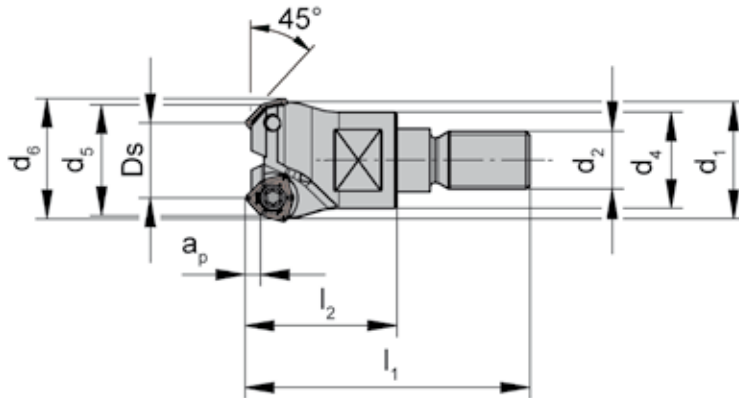
DAM31/DAM32

用于45°铣削和倒角
for 45° Milling and Chamfering



切削刃Ø Cutting edge Ø 10.5/14.4/17.6 mm

刀杆材料：钢
Material of shank: Steel



配合 可转位刀片
for use with Indexable insert

型号 DA31
Type DA32

产品型号 Part number	Z	Ds	a _p	l ₁	l ₂	d ₁	d ₂	d ₄	d ₅	d ₆	刀片 Insert
DAM31.411.M083.02B	2	10.5	2.0	38	20	15.8	M8	13	15	16.9	DA31.016...
DAM31.414.M104.03B	3	14.4	2.0	45	25	19.8	M10	18	19	20.9	DA31.020...
DAM32.417.M125.03B	3	17.6	3.2	52	30	24.8	M12	21	24	28.3	DA32.025...

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

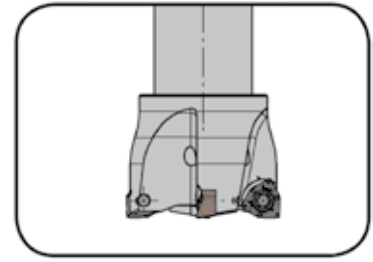
螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM31.411.M083.02B	030.2541.T8P	T8PL
DAM31.414.M104.03B	030.2547.T8P	T8PL
DAM32.417.M125.03B	030.3569.T10P	T10PL

O

铣刀杆 型号

MILLING SHANK Type

DAM31

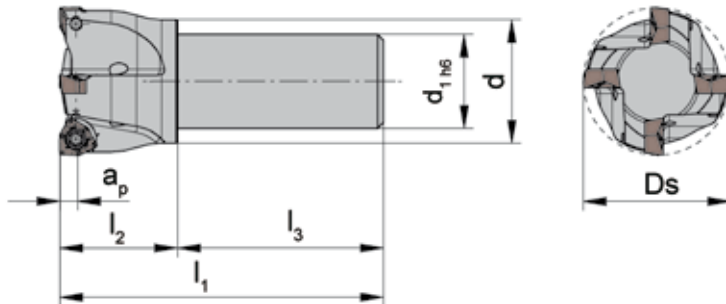


切削刃Ø

Cutting edge Ø

20/25/32 mm

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes



配合 可转位刀片
for use with Indexable insert

型号 DA31
Type

产品型号 Part number	Z	Ds	ap	l ₁	l ₂	l ₃	d ₁	d	刀片 Insert
DAM31.020.D160.03A	3	20	3	52	17	35	16	19	DA31.020...
DAM31.025.D161.04A DAM31.025.D201.04A	4	25	3	55	20	35	16 20	24	DA31.025...
DAM31.032.D162.05A DAM31.032.D202.05A	5	32	3	60	25	35	16 20	31	DA31.032...

尺寸单位 : mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

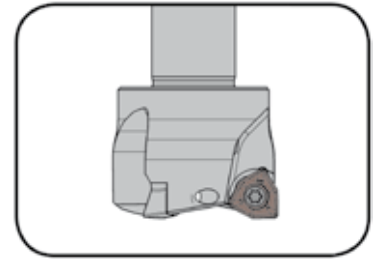
附件 Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM31.020.D160.03A	030.2547.T8P	T8PL
DAM31.025.D...04A	030.2553.T8P	T8PL
DAM31.032.D...05A	030.2557.T8P	T8PL

铣刀杆 型号

MILLING SHANK Type

DAM32



切削刃Ø

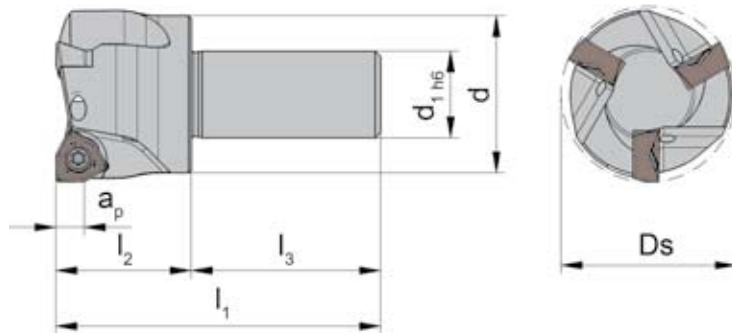
Cutting edge Ø

20/25/32 mm

用于CNC车床的圆刀杆
with cylindrical shank for CNC-lathes

配合可转位刀片
for use with Indexable insert

型号 DA32
Type



产品型号 Part number	Z	Ds	a_p	l_1	l_2	l_3	d_1	d	刀片 Insert
DAM32.020.D160.02A	2	20	4.5	52	17	35	16	19	DA32.020...
DAM32.025.D161.03A	3	25	4.5	55	20	35	16	24	DA32.025...
DAM32.032.D162.03A	3	32	4.5	60	25	35	16	31	DA32.032...

尺寸单位：mm
Dimensions in mm

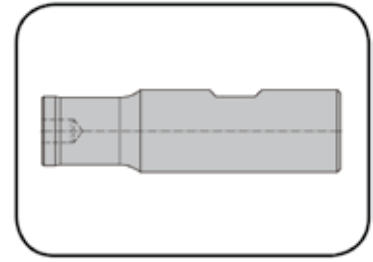
螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAM32.020.D160.02A	030.3562.T10P	T10PL
DAM32.025.D161.03A	030.3569.T10P	T10PL
DAM32.032.D162.03A	030.3576.T10P	T10PL

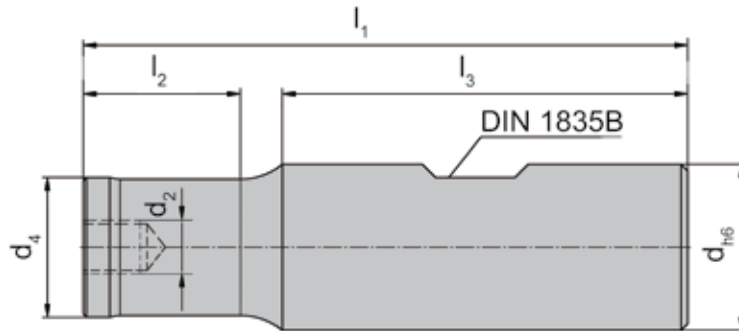
接头 型号
ADAPTOR Type

MD



配合DAM...M铣刀头和MD...M变径杆
for milling head DAM/DAH...M and reducer MD...M

刀杆材料：钢（不推荐使用热缩方式夹持）
Material of shank: Steel (not recommended for shrink fitting)



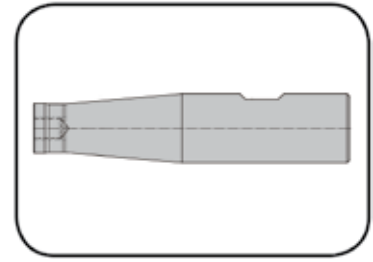
产品型号 Part number	l_1	l_2	l_3	d	d_2	d_4
MD13.02.00.D16B	73	14	53	16	M8	13
MD18.04.00.D20B	80	20	55	20	M10	18
MD21.06.00.D25B	91	23	61	25	M12	21
MD29.08.00.D32B	100	29	65	32	M16	29

Ø25mm以上为2个夹持面
from Ø 25 mm 2 clamping flats

尺寸单位：mm
Dimensions in mm

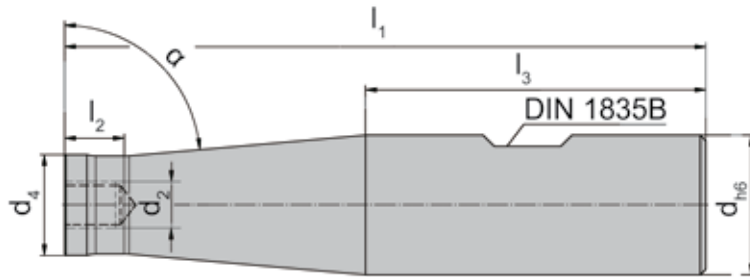
接头 型号
ADAPTOR Type

MD



配合DAM...M铣刀头和MD...M变径杆
for milling head DAM/DAHM...M and reducer MD...M

刀杆材料：钢（不推荐使用热缩方式夹持）
Material of shank: Steel (not recommended for shrink fitting)



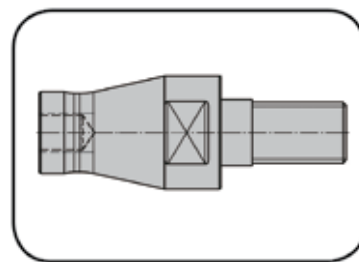
产品型号 Part number	l_1	l_2	l_3	d	d_2	d_4	α
MD13.02.85.D20B	105	7	55	20	M8	13	85°
MD18.04.85.D25B	115	10	61	25	M10	18	85°
MD21.06.85.D32B	140	8	65	32	M12	21	85°
MD29.08.85.D40B	150	8	75	40	M16	29	85°

Ø25mm以上为2个夹持面
from Ø 25 mm 2 clamping flats

尺寸单位：mm
Dimensions in mm

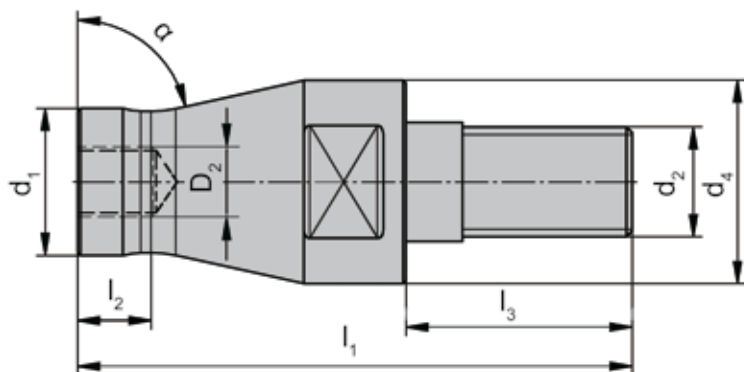
接头 型号
ADAPTOR Type

MD



配合DAM...M铣刀头的变径杆
Reducer for milling head DAM/DAH...M

刀杆材料：钢
Material of shank: Steel

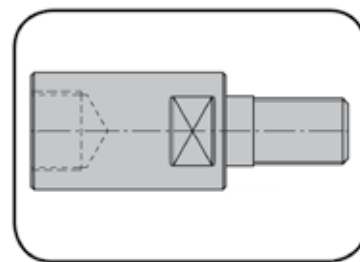


产品型号 Part number	l_1	l_2	l_3	d_1	d_2	d_4	α	SW
MD18.02.77-M10	49	6	20	13	M10	18	77.5°	15
MD21.04.77-M12	56	10	22	18	M12	21	77.5°	17
MD29.06.77-M16	52	6	23	21	M16	29	77.5°	24

尺寸单位：mm
Dimensions in mm

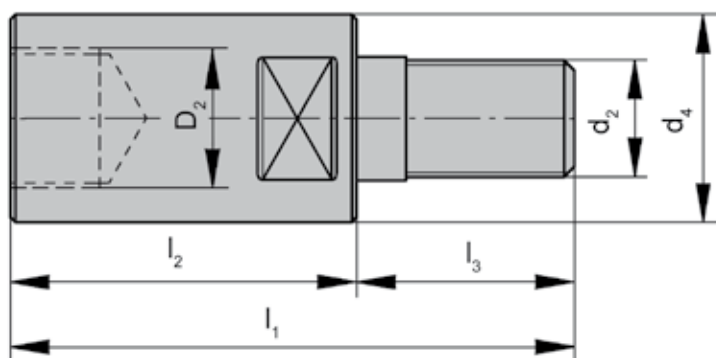
接长杆 型号 EXTENSION Type

MD



配合DAM/DAHM...M的加长杆
Lengthening bar for milling head DAM/DAHM...M

刀杆材料：钢
Material of shank: Steel



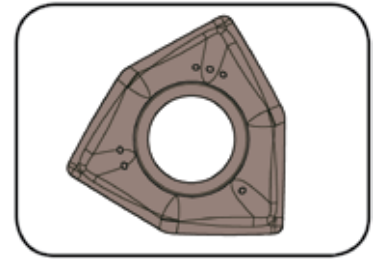
产品型号 Part number	l_1	l_2	l_3	d_2	d_4	SW
MD13.02.00.M08	48	30	18	M8	13	10
MD18.04.00.M10	55	35	20	M10	18	15
MD21.06.00.M12	57	35	22	M12	21	17
MD29.08.00.M16	58	35	23	M16	29	24

尺寸单位：mm
Dimensions in mm

可转位刀片 型号

INDEXABLE INSERT Type

DA31



切深可达
切削刃Ø

Depth of cut up to
Cutting edge Ø

3.0 mm

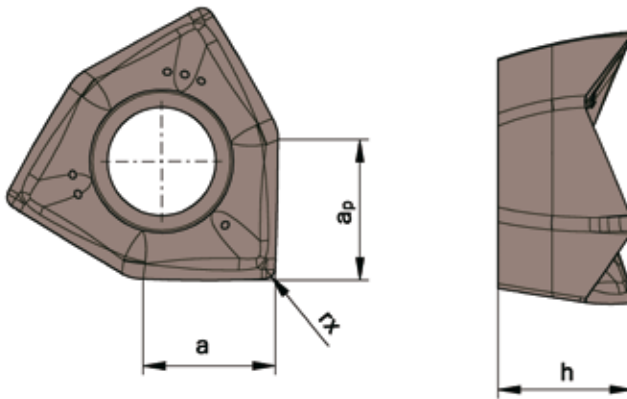
Ds 16/20/25/32 mm

配合 铣刀杆

for use with Milling shank

型号 DAM31

Type



产品型号 Part number	Ds	a_p	a	h	r_x	TA45	SA4B
DA31.016.A.00	16	3	3	3.1	-	▲	▲
DA31.016.A.02					0.2	▲	▲
DA31.016.A.04					0.4	▲	▲
DA31.020.A.00	20	3	3	3.1	-	▲	▲
DA31.020.A.02					0.2	▲	▲
DA31.020.A.04					0.4	▲	▲
DA31.025.A.00	25	3	3	3.1	-	▲	▲
DA31.025.A.02					0.2	▲	▲
DA31.025.A.04					0.4	▲	▲
DA31.032.A.00	32	3	3	3.1	-	△	▲
DA31.032.A.02					0.2	▲	▲
DA31.032.A.04					0.4	▲	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

硬质合金牌号TA45适用于易加工材料, 铝和精加工。

硬质合金牌号SA4B适用于中等和难加工材料。

Carbide grade TA45 preferred for easy to machine materials, aluminium and finishing.

Carbide grade SA4B preferred for middle and difficult to machine materials.

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●

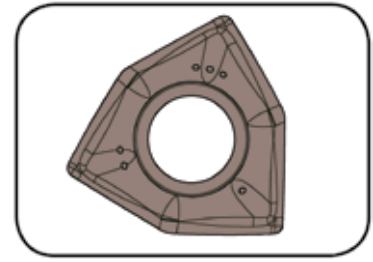
硬质合金牌号

Carbide grades

可转位刀片 型号

INDEXABLE INSERT Type

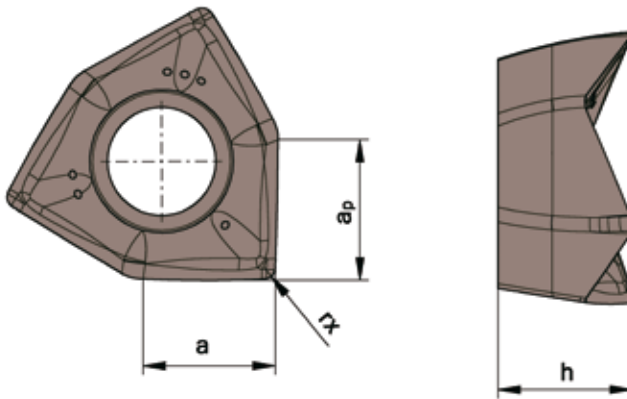
DA32



切深可达
切削刃 \varnothing

Depth of cut up to
Cutting edge \varnothing

4.8 mm
Ds 20/25/32 mm



配合 铣刀杆
for use with Milling shank

型号 DAM32
Type

产品型号 Part number	Ds	a_p	a	h	r_x	TA45	SA4B
DA32.020.A.00	20	4.8	4.6	4.7	-	△	△
DA32.020.A.02					0.2	▲	▲
DA32.020.A.04					0.4	△	▲
DA32.020.A.08					0.8	▲	▲
DA32.020.A.10					1.0	▲	▲
DA32.025.A.00	25	4.8	4.6	4.7	-	△	△
DA32.025.A.02					0.2	△	▲
DA32.025.A.04					0.4	▲	▲
DA32.025.A.08					0.8	▲	▲
DA32.025.A.10					1.0	▲	▲
DA32.032.A.00	32	4.8	4.6	4.7	-	△	△
DA32.032.A.02					0.2	▲	▲
DA32.032.A.04					0.4	▲	▲
DA32.032.A.08					0.8	▲	▲
DA32.032.A.10					1.0	▲	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

□ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

硬质合金牌号TA45适用于易加工材料，铝和精加工。

硬质合金牌号SA4B适用于中等和难加工材料。

Carbide grade TA45 preferred for easy to machine materials, aluminium and finishing.

Carbide grade SA4B preferred for middle and difficult to machine materials.

硬质合金牌号 Carbide grades	P	M	K	N	S	H
TA45	●	●	●	●	●	●
SA4B	●	●	●	●	●	●

硬质合金牌号
Carbide grades

Z = 齿数
Number of teeth

d = 切削刃 Ø
Cutting edge Ø

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d \cdot \pi} \text{ [1/min]}$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d \cdot \pi \cdot n}{1000} \text{ [m/min]}$$

f_z = 进给/齿
Feed/tooth

$$f_z = \frac{v_f}{Z \cdot n} \text{ [mm]}$$

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \text{ [mm/min]}$$

Q = 材料去除率
Material removal rate

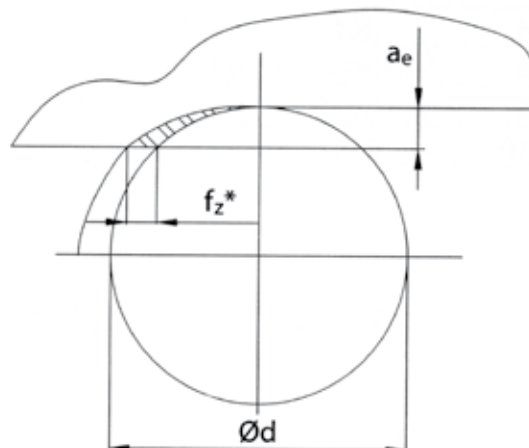
$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \text{ (cm}^3\text{/min)}$$

小切深的肩铣削，需要进给补偿 f'_z ，根据以下公式计算。
这个值可能比由切深和切削直径得出的进给率值高。

Shoulder milling with a small depth of cut requires a compensation of the feedrate f'_z according to the following formula.
This value is often much higher than the regular feedrate depending on the depth of cut and the cutter diameter.

f'_z = 较小 a_e (最大到 $0.25 \cdot d$) 对侧铣有效
effective for side milling with small a_e (up to $0,25 \cdot d$):

$$f'_z = f_z \sqrt{\frac{d}{a_e}} \text{ [mm]}$$



ISO	材料 Material	硬度 HB Hardness HB	刀片规格 DA31 进给/齿 f_z (mm) Insert size DA31 Feed/tooth f_z (mm)	刀片规格 DA32 进给/齿 f_z (mm) Insert size DA32 Feed/tooth f_z (mm)	切削速度 v_c (m/min) Cutting speed	
					TA45	SA4B
P	非合金钢 unalloyed steel	125	0.03 - 0.30	0.04 - 0.40	240 - 340	260 - 380
	非合金钢 unalloyed steel	190	0.03 - 0.30	0.04 - 0.40	220 - 320	240 - 350
	低合金钢 unalloyed steel	200	0.03 - 0.30	0.04 - 0.40	180 - 290	200 - 320
	低合金钢 low alloyed steel	300	0.03 - 0.30	0.03 - 0.30	140 - 230	140 - 250
	高合金钢 high alloyed steel	200	0.03 - 0.30	0.03 - 0.30	100 - 190	110 - 210
M	不锈钢 马氏体 Stainless steel martenitic	240	0.03 - 0.30	0.03 - 0.30	110 - 180	130 - 200
	不锈钢 奥氏体 Stainless steel austenitic	180	0.03 - 0.14	0.03 - 0.20	100 - 170	110 - 190
K	可锻铸铁 铁素体 Malleable cast iron ferritic	130	0.03 - 0.30	0.04 - 0.30	140 - 220	150 - 250
	可锻铸铁 珠光体 Malleable cast iron perlitic	230	0.03 - 0.15	0.04 - 0.25	120 - 200	130 - 230
	球墨铸铁 铁素体/珠光体 Spheroidal graphite cast iron ferritic/perlitic	180	0.03 - 0.15	0.04 - 0.25	120 - 190	120 - 200
	球墨铸铁 珠光体 Spheroidal graphite cast iron perlitic	260	0.03 - 0.15	0.04 - 0.20	100 - 180	100 - 190
	灰铸铁 Grey cast iron	160	0.03 - 0.30	0.04 - 0.40	130 - 220	150 - 250
N	铝合金 Al-alloys	90	0.03 - 0.40	0.05 - 0.50	500 - 1200	500 - 1200
S	高温合金 Ni/Co基 Super alloy Ni/Co based	350	0.03 - 0.10	0.03 - 0.20	30 - 40	30 - 70
	合金 钛基合金 合金 Titanium based alloy	350	0.03 - 0.10	0.03 - 0.20	30 - 40	30 - 70

45° 铣削每齿进给可增加1.4倍

When 45° milling the feed per tooth f_z could be increased by factor 1.4!

坡走铣和插铣-90°铣刀

Ramp angle and plunging with a 90° milling cutter

Ø (mm) 刀片规格 / Insert size	32 DA32	25 DA32	20 DA32	32 DA31	25 DA31	20 DA31	16 DA31
切入角 (°) Diving angle (°)	3.5°	3.5°	3.5°	4.0°	3.5°	3.5°	3.0°
垂直方向满切最大切深 (mm) vertical full diving max. (mm)	1.0	0.6	0.4	1.7	0.8	0.6	0.4
侧面铣削 a_e max (mm) vertical side diving a_e max. (mm)	4.6	4.6	4.6	3.1	3.1	3.1	3.1
底孔最小径 D_b (mm) Predrilling D_b min. (mm)	22.8	15.8	10.8	25.8	18.8	13.8	9.8

坡走铣和插铣-45°铣刀

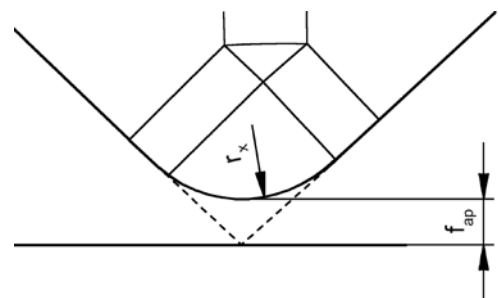
Ramp angle and plunging with a 45° milling cutter

Ø (mm) 刀片规格 / Insert size	17 DA32	14.4 DA31	10.5 DA31
切入角 (°) Diving angle (°)	11°	7°	10.5°
垂直方向满切最大切深 (mm) vertical full diving max. (mm)	3.2	2.0	2.0

45°铣削时考虑圆角半径后切削深度的修正系数。

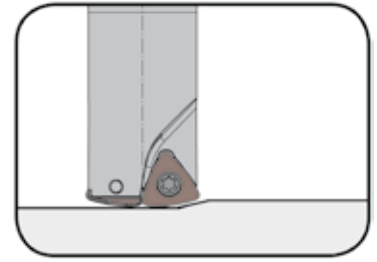
Correction factor for reduced cutting depth in consideration to the corner radius when 45° milling.

圆角刀尖 r_x (mm) Corner radius r_x (mm)	修正系数 f_{ap} (mm) Correction factor f_{ap} (mm)
0	0
0.2	0.078
0.4	0.17
0.8	0.33
1.0	0.41



铣刀头 型号
MILLING HEAD Type

DAHM

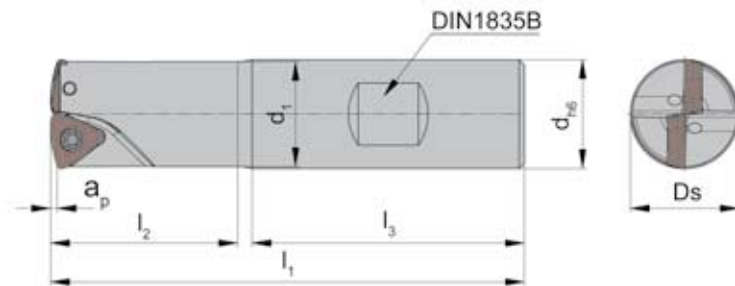


切削刃Ø Cutting edge Ø 20/25/32/40 mm

刀杆材料：钢
Material of shank: Steel

配合 可转位刀片
for use with Indexable insert

型号 DAH37
Type



产品型号 Part number	Z	Ds	ap	l ₁	l ₂	l ₃	d ₁	d
DAHM.37.020.D204.02B	2	20	1.2	87	34	50	19	20
DAHM.37.025.D255.03B	3	25	1.2	101	41	56	24	25
DAHM.37.032.D326.04B	4	32	1.2	111	47	60	31	32
DAHM.37.040.D326.05B	5	40	1.2	111	47	60	39	32

尺寸单位：mm
Dimensions in mm

螺钉030.3070.T10P的扭矩规格=3.4Nm。
Torque specification of the screw 030.3070.T10P = 3,4 Nm.

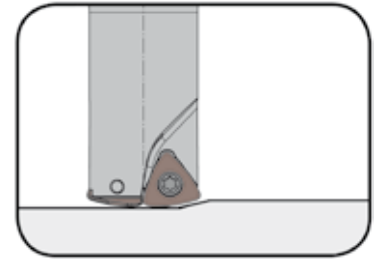
附件
Spare parts

铣刀头 Milling head	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.37.0...	030.3070.T10P	T10PL

螺纹锁紧铣刀 型号

SCREW-IN CUTTER Type

DAHM

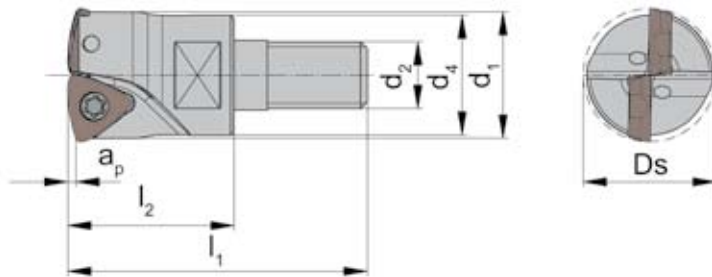


切削刃Ø	Cutting edge Ø	20/25/32/40 mm
------	----------------	----------------

刀杆材料：钢
Material of shank: Steel

配合 可转位刀片
for use with Indexable insert

型号 DAH37
Type



适用于MD系列刀柄
suitable for Shank Type MD

产品型号 Part number	Z	Ds	a _p	l ₁	l ₂	d ₁	d ₂	d ₄	SW
DAHM.37.020.M104.02	2	20	1.2	45	25	19	M10	18	15
DAHM.37.025.M125.03	3	25	1.2	52	30	24	M12	21	17
DAHM.37.032.M166.04	4	32	1.2	58	35	31	M16	29	24
DAHM.37.040.M166.05	5	40	1.2	58	35	39	M16	29	24

尺寸单位：mm
Dimensions in mm

螺钉030.3070.T10P的扭矩规格=3.4Nm。
Torque specification of the screw 030.3070.T10P = 3,4 Nm.

附件

Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.37.0...	030.3070.T10P	T10PL

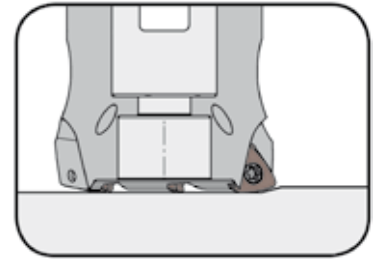
高进给铣削 HIGH FEED MILLING



铣刀 型号

MILLING CUTTER Type

DAHM

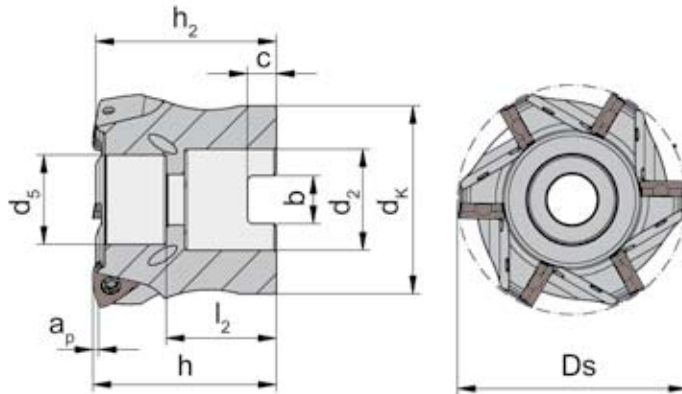


切削刃Ø

Cutting edge Ø

40/50/63/80 mm

配合刀柄式铣刀，符合DIN8030-标准
Arbor mounted cutter as per DIN 8030-A



型号 DAHM37
Type

配合刀柄

Type arbor mounted

图示=右手型

Picture = right hand cutting version

产品型号 Part number	Z	Ds	ap	h	h ₂	dk	d ₂	d ₅	b	c	l ₂
DAHM.37.040.A1635.05	5	40	1.2	35	34.4	33	16	16.0	8.4	5.6	22
DAHM.37.050.A2235.06	6	50	1.2	40	39.4	41	22	19.5	10.4	6.3	24
DAHM.37.063.A2240.07	7	63	1.2	40	39.4	49	22	19.5	10.4	6.3	24
DAHM.37.063.A2740.07				45	44.4						
DAHM.37.080.A3245.08	8	80	1.2	55	54.4	59	32	29.5	14.4	8.0	33

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

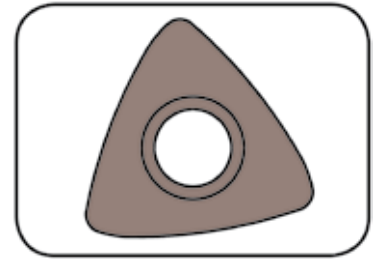
Spare parts

铣刀 Milling cutter	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.37.0...	030.3070.T10P	T10PL

可转位刀片 型号

INDEXABLE INSERT Type

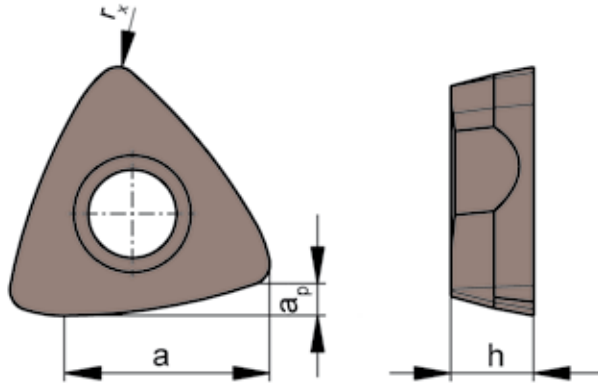
DAH37



切深可达

Depth of cut up to

1.2 mm



配合铣削刀杆
for use with Milling tool

型号 DAHM37
Type

产品型号 Part number	a_p	a	h	r_x	SA4B
DAH.37.022.N.08	1.2	7.9	3.18	0.8	▲
▲ 库存 / on stock Δ 4周 / 4 weeks					P ●
● 主要应用 / main recommendation					M ●
○ 可选推荐 / alternative recommendation					K ●
■ 无涂层牌号 / uncoated grades					N ●
■ 涂层牌号 / coated grades					S
■ 钎焊/金属陶瓷 / brazed/Cermet					H

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

Z = 齿数
Number of teeth

d_{eff} = 有效切削刃Ø
effective cutting edge Ø

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d_{\text{eff}} \cdot \pi} \text{ [1/min]}$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d_{\text{eff}} \cdot \pi \cdot n}{1000} \text{ [m/min]}$$

f_z = 进给/齿
Feed/tooth

$$f_z = \frac{v_f}{Z \cdot n} \text{ [mm]}$$

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \text{ [mm/min]}$$

Q = 材料去除率
Material removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \text{ [cm}^3\text{/min]}$$

计算有效切削直径 d_{eff} 以得到正确的RPM和切削进给。

使用以下的值和公式计算有效直径：

a_p = 切深
 D_s = 刀具直径
 K_D = 修正值表
 $d_{\text{eff}} = K_D + (D_s - 20)$

The effective cutting diameter d_{eff} must be calculated to obtain the correct RPM and the cutting feed.

The effective cutting diameter is calculated using the following values and formula.

a_p = depth of cut
 D_s = cutter diameter
 K_D = from Correction value chart
 $d_{\text{eff}} = K_D + (D_s - 20)$

修正数值
Correction value

a_p [mm]	K_D [mm]
0.1	9.71
0.2	11.47
0.3	12.81
0.4	13.93
0.5	14.92
0.6	15.82
0.7	16.63
0.8	17.39
0.9	18.10
1.0	18.77
1.1	19.40
1.2	20.00

ISO	材料 Material	硬度 HB Hardness HB	进给/齿 f_z (mm) Feed/tooth f_z (mm)	切削速度 v_c (m/min) Cutting speed v_c (m/min)
P	非合金钢 unalloyed steel	125	0.8 - 2.2	200 - 300
	非合金钢 unalloyed steel	190	0.8 - 2.2	200 - 300
	低合金钢 low alloyed steel	200	0.8 - 2.0	180 - 300
	低合金钢 low alloyed steel	300	0.8 - 2.0	160 - 280
	高合金钢 high alloyed steel	200	0.6 - 1.6	150 - 250
M	不锈钢 马氏体 Stainless steel martensitic	240	0.8 - 2.0	140 - 220
	不锈钢 奥氏体 Stainless steel austenitic	180	0.6 - 1.6	120 - 200
K	可锻铸铁 铁素体 Malleable cast iron ferritic	130	0.8 - 2.2	160 - 280
	可锻铸铁 珠光体 Malleable cast iron perlitic	230	0.7 - 1.8	150 - 250
	球墨铸铁 铁素体/珠光体 Spheroidal graphite cast iron ferritic/perlitic	180	0.7 - 1.8	150 - 250
	球墨铸铁 珠光体 Spheroidal graphite cast iron perlitic	260	0.7 - 1.8	140 - 240
	灰铸铁 Grey cast iron	160	0.8 - 2.5	180 - 320
N	铝合金 Al-alloys	90	1.0 - 3.0	1000 - 1500

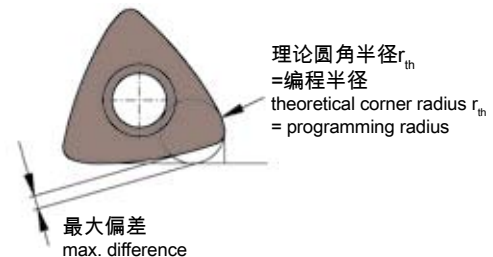
切入角

Diving angle

\varnothing (mm)	切入角 (°) Diving angle (°)
20	5.0
25	4.0
32	1.0
40	0.5
50	0.5
63	0.4
80	0.4

编程半径和偏差

Programming radius and difference



r_{th} (mm)	最大偏差 (mm) max. difference (mm)
2	0.83

整体硬质合金铣刀 用于

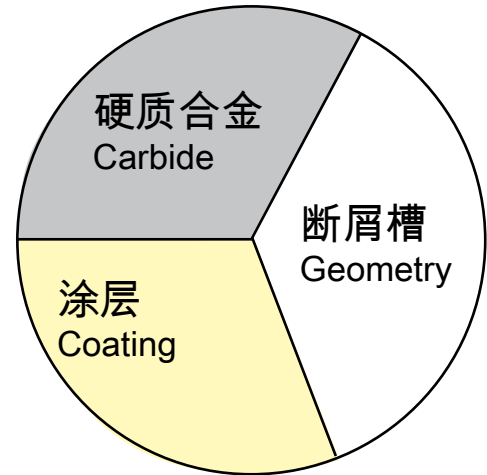
- 普通钢
- 高强度钢
- 钴铬钢
- 铜
- 石墨
- 铝



Solid carbide endmills for

- ordinary steels
- high tensile steels
- Cobalt Chromium Steel
- Copper
- Graphite
- Aluminium

DS和DP系列在三个组成部分方面非常均衡，并且和实际应用相结合。在不同的应用中，该铣削刀具都可实现三要素的最佳组合。



The basis of the systems DP and DS are a very well balanced composition of the three main components, always in relation to the application area.

For each application the best combination of the three main components is bundled in the milling tool.



DP系列
SYSTEM DP

用于
for

P 普通钢
ordinary steels

P4-P18

DS 系列
SYSTEM DS

用于
for

P 高强度钢
high tensile steels

P19-P49

S 钴铬
Cobalt Chromium

P50-P56

N 铜
Copper

P58-P65

石墨
Graphite

P66-P75

铝 (合成材料)
Aluminium (Synthetics)

P76-P85

计算公式
Formulas

P87-P88

切削参数
Cutting data

P89-P133

选择列表
Selection chart list

P134

P

高效率加工
- 适用于钢件 -



HIGH PRODUCTIVE MACHINING

- for steel materials -

P 普通钢
ordinary steels

	型号 type	页 Page
粗/精加工立铣刀 Roughing/Finishing Endmill	DPX	P6
去毛刺立铣刀 Deburring Endmill	DPFF	P7
粗加工 Roughing with ripper profile	DPS	P8
粗加工立铣刀-带断屑 Roughing Endmill with chip breaker	DPSB	P9
粗加工立铣刀，平头，不均等螺旋角 Roughing Endmill, plain, unequally twisted	DPSV	P10
粗加工立铣刀，平头 Roughing Endmill, plain	DPSG	P11 -P12
曲面立铣刀 Torus Endmill	DPTR	P13-P14
多刃立铣刀 Multiple fluted Endmill	DPM	P15
圆头立铣刀 Ballnose Endmill	DPK	P16-P18
计算公式 Formulas		P87-P88
切削参数 Cutting data		P89

粗加工立铣刀

ROUGHING ENDMILL

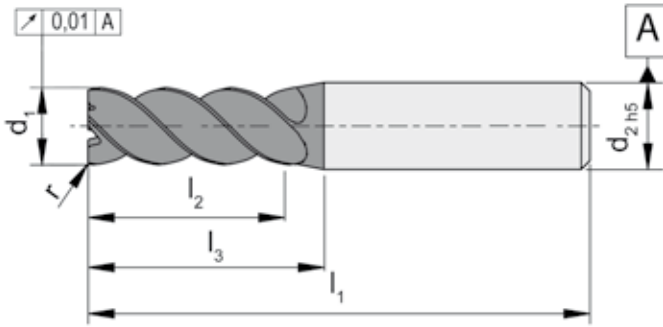


软铣削
Soft milling

DPX

4刃，35°-38°螺旋角，刀尖圆角
4-fluted, 35°-38° helix angle, with corner radius

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	l ₃	Z	型式 Version	TF2K
DPX.4.03.025.06.11	3	0.25	6	57	11				▲
DPX.4.03.050.06.13	3	0.50	6	57	13				▲
DPX.4.04.050.06.13	4	0.50	6	57	13				▲
DPX.4.05.050.06.13	5	0.50	6	57	13				▲
DPX.4.06.050.06.13	6	0.50	6	57	13				▲
DPX.4.06.100.06.13	6	1.00	6	57	13				▲
DPX.4.06.150.06.13	6	1.50	6	57	13				▲
DPX.4.08.050.08.19	8	0.50	8	63	19				▲
DPX.4.08.100.08.19	8	1.00	8	63	19	-	4	Weldon	▲
DPX.4.08.150.08.19	8	1.50	8	63	19				▲
DPX.4.10.050.10.22	10	0.50	10	72	22				▲
DPX.4.10.100.10.22	10	1.00	10	72	22				▲
DPX.4.10.150.10.22	10	1.50	10	72	22				▲
DPX.4.12.050.12.26	12	0.50	12	83	26				▲
DPX.4.12.150.12.26	12	1.50	12	83	26				▲
DPX.4.16.150.16.32	16	1.50	16	92	32				▲
DPX.4.16.300.16.32	16	3.00	16	92	32				▲
DPX.4.03.025.06.A21	3	0.25	6	57	11	21			▲
DPX.4.03.050.06.A21	3	0.50	6	57	13	21			▲
DPX.4.04.050.06.A21	4	0.50	6	57	13	21			▲
DPX.4.05.050.06.A21	5	0.50	6	57	13	21			▲
DPX.4.06.050.06.A21	6	0.50	6	57	13	21			▲
DPX.4.06.100.06.A21	6	1.00	6	57	13	21			▲
DPX.4.06.150.06.A21	6	1.50	6	57	13	21			▲
DPX.4.08.050.08.A28	8	0.50	8	63	19	28			▲
DPX.4.08.100.08.A28	8	1.00	8	63	19	28	4	Weldon	▲
DPX.4.08.150.08.A28	8	1.50	8	63	19	28			▲
DPX.4.10.050.10.A32	10	0.50	10	72	22	32			▲
DPX.4.10.100.10.A32	10	1.00	10	72	22	32			▲
DPX.4.10.150.10.A32	10	1.50	10	72	22	32			▲
DPX.4.12.050.12.A38	12	0.50	12	83	26	38			▲
DPX.4.12.150.12.A38	12	1.50	12	83	26	38			▲
DPX.4.16.150.16.A44	16	1.50	16	92	32	44			▲
DPX.4.16.300.16.A44	16	3.00	16	92	32	44			▲

单位：mm
Dimensions in mm

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

硬质合金牌号
Carbide grades

P	●
M	■
K	■
N	■
S	■
H	■

去毛刺立铣刀

DEBURRING ENDMILL



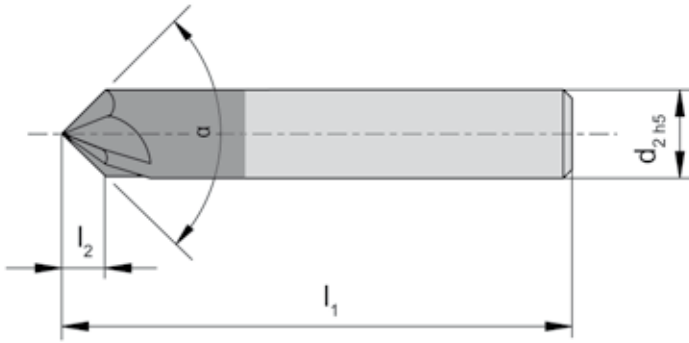
钢 / Ordinary steel

软铣削
Soft milling

DPFF

60° - 120°去毛刺
Deburring 60° - 120°

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	α	Z	型式 Version	TF2K
DPFF.4.04.011.120	4	4	51	1.1	120°	4	-	▲
DPFF.4.06.017.120	6	6	64	1.7			Weldon	▲
DPFF.4.08.023.120	8	8	64	2.3			Weldon	▲
DPFF.4.10.028.120	10	10	70	2.8			Weldon	▲
DPFF.4.12.034.120	12	12	78	3.4			Weldon	▲
DPFF.4.04.035.060	4	4	51	3.5	60°	4	-	▲
DPFF.4.06.052.060	6	6	64	5.2			Weldon	▲
DPFF.4.08.069.060	8	8	64	6.9			Weldon	▲
DPFF.4.10.087.060	10	10	70	8.7			Weldon	▲
DPFF.4.12.104.060	12	12	78	10.4			Weldon	▲
DPFF.4.04.020.090	4	4	51	2.0	90°	4	-	▲
DPFF.4.06.030.090	6	6	64	3.0			Weldon	▲
DPFF.4.08.040.090	8	8	64	4.0			Weldon	▲
DPFF.4.10.050.090	10	10	70	5.0			Weldon	▲
DPFF.4.12.060.090	12	12	78	6.0			Weldon	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	
K	
N	
S	
H	

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

粗加工立铣刀

ROUGHING ENDMILL WITH RIPPER PROFILE



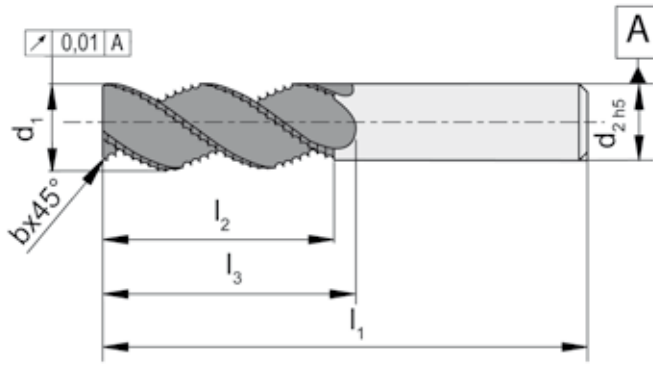
软铣削

Soft milling

DPS

3/4/5/6刃，45°螺旋角，刀尖倒角
3-/ 4-/ 5-/ 6-fluted, 45° helix angle, with corner chamfer

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	l ₃	Z	型式 Version	TF2K
DPS.3.04.025.06.11	4	0.25	6	57	11		3	Weldon	▲
DPS.4.05.025.06.13	5	0.25	6	57	13		4		▲
DPS.4.06.025.06.13	6	0.25	6	57	13		4		▲
DPS.4.08.025.08.19	8	0.25	8	63	19		4		▲
DPS.4.10.025.10.22	10	0.25	10	72	22	-	4		▲
DPS.4.12.025.12.26	12	0.25	12	83	26		4		▲
DPS.5.16.025.16.32	16	0.25	16	92	32		5		▲
DPS.6.20.040.20.38	20	0.40	20	104	38		6	▲	
DPS.4.06.025.06.A21	6	0.25	6	57	13	21	4	Weldon	▲
DPS.4.08.025.08.A27	8	0.25	8	63	19	27	4		▲
DPS.4.10.025.10.A32	10	0.25	10	72	22	32	4		▲
DPS.4.12.025.12.A38	12	0.25	12	83	26	38	4		▲
DPS.5.16.025.16.A44	16	0.25	16	92	32	44	5		▲
DPS.6.20.040.20.A54	20	0.40	20	104	38	54	6		▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

硬质合金牌号

Carbide grades

硬质合金牌号T2FK适用于“普通钢”

Carbide grade T2FK preferred for "ordinary steels"

粗加工立铣刀-带断屑

ROUGHING ENDMILL with chip breaker

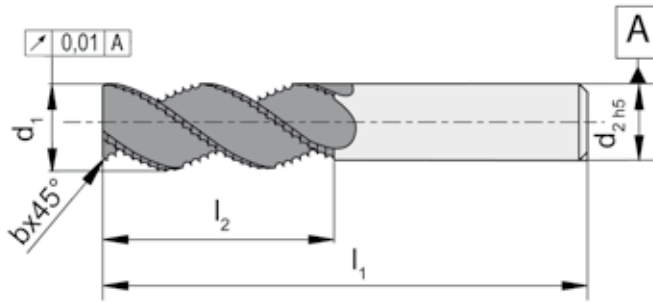


软铣削
Soft milling

DPSB

4刃，45°螺旋角，刀尖倒角
4-fluted, 45° helix angle, with corner chamfer

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	型式 Version	TF2K
DPSB.4.04.025.06.11	4	0.25	6	57	11	4	Weldon	▲
DPSB.4.05.025.06.13	5	0.25	6	57	13			▲
DPSB.4.06.025.06.13	6	0.25	6	57	13			▲
DPSB.4.08.025.08.19	8	0.25	8	63	19			▲
DPSB.4.10.025.10.22	10	0.25	10	72	22			▲
DPSB.4.12.025.12.26	12	0.25	12	83	26			▲
DPSB.4.16.025.16.32	16	0.25	16	92	32			▲
DPSB.4.20.040.20.38	20	0.40	20	104	38			▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●
M	■
K	■
N	■
S	■
H	■

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

粗加工立铣刀 ROUGHING ENDMILL

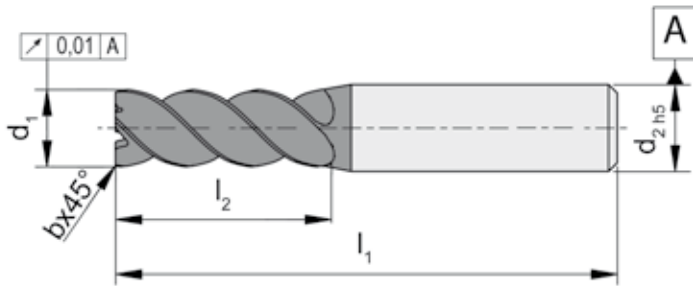


软铣削
Soft milling

DPSV

4刃，35°-38°螺旋角，刀尖倒角
4-fluted, 35°-38° helix angle, with corner chamfer

推荐切削参数见P89页
recommended cutting data page P89



不等螺旋角
unequal twist

产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	型式 Version	TF2K
DPSV.4.04.025.06.11	4	0.25	6	57	11	4	Weldon	▲
DPSV.4.05.025.06.13	5	0.25	6	57	13			▲
DPSV.4.06.025.06.13	6	0.25	6	57	13			▲
DPSV.4.08.025.08.19	8	0.25	8	63	19			▲
DPSV.4.10.025.10.22	10	0.25	10	72	22			▲
DPSV.4.12.025.12.26	12	0.25	12	83	26			▲
DPSV.4.16.025.16.32	16	0.25	16	92	32			▲
DPSV.4.20.040.20.38	20	0.40	20	104	38			▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

粗加工立铣刀 ROUGHING ENDMILL

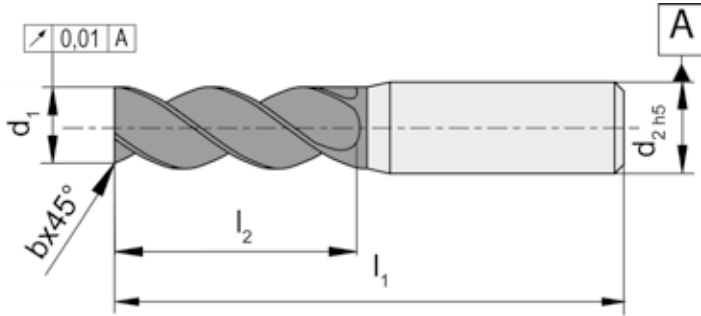


软铣削
Soft milling

DPSG

3刃，50°螺旋角，刀尖倒角
3-fluted, 50° helix angle, with corner chamfer

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	型式 Version	TF2K
DPSG.3.02.010.03.08	2	0.10	3	40	8	3	-	▲
DPSG.3.03.010.03.10	3	0.10	3	40	10		-	▲▲
DPSG.3.04.010.04.12	4	0.10	4	50	12		-	▲▲▲
DPSG.3.05.015.05.15	5	0.15	5	50	15		-	▲▲▲▲
DPSG.3.06.015.06.15	6	0.15	6	65	15		Weldon	▲▲▲▲▲
DPSG.3.08.020.08.20	8	0.20	8	65	20		Weldon	▲▲▲▲▲▲
DPSG.3.10.020.10.22	10	0.20	10	70	22		Weldon	▲▲▲▲▲▲▲
DPSG.3.12.025.12.25	12	0.25	12	80	25		Weldon	▲▲▲▲▲▲▲▲
DPSG.3.16.025.16.35	16	0.25	16	90	35		Weldon	▲▲▲▲▲▲▲▲▲
DPSG.3.20.025.20.40	20	0.25	20	102	40		Weldon	▲▲▲▲▲▲▲▲▲▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

□ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●
M	■
K	■
N	■
S	■
H	■

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

粗加工立铣刀 ROUGHING ENDMILL

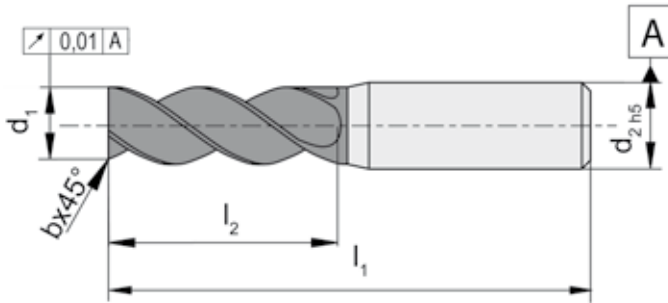


软铣削
Soft milling

DPSG

4刃，50°螺旋角，刀尖倒角
4-fluted, 50° helix angle, with corner chamfer

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	型式 Version	TF2K
DPSG.4.03.010.03.10	3	0.10	3	40	10	4	-	▲
DPSG.4.04.010.04.12	4	0.10	4	50	12		-	▲
DPSG.4.05.015.05.15	5	0.15	5	50	15		-	▲
DPSG.4.06.015.06.15	6	0.15	6	65	15		Weldon	▲
DPSG.4.08.020.08.20	8	0.20	8	65	20		Weldon	▲
DPSG.4.10.020.10.22	10	0.20	10	70	22		Weldon	▲
DPSG.4.12.025.12.25	12	0.25	12	80	25		Weldon	▲
DPSG.4.16.025.16.35	16	0.25	16	90	35		Weldon	▲
DPSG.4.20.025.20.40	20	0.25	20	102	42		Weldon	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●
M	
K	
N	
S	
H	

硬质合金牌号
Carbide grades

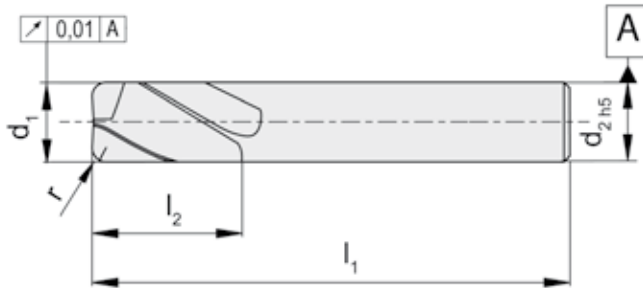
硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

软铣削
Soft milling

DPTR

3刃，30°螺旋角，刀尖圆角
2-fluted, 30° helix angle, with corner radius

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	型式 Version	TF2K
DPTR-2.03.03.06.12	3	6	50	12	0.3			▲
DPTR-2.04.03.06.15	4	6	50	15	0.3			▲
DPTR-2.04.05.06.15	4	6	50	15	0.5			▲
DPTR-2.05.03.06.20	5	6	60	20	0.3			▲
DPTR-2.05.05.06.20	5	6	60	20	0.5			▲
DPTR-2.06.03.06.20	6	6	60	20	0.3			▲
DPTR-2.06.05.06.20	6	6	60	20	0.5			▲
DPTR-2.06.10.06.20	6	6	60	20	1.0			▲
DPTR-2.08.03.08.25	8	8	70	25	0.3			▲
DPTR-2.08.05.08.25	8	8	70	25	0.5			▲
DPTR-2.08.10.08.25	8	8	70	25	1.0			▲
DPTR-2.08.15.08.25	8	8	70	25	1.5			▲
DPTR-2.08.20.08.25	8	8	70	25	2.0			▲
DPTR-2.10.03.10.30	10	10	90	30	0.3			▲
DPTR-2.10.05.10.30	10	10	90	30	0.5			▲
DPTR-2.10.10.10.30	10	10	90	30	1.0	2	Weldon	▲
DPTR-2.10.15.10.30	10	10	90	30	1.5			▲
DPTR-2.10.20.10.30	10	10	90	30	2.0			▲
DPTR-2.12.05.12.30	12	12	90	30	0.5			▲
DPTR-2.12.10.12.30	12	12	90	30	1.0			▲
DPTR-2.12.15.12.30	12	12	90	30	1.5			▲
DPTR-2.12.20.12.30	12	12	90	30	2.0			▲
DPTR-2.16.05.16.50	16	16	110	50	0.5			▲
DPTR-2.16.10.16.50	16	16	110	50	1.0			▲
DPTR-2.16.15.16.50	16	16	110	50	1.5			▲
DPTR-2.16.20.16.50	16	16	110	50	2.0			▲
DPTR-2.20.05.20.50	20	20	110	50	0.5			▲
DPTR-2.20.10.20.50	20	20	110	50	1.0			▲
DPTR-2.20.15.20.50	20	20	110	50	1.5			▲
DPTR-2.20.20.20.50	20	20	110	50	2.0			▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades

P	●
M	
K	
N	
S	

单位：mm
Dimensions in mm

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

硬质合金牌号
Carbide grades

环面立铣刀 TORUS ENDMILL

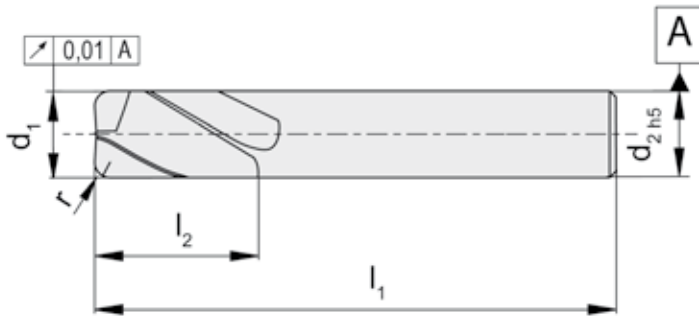


软铣削
Soft milling

DPTR

4刃，30°螺旋角，刀尖圆角
4-fluted, 30° helix angle, with corner radius

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	型式 Version	TF2K
DPTR-4.03.03.06.12	3	6	50	12	0.3			▲
DPTR-4.04.03.06.15	4	6	50	15	0.3			▲
DPTR-4.04.05.06.15	4	6	50	15	0.5			▲
DPTR-4.05.03.06.20	5	6	60	20	0.3			▲
DPTR-4.05.05.06.20	5	6	60	20	0.5			▲
DPTR-4.06.03.06.20	6	6	60	20	0.3			▲
DPTR-4.06.05.06.20	6	6	60	20	0.5			▲
DPTR-4.06.10.06.20	6	6	60	20	1.0			▲
DPTR-4.08.03.08.25	8	8	70	25	0.3			▲
DPTR-4.08.05.08.25	8	8	70	25	0.5			▲
DPTR-4.08.10.08.25	8	8	70	25	1.0			▲
DPTR-4.08.15.08.25	8	8	70	25	1.5			▲
DPTR-4.08.20.08.25	8	8	70	25	2.0			▲
DPTR-4.10.03.10.30	10	10	90	30	0.3			▲
DPTR-4.10.05.10.30	10	10	90	30	0.5			▲
DPTR-4.10.10.10.30	10	10	90	30	1.0	4	Weldon	▲
DPTR-4.10.15.10.30	10	10	90	30	1.5			▲
DPTR-4.10.20.10.30	10	10	90	30	2.0			▲
DPTR-4.12.05.12.30	12	12	90	30	0.5			▲
DPTR-4.12.10.12.30	12	12	90	30	1.0			▲
DPTR-4.12.15.12.30	12	12	90	30	1.5			▲
DPTR-4.12.20.12.30	12	12	90	30	2.0			▲
DPTR-4.16.05.16.50	16	16	110	50	0.5			▲
DPTR-4.16.10.16.50	16	16	110	50	1.0			▲
DPTR-4.16.15.16.50	16	16	110	50	1.5			▲
DPTR-4.16.20.16.50	16	16	110	50	2.0			▲
DPTR-4.20.05.20.50	20	20	110	50	0.5			▲
DPTR-4.20.10.20.50	20	20	110	50	1.0			▲
DPTR-4.20.15.20.50	20	20	110	50	1.5			▲
DPTR-4.20.20.20.50	20	20	110	50	2.0			▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades

P	●
M	
K	
N	
S	

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

多刃立铣刀

ENDMILL Multiple fluted

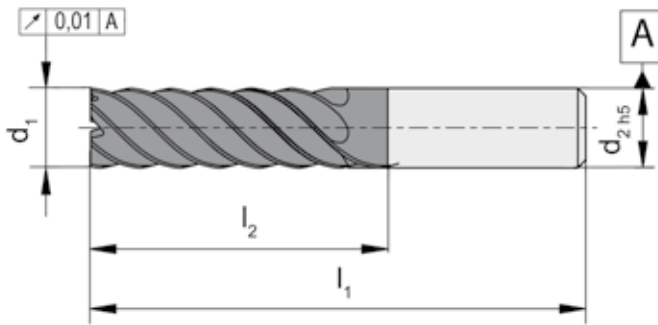


软铣削
Soft milling

DPM

6/8刃, 45°螺旋角
6-/ 8-fluted, 45° helix angle

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	Z	型式 Version	TF2K
DPM-6.06.00.06.13	6	6	58	13	6	Weldon	▲
DPM-6.08.00.08.19	8	8	65	19	6		▲
DPM-6.10.00.10.22	10	10	72	22	6		▲
DPM-6.12.00.12.26	12	12	83	26	6		▲
DPM-6.16.00.16.32	16	16	92	32	6		▲
DPM-8.18.00.20.32	18	20	92	32	8		▲
DPM-8.20.00.20.38	20	20	103	38	8		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	
K	
N	
S	
H	

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

球头立铣刀 BALLNOSE ENDMILL

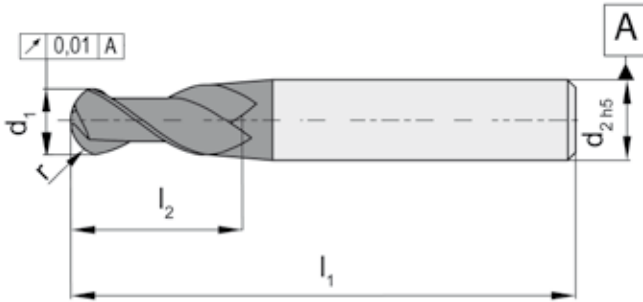


软铣削
Soft milling

DPK

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	型式 Version	TF2K
DPK.2.010.03.03	1.0	3	40	3	0.50		-	▲
DPK.2.015.03.05	1.5	3	40	5	0.75		-	▲
DPK.2.020.03.07	2.0	3	40	7	1.00		-	▲
DPK.2.025.03.07	2.5	3	40	7	1.25		-	▲
DPK.2.030.03.10	3.0	3	40	10	1.50		-	▲
DPK.2.035.04.12	3.5	4	50	12	1.75		-	▲
DPK.2.040.04.15	4.0	4	50	15	2.00		-	▲
DPK.2.045.05.15	4.5	5	50	15	2.25		-	▲
DPK.2.050.05.15	5.0	5	50	15	2.50		-	▲
DPK.2.060.06.20	6.0	6	65	20	3.00	2	Weldon	▲
DPK.2.070.08.20	7.0	8	65	20	3.50		Weldon	▲
DPK.2.080.08.20	8.0	8	65	20	4.00		Weldon	▲
DPK.2.090.10.22	9.0	10	70	22	4.50		Weldon	▲
DPK.2.100.10.22	10.0	10	70	22	5.00		Weldon	▲
DPK.2.110.11.25	11.0	11	70	25	5.50		Weldon	▲
DPK.2.120.12.25	12.0	12	80	25	6.00		Weldon	▲
DPK.2.140.14.30	14.0	14	90	30	7.00		Weldon	▲
DPK.2.160.16.32	16.0	16	90	32	8.00		Weldon	▲
DPK.2.180.18.35	18.0	18	100	35	9.00		Weldon	▲
DPK.2.200.20.38	20.0	20	100	38	10.00		Weldon	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

P	●
M	■
K	■
N	■
S	■
H	■

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

球头立铣刀

BALLNOSE ENDMILL

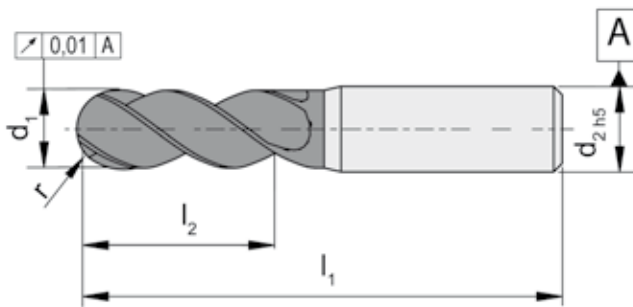


软铣削
Soft milling

DPK

3刃，30°螺旋角
3-fluted, 30° helix angle

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	型式 Version	TF2K
DPK.3.015.03.05	1.5	3	40	5	0.75		-	▲
DPK.3.020.03.07	2.0	3	40	7	1.00		-	▲
DPK.3.025.03.07	2.5	3	40	7	1.25		-	▲
DPK.3.030.03.10	3.0	3	40	10	1.50		-	▲
DPK.3.035.04.12	3.5	4	50	12	1.75		-	▲
DPK.3.040.04.15	4.0	4	50	15	2.00		-	▲
DPK.3.045.05.15	4.5	5	50	15	2.25		-	▲
DPK.3.050.05.15	5.0	5	50	15	2.50		-	▲
DPK.3.060.06.20	6.0	6	65	20	3.00		Weldon	▲
DPK.3.070.08.20	7.0	8	65	20	3.50	3	Weldon	▲
DPK.3.080.08.20	8.0	8	65	20	4.00		Weldon	▲
DPK.3.090.10.22	9.0	10	70	22	4.50		Weldon	▲
DPK.3.100.10.22	10.0	10	70	22	5.00		Weldon	▲
DPK.3.110.11.25	11.0	11	70	25	5.50		Weldon	▲
DPK.3.120.12.25	12.0	12	80	25	6.00		Weldon	▲
DPK.3.140.14.30	14.0	14	90	30	7.00		Weldon	▲
DPK.3.160.16.32	16.0	16	90	32	8.00		Weldon	▲
DPK.3.180.18.35	18.0	18	100	35	9.00		Weldon	▲
DPK.3.200.20.38	20.0	20	100	38	10.00		Weldon	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●
M	
K	
N	
S	
H	

硬质合金牌号
Carbide grades

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

球头立铣刀 BALLNOSE ENDMILL

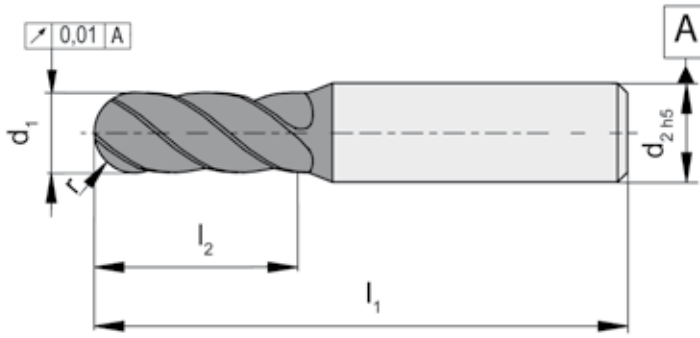


软铣削
Soft milling

DPK

4刃，30°螺旋角
4-fluted, 30° helix angle

推荐切削参数见P89页
recommended cutting data page P89



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	型式 Version	TF2K
DPK.4.010.03.03	1.0	3	40	3	0.50		-	▲
DPK.4.015.03.05	1.5	3	40	5	0.75		-	▲
DPK.4.020.03.07	2.0	3	40	7	1.00		-	▲
DPK.4.025.03.07	2.5	3	40	7	1.25		-	▲
DPK.4.030.03.10	3.0	3	40	10	1.50		-	▲
DPK.4.035.04.12	3.5	4	50	12	1.75		-	▲
DPK.4.040.04.15	4.0	4	50	15	2.00		-	▲
DPK.4.045.05.15	4.5	5	50	15	2.25		-	▲
DPK.4.050.05.15	5.0	5	50	15	2.50		-	▲
DPK.4.060.06.20	6.0	6	65	20	3.00		-	▲
DPK.4.070.08.20	7.0	8	65	20	3.50	4	Weldon	▲
DPK.4.080.08.20	8.0	8	65	20	4.00		Weldon	▲
DPK.4.090.10.22	9.0	10	70	22	4.50		Weldon	▲
DPK.4.100.10.22	10.0	10	70	22	5.00		Weldon	▲
DPK.4.110.11.25	11.0	11	70	25	5.50		Weldon	▲
DPK.4.120.12.25	12.0	12	80	25	6.00		Weldon	▲
DPK.4.140.14.30	14.0	14	90	30	7.00		Weldon	▲
DPK.4.160.16.32	16.0	16	90	32	8.00		Weldon	▲
DPK.4.180.18.35	18.0	18	100	35	9.00		Weldon	▲
DPK.4.200.20.38	20.0	20	100	38	10.00		Weldon	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

P	●
M	■
K	■
N	■
S	■
H	■

硬质合金牌号T2FK适用于“普通钢”
Carbide grade T2FK preferred for "ordinary steels"

P 高强度钢
high tensile steels

钢件的软铣和硬铣的硬度可达70HRC
Soft and hard milling of steel materials up to 70 HRC

	型号 type	页 Page
立铣刀 球头, 2/4刃 Endmill Ballnose, 2-/4-fluted	DSK / DSKH DSKL / DSKLH DSK 220° / DSKH 220°	P20-P26
微型立铣刀 球头, 2刃 Micro Endmill Ballnose, 2-fluted	DSKM	P27-P29
立铣刀, 4刃 Endmill Double radius, 4-fluted	DSDS / DSDH	P30-P31
环面立铣刀, 2/4刃, 刀尖圆角 Torus Endmill, 2-/4-fluted with Corner radius	DST / DSTH	P32-P36
立铣刀, 6/8/10/12/16刃和 和 无 圆角刀尖 Endmill, 6-/8-/10-/12-/16-fluted with and without Corner radius	DSM / DSMH DSMR / DSMRH DSML	P37-P42
粗立铣刀, 3/4刃, 圆角刀尖或倒角刀尖 Roughing Endmill, 3-/4-fluted with Corner radius or Corner chamfer	DSR / DSF DSRF / DSRR DSRV / DSFF	P43-P47
立铣刀, 4/5刃 和 圆角刀尖 Endmill, 4-/5-fluted with Corner radius	DSRV	P48
立铣刀 倒角, 4刃 Endmill Chamfering, 4-fluted	DSFF	P49
计算公式 Formulas		P78-P88
切削参数 Cutting data		P90-P111

球头立铣刀

BALLNOSE ENDMILL



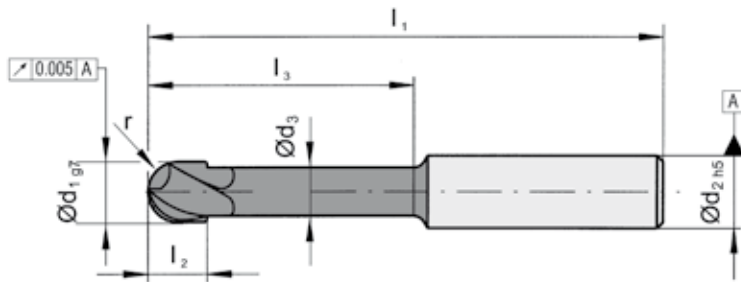
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSK

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P90页
recommended cutting data page P90



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TS3H	TS3K
DSK-2.010-063.06	1.0	6	0.9	63	2	4.5	0.50	2	▲	▲
DSK-2.015-063.06	1.5	6	1.4	63	2	4.5	0.75	2	▲	▲
DSK-2.020-063.06	2.0	6	1.9	63	3	5.5	1.00	2	▲	▲
DSK-2.020-077.06				77		15.5			▲	▲
DSK-2.030-063.06	3.0	6	2.9	63	4	7.5	1.50	2	▲	▲
DSK-2.030-077.06				77		15.5			▲	▲
DSK-2.040-063.06	4.0	6	3.8	63	5	8.5	2.00	2	▲	▲
DSK-2.040-077.06				77		15.5			▲	▲
DSK-2.050-063.06	5.0	6	4.7	63	5	10.5	2.50	2	▲	▲
DSK-2.050-077.06				77		20.5			▲	▲
DSK-2.060-063.06		6		63		25.5			▲	▲
DSK-2.060-077.06	6.0	6	5.6	77	6	35.5	3.00	2	▲	▲
DSK-2.060-099.08		8		99		25.5			▲	▲
DSK-2.080-063.08		8		63		25.5			▲	▲
DSK-2.080-077.08		8		77		35.5			▲	▲
DSK-2.080-099.08	8.0	8	7.4	99	8	50.5	4.00	2	△	▲
DSK-2.080-119.10		10		119		30.5			△	▲
DSK-2.100-077.10		10		77		35.5			▲	▲
DSK-2.100-099.10	10.0	10	9.4	99	10	55.5	5.00	2	△	△
DSK-2.100-119.12		12		119		30.5			△	△
DSK-2.120-077.12	12.0	12	11.4	77	12	35.5	6.00	2	△	△
DSK-2.120-099.12				99		55.5			△	▲
DSK-2.160-099.16	16.0	16	15.4	100	20	50.0	8.00	2	△	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

球头立铣刀

BALLNOSE ENDMILL



高强度钢 / high tensile steel

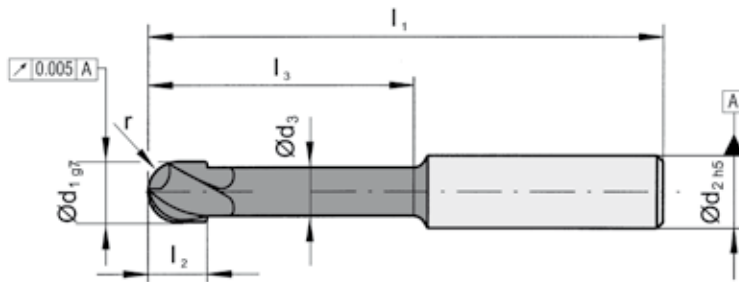
硬铣削

Hard milling

DSKH

2刃, 30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P91页
recommended cutting data page P91



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TS3E
DSKH.2.010.063.06	1.0	6	0.9	63	2	3.0	0.50	2	▲
DSKH.2.015.063.06	1.5	6	1.4	63	2	4.5	0.75	2	▲
DSKH.2.020.063.06	2.0	6	1.9	63	3	5.0	1.00	2	▲
DSKH.2.020.077.06				77		8.0			▲
DSKH.2.030.063.06	3.0	6	2.9	63	4	7.5	1.50	2	▲
DSKH.2.030.077.06				77		12.0			▲
DSKH.2.040.063.06	4.0	6	3.8	63	5	10.0	2.00	2	▲
DSKH.2.040.077.06				77		16.0			▲
DSKH.2.050.063.06	5.0	6	4.7	63	5	12.5	2.50	2	▲
DSKH.2.050.077.06				77		20.0			▲
DSKH.2.060.063.06		6		63		15.0			▲
DSKH.2.060.077.06	6.0	6	5.6	77	6	24.0	3.00	2	▲
DSKH.2.060.099.08		8		99		36.0			▲
DSKH.2.080.063.08		8		63		20.0			▲
DSKH.2.080.077.08		8		77		32.0			▲
DSKH.2.080.099.08	8.0	8	7.4	99	8	48.0	4.00	2	▲
DSKH.2.080.119.10		10		119		40.0			△
DSKH.2.100.077.10	10.0	10	9.4	77	10	25.0	5.00	2	▲
DSKH.2.100.099.10				99		40.0			▲
DSKH.2.120.077.12	12.0	12	11.4	77	12	30.0	6.00	2	▲
DSKH.2.120.099.12				99		48.0			▲
DSKH.2.160.099.16	16.0	16	15.4	100	20	50.0	8.00	2	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

P	●
M	■
K	■
N	■
S	■
H	●

硬质合金牌号

Carbide grades

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

球头立铣刀

BALLNOSE ENDMILL



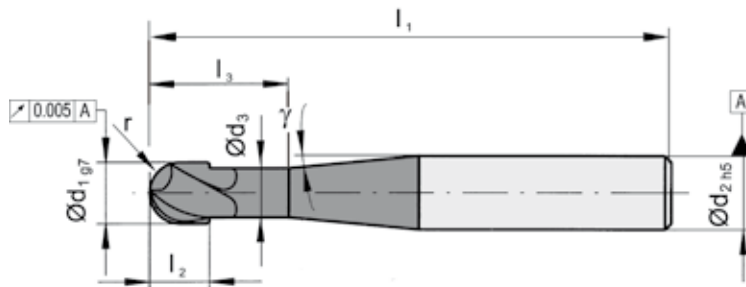
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSKL

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P92页
recommended cutting data page P92



长悬伸
long style

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	TS3H	TS3K
DSKL.2.060.149.08	6	8	5.6	149	6	15	3	2	1.5°	▲	▲
DSKL.2.080.149.10	8	10	7.4	149	8	20	4	2	1.5°	△	▲
DSKL.2.100.149.12	10	12	9.4	149	10	25	5	2	1.5°	△	▲
DSKL.2.160.149.16	16	16	15.4	149	20	100	8	2	2°	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●	●
M		
K		
N		
S		
H	○	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
 硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
 Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
 Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

球头立铣刀 BALLNOSE ENDMILL



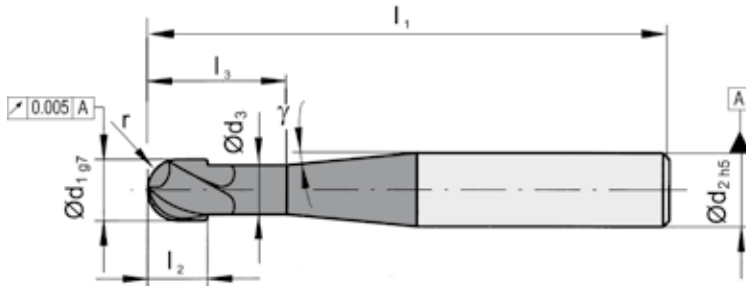
高强度钢 / high tensile steel

硬铣削
Hard milling

DSKLH

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P93页
recommended cutting data page P93



长悬伸
long style

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	Y	TS3E
DSKLH.2.060.149.08	6	8	5.6	149	6	15	3	2	1.5°	Δ
DSKLH.2.080.149.10	8	10	7.4	149	8	20	4	2	1.5°	▲
DSKLH.2.100.149.12	10	12	9.4	149	10	25	5	2	1.5°	○
DSKLH.2.120.149.16	12	16	11.4	149	12	30	6	2	2°	Δ

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

220°球头立铣刀

BALLNOSE ENDMILL 220°



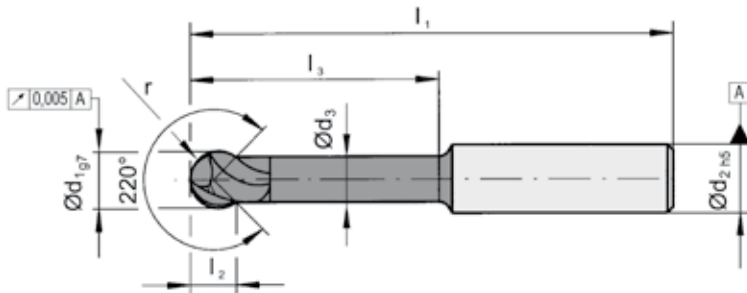
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSK

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P94页
recommended cutting data page P94



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TS3H	TS3K
DSK.2.030.063.06.2	3	6	2.70	63	2.1	25.5	1.5	2	▲	▲
DSK.2.040.063.06.2	4	6	3.60	63	2.8	25.5	2.0	2	▲	▲
DSK.2.050.077.06.2	5	6	4.40	77	3.5	30.5	2.5	2	▲	▲
DSK.2.060.077.06.2	6	6	5.28	77	4.1	37.5	3.0	2	▲	▲
DSK.2.080.088.08.2	8	8	7.04	88	5.5	46.5	4.0	2	▲	▲
DSK.2.100.101.10.2	10	10	8.80	101	6.9	55.5	5.0	2	▲	▲
DSK.2.120.119.12.2	12	12	10.56	119	8.2	72.5	6.0	2	△	▲
DSK.2.160.119.16.2	16	16	14.08	120	11.0	72.0	8.0	2	△	△

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC

硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC

Carbide grade TS3K preferred for "Softmilling" up to 40 HRC

Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

220°球头立铣刀

BALLNOSE ENDMILL 220°



高强度钢 / high tensile steel

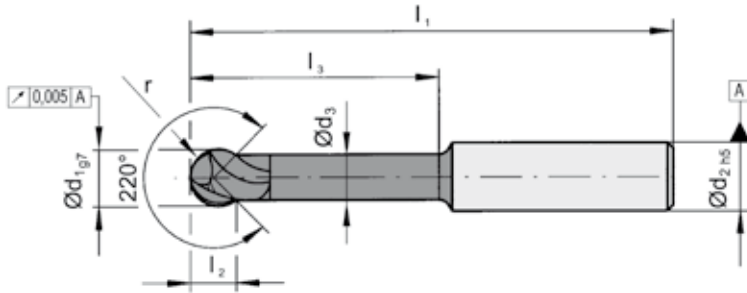
硬铣削

Hard milling

DSKH

2刃, 30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P95页
recommended cutting data page P95



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TS3E
DSKH.2.030.063.06.2	3	6	2.70	63	2.1	15	1.5	2	▲
DSKH.2.040.063.06.2	4	6	3.60	63	2.8	20	2.0	2	▲
DSKH.2.050.063.06.2	5	6	4.40	63	3.5	25	2.5	2	▲
DSKH.2.060.063.06.2	6	6	5.28	63	4.1	30	3.0	2	▲
DSKH.2.080.088.08.2	8	8	7.04	88	5.5	40	4.0	2	▲
DSKH.2.100.101.10.2	10	10	8.80	101	6.9	50	5.0	2	△
DSKH.2.120.119.12.2	12	12	10.56	119	8.2	60	6.0	2	△

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

硬质合金牌号

Carbide grades

P	●
M	●
K	●
N	●
S	●
H	●

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

球头立铣刀

BALLNOSE ENDMILL



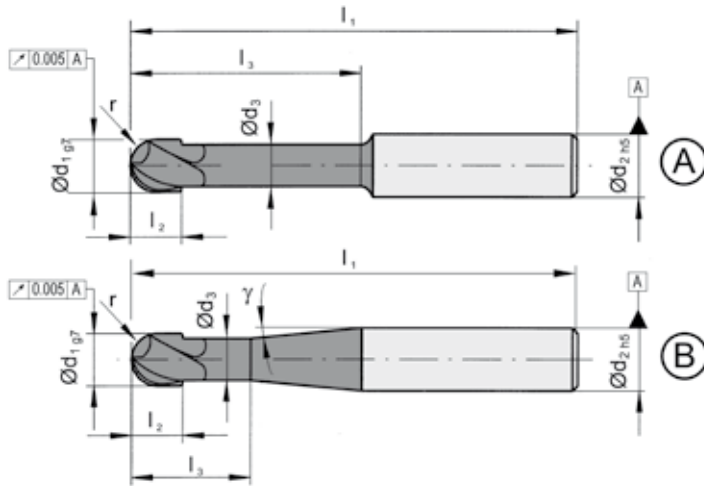
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSK

4刃，30°螺旋角
4-fluted, 30° helix angle

推荐切削参数见P96页
recommended cutting data page P96



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	Y	型式 Version	TS3H	TS3K
DSK.4.060.063.06	6	6	5.6	63	6	25.5	3	4		A	▲	▲
DSK.4.060.077.06				77		35.5					▲	▲
DSK.4.080.063.08	8	8	7.4	63	8	25.5	4	4		A	△	▲
DSK.4.080.077.08				77		35.5					△	▲
DSK.4.080.099.08				99		50.5					△	▲
DSK.4.100.077.10	10	10	9.4	77	10	30.5	5	4		A	△	▲
DSK.4.100.099.10				99		55.5					△	▲
DSK.4.120.099.12	12	12	11.4	99	12	55.5	6	4		A	△	▲
DSK.4.160.099.16	16	16	15.4	99	20	50.0	8	4		A		▲
DSK.4.160.149.16				149		100.0						▲
DSK.4.060.099.08	6	8	5.6	99	6	25.5	3	4	1.9°	B	▲	△
DSK.4.080.119.10	8	10	7.4	119	8	30.5	4	4	1.6°	B	△	△
DSK.4.100.119.12	10	12	9.4	119	10	30.5	5	4	1.8°	B	△	△
DSK.4.120.077.12	12	12	11.4	77	12	35.5	6	4	1.8°	B	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

小型球头立铣刀

MICRO ENDMILL Ballnose



高强度钢 / high tensile steel

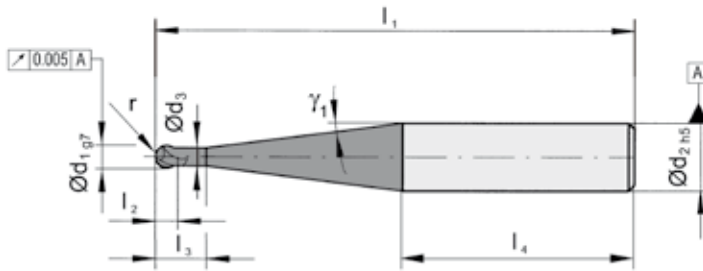
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSKM

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P97页
recommended cutting data page P97



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	TS3H	TS3K
DSKM.2.02.63.04.L00	0.2	4	63	0.3	0.3	51.9	0.20	0.10	2	10°	▲	▲
DSKM.2.05.63.04.L31	0.5	4	63	0.8	3.1	51.6	0.47	0.25	2	12°	▲	▲
DSKM.2.05.63.04.L61					6.1	48.6					▲	△
DSKM.2.05.63.04.L81					8.1	46.6					△	▲
DSKM.2.10.63.04.L00	1.0	4	63	1.5	1.0	53.5	1.00	0.50	2	10°	▲	▲
DSKM.2.10.63.04.L11					10.1	47.2	0.95			15°	△	▲
DSKM.2.10.63.04.L15					15.1	42.2	0.95			15°	△	△
DSKM.2.10.63.04.L41					4.1	52.3	0.95			13°	▲	▲
DSKM.2.10.63.04.L61					6.1	50.8	0.95			14°	△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

小型球头立铣刀

MICRO ENDMILL Ballnose



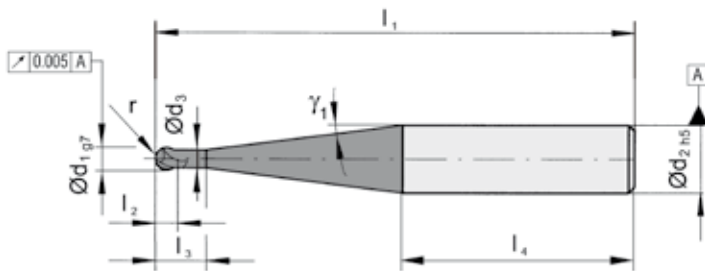
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSKM

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P97页
recommended cutting data page P97



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	TS3H	TS3K
DSKM.2.02.63.06.L03	0.2	6	63	0.3	0.3	46	-	0.10	2	10°	▲	▲
DSKM.2.03.63.06.L06	0.3	6	63	0.6	0.6	47	-	0.15	2	11°	▲	▲
DSKM.2.04.63.06.L08	0.4	6	63	0.8	0.8	47	-	0.20	2	11°	▲	▲
DSKM.2.05.63.06.L11	0.5	6	63	1.0	1.1	47	-	0.25	2	11°	▲	▲
DSKM.2.05.63.06.L31	0.5	6	63	1.0	3.1	46	0.45	0.25	2	12°	△	▲
DSKM.2.06.63.06.L13	0.6	6	63	1.2	1.3	46	-	0.30	2	10°	▲	▲
DSKM.2.06.63.06.L41	0.6	6	63	1.2	4.1	47	0.55	0.30	2	13°	▲	▲
DSKM.2.08.63.06.L17	0.8	6	63	1.6	1.7	46	-	0.40	2	10°	▲	▲
DSKM.2.08.63.06.L51	0.8	6	63	1.6	5.1	46	0.75	0.40	2	13°	▲	▲
DSKM.2.10.63.06.L21	1.0	6	63	2.0	2.1	46	-	0.50	2	10°	▲	▲
DSKM.2.10.63.06.L61	1.0	6	63	2.0	6.1	46	0.90	0.50	2	14°	▲	▲
DSKM.2.12.63.06.L25	1.2	6	63	2.4	2.5	46	-	0.60	2	10°	▲	▲
DSKM.2.12.63.06.L81	1.2	6	63	2.4	8.1	45	1.10	0.60	2	15°	▲	▲
DSKM.2.15.63.06.L11	1.5	6	63	3.0	10.1	44	1.40	0.75	2	15°	▲	▲
DSKM.2.15.63.06.L31	1.5	6	63	3.0	3.1	47	-	0.75	2	10°	▲	▲
DSKM.2.20.63.06.L11	2.0	6	63	3.0	10.1	45	1.90	1.00	2	15°	▲	▲
DSKM.2.20.63.06.L31	2.0	6	63	3.0	3.1	49	-	1.00	2	11°	▲	▲
DSKM.2.25.63.06.L11	2.5	6	63	3.0	10.1	46	2.40	1.25	2	15°	▲	▲
DSKM.2.25.63.06.L31	2.5	6	63	3.0	3.1	47	-	1.25	2	8°	▲	▲
DSKM.2.30.63.06.L11	3.0	6	63	3.0	10.1	46	2.90	1.50	2	14°	▲	▲
DSKM.2.30.63.06.L31	3.0	6	63	3.0	3.1	47	-	1.50	2	7°	▲	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

小型球头立铣刀

MICRO ENDMILL Ballnose



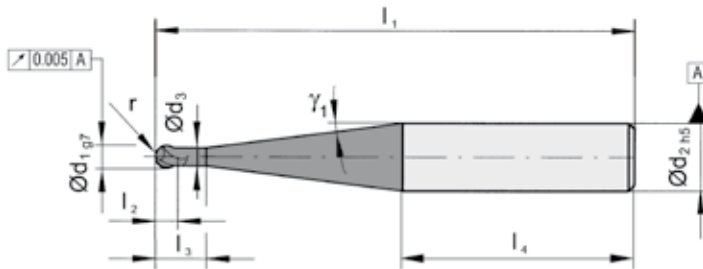
推荐加工II类材料 - 软, 硬铣

Recommended material group II - soft and hard milling

DSKM

2刃, 30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P97页
recommended cutting data page P97



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	TS3H	TS3K
DSKM.2.02.39.06.L03	0.2	6	39	0.3	0.3	22	-	0.10	2	10°	Δ	
DSKM.2.03.39.06.L06	0.3	6	39	0.6	0.6	23	-	0.15	2	11°	Δ	Δ
DSKM.2.04.39.06.L08	0.4	6	39	0.8	0.8	23	-	0.20	2	11°	▲	▲
DSKM.2.05.39.06.L11	0.5	6	39	1.0	1.1	23	-	0.25	2	11°	Δ	Δ
DSKM.2.05.39.06.L31	0.5	6	39	1.0	3.1	22	0.45	0.25	2	12°	▲	Δ
DSKM.2.06.39.06.L13	0.6	6	39	1.2	1.3	22	-	0.30	2	10°	▲	Δ
DSKM.2.06.39.06.L41	0.6	6	39	1.2	4.1	23	0.55	0.30	2	13°	Δ	Δ
DSKM.2.08.39.06.L17	0.8	6	39	1.6	1.7	22	-	0.40	2	10°	Δ	▲
DSKM.2.08.39.06.L51	0.8	6	39	1.6	5.1	22	0.75	0.40	2	13°	Δ	
DSKM.2.10.39.06.L21	1.0	6	39	2.0	2.1	22	-	0.50	2	10°	Δ	▲
DSKM.2.10.39.06.L61	1.0	6	39	2.0	6.1	22	0.90	0.50	2	14°	Δ	▲
DSKM.2.12.39.06.L25	1.2	6	39	2.4	2.5	22	-	0.60	2	10°	Δ	Δ
DSKM.2.12.39.06.L81	1.2	6	39	2.4	8.1	21	1.10	0.60	2	15°	Δ	Δ
DSKM.2.15.39.06.L11	1.5	6	39	3.0	10.1	20	1.40	0.75	2	15°	Δ	Δ
DSKM.2.15.39.06.L31	1.5	6	39	3.0	3.1	23	-	0.75	2	10°	Δ	▲
DSKM.2.20.39.06.L11	2.0	6	39	3.0	10.1	21	1.90	1.00	2	15°	▲	Δ
DSKM.2.20.39.06.L31	2.0	6	39	3.0	3.1	25	-	1.00	2	11°	Δ	Δ
DSKM.2.25.39.06.L11	2.5	6	39	3.0	10.1	22	2.40	1.25	2	15°	Δ	Δ
DSKM.2.25.39.06.L31	2.5	6	39	3.0	3.1	23	-	1.25	2	8°	Δ	▲
DSKM.2.30.39.06.L11	3.0	6	39	3.0	10.1	22	2.90	1.50	2	14°	Δ	Δ
DSKM.2.30.39.06.L31	3.0	6	39	3.0	3.1	23	-	1.50	2	7°		Δ

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●	●
M		
K		
N		
S		
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

立铣刀 双半径

ENDMILL Double radius



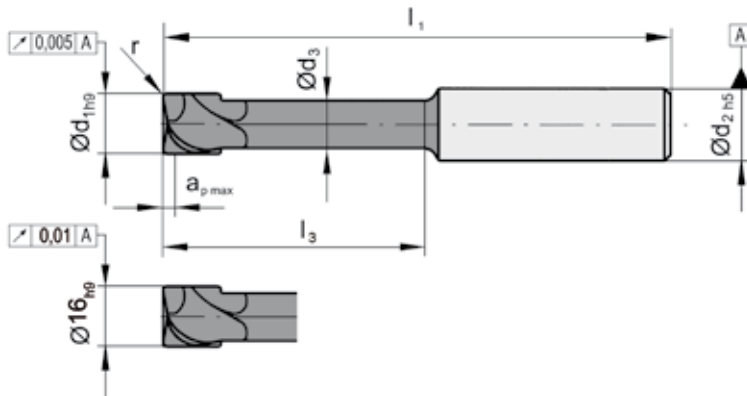
推荐加工II类材料 - 软, 硬铣

Recommended material group II - soft and hard milling

DSDS

4刃
4-fluted

推荐切削参数见P98页
recommended cutting data page P98



产品型号 Part number	d ₁	d ₂	l ₁	l ₃	d ₃	r _{theo}	a _{p max}	Z	TS3K
DSDS.4.06.63.06.08	6	6	63	15	5.4	0.8	0.4	4	▲
DSDS.4.06.77.06.08			77						▲
DSDS.4.08.63.08.10	8	8	63	20	7.2	1.4	0.5	4	▲
DSDS.4.08.77.08.10			77						▲
DSDS.4.10.77.10.15	10	10	77	25	9.0	2.0	0.7	4	▲
DSDS.4.10.99.10.15			99						▲
DSDS.4.12.77.12.15	12	12	77	30	10.8	2.1	0.8	4	▲
DSDS.4.12.99.12.15			99						△
DSDS.4.16.77.16.20	16	16	77	40	14.4	2.8	1.0	4	△
DSDS.4.16.99.16.20			99						△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣削和硬铣削”硬度 HRC45以下零件
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 45 HRC

立铣刀 双半径

ENDMILL Double radius



高强度钢 / high tensile steel

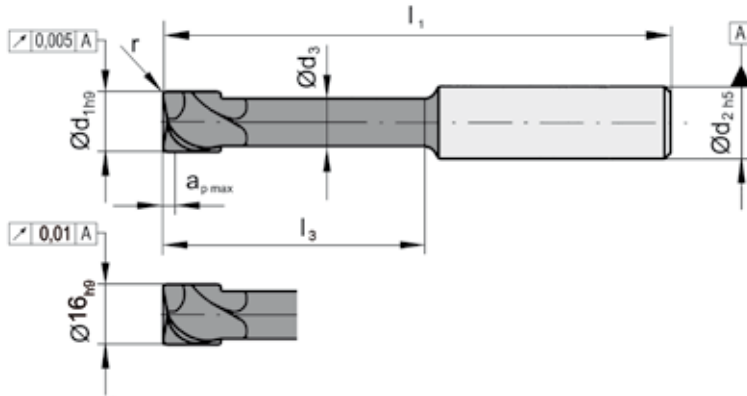
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSDH

4刃
4-fluted

推荐切削参数见P99页
recommended cutting data page P99



产品型号 Part number	d ₁	d ₂	l ₁	l ₃	d ₃	r _{theo}	a _{p max}	Z	TS3K
DSDH.4.06.63.06.05	6	6	63	15	5.4	0.7	0.20	4	Δ
DSDH.4.06.77.06.05			77						▲
DSDH.4.08.63.08.05	8	8	63	20	7.2	1.2	0.25	4	Δ
DSDH.4.08.77.08.05			77						▲
DSDH.4.10.77.10.06	10	10	77	25	9.0	1.8	0.30	4	Δ
DSDH.4.10.99.10.06			99						▲
DSDH.4.12.77.12.08	12	12	77	30	10.8	1.9	0.40	4	Δ
DSDH.4.12.99.12.08			99						▲
DSDH.4.16.77.16.10	16	16	77	40	14.4	2.1	0.50	4	Δ
DSDH.4.16.99.16.10			99						▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣削和硬铣削”硬度HRC45-54以下零件
Carbide grade TS3K preferred for "Soft- and Hardmilling" from 45 up to 54 HRC

环面立铣刀 TORUS ENDMILL



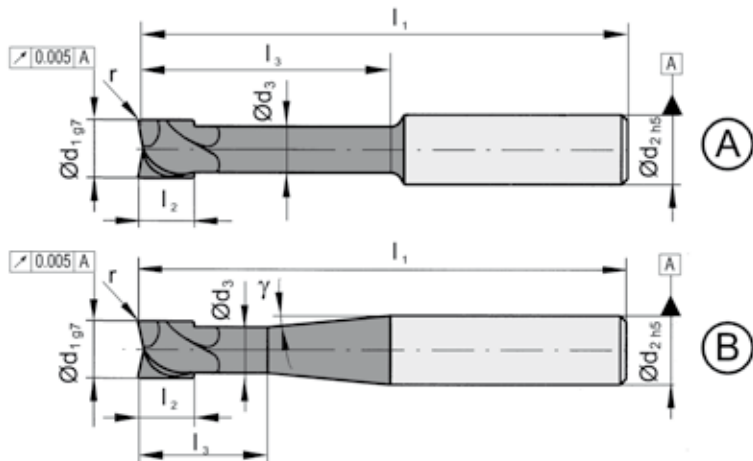
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DST

3刃，30°螺旋角，刀尖圆角
2-fluted, 30° helix angle, with corner radius

推荐切削参数见P100页
recommended cutting data page P100



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	TS3H	TS3K
DST.2.06.05.063.06	6.0	6	5.6	63	6	25.5	0.5	2	-	A	▲	▲
DST.2.06.05.077.06				77		35.5					△	▲
DST.2.06.15.063.06				63		25.5					▲	△
DST.2.06.15.077.06				77		35.5					△	▲
DST.2.15.03.063.06	1.5	6	0.9	63	3	10.0	0.3	2	9°	B	▲	▲
DST.2.02.05.063.06	2.0	6	1.9	63	3	5.5	0.5	2	6°	B	▲	▲
DST.2.02.05.077.06				77							5.5	▲
DST.2.03.05.063.06	3.0	6	2.9	63	4	7.5	0.5	2	4°	B	▲	▲
DST.2.03.05.077.06				77		15.5					▲	▲
DST.2.04.05.063.06	4.0	6	3.8	63	4	8.5	0.5	2	4°	B	▲	▲
DST.2.04.05.077.06				77	5	15.5					▲	▲
DST.2.04.10.063.06				63	5	8.5					▲	▲
DST.2.04.10.077.06				77	5	15.5					△	▲
DST.2.05.05.063.06	5.0	6	4.7	63	5	10.5	0.5	2	3°	B	△	▲
DST.2.05.05.077.06				77		20.5					△	▲
DST.2.05.10.063.06				63		10.5					△	▲
DST.2.05.10.077.06				77		20.5					△	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●	●
M	■	■
K	■	■
N	■	■
S	■	■
H	○	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

环面立铣刀 TORUS ENDMILL



高强度钢 / high tensile steel

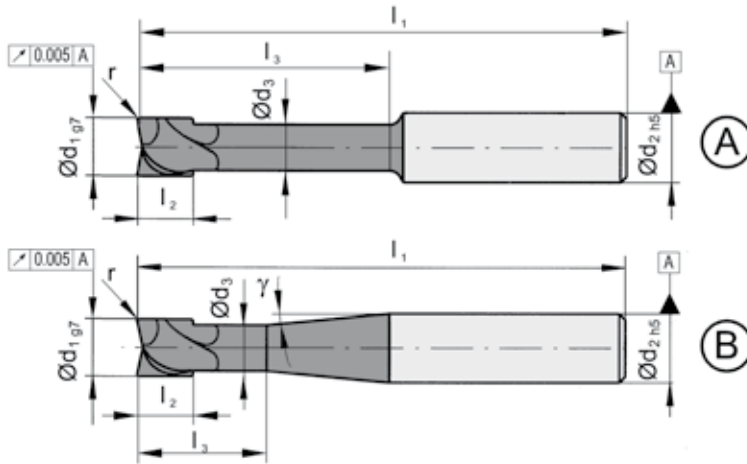
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DST

3刃，30°螺旋角，刀尖圆角
2-fluted, 30° helix angle, with corner radius

推荐切削参数见P100页
recommended cutting data page P100



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	型式 Version	TS3H	TS3K
DST.2.08.05.063.08			7.6	63		25.5	0.5			▲	▲
DST.2.08.05.077.08			7.4	77		35.5	0.5			△	▲
DST.2.08.10.063.08			7.4	63		25.5	1.0			△	▲
DST.2.08.10.077.08			7.4	77		35.5	1.0			△	△
DST.2.08.10.099.08	8	8	7.4	99	8	50.5	1.0	2	A	△	△
DST.2.08.20.063.08			7.4	63		25.5	2.0			△	△
DST.2.08.20.077.08			7.4	77		35.5	2.0			△	△
DST.2.08.20.099.08			7.4	99		50.5	2.0			△	△
DST.2.10.05.077.10				77		35.5	0.5			▲	▲
DST.2.10.10.099.10				99		55.5	1.0			△	△
DST.2.10.20.077.10	10	10	9.4	77	10	35.5	2.0	2	A	▲	△
DST.2.10.20.099.10				99		55.5	2.0			△	▲
DST.2.12.05.077.12				77		35.5	0.5				▲
DST.2.12.10.099.12				99		55.5	1.0			△	▲
DST.2.12.20.077.12	12	12	11.4	77	12	35.5	2.0	2	A	▲	△
DST.2.12.20.099.12				99		55.5	2.0			△	△
DST.2.160.20.099.16				100		50.0	2.0			△	△
DST.2.160.20.149.16				150		100.0	2.0			△	△
DST.2.160.35.099.16	16	16	15.4	100	20	50.0	3.5	2	A	△	▲
DST.2.160.35.149.16				150		100.0	3.5			▲	△
DST.2.06.05.099.08				99		25.5	0.5				△
DST.2.06.15.099.08	6	8	5.6	99	6	25.5	1.5	2	B	△	▲
DST.2.08.10.119.10				119		30.5	1.0			△	
DST.2.08.20.119.10	8	10	7.4	119	8	30.5	2.0	2	B	△	△
DST.2.10.20.119.12	10	12	9.4	119	10	30.5	2.0	2	B	△	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号TS3K适用于“软铣”硬度最高到40HRC
硬质合金牌号TS3H适用于“软铣及硬铣”硬度自38至53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

硬质合金牌号
Carbide grades

P	●	●
M		
K		
N		
S		
H	○	●

环面立铣刀 TORUS ENDMILL

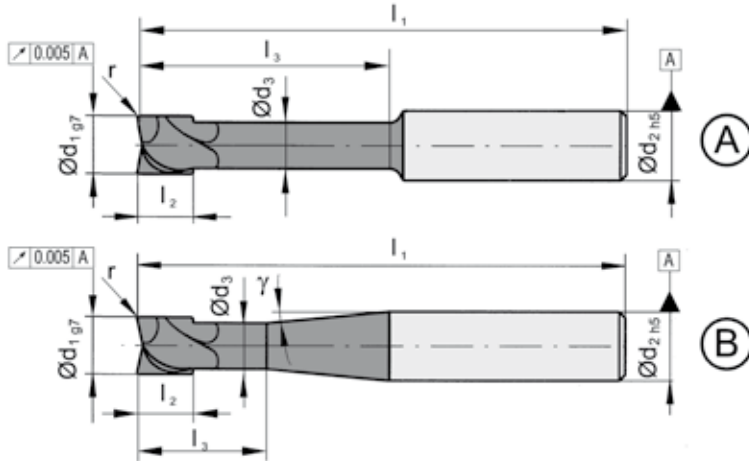


硬铣削
Hard milling

DSTH

3刃，30°螺旋角，刀尖圆角
2-fluted, 30° helix angle, with corner radius

推荐切削参数见P101页
recommended cutting data page P101



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	TS3E
DSTH.2.06.02.055.06							0.2				▲
DSTH.2.06.05.055.06	6.0	6	5.6	55	6.0	15.5	0.5	2	-	A	▲
DSTH.2.06.10.055.06							1.0				△
DSTH.2.08.02.063.08							0.2				▲
DSTH.2.08.05.063.08	8.0	8	7.4	63	10.0	20.5	0.5	2	-	A	▲
DSTH.2.08.10.063.08							1.0				▲
DSTH.2.08.15.063.08							1.5				▲
DSTH.2.10.02.077.10							0.2				▲
DSTH.2.10.05.077.10	10.0	10	9.4	77	15.0	25.5	0.5	2	-	A	▲
DSTH.2.10.10.077.10							1.0				▲
DSTH.2.10.15.077.10							1.5				△
DSTH.2.12.03.077.12							0.3				▲
DSTH.2.12.05.077.12	12.0	12	11.4	77	18.0	30.5	0.5	2	-	A	△
DSTH.2.12.10.077.12							1.0				△
DSTH.2.12.15.077.12							1.5				▲
DSTH.2.15.01.055.06	1.5	6	1.4	55	2.5	5.5	0.1	2	15°	B	▲
DSTH.2.02.02.055.06	2.0	6	1.9	55	3.0	5.5	0.2	2	15°	B	▲
DSTH.2.02.05.055.06							0.5				▲
DSTH.2.03.02.055.06	3.0	6	2.9	55	4.0	7.5	0.2	2	15°	B	▲
DSTH.2.03.05.055.06							0.5				△
DSTH.2.04.02.055.06	4.0	6	3.8	55	5.0	8.5	0.2	2	15°	B	△
DSTH.2.04.05.055.06							0.5				▲
DSTH.2.05.02.055.06	5.0	6	4.7	55	6.0	12.5	0.2	2	15°	B	▲
DSTH.2.05.05.055.06							0.5				▲
DSTH.2.05.10.055.06							1.0				▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

P	●
M	■
K	■
N	■
S	■
H	●

P34

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

环面立铣刀 TORUS ENDMILL



高强度钢 / high tensile steel

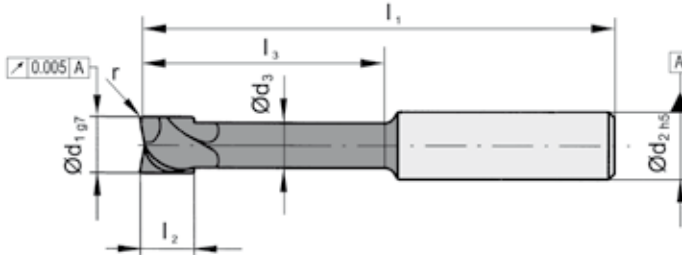
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DST

4刃，30°螺旋角，刀尖圆角
4-fluted, 30° helix angle, with corner radius

推荐切削参数见P102页
recommended cutting data page P102



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TS3K
DST.4.06.063.06.3.05				63		25.5	0.5		▲
DST.4.06.063.06.3.10				63		25.5	1.0		▲
DST.4.06.077.06.3.05	6	6	5.6	77	6	35.5	0.5	4	▲
DST.4.06.077.06.3.15				77		35.5	1.5		▲
DST.4.08.063.08.3.05				63		25.5	0.5		▲
DST.4.08.063.08.3.10				63		25.5	1.0		▲
DST.4.08.063.08.3.20				63		25.5	2.0		▲
DST.4.08.077.08.3.05	8	8	7.4	77	8	25.5	0.5	4	▲
DST.4.08.077.08.3.10				77		35.5	1.0		▲
DST.4.08.077.08.3.20				77		35.5	2.0		▲
DST.4.08.099.08.3.10				99		50.5	1.0		▲
DST.4.08.099.08.3.20				99		50.5	2.0		▲
DST.4.10.077.10.3.05				77		35.5	0.5		▲
DST.4.10.077.10.3.20				77		35.5	2.0		▲
DST.4.10.099.10.3.10	10	10	9.4	99	10	55.5	1.0	4	▲
DST.4.10.099.10.3.20				99		55.5	2.0		▲
DST.4.12.077.12.3.05				77		35.5	0.5		▲
DST.4.12.077.12.3.20				77		35.5	2.0		▲
DST.4.12.099.12.3.10	12	12	11.4	99	12	55.5	1.0	4	▲
DST.4.12.099.12.3.20				99		55.5	2.0		▲
DST.4.160.20.099.16				99		50.0	2.0		▲
DST.4.160.20.149.16				149		100.0	2.0		▲
DST.4.160.35.099.16	16	16	15.4	99	20	50.0	3.5	4	▲
DST.4.160.35.149.16				149		100.0	3.5		▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软及硬铣”硬度最高可达40HRC
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 40 HRC

环面立铣刀 TORUS ENDMILL



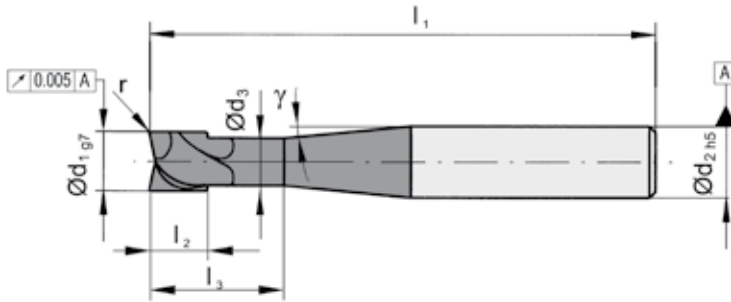
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DST

4刃，30°螺旋角，刀尖圆角
4-fluted, 30° helix angle, with corner radius

推荐切削参数见P102页
recommended cutting data page P102



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	TS3K
DST.4.06.099.08.3.05	6	8	5.6	99	6	25.5	0.5	4	4°	▲
DST.4.06.099.08.3.15										△
DST.4.08.119.10.3.10	8	10	7.4	119	8	30.5	1.0	4	4°	△
DST.4.08.119.10.3.20										▲
DST.4.10.119.12.3.20	10	12	9.4	119	10	30.5	2.0	4	4°	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软及硬铣”硬度最高可达40HRC
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 40 HRC

多刃立铣刀

ENDMILL Multiple fluted



高强度钢 / high tensile steel

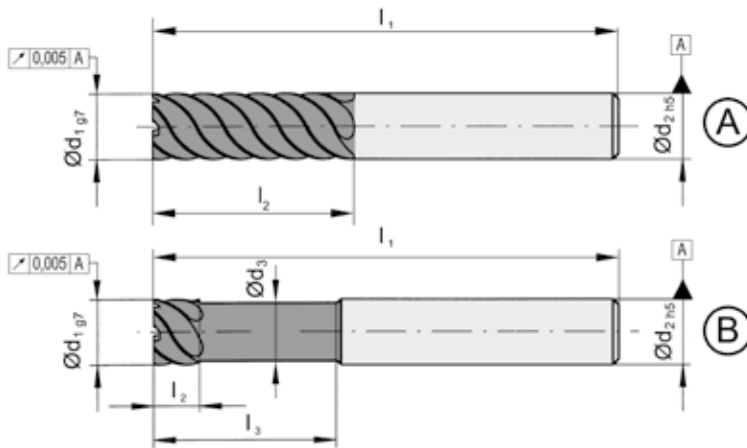
推荐加工 I, II, III, IV 类材料 - 软铣

Recommended material group I / II / III / IV - soft milling

DSM

6/8/10/12/16 刃, 45° 螺旋角
6-/8-/10-/12-/16-fluted, 45° helix angle

推荐切削参数见 P103 页
recommended cutting data page P103



标准
Standard

产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	d ₃	Z	型式 Version	TS3K
DSM-6.03.63.06	3	6	63	10	-	-	6	A	▲
DSM-6.04.63.06	4	6	63	10	-	-	6	A	▲
DSM-6.05.63.06	5	6	63	15	-	-	6	A	▲
DSM-6.06.63.06	6	6	63	20	-	-	6	A	▲
DSM-6.08.63.08	8	8	63	20	-	-	6	A	▲
DSM-8.08.77.08	8	8	77	25	-	-	8	A	▲
DSM-10.10.77.10	10	10	77	30	-	-	10	A	▲
DSM-6.10.69.10	10	10	69	25	-	-	6	A	▲
DSM-12.12.88.12	12	12	88	35	-	-	12	A	▲
DSM-6.12.77.12	12	12	77	25	-	-	6	A	▲
DSM-16.16.88.16	16	16	88	34	-	-	16	A	▲
DSM-6.16.88.16	16	16	88	30	-	-	6	A	▲
DSM-6.03.63.06S	3	6	63	3	10.5	2.9	6	B	▲
DSM-6.04.63.06S	4	6	63	4	10.5	3.8	6	B	▲
DSM-6.05.63.06S	5	6	63	5	15.5	4.7	6	B	▲
DSM-6.06.63.06S	6	6	63	6	20.5	5.6	6	B	▲
DSM-6.08.63.08S	8	8	63	8	20.5	7.4	6	B	▲
DSM-6.10.69.10S	10	10	69	10	25.5	9.4	6	B	▲
DSM-6.12.77.12S	12	12	77	12	25.5	11.4	6	B	▲
DSM-6.16.88.16S	16	16	88	16	35.0	15.4	6	B	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位: mm
Dimensions in mm

硬质合金牌号
Carbide grades

注意事项:
切削刃未过中心!

硬质合金牌号 TS3K 适用于“软及硬铣”硬度最高可达 40 HRC
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 40 HRC

Note:
Not cutting across centre!

多刃立铣刀

ENDMILL Multiple fluted

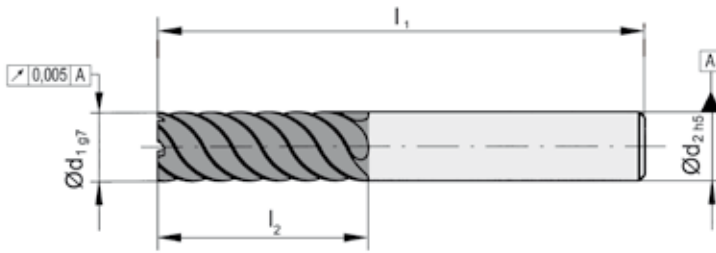


硬铣削
Hard milling

DSMH

6刃，45°螺旋角
6-fluted, 45° helix angle

推荐切削参数见P104页
recommended cutting data page P104



标准
Standard

产品型号 Part number	d_1	d_2	l_1	l_2	γ	Z	TS3E
DSMH.6.03.55.06	3	6	55	9.5	30°	6	▲
DSMH.6.04.55.06	4	6	55	12.5	30°	6	▲
DSMH.6.05.55.06	5	6	55	15.5	30°	6	▲
DSMH.6.06.63.06	6	6	63	18.5	-	6	▲
DSMH.6.08.63.08	8	8	63	24.5	-	6	▲
DSMH.6.10.77.10	10	10	77	30.5	-	6	▲
DSMH.6.12.88.12	12	12	88	36.5	-	6	▲
DSMH.6.16.99.16	16	16	99	48.5	-	6	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

P	●
M	●
K	●
N	●
S	●
H	●

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

注意事项：
切削刃未过中心！
Note:
Not cutting across centre!

多刃立铣刀

ENDMILL Multiple fluted



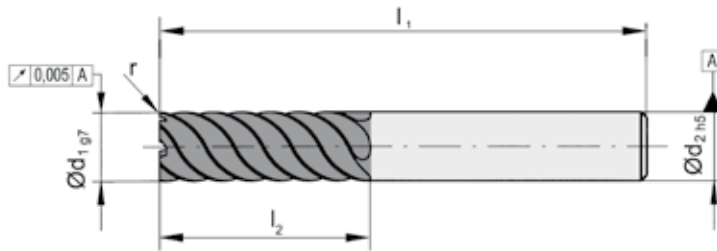
高强度钢 / high tensile steel

推荐加工 I, II, III, IV 类材料 - 软, 硬铣
Recommended material group I / II / III / IV - soft and hard milling

DSMR

6/8/10/12/16 刃, 45° 螺旋角, 刀尖圆角
6-/8-/10-/12-/16-fluted, 45° helix angle, with corner radius

推荐切削参数见 P103 页
recommended cutting data page P103



标准
Standard

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	Z	TS3K	TS3H	
DSMR-6.03.63.06.03	3	0.3	6	63	10	6	▲	▲	
DSMR-6.04.63.06.03	4	0.3	6	63	10	6	▲	▲	
DSMR-6.05.63.06.03	5	0.3	6	63	15	6	▲	▲	
DSMR-6.05.63.06.05		0.5					▲	△	
DSMR-6.06.63.06.05	6	0.5	6	63	20	6	▲	▲	
DSMR-6.06.63.06.10		1.0					▲	▲	
DSMR-6.08.63.08.05	8	0.5	8	63	20	6	▲	▲	
DSMR-6.08.63.08.10		1.0					▲	▲	
DSMR-6.10.69.10.05	10	0.5	10	69	25	6	▲	▲	
DSMR-6.10.69.10.10		1.0					▲	▲	
DSMR-6.10.69.10.15		1.5					△	△	
DSMR-6.12.77.12.05	12	0.5	12	77	25	6	▲	▲	
DSMR-6.12.77.12.10		1.0					▲	△	
DSMR-6.12.77.12.20		2.0					△	▲	
DSMR-6.16.88.16.05	16	0.5	16	88	35	6	▲	▲	
DSMR-6.16.88.16.10		1.0			16		30	△	△
DSMR-6.16.88.16.20		2.0			16		30	△	△
DSMR-8.08.77.08.05	8	0.5	8	77	25	8	△	△	
DSMR-10.10.77.10.05	10	0.5	10	77	30	10	▲	△	
DSMR-12.12.88.12.05	12	0.5	12	88	35	12	▲	△	
DSMR-16.16.88.16.05	16	0.5	16	88	34	16	△		

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●	●
M		
K		
N		
S		
H	●	○

尺寸单位: mm
Dimensions in mm

硬质合金牌号 TS3K 适用于“软铣”硬度最高到 40HRC
硬质合金牌号 TS3H 适用于“软铣及硬铣”硬度自 38 至 53HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

硬质合金牌号
Carbide grades

注意事项: Note:
切削刃未过中心! Not cutting across centre!

多刃立铣刀

ENDMILL Multiple fluted



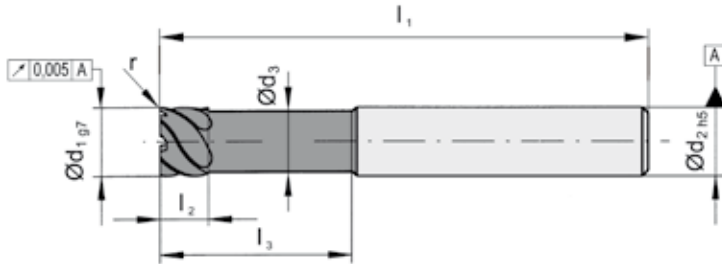
推荐加工 I, II, III, IV 类材料 - 软, 硬铣

Recommended material group I / II / III / IV - soft and hard milling

DSMR

6刃, 45°螺旋角, 刀尖圆角
6-fluted, 45° helix angle, with corner radius

推荐切削参数见 P103 页
recommended cutting data page P103



短悬伸
short style

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	l ₃	d ₃	Z	TS3K	TS3H
DSMR-6.03.63.06.03S	3	0.3	6	63	3	10.5	2.9	6	▲	▲
DSMR-6.04.63.06.03S	4	0.3	6	63	4	10.5	3.8	6	▲	▲
DSMR-6.05.63.06.03S	5	0.3	6	63	5	15.5	4.7	6	▲	▲
DSMR-6.05.63.06.05S		0.5							▲	▲
DSMR-6.06.63.06.05S	6	0.5	6	63	6	20.5	5.6	6	▲	▲
DSMR-6.06.63.06.10S		1.0							△	▲
DSMR-6.08.63.08.05S	8	0.5	8	63	8	20.5	7.4	6	△	▲
DSMR-6.08.63.08.10S		1.0							△	▲
DSMR-6.10.69.10.05S	10	0.5	10	69	10	25.5	9.4	6	▲	▲
DSMR-6.10.69.10.10S		1.0							▲	▲
DSMR-6.10.69.10.15S		1.5							▲	△
DSMR-6.12.77.12.05S	12	0.5	12	77	12	25.5	11.4	6	▲	▲
DSMR-6.12.77.12.10S		1.0							▲	△
DSMR-6.12.77.12.20S		2.0							△	△
DSMR-6.16.88.16.10S	16	1.0	16	88	16	35.0	15.4	6	▲	▲
DSMR-6.16.88.16.20S		2.0							▲	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号 Carbide grades	TS3K	TS3H
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	○

硬质合金牌号 TS3K 适用于“软铣”硬度最高到 40HRC
 硬质合金牌号 TS3H 适用于“软铣及硬铣”硬度自 38 至 53HRC
 Carbide grade TS3K preferred for "Softmilling" up to 40 HRC
 Carbide grade TS3H preferred for "Soft- and Hardmilling" from 38 up to 53 HRC

注意事项：
 切削刃未过中心！
Note:
 Not cutting across centre!

多刃立铣刀

ENDMILL Multiple fluted



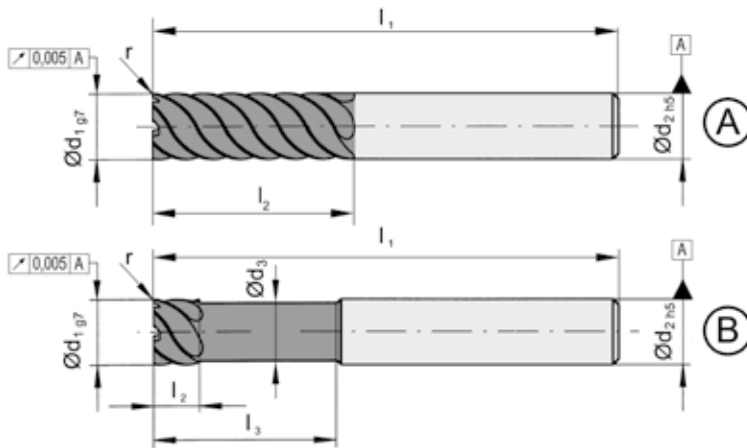
高强度钢 / high tensile steel

硬铣削
Hard milling

DSMRH

6刃, 45°螺旋角
6-fluted, 45° helix angle

推荐切削参数见P104页
recommended cutting data page P104



标准
Standard

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	l ₃	d ₃	γ	Z	型式 Version	TS3E
DSMRH.6.03.55.06.01	3	0.1	6	55	9.5	-	-	30°	6	A	▲
DSMRH.6.04.55.06.02	4	0.2	6	55	12.5	-	-	30°	6	A	▲
DSMRH.6.05.55.06.02	5	0.2	6	55	15.5	-	-	30°	6	A	▲
DSMRH.6.06.63.06.03	6	0.3	6	63	18.5	-	-	-	6	A	▲
DSMRH.6.08.63.08.05	8	0.5	8	63	24.5	-	-	-	6	A	▲
DSMRH.6.10.77.10.05	10	0.5	10	77	30.5	-	-	-	6	A	▲
DSMRH.6.12.88.12.05	12	0.5	12	88	36.5	-	-	-	6	A	▲
DSMRH.6.16.99.16.05	16	0.5	16	99	48.5	-	-	-	6	A	▲
DSMRH.6.03.55.06.1S	3	0.1	6	55	3.0	9.5	2.9	30°	6	B	▲
DSMRH.6.04.55.06.3S	4	0.3	6	55	4.0	12.5	3.9	30°	6	B	▲
DSMRH.6.05.55.06.2S	5	0.2	6	55	5.0	15.5	4.8	30°	6	B	▲
DSMRH.6.06.63.06.3S	6	0.3	6	63	6.0	18.5	5.8	-	6	B	▲
DSMRH.6.08.63.08.5S	8	0.5	8	63	8.0	24.5	7.8	-	6	B	▲
DSMRH.6.10.77.10.5S	10	0.5	10	77	10.0	30.5	9.8	-	6	B	▲
DSMRH.6.12.88.12.5S	12	0.5	12	88	12.0	36.5	11.8	-	6	B	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

P	●
M	●
K	●
N	●
S	●
H	●

硬质合金牌号TS3E适用于"硬铣"硬度在HRC52-70之间的材料
Carbide grade TS3E for "Hardmilling" from 50 up to 70 HRC

注意事项 :
切削刃未过中心 !
Note:
Not cutting across centre!

多刃立铣刀

ENDMILL Multiple fluted

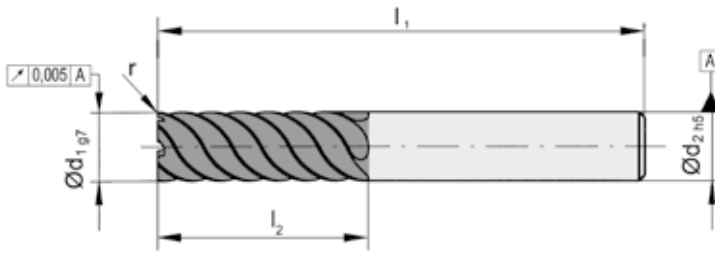


推荐加工 I, II, III, IV 类材料 - 软, 硬铣
Recommended material group I / II / III / IV - soft and hard milling

DSML

6刃, 45°螺旋角, 刀尖圆角
6-fluted, 45° helix angle, with corner radius

推荐切削参数见 P103 页
recommended cutting data page P103



长悬伸
long style

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	Z	TS3K
DSML-6.08.077.08	8	0.5	8	77	30	6	▲
DSML-6.10.088.10	10	0.5	10	88	35	6	▲
DSML-6.12.099.12	12	0.5	12	99	40	6	▲
DSML-6.16.101.16	16	0.5	16	101	45	6	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号 TS3K 适用于“软及硬铣”硬度最高可达 40HRC
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 40 HRC

注意事项：
切削刃未过中心！

Note:
Not cutting across centre!

粗加工立铣刀

ROUGHING ENDMILL



高强度钢 / high tensile steel

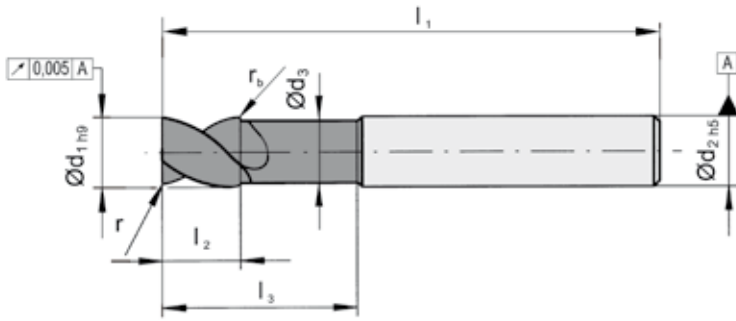
推荐加工 I, II, III, IV 类材料 - 软铣

Recommended material group I / II / III / IV - soft milling

DSR

3刃, 45°螺旋角, 刀尖圆角
3-fluted, 45° helix angle, with corner radius

推荐切削参数见 P105 页
recommended cutting data page P105



产品型号 Part number	d ₁	r	r _b	d ₂	l ₁	l ₂	l ₃	d ₃	Z	TS3K
DSR.3.020.38.03	2	0.2	2	3	38	3	10.5	1.9	3	▲
DSR.3.030.38.03	3	0.2	2	3	38	4	10.5	2.9	3	▲
DSR.3.040.50.06 DSR.3.040.63.06	4	0.2	2	6	50 63	5	12.5	3.8	3	▲ ▲
DSR.3.050.50.06 DSR.3.050.63.06	5	0.2	2	6	50 63	6	14.5	4.7	3	▲ ▲
DSR.3.060.63.06	6	0.3	2	6	63	7	16.5	5.6	3	▲
DSR.3.080.63.08	8	0.5	2	8	63	9	20.5	7.4	3	▲
DSR.3.100.69.10	10	0.5	2	10	69	12	25.5	9.4	3	▲
DSR.3.120.77.12	12	0.5	2	12	77	15	30.5	11.4	3	▲
DSR.3.160.88.16	16	0.5	2	16	88	18	38.0	15.4	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●
M	■
K	■
N	■
S	■
H	●

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣”硬度最高可达40HRC
Carbide grade TS3K preferred for "Softmilling" up to 40 HRC

粗加工立铣刀

ROUGHING ENDMILL



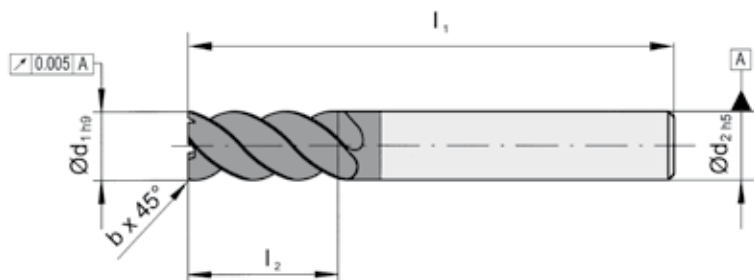
推荐加工 I, II, III, IV 类材料 - 软铣

Recommended material group I / II / III / IV - soft milling

DSF

3刃, 45°螺旋角, 刀尖倒角
3-fluted, 45° helix angle, with corner chamfer

推荐切削参数见 P106 页
recommended cutting data page P106



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	TS3K
DSF.3.020.38.03	2	0.10	3	38	8	3	▲
DSF.3.030.38.03	3	0.10	3	38	10	3	▲
DSF.3.040.50.04	4	0.10	4	50	12	3	▲
DSF.3.050.50.05	5	0.15	5	50	14	3	▲
DSF.3.060.63.06	6	0.15	6	63	16	3	▲
DSF.3.080.63.08	8	0.20	8	63	20	3	▲
DSF.3.100.69.10	10	0.20	10	69	22	3	▲
DSF.3.120.77.12	12	0.25	12	77	25	3	▲
DSF.3.160.88.16	16	-	16	88	35	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣削”硬度HRC54以下零件加工
Carbide grade TS3K preferred for "Softmilling" up to 54 HRC

粗加工立铣刀

ROUGHING ENDMILL



高强度钢 / high tensile steel

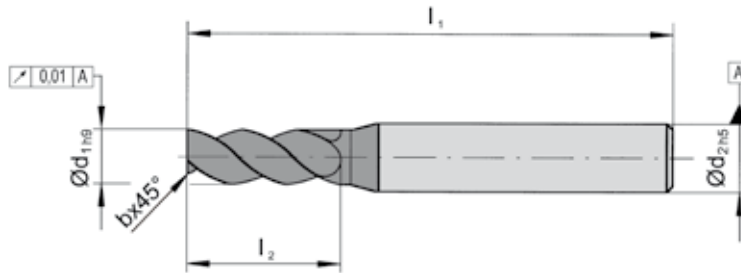
推荐加工II类材料 - 软，硬铣

Recommended material group II - soft and hard milling

DSF

4刃，48°螺旋角，刀尖倒角
4-fluted, 48° helix angle, with corner chamfer

推荐切削参数见P107页
recommended cutting data page P107



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	TS3K
DSF.4.040.50.04	4	0.10	4	50	12	4	▲
DSF.4.060.63.06	6	0.15	6	63	16	4	▲
DSF.4.080.63.08	8	0.20	8	63	20	4	▲
DSF.4.100.69.10	10	0.20	10	69	22	4	▲
DSF.4.120.77.12	12	0.25	12	77	25	4	▲
DSF.4.160.88.16	16	-	16	88	35	4	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K适用于“软铣削和硬铣削”硬度HRC54及以下零件加工
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 54 HRC

粗加工立铣刀

ROUGHING RIPPED ENDMILL

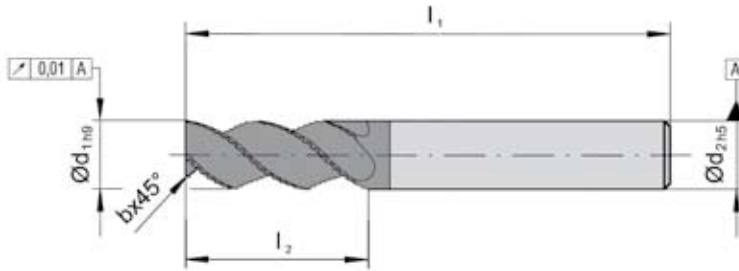


推荐加工 I, II, IV 类材料 - 软铣
Recommended material group I / II / IV - soft milling

DSRF

3刃, 40°螺旋角, 刀尖倒角
3-fluted, 40° helix angle, with corner chamfer

推荐切削参数见 P108 页
recommended cutting data page P108



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	TS3K
DSRF.3.06.63.06.25	6	0.25	6	63	16	3	▲
DSRF.3.08.63.08.50	8	0.50	8	63	20	3	▲
DSRF.3.10.69.10.50	10	0.50	10	69	22	3	▲
DSRF.3.12.77.12.50	12	0.50	12	77	25	3	▲
DSRF.3.16.88.16.10	16	-	16	88	32	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K使用与"软铣削"
Carbide grade TS3K preferred for "Softmilling"

粗加工立铣刀

ROUGHING RIPPED ENDMILL



高强度钢 / high tensile steel

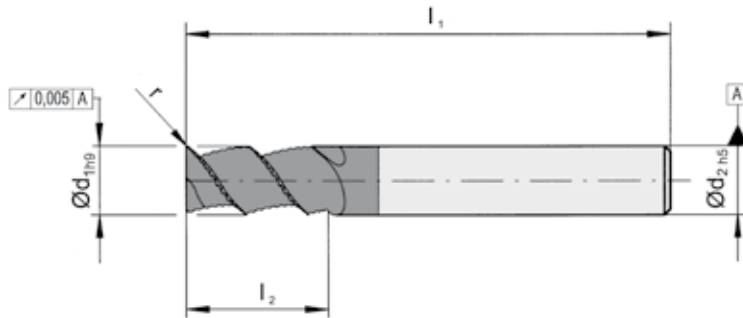
推荐加工III类材料 - 软铣

Recommended material group III - soft milling

DSRR

3刃，32°螺旋角，刀尖圆角
3-fluted, 32° helix angle, with corner radius

推荐切削参数见P109页
recommended cutting data page P109



产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	Z	TS3K
DSRR-3.06.63.06.03	6	0.3	6	63	16	3	▲
DSRR-3.08.63.08.05	8	0.5	8	63	20	3	▲
DSRR-3.10.69.10.05	10	0.5	10	69	22	3	▲
DSRR-3.12.77.12.05	12	0.5	12	77	25	3	▲
DSRR-3.16.88.16.05	16	0.5	16	88	35	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	●
K	●
N	●
S	●
H	●

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TS3K使用与"软铣削"
Carbide grade TS3K preferred for "Softmilling"

多刃立铣刀

ENDMILL Multiple fluted



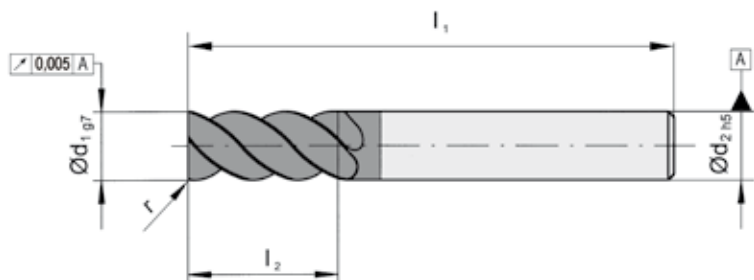
推荐加工III类材料和钛

Recommended material group III and Titanium

DSRV

推荐切削参数见P110页
recommended cutting data page P110

4/5刃，45°螺旋角，刀尖圆角
4-/ 5-fluted, 45° helix angle, with corner radius



标准
Standard

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	Z	TS3K
DSRV.4.03.38.03	3	0.2	3	38	7	4	▲
DSRV.4.04.50.04	4	0.2	4	50	9	4	▲
DSRV.4.05.50.05	5	0.2	5	50	11	4	▲
DSRV.4.06.63.06	6	0.3	6	63	13	4	▲
DSRV.4.08.63.08	8	0.5	8	63	18	4	▲
DSRV.4.10.69.10	10	0.5	10	69	22	4	▲
DSRV.4.12.77.12	12	1.0	12	77	25	4	▲
DSRV.5.16.88.16	16	1.0	16	88	35	5	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●
M	●
K	●
N	●
S	●
H	●

硬质合金牌号
Carbide grades

倒角铣削

ENDMILL Chamfering



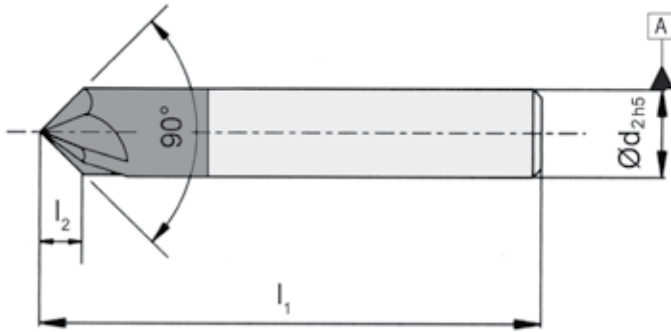
推荐加工 I, II, III, IV 类材料 - 软, 硬铣

Recommended material group I / II / III / IV - soft and hard milling

DSFF

4 刃
4-fluted

推荐切削参数见 P111 页
recommended cutting data page P111



产品型号 Part number	d ₂	l ₁	l ₂	Z	TS3K	TS3H
DSFF.4.04.50.04.45	4	50	2	4	▲	
DSFF.4.06.63.06.45	6	63	3	4	▲	
DSFF.4.08.63.08.45	8	63	4	4	▲	
DSFF.4.10.69.10.45	10	69	5	4	▲	
DSFF.4.12.77.12.45	12	77	6	4	▲	
					P	•
					M	
					K	
					N	
					S	
					H	•

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号 TS3K 适用于 "软铣削和硬铣削" 硬度 HRC60 以下零件加工
Carbide grade TS3K preferred for "Soft- and Hardmilling" up to 60 HRC

高效率加工
- 用于钴铬合金 -

钴铬合金 / Cobalt Chromium



HIGH PRODUCTIVE MACHINING
- for Cobalt chromium alloys -

S

钴铬合金
Cobalt Chromium alloys

	型号 type	页 Page
球头立铣刀 Ballnose Endmill	DSKC	P52
球头立铣刀 Ballnose Endmill	DSKLC	P53
220°圆弧立铣刀 Endmill Full radius 220°	DSKC	P54
曲面立铣刀 Torus Endmill	DSTC	P55
多刃立铣刀 Endmill multiple fluted	DSMRC	P56
计算公式 Formulas		P87-P88
切削参数 Cutting data		P112-P115

球头立铣刀 BALLNOSE ENDMILL



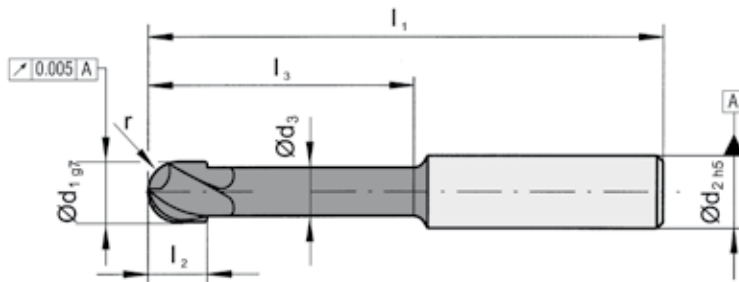
推荐加工III类材料-CoCr合金

Recommended material group III - CoCr alloys

DSKC

2-/3-/4-/5-/7刃, 30°螺旋角
2-/3-/4-/5-/7-fluted, 30° helix angle

推荐切削参数见P112页
recommended cutting data page P112



钴铬合金 / Cobalt Chromium

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TSCC
DSKC-2.010.063.06	1.0	6	0.9	63	2	3.0	0.50	2	▲
DSKC-2.015.063.06	1.5	6	1.4	63	2	4.5	0.75	2	▲
DSKC-2.020.063.06	2.0	6	1.9	63	3	5.0	1.00	2	▲
DSKC-2.020.077.06				77		8.0			▲
DSKC-2.030.063.06	3.0	6	2.9	63	4	7.5	1.50	2	▲
DSKC-2.030.077.06				77		12.0			▲
DSKC-3.040.063.06	4.0	6	3.8	63	5	10.0	2.00	3	▲
DSKC-3.040.077.06				77		16.0			▲
DSKC-4.050.063.06	5.0	6	4.7	63	5	12.5	2.50	4	▲
DSKC-4.050.077.06				77		20.0			▲
DSKC-4.060.063.06	6.0	6	5.6	63	6	15.0	3.00	4	▲
DSKC-4.060.077.06		6		77		24.0			▲
DSKC-4.060.099.08		8		99		36.0			▲
DSKC-5.080.063.08	8.0	8	7.4	63	8	20.0	4.00	5	▲
DSKC-5.080.077.08		8		77		32.0			▲
DSKC-5.080.099.08		8		99		48.0			▲
DSKC-5.080.119.10		10		119		40.0			▲
DSKC-5.100.077.10	10.0	10	9.4	77	10	25.0	5.00	5	▲
DSKC-5.100.099.10		10		99		40.0			▲
DSKC-5.100.119.12		12		119		60.0			▲
DSKC-7.120.077.12	12.0	12	11.4	77	12	30.0	6.00	7	▲
DSKC-7.120.099.12				99		48.0			▲
DSKC-7.160.099.16	16.0	16	15.4	99	20	50.0	8.00	7	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P
M
K
N
S
H

硬质合金牌号
Carbide grades

硬质合金牌号TSCC适用于CoCr合金, e.g 医疗行业
Carbide grade TSCC preferred for CoCr alloys, e.g Medical technology

球头立铣刀

BALLNOSE ENDMILL



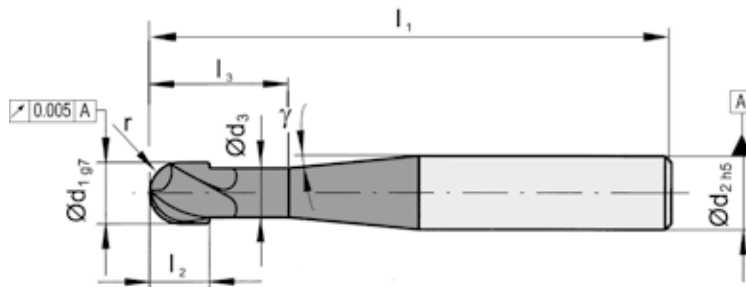
推荐加工III类材料-CoCr合金

Recommended material group III - CoCr alloys

DSKLC

4-/5-/7刃, 30°螺旋角
4-/5-/7-fluted, 30° helix angle

推荐切削参数见P112页
recommended cutting data page P112



钴铬合金 / Cobalt Chromium

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	TSCC
DSKLC.4.060.149.08	6	8	5.6	149	6	15	3	4	1.5°	▲
DSKLC.5.080.149.10	8	10	7.4	149	8	20	4	5	1.5°	▲
DSKLC.5.100.149.12	10	12	9.4	149	10	25	5	5	1.5°	▲
DSKLC.7.120.149.16	12	16	11.4	149	12	30	6	7	2.0°	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P
M
K
N
S
H

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TSCC适用于CoCr合金, e.g 医疗行业
Carbide grade TSCC preferred for CoCr alloys, e.g Medical technology

220°球头立铣刀

BALLNOSE ENDMILL 220°



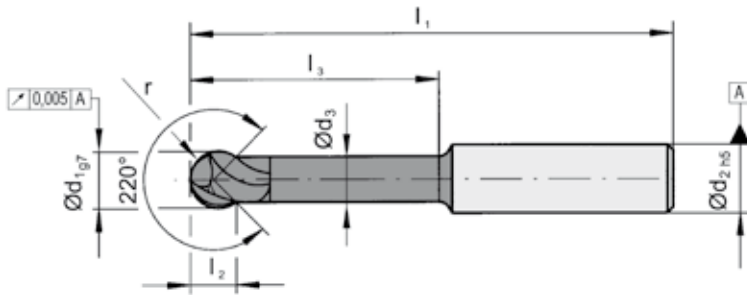
推荐加工III类材料-CoCr合金

Recommended material group III - CoCr alloys

DSKC

2-/3-/4-/5-/7刃, 30°螺旋角
2-/3-/4-/5-/7-fluted, 30° helix angle

推荐切削参数见P113页
recommended cutting data page P113



钴铬合金 / Cobalt Chromium

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TSCC
DSKC-2.030.063.06.2	3	6	2.80	63	2.0	15	1.5	2	▲
DSKC-3.040.063.06.2	4	6	3.75	63	2.6	20	2.0	3	▲
DSKC-4.050.063.06.2	5	6	4.70	63	3.3	25	2.5	4	▲
DSKC-4.060.063.06.2	6	6	5.65	63	4.0	30	3.0	4	▲
DSKC-5.080.088.08.2	8	8	7.50	88	5.3	40	4.0	5	▲
DSKC-5.100.101.10.2	10	10	9.40	101	6.7	50	5.0	5	▲
DSKC-7.120.119.12.2	12	12	11.30	119	8.0	60	6.0	7	▲
DSKC-7.160.119.16.2	16	16	15.10	119	10.7	72	8.0	7	▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位: mm

Dimensions in mm

硬质合金牌号

Carbide grades

P
M
K
N
S
H

硬质合金牌号TSCC适用于CoCr合金, e.g 医疗行业
Carbide grade TSCC preferred for CoCr alloys, e.g Medical technology

环面立铣刀 TORUS ENDMILL



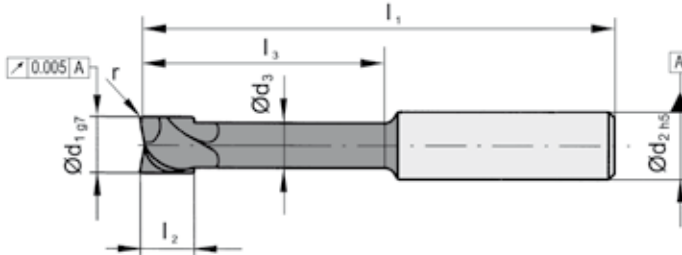
推荐加工III类材料-CoCr合金

Recommended material group III - CoCr alloys

DSTC

2-/3-/4-/5刃, 30°螺旋角
2-/3-/4-/5-fluted, 30° helix angle

推荐切削参数见P114页
recommended cutting data page P114



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	TSCC
DSTC.2.15.01.055.06	1.5	6	1.4	55	2.5	5.5	0.1	2	▲
DSTC.2.02.02.055.06	2.0	6	1.9	55	3.0	5.5	0.2	2	▲
DSTC.2.02.05.055.06									▲
DSTC.2.03.02.055.06	3.0	6	2.9	55	4.0	7.5	0.2	2	▲
DSTC.2.03.05.055.06									▲
DSTC.3.04.02.055.06	4.0	6	3.8	55	5.0	8.5	0.2	3	▲
DSTC.3.04.05.055.06									▲
DSTC.4.05.02.055.06	5.0	6	4.7	55	6.0	12.5	0.2	4	▲
DSTC.4.05.05.055.06									▲
DSTC.4.05.10.055.06									▲
DSTC.4.06.02.055.06	6.0	6	5.6	55	6.0	15.5	0.2	4	▲
DSTC.4.06.05.055.06									▲
DSTC.4.06.10.055.06									▲
DSTC.5.08.02.063.08	8.0	8	7.4	63	10.0	20.5	0.2	5	▲
DSTC.5.08.05.063.08									▲
DSTC.5.08.10.063.08									△
DSTC.5.08.15.063.08	10.0	10	9.4	77	15.0	25.5	1.5	5	△
DSTC.5.10.02.077.10									▲
DSTC.5.10.05.077.10									▲
DSTC.5.10.10.077.10	10.0	10	9.4	77	15.0	25.5	1.0	5	△
DSTC.5.10.15.077.10									△
DSTC.5.12.02.077.12									▲
DSTC.5.12.05.077.12	12.0	12	11.4	77	18.0	30.5	0.2	5	▲
DSTC.5.12.10.077.12									▲
DSTC.5.12.15.077.12									▲
DSTC.5.12.20.077.12	12.0	12	11.4		18.0	30.5	1.5		△
	12.0	12	11.4		18.0	30.5	2.0		▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P
M
K
N
S
H

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TSCC适用于CoCr合金, e.g 医疗行业
Carbide grade TSCC preferred for CoCr alloys, e.g Medical technology

钴铬合金 / Cobalt Chromium

多刃立铣刀

ENDMILL Multiple fluted



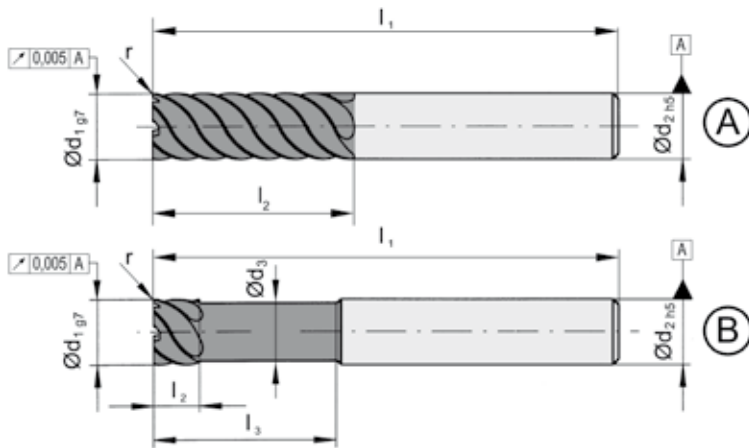
推荐加工III类材料-CoCr合金

Recommended material group III - CoCr alloys

DSMRC

4-/5-/7刃, 30°螺旋角
4-/5-/7-fluted, 30° helix angle

推荐切削参数见P115页
recommended cutting data page P115



钴铬合金 / Cobalt Chromium

产品型号 Part number	d ₁	r	d ₂	l ₁	l ₂	l ₃	d ₃	Z	型式 Version	TSCC
DSMRC.4.03.55.06.02	3	0.2	6	55	9.5	-	-	4	A	▲
DSMRC.4.03.55.06.3S		0.3			3.0	9.5	2.9		B	▲
DSMRC.4.04.55.06.02	4	0.2	6	55	12.5	-	-	4	A	▲
DSMRC.4.04.55.06.3S		0.3			4.0	12.5	3.9		B	▲
DSMRC.4.05.55.06.02	5	0.2	6	55	15.5	-	-	4	A	▲
DSMRC.4.05.55.06.5S		0.5			5.0	15.5	4.8		B	▲
DSMRC.5.06.63.06.02	6	0.2	6	63	18.5	-	-	5	A	▲
DSMRC.5.06.63.06.5S		0.5			6.0	18.5	5.8		B	▲
DSMRC.5.08.63.08.10	8	1.0	8	63	24.5	-	-	5	A	▲
DSMRC.5.08.63.08.5S		0.5			8.0	24.5	7.8		B	▲
DSMRC.5.10.77.10.10	10	1.0	10	77	30.5	-	-	5	A	▲
DSMRC.5.10.77.10.5S		0.5			10.0	30.5	9.8		B	▲
DSMRC.7.12.88.12.10	12	1.0	12	88	36.5	-	-	7	A	▲
DSMRC.7.12.88.12.2S		0.2			12.0	36.5	11.8		B	▲
DSMRC.7.16.99.16.05	16	0.5	16	99	48.5	-	-	7	A	▲
DSMRC.7.16.99.16.20		2.0								

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号TSCC适用于CoCr合金, e.g 医疗行业
Carbide grade TSCC preferred for CoCr alloys, e.g Medical technology

槽铣削275系列

GROOVE MILLING System 275



275铣槽系列 - 安装小切削刃的可转位刀片
详细信息见章节D

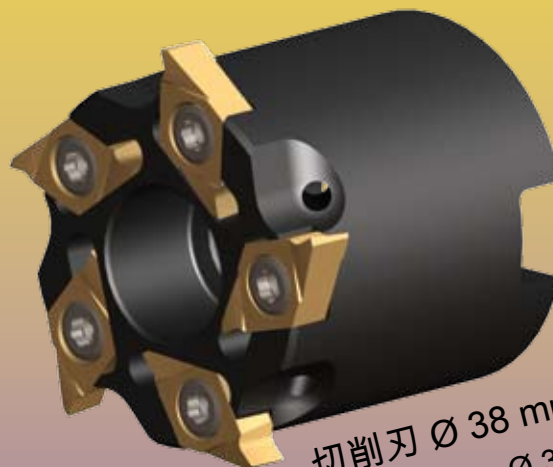
Groove milling System 275 - with indexable inserts with small cutting edges.
For further information please see chapter D.



切削刃 \varnothing 31 mm
Cutting edge \varnothing 31 mm



切削刃 \varnothing 31 mm
Cutting edge \varnothing 31 mm



切削刃 \varnothing 38 mm
Cutting edge \varnothing 38 mm

钴铬合金 / Cobalt Chromium

高效率加工
- 铜材 -



HIGH PRODUCTIVE MACHINING

- for copper materials -

N **铜**
Copper

	型号 type	页 Page
立铣刀 圆头 4刃 Endmill Full radius 4-fluted	DSKK	P60
曲面立铣刀 4刃，刀尖圆角 Torus Endmill 4-fluted with Corner radius	DSTK	P61
立铣刀 3刃，刀尖圆角/无刀尖圆角 Endmill 3-fluted, with and without Corner radius	DSMK DSMRK	P62-P63
小型立铣刀 圆头 2刃，刀尖圆角 Micro Endmill Full radius 2-fluted with Corner radius	DSKMK DSMMK	P64-P65
计算公式 Formulas		P87-P88
切削参数 Cutting data		P116-P121

球头立铣刀 BALLNOSE ENDMILL

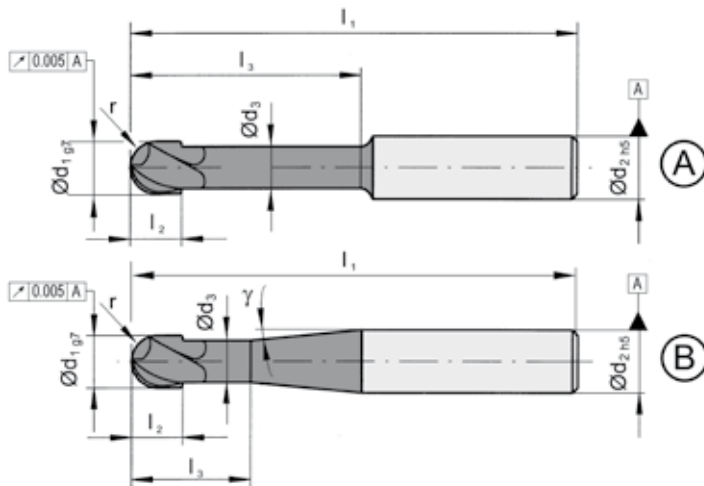


用于铜
for copper

DSKK

4刃，30°螺旋角
4-fluted, 30° helix angle

推荐切削参数见P116页
recommended cutting data page P116



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	CN2K
DSKK.4.060.063.06	6	6	5.8	63	9	25	3.0	4	0°	A	▲
DSKK.4.080.077.08	8	8	7.8	77	10	25	4.0	4	0°	A	▲
DSKK.4.100.077.10	10	10	9.8	77	12	35	5.0	4	0°	A	△
DSKK.4.120.088.12	12	12	11.7	88	16	40	6.0	4	0°	A	▲
DSKK.4.030.050.04	3	4	2.9	50	7	15	1.5	4	15°	B	▲
DSKK.4.030.063.06	3	6	2.9	63	7	15	1.5	4	15°	B	▲
DSKK.4.040.063.06	4	6	3.9	63	7	15	2.0	4	15°	B	▲
DSKK.4.050.063.06	5	6	4.8	63	7	20	2.5	4	15°	B	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P	■
M	■
K	■
N	●
S	■
H	■

硬质合金牌号

Carbide grades

CrCn涂层

CrCn coated

环面立铣刀 TORUS ENDMILL

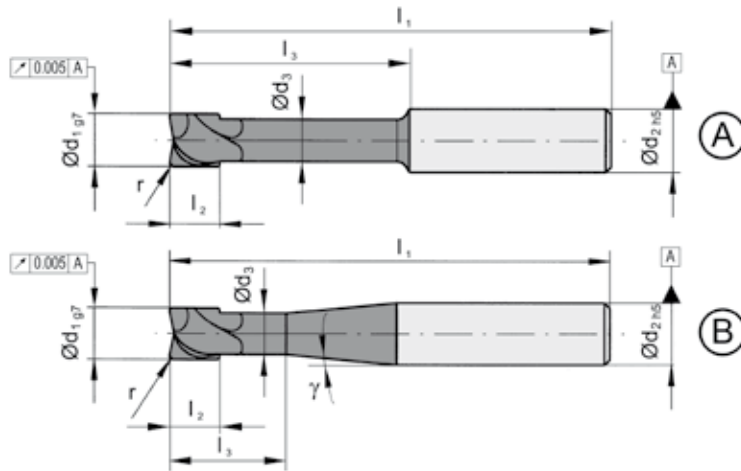


用于铜
for copper

DSTK

4刃，30°螺旋角
4-fluted, 30° helix angle

推荐切削参数见P117页
recommended cutting data page P117



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	CN2K ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲
DSTK.4.06.05.63.06 DSTK.4.06.10.63.06	6	6	5.8	63	9	25	0.5 1.0	4	0°	A	
DSTK.4.08.05.77.08 DSTK.4.08.10.77.08	8	8	7.8	77	10	25	0.5 1.0	4	0°	A	
DSTK.4.10.05.77.10 DSTK.4.10.10.77.10	10	10	9.8	77	12	35	0.5 1.0	4	0°	A	
DSTK.4.12.10.88.12	12	12	11.7	88	16	40	1.0	4	0°	A	
DSTK.4.16.10.99.16	16	16	15.7	100	28	40	1.0	4	0°	A	
DSTK.4.03.05.50.04	3	4	2.9	50	7	15	0.5	4	15°	B	
DSTK.4.03.05.63.06	3	6	2.9	63	7	15	0.5	4	15°	B	
DSTK.4.04.05.63.06	4	6	3.9	63	7	15	0.5	4	15°	B	
DSTK.4.05.05.63.06	5	6	4.8	63	7	20	0.5	4	15°	B	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N
S
H

硬质合金牌号
Carbide grades
CrCn涂层
CrCn coated

铜 / Copper

多刃立铣刀

ENDMILL Multiple fluted

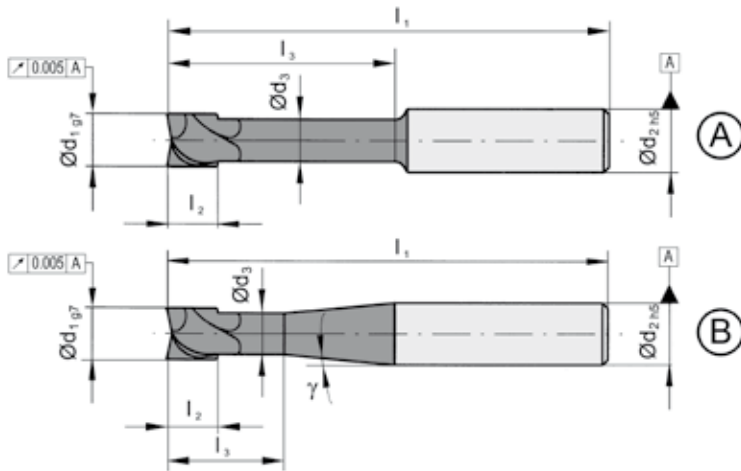


用于铜
for copper

DSMK

3刃, 20°螺旋角
3-fluted, 20° helix angle

推荐切削参数见P118页
recommended cutting data page P118



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	Z	γ	型式 Version	CN2K
DSMK.3.06.63.06	6	6	5.8	63	14	25	3	0°	A	▲
DSMK.3.08.77.08	8	8	7.8	77	18	25	3	0°	A	▲
DSMK.3.10.77.10	10	10	9.8	77	22	35	3	0°	A	▲
DSMK.3.12.88.12	12	12	11.7	88	26	40	3	0°	A	▲
DSMK.3.16.99.16	16	16	15.7	100	32	45	3	0°	A	▲
DSMK.3.03.50.04	3	4	2.9	50	7	15	3	15°	B	▲
DSMK.3.03.63.06	3	6	2.9	63	7	15	3	15°	B	▲
DSMK.3.04.63.06	4	6	3.9	63	9	15	3	15°	B	▲
DSMK.3.05.63.06	5	6	4.8	63	12	20	3	15°	B	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P
M
K
N
S
H

硬质合金牌号
Carbide grades
CrCn涂层
CrCn coated

铜 / Copper

多刃立铣刀

ENDMILL Multiple fluted

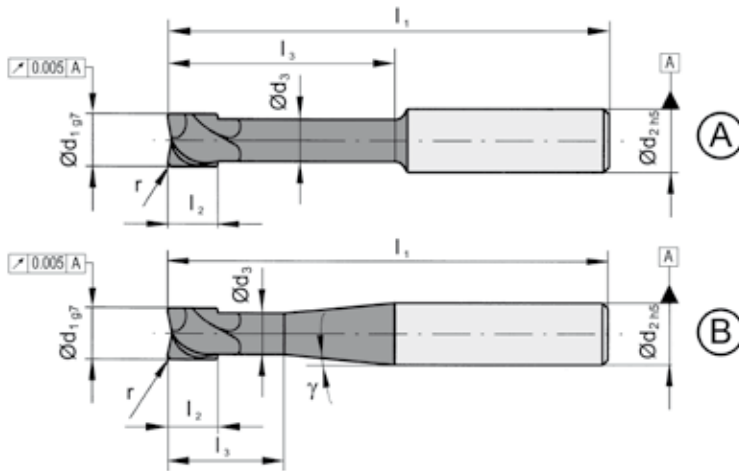


用于铜
for copper

DSMRK

3刃，20°螺旋角，刀尖圆角
3-fluted, 20° helix angle, with corner radius

推荐切削参数见P119页
recommended cutting data page P119



带圆角
with radius

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	CN2K
DSMRK.3.06.63.06.02	6	6	5.8	63	14	25	0.2	3	0°	A	
DSMRK.3.08.77.08.02	8	8	7.8	77	18	25	0.2	3	0°	A	▲
DSMRK.3.10.77.10.02	10	10	9.8	77	22	35	0.2	3	0°	A	▲
DSMRK.3.12.88.12.02	12	12	11.7	88	26	40	0.2	3	0°	A	▲
DSMRK.3.16.99.16.02	16	16	15.7	100	32	45	0.2	3	0°	A	▲
DSMRK.3.03.50.04.01	3	4	2.9	50	7	15	0.1	3	15°	B	▲
DSMRK.3.03.63.06.01	3	6	2.9	63	7	15	0.1	3	15°	B	▲
DSMRK.3.04.63.06.01	4	6	3.9	63	9	15	0.1	3	15°	B	▲
DSMRK.3.05.63.06.01	5	6	4.8	63	12	20	0.1	3	15°	B	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

CrCn涂层
CrCn coated

铜 / Copper

小型球头立铣刀

MICRO ENDMILL Ballnose

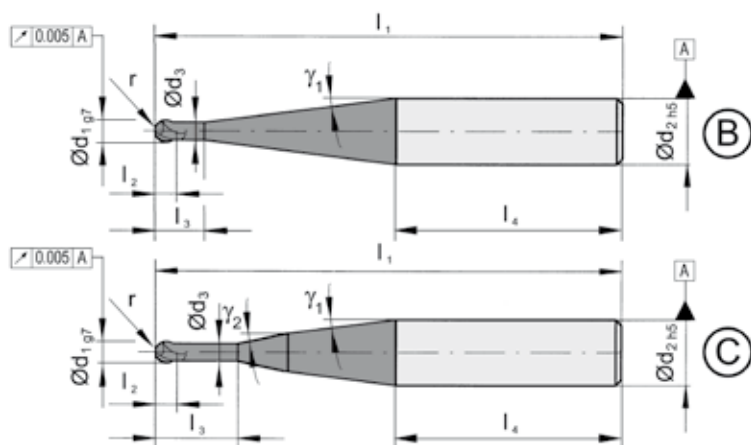


用于铜
for copper

DSKMK

2刃，20°螺旋角
2-fluted, 20° helix angle

推荐切削参数见P120页
recommended cutting data page P120



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	γ ₂	型式 Version	CN2K
DSKMK.2.03.50.4.L30	0.3	4	50	1.0	3	36	0.25	0.15	2	9.7°	0°	B	▲
DSKMK.2.04.50.4.L30	0.4	4	50	1.0	3	36	0.35	0.20	2	9.4°	0°	B	▲
DSKMK.2.05.50.4.L30	0.5	4	50	1.5	3	36	0.45	0.25	2	9.2°	0°	B	▲
DSKMK.2.05.50.4.L50					5								▲
DSKMK.2.06.50.4.L50	0.6	4	50	1.5	5	36	0.55	0.30	2	10.9°	0°	B	▲
DSKMK.2.08.50.4.L60	0.8	4	50	2.0	6	36	0.75	0.40	2	11.5°	0°	B	▲
DSKMK.2.10.50.4.L40	1.0	4	50	2.5	4	36	0.90	0.50	2	8.8°	0°	B	▲
DSKMK.2.10.50.4.L80					8								▲
DSKMK.2.15.50.4.L10	1.5	4	50	3.5	10	34	1.40	0.75	2	12.2°	0°	B	▲
DSKMK.2.20.50.4.L12	2.0	4	50	3.5	12	34	1.90	1.00	2	14.7°	0°	B	▲
DSKMK.2.05.63.6.L30	0.5	6	63	1.5	3	40	0.45	0.25	2	8.9°	5°	C	△
DSKMK.2.05.63.6.L50					5								▲
DSKMK.2.10.63.6.L40	1.0	6	63	2.5	4	40	0.90	0.50	2	8.6°	5°	C	▲
DSKMK.2.10.63.6.L80					8								▲
DSKMK.2.15.63.6.L10	1.5	6	63	3.5	10	40	1.40	0.75	2	13.1°	5°	C	▲
DSKMK.2.20.63.6.L12	2.0	6	63	3.5	12	40	1.90	1.00	2	15°	5°	C	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N •
S
H

硬质合金牌号
Carbide grades
CrCn涂层
CrCn coated

铜 / Copper

小型多刃立铣刀

MICRO ENDMILL Multiple fluted

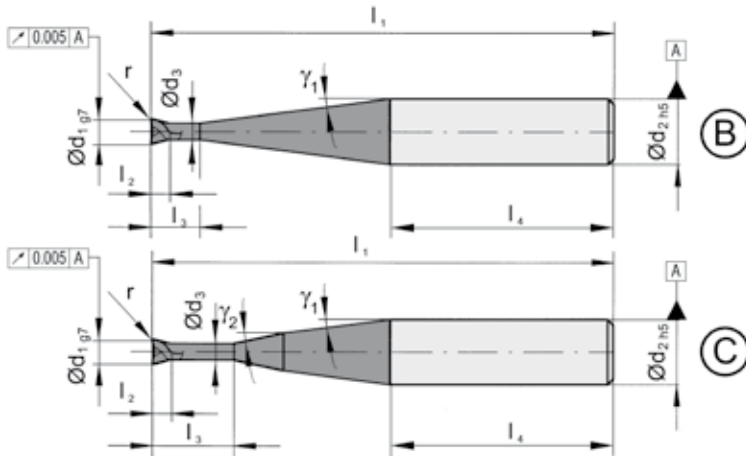


用于铜
for copper

DSMMK

2刃，20°螺旋角，刀尖圆角
2-fluted, 20° helix angle, with corner radius

推荐切削参数见P121页
recommended cutting data page P121



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	Y ₁	Y ₂	型式 Version	CN2K
DSMMK.2.03.50.4.L30	0.3	4	50	1.0	3	36	0.25	0.05	2	9.7°	0°	B	▲
DSMMK.2.04.50.4.L30	0.4	4	50	1.0	3	36	0.35	0.05	2	9.4°	0°	B	▲
DSMMK.2.05.50.4.L30	0.5	4	50	1.5	3	36	0.45	0.05	2	9.2°	0°	B	▲
DSMMK.2.05.50.4.L50					5								▲
DSMMK.2.06.50.4.L50	0.6	4	50	1.5	5	36	0.55	0.05	2	10.9°	0°	B	▲
DSMMK.2.08.50.4.L60	0.8	4	50	2.0	6	36	0.75	0.05	2	11.5°	0°	B	▲
DSMMK.2.10.50.4.L40	1.0	4	50	2.5	4	36	0.90	0.05	2	8.8°	0°	B	▲
DSMMK.2.10.50.4.L80					8								▲
DSMMK.2.15.50.4.L10	1.5	4	50	3.5	10	34	1.40	0.05	2	12.2°	0°	B	▲
DSMMK.2.20.50.4.L12	2.0	4	50	3.5	12	34	1.90	0.05	2	14.7°	0°	B	▲
DSMMK.2.05.63.6.L30	0.5	6	63	1.5	3	40	0.45	0.05	2	8.9°	5°	C	▲
DSMMK.2.05.63.6.L50					5								▲
DSMMK.2.10.63.6.L40	1.0	6	63	2.5	4	40	0.90	0.05	2	8.6°	5°	C	▲
DSMMK.2.10.63.6.L80					8								▲
DSMMK.2.15.63.6.L10	1.5	6	63	3.5	10	40	1.40	0.05	2	13.1°	5°	C	▲
DSMMK.2.20.63.6.L12	2.0	6	63	3.5	12	40	1.90	0.05	2	15°	5°	C	▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm

Dimensions in mm

P
M
K
N •
S
H

硬质合金牌号

Carbide grades

CrCn涂层

CrCn coated

铜 / Copper

高效率加工
- 适用于石墨材料 -



HIGH PRODUCTIVE MACHINING

- for graphite materials -

N 石墨
Graphite

	型号 type	页 Page
立铣刀 球头 2/3刃 Endmill Ballnose 2-fluted / 3-fluted	DSKG DSKGL	P68-P69
曲面立铣刀 2/3刃, 刀尖圆角 Torus Endmill 2-/3-fluted with Corner radius	DSTG DSTLG	P70-P72
粗立铣 Roughing Endmill	DSVG	P73
微型立铣刀 球头 2刃 Micro Endmill Ballnose 2-fluted	DSKMG	P74
微型立铣刀 多刃立铣刀 2刃, 刀尖圆角 Micro Endmill Multiple fluted Endmill 2-fluted with Corner radius	DSMMG	P75
计算公式 Formulas		P87-P88
切削参数 Cutting data		P122-P127

球头立铣刀 BALLNOSE ENDMILL

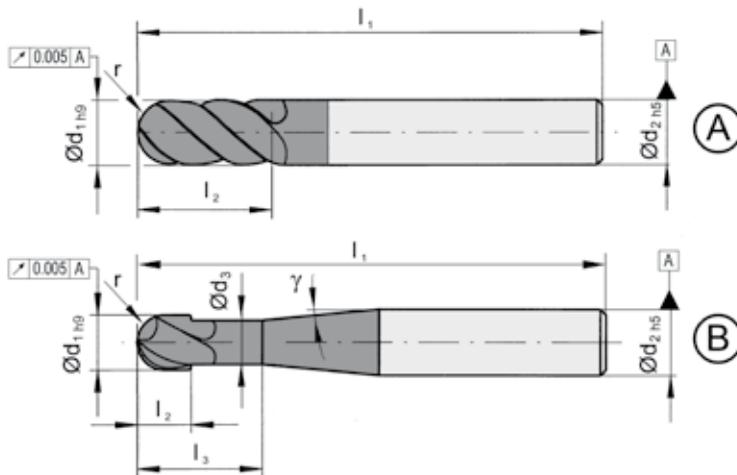


用于石墨
for graphite

DSKG

3刃，40°螺旋角
3-fluted, 40° helix angle

推荐切削参数见P122页
recommended cutting data page P122



标准
Standard

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	CD5K
DSKG.3.06.77.06	6	6	-	77	32	-	3.0	3	-	A	▲
DSKG.3.08.77.08	8	8	-	77	32	-	4.0	3	-	A	▲
DSKG.3.10.77.10	10	10	-	77	32	-	5.0	3	-	A	▲
DSKG.3.12.77.12	12	12	-	77	32	-	6.0	3	-	A	△
DSKG.3.02.50.04.L20	2	4	1.9	50	12	20	1.0	3	15°	B	▲
DSKG.3.02.63.06.L25	2	6	1.9	63	12	25	1.0	3	15°	B	▲
DSKG.3.03.50.04.L20	3	4	2.9	50	12	20	1.5	3	15°	B	▲
DSKG.3.03.63.06.L25	3	6	2.9	63	12	25	1.5	3	15°	B	▲
DSKG.3.04.63.06.L30	4	6	3.8	63	16	30	2.0	3	15°	B	▲
DSKG.3.05.63.06.L30	5	6	4.8	63	22	30	2.5	3	15°	B	△

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

P	▲
M	▲
K	▲
N	○
S	▲
H	▲

球头立铣刀

BALLNOSE ENDMILL

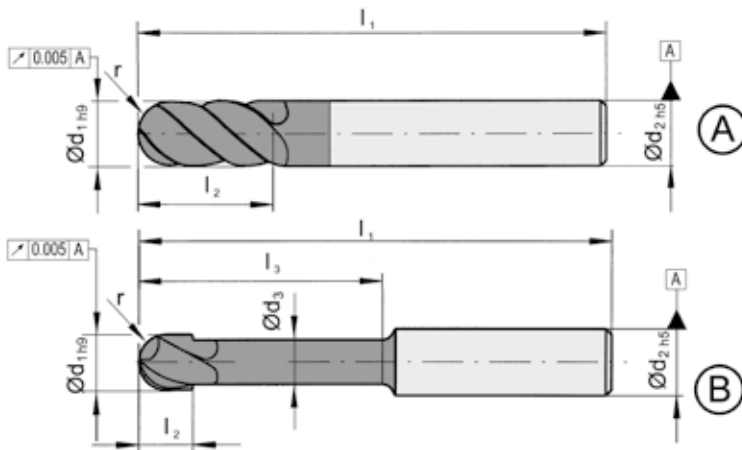


用于石墨
for graphite

DSKGL

2刃，40°螺旋角
2-fluted, 40° helix angle

推荐切削参数见P123页
recommended cutting data page P123



长悬伸
long style

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	型式 Version	CD5K
DSKGL.2.06.099.06	6	6	5.6	99	20	45	3.0	2	A	▲
DSKGL.2.08.149.08	8	8	7.6	149	20	60	4.0	2	A	△
DSKGL.2.10.149.10	10	10	9.6	149	20	75	5.0	2	A	△
DSKGL.2.12.149.12	12	12	11.6	149	25	75	6.0	2	A	△
DSKGL.2.02.099.04	2	4	1.9	99	5	10	1.0	2	B	▲
DSKGL.2.03.099.04	3	4	2.9	99	8	15	1.5	2	B	▲
DSKGL.2.04.099.06	4	6	3.8	99	15	30	2.0	2	B	▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

P
M
K
N
S
H

石墨 / Graphite

环面立铣刀 TORUS ENDMILL

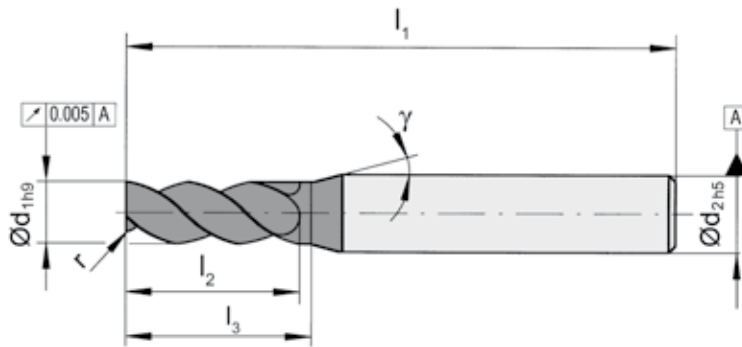


用于石墨
for graphite

DSTG

3刃，40°螺旋角，刀尖圆角
3-fluted, 40° helix angle, with corner radius

推荐切削参数见P124页
recommended cutting data page P124



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	r	Z	CD5K
DSTG.3.02.1.50.04	2	4	50	12	20	0.1	3	▲
DSTG.3.02.3.50.04		4	50		25	0.3		▲
DSTG.3.02.1.63.06		6	63		25	0.1		▲
DSTG.3.02.3.63.06		6	63		25	0.3		△
DSTG.3.03.1.50.04	3	4	50	12	20	0.1	3	▲
DSTG.3.03.3.50.04		4	50		25	0.3		▲
DSTG.3.03.1.63.06		6	63		25	0.1		▲
DSTG.3.03.3.63.06		6	63		25	0.3		▲
DSTG.3.04.2.63.06	4	6	63	16	30	0.2	3	▲
DSTG.3.04.5.63.06						0.5		△
DSTG.3.05.2.63.06	5	6	63	22	30	0.2	3	▲
DSTG.3.05.5.63.06						0.5		▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N ○
S
H

硬质合金牌号
Carbide grades
金刚石涂层
Diamond coated

石墨 / Graphite

环面立铣刀 TORUS ENDMILL

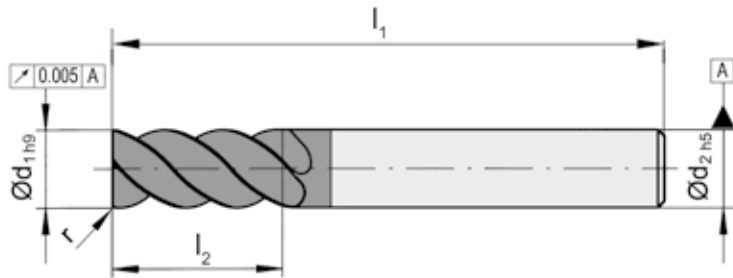


用于石墨
for graphite

DSTG

3刃，40°螺旋角，刀尖圆角
3-fluted, 40° helix angle, with corner radius

推荐切削参数见P124页
recommended cutting data page P124



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	CD5K
DSTG.3.06.3.77.06	6	6			0.3		▲
DSTG.3.06.5.77.06	6	6			0.5		▲
DSTG.3.06.10.77.06	6	6	77	32	1.0	3	▲
DSTG.3.08.3.77.08	8	8			0.3		▲
DSTG.3.08.5.77.08	8	8	77	32	0.5	3	▲
DSTG.3.08.10.77.08	8	8	77	32	1.0	3	▲
DSTG.3.10.3.77.10	10	10			0.3		▲
DSTG.3.10.5.77.10	10	10	77	32	0.5	3	▲
DSTG.3.10.10.77.10	10	10	77	32	1.0	3	▲
DSTG.3.12.3.77.12	12	12			0.3		▲
DSTG.3.12.5.77.12	12	12	77	32	0.5	3	▲
DSTG.3.12.10.77.12	12	12	77	32	1.0	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

石墨 / Graphite

环面立铣刀 TORUS ENDMILL

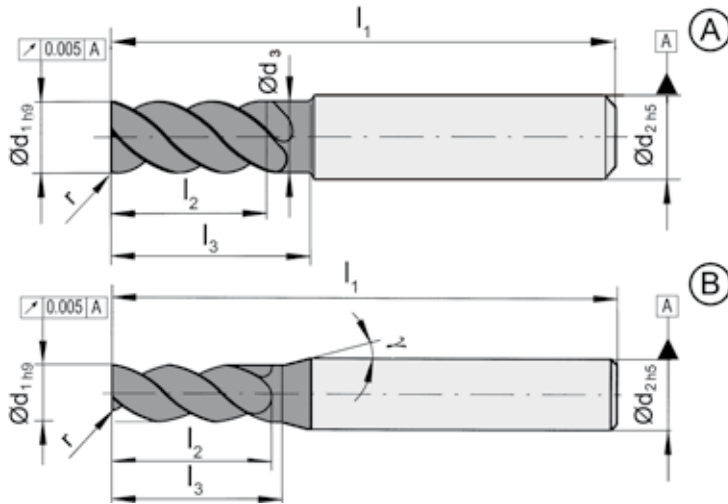


用于石墨
for graphite

DSTLG

2刃，40°螺旋角，刀尖圆角
2-fluted, 40° helix angle, with corner radius

推荐切削参数见P124页
recommended cutting data page P124



长悬伸
long style

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	γ	型式 Version	CD5K
DSTLG.2.06.5.099.06	6	6	5.6	99	20	45	0.5	2	-	A	▲
DSTLG.2.08.5.149.08	8	8	7.6	149	20	60	0.5	2	-	A	▲
DSTLG.2.10.5.149.10	10	10	9.6	149	20	75	0.5	2	-	A	△
DSTLG.2.12.5.149.12	12	12	11.6	149	25	75	0.5	2	-	A	△
DSTLG.2.02.3.099.04	2	4	1.9	99	5	10	0.3	2	15°	B	△
DSTLG.2.03.3.099.04	3	4	2.9	99	8	15	0.3	2	15°	B	▲
DSTLG.2.04.3.099.06	4	6	3.8	99	15	30	0.3	2	15°	B	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N ○
S
H

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

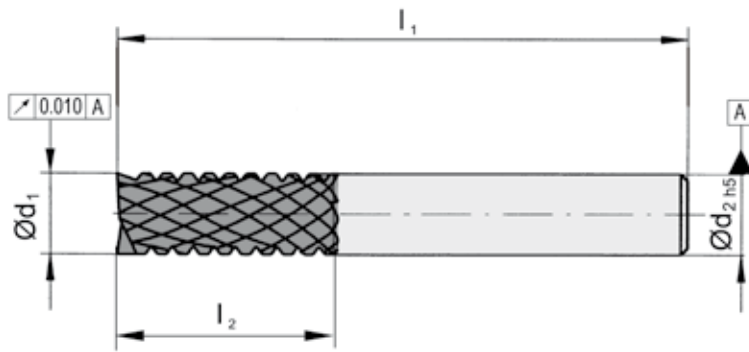
石墨 / Graphite

用于石墨
for graphite

DSVG

多刃
multiple fluted

推荐切削参数见P125页
recommended cutting data page P125



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	CD5K
DSVG-X.04.0.59.04	4	4	59	12	▲
DSVG-X.06.0.77.06	6	6	77	18	▲
DSVG-X.08.0.77.08	8	8	77	24	▲
DSVG-X.10.0.77.10	10	10	77	30	▲
DSVG-X.12.0.88.12	12	12	88	36	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P
M
K
N ○
S
H

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

石墨 / Graphite

小型球头立铣刀

MICRO ENDMILL Ballnose

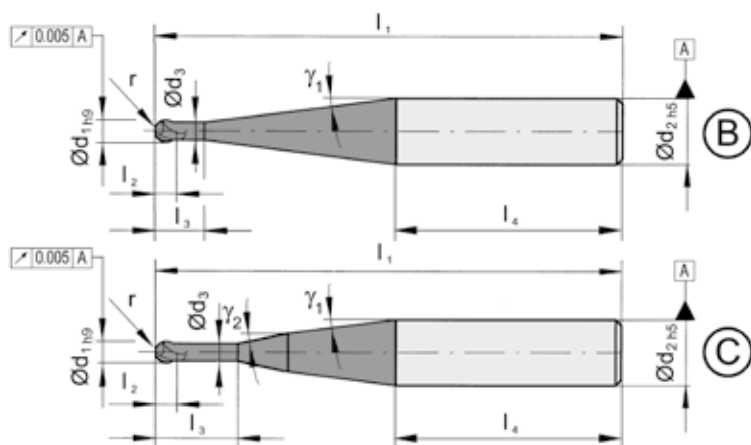


用于石墨
for graphite

DSKMG

2刃，40°螺旋角
2-fluted, 40° helix angle

推荐切削参数见P126页
recommended cutting data page P126



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	γ ₂	型式 Version	CD5K
DSKMG-2.03.50.4.L40	0.3	4	50	2.0	4	36	0.25	0.15	2	10.6°		B	▲
DSKMG-2.04.50.4.L50	0.4	4	50	2.0	5	36	0.35	0.20	2	11.5°		B	▲
DSKMG-2.05.50.4.L40	0.5	4	50	2.0	4	36	0.45	0.25	2	10.1°		B	▲
DSKMG-2.05.50.4.L60					6								
DSKMG-2.06.50.4.L70	0.6	4	50	2.5	7	36	0.55	0.30	2	13.8°		B	▲
DSKMG-2.08.50.4.L80	0.8	4	50	2.5	8	36	0.75	0.40	2	15.2°		B	▲
DSKMG-2.10.50.4.L10	1.0	4	50	3.5	10	36	0.90	0.50	2	21.2°		B	▲
DSKMG-2.10.50.4.L60					6								
DSKMG-2.15.50.4.L10	1.5	4	50	3.5	10	36	1.40	0.75	2	18°		B	▲
DSKMG-2.05.63.6.L40	0.5	6	63	2.0	4	40	0.45	0.25	2	9.5°	5	C	▲
DSKMG-2.05.63.6.L60					6								
DSKMG-2.10.63.6.L10	1.0	6	63	2.5	10	40	0.90	0.50	2	14.8°	5	C	▲
DSKMG-2.10.63.6.L60				3.5	6								
DSKMG-2.15.63.6.L10	1.5	6	63	3.5	10	40	1.40	0.75	2	13.1°	5	C	▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N ○
S
H

硬质合金牌号
Carbide grades

金刚石涂层
Diamond coated

小型多刃立铣刀

MICRO ENDMILL Multiple fluted

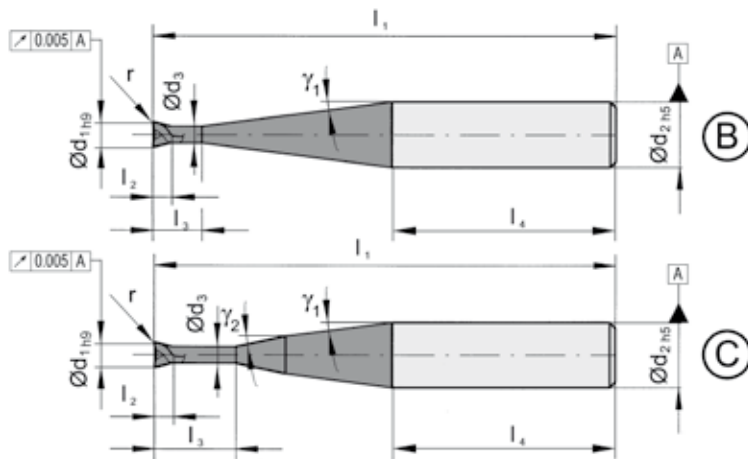


用于石墨
for graphite

DSMMG

2刃，40°螺旋角，刀尖圆角
2-fluted, 40° helix angle, with corner radius

推荐切削参数见P127页
recommended cutting data page P127



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	d ₃	r	Z	γ ₁	γ ₂	型式 Version	CD5K
DSMMG-2.03.50.4.L40	0.3	4	50	2.0	4	36	0.25	0.05	2	10.6°	0°	B	▲
DSMMG-2.04.50.4.L50	0.4	4	50	2.0	5	36	0.35	0.05	2	11.5°	0°	B	▲
DSMMG-2.05.50.4.L40	0.5	4	50	2.0	4	36	0.45	0.05	2	10.1°	0°	B	▲
6					12.5°					△			
DSMMG-2.06.50.4.L70	0.6	4	50	2.5	7	36	0.55	0.05	2	13.8°	0°	B	▲
DSMMG-2.08.50.4.L80	0.8	4	50	2.5	8	36	0.75	0.05	2	15.2°	0°	B	▲
DSMMG-2.10.50.4.L10	1.0	4	50	3.5	10	36	0.90	0.05	2	21.2°	0°	B	▲
6					11°					▲			
DSMMG-2.15.50.4.L10	1.5	4	50	3.5	10	36	1.40	0.05	2	18°	0°	B	▲
DSMMG-2.05.63.6.L40	0.5	6	63	2.0	4	40	0.45	0.05	2	9.5°	5°	C	△
6					11°					△			
DSMMG-2.10.63.6.L10	1.0	6	63	3.5	10	40	0.90	0.05	2	14.8°	5°	C	△
6					10°					△			
DSMMG-2.15.63.6.L10	1.5	6	63	3.5	10	40	1.40	0.05	2	13.1°	5°	C	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P
M
K
N ○
S
H

硬质合金牌号
Carbide grades
金刚石涂层
Diamond coated

石墨 / Graphite

高效率加工
- 用于铝材和合成材料 -



HIGH PRODUCTIVE MACHINING

- for Aluminum materials and Synthetics -

N 铝和合成材料
Aluminium and Synthetics

	型号 type	页 Page
立铣刀 1/2刃 Endmill 1-/2-fluted	DSA	P78-P80
立铣刀 球头 2刃 Endmill Full radius 2-fluted	DSAKH DSAK	P81-P83
粗加工立铣刀 3刃 Roughing ripped Endmill 3-fluted	DSAR	P84
曲面立铣刀 2刃，刀尖圆角 Torus Endmill 2-fluted with Corner radius	DSAT	P85
计算公式 Formulas		P88-87
切削参数 Cutting data		P128-P133

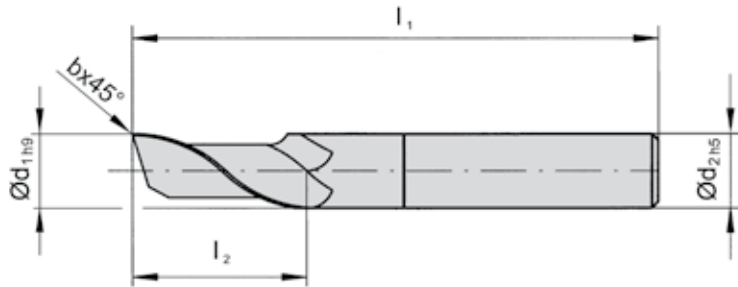
推荐加工V类材料

Recommended material group V

DSA

单刃
single fluted

推荐切削参数见P128页
recommended cutting data page P128



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	MG3K	CD3K
DSA-1.006.37.03	0.6	-	3	37	3	1	▲	▲
DSA-1.008.37.03	0.8	-	3	37	4	1	▲	▲
DSA-1.010.37.03	1.0	-	3	37	5	1	▲	▲
DSA-1.012.37.03	1.2	-	3	37	5	1	▲	▲
DSA-1.015.37.03	1.5	-	3	37	5	1	▲	△
DSA-1.016.37.03	1.6	-	3	37	6	1	▲	
DSA-1.018.37.03	1.8	-	3	37	7	1	▲	△
DSA-1.020.37.03	2.0	-	3	37	8	1	▲	▲
DSA-1.025.37.03	2.5	-	3	37	9	1	▲	▲
DSA-1.030.37.03	3.0	0.10	3	37	12	1	▲	▲
DSA-1.040.49.04	4.0	0.10	4	49	12	1	▲	△
DSA-1.050.49.05	5.0	0.15	5	49	15	1	▲	▲
DSA-1.060.49.06	6.0	0.20	6	49	16	1	▲	▲
DSA-1.070.59.07	7.0	0.20	7	59	20	1	▲	△
DSA-1.080.59.08	8.0	0.25	8	59	20	1	▲	▲
DSA-1.100.69.10	10.0	0.30	10	69	22	1	▲	▲
DSA-1.120.74.12	12.0	0.35	12	74	25	1	▲	▲
DSA-1.160.101.16	16.0	0.35	16	101	30	1	▲	

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

P	●	■
M	○	■
K	●	■
N	●	■
S	●	■
H		■

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料, 纯铝和 铝合金≤5%Si
硬质合金牌号CD3K适用于铝合金≥5% Si

Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade CD3K preferred for Aluminium ≥ 5% Si

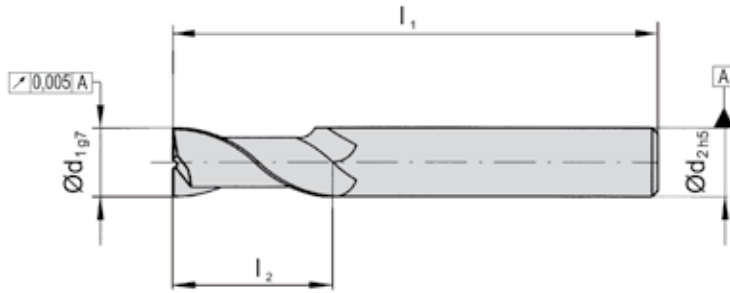
推荐加工V类材料

Recommended material group V

DSA

2刃，45°螺旋角
2-fluted, 45° helix angle

推荐切削参数见P129页
recommended cutting data page P129



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	Z	MG3K	DD2K
DSA-2.03.50.03	3	3	50	10	2	▲	▲
DSA-2.04.50.04	4	4	50	15	2	▲	▲
DSA-2.05.50.05	5	5	50	20	2	▲	▲
DSA-2.06.77.06	6	6	77	30	2	▲	△
DSA-2.08.77.08	8	8	77	30	2	▲	▲
DSA-2.10.88.10	10	10	88	35	2	▲	△
DSA-2.12.88.12	12	12	88	35	2	▲	▲
DSA-2.14.101.14	14	14	101	40	2	▲	△
DSA-2.16.101.16	16	16	101	40	2	▲	▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和 铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金（6%及以下的Si,Co和Ti）
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

铝 / Aluminium

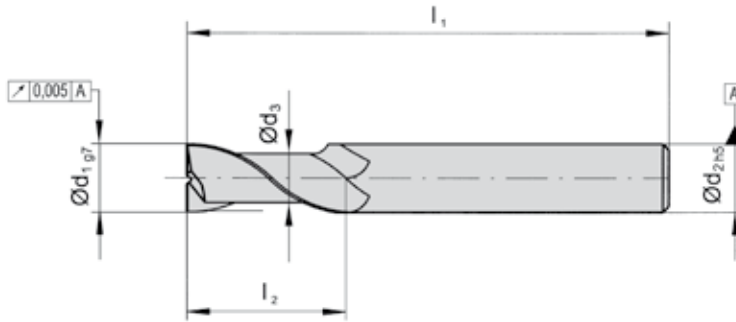
推荐加工V类材料

Recommended material group V

DSA

2刃，45°螺旋角
2-fluted, 45° helix angle

推荐切削参数见P129页
recommended cutting data page P129



短悬伸
short style

产品型号 Part number	d ₁	d ₂	l ₁	l ₂	Z	MG3K	DD2K
DSA-2.03.50.03S	3	3	50	5	2	▲	▲
DSA-2.04.50.04S	4	4	50	7	2	▲	△
DSA-2.05.50.05S	5	5	50	10	2	▲	△
DSA-2.06.77.06S	6	6	77	15	2	▲	△
DSA-2.08.77.08S	8	8	77	15	2	▲	▲
DSA-2.10.88.10S	10	10	88	17	2	▲	▲
DSA-2.12.88.12S	12	12	88	18	2	▲	▲
DSA-2.14.101.14S	14	14	101	20	2	△	△
DSA-2.16.101.16S	16	16	101	20	2	▲	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和 铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金（6%及以下的Si,Co和Ti）
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

球头立铣刀 BALLNOSE ENDMILL



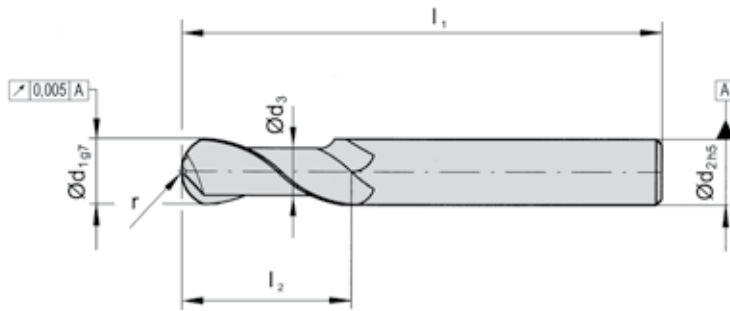
推荐加工V类材料

Recommended material group V

DSAKH

2刃，30°螺旋角
2-fluted, 30° helix angle

推荐切削参数见P130页
recommended cutting data page P130



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	r	Z	MG3K	DD2K
DSAKH.2.06.77.08	6	8	5.9	77	8	3	2	▲	▲
DSAKH.2.08.77.10	8	10	7.9	77	10	4	2	△	▲
DSAKH.2.10.77.12	10	12	9.9	77	10	5	2	△	▲
DSAKH.2.12.77.12	12	12	11.9	77	12	6	2	△	△
DSAKH.2.14.88.14	14	14	13.9	88	14	7	2	△	△
DSAKH.2.16.88.16	16	16	15.9	88	16	8	2	▲	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

P	●	■
M	○	■
K	●	■
N	●	■
S	●	●
H		

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金（6%及以下的Si,Co和Ti）
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

铝 / Aluminium

球头立铣刀 BALLNOSE ENDMILL



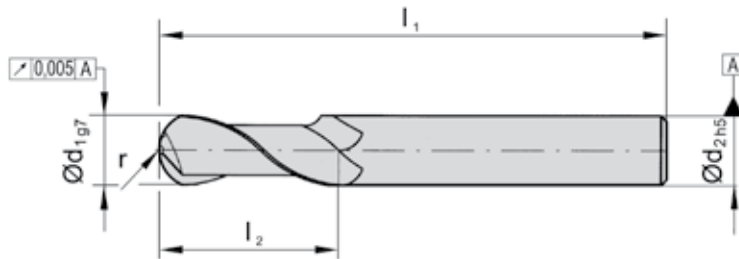
推荐加工V类材料

Recommended material group V

DSAK

2刃, 45°螺旋角
2-fluted, 45° helix angle

推荐切削参数见P131页
recommended cutting data page P131



产品型号 Part number	d ₁	d ₂	l ₁	l ₂	r	Z	MG3K	DD2K
DSAK-2.03.50.03	3	3	50	10	1.5	2	▲	▲
DSAK-2.04.50.04	4	4	50	15	2.0	2	▲	▲
DSAK-2.05.50.05	5	5	50	20	2.5	2	▲	△
DSAK-2.06.77.06	6	6	77	30	3.0	2	▲	▲
DSAK-2.08.77.08	8	8	77	30	4.0	2	▲	▲
DSAK-2.10.88.10	10	10	88	35	5.0	2	▲	▲
DSAK-2.12.88.12	12	12	88	35	6.0	2	▲	▲
DSAK-2.14.101.14	14	14	101	40	7.0	2	△	△
DSAK-2.16.101.16	16	16	101	40	8.0	2	▲	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料, 纯铝和 铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金 (6%及以下的Si,Co和Ti)
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

球头立铣刀 BALLNOSE ENDMILL



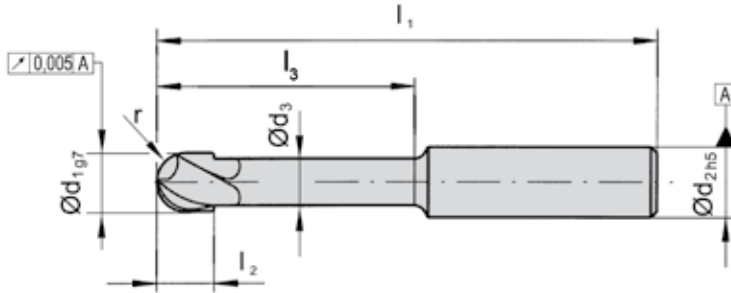
推荐加工V类材料

Recommended material group V

DSAK

2刃，45°螺旋角
2-fluted, 45° helix angle

推荐切削参数见P131页
recommended cutting data page P131



短悬伸
short style

产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	r	Z	MG3K	DD2K
DSAK.2.03.50.03S	3	3	2.9	50	5	20	1.5	2	▲	△
DSAK.2.04.50.04S	4	4	3.9	50	7	20	2.0	2	△	▲
DSAK.2.05.50.05S	5	5	4.9	50	10	20	2.5	2	▲	△
DSAK.2.06.77.06S	6	6	5.8	77	15	40	3.0	2	▲	▲
DSAK.2.08.77.08S	8	8	7.8	77	15	40	4.0	2	▲	▲
DSAK.2.10.88.10S	10	10	9.7	88	17	55	5.0	2	▲	△
DSAK.2.12.88.12S	12	12	11.7	88	18	55	6.0	2	▲	△
DSAK.2.14.101.14S	14	14	13.6	101	20	64	7.0	2	△	△
DSAK.2.16.101.16S	16	16	15.6	101	20	64	8.0	2	△	△

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和 铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金（6%及以下的Si,Co和Ti）
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

铝 / Aluminium

粗加工立铣刀

ROUGHING RIPPED ENDMILL



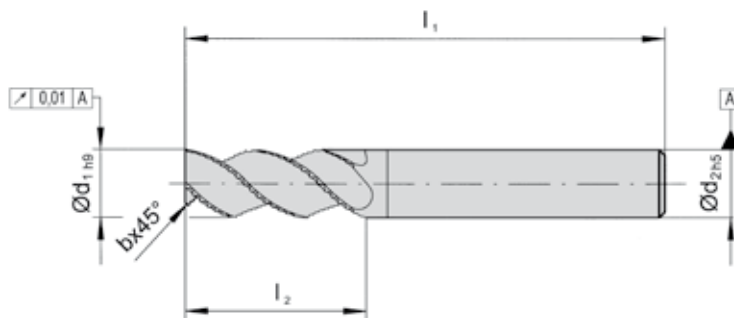
推荐加工V类材料

Recommended material group V

DSAR

3刃，40°螺旋角，刀尖倒角
3-fluted, 40° helix angle, with corner chamfer

推荐切削参数见P132页
recommended cutting data page P132



产品型号 Part number	d ₁	b	d ₂	l ₁	l ₂	Z	MG3K
DSAR-3.06.63.06.25	6	0.25	6	63	16	3	▲
DSAR-3.08.63.08.50	8	0.50	8	63	20	3	▲
DSAR-3.10.69.10.50	10	0.50	10	69	22	3	▲
DSAR-3.12.77.12.50	12	0.50	12	77	25	3	▲
DSAR-3.16.88.16.10	16	1.00	16	88	35	3	▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	○
K	●
N	●
S	●
H	●

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和铝合金≤5%Si
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si

环面立铣刀 TORUS ENDMILL



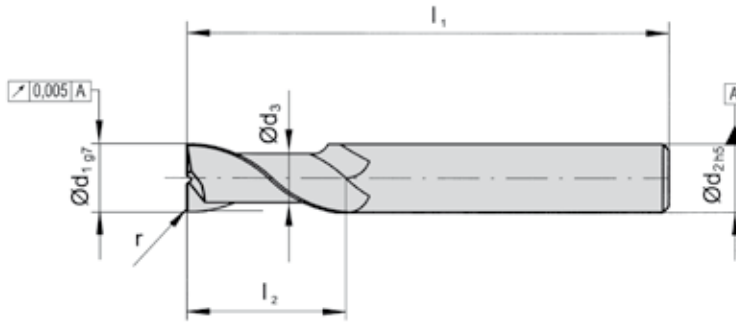
推荐加工V类材料

Recommended material group V

DSAT

2刃，30°螺旋角，刀尖圆角
2-fluted, 30° helix angle, with corner radius

推荐切削参数见P133页
recommended cutting data page P133



产品型号 Part number	d ₁	d ₂	d ₃	l ₁	l ₂	r	Z	MG3K	DD2K
DSAT.2.06.10.77.08	6	8	5.9	77	8	1.0	2	△	△
DSAT.2.08.10.77.10	8	10	7.9	77	10	1.0	2	△	▲
DSAT.2.10.15.77.12	10	12	9.9	77	10	1.5	2	△	▲
DSAT.2.12.15.77.12	12	12	11.9	77	12	1.5	2	△	△
DSAT.2.14.20.88.14	14	14	13.9	88	14	2.0	2	△	△
DSAT.2.16.20.88.16	16	16	15.9	88	16	2.0	2	△	△

▲ 库存 / on stock △ 4周 / 4 weeks
● 主要应用 / main recommendation
○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades
■ 涂层牌号 / coated grades
■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

硬质合金牌号MG3K适用于人工合成材料，纯铝和 铝合金≤5%Si
硬质合金牌号DD2K适用于AlSi合金（6%及以下的Si,Co和Ti）
Carbide grade MG3K preferred for Synthetics, pure Aluminium and Aluminium ≤ 5% Si
Carbide grade DD2K preferred for AlSi-alloys up to 6% Si, Copper and Titanium

铝 / Aluminium

精确和精密

例如：

HORN的DS微型立铣刀-HSK热缩夹持



Accuracy and Precision

Example:

HORN Microendmill DS with HSK-Shrink chuck

Z = 齿数
Number of teeth

d = 切削刃 Ø
Cutting edge Ø

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d \cdot \pi} \text{ (1/min)}$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d \cdot \pi \cdot n}{1000} \text{ (m/min)}$$

f_z = 进给/齿
Feed/tooth

$$f_z = \frac{v_f}{Z \cdot n} \text{ (mm)}$$

v_f = 进给率
Feed rate

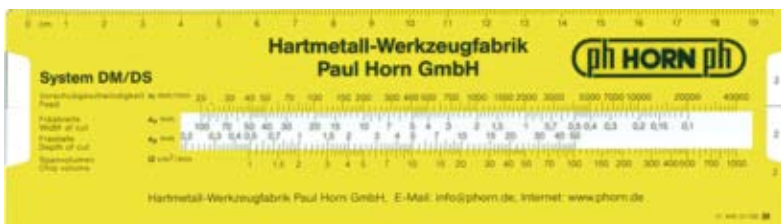
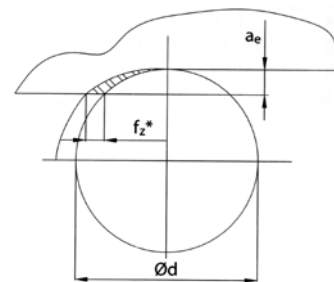
$$v_f = f_z \cdot Z \cdot n \text{ (mm/min)}$$

Q = 材料去除率
Material removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \text{ (cm}^3\text{/min)}$$

f_z = 较小 a_e (最大到 $0.25 \cdot d$)对侧铣有效
effective for side milling with small a_e (up to $0.25 \cdot d$):

$$*f_z = f_z \sqrt{\frac{d}{a_e}} \text{ (mm)}$$



使用HORN的速度和进给计算软件，可容易的计算出正确的切削参数。
To easily determine the correct cutting data, please use the HORN speed and feed calculation.

仿形铣削的切削速度和转速

Cutting speed and number of revolutions for copy milling

$v_c =$ 切削速度
Cutting speed

$$v_c = \frac{d_{\text{eff}} \cdot \pi \cdot n}{1000} \quad (\text{m/min})$$

$n =$ 转速
Revolutions

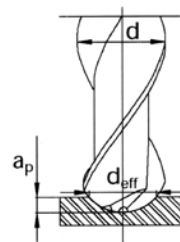
$$n = \frac{v_c \cdot 1000}{d_{\text{eff}} \cdot \pi} \quad (1/\text{min})$$

有效切削直径 d_{eff} 的 $\beta = 0^\circ$
Effective cutting diameter $\beta = 0^\circ$

$$d_{\text{eff}} = 2\sqrt{d \cdot a_p - a_p^2} \quad (\text{mm})$$

例如： / Example::

$d = \text{Ø}12 \text{ mm}; a_p = 1.2 \text{ mm}; \beta = 0^\circ$



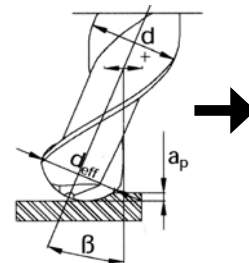
→ $d_{\text{eff}} = 7.2 \text{ mm}$

有效切削直径 d_{eff} 的 $\beta = +20^\circ$
Effective cutting diameter $\beta = +20^\circ$

$$d_{\text{eff}} = d \cdot \sin \left[\beta + \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

例如： / Example::

$d = \text{Ø}12 \text{ mm}; a_p = 1.2 \text{ mm}; \beta = +20^\circ$



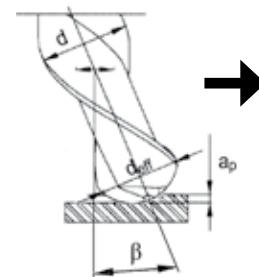
→ $d_{\text{eff}} = 10.05 \text{ mm}$

有效切削直径 d_{eff} 的 $\beta = -20^\circ$
Effective cutting diameter $\beta = -20^\circ$

$$d_{\text{eff}} = d \cdot \sin \left[\arccos \left(\frac{d - 2a_p}{d} \right) - \beta \right]$$

例如： / Example::

$d = \text{Ø}12 \text{ mm}; a_p = 1.2 \text{ mm}; \beta = -20^\circ$



→ $d_{\text{eff}} = 3.48 \text{ mm}$

$$d_{\text{eff}} = 12 \cdot \sin \left[\arccos \left(\frac{12 - 2 \cdot 1.2}{12} \right) - 20^\circ \right]$$

铣刀 系列 DP

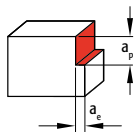
Milling cutter System DP

材料 Material	R_m (N/mm ²)	切削速度 Cutting speed (V_c m/min)
P 碳钢 / Carbon steel	< 600	120-240
合金钢 / Alloyed steel	< 1200	80-180
高合金钢 / High alloyed steel	< 1400	50-120
M 不锈钢 / Stainless steel		
奥氏体/铁素体 / austenitic/ferritic	< 680	60-140
马氏体 / martensitic	< 820	40-120
K 灰铸铁 / Grey cast iron		80-180
铸钢 / Cast steel		60-140
N 铝合金 / Aluminium alloys		160-500
铜 / Copper		160-600
黄铜 / Brass		
石墨 / Graphite		
合成材料 / Synthetics		
S 高温合金 / High temp. alloys	< 3300	30-80
钛合金 / Titanium alloys	< 2100	40-90
H 淬硬钢 / Hardened steel		

公差 Tolerances

Ø 范围 Ø Range	切削刃 Ø Cutting edge Ø	刀杆 Ø Shank Ø
≤ 3	0	0
	-0.025	-0.004
> 3 ≤ 6	0	0
	-0.030	-0.005
> 6 ≤ 10	0	0
	-0.036	-0.006
> 10 ≤ 18	0	0
	-0.043	-0.008
> 18 ≤ 30	0	0
	-0.052	-0.009

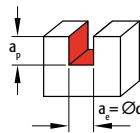
更多的材料信息见材料表
For further material specifications see material cross reference list.



肩铣削
Shoulder milling

$$a_p = 1.25 \times d \quad a_p = 1.50 \times d \quad a_p = 2.00 \times d$$

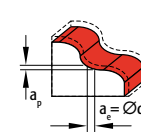
$$a_e = 0.40 \times d \quad a_e = 0.20 \times d \quad a_e = 0.05 \times d$$



槽铣削
Slot milling

$$a_p = 0.50 \times d \quad a_p = 1.00 \times d$$

$$a_e = 1.00 \times d \quad a_e = 1.00 \times d$$



仿形铣
Copy milling

$$a_p = 0.10 \times d \quad a_p = 0.20 \times d$$

$$a_e = 0.40 \times d \quad a_e = 0.05 \times d$$

Ø d (mm)	粗加工 roughing	半精加工 semi finishing	精加工 finishing
	f_z (mm)	f_z (mm)	f_z (mm)
1	0.005	0.007	0.009
2	0.008	0.009	0.011
3	0.015	0.025	0.035
4	0.020	0.030	0.045
5	0.025	0.035	0.055
6	0.030	0.040	0.065
8	0.035	0.045	0.075
10	0.040	0.055	0.085
12	0.050	0.065	0.095
16	0.070	0.090	0.115
20	0.090	0.110	0.130

0.5 x d	1.0 x d
f_z (mm)	f_z (mm)
0.008	0.005
0.010	0.008
0.020	0.010
0.025	0.013
0.030	0.015
0.035	0.020
0.045	0.030
0.055	0.040
0.065	0.050
0.075	0.060
0.085	0.075

半精加工 semi finishing	精加工 finishing
f_z (mm)	f_z (mm)
0.020	0.040
0.030	0.050
0.040	0.060
0.050	0.080
0.060	0.100
0.070	0.120
0.080	0.140
0.100	0.180
0.120	0.200
0.140	0.220
0.160	0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSK

CUTTING DATA DSK



立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

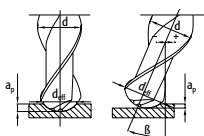
recommended cooling:
1. Minimum lubrication
2. Air

HSM



更多的材料信息见材料表

For further material specifications see material cross reference list.

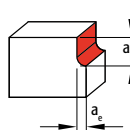


切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

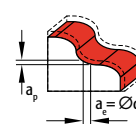
For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$



硬化材料
hardened material
 a_p 可达/up to $0.5 \times d$
 a_e 可达/up to 0.5 mm



硬化材料
hardened material
 a_p 可达/up to $0.025 \times d$
 a_e 可达/up to 0.280 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			仿形铣 Copy milling		
			a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSK	2	1.0	< 0.5	< 0.02	0.020 - 0.030	< 0.04	< 0.01	0.030 - 0.040
DSK	2	1.5	< 0.8	< 0.03	0.020 - 0.030	< 0.06	< 0.02	0.030 - 0.040
DSK	2	2.0	< 1.0	< 0.04	0.030 - 0.050	< 0.08	< 0.02	0.050 - 0.075
DSK	2	3.0	< 1.5	< 0.06	0.040 - 0.060	< 0.11	< 0.03	0.055 - 0.090
DSK	2	4.0	< 2.0	< 0.10	0.050 - 0.080	< 0.14	< 0.05	0.065 - 0.100
DSK	2	5.0	< 2.5	< 0.13	0.060 - 0.120	< 0.18	< 0.07	0.075 - 0.120
DSK	2	6.0	< 3.0	< 0.18	0.065 - 0.125	< 0.20	< 0.09	0.080 - 0.125
DSK	2	8.0	< 4.0	< 0.24	0.080 - 0.130	< 0.25	< 0.12	0.090 - 0.130
DSK	2	10.0	< 5.0	< 0.30	0.085 - 0.135	< 0.30	< 0.15	0.100 - 0.135
DSK	2	12.0	< 6.0	< 0.36	0.100 - 0.140	< 0.36	< 0.20	0.110 - 0.140
DSK	2	16.0	< 8.0	< 0.50	0.100 - 0.150	< 0.40	< 0.28	0.120 - 0.150

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		50-60 HRc 58-70 HRc	140-280 120-220

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

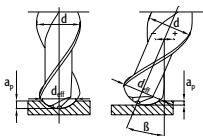
HSM



球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

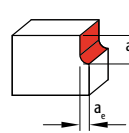


切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

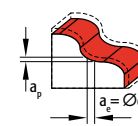
For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$



硬化材料
hardened material
 a_p 可达/up to $0.5 \times d$
 a_e 可达/up to 0.5 mm



硬化材料
hardened material
 a_p 可达/up to $0.025 \times d$
 a_e 可达/up to 0.280 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			仿形铣 Copy milling		
			a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKH	2	1.0	< 0.5	< 0.02	0.020 - 0.030	< 0.04	< 0.01	0.030 - 0.060
DSKH	2	1.5	< 0.8	< 0.03	0.020 - 0.030	< 0.06	< 0.02	0.030 - 0.060
DSKH	2	2.0	< 1.0	< 0.04	0.030 - 0.050	< 0.08	< 0.02	0.050 - 0.070
DSKH	2	3.0	< 1.5	< 0.06	0.040 - 0.060	< 0.11	< 0.03	0.055 - 0.080
DSKH	2	4.0	< 2.0	< 0.10	0.050 - 0.080	< 0.14	< 0.05	0.065 - 0.100
DSKH	2	5.0	< 2.5	< 0.13	0.060 - 0.120	< 0.18	< 0.07	0.075 - 0.150
DSKH	2	6.0	< 3.0	< 0.18	0.065 - 0.125	< 0.20	< 0.09	0.080 - 0.200
DSKH	2	8.0	< 4.0	< 0.24	0.080 - 0.130	< 0.25	< 0.12	0.090 - 0.250
DSKH	2	10.0	< 5.0	< 0.30	0.085 - 0.135	< 0.30	< 0.15	0.100 - 0.250
DSKH	2	12.0	< 6.0	< 0.36	0.100 - 0.140	< 0.36	< 0.20	0.110 - 0.250
DSKH	2	16.0	< 8.0	< 0.50	0.100 - 0.150	< 0.40	< 0.28	0.120 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSKL

CUTTING DATA DSKL



立铣刀 球头

Endmill Ballnose



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850	> 250	
	> 1000	> 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AITiN涂层
AITiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

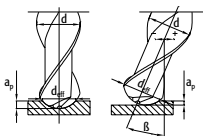
HSM



球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

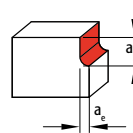


切削速度的计算需要考虑有效切削直径 d_{eff}，见公式。

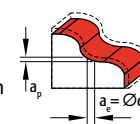
For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.

$$\beta = 0: d_{\text{eff}} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{\text{eff}} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$



硬化材料
hardened material
a_p 可达/up to 0.50 x d
a_e 可达/up to 0.36 mm



硬化材料
hardened material
a_p 可达/up to 0.03 x d
a_e 可达/up to 0.20 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)
DSKL	2	6.0
DSKL	2	8.0
DSKL	2	10.0
DSKL	2	12.0

a _p max (mm)	a _e max (mm)	f _z (mm)
< 3.0	< 0.18	0.065 - 0.125
< 4.0	< 0.24	0.080 - 0.130
< 5.0	< 0.30	0.085 - 0.135
< 6.0	< 0.36	0.100 - 0.140

a _p max (mm)	a _e max (mm)	f _z (mm)
< 0.20	< 0.09	0.080 - 0.125
< 0.25	< 0.12	0.090 - 0.130
< 0.30	< 0.15	0.100 - 0.135
< 0.36	< 0.20	0.110 - 0.140

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSKLH

CUTTING DATA DSKLH



立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		50-60 HRc 58-70 HRc	140-280 120-220

AITiN涂层
AITiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

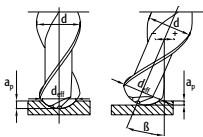
HSM



球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

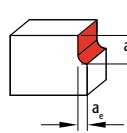


切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

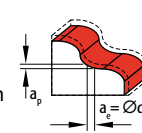
For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$



硬化材料
hardened material
 a_p 可达/up to 0.50 x d
 a_e 可达/up to 0.36 mm



硬化材料
hardened material
 a_p 可达/up to 0.03 x d
 a_e 可达/up to 0.20 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			仿形铣 Copy milling		
			a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKLH	2	6.0	< 3.0	< 0.18	0.065 - 0.125	< 0.20	< 0.09	0.080 - 0.200
DSKLH	2	8.0	< 4.0	< 0.24	0.080 - 0.130	< 0.25	< 0.12	0.090 - 0.250
DSKLH	2	10.0	< 5.0	< 0.30	0.085 - 0.135	< 0.30	< 0.15	0.100 - 0.250
DSKLH	2	12.0	< 6.0	< 0.36	0.100 - 0.140	< 0.36	< 0.20	0.110 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSK 220°

CUTTING DATA DSK 220°



220° 立铣刀 球头

220° Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

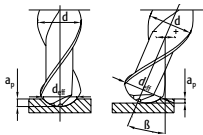
HSM



220° 球头
220° Ballnose

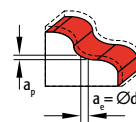
更多的材料信息见材料表

For further material specifications see material cross reference list.



切削速度的计算需要考虑有效切削直径 d_{eff} , 见公式。

For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.



硬化材料

hardened material

a_p 可达/up to 0.025 x d
 a_e 可达/up to 0.28 mm

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p \cdot a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSK 220°	2	3.0	< 0.11	< 0.03	0.020 - 0.035
DSK 220°	2	4.0	< 0.14	< 0.05	0.025 - 0.040
DSK 220°	2	5.0	< 0.18	< 0.07	0.030 - 0.045
DSK 220°	2	6.0	< 0.20	< 0.09	0.030 - 0.050
DSK 220°	2	8.0	< 0.25	< 0.12	0.040 - 0.050
DSK 220°	2	12.0	< 0.30	< 0.15	0.040 - 0.060
DSK 220°	2	12.0	< 0.36	< 0.20	0.050 - 0.060
DSK 220°	2	16.0	< 0.40	< 0.28	0.080 - 0.080

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSKH 220°

CUTTING DATA DSKH 220°



220° 立铣刀 球头

220° Endmill Ballnose



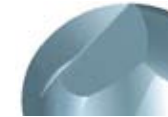
材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		50-60 HRc 58-70 HRc	140-280 120-220

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

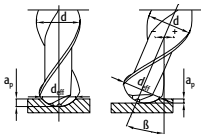
HSM



220° 球头
220° Ballnose

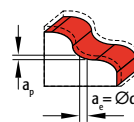
更多的材料信息见材料表

For further material specifications see material cross reference list.



切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.



硬化材料

hardened material

a_p 可达/up to 0.025 x d
 a_e 可达/up to 0.28 mm

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKH 220°	2	3.0	< 0.11	< 0.03	0.020 - 0.080
DSKH 220°	2	4.0	< 0.14	< 0.05	0.025 - 0.100
DSKH 220°	2	5.0	< 0.18	< 0.07	0.030 - 0.150
DSKH 220°	2	6.0	< 0.20	< 0.09	0.030 - 0.200
DSKH 220°	2	8.0	< 0.25	< 0.12	0.040 - 0.250
DSKH 220°	2	10.0	< 0.30	< 0.15	0.040 - 0.250
DSKH 220°	2	12.0	< 0.36	< 0.20	0.050 - 0.250
DSKH 220°	2	16.0	< 0.40	< 0.28	0.050 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSK

CUTTING DATA DSK



立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AITiN涂层
AITiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

HSM

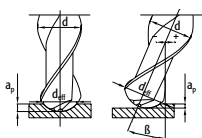
注意: 中心 Z=2!
Attention: In the centre z = 2!



球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

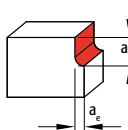


切削速度的计算需要考虑有效切削直径 d_{eff} , 见公式。

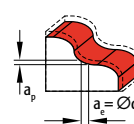
For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.

$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$



硬化材料
hardened material
 a_p 可达/up to 0.5 x d
 a_e 可达/up to 0.5 mm



硬化材料
hardened material
 a_p 可达/up to 0.025 x d
 a_e 可达/up to 0.280 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)
DSK	4	6.0
DSK	4	8.0
DSK	4	10.0
DSK	4	12.0
DSK	4	16.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 3.0	< 0.18	0.065 - 0.125
< 4.0	< 0.24	0.080 - 0.130
< 5.0	< 0.30	0.085 - 0.135
< 6.0	< 0.36	0.100 - 0.140
< 8.0	< 0.50	0.110 - 0.150

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.20	< 0.09	0.080 - 0.125
< 0.25	< 0.12	0.090 - 0.130
< 0.30	< 0.15	0.100 - 0.135
< 0.36	< 0.20	0.110 - 0.140
< 0.40	< 0.28	0.120 - 0.150

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

微型立铣刀 球头

Micro Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	< 110
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	< 90
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	30-50
	< 900	< 300	35-60
H 淬硬钢 / Hardened steel		45-52 HRc	< 250
		50-60 HRc	< 200
		58-70 HRc	

AlTiN涂层
AlTiN coated

推荐:
空气压力排出切屑

Recommendation:
Air pressure to remove chips

HSM



球头
Ballnose

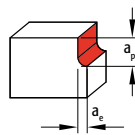
更多的材料信息见材料表

For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速40.000 rpm。
当使用较长L2的立铣刀时，根据表中所示降低 f_z

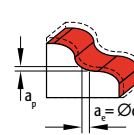
Cutting Speed v_c is based on max. 40.000 rpm.
When using endmills with longer L2, reduce f_z according table.

L2	变径接头 Reducers
1 - 5 x d	0%
5 - 10 x d	30 %
10 ~	50 %



< 45 HRc
 a_p 可达/up to 0.75 x d
 a_e 可达/up to 0.05 mm

硬化材料
hardened material
 a_p 可达/up to 0.50 x d
 a_e 可达/up to 0.02 mm



< 45 HRc
 a_p 可达/up to 1.00 x d
 a_e 可达/up to 0.50 mm

硬化材料
hardened material
 a_p 可达/up to 0.50 x d
 a_e 可达/up to 0.30 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	a_p (mm)				f_z (mm)	a_p (mm)				f_z (mm)
			< 45 HRc	< 45 HRc	> 45 HRc	> 45 HRc		< 45 HRc	< 45 HRc	> 45 HRc	> 45 HRc	
DSKM	2	0.2	< 0.08	< 0.007	< 0.05	< 0.004	0.002 - 0.004	< 0.02	< 0.004	< 0.008	< 0.002	0.002 - 0.004
DSKM	2	0.3	< 0.11	< 0.011	< 0.10	< 0.006	0.003 - 0.006	< 0.03	< 0.006	< 0.012	< 0.003	0.003 - 0.006
DSKM	2	0.4	< 0.15	< 0.015	< 0.14	< 0.008	0.004 - 0.008	< 0.04	< 0.008	< 0.016	< 0.004	0.004 - 0.008
DSKM	2	0.5	< 0.20	< 0.019	< 0.18	< 0.010	0.005 - 0.009	< 0.05	< 0.010	< 0.020	< 0.005	0.005 - 0.009
DSKM	2	0.6	< 0.30	< 0.022	< 0.25	< 0.012	0.006 - 0.010	< 0.06	< 0.012	< 0.024	< 0.006	0.006 - 0.010
DSKM	2	0.8	< 0.40	< 0.030	< 0.35	< 0.016	0.006 - 0.012	< 0.08	< 0.016	< 0.032	< 0.008	0.006 - 0.012
DSKM	2	1.0	< 0.75	< 0.045	< 0.50	< 0.020	0.008 - 0.015	< 0.10	< 0.025	< 0.040	< 0.010	0.008 - 0.015
DSKM	2	1.2	< 0.90	< 0.054	< 0.60	< 0.024	0.010 - 0.016	< 0.12	< 0.030	< 0.048	< 0.012	0.010 - 0.016
DSKM	2	1.5	< 1.13	< 0.067	< 0.75	< 0.030	0.012 - 0.018	< 0.15	< 0.040	< 0.060	< 0.015	0.012 - 0.018
DSKM	2	2.0	< 1.50	< 0.090	< 1.00	< 0.040	0.016 - 0.022	< 0.20	< 0.050	< 0.080	< 0.020	0.016 - 0.022
DSKM	2	2.5	< 1.90	< 0.110	< 1.25	< 0.050	0.016 - 0.025	< 0.25	< 0.060	< 0.100	< 0.025	0.016 - 0.025
DSKM	2	3.0	< 2.25	< 0.130	< 1.50	< 0.060	0.019 - 0.028	< 0.30	< 0.075	< 0.120	< 0.030	0.019 - 0.028

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSDS

CUTTING DATA DSDS



立铣刀 双半径

Endmill Double radius



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	170-250 150-200
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	180-250
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	180-250
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc	
		50-60 HRc	
		58-70 HRc	

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

HSM

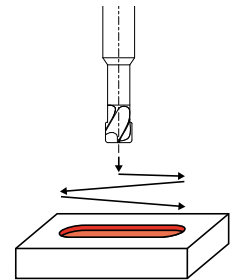
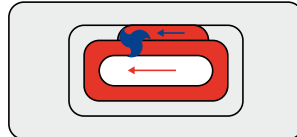


双半径
Double radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

该立铣刀可加工型腔，见图示，自外向内加工，尽量顺铣或者斜插铣削。

This endmill can be used for pocket milling; for strategy see drawings. Always mill from inside to outside. If possible use helicoidal down-milling, otherwise ramping down.



肩铣削 Shoulder milling

型腔铣削 Pocket milling

型号 type	z	Ø d (mm)
DSDS	4	6.0
DSDS	4	8.0
DSDS	4	10.0
DSDS	4	12.0
DSDS	4	16.0

a_p max (mm)	a_s max (mm)	f_z (mm)
< 0.4	< 3.0	0.6 - 1.0
< 0.5	< 4.0	0.6 - 1.0
< 0.7	< 5.0	0.6 - 1.0
< 0.8	< 6.0	0.6 - 1.0
< 1.0	< 8.0	0.6 - 1.0

a_p max (mm)	a_s max (mm)	f_z (mm)
< 0.4	< 6.0	0.5 - 1.0
< 0.5	< 8.0	0.5 - 1.0
< 0.7	< 10.0	0.5 - 1.0
< 0.8	< 12.0	0.5 - 1.0
< 1.0	< 16.0	0.5 - 1.0

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSDH

CUTTING DATA DSDH



立铣刀 双半径

Endmill Double radius



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	170-250 150-200
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	180-250
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	180-250
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc	
		50-60 HRc	
		58-70 HRc	

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

HSM

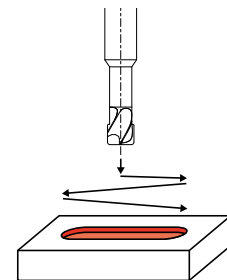
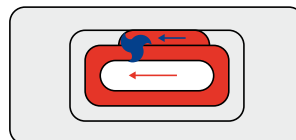


双半径
Double radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

该立铣刀可加工型腔，见图示，自外向内加工，
尽量顺铣或者斜插铣削。

This endmill can be used for pocket milling; for strategy
see drawings. Always mill from inside to outside.
If possible use helicoidal down-milling, otherwise
ramping down.



肩铣削 Shoulder milling

型腔铣削 Pocket milling

型号 type	z	Ø d (mm)
DSDH	4	6.0
DSDH	4	8.0
DSDH	4	10.0
DSDH	4	12.0
DSDH	4	16.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.20	< 3.0	0.15 - 0.30
< 0.25	< 4.0	0.15 - 0.30
< 0.30	< 5.0	0.15 - 0.30
< 0.40	< 6.0	0.15 - 0.30
< 0.50	< 8.0	0.15 - 0.35

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.20	< 6.0	0.15 - 0.30
< 0.25	< 8.0	0.15 - 0.30
< 0.30	< 10.0	0.15 - 0.30
< 0.40	< 12.0	0.15 - 0.30
< 0.50	< 16.0	0.15 - 0.35

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DST

CUTTING DATA DST



曲面立铣刀 Torus Endmill



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

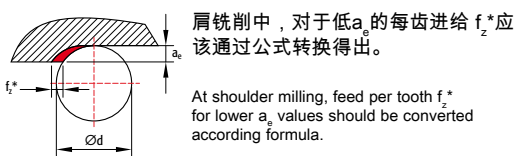
HSM



曲面
Torus

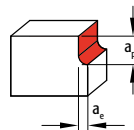
更多的材料信息见材料表

For further material specifications see material cross reference list.

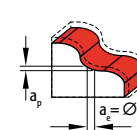


$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



硬化材料
hardened material
a_p 可达/up to 0.5 x d
a_e 可达/up to 0.5 mm



硬化材料
hardened material
a_p 可达/up to 0.025 x d
a_e 可达/up to 0.280 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			仿形铣 Copy milling		
			a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DST	2	1.5	< 0.7	< 0.03	0.025 - 0.040	< 0.06	< 0.01	0.045 - 0.060
DST	2	2.0	< 1.0	< 0.04	0.030 - 0.050	< 0.08	< 0.02	0.050 - 0.075
DST	2	3.0	< 1.5	< 0.06	0.040 - 0.060	< 0.11	< 0.03	0.055 - 0.090
DST	2	4.0	< 2.0	< 0.10	0.050 - 0.080	< 0.14	< 0.05	0.065 - 0.100
DST	2	5.0	< 2.5	< 0.13	0.060 - 0.120	< 0.18	< 0.07	0.075 - 0.120
DST	2	6.0	< 3.0	< 0.18	0.065 - 0.125	< 0.20	< 0.09	0.080 - 0.125
DST	2	8.0	< 4.0	< 0.24	0.080 - 0.130	< 0.25	< 0.12	0.090 - 0.130
DST	2	10.0	< 5.0	< 0.30	0.085 - 0.135	< 0.30	< 0.15	0.100 - 0.135
DST	2	12.0	< 6.0	< 0.36	0.100 - 0.140	< 0.36	< 0.20	0.110 - 0.140
DST	2	16.0	< 8.0	< 0.50	0.110 - 0.150	< 0.40	< 0.28	0.120 - 0.150

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

曲面立铣刀 Torus Endmill



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		50-60 HRc 58-70 HRc	140-280 120-220

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

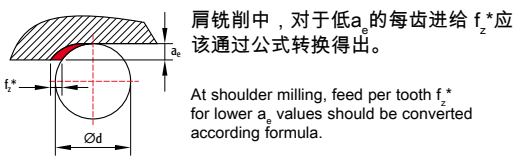
HSM



曲面
Torus

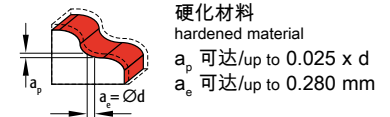
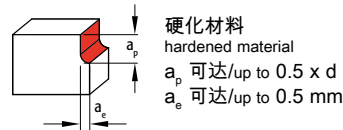
更多的材料信息见材料表

For further material specifications see material cross reference list.



$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			仿形铣 Copy milling		
			a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSTH	2	1.5	< 0.7	< 0.03	0.025 - 0.040	< 0.06	< 0.02	0.030 - 0.060
DSTH	2	2.0	< 1.0	< 0.04	0.030 - 0.050	< 0.08	< 0.02	0.050 - 0.070
DSTH	2	3.0	< 1.5	< 0.06	0.040 - 0.060	< 0.11	< 0.03	0.055 - 0.080
DSTH	2	4.0	< 2.0	< 0.10	0.050 - 0.080	< 0.14	< 0.05	0.065 - 0.100
DSTH	2	5.0	< 2.5	< 0.13	0.060 - 0.120	< 0.18	< 0.07	0.075 - 0.150
DSTH	2	6.0	< 3.0	< 0.18	0.065 - 0.125	< 0.20	< 0.09	0.080 - 0.200
DSTH	2	8.0	< 4.0	< 0.24	0.080 - 0.130	< 0.25	< 0.12	0.090 - 0.250
DSTH	2	10.0	< 5.0	< 0.30	0.085 - 0.135	< 0.30	< 0.15	0.100 - 0.250
DSTH	2	12.0	< 6.0	< 0.36	0.100 - 0.140	< 0.36	< 0.20	0.110 - 0.250
DSTH	2	16.0	< 8.0	< 0.50	0.110 - 0.150	< 0.40	< 0.28	0.120 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DST

CUTTING DATA DST



曲面立铣刀 Torus Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	300-500 200-400

AITiN涂层
AITiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

HSM



曲面
Torus

更多的材料信息见材料表

For further material specifications see material cross reference list.

肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

硬化材料
hardened material
 a_p 可达/up to 0.5 x d
 a_e 可达/up to 0.5 mm

硬化材料
hardened material
 a_p 可达/up to 0.025 x d
 a_e 可达/up to 0.280 mm

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)
DST	4	6.0
DST	4	8.0
DST	4	10.0
DST	4	12.0
DST	4	16.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 3.0	< 0.18	0.065 - 0.125
< 4.0	< 0.24	0.080 - 0.130
< 5.0	< 0.30	0.085 - 0.135
< 6.0	< 0.36	0.100 - 0.140
< 8.0	< 0.50	0.110 - 0.150

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.20	< 0.09	0.080 - 0.125
< 0.25	< 0.12	0.090 - 0.130
< 0.30	< 0.15	0.100 - 0.135
< 0.36	< 0.20	0.110 - 0.140
< 0.40	< 0.28	0.120 - 0.150

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSM/DSMR/DSML

CUTTING DATA DSM/DSMR/DSML



立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	120-170

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

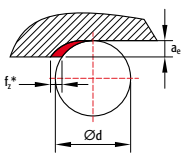
HPM
HSM



圆角刀尖
Corner radius

更多的材料信息见材料表

For further material specifications see material cross reference list.

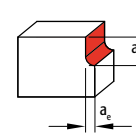


$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



硬化材料
hardened material
 a_p 可达/up to 2.00 x d
 a_e 可达/up to 0.35 mm

肩铣削 / Shoulder milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSM / DSMR	6	3.0	< 3.0	< 0.03	0.020 - 0.035
DSM / DSMR	6	4.0	< 6.0	< 0.05	0.030 - 0.045
DSM / DSMR	6	5.0	< 7.5	< 0.07	0.035 - 0.055
DSM / DSMR	6	6.0	< 12.0	< 0.10	0.045 - 0.065
DSM / DSMR	6	8.0	< 16.0	< 0.13	0.060 - 0.080
DSM / DSMR	6	10.0	< 20.0	< 0.17	0.070 - 0.095
DSM / DSMR	6	12.0	< 24.0	< 0.21	0.085 - 0.110
DSM / DSMR	6	16.0	< 32.0	< 0.28	0.095 - 0.125
DSM / DSMR	8	20.0	< 40.0	< 0.35	0.105 - 0.140
DSM / DSMR	8	8.0	< 16.0	< 0.13	0.060 - 0.080
DSM / DSMR	10	10.0	< 20.0	< 0.17	0.070 - 0.095
DSM / DSMR	12	12.0	< 24.0	< 0.21	0.085 - 0.110
DSM / DSMR	16	16.0	< 32.0	< 0.28	0.095 - 0.125
DSML	6	8.0	< 16.0	< 0.13	0.060 - 0.080
DSML	6	10.0	< 20.0	< 0.17	0.070 - 0.095
DSML	6	12.0	< 24.0	< 0.21	0.085 - 0.110
DSML	8	16.0	< 32.0	< 0.28	0.095 - 0.125

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSMH/DSMRH

CUTTING DATA DSMH/DSMRH



立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		50-60 HRc 58-70 HRc	140-280 120-220

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

recommended cooling:
1. Minimum lubrication
2. Air

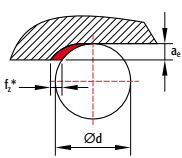
HPM
HSM



圆角刀尖
Corner radius

更多的材料信息见材料表

For further material specifications see material cross reference list.

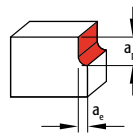


肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



硬化材料
hardened material
 a_p 可达/up to 2.00 x d
 a_e 可达/up to 0.35 mm

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)	a_{max} (mm)	$a_e max$ (mm)	f_z (mm)
DSMH / DSMRH	6	3.0	< 3.0	< 0.03	0.020 - 0.035
DSMH / DSMRH	6	4.0	< 6.0	< 0.05	0.030 - 0.045
DSMH / DSMRH	6	5.0	< 7.5	< 0.07	0.035 - 0.055
DSMH / DSMRH	6	6.0	< 12.0	< 0.10	0.045 - 0.065
DSMH / DSMRH	6	8.0	< 16.0	< 0.13	0.060 - 0.080
DSMH / DSMRH	6	10.0	< 20.0	< 0.17	0.070 - 0.095
DSMH / DSMRH	6	12.0	< 24.0	< 0.21	0.085 - 0.110
DSMH / DSMRH	6	16.0	< 32.0	< 0.28	0.095 - 0.125
DSMH / DSMRH	8	20.0	< 40.0	< 0.35	0.105 - 0.140
DSMH / DSMRH	8	8.0	< 16.0	< 0.13	0.060 - 0.080
DSMH / DSMRH	10	10.0	< 20.0	< 0.17	0.070 - 0.095
DSMH / DSMRH	12	12.0	< 24.0	< 0.21	0.085 - 0.110
DSMH / DSMRH	16	16.0	< 32.0	< 0.28	0.095 - 0.125

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

粗立铣 Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	90-140 70-110
M 不锈钢 / Stainless steel	< 600	< 200	100-130
	< 850	< 250	50-70
K 可锻铸铁 / Malleable cast iron		< 260	100-190
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	130-260
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	30-50 50-80
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	100-180

AITiN涂层
AITiN coated

建议冷却:

1. 乳化液
2. 空气
3. 最小量润滑

recommended cooling:

1. Emulsion
2. Air
3. Minimum lubrication

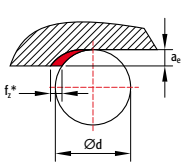
HVM
HPM



圆角刀尖
Corner radius

更多的材料信息见材料表

For further material specifications see material cross reference list.



肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

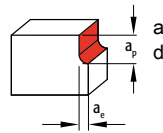
对于精加工 v_c 最高可提高30%。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

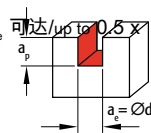
For finishing application v_c can be increased up to 30%.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 1.0 x d



a_p 可达/up to 1.0 x d

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			槽铣削 Slot milling		
			a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSR	3	2.0	< 2.0	< 0.25	0.010 - 0.020	< 2.0	< 2.0	0.010 - 0.020
DSR	3	3.0	< 3.0	< 0.40	0.015 - 0.025	< 3.0	< 3.0	0.015 - 0.025
DSR	3	4.0	< 4.0	< 0.80	0.020 - 0.030	< 4.0	< 4.0	0.020 - 0.030
DSR	3	5.0	< 5.0	< 1.00	0.020 - 0.030	< 5.0	< 5.0	0.020 - 0.030
DSR	3	6.0	< 6.0	< 2.25	0.025 - 0.040	< 6.0	< 6.0	0.025 - 0.040
DSR	3	8.0	< 8.0	< 3.00	0.030 - 0.050	< 8.0	< 8.0	0.030 - 0.050
DSR	3	10.0	< 10.0	< 3.75	0.035 - 0.065	< 10.0	< 10.0	0.035 - 0.065
DSR	3	12.0	< 12.0	< 6.00	0.045 - 0.070	< 12.0	< 12.0	0.045 - 0.070
DSR	3	16.0	< 16.0	< 8.00	0.060 - 0.100	< 16.0	< 16.0	0.060 - 0.100

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSF

CUTTING DATA DSF



粗立铣 Roughing Endmill



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	90-140 70-110
M 不锈钢 / Stainless steel	< 600	< 200	100-130
	< 850	< 250	50-70
K 可锻铸铁 / Malleable cast iron		< 260	100-190
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	130-260
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	30-50 50-80
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	100-180

AlTiN涂层
AlTiN coated

建议冷却:

1. 乳化液
2. 空气
3. 最小量润滑

recommended cooling:

1. Emulsion
2. Air
3. Minimum lubrication

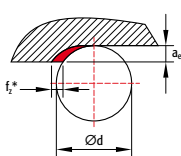
HVM
HPM



倒角
Chamfer

更多的材料信息见材料表

For further material specifications see material cross reference list.

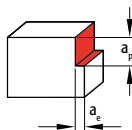


肩铣削中，对于低a_e的每齿进给f_z*应
该通过公式转换得出。

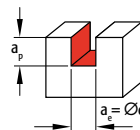
At shoulder milling, feed per tooth f_z*
for lower a_e values should be converted
according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



a_p 可达/up to 2.0 x d
a_e 可达/up to 0.5 x d



a_p 可达/up to 1.5 x d

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSF	3	2.0	< 3.0	< 0.25	0.010 - 0.020	< 2.0	< 2.0	0.010 - 0.020
DSF	3	3.0	< 4.0	< 0.40	0.015 - 0.025	< 3.0	< 3.0	0.015 - 0.025
DSF	3	4.0	< 5.0	< 0.80	0.020 - 0.030	< 4.0	< 4.0	0.020 - 0.030
DSF	3	5.0	< 7.5	< 1.00	0.020 - 0.030	< 5.0	< 5.0	0.020 - 0.030
DSF	3	6.0	< 9.0	< 2.25	0.025 - 0.040	< 6.0	< 6.0	0.025 - 0.040
DSF	3	8.0	< 16.0	< 3.00	0.030 - 0.050	< 10.0	< 8.0	0.030 - 0.050
DSF	3	10.0	< 20.0	< 3.75	0.035 - 0.065	< 12.0	< 10.0	0.035 - 0.065
DSF	3	12.0	< 24.0	< 6.00	0.045 - 0.070	< 18.0	< 12.0	0.045 - 0.070
DSF	3	16.0	< 32.0	< 8.00	0.060 - 0.100	< 24.0	< 16.0	0.060 - 0.100

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSF

CUTTING DATA DSF



粗立铣

Roughing Endmill



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	100-150 90-130
M 不锈钢 / Stainless steel	< 600	< 200	80-110
	< 850	< 250	50-70
K 可锻铸铁 / Malleable cast iron		< 260	150-200
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	130-260
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	30-50 50-80
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	100-180

AITiN涂层
AITiN coated

建议冷却:

1. 乳化液
2. 空气
3. 最小量润滑

recommended cooling:

1. Emulsion
2. Air
3. Minimum lubrication

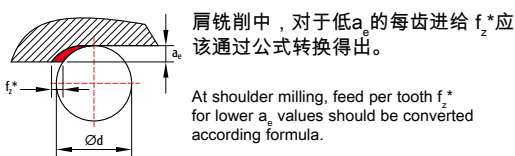
HVM
HPM



倒角
Chamfer

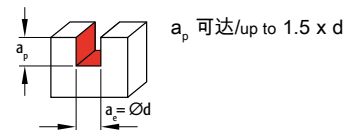
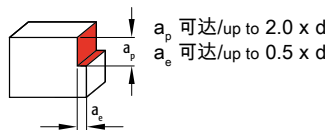
更多的材料信息见材料表

For further material specifications see material cross reference list.



$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	肩铣削 Shoulder milling			槽铣削 Slot milling		
			a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSF	4	4.0	< 5.0	< 0.80	0.015 - 0.025	< 4.0	< 4.0	0.015 - 0.025
DSF	4	6.0	< 9.0	< 2.25	0.020 - 0.030	< 6.0	< 6.0	0.020 - 0.030
DSF	4	8.0	< 16.0	< 3.00	0.025 - 0.035	< 10.0	< 8.0	0.025 - 0.035
DSF	4	10.0	< 20.0	< 3.75	0.030 - 0.045	< 12.0	< 10.0	0.030 - 0.045
DSF	4	12.0	< 24.0	< 6.00	0.035 - 0.050	< 18.0	< 12.0	0.035 - 0.050
DSF	4	16.0	< 32.0	< 8.00	0.045 - 0.060	< 24.0	< 16.0	0.045 - 0.060

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSRF

CUTTING DATA DSRF



粗立铣 Roughing Endmill



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	150-180 110-150
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	130-200
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

AITiN涂层
AITiN coated

建议冷却:

1. 乳化液
2. 空气
3. 最小量润滑

recommended cooling:

1. Emulsion
2. Air
3. Minimum lubrication

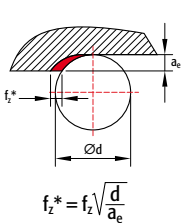
HVM
HPM



倒角
Chamfer

更多的材料信息见材料表

For further material specifications see material cross reference list.



肩铣削中, 对于低a_e的每齿进给 f_z* 应该通过公式转换得出。

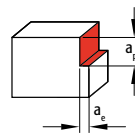
对于精加工 v_c最高可提高30%。

At shoulder milling, feed per tooth f_z* for lower a_e values should be converted according formula.

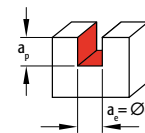
For finishing application v_c can be increased up to 30%.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



a_p 可达/up to 2.0 x d
a_e 可达/up to 0.5 x d



a_p 可达/up to 2.0 x d

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSRF	3	6.0	< 9.0	< 3.0	0.03 - 0.04	< 6.0	< 6.0	0.03 - 0.04
DSRF	3	8.0	< 16.0	< 4.0	0.04 - 0.06	< 10.0	< 8.0	0.04 - 0.06
DSRF	3	10.0	< 20.0	< 5.0	0.06 - 0.08	< 15.0	< 10.0	0.06 - 0.08
DSRF	3	12.0	< 24.0	< 6.0	0.08 - 0.10	< 24.0	< 12.0	0.08 - 0.10
DSRF	3	14.0	< 28.0	< 7.0	0.10 - 0.12	< 28.0	< 14.0	0.10 - 0.12
DSRF	3	16.0	< 32.0	< 8.0	0.12 - 0.15	< 32.0	< 16.0	0.12 - 0.15
DSRF	3	20.0	< 40.0	< 10.0	0.12 - 0.20	< 40.0	< 20.0	0.12 - 0.20

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

粗立铣

Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	150-180 110-150
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	130-200
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

AlTiN涂层
AlTiN coated

建议冷却:

1. 乳化液
2. 空气
3. 最小量润滑

recommended cooling:

1. Emulsion
2. Air
3. Minimum lubrication

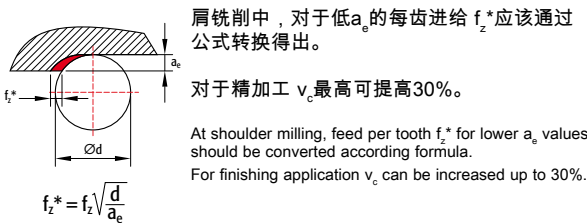
HVM
HPM



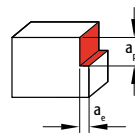
圆角刀尖
Corner radius

更多的材料信息见材料表

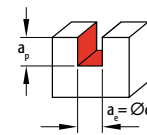
For further material specifications see material cross reference list.



a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 2.0 x d
 a_e 可达/up to 0.5 x d



a_p 可达/up to 2.0 x d

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSRR	3	6.0	< 9.0	< 3.0	0.03 - 0.04	< 6.0	< 6.0	0.03 - 0.04
DSRR	3	8.0	< 16.0	< 4.0	0.04 - 0.06	< 10.0	< 8.0	0.04 - 0.06
DSRR	3	10.0	< 20.0	< 5.0	0.06 - 0.08	< 15.0	< 10.0	0.06 - 0.08
DSRR	3	12.0	< 24.0	< 6.0	0.08 - 0.10	< 24.0	< 12.0	0.08 - 0.10
DSRR	3	14.0	< 28.0	< 7.0	0.10 - 0.12	< 28.0	< 14.0	0.10 - 0.12
DSRR	3	16.0	< 32.0	< 8.0	0.12 - 0.15	< 32.0	< 16.0	0.12 - 0.15
DSRR	4	20.0	< 40.0	< 10.0	0.12 - 0.20	< 40.0	< 20.0	0.12 - 0.20

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSRV

CUTTING DATA DSRV



粗立铣 Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
S 高温合金 / High temp. alloys	< 900	< 300	30 - 50
钛合金 / Titanium alloys	< 900	< 300	70 - 100

TS3K涂层
TS3K coated

建议冷却:
乳化液

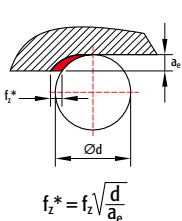
recommended cooling:
Emulsion

材料 Material	例如 : Example:
M	1.4404 1.4435 1.4541 1.4571 1.4301
不锈钢 / Stainless steel	
S	3.7024 3.7165
钛合金 / Titanium alloys	



圆角刀尖
Corner radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

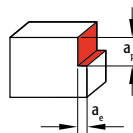


肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

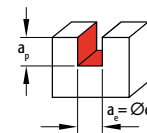
At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 2.0 x d
 a_e 可达/up to 0.5 x d



a_p 可达/up to 1.0 x d

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	$\varnothing d$ (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSRV	4	3.0	< 4.0	< 0.5	0.01 - 0.02	< 2.0	< 3.0	0.01 - 0.02
DSRV	4	4.0	< 7.0	< 0.8	0.02 - 0.03	< 3.0	< 4.0	0.02 - 0.03
DSRV	4	5.0	< 9.0	< 1.2	0.02 - 0.03	< 4.0	< 5.0	0.02 - 0.03
DSRV	4	6.0	< 12.0	< 2.0	0.02 - 0.04	< 5.0	< 6.0	0.02 - 0.04
DSRV	4	8.0	< 16.0	< 3.0	0.03 - 0.05	< 6.0	< 8.0	0.03 - 0.05
DSRV	4	10.0	< 20.0	< 4.0	0.04 - 0.07	< 8.0	< 10.0	0.04 - 0.07
DSRV	4	12.0	< 24.0	< 6.0	0.05 - 0.08	< 10.0	< 12.0	0.05 - 0.08
DSRV	5	16.0	< 32.0	< 8.0	0.06 - 0.10	< 12.0	< 16.0	0.06 - 0.10

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSFF

CUTTING DATA DSFF



倒角立铣刀 Chamfering Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	150-180 110-150
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
	K 可锻铸铁 / Malleable cast iron	< 260	130-200
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	130-260
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900 < 900	< 300 < 300	
	H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc

TS3K涂层
TS3K coated

建议冷却:
1. 乳化液
2. 空气

recommended cooling:
1. Emulsion
2. Air

HVM
HPM

更多的材料信息见材料表
For further material specifications see material cross reference list.



a_e 可达/up to 0.40 x d

倒角 Chamfering

型号 type	z	Ø d (mm)	f_z (mm)
DSFF	4	4.0	0.040 - 0.060
DSFF	4	6.0	0.050 - 0.070
DSFF	4	8.0	0.060 - 0.080
DSFF	4	10.0	0.070 - 0.095
DSFF	4	12.0	0.085 - 0.115

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSKC/DSKLC

CUTTING DATA DSKC/DSKLC



立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys 钴铬合金 / Cobalt Chromium alloys	< 900	< 300	
	< 900	< 300	
			35-70

AlTiN涂层
AlTiN coated

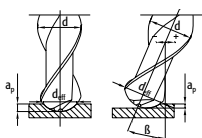
建议冷却:
乳化液

recommended cooling:
Emulsion



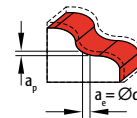
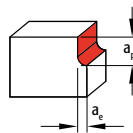
球头
Ballnose

更多的材料信息见材料表
For further material specifications see material cross reference list.



切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.



$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_s max (mm)	f_z (mm)	a_p max (mm)	a_s max (mm)	f_z (mm)
DSKC	2	1.0	< 2.0	0.5	0.02 - 0.04	< 2.0	0.5	0.02 - 0.04
DSKC	2	1.5	< 2.0	0.7	0.02 - 0.04	< 2.0	0.7	0.02 - 0.04
DSKC	2	2.0	< 3.0	1.0	0.02 - 0.04	< 3.0	1.0	0.02 - 0.04
DSKC	2	3.0	< 4.0	1.5	0.02 - 0.04	< 4.0	1.5	0.02 - 0.04
DSKC	3	4.0	< 5.0	2.0	0.02 - 0.04	< 5.0	2.0	0.02 - 0.04
DSKC	4	5.0	< 5.0	2.5	0.02 - 0.04	< 5.0	2.5	0.02 - 0.04
DSKC/DSKLC	4	6.0	< 6.0	3.0	0.02 - 0.04	< 6.0	3.0	0.02 - 0.04
DSKC/DSKLC	5	8.0	< 8.0	4.0	0.02 - 0.04	< 8.0	4.0	0.02 - 0.04
DSKC/DSKLC	5	10.0	< 10.0	5.0	0.02 - 0.04	< 10.0	5.0	0.02 - 0.04
DSKC/DSKLC	7	12.0	< 12.0	6.0	0.02 - 0.04	< 12.0	6.0	0.02 - 0.04
DSKC	7	16.0	< 20.0	6.0	0.02 - 0.04	< 20.0	8.0	0.02 - 0.04

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

切削参数 DSKC 220°

CUTTING DATA DSKC 220°



立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
钴铬合金 / Cobalt Chromium alloys			35-70

AlTiN涂层
AlTiN coated

建议冷却:
乳化液

recommended cooling:
Emulsion

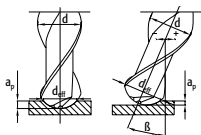


220° 球头
220° Ballnose

钴铬合金 / Cobalt Chromium

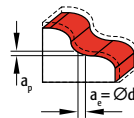
更多的材料信息见材料表

For further material specifications see material cross reference list.



切削速度的计算需要考虑有效切削直径 d_{eff} ，见公式。

For the cutting speed v_c calculation the effective cutting diameter d_{eff} has to be taken into account. See formula.



$$\beta = 0: d_{eff} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{eff} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKC 220°	2	3.0	< 2.0	< 1.5	0.02 - 0.04
DSKC 220°	3	4.0	< 2.6	< 2.0	0.02 - 0.04
DSKC 220°	4	5.0	< 3.3	< 2.5	0.02 - 0.04
DSKC 220°	4	6.0	< 4.0	< 3.0	0.02 - 0.04
DSKC 220°	5	8.0	< 5.3	< 4.0	0.02 - 0.04
DSKC 220°	5	10.0	< 6.7	< 5.0	0.02 - 0.04
DSKC 220°	7	12.0	< 8.0	< 6.0	0.02 - 0.04
DSKC 220°	7	16.0	< 10.7	< 8.0	0.02 - 0.04

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
	K 可锻铸铁 / Malleable cast iron		< 260
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics		< 350	< 100
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys 钴铬合金 / Cobalt Chromium alloys	< 900 < 900	< 300 < 300	
			35-70

AlTiN涂层
AlTiN coated

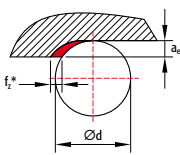
建议冷却：
乳化液

recommended cooling:
Emulsion



曲面
Torus

更多的材料信息见材料表
For further material specifications see material cross reference list.

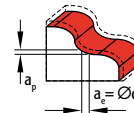
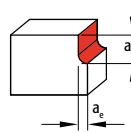


肩铣削中，对于低a_e的每齿进给f_z*应该通过公式转换得出。

At shoulder milling, feed per tooth f_z* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1



肩铣削 Shoulder milling

仿形铣 Copy milling

型号 type	z	Ø d (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSTC	2	1.5	< 2.5	0.7	0.02 - 0.04	< 2.5	0.7	0.02 - 0.04
DSTC	2	2.0	< 3.0	1.0	0.02 - 0.04	< 3.0	1.0	0.02 - 0.04
DSTC	2	3.0	< 4.0	1.5	0.02 - 0.04	< 4.0	1.5	0.02 - 0.04
DSTC	3	4.0	< 5.0	2.0	0.02 - 0.04	< 5.0	2.0	0.02 - 0.04
DSTC	4	5.0	< 6.0	2.5	0.02 - 0.04	< 6.0	2.5	0.02 - 0.04
DSTC	4	6.0	< 6.0	3.0	0.02 - 0.04	< 6.0	3.0	0.02 - 0.04
DSTC	5	8.0	< 10.0	4.0	0.02 - 0.04	< 10.0	4.0	0.02 - 0.04
DSTC	5	10.0	< 15.0	5.0	0.02 - 0.04	< 15.0	5.0	0.02 - 0.04
DSTC	5	12.0	< 18.0	6.0	0.02 - 0.04	< 18.0	6.0	0.02 - 0.04

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R _m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v _c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys 钴铬合金 / Cobalt Chromium alloys	< 900	< 300	
	< 900	< 300	
			35-70

AITiN涂层
AITiN coated

建议冷却：
乳化液

recommended cooling:
Emulsion



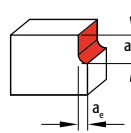
圆角刀尖
Corner radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

肩铣削中，对于低a_e的每齿进给 f_z* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z* for lower a_e values should be converted according formula.

a _e	f _z *
0.10 x d	f _z x 3
0.25 x d	f _z x 2
0.50 x d	f _z x 1

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$


肩铣削

Shoulder milling

型号 type	z	Ø d (mm)	a _p max (mm)	a _e max (mm)	f _z (mm)
DSMRC	4	3.0	< 3.0	1.0	0.02 - 0.04
DSMRC	4	4.0	< 4.0	2.0	0.02 - 0.04
DSMRC	4	5.0	< 5.0	2.5	0.02 - 0.04
DSMRC	5	6.0	< 6.0	3.0	0.02 - 0.04
DSMRC	5	8.0	< 8.0	4.0	0.02 - 0.04
DSMRC	5	10.0	< 10.0	5.0	0.02 - 0.04
DSMRC	7	12.0	< 12.0	6.0	0.02 - 0.04
DSMRC	7	16.0	可达/ up to 48.0	8.0	0.02 - 0.04

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	< 350
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			< 350
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

CrCn涂层
CrCn coated

建议冷却:

1. 乳化液
2. 最小量润滑

recommended cooling:

1. Emulsion
2. Minimum lubrication

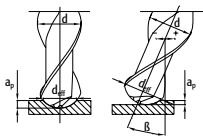
HPM



球头
Ballnose

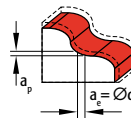
更多的材料信息见材料表

For further material specifications see material cross reference list.



仿形铣的切削速度 v_c 可以增加30%

For profile milling cutting speed v_c may be increased up to 30%.



a_p 可达/up to 0.10 x d
 a_e 可达/up to 0.10 x d

$$\beta = 0: d_{\text{eff}} = 2 \cdot \sqrt{d \cdot a_p - a_p^2}$$

$$\beta \neq 0: d_{\text{eff}} = d \cdot \sin \left[\beta \pm \arccos \left(\frac{d - 2a_p}{d} \right) \right]$$

仿形铣

Copy milling

型号 type	z	$\varnothing d$ (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKK	4	3.0	< 0.3	< 0.15	0.015 - 0.020
DSKK	4	4.0	< 0.4	< 0.30	0.020 - 0.030
DSKK	4	5.0	< 0.5	< 0.35	0.025 - 0.035
DSKK	4	6.0	< 0.6	< 0.50	0.030 - 0.040
DSKK	4	8.0	< 0.8	< 0.70	0.040 - 0.060
DSKK	4	10.0	< 1.0	< 0.90	0.055 - 0.075
DSKK	4	12.0	< 1.2	< 1.20	0.100 - 0.130
DSKK	4	14.0	< 1.4	< 1.40	0.120 - 0.180
DSKK	4	16.0	< 1.6	< 1.60	0.150 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

曲面立铣刀 Torus Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
	K 可锻铸铁 / Malleable cast iron		< 260
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics		< 350	< 100
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
			< 350
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900 < 900	< 300 < 300	
	H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc

CrCn涂层
CrCn coated

建议冷却:
1. 乳化液
2. 最小量润滑

recommended cooling:
1. Emulsion
2. Minimum lubrication

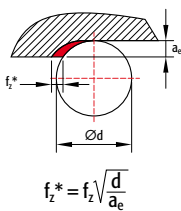
HSM
HPM



<\$TorusLng1>
<\$TorusLng2>

更多的材料信息见材料表

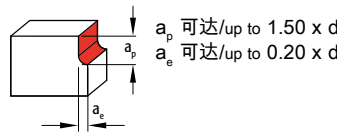
For further material specifications see material cross reference list.



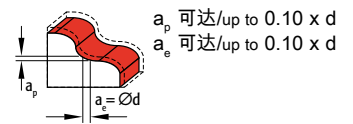
肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 1.50 x d
 a_e 可达/up to 0.20 x d



a_p 可达/up to 0.10 x d
 a_e 可达/up to 0.10 x d

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSTK	4	3.0
DSTK	4	4.0
DSTK	4	5.0
DSTK	4	6.0
DSTK	4	8.0
DSTK	4	10.0
DSTK	4	12.0
DSTK	4	14.0
DSTK	4	16.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 3.0	< 0.3	0.015 - 0.020
< 6.0	< 0.4	0.020 - 0.030
< 7.5	< 0.5	0.025 - 0.035
< 9.0	< 0.8	0.030 - 0.040
< 12.0	< 1.0	0.040 - 0.060
< 15.0	< 1.3	0.055 - 0.075
< 18.0	< 2.4	0.100 - 0.130
< 21.0	< 2.8	0.120 - 0.180
< 24.0	< 3.2	0.150 - 0.250

仿形铣 Copy milling

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.3	< 0.15	0.015 - 0.020
< 0.4	< 0.30	0.020 - 0.030
< 0.5	< 0.35	0.025 - 0.035
< 0.6	< 0.50	0.030 - 0.040
< 0.8	< 0.70	0.040 - 0.060
< 1.0	< 0.90	0.055 - 0.075
< 1.2	< 1.20	0.100 - 0.130
< 1.4	< 1.40	0.120 - 0.180
< 1.6	< 1.60	0.150 - 0.250

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
	K 可锻铸铁 / Malleable cast iron		< 260
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics		< 350	< 100
	< 500	< 150	
	< 400	< 120	
	< 350	< 100	
	< 700	< 200	
			< 350
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900 < 900	< 300 < 300	
	H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc

CrCn涂层
CrCn coated

建议冷却:
1. 乳化液
2. 最小量润滑

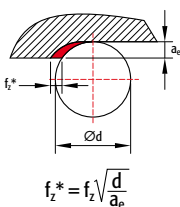
recommended cooling:
1. Emulsion
2. Minimum lubrication

HPM



尖角刀尖
Sharp

更多的材料信息见材料表
For further material specifications see material cross reference list.



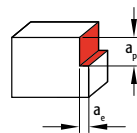
肩铣削速度切削速度 v_c 最大可增加30%

For shoulder milling cutting speed v_c can be increased up to 30%.

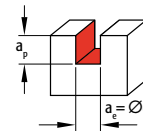
$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.



a_p 可达/up to $2.00 \times d$
 a_e 可达/up to $0.25 \times d$



a_p 可达/up to $0.10 \times d$

a_e	f_z^*
$0.10 \times d$	$f_z \times 3$
$0.25 \times d$	$f_z \times 2$
$0.50 \times d$	$f_z \times 1$

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	$\varnothing d$ (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSMK	3	2.0	< 2.0	< 0.2	0.010 - 0.015	< 0.2	< 2.0	0.010 - 0.015
DSMK	3	3.0	< 3.0	< 0.3	0.015 - 0.020	< 0.3	< 3.0	0.015 - 0.020
DSMK	3	4.0	< 6.0	< 0.5	0.020 - 0.030	< 0.4	< 4.0	0.020 - 0.025
DSMK	3	5.0	< 7.5	< 0.7	0.025 - 0.035	< 0.5	< 5.0	0.020 - 0.030
DSMK	3	6.0	< 12.0	< 1.2	0.030 - 0.040	< 0.6	< 6.0	0.025 - 0.035
DSMK	3	8.0	< 16.0	< 1.6	0.040 - 0.060	< 0.8	< 8.0	0.035 - 0.050
DSMK	3	10.0	< 20.0	< 2.0	0.055 - 0.075	< 1.0	< 10.0	0.055 - 0.065
DSMK	3	12.0	< 24.0	< 3.0	0.100 - 0.130	< 1.2	< 12.0	0.060 - 0.100
DSMK	3	14.0	< 28.0	< 3.5	0.120 - 0.180	< 1.4	< 14.0	0.080 - 0.150
DSMK	3	16.0	< 32.0	< 4.0	0.150 - 0.250	< 1.6	< 16.0	0.090 - 0.180

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	< 350
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			< 350
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

CrCn涂层
CrCn coated

建议冷却:
1. 乳化液
2. 最小量润滑

recommended cooling:
1. Emulsion
2. Minimum lubrication

HPM



圆角刀尖
Corner radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

肩铣削速度切削速度 v_c 最大可增加30%
For shoulder milling cutting speed v_c can be increased up to 30%.

肩铣削中, 对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。
At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_p 可达/up to $2.00 \times d$
 a_e 可达/up to $0.25 \times d$

a_p 可达/up to $0.10 \times d$

a_e	f_z^*
$0.10 \times d$	$f_z \times 3$
$0.25 \times d$	$f_z \times 2$
$0.50 \times d$	$f_z \times 1$

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	$\varnothing d$ (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSMRK	3	2.0	< 2.0	< 0.2	0.010 - 0.015	< 0.2	< 2.0	0.010 - 0.015
DSMRK	3	3.0	< 3.0	< 0.3	0.015 - 0.020	< 0.3	< 3.0	0.015 - 0.020
DSMRK	3	4.0	< 6.0	< 0.5	0.020 - 0.030	< 0.4	< 4.0	0.020 - 0.025
DSMRK	3	5.0	< 7.5	< 0.7	0.025 - 0.035	< 0.5	< 5.0	0.020 - 0.030
DSMRK	3	6.0	< 12.0	< 1.2	0.030 - 0.040	< 0.6	< 6.0	0.025 - 0.035
DSMRK	3	8.0	< 16.0	< 1.6	0.040 - 0.060	< 0.8	< 8.0	0.035 - 0.050
DSMRK	3	10.0	< 20.0	< 2.0	0.055 - 0.075	< 1.0	< 10.0	0.055 - 0.065
DSMRK	3	12.0	< 24.0	< 3.0	0.100 - 0.130	< 1.2	< 12.0	0.060 - 0.100
DSMRK	3	14.0	< 28.0	< 3.5	0.120 - 0.180	< 1.4	< 14.0	0.080 - 0.150
DSMRK	3	16.0	< 32.0	< 4.0	0.150 - 0.250	< 1.6	< 16.0	0.090 - 0.180

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

微型立铣刀 Micro Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	< 350
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			< 350
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

CrCn涂层
CrCn coated

建议冷却:
1. 乳化液
2. 最小量润滑

recommended cooling:
1. Emulsion
2. Minimum lubrication

HSM

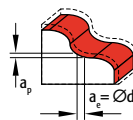


球头
Ballnose

更多的材料信息见材料表
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.

Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 0.10 x d
 a_e 可达/up to 0.05 x d

L2	变径接头 Reducers
1 - 5 x d	0%
5 - 10 x d	30 %
10 ~	50 %

仿形铣 Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKMK	2	0.3	< 0.02	< 0.01	0.005 - 0.010
DSKMK	2	0.4	< 0.02	< 0.02	0.007 - 0.015
DSKMK	2	0.5	< 0.03	< 0.02	0.010 - 0.017
DSKMK	2	0.6	< 0.06	< 0.02	0.015 - 0.020
DSKMK	2	0.8	< 0.08	< 0.03	0.017 - 0.025
DSKMK	2	1.0	< 0.10	< 0.05	0.020 - 0.030
DSKMK	2	1.2	< 0.12	< 0.06	0.025 - 0.035
DSKMK	2	1.5	< 0.15	< 0.07	0.030 - 0.045
DSKMK	2	2.0	< 0.20	< 0.10	0.035 - 0.060
DSKMK	2	2.5	< 0.25	< 0.12	0.045 - 0.070
DSKMK	2	3.0	< 0.30	< 0.15	0.055 - 0.080

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

微型立铣刀 Micro Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	< 350
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			< 350
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

CrCn涂层
CrCn coated

建议冷却:
1. 乳化液
2. 最小量润滑

recommended cooling:
1. Emulsion
2. Minimum lubrication

HSM



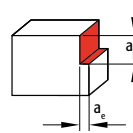
圆角刀尖
Corner radius

更多的材料信息见材料表

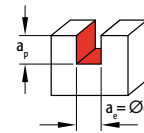
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.

Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 1.00 x d
 a_e 可达/up to 0.10 x d



a_p 可达/up to 0.10 x d

L2	变径接头 Reducers
1 - 5 x d	0%
5 - 10 x d	30%
10 ~	50%

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSMMK	2	0.3
DSMMK	2	0.4
DSMMK	2	0.5
DSMMK	2	0.6
DSMMK	2	0.8
DSMMK	2	1.0
DSMMK	2	1.2
DSMMK	2	1.5
DSMMK	2	2.0
DSMMK	2	2.5
DSMMK	2	3.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.15	< 0.03	0.005 - 0.009
< 0.20	< 0.03	0.007 - 0.010
< 0.25	< 0.04	0.009 - 0.015
< 0.45	< 0.05	0.010 - 0.017
< 0.60	< 0.07	0.013 - 0.020
< 1.00	< 0.10	0.016 - 0.025
< 1.20	< 0.12	0.020 - 0.030
< 1.50	< 0.15	0.030 - 0.035
< 2.00	< 0.20	0.035 - 0.050
< 2.50	< 0.25	0.040 - 0.060
< 3.00	< 0.30	0.050 - 0.075

槽铣削 Slot milling

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.03	< 0.3	0.005 - 0.009
< 0.04	< 0.4	0.007 - 0.010
< 0.05	< 0.5	0.009 - 0.012
< 0.06	< 0.6	0.010 - 0.015
< 0.08	< 0.8	0.012 - 0.017
< 0.10	< 1.0	0.013 - 0.020
< 0.12	< 1.2	0.015 - 0.025
< 0.15	< 1.5	0.017 - 0.030
< 0.20	< 2.0	0.020 - 0.040
< 0.25	< 2.5	0.022 - 0.045
< 0.30	< 3.0	0.025 - 0.055

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	< 400
	< 350	< 100	
	< 700	< 200	
			< 500
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

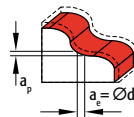
HSM



球头
Ballnose

更多的材料信息见材料表
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.
Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 0.20 x d
 a_e 可达/up to 0.10 x d

石墨 / Graphite

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKG	3	2.0	< 0.4	< 0.1	0.010 - 0.030
DSKG	3	3.0	< 0.6	< 0.2	0.015 - 0.040
DSKG	3	4.0	< 0.8	< 0.3	0.025 - 0.050
DSKG	3	5.0	< 1.0	< 0.4	0.035 - 0.060
DSKG	3	6.0	< 1.2	< 0.5	0.045 - 0.080
DSKG	3	8.0	< 1.6	< 0.7	0.055 - 0.100
DSKG	3	10.0	< 2.0	< 0.9	0.075 - 0.120
DSKG	3	12.0	< 2.4	< 1.2	0.075 - 0.140

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	< 400
	< 350	< 100	
	< 700	< 200	
			< 500
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

HSM



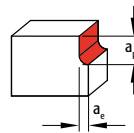
球头
Ballnose

更多的材料信息见材料表

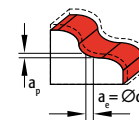
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.

Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 2.00 x d
 a_e 可达/up to 0.20 x d



a_p 可达/up to 0.20 x d
 a_e 可达/up to 0.10 x d

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSKGL	2	2.0
DSKGL	2	3.0
DSKGL	2	4.0
DSKGL	2	5.0
DSKGL	2	6.0
DSKGL	2	8.0
DSKGL	2	10.0
DSKGL	2	12.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 2.0	< 0.2	0.010 - 0.030
< 3.0	< 0.3	0.015 - 0.040
< 6.0	< 0.4	0.025 - 0.050
< 7.5	< 0.5	0.035 - 0.060
< 9.0	< 0.8	0.045 - 0.080
< 12.0	< 1.0	0.055 - 0.100
< 15.0	< 1.3	0.075 - 0.120
< 24.0	< 2.4	0.075 - 0.140

仿形铣 Copy milling

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.4	< 0.1	0.010 - 0.030
< 0.6	< 0.2	0.015 - 0.040
< 0.8	< 0.3	0.025 - 0.050
< 1.0	< 0.4	0.035 - 0.060
< 1.2	< 0.5	0.045 - 0.080
< 1.6	< 0.7	0.055 - 0.100
< 2.0	< 0.9	0.075 - 0.120
< 2.4	< 1.2	0.075 - 0.140

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

曲面立铣刀 Torus Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	
	< 500	< 150	
	< 400	< 120	< 400
	< 350	< 100	
	< 700	< 200	
			< 500
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900 < 900	< 300 < 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

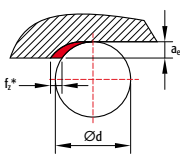
干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

HSM



圆角刀尖
Corner radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

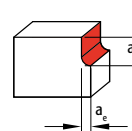


切削速度 v_c 基于最大转速 40.000 rpm.
Cutting Speed v_c is based on max. 40.000 rpm.
给出的条件基于 DSTG 标准立铣刀 $Z=3$ 。
Given conditions are based on DSTG standard endmills with $Z=3$.

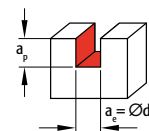
$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.



a_p 可达/up to $2.00 \times d$
 a_e 可达/up to $0.20 \times d$



a_p 可达/up to $1.00 \times d$

a_e	f_z^*
$0.10 \times d$	$f_z \times 3$
$0.25 \times d$	$f_z \times 2$
$0.50 \times d$	$f_z \times 1$

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	$\varnothing d$ (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSTG/DSTLG	2 - 3 - 4	2.0						
DSTG/DSTLG	2 - 3 - 4	3.0	< 2.0	< 0.2	0.010 - 0.030	< 0.5	< 2.0	0.010 - 0.030
DSTG/DSTLG	2 - 3 - 4	4.0	< 3.0	< 0.3	0.015 - 0.040	< 0.8	< 3.0	0.015 - 0.040
DSTG/DSTLG	2 - 3 - 4	5.0	< 6.0	< 0.4	0.025 - 0.050	< 2.0	< 4.0	0.025 - 0.050
DSTG/DSTLG	2 - 3 - 4	6.0	< 7.5	< 0.5	0.035 - 0.060	< 2.5	< 5.0	0.035 - 0.060
DSTG/DSTLG	2 - 3 - 4	8.0	< 9.0	< 0.8	0.045 - 0.080	< 4.5	< 6.0	0.045 - 0.080
DSTG/DSTLG	2 - 3 - 4	10.0	< 12.0	< 1.0	0.055 - 0.100	< 6.0	< 8.0	0.055 - 0.100
DSTG/DSTLG	2 - 3 - 4	12.0	< 15.0	< 1.3	0.075 - 0.120	< 7.5	< 10.0	0.075 - 0.120
DSTG/DSTLG	2 - 3 - 4	12.0	< 24.0	< 2.4	0.075 - 0.140	< 12.0	< 12.0	0.075 - 0.140

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

粗立铣 Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			350-500
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

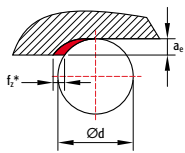
HSM



尖角刀尖
Sharp

更多的材料信息见材料表

For further material specifications see material cross reference list.

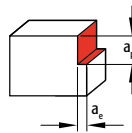


肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

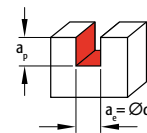
At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 2.50 x d
 a_e 可达/up to 0.50 x d



a_p 可达/up to 1.00 x d

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSVG	x	4.0
DSVG	x	6.0
DSVG	x	8.0
DSVG	x	10.0
DSVG	x	12.0

a_p max (mm)	a_e max (mm)	Vf (mm/min)
< 10.0	< 2.0	< 3600
< 15.0	< 3.0	< 4100
< 20.0	< 4.0	< 4500
< 25.0	< 5.0	< 5100
< 30.0	< 6.0	< 6000

槽铣削 Slot milling

a_p max (mm)	a_e max (mm)	Vf (mm/min)
< 4.0	< 4.0	< 3600
< 6.0	< 6.0	< 4100
< 8.0	< 8.0	< 4500
< 10.0	< 10.0	< 5100
< 12.0	< 12.0	< 6000

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

微型立铣刀 球头

Micro Endmill Ballnose

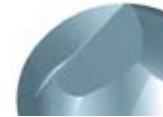


材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	< 200
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			< 200
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

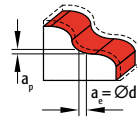
HSM



球头
Ballnose

更多的材料信息见材料表
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.
Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 0.20 x d
 a_e 可达/up to 0.10 x d

L2	变径接头 Reducers
1 - 5 x d	0%
5 - 10 x d	30%
10 ~	50%

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSKMG	2	0.3	< 0.03	< 0.02	0.006 - 0.012
DSKMG	2	0.4	< 0.04	< 0.03	0.008 - 0.015
DSKMG	2	0.5	< 0.05	< 0.03	0.010 - 0.020
DSKMG	2	0.6	< 0.12	< 0.04	0.012 - 0.022
DSKMG	2	0.8	< 0.16	< 0.05	0.015 - 0.025
DSKMG	2	1.0	< 0.20	< 0.09	0.018 - 0.030
DSKMG	2	1.2	< 0.24	< 0.10	0.020 - 0.035
DSKMG	2	1.5	< 0.30	< 0.13	0.025 - 0.040

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

粗立铣 Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	
铝 / Aluminium < 5%Si	< 500	< 150	
铝 / Aluminium > 5%Si	< 400	< 120	< 200
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			< 200
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

金刚石涂层
Diamond coated

干铣削，使用压缩空气移除石墨粉末
Dry milling, with air pressure to remove the Graphit / Graphite powder

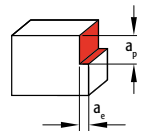
HSM



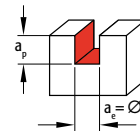
圆角刀尖
Corner radius

更多的材料信息见材料表
For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 40.000 rpm.
Cutting Speed v_c is based on max. 40.000 rpm.



a_p 可达/up to 1.50 x d
 a_e 可达/up to 0.10 x d



a_p 可达/up to 0.50 x d

L2	变径接头 Reducers
1 - 5 x d	0%
5 - 10 x d	30%
10 ~	50%

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSMMG	2	0.3
DSMMG	2	0.4
DSMMG	2	0.5
DSMMG	2	0.6
DSMMG	2	0.8
DSMMG	2	1.0
DSMMG	2	1.2
DSMMG	2	1.5

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.15	< 0.03	0.006 - 0.012
< 0.20	< 0.04	0.008 - 0.015
< 0.25	< 0.04	0.010 - 0.020
< 0.45	< 0.05	0.012 - 0.022
< 0.60	< 0.07	0.015 - 0.025
< 1.00	< 0.10	0.018 - 0.030
< 1.20	< 0.12	0.020 - 0.035
< 1.50	< 0.15	0.025 - 0.040

槽铣削 Slot milling

a_p max (mm)	a_e max (mm)	f_z (mm)
< 0.08	< 0.3	0.006 - 0.012
< 0.10	< 0.4	0.008 - 0.015
< 0.13	< 0.5	0.010 - 0.020
< 0.15	< 0.6	0.012 - 0.022
< 0.20	< 0.8	0.015 - 0.025
< 0.25	< 1.0	0.018 - 0.030
< 0.30	< 1.2	0.020 - 0.035
< 0.38	< 1.5	0.025 - 0.040

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
	K 可锻铸铁 / Malleable cast iron		< 260
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics		< 350	< 100
	< 500	< 150	200-300
	< 400	< 120	100-250
	< 350	< 100	
	< 700	< 200	
			100-400
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900 < 900	< 300 < 300	
	H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc

无涂层
金刚石涂层
uncoated
Diamond coated

建议冷却:
乳化液

recommended cooling:
Emulsion

HVM



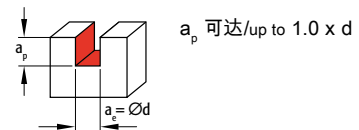
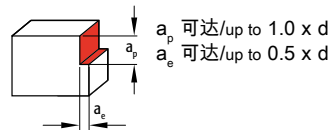
Ø 0.6 - Ø 2.5 mm
尖角刀尖
Sharp

Ø 3.0 - Ø 12.0 mm
倒角
Chamfer

更多的材料信息见材料表

For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 20.000 rpm。
参数基于纯铝计算，硅含量 < 5% 每齿进给 f_z 减小 10%，含硅量 > 5% f_z 需减小 20%



Cutting Speed v_c is based on max. 20.000 rpm.

Conditions based on pure aluminium. For aluminium < 5% Si reduce feed per tooth f_z up to 10% and for > 5% Si reduce f_z up to 20%.

肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSA	1	0.6	< 0.3	< 0.08	0.010 - 0.015	< 0.3	< 0.6	0.010 - 0.015
DSA	1	0.8	< 0.4	< 0.10	0.014 - 0.018	< 0.4	< 0.8	0.014 - 0.018
DSA	1	1.0	< 0.8	< 0.25	0.015 - 0.020	< 0.8	< 1.0	0.015 - 0.020
DSA	1	1.2	< 0.9	< 0.30	0.018 - 0.023	< 0.9	< 1.2	0.018 - 0.023
DSA	1	1.5	< 1.1	< 0.38	0.023 - 0.027	< 1.1	< 1.5	0.023 - 0.027
DSA	1	1.6	< 1.2	< 0.40	0.025 - 0.032	< 1.2	< 1.6	0.025 - 0.032
DSA	1	1.8	< 1.4	< 0.45	0.027 - 0.036	< 1.4	< 1.8	0.027 - 0.036
DSA	1	2.0	< 1.5	< 0.50	0.030 - 0.043	< 1.5	< 2.0	0.030 - 0.043
DSA	1	2.5	< 1.9	< 0.63	0.034 - 0.060	< 1.9	< 2.5	0.034 - 0.060
DSA	1	3.0	< 2.3	< 0.75	0.045 - 0.070	< 2.3	< 3.0	0.045 - 0.070
DSA	1	4.0	< 4.0	< 2.00	0.050 - 0.080	< 4.0	< 4.0	0.050 - 0.080
DSA	1	5.0	< 5.0	< 2.50	0.060 - 0.100	< 5.0	< 5.0	0.060 - 0.100
DSA	1	6.0	< 6.0	< 3.00	0.075 - 0.120	< 6.0	< 6.0	0.075 - 0.120
DSA	1	7.0	< 7.0	< 3.50	0.080 - 0.135	< 7.0	< 7.0	0.080 - 0.135
DSA	1	8.0	< 8.0	< 4.00	0.095 - 0.150	< 8.0	< 8.0	0.095 - 0.150
DSA	1	10.0	< 10.0	< 5.00	0.115 - 0.185	< 10.0	< 10.0	0.115 - 0.185
DSA	1	12.0	< 12.0	< 6.00	0.140 - 0.230	< 12.0	< 12.0	0.140 - 0.230

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)	
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250		
	> 1000	< 300		
	> 850 > 1000	> 250 > 300		
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250		
	K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium		< 350	< 100	400-1000
	铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si	< 500 < 400	< 150 < 120	250-800 100-400
S 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100		
	< 700	< 200		
	H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	
		< 900 < 900	< 300 < 300	

无涂层
TiB₂ 涂层
uncoated
TiB₂ coated

建议冷却:
乳化液

recommended cooling:
Emulsion

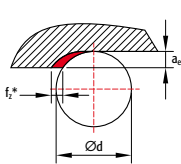
HSM



尖角刀尖
Sharp

更多的材料信息见材料表

For further material specifications see material cross reference list.



切削速度 v_c 基于最大转速 20.000 rpm.
参数基于纯铝计算, 硅含量 < 5% 每齿进给 f_z 减小 10%, 含硅量 > 5% f_z 需减小 20%

DSA 肩铣削 a_p max = 1.5 x d.

肩铣削中, 对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

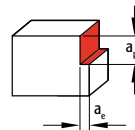
a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$

Cutting Speed v_c is based on max. 20.000 rpm.

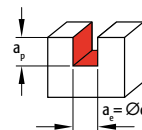
Conditions based on pure aluminium. For aluminium < 5% Si reduce feed per tooth f_z up to 10% and for > 5% Si reduce f_z up to 20%.

For DSA short at shoulder milling a_p max = 1.5 x d.

At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.



a_p 可达/up to 2.0 x d
 a_e 可达/up to 0.5 x d



a_p 可达/up to 1.0 x d

肩铣削 Shoulder milling

型号 type	z	Ø d (mm)
DSA	2	3.0
DSA	2	4.0
DSA	2	5.0
DSA	2	6.0
DSA	2	8.0
DSA	2	10.0
DSA	2	12.0
DSA	2	14.0
DSA	2	16.0
DSA	2	18.0
DSA	2	20.0

a_p max (mm)	a_e max (mm)	f_z (mm)
< 3.0	< 0.6	0.030 - 0.075
< 6.0	< 1.0	0.035 - 0.085
< 7.5	< 1.3	0.040 - 0.100
< 12.0	< 2.3	0.045 - 0.115
< 16.0	< 3.0	0.050 - 0.120
< 20.0	< 3.8	0.055 - 0.130
< 24.0	< 6.0	0.065 - 0.150
< 28.0	< 7.0	0.085 - 0.170
< 32.0	< 8.0	0.100 - 0.180
< 36.0	< 9.0	0.110 - 0.200
< 40.0	< 10.0	0.125 - 0.210

槽铣削 Slot milling

a_p max (mm)	a_e max (mm)	f_z (mm)
< 2.3	< 3.0	0.020 - 0.070
< 4.0	< 4.0	0.025 - 0.080
< 5.0	< 5.0	0.030 - 0.100
< 6.0	< 6.0	0.035 - 0.120
< 8.0	< 8.0	0.040 - 0.150
< 10.0	< 10.0	0.045 - 0.160
< 12.0	< 12.0	0.055 - 0.170
< 14.0	< 14.0	0.065 - 0.180
< 16.0	< 16.0	0.075 - 0.190
< 18.0	< 18.0	0.085 - 0.200
< 20.0	< 20.0	0.100 - 0.210

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	500-2000
	< 500	< 150	250-1500
	< 400	< 120	100-1000
	< 350	< 100	
	< 700	< 200	
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

无涂层
TiB₂ 涂层
uncoated
TiB₂ coated

建议冷却:

1. 乳化液
2. 最小量润滑
3. 空气

recommended cooling:

1. Emulsion
2. Minimum lubrication
3. Air

HSM



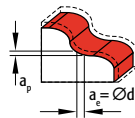
球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

参数基于纯铝计算，硅含量<5%每齿进给 f_z 减小10%，含硅量>5% f_z 需减小20%

Conditions based on pure aluminium. For aluminium < 5% Si reduce feed per tooth f_z up to 10% and for > 5% Si reduce f_z up to 20%.



a_p 可达/up to 0.05 x d
 a_e 可达/up to 0.10 x d

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSAKH	2	6.0	< 0.6	< 0.50	0.035 - 0.050
DSAKH	2	8.0	< 0.8	< 0.70	0.050 - 0.070
DSAKH	2	10.0	< 1.0	< 0.90	0.055 - 0.090
DSAKH	2	12.0	< 1.2	< 1.20	0.065 - 0.100
DSAKH	2	14.0	< 1.4	< 1.40	0.075 - 0.120
DSAKH	2	16.0	< 1.6	< 1.60	0.085 - 0.140
DSAKH	2	18.0	< 1.8	< 1.80	0.100 - 0.145
DSAKH	2	20.0	< 2.0	< 2.00	0.105 - 0.150
DSAKH	2	25.0	< 2.5	< 2.50	0.110 - 0.200

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

立铣刀 球头

Endmill Ballnose



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel	< 750	< 250	
合金钢 / Alloyed steel	> 1000	< 300	
工具钢 / Tool steel	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium	< 350	< 100	400-1000
铝 / Aluminium < 5%Si	< 500	< 150	250-800
铝 / Aluminium > 5%Si	< 400	< 120	100-400
铜 / Copper	< 350	< 100	
黄铜 / Brass	< 700	< 200	
石墨 / Graphite			
合成材料 / Synthetics			
S 高温合金 / High temp. alloys	< 900	< 300	
钛合金 / Titanium alloys	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

无涂层
TiB₂ 涂层
uncoated
TiB₂ coated

建议冷却:

1. 乳化液
2. 最小量润滑
3. 空气

recommended cooling:

1. Emulsion
2. Minimum lubrication
3. Air

HSM



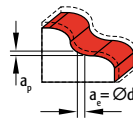
球头
Ballnose

更多的材料信息见材料表

For further material specifications see material cross reference list.

切削速度 v_c 基于最大转速 20.000 rpm.

参数基于纯铝计算, 硅含量 < 5% 每齿进给 f_z 减小 10%, 含硅量 > 5% f_z 需减小 20%



a_p 可达/up to 0.20 x d
 a_e 可达/up to 0.10 x d

DSAK 肩铣削 a_p max = 1.5 x d.

Cutting Speed v_c is based on max. 20.000 rpm.

Conditions based on pure aluminium. For aluminium < 5% Si reduce feed per tooth f_z up to 10% and for > 5% Si reduce f_z up to 20%.

For DSAK short at shoulder milling a_p max = 1,5 x d.

仿形铣

Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSAK	2	3.0	< 0.6	< 0.2	0.030 - 0.075
DSAK	2	4.0	< 0.8	< 0.3	0.035 - 0.085
DSAK	2	5.0	< 1.0	< 0.4	0.040 - 0.100
DSAK	2	6.0	< 1.2	< 0.5	0.045 - 0.115
DSAK	2	8.0	< 1.6	< 0.7	0.050 - 0.120
DSAK	2	10.0	< 2.0	< 0.9	0.055 - 0.130
DSAK	2	12.0	< 2.4	< 1.2	0.065 - 0.150
DSAK	2	14.0	< 2.8	< 1.4	0.085 - 0.170
DSAK	2	16.0	< 3.2	< 1.6	0.100 - 0.180
DSAK	2	18.0	< 3.6	< 1.8	0.110 - 0.200
DSAK	2	20.0	< 4.0	< 2.0	0.125 - 0.210

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

粗立铣

Roughing Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	400-1000
	< 500	< 150	250-800
	< 400	< 120	100-400
	< 350	< 100	
	< 700	< 200	
			< 500
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

无涂层
TiB₂涂层
uncoated
TiB₂ coated

建议冷却:
1. 乳化液
2. 空气

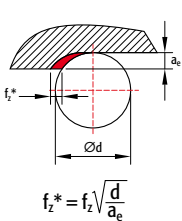
recommended cooling:
1. Emulsion
2. Air

HVM



倒角
Chamfer

更多的材料信息见材料表
For further material specifications see material cross reference list.

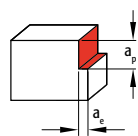


肩铣削中，对于低 a_e 的每齿进给 f_z^* 应该通过公式转换得出。

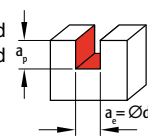
At shoulder milling, feed per tooth f_z^* for lower a_e values should be converted according formula.

$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

a_e	f_z^*
0.10 x d	$f_z \times 3$
0.25 x d	$f_z \times 2$
0.50 x d	$f_z \times 1$



a_p 可达/up to 2.0 x d
 a_e 可达/up to 0.5 x d



a_p 可达/up to 1.5 x d

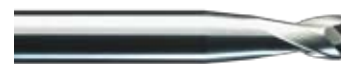
肩铣削 Shoulder milling

槽铣削 Slot milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSAR	3	6.0	< 12.0	< 3.0	0.03 - 0.05	< 9.0	< 6.0	0.04 - 0.04
DSAR	3	8.0	< 16.0	< 4.0	0.04 - 0.07	< 12.0	< 8.0	0.04 - 0.06
DSAR	3	10.0	< 20.0	< 5.0	0.05 - 0.10	< 15.0	< 10.0	0.05 - 0.08
DSAR	3	12.0	< 24.0	< 6.0	0.06 - 0.12	< 18.0	< 12.0	0.06 - 0.09
DSAR	3	16.0	< 32.0	< 8.0	0.09 - 0.17	< 24.0	< 16.0	0.09 - 0.13

所有上述切削条件应视为参考，根据刀杆和设备的稳定性及功率可进一步优化。
All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

曲面立铣刀 Torus Endmill



材料 Material	R_m (N/mm ²)	硬度 Hardness HB	切削速度 Cutting speed (v_c m/min)
P 碳钢 / Carbon steel 合金钢 / Alloyed steel 工具钢 / Tool steel	< 750	< 250	
	> 1000	< 300	
	> 850 > 1000	> 250 > 300	
M 不锈钢 / Stainless steel	< 600	< 200	
	< 850	< 250	
K 可锻铸铁 / Malleable cast iron		< 260	
N 铝 / Aluminium 铝 / Aluminium < 5%Si 铝 / Aluminium > 5%Si 铜 / Copper 黄铜 / Brass 石墨 / Graphite 合成材料 / Synthetics	< 350	< 100	500-2000
	< 500	< 150	250-1500
	< 400	< 120	100-1000
	< 350	< 100	
	< 700	< 200	
			< 500
S 高温合金 / High temp. alloys 钛合金 / Titanium alloys	< 900	< 300	
	< 900	< 300	
H 淬硬钢 / Hardened steel		45-52 HRc 50-60 HRc 58-70 HRc	

无涂层
TiB₂ 涂层
uncoated
TiB₂ coated

建议冷却:
1. 乳化液
2. 最小量润滑
3. 空气

recommended cooling:
1. Emulsion
2. Minimum lubrication
3. Air

HSM



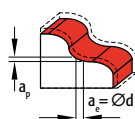
曲面
Torus

更多的材料信息见材料表

For further material specifications see material cross reference list.

参数基于纯铝计算, 硅含量<5%每齿进给 f_z 减小10%, 含硅量>5% f_z 需减小20%

Conditions based on pure aluminium. For aluminium < 5% Si reduce feed per tooth f_z up to 10% and for > 5% Si reduce f_z up to 20%.



a_p 可达/up to 0.05 x d
 a_e 可达/up to 0.10 x d

仿形铣 Copy milling

型号 type	z	Ø d (mm)	a_p max (mm)	a_e max (mm)	f_z (mm)
DSAT	2	6.0	< 0.6	< 0.50	0.035 - 0.050
DSAT	2	8.0	< 0.8	< 0.70	0.050 - 0.070
DSAT	2	10.0	< 1.0	< 0.90	0.055 - 0.090
DSAT	2	12.0	< 1.2	< 1.20	0.065 - 0.100
DSAT	2	14.0	< 1.4	< 1.40	0.075 - 0.120
DSAT	2	16.0	< 1.6	< 1.60	0.085 - 0.140
DSAT	2	18.0	< 1.8	< 1.80	0.100 - 0.145
DSAT	2	20.0	< 2.0	< 2.00	0.105 - 0.150
DSAT	2	25.0	< 2.5	< 2.50	0.110 - 0.200

所有上述切削条件应视为参考, 根据刀杆和设备的稳定性及功率可进一步优化。

All above mentioned cutting conditions should be regarded as guidelines. The conditions can be further optimised, depending on the stability and power of the machine and toolholder.

选择列表 - DS 系列

Selection chart list - SYSTEM DS



型号 type	齿数 Number of Teeth Z	硬质合金牌号 Carbide grades								材料组 Material groups										项目页 Items Page	切削参数页 Cutting data Page									
		TS3K	TS3E	TS3H	TSCC	MG3K	CN2K	CD3K	CD5K	DD2K	槽铣削 Groove milling	肩铣削 Shoulder milling	仿形铣 Copy milling	钢 I Steel I	钢 II Steel II	硬铣削 Hard milling	CoCr	铜 Copper	石墨 Graphite			AISI < 5%	AISI > 5%	合成材料 Synthetics						
DSK	2	●									√	√	√	√	√	√												P20	P90	
DSK	4	●									√	√	√	√	√	√													P26	P96
DSKH	2		●									√	√	√	√	√													P21	P91
DSK220°	2			●								√	√	√	√	√													P24	P94
DSKH220°	2			●								√	√	√	√	√													P25	P95
DSKL	2			●								√	√	√	√	√													P22	P92
DSKHL	2			●								√	√	√	√	√													P23	P93
DSKM	2			●								√	√	√	√	√													P27-P29	P97
DST	2			●								√	√	√	√	√													P35-P36	P102
DST	4			●								√	√	√	√	√													P32-P33	P100
DSTH	2			●								√	√	√	√	√													P34	P101
DSOS	4			●								√	√	√	√	√													P30	P98
DSDH	4			●								√	√	√	√	√													P31	P99
DSM	6			●								√	√	√	√	√													P37	P103
DSMH	6			●								√	√	√	√	√													P38	P104
DSMR	6			●								√	√	√	√	√													P39-P40	P103
DSMRH	6			●								√	√	√	√	√													P41	P104
DSML	6/8			●								√	√	√	√	√													P42	P103
DSR	3			●								√	√	√	√	√													P43	P105
DSF	3/4			●								√	√	√	√	√													P44-P45	P106-P107
DSFF	4			●								√	√	√	√	√													P49	P111
DSRF	3			●								√	√	√	√	√													P46	P108
DSRR	3			●								√	√	√	√	√													P47	P109
DSRV	4/5			●								√	√	√	√	√													P48	P110
DSKC	2/3/4/5/7			●								√	√	√	√	√													P52	P112
DSKLC	4/5/7			●								√	√	√	√	√													P53	P112
DSKC220°	2/3/4/5/7			●								√	√	√	√	√													P54	P113
DSTC	2/3/4/5			●								√	√	√	√	√													P55	P114
DSMRC	4/5/7			●								√	√	√	√	√													P56	P115
DSK	4			●								√	√	√	√	√													P60	P116
DSTK	4			●								√	√	√	√	√													P61	P117
DSMK	3			●								√	√	√	√	√													P62	P118
DSMRK	3			●								√	√	√	√	√													P63	P119
DSMMK	2			●								√	√	√	√	√													P64	P120
DSMMK	2			●								√	√	√	√	√													P65	P121
DSMMK	2			●								√	√	√	√	√													P68	P122
DSMG	3			●								√	√	√	√	√													P69	P123
DSKGL	2			●								√	√	√	√	√													P70-P71	P124
DSTG	3			●								√	√	√	√	√													P72	P124
DSTLG	2			●								√	√	√	√	√													P74	P126
DSKMG	2			●								√	√	√	√	√													P75	P127
DSMMG	2			●								√	√	√	√	√													P73	P125
DSVG	x			●								√	√	√	√	√													P78	P128
DSA	1			●								√	√	√	√	√													P79-P80	P129
DSA	2			●								√	√	√	√	√													P81	P130
DSAKH	2			●								√	√	√	√	√													P82-P83	P131
DSAK	2			●								√	√	√	√	√													P84	P132
DSAR	3			●								√	√	√	√	√													P85	P133
DSAT	2			●								√	√	√	√	√													P85	P133

TS3K ● AITiN涂层 用于材料 ≤ 40 HRC
AITiN coated for materials ≤ 40 HRC

TS3E ● AITiN涂层 用于硬铣 ≥ 50-70 HRC
AITiN coated for hard milling ≥ 50-70 HRC

TS3H ● AITiN涂层 用于材料 ≥ 38-53 HRC
AITiN coated for Materials ≥ 38-53 HRC

TSCC ● AITiN涂层 用于CoCr合金
AITiN coated for CoCr alloys

MG3K ● 无涂层
uncoated

CN2K ● CrCn涂层
CrCn coated

CD5K ● 金刚石涂层
CD3K Diamond coated

DD2K ● TiB₂涂层
TiB₂ coated

√√ 最适合
best suitable

√ 适于
suitable

MCD镜面加工

- 非金属材料: 铝, 铂, 金, 银,
紫铜, 黄铜
- 合成材料: 丙烯酸 (PMMA),
聚碳酸酯 (PC)



High polish milling with MCD for

- non ferrous metals: aluminium
platin, gold, silver
copper, brass
- synthetics: acryl (PMMA)
polycarbonat (PC)

球头铣刀

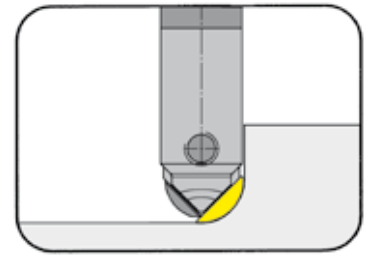
BALLNOSE MILLING



铣刀杆 型号

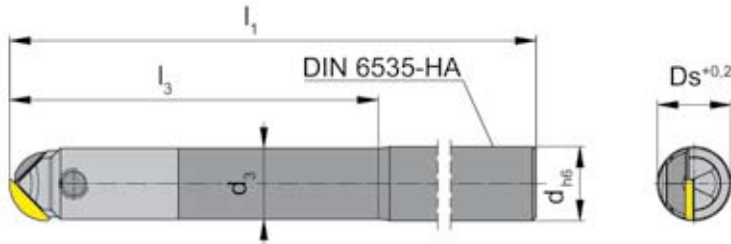
MILLING SHANK Type

M117K



圆柱形硬质合金刀柄-热缩夹紧
Cylindrical carbide shank - shrink fit

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合刀片
for use with Insert

型号 S117.
Type MD...K.X0

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	l_1	l_3	d	d_3	尺寸规格 Size
M117K.MD06.06.5.05	6	63	25	6	5.6	05
M117K.MD08.08.5.07	8	77	35	8	7.6	07
M117K.MD10.10.5.09	10	100	50	10	9.6	09

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M117K.MD06.06.5.05	030.265P.0821	T8PL
M117K.MD08.08.5.07	030.265P.0819	T8PL
M117K.MD10.10.5.09	030.400P.0227	T15PQ

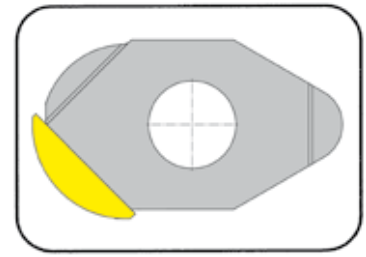
球头铣刀

BALLNOSE MILLING



刀片 型号
INSERT Type

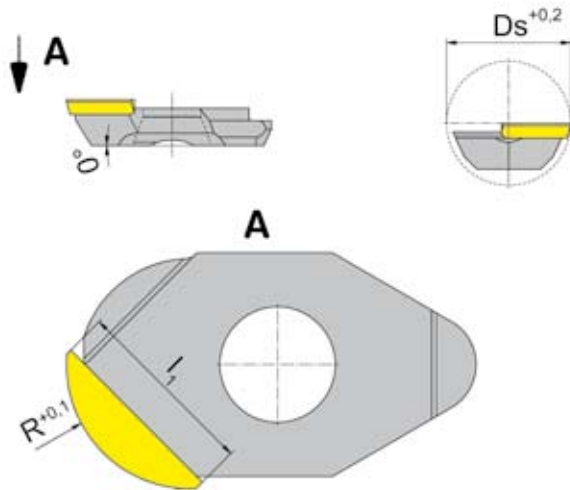
S117



高抛光铣削
High polish milling

配合 铣刀杆
for use with Milling shank

型号 M117K
Type



产品型号 Part number	Ds	R	l ₁	尺寸 Size	牌号 Grades	断屑槽用于 / Geometries for		
						铝 Aluminium	黄铜 / 黄金 Brass/Gold	合成材料 (PMMA) Synthetics (PMMA)
S117.MD06.05K.X0	6	3	4.6	05	▲	x	x	x
S117.MD08.07K.X0	8	4	6.0	07	▲	x	x	x
S117.MD10.09K.X0	10	5	7.5	09	▲	x	x	x
					P			
					M			
					K			
					N	•	•	•
					S			
					H			

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊 MCD / brazed MCD

单位 : mm
Dimensions in mm
切削刃需光学测量!
Cutting edges must be measured optically!

圆周铣削和面铣削

PERIPHERAL and FACE MILLING

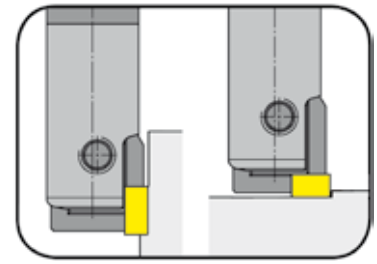


铣刀杆 型号

MILLING SHANK Type

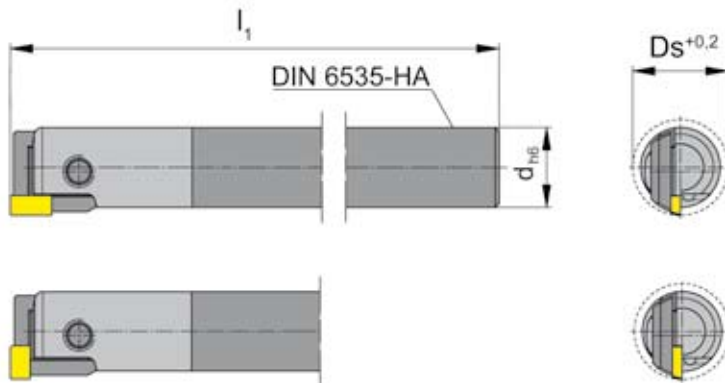
M117

带内冷
with through coolant supply



圆柱形硬质合金刀柄-热缩夹紧
Cylindrical carbide shank - shrink fit

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合刀片
for use with Insert

型号 S117...09P...
Type S117...09U...

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	l ₁	d	尺寸规格 Size
M117.MD10.12.5.09	12	100	10	09

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M117.MD10.12.5.09	030.400P.0227	T15PQ

圆周铣削

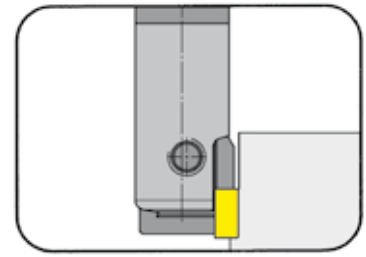
PERIPHERAL MILLING



铣刀杆 型号

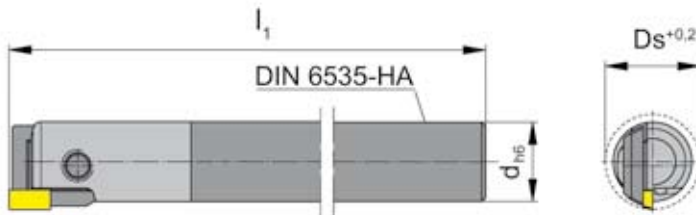
MILLING SHANK Type

M117U



圆柱形硬质合金刀柄-热缩夹紧
Cylindrical carbide shank - shrink fit

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance



配合刀片
for use with Insert

型号 S117...U...
Type

图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	l ₁	d	尺寸规格 Size
M117U.MD06.08.5.05	8	63	6	05
M117U.MD08.10.5.07	10	77	8	07

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M117U.MD06.08.5.05	030.265P.0818	T8PL
M117U.MD08.10.5.07	2.6.5T8EP	T8PL

面铣削

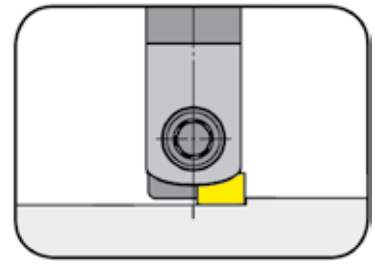
FACE MILLING



铣刀杆 型号

MILLING SHANK Type

M117P

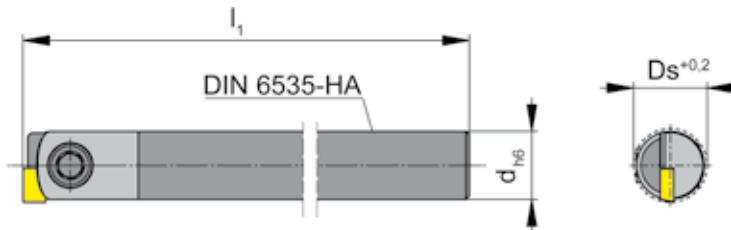


圆柱形硬质合金刀柄-热缩夹紧
Cylindrical carbide shank - shrink fit

刀杆材质：整体硬质合金 - 良好的抗振性能
Material of shank: Carbide - Giving a good vibration resistance

配合刀片
for use with Insert

型号 S117...P...
Type



图示=右手型
Picture = right hand cutting version

产品型号 Part number	Ds	l ₁	d	尺寸规格 Size
M117P.MD06.08.5.05	8	63	6	05
M117P.MD08.10.5.07	10	77	8	07

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件 Spare parts

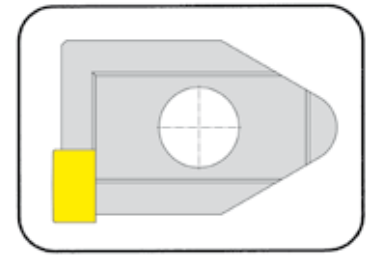
铣刀杆 Milling shank	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
M117P.MD06.08.5.05	030.265P.0818	T8PL
M117P.MD08.10.5.07	2.6.5T8EP	T8PL

面铣削 FACE MILLING

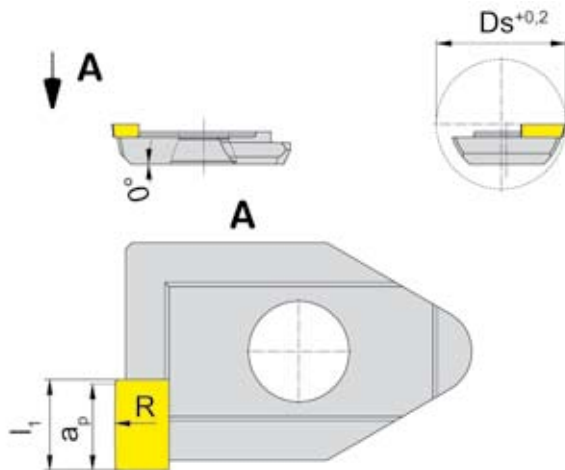


刀片 型号
INSERT Type

S117



高抛光铣削
High polish milling



配合 铣刀杆
for use with Milling shank

型号 M117
Type

产品型号 Part number	R	a _p	l ₁	D _s	尺寸 Size	牌号 Grades	断屑槽用于 / Geometries for		
							铝 Aluminium	黄铜 / 黄金 Brass/Gold	合成材料 (PMMA) Synthetics (PMMA)
S117.MD08.05P.M0 S117.MD08.05P.X0	50	3.0	3.2	8	05	▲ ▲	x	x	x
S117.MD10.07P.M0 S117.MD10.07P.X0	100	3.5	3.7	10	07	▲ ▲	x	x	x
S117.MD12.09P.M0 S117.MD12.09P.X0	100	4.0	4.2	12	09	▲ ▲	x	x	x
						P			
						M			
						K			
						N	•	•	•
						S			
						H			

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊 MCD / brazed MCD

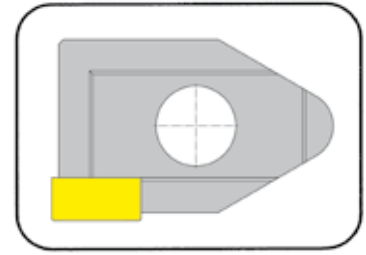
单位 : mm
Dimensions in mm
切削刃需光学测量!
Cutting edges must be measured optically!

圆周铣削 PERIPHERAL MILLING



刀片 型号
INSERT Type

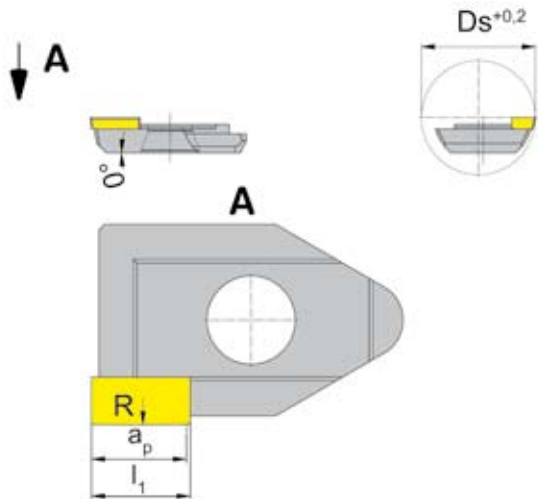
S117



高抛光铣削
High polish milling

配合 铣刀杆
for use with Milling shank

型号 M117U
Type



产品型号 Part number	R	a _p	l ₁	Ds	尺寸 Size	牌号 Grades	断屑槽用于 / Geometries for			
							铝 Aluminium	黄铜 / 黄金 Brass/Gold	合成材料 (PMMA) Synthetics (PMMA)	
S117.MD08.4.05U.M0 S117.MD08.4.05U.X0	100	4	4.2	8	05	▲ ▲	x	x	x	
S117.MD10.5.07U.M0 S117.MD10.5.07U.X0	300	5	5.2	10	07	▲ ▲ ▲	x	x	x	
S117.MD12.5.09U.M0 S117.MD12.5.09U.X0	300	5	5.2	12	09	▲ ▲	x	x	x	
							P			
							M			
							K			
							N	•	•	•
							S			
							H			

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊 MCD / brazed MCD

单位 : mm
Dimensions in mm
切削刃需光学测量!
Cutting edges must be measured optically!

纳米级高抛光面加工

Machining of high polished surfaces in nano quality

可加工材料:

Machinable materials:

非铁金属 Non ferrous metals	合成材料 Synthetics
铝 Aluminium	聚碳酸酯 (PC) Polycarbonat (PC)
铜 Copper	丙烯酸树脂 (PMMA) Acrylic (PMMA)
黄铜 Brass	
黄金 Gold	
银 Silver	
铂金 Platin	



根据要求可提供更多型号和规格

Further sizes and versions upon request

材料 Material	v_c (m/min)	f (mm/转) f (mm/rev)	a_p (mm)	冷却 cooling	
非铁金属 Non ferrous metals	Ag	200 - 250	0.05 - 0.06	0.02 - 0.05	•
	Al	200 - 400	0.02 - 0.10	0.02 - 0.05	•
	Au	200 - 250	0.05 - 0.06	0.02 - 0.05	•
	CuSn	150 - 250	0.05 - 0.10	0.02 - 0.05	•
	Cu	150 - 300	0.02 - 0.10	0.02 - 0.05	• / -
	CuZn	150 - 250	0.05 - 0.10	0.02 - 0.05	• / -
	Pt	150 - 125	0.02 - 0.04	0.01 - 0.03	•
合成材料 Synthetics	PMMA	100 - 150	0.05 - 0.10	0.02 - 0.05	• / -
	PC	80 - 150	0.05 - 0.10	0.02 - 0.05	• / -
	PVC	150 - 250	0.05 - 0.10	0.02 - 0.05	• / -
	PE	150 - 300	0.05 - 0.10	0.02 - 0.05	• / -

如需详细技术信息请查阅最新样本。

For further technical information please ask for our current catalogues.



安装硬质合金可更换钻头的钻杆

- 带内冷
- 孔深 = $3 \times D / 5 \times D / 7 \times D$
- 孔径 10.0 - 20.5 mm



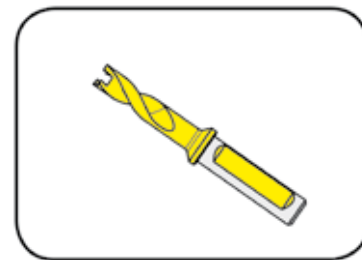
Drill body with indexable carbide drill tip

- with through coolant supply
- depth of bore = $3 \times D / 5 \times D / 7 \times D$
- diameter range 10,0 - 20,5 mm

钻杆 型号

DRILL BODY Type

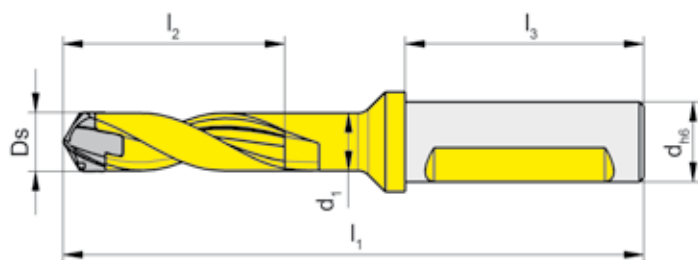
DD



切削刃Ø

Cutting edge Ø

Ds 10.0 - 20.5 mm



配合 可换钻头
for use with Indexable drill tip

型号 DD2
Type

产品型号 Part number	Ds _{min}	Ds _{max}	d	d ₁	l ₁	l ₂	l ₃
DD100.H.1245.030	10.0	10.4	12	9.5	101	33	45
DD105.I.1245.030	10.5	10.9	12	10.0	101	33	45
DD110.J.1245.030	11.0	11.4	12	10.5	106	36	45
DD115.K.1245.030	11.5	11.9	12	11.0	106	36	45
DD120.L.1648.030	12.0	12.4	16	11.5	115	43	48
DD125.M.1648.030	12.5	12.9	16	12.0	115	43	48
DD130.N.1648.030	13.0	13.9	16	12.5	119	46	48
DD140.O.1648.030	14.0	14.9	16	13.5	123	50	48
DD150.P.1648.030	15.0	15.9	16	14.5	127	53	48
DD160.R.2050.030	16.0	16.9	20	15.5	127	51	50
DD170.T.2050.030	17.0	17.9	20	16.5	130	54	50
DD180.V.2050.030	18.0	18.9	20	17.5	134	57	50
DD190.X.2050.030	19.0	20.5	20	18.5	138	62	50

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

扳手DD0812和DD1220不包含在钻杆内-需另行订购！
The wrenches DD0812 and DD1220 are not combined with drill body - separate order required!

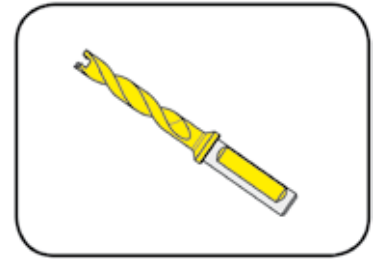
附件

Spare parts

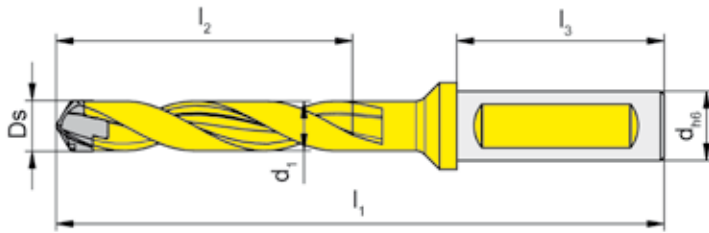
钻杆 Drill body	扳手 Wrench
DD1...H-K...030	DD0812
DD1...L-O...030	DD0812/DD1220
DD1...P-X...030	DD1120

钻杆 型号
DRILL BODY Type

DD



切削刃Ø Cutting edge Ø Ds 10.0 - 20.5 mm



配合 可换钻头
for use with Indexable drill tip

型号 DD2
Type

产品型号 Part number	Ds _{min}	Ds _{max}	d	d ₁	l ₁	l ₂	l ₃
DD100.H.1245.050	10.0	10.4	12	9.5	124	55	45
DD105.I.1245.050	10.5	10.9	12	10.0	124	55	45
DD110.J.1245.050	11.0	11.4	12	10.5	130	60	45
DD115.K.1245.050	11.5	11.9	12	11.0	130	60	45
DD120.L.1648.050	12.0	12.4	16	11.5	141	69	48
DD125.M.1648.050	12.5	12.9	16	12.0	141	69	48
DD130.N.1648.050	13.0	13.9	16	12.5	147	74	48
DD140.O.1648.050	14.0	14.9	16	13.5	153	80	48
DD150.P.1648.050	15.0	15.9	16	14.5	159	85	48
DD160.R.2050.050	16.0	16.9	20	15.5	162	85	50
DD170.T.2050.050	17.0	17.9	20	16.5	166	90	50
DD180.V.2050.050	18.0	18.9	20	17.5	172	95	50
DD190.X.2050.050	19.0	20.5	20	18.5	177	103	50

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

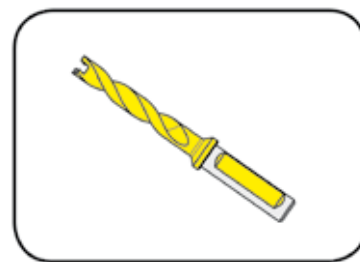
扳手DD0812和DD1220不包含在钻杆内-需另行订购！
The wrenches DD0812 and DD1220 are not combined with drill body - separate order required!

附件
Spare parts

钻杆 Drill body	扳手 Wrench
DD1...H-K...050	DD0812
DD1...L-O...050	DD0812/DD1220
DD1...P-X...050	DD1120

钻杆 型号
DRILL BODY Type

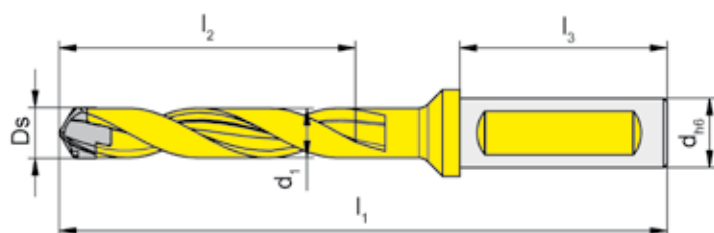
DD



切削刃Ø

Cutting edge Ø

Ds 10.0 - 20.5 mm



配合 可换钻头
for use with Indexable drill tip

型号 DD2
Type

产品型号 Part number	Ds _{min}	Ds _{max}	d	d ₁	l ₁	l ₂	l ₃
DD100.H.1245.070	10.0	10.4	12	9.5	146	77	45
DD105.I.1245.070	10.5	10.9	12	10.0	146	77	45
DD110.J.1245.070	11.0	11.4	12	10.5	153	84	45
DD115.K.1245.070	11.5	11.9	12	11.0	153	84	45
DD120.L.1648.070	12.0	12.4	16	11.5	168	91	48
DD125.M.1648.070	12.5	12.9	16	12.0	168	91	48
DD130.N.1648.070	13.0	13.9	16	12.5	175	98	48
DD140.O.1648.070	14.0	14.9	16	13.5	183	105	48
DD150.P.1648.070	15.0	15.9	16	14.5	191	112	48
DD160.R.2050.070	16.0	16.9	20	15.5	196	119	50
DD170.T.2050.070	17.0	17.9	20	16.5	203	126	50
DD180.V.2050.070	18.0	18.9	20	17.5	210	133	50
DD190.X.2050.070	19.0	20.5	20	18.5	218	144	50

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

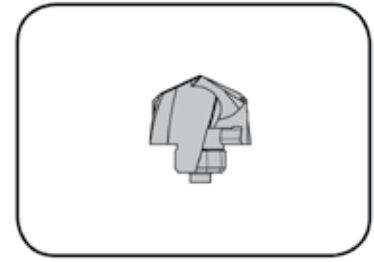
扳手DD0812和DD1220不包含在钻杆内-需另行订购！
The wrenches DD0812 and DD1220 are not combined with drill body - separate order required!

附件
Spare parts

钻杆 Drill body	扳手 Wrench
DD1...H-K...070	DD0812
DD1...L-O...070	DD0812/DD1220
DD1...P-X...070	DD1120

可换钻头 型号
INDEXABLE DRILL TIP Type

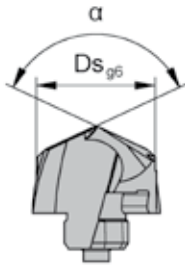
DD2



切削刃Ø	Cutting edge Ø	10.0 - 11.9 mm
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配合 钻杆
for use with Drill body

型号 DD
Type



产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.1000.H.A.2	10.0	140°	DD100.H...	DD0812	▲
DD2.1010.H.A.2	10.1				▲
DD2.1020.H.A.2	10.2				▲
DD2.1030.H.A.2	10.3				▲
DD2.1040.H.A.2	10.4				▲
DD2.1050.I.A.2	10.5	140°	DD105.I...	DD0812	▲
DD2.1060.I.A.2	10.6				▲
DD2.1070.I.A.2	10.7				▲
DD2.1080.I.A.2	10.8				▲
DD2.1090.I.A.2	10.9				▲
DD2.1100.J.A.2	11.0	140°	DD110.J...	DD0812	▲
DD2.1110.J.A.2	11.1				▲
DD2.1120.J.A.2	11.2				▲
DD2.1130.J.A.2	11.3				▲
DD2.1140.J.A.2	11.4				▲
DD2.1150.K.A.2	11.5	140°	DD115.K...	DD0812	▲
DD2.1160.K.A.2	11.6				▲
DD2.1170.K.A.2	11.7				▲
DD2.1180.K.A.2	11.8				▲
DD2.1190.K.A.2	11.9				▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	○
K	●
N	●
S	○
H	

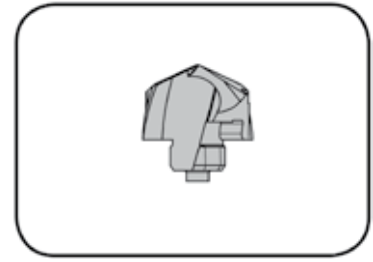
按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

可换钻头 型号

INDEXABLE DRILL TIP Type

DD2



切削刃Ø

Cutting edge Ø

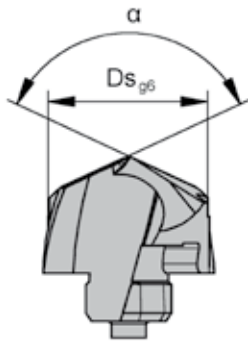
12,0 - 13,9 mm

配合 钻杆

for use with Drill body

型号 DD

Type



产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.1200.L.A.3	12.0	140°	DD120.L...	DD1220 / DD0812	▲
DD2.1210.L.A.3	12.1				▲
DD2.1220.L.A.3	12.2				△
DD2.1230.L.A.3	12.3				▲
DD2.1240.L.A.3	12.4				▲
DD2.1250.M.A.3	12.5	140°	DD125.M...	DD1220 / DD0812	▲
DD2.1260.M.A.3	12.6				△
DD2.1270.M.A.3	12.7				▲
DD2.1280.M.A.3	12.8				▲
DD2.1290.M.A.3	12.9				▲
DD2.1300.N.A.3	13.0	140°	DD130.N...	DD1220 / DD0812	▲
DD2.1310.N.A.3	13.1				△
DD2.1320.N.A.3	13.2				△
DD2.1330.N.A.3	13.3				△
DD2.1340.N.A.3	13.4				△
DD2.1350.N.A.3	13.5				▲
DD2.1360.N.A.3	13.6				▲
DD2.1370.N.A.3	13.7				△
DD2.1380.N.A.3	13.8				▲
DD2.1390.N.A.3	13.9				▲

▲ 库存 / on stock △ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

按需提供更多尺寸

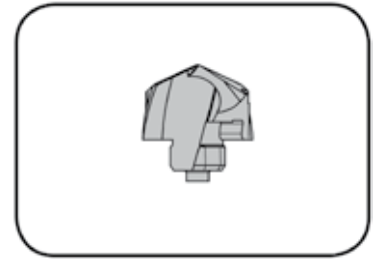
Further sizes upon request

尺寸单位 : mm

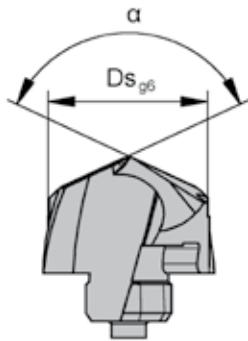
Dimensions in mm

可换钻头 型号
INDEXABLE DRILL TIP Type

DD2



切削刃Ø	Cutting edge Ø	14,0 - 15,9 mm
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配合 钻杆
for use with Drill body

型号 DD
Type

产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.1400.O.A.3	14.0	140°	DD140.O...	DD1220 / DD0812	▲
DD2.1410.O.A.3	14.1				▲
DD2.1420.O.A.3	14.2				▲
DD2.1430.O.A.3	14.3				▲
DD2.1440.O.A.3	14.4				△
DD2.1450.O.A.3	14.5				▲
DD2.1460.O.A.3	14.6				▲
DD2.1470.O.A.3	14.7				△
DD2.1480.O.A.3	14.8				△
DD2.1490.O.A.3	14.9				△
DD2.1500.P.A.4	15.0	140°	DD150.P...	DD1220	▲
DD2.1510.P.A.4	15.1				▲
DD2.1520.P.A.4	15.2				△
DD2.1530.P.A.4	15.3				△
DD2.1540.P.A.4	15.4				△
DD2.1550.P.A.4	15.5				▲
DD2.1560.P.A.4	15.6				△
DD2.1570.P.A.4	15.7				△
DD2.1580.P.A.4	15.8				▲
DD2.1590.P.A.4	15.9				▲

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	○
K	●
N	●
S	○
H	

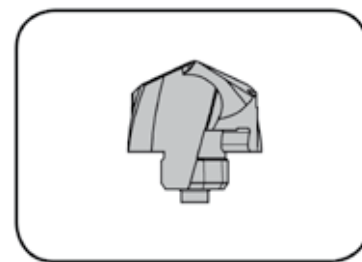
按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

可换钻头 型号

INDEXABLE DRILL TIP Type

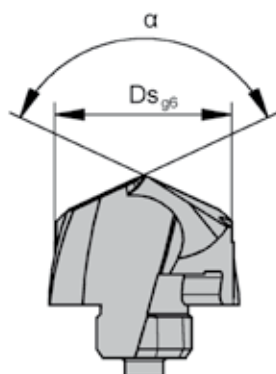
DD2



切削刃Ø

Cutting edge Ø

16.0 - 17.9 mm



配合 钻杆

for use with Drill body

型号 DD

Type

产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.1600.R.A.4	16.0	140°	DD160.R...	DD1220	▲
DD2.1610.R.A.4	16.1				▲
DD2.1620.R.A.4	16.2				▲
DD2.1630.R.A.4	16.3				▲
DD2.1640.R.A.4	16.4				▲
DD2.1650.R.A.4	16.5				▲
DD2.1660.R.A.4	16.6				▲
DD2.1670.R.A.4	16.7				▲
DD2.1680.R.A.4	16.8				▲
DD2.1690.R.A.4	16.9				▲
DD2.1700.T.A.4	17.0	140°	DD170.T...	DD1220	▲
DD2.1710.T.A.4	17.1				▲
DD2.1720.T.A.4	17.2				▲
DD2.1730.T.A.4	17.3				▲
DD2.1740.T.A.4	17.4				▲
DD2.1750.T.A.4	17.5				▲
DD2.1760.T.A.4	17.6				▲
DD2.1770.T.A.4	17.7				▲
DD2.1780.T.A.4	17.8				▲
DD2.1790.T.A.4	17.9				▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	○
K	●
N	●
S	○
H	

按需提供更多尺寸

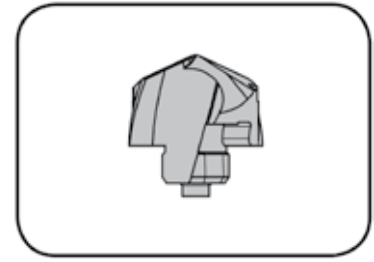
Further sizes upon request

尺寸单位：mm

Dimensions in mm

可换钻头 型号
INDEXABLE DRILL TIP Type

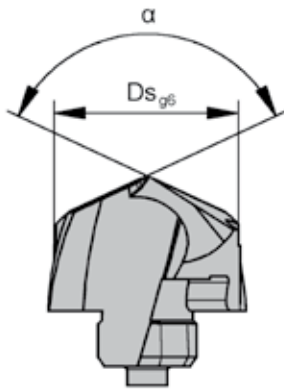
DD2



切削刃Ø	Cutting edge Ø	18.0 - 19.9 mm
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配合 钻杆
for use with Drill body

型号 DD
Type



产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.1800.V.A.5	18.0	140°	DD180.V...	DD1220	▲
DD2.1810.V.A.5	18.1				▲
DD2.1820.V.A.5	18.2				▲
DD2.1830.V.A.5	18.3				▲
DD2.1840.V.A.5	18.4				▲
DD2.1850.V.A.5	18.5				▲
DD2.1860.V.A.5	18.6				▲
DD2.1870.V.A.5	18.7				▲
DD2.1880.V.A.5	18.8				▲
DD2.1890.V.A.5	18.9				▲
DD2.1900.X.A.5	19.0	140°	DD190.X...	DD1220	▲
DD2.1910.X.A.5	19.1				▲
DD2.1920.X.A.5	19.2				▲
DD2.1930.X.A.5	19.3				▲
DD2.1940.X.A.5	19.4				▲
DD2.1950.X.A.5	19.5				▲
DD2.1960.X.A.5	19.6				▲
DD2.1970.X.A.5	19.7				▲
DD2.1980.X.A.5	19.8				▲
DD2.1990.X.A.5	19.9				▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	●
M	○
K	●
N	●
S	○
H	

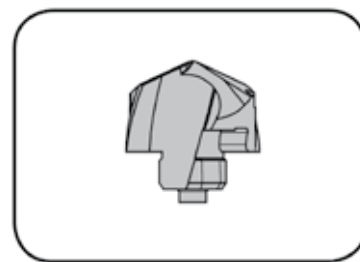
按需提供更多尺寸
Further sizes upon request

尺寸单位 : mm
Dimensions in mm

可换钻头 型号

INDEXABLE DRILL TIP Type

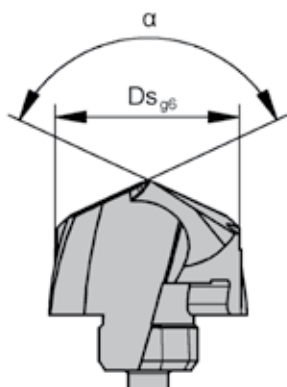
DD2



切削刃Ø

Cutting edge Ø

20.0 - 20.5 mm



配合 钻杆

for use with Drill body

型号 DD

Type

产品型号 Part number	Ds	α	钻杆 Drill body	扳手 Wrench	TA45
DD2.2000.X.A.5	20.0	140°	DD190.X...	DD1220	▲
DD2.2010.X.A.5	20.1				▲
DD2.2020.X.A.5	20.2				▲
DD2.2030.X.A.5	20.3				▲
DD2.2040.X.A.5	20.4				▲
DD2.2050.X.A.5	20.5				▲
▲ 库存 / on stock Δ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet					P ● M ○ K ● N ● S ○ H

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

ISO	材料 Material	硬度 Hardness HB	直径范围 10.0 mm - 20.5 mm Diameter range	
			进给率 f (mm/转) Feed rate f (mm/rev)	切削速度 v_c (m/min) Cutting speed v_c (m/min)
P	非合金钢 unalloyed steel	125	0.16 - 0.24	80 - 130
	非合金钢 unalloyed steel	190	0.16 - 0.24	75 - 120
	低合金钢 low alloyed steel	200	0.16 - 0.28	70 - 120
	低合金钢 low alloyed steel	300	0.16 - 0.28	70 - 100
	高合金钢 high alloyed steel	200	0.16 - 0.24	50 - 80
M	不锈钢 马氏体 Stainless steel martensitic	240	0.14 - 0.22	45 - 85
	不锈钢 奥氏体 Stainless steel austenitic	180	0.14 - 0.20	30 - 80
K	可锻铸铁 铁素体 Malleable cast iron ferritic	130	0.20 - 0.38	60 - 100
	可锻铸铁 珠光体 Malleable cast iron perlitic	230	0.20 - 0.38	45 - 85
	球墨铸铁 铁素体/珠光体 Spheroidal graphite cast iron ferritic/pearlitic	180	0.20 - 0.40	45 - 85
	球墨铸铁 珠光体 Spheroidal graphite cast iron perlitic	260	0.18 - 0.36	45 - 85
	灰铸铁 Grey cast iron	160	0.18 - 0.36	17 - 110

当L/D>5时，进给率需降低10%

When using L/D >5 the feedrate has to be reduced at 10%.

硬质合金牌号

CARBIDE GRADES

TA45 - 一种TiAlN涂层，具有非常好的热稳定性和高硬度

TA45 - a TiAlN coated grade. This coating has a very high temperature stability and high hardness.

冷却系统：

DD系列具有标准冷却系统
推荐最小冷却压力为5bar

**Coolant:**

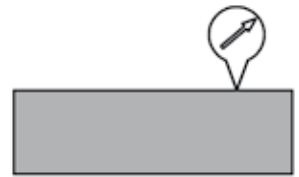
Tools in system DD have standard through coolant.
A minimum pressure of 5 bar is recommended to supply the coolant.

钻削刀具使用的旋转工具：

钻头跳动必须小于0.05mm

Drilling with rotating tool:

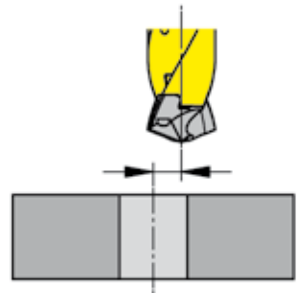
Total runout of the drill must be less than 0.05 mm.

**钻削刀具使用的夹紧工具：**

钻头的中心线校准必须精确，跳动小于0.05mm
轴向的校准错误会造成钻杆损坏

Drilling with fixed tool:

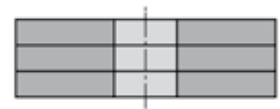
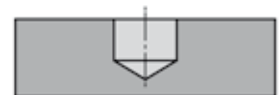
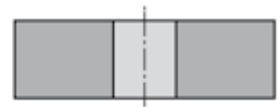
Centerline alignment of the drill must be accurate and can not be greater than 0.05 mm.
Alignment errors in the axial offset can result in damage of the drill shaft.

**DD钻削系列应用：**

通孔

盲孔

堆叠式板材

**Applications for Drill System DD:**

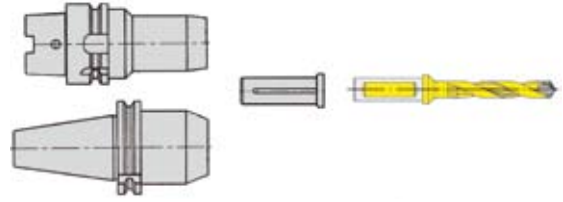
Through holes

Blind holes

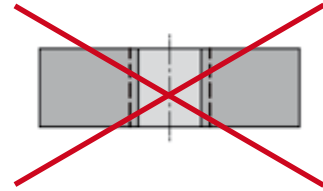
Stacked plate

请注意！
用液压夹持时需使用变径套

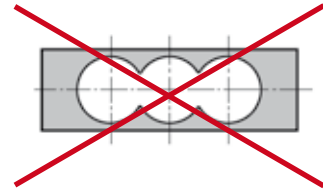
Please note!
By use in hydraulic chucks reduction sleeves are necessary.



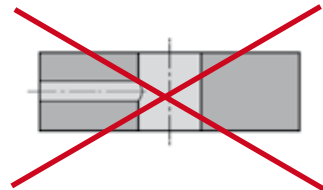
不可用来扩孔！
Drilling of pre-existing holes is not possible!



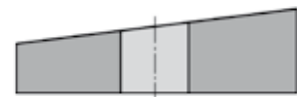
不可在两个孔的重叠位置钻孔！
Drilling of overlapping holes is not possible!



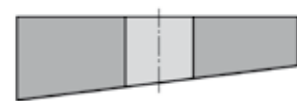
不可钻交叉口！
Drilling of cross holes not possible!



在斜面上钻孔时必须先钻定位中心孔
A counter bore must be created before drilling angled surfaces.

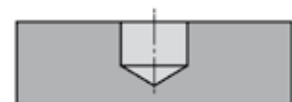


斜面钻孔，需降低50%进给
When drilling with an exit surface that is angled, reduce the feed by 50%.



当钻孔深度 > 5xD 时，推荐使用深度 1xD 和 $\varnothing D/4$ 的导钻。

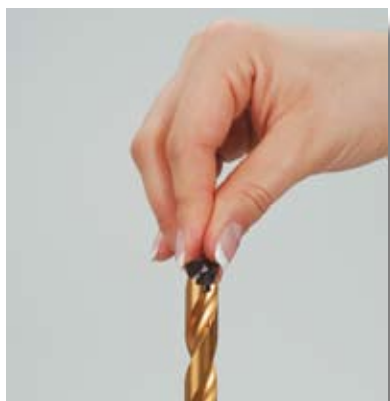
When drilling depth is > 5xD a pilot drill with a depth of 1xD with $\varnothing D/4$ is recommended.





钻体必须夹持在一个固定位置

The drill body must be clamped into a fixed position



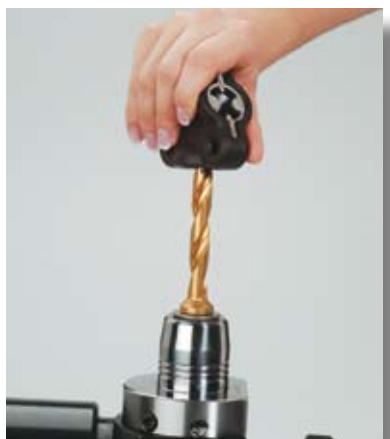
手动安装钻头并轻微扭转

Manually attach the drill tip and twist slightly



选择正确型号的扳手

Select the correct size of wrench



使用正确的扳手，旋转钻头直到完全到机械止动位置

Using the correct wrench, rotate the drill tip until it is seated against the mechanical stop

URMA IntraMax 端面切槽
和
Urma精镗头镗孔



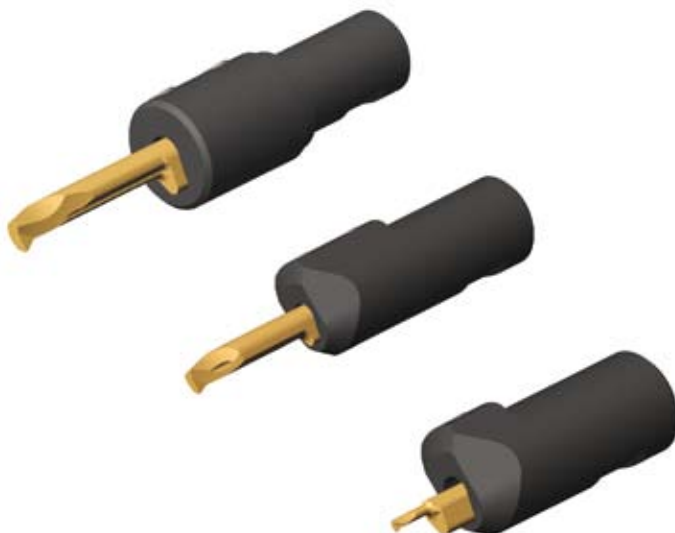
Face grooving with
URMA IntraMax
and
boring with
URMA fine boring head

协同效应优势
Benefits of Synergy



使用URMA05精镗头镗孔

Boring with fine boring head URMA 05



自 Ø 0.2 mm
带刀片 型号 105
或者
自 Ø 6.0 mm
带刀片 型号 110

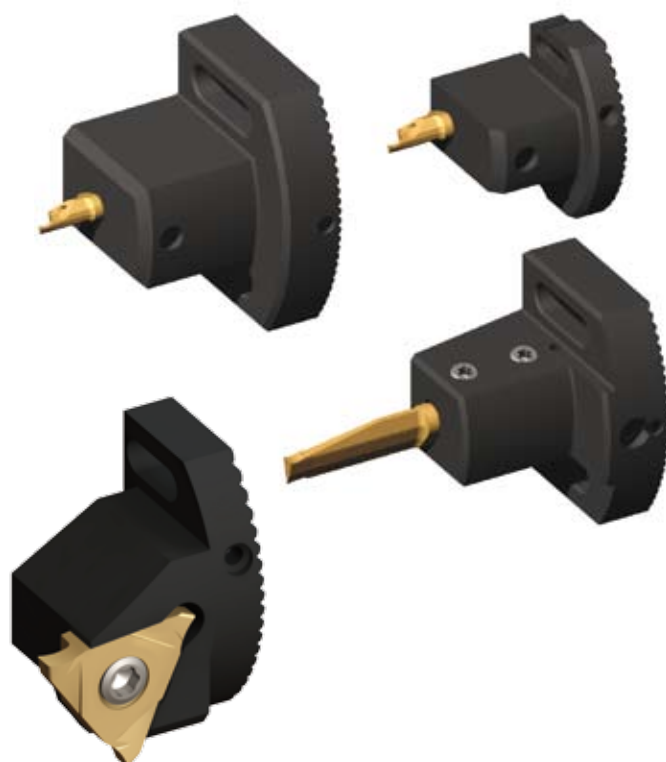
from Ø 0.2 mm
with insert type 105
or
from Ø 6.0 mm
with insert type 110

CBN(自Ø 3 mm) 或 PCD (自Ø 4 mm)刀片可用于镗削加工铸铁和淬硬材料。

CBN (from Ø 3 mm) or PKD (from Ø 4 mm) tipped inserts are also available for boring operations in cast iron or hardened materials.

URMA-IntraMax端面切槽系列

Face grooving with URMA-IntraMax



t_{max} 可达 5.0 mm
带刀片 型号 105

t_{max} 可达 30 mm
带刀片 型号 A110

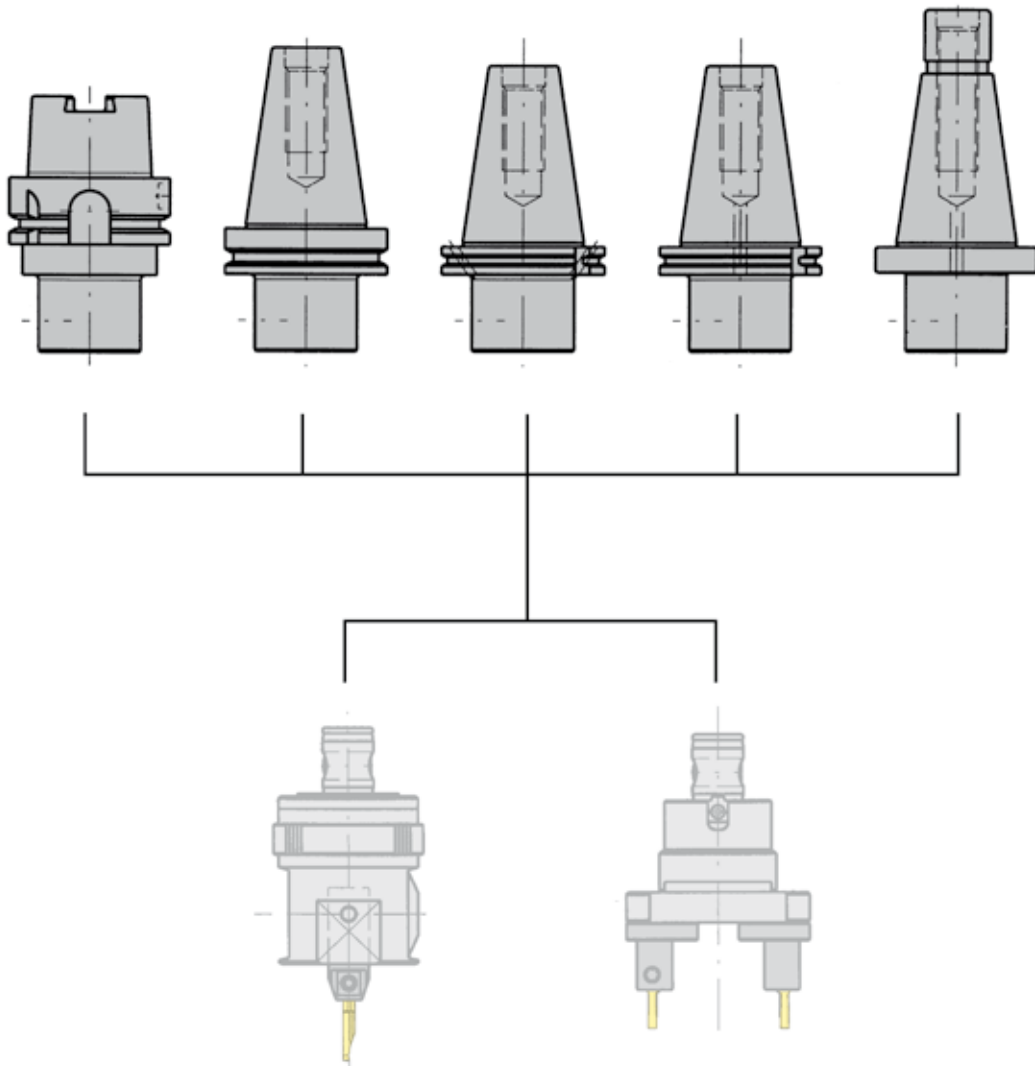
t_{max} 可达 3.0 mm
带刀片 型号 315

t_{max} up to 5.0 mm
with insert type 105

t_{max} up to 30 mm
with insert type A110

t_{max} up to 3.0 mm
with insert type 315

Beta模块接头 40/63
Adaptor with Beta module 40/63



精镗头 05
Fine boring head 05

IntraMax 49-88
或者 / or
IntraMax 87-207

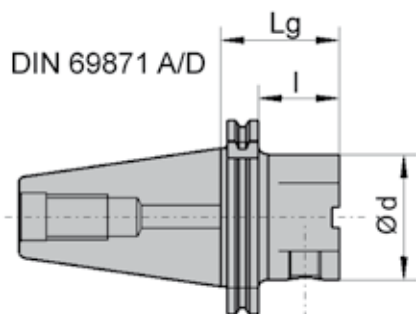
URMA系统刀柄 型号

SYSTEM HOLDER URMA Type

BD



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BD1040A25050	25	50	31	25	0.8 kg	SK40
BD1040A32050	32	50	31	35	0.9 kg	
BD1040A40035	40	35	16	42	0.9 kg	
BD1040A40050	40	50	31	42	1.1 kg	
BD1040A50050	50	50	31	50	1.2 kg	
BD1040A63065	63	65	46	63	1.5 kg	
BD1040A63090	63	90	70	63	2.0 kg	
BD1050A25060	25	60	41	25	2.8 kg	SK50
BD1050A32060	32	60	41	32	2.9 kg	
BD1050A40060	40	60	41	42	3.0 kg	
BD1050A50060	50	60	41	50	3.2 kg	
BD1050A63060	63	60	41	63	3.3 kg	
BD1050A80070	80	70	51	50	4.0 kg	
BD1050A100115	100	115	96	50	6.9 kg	

附件

Spare parts

尺寸单位 : mm
Dimensions in mm

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BD10...A25...	Z002524
BD10...A32...	Z003224
BD10...A40...	Z004024
BD10...A50...	Z005024
BD10...A63...	Z006324
BD1050A100115	Z0010024
BD1050A80070	Z008024

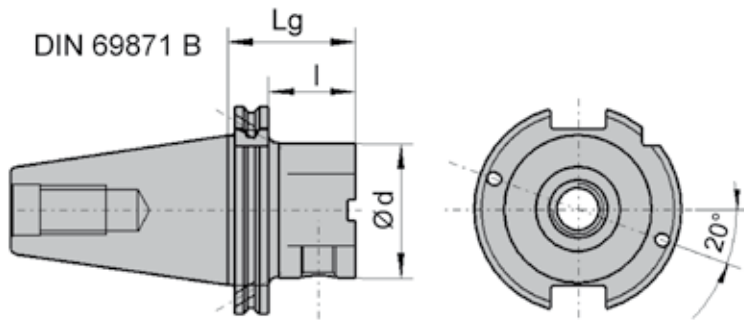
URMA系统刀柄 型号

SYSTEM HOLDER URMA Type

BD



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BD1040B25050	25	50	31	25	0.8 kg	SK40
BD1040B32050	32	50	31	35	0.9 kg	
BD1040B40035	40	35	16	42	0.9 kg	
BD1040B40050	40	50	31	42	1.1 kg	
BD1040B50050	50	50	31	50	1.2 kg	
BD1040B63065	63	65	46	63	1.5 kg	
BD1040B63090	63	90	70	63	2.0 kg	
BD1050B25060	25	60	41	25	2.8 kg	SK50
BD1050B32060	32	60	41	32	2.9 kg	
BD1050B40060	40	60	41	42	3.0 kg	
BD1050B50060	50	60	41	50	3.2 kg	
BD1050B63060	63	60	41	63	3.3 kg	
BD1050B80070	80	70	51	80	4.0 kg	
BD1050B100115	100	115	96	100	6.9 kg	

附件

Spare parts

尺寸单位 : mm
Dimensions in mm

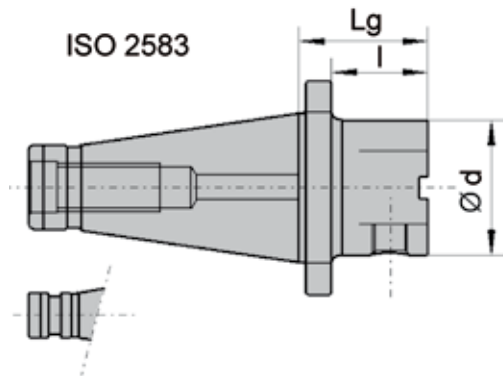
Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BD10...B25...	Z002524
BD10...B32...	Z003224
BD10...B40...	Z004024
BD10...B50...	Z005024
BD10...B63...	Z006324
BD1050B100115	Z0010024
BD1050B80070	Z008024

URMA系统刀柄 型号
SYSTEM HOLDER URMA Type

BI



Beta模块40/63/100
Beta Module 40/63/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BI104040035	40	35	23	42	0.7 kg	SK40
BI104040050	40	50	38	42	1.1 kg	
BI104063070	63	70	58	63	1.8 kg	
BI105040060	40	60	45	42	3.0 kg	SK50
BI105063060	63	60	45	63	3.5 kg	
BI1050100100	100	100	85	100	6.8 kg	

尺寸单位：mm
Dimensions in mm

附件
Spare parts

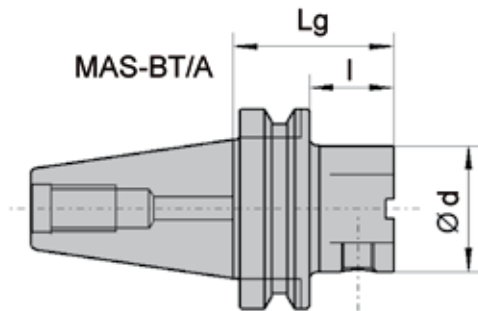
Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BI10...40...	Z004024
BI10...63...	Z006324
BI1050100100	Z0010024

URMA系统刀柄 型号
SYSTEM HOLDER URMA Type

BT



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BT1040A25060	25	60	33	25	0.8 kg	SK40
BT1040A32060	32	60	33	32	0.9 kg	
BT1040A40028	40	28	1	42	0.9 kg	
BT1040A40060	40	60	33	42	1.2 kg	
BT1040A50060	50	60	33	50	1.3 kg	
BT1040A63055	63	55	28	63	1.4 kg	
BT1040A63070	63	70	43	63	1.7 kg	
BT1050A32070	32	70	32	32	3.7 kg	SK50
BT1050A40070	40	70	32	42	3.9 kg	
BT1050A50070	50	70	32	50	4.1 kg	
BT1050A63080	63	80	42	63	4.3 kg	
BT1050A80100	80	100	62	80	5.5 kg	
BT1050A100100	100	110	72	100	7.0 kg	

尺寸单位：mm
Dimensions in mm

附件
Spare parts

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BT1040A25060	Z002524
BT10...A32...	Z003224
BT10...A40...	Z004024
BT10...A50...	Z005024
BT10...A63...	Z006324
BT1050A100100	Z0010024
BT1050A80100	Z008024

URMA系统刀柄 型号

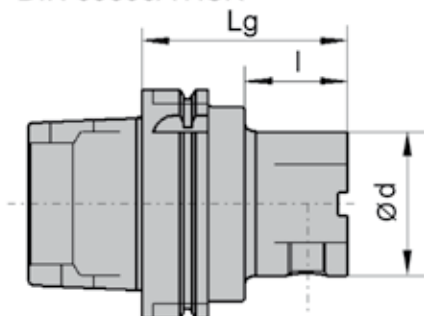
SYSTEM HOLDER URMA Type

BH



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100

DIN 69893A HSK



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系统 System
BH1050A25055	25	55	29	25	0.5 kg	HSK50
BH1050A32060	32	60	34	32	0.6 kg	
BH1050A40065	40	65	39	42	0.7 kg	
BH1063A25055	25	55	29	25	0.9 kg	HSK63
BH1063A32060	32	60	34	32	1.0 kg	
BH1063A40065	40	65	23	42	1.1 kg	
BH1063A50070	50	70	44	50	1.5 kg	
BH1063A63080	63	80	38	63	1.5 kg	
BH10100A40080	40	80	35	42	2.3 kg	HSK100
BH10100A50080	50	80	35	50	2.5 kg	
BH10100A63080	63	80	35	63	2.8 kg	
BH10100A80090	80	90	45	80	3.8 kg	
BH10100A100100	100	100	55	100	4.0 kg	

单位 : mm
Dimensions in mm

附件

Spare parts

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin	冷却管 Coolant tube
BH10100A100100	Z0010024	H0010001
BH10100A40080	Z004024	H0010001
BH10100A50080	Z005024	H0010001
BH10100A63080	Z006324	H0010001
BH10100A80090	Z008024	H0010001
BH1050A25055	Z002524	H005001
BH1050A32060	Z003224	H005001
BH1050A40065	Z004024	H005001
BH1063A25055	Z002524	H006301
BH1063A32060	Z003224	H006301
BH1063A40065	Z004024	H006301
BH1063A50070	Z005024	H006301
BH1063A63080	Z006324	H006301

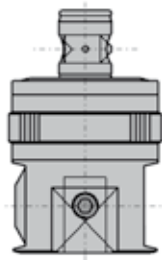
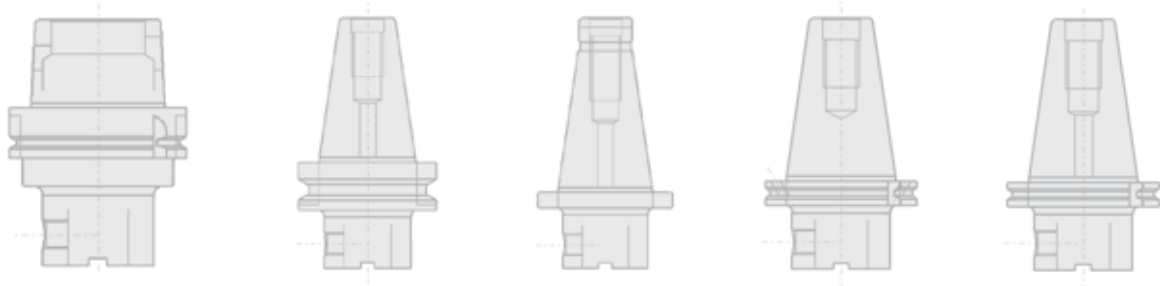
订货须知 :

不包含冷却液管-需要单独订购 !

Ordering note:

Coolant tube is not included - separate order required!

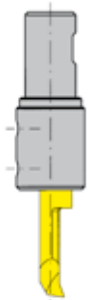
Beta模块接头 40/63
Adaptor with Beta module 40/63



精镗头 05
Fine boring head 05



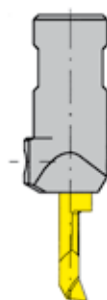
刀杆
Toolholder



B110

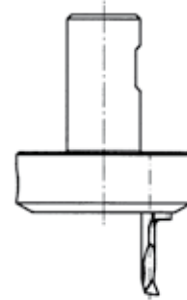


B105



B105

非标方案
Special solutions



镗孔系列05

BORING SYSTEM 05



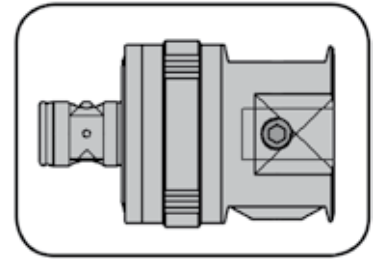
S

精镗头 型号

FINE BORING HEAD Type

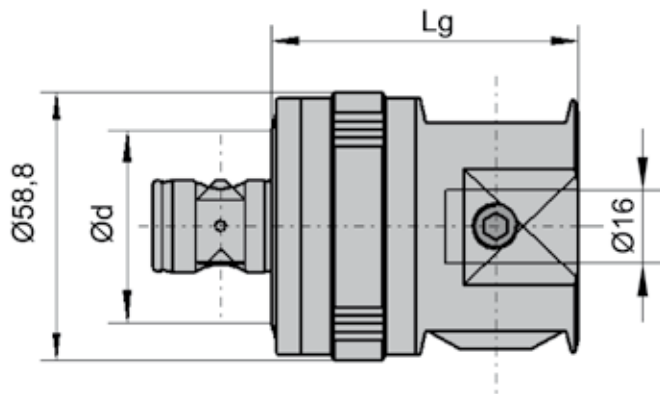
05

Beta模块40
Beta Module 40



孔径Ø 自	Bore Ø from	0,2 mm
转速	Number of revolutions	20.000 1/min
调节范围	Adjustable range	3,0 mm

带内冷
with through coolant supply



配合刀杆
for use with Toolholder

型号 B105...U1..
Type B110...U1..



产品型号 Part number	Beta模块 beta-modul	L _g	d	重量 Weight
B05 40 20 067 DB05.BM.40.01	40	67	40	1.3 kg

尺寸单位：mm
Dimensions in mm

用于DB...的附加设备：
数显单元DAZ显示了调节范围
Additional equipment only for DB...:
Digital display unit DAZ to show the adjusting range

附件
Spare parts

精镗头 Fine boring head	螺纹锁紧销 Threaded pin	定位销 Locating pin	螺栓 Bolt	螺纹锁紧销 Threaded pin
B05/DB05	Z000501	Z004023	Z004021	Z002301

镗孔系列05

BORING SYSTEM 05

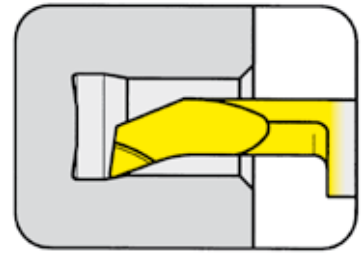


S

刀杆 型号
TOOLHOLDER Type

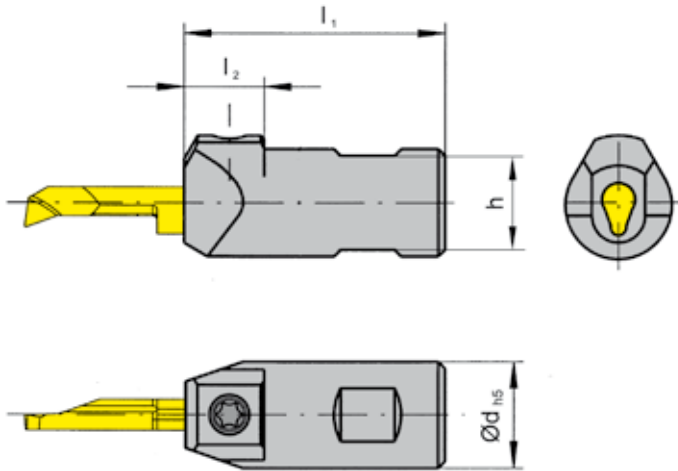
B105

带内冷
with through coolant supply



孔径Ø 自 Bore Ø from 0.2 mm

夹持长度12mm
Clamping length 12 mm



配合 刀片
for use with Insert

型号 105
Type

配合05系列的镗头
for use with boring head type 05

产品型号 Part number	d	l ₁	l ₂	h
B105.0016.U1.01	16	39	12	14

尺寸单位：mm
Dimensions in mm

注意事项：

双夹持面的刀杆可以在镗头中旋转180°，使刀片可过中心，可以镗Ø0.7mm以下的孔。

Note:

The double sided clamping surface allows to rotate the toolholder in the boring head of 180°. With this option it is possible to set the insert behind centre which is necessary for diameters less than Ø 0,7 mm.

刀杆可以安装左，右手刀片

Toolholders can be used with right and left hand inserts.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆 Toolholder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
B105.0016.U1.01	6.075T15P	T15PQ

镗孔系列05

BORING SYSTEM 05

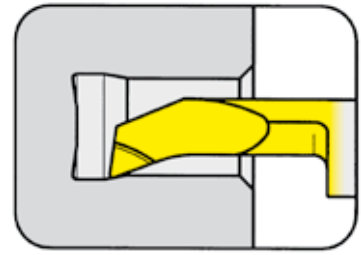


S

刀杆 型号
TOOLHOLDER Type

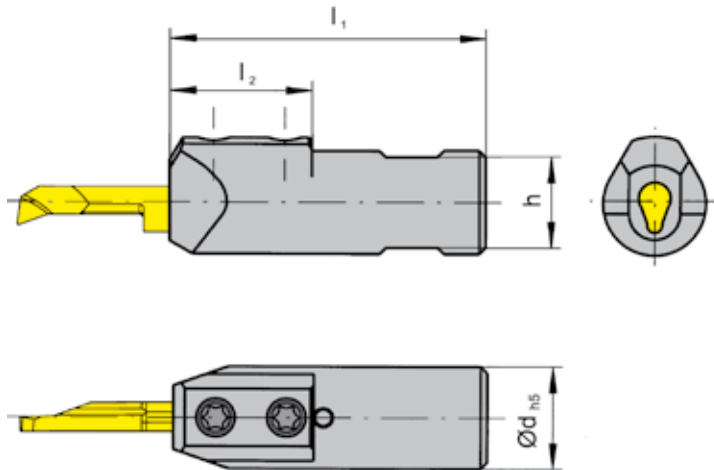
B105

带内冷
with through coolant supply



孔径Ø 自 Bore Ø from 5.0 mm

夹持长度22mm
Clamping length 22 mm



配合 刀片
for use with Insert

型号 105
Type

配合05系列的镗头
for use with boring head type 05

产品型号 Part number	d	l ₁	l ₂	h
B105.0016.U1.02	16	49	22	15

尺寸单位：mm
Dimensions in mm

注意事项：

刀杆可以安装左，右手刀片

Note:

Toolholders can be used with right and left hand inserts.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆 Toolholder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
B105.0016.U1.02	6.075T15P	T15PQ

镗孔系列05

BORING SYSTEM 05

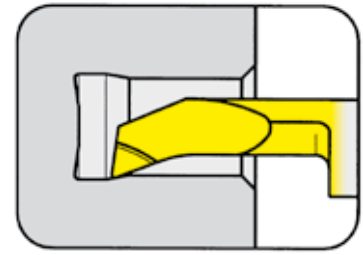


S

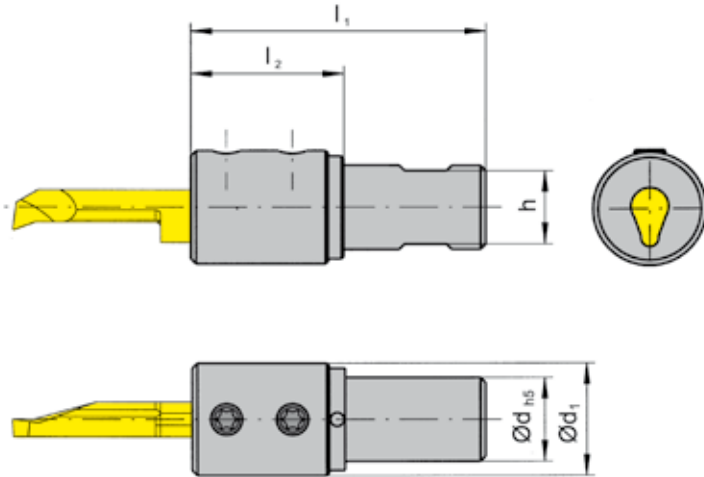
刀杆 型号
TOOLHOLDER Type

B110

带内冷
with through coolant supply



孔径Ø 自 Bore Ø from 6.0 mm



配合 刀片
for use with Insert

型号 110
Type

配合05系列的镗头
for use with boring head type 05

产品型号 Part number	d	l ₁	l ₂	h	d ₁
B110.0016.U1.02	16	56	29	15	21.5

尺寸单位：mm
Dimensions in mm

注意事项：

刀杆可以安装左，右手刀片

Note:

Toolholders can be used with right and left hand inserts.

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆 Toolholder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
B110.0016.U1.02	6.075T15P	T15PQ

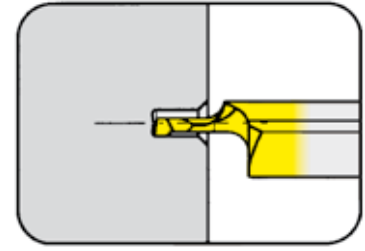
镗削 $\geq \varnothing 0.2$ mm BORING



S

刀片型号
INSERT Type

105

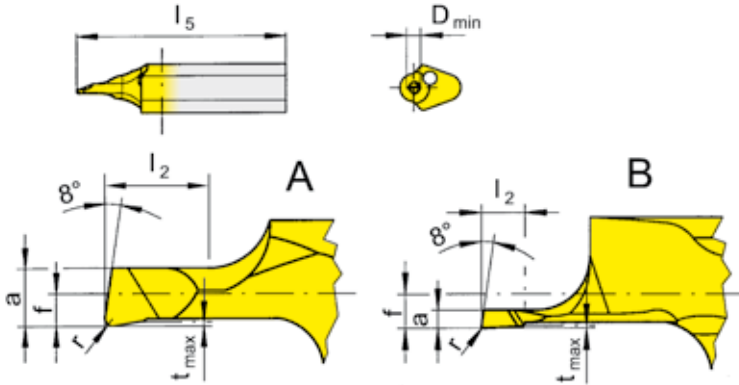


孔径 \varnothing 自	Bore \varnothing from	0.2 mm
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夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	l_2	l_5	t_{max}	D_{min}	r	规格 Form	MG12	TN35	TI25	TH35
R/L105.1802.0.02	1.0	0.17	1	23	0.02	0.2	0.02	B	▲/△			
R/L105.1802.0.03	1.0	0.25	1	23	0.02	0.3	0.02	B	▲/△			
R/L105.1802.0.05	1.0	0.40	2	23	0.05	0.5	0.05	B	▲/▲			
R/L105.1803.0.07	0.3	0.60	2	23	0.05	0.7	0.05	A	▲/▲			
▲ 库存 / on stock									○			
● 主要应用 / main recommendation									●			
○ 可选推荐 / alternative recommendation									○			
■ 无涂层牌号 / uncoated grades												
■ 涂层牌号 / coated grades												
■ 钎焊/金属陶瓷 / brazed/Cermet												
P												
M												
K												
N												
S												
H												

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

硬质合金牌号
Carbide grades

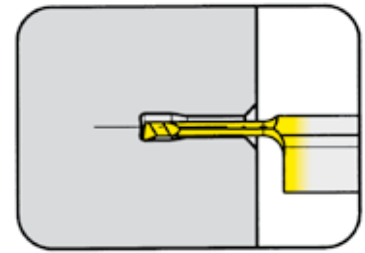
镗削 $\geq \varnothing 1.0 \text{ mm}$ BORING



S

刀片型号
INSERT Type

105

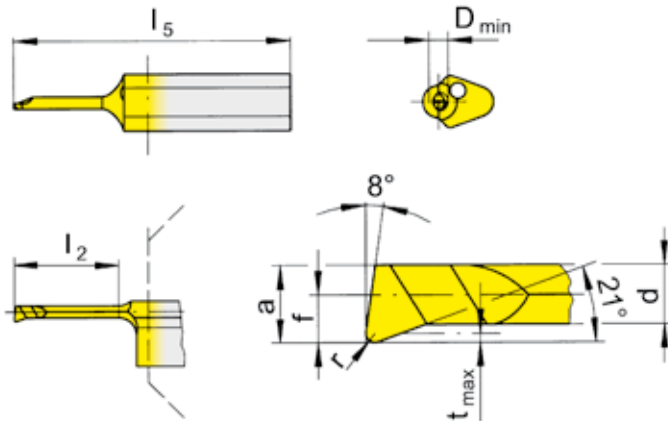


孔径 \varnothing 自 Bore \varnothing from 1.0 mm

夹持长度12mm
Clamping length 12 mm

配合刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r		MG12	TN35	TI25	TF45	TH35
R/L105.1805.005.0.1				4									▲/▲	
R/L105.1805.005.1.1	0.5	0.9	0.65	6	25	0.10	1.0	0.05					▲/▲	
R/L105.1805.005.2.1				8									▲/▲	
R/L105.1805.0.1				4						▲/▲	▲/▲	▲/▲		
R/L105.1805.1.1	0.5	0.9	0.65	6	25	0.10	1.0	0.10			▲/▲	▲/▲		
R/L105.1805.2.1				8							▲/▲	▲/▲		
R/L105.1813.005.0.15				6	25								▲/▲	
R/L105.1813.005.1.15	1.3	1.4	1.10	9	25	0.15	2.6	0.05					▲/▲	
R/L105.1813.005.2.15				12	30								▲/▲	
R/L105.1813.01.0.15				6	25								▲/▲	▲/▲
R/L105.1813.01.1.15	1.3	1.4	1.10	9	25	0.15	2.6	0.10					▲/▲	▲/▲
R/L105.1813.01.2.15				12	30								▲/▲	▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P	○	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	●	●	●	●	●
S	●	●	●	●	●
H					

硬质合金牌号
Carbide grades

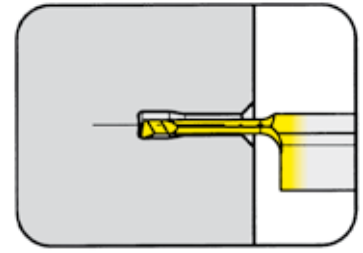
镗削 $\geq \text{Ø} 2.0 \text{ mm}$ BORING



S

刀片型号
INSERT Type

105

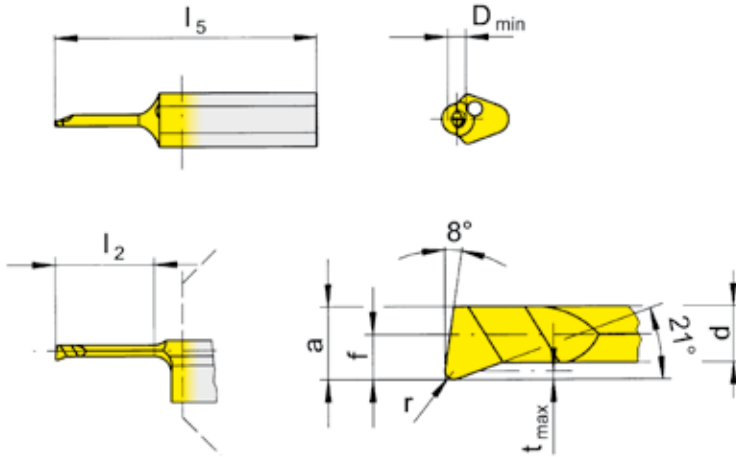


孔径Ø自 Bore Ø from 2.0 mm

夹持长度12mm
Clamping length 12 mm

配合刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r		MG12	TN35	TI25	TF45	TH35	
R/L105.1809.005.0.2				6	25								▲/▲		
R/L105.1809.005.1.2	1.0	1.9	1.60	9	25	0.15	2.0	0.05					▲/▲		
R/L105.1809.005.2.2				12	30								▲/▲		
R/L105.1809.01.0.2				6	25							▲/▲		▲/▲	
R/L105.1809.01.1.2	1.0	1.9	1.60	9	25	0.15	2.0	0.10				▲/▲		▲/▲	
R/L105.1809.01.2.2				12	30							▲/▲		▲/▲	
R/L105.1809.0.2				6	25					▲/▲	▲/▲	▲/▲		▲/▲	
R/L105.1809.1.2	1.0	1.9	1.60	9	25	0.15	2.0	0.15		▲/▲	▲/▲	▲/▲		▲/▲	
R/L105.1809.2.2				12	30					▲/▲	▲/▲	▲/▲		▲/▲	
R/L105.1813.005.0.25				6	25									▲/▲	
R/L105.1813.005.1.25				9	25								▲/▲		
R/L105.1813.005.2.25	1.3	2.3	1.95	12	30	0.15	2.5	0.05					▲/▲	▲/	
R/L105.1813.005.3.25				16	35								▲/▲		
▲ 库存 / on stock Δ 4周 / 4 weeks										P	○	●	●	●	●
● 主要应用 / main recommendation										M	●	●	●	●	●
○ 可选推荐 / alternative recommendation										K	●	●	●	●	●
■ 无涂层牌号 / uncoated grades										N	●	●	●	●	●
■ 涂层牌号 / coated grades										S	●	●	●	●	●
■ 钎焊/金属陶瓷 / brazed/Cermet										H					

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

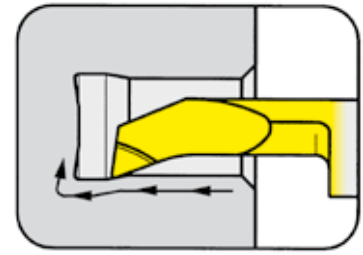
镗削 $\geq \varnothing 3.0$ mm BORING



S

刀片型号
INSERT Type

105

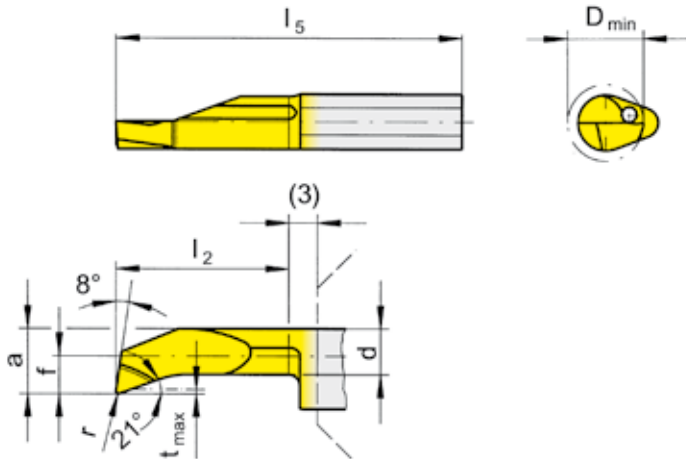


孔径 \varnothing 自	Bore \varnothing from	3.0 mm
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夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r	MG12	TN35	TI25	TF45	TH35
R/L105.1813.005.1.3				10	25							▲/▲	
R/L105.1813.005.2.3	1.3	2.6	2.3	15	30	0.15	3	0.05				▲/▲	
R/L105.1813.005.3.3				20	35							▲/▲	
R/L105.1813.01.1.3				10	25							▲/▲	▲/▲
R/L105.1813.01.2.3	1.3	2.6	2.3	15	30	0.15	3	0.10				▲/▲	▲/▲
R/L105.1813.01.3.3				20	35							▲/▲	▲/▲
R/L105.1813.1.3				10	25				▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1813.2.3	1.3	2.6	2.3	15	30	0.15	3	0.20	▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1813.3.3				20	35				▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1819.005.1.4				10	25							▲/▲	
R/L105.1819.005.2.4	1.9	3.7	2.9	15	30	0.30	4	0.05				▲/▲	
R/L105.1819.005.3.4				20	35							▲/▲	
R/L105.1819.1.4				10	25				▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1819.2.4	1.9	3.7	2.9	15	30	0.30	4	0.20	▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1819.3.4				20	35				▲/▲	▲/▲	▲/▲		▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	○	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	●	●	●	●	●
S	●	●	●	●	●
H					

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

注明R或L型
State R or L version

镗削 $\geq \text{Ø} 5.0 \text{ mm}$

BORING

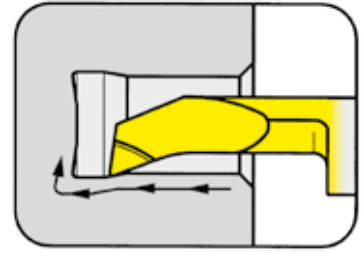


S

刀片型号

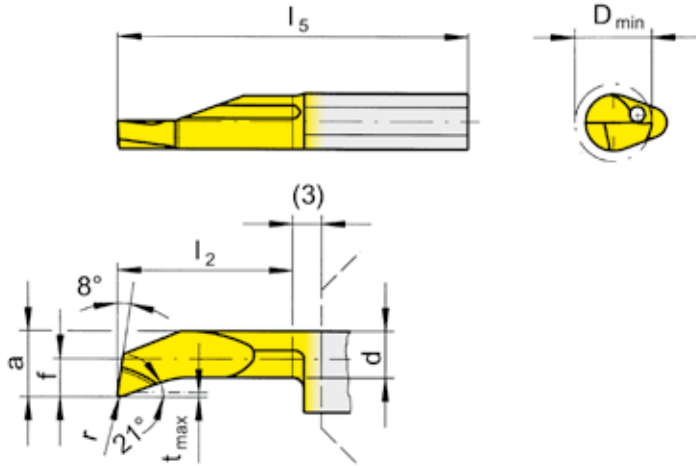
105

INSERT Type



孔径Ø 自	Bore Ø from	5.0 mm
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夹持长度12mm
Clamping length 12 mm



配合 刀杆
for use with Toolholder

型号 B105
Type BKT

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r		MG12	TN35	TI25	TF45	TH35
R/L105.1823.005.1.5				10	25								▲/▲	
R/L105.1823.005.2.5				15	30								▲/▲	
R/L105.1823.005.3.5	2.3	4.7	4	20	35	0.5	5	0.05					▲/▲	
R/L105.1823.005.4.5				25	40								▲/▲	
R/L105.1823.005.5.5				30	45								▲/▲	
R/L105.1823.1.5				10	25					▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1823.2.5				15	30					▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1823.3.5	2.3	4.7	4	20	35	0.5	5	0.20		▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1823.4.5				25	40					▲/▲	▲/▲	▲/▲		▲/▲
R/L105.1823.5.5				30	45					▲/▲	▲/▲	▲/▲		▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P	○	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	●	●	●	●	●
S	●	●	●	●	●
H					

硬质合金牌号
Carbide grades

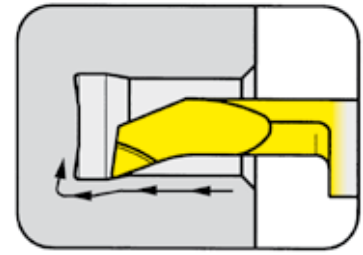
镗削 $\geq \text{Ø} 6.0 \text{ mm}$ BORING



S

刀片型号
INSERT Type

105

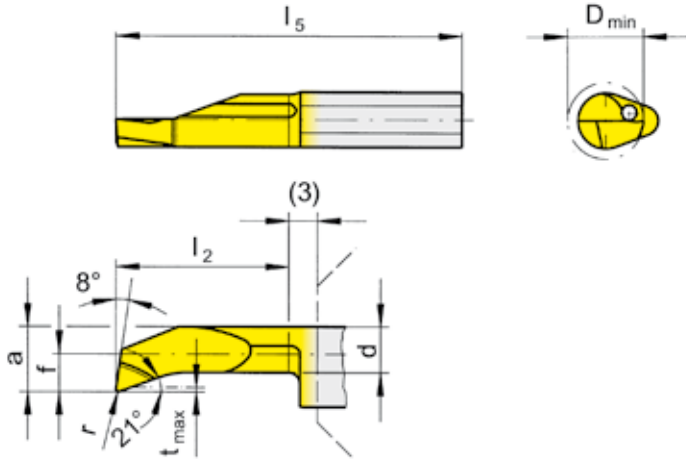


孔径Ø 自 Bore Ø from 6.0 mm

夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r		MG12	TN35	TI25	TF45	TH35
R/L105.1833.005.2.6	3.3	5.7	4.7	15	30	0.5	6.0	0.05					▲/▲	▲/▲
R/L105.1833.005.3.6				20	35								▲/▲	▲/▲
R/L105.1833.005.4.6				25	40								▲/▲	▲/▲
R/L105.1833.005.5.6				30	45								▲/▲	▲/▲
R/L105.1833.2.6	3.3	5.7	4.7	15	30	0.5	6.0	0.20					▲/▲	▲/▲
R/L105.1833.3.6				20	35								▲/▲	▲/▲
R/L105.1833.4.6				25	40								▲/▲	▲/▲
R/L105.1833.5.6				30	45								▲/▲	▲/▲
R/L105.1840.005.3.7	4.0	6.4	5.2	20	35	0.5	6.8	0.05					▲/▲	▲/▲
R/L105.1840.005.4.7				25	40								▲/▲	▲/▲
R/L105.1840.005.5.7				30	45								▲/▲	▲/▲
R/L105.1840.3.7	4.0	6.4	5.2	20	35	0.5	6.8	0.20					▲/▲	▲/▲
R/L105.1840.4.7				25	40								▲/▲	▲/▲
R/L105.1840.5.7				30	45								▲/▲	▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

P	○	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	●	●	●	●	●
S	●	●	●	●	●
H					

硬质合金牌号
Carbide grades

镗削 $\geq \varnothing 4.0$ mm

BORING

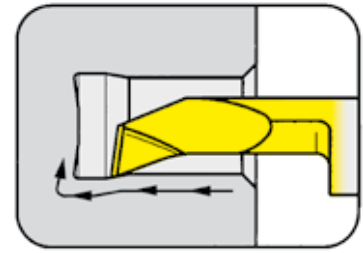


S

刀片型号

105

INSERT Type



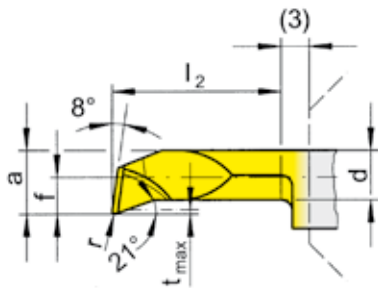
孔径 \varnothing 自

Bore \varnothing from

4.0 mm

夹持长度12mm

Clamping length 12 mm



配合 刀杆

for use with Toolholder

型号 B105

Type BKT

带断屑槽
(槽型H)

with chip breaker
(geometry H)

R=右手型-如图

R = right hand version shown

L=左手型

L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r		MG12	TN35	TI25	TF45	TH35
R/L105.1819.1.H4				10	25								▲/▲	▲/▲
R/L105.1819.2.H4	1.9	3.7	2.9	15	30	0.3	4.0	0.2					▲/▲	▲/▲
R/L105.1819.3.H4				20	35								▲/▲	▲/▲
R/L105.1823.1.H5				10	25								▲/▲	▲/▲
R/L105.1823.2.H5				15	30								▲/▲	▲/▲
R/L105.1823.3.H5	2.3	4.7	4.0	20	35	0.5	5.0	0.2					▲/▲	▲/▲
R/L105.1823.4.H5				25	40								▲/▲	▲/▲
R/L105.1823.5.H5				30	45								▲/▲	▲/▲
R/L105.1833.2.H6				15	30								▲/▲	▲/▲
R/L105.1833.3.H6				20	35								▲/▲	▲/▲
R/L105.1833.4.H6	3.3	5.7	4.7	25	40	0.5	6.0	0.2					▲/▲	▲/▲
R/L105.1833.5.H6				30	45								▲/▲	▲/▲
R/L105.1840.3.H7				20	35								▲/▲	▲/▲
R/L105.1840.4.H7	4.0	6.4	5.2	25	40	0.5	6.8	0.2					▲/▲	▲/▲
R/L105.1840.5.H7				30	45								▲/▲	▲/▲

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

P				●	●
M				●	●
K				●	●
N				●	●
S				●	●
H					

硬质合金牌号

Carbide grades

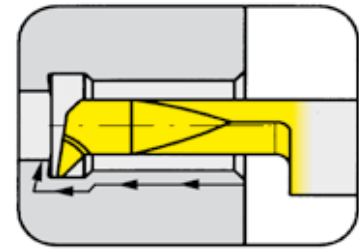
镗削 $\geq \varnothing 4.0$ mm BORING



S

刀片型号
INSERT Type

105



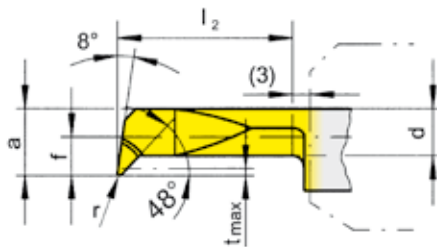
孔径 \varnothing 自 Bore \varnothing from 4.0 mm

夹持长度12mm
Clamping length 12 mm



配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r	MG12	TN35	TI25	TH35
R/L105.4719.1.4	1.9	3.7	2.9	10	25	0.6	4	0.15		▲	●	●
R/L105.4719.3.4				20	35							
R/L105.4723.2.5	2.3	4.7	3.7	15	30	0.8	5	0.15				
R/L105.4723.4.5				25	40							
R/L105.4733.3.6	3.3	5.7	3.7	20	35	1.8	6	0.15				
R/L105.4733.5.6				30	45							

▲ 库存 / on stock Δ 4周 / 4 weeks
● 主要应用 / main recommendation
○ 可选推荐 / alternative recommendation
■ 无涂层牌号 / uncoated grades
■ 涂层牌号 / coated grades
■ 钎焊/金属陶瓷 / brazed/Cermet

P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H			

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm
注明R或L型
State R or L version

镗削 $\geq \varnothing 3.0$ mm

BORING

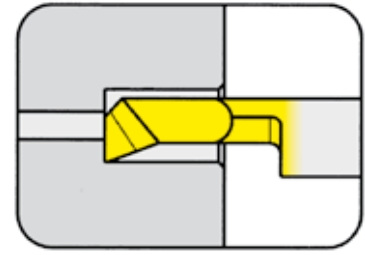


S

刀片型号

105

INSERT Type



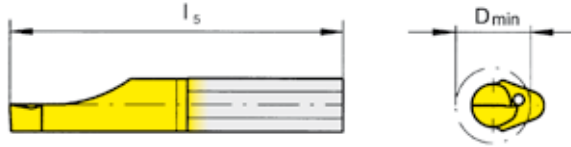
孔径 \varnothing 自

Bore \varnothing from

3.0 mm

夹持长度12mm

Clamping length 12 mm

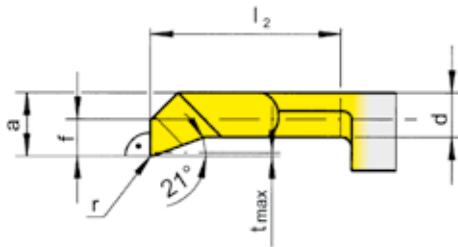


配合 刀杆

for use with Toolholder

型号 B105

Type BKT



R=右手型-如图

R = right hand version shown

L=左手型

L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r	MG12	TN35	TI25	TH35
R/L105.9013.01.1.3	1.3	2.6	2.3	10	25	0.15	3	0.1		▲/▲		▲/▲
R/L105.9013.01.2.3				15	30			0.1				▲/▲
R/L105.9013.1.3				10	25			0.2				
R/L105.9013.2.3				15	30			0.2				
R/L105.9019.01.1.4	1.9	3.7	2.9	10	25	0.30	4	0.1		▲/▲		▲/▲
R/L105.9019.01.2.4				15	30			0.1				▲/▲
R/L105.9019.01.3.4				20	35			0.1				
R/L105.9019.1.4				10	25			0.2				
R/L105.9019.2.4				15	30			0.2				
R/L105.9023.01.1.5	2.3	4.7	4.0	10	25	0.50	5	0.1		▲/▲		▲/▲
R/L105.9023.01.2.5				15	30			0.1				▲/▲
R/L105.9023.01.3.5				20	35			0.1				
R/L105.9023.01.4.5				25	40			0.1				
R/L105.9023.1.5				10	25			0.2				
R/L105.9023.2.5				15	30			0.2				
R/L105.9023.3.5				20	35			0.2				

▲ 库存 / on stock Δ 4周 / 4 weeks

● 主要应用 / main recommendation

○ 可选推荐 / alternative recommendation

■ 无涂层牌号 / uncoated grades

■ 涂层牌号 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

注明R或L型

State R or L version

P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H			

硬质合金牌号

Carbide grades

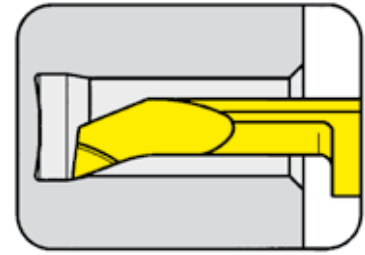
镗削 $\geq \text{Ø} 5.0 \text{ mm}$ BORING



S

刀片型号
INSERT Type

105
配合加长型刀杆
with extended clamping shank

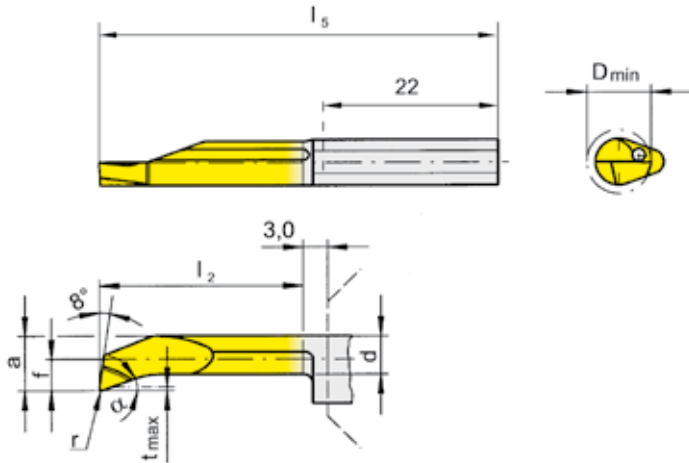


孔径Ø 自	Bore Ø from	5.0 mm
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夹持长度22mm
Clamping length 22 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r	α	MG12	TN35	TI25	TF45	TH35
R/L105.1823.4.5.2	2.3	4.7	4.2	25	50	0.3	5.0	0.1	20°			▲/△		▲/△
R/L105.1823.5.5.2												▲/▲		▲/▲
R/L105.1833.4.6.2	3.3	5.7	4.9	25	50	0.3	6.0	0.1	20°			▲/▲		▲/△
R/L105.1833.5.6.2												▲/▲		▲/▲
R/L105.1840.4.7.2	4.0	6.4	5.4	30	55	0.3	6.8	0.1	20°			▲/▲		▲/△
R/L105.1840.5.7.2												▲/▲		▲/△
R/L105.1840.7.7.2												▲/		▲/△
R/L105.4733.5.6.2	3.3	5.7	3.7	30	55	1.8	6.0	0.1	47°			▲/△		▲/△
										P		●		●
										M		●		●
										K		●		●
										N		●		●
										S		●		●
										H				

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

镗削 $\geq \text{Ø} 6.0 \text{ mm}$

BORING

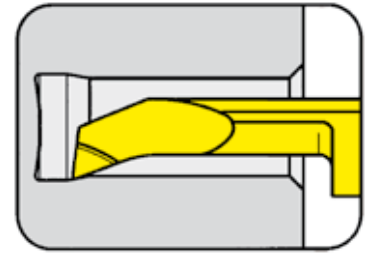


S

刀片型号

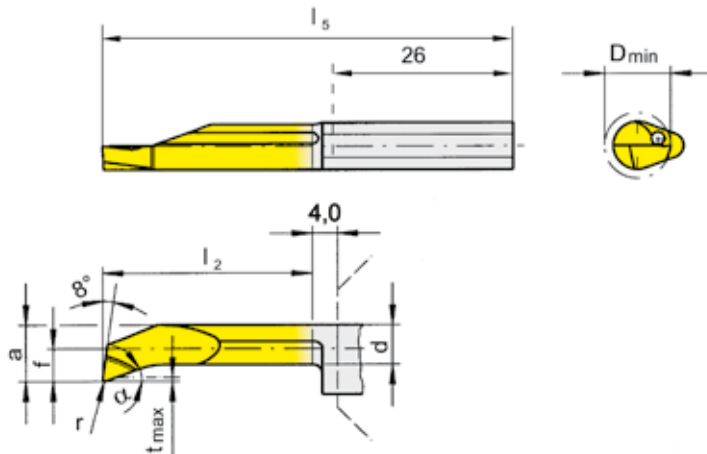
INSERT Type

110



孔径Ø 自	Bore Ø from	6.0 mm
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夹持长度26mm
Clamping length 26 mm



配合 刀杆
for use with Toolholder

型号 B110
Type

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	f	a	d	l_2	l_5	t_{max}	D_{min}	r	α	MG12	TN35	TI25	TH35
R/L110.1829.7.6	2.9	5.7	4.8	40	70	0.5	6	0.2	20°			▲/▲	▲/▲
R/L110.1829.9.6												▲/▲	▲/▲
R/L110.1829.9.8	4.0	7.4	6.0	50	80	0.5	8	0.2	20°			▲/▲	▲/▲

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

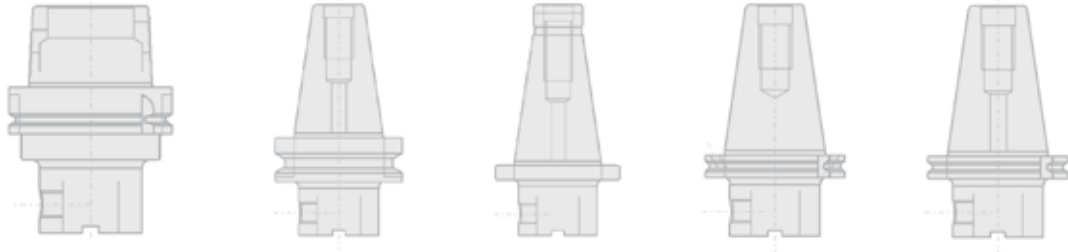
尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

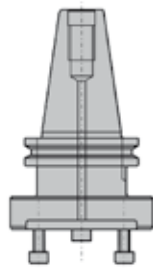
P	●	●	
M	●	●	
K	●	●	
N	●	●	
S	●	●	
H			

硬质合金牌号
Carbide grades

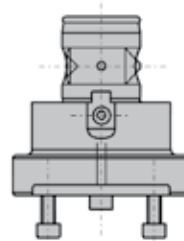
Beta模块接头 40 / 63
Adaptor with Beta module 40 / 63



常规刀柄
Basic holder
IntraMax 49-88
或者 / or
IntraMax 87-207



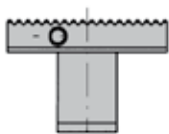
中间接头
Intermediate adaptors
IntraMax 49-88
或者 / or
IntraMax 87-207



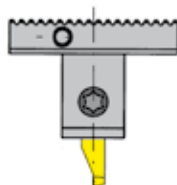
直径扩展
Diameter extender



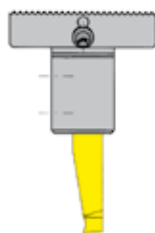
平衡块
Balance weight



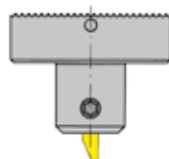
刀夹
Cartridge



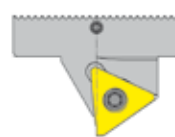
BKT105



BKT110

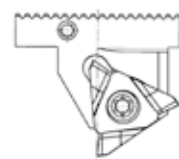


BKT105



BKT356

非标方案
Special solutions



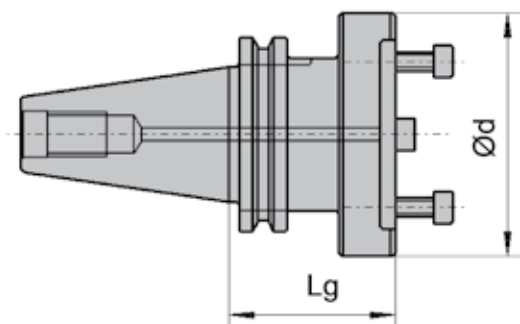
URMA常规刀柄 型号
BASIC HOLDER URMA Type

**C11/D11/H11/
HKA11/T11**



- 直接安装于刀夹BKT105.U90K.01 和 BKT356.U90K.05
- 平衡块 020.U00K.040
- 直径可扩展型 22 03...

- direct mounting for cartridge type BKT105.U90K.01 and BKT356.U90K.05
- for balance weight type 020.U00K.040
- for diameter extender type 22 03...



产品型号 Part number	L _g	d	重量 Weight	直径范围 用于 Diameter range for 型号 type 105 / 315	系统 System
C114103052	52	46	1.2 kg	5 - 18	CAT40
D114103052	52		1.2 kg	5 - 18 / 47 - 61	SK40/A
H114303052	52		1.2 kg	5 - 18 / 47 - 61	SK40/B
HKA116303	60		1.3 kg	5 - 18 / 47 - 61	HKA-63
T114103052	52		1.3 kg	5 - 18 / 47 - 61	MAS-BT40

单位 : mm
Dimensions in mm

附件
Spare parts

Urma常规刀杆 Basic Holder Urma	螺钉 Screw	垫圈 Washer	圆柱销 Cylindrical Pin
C/D/H/HKA/T11...	C002212	K000201	C001208

URMA中间连接头

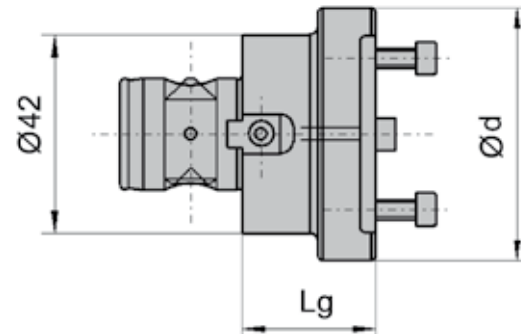
IntraMax 49-88



Intermediate adaptors URMA

- 直接安装刀夹 BKT105.U90K.01和 BKT356.U90K.05
- 平衡块 020.U00K.040
- 直径可扩展型 22 03...
- Beta模块

- direct mounting for cartridge type BKT105.U90K.01 and BKT356.U90K.05
- for balance weight type 020.U00K.040
- for diameter extender type 22 03...
- coupling Beta module



产品型号 Part number	Beta模块 Beta module	d	L _g	重量 Weight	直径范围 用于 Diameter range for 型号 type 105 / 315
B21 40 46 036	40	46	36	0.5 kg	5 - 18 / 47 - 61

尺寸单位：mm
Dimensions in mm

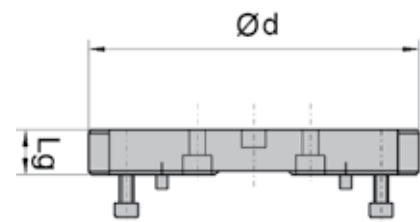
直径扩展 URMA

IntraMax 49-88

Diameter extender URMA

- 直接安装于刀夹BKT105.U90K.01 和 BKT356.U90K.05

- Direct mounting for cartridge type BKT105.U90K.01 and BKT356.U90K.05



产品型号 Part number	d	L _g	重量 Weight	直径范围 用于 Diameter range for 型号 type 105 / 315
22 03 06 012	59	12	0.2 kg	18 - 31 / 60 - 74
22 03 07 012	72	12	0.3 kg	31 - 45 / 73 - 87

尺寸单位：mm
Dimensions in mm

备件

Spare parts

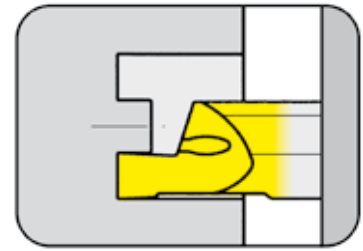
螺钉 Screw	垫圈 Washer	定位销 Locating pin	键 Key	螺钉 Screw	圆柱销 Cylindrical pin	调整螺钉 Bolt
C002212	K000201	Z004023	Z004025	C002258	C001208	Z004021

可调刀杆 型号

ADJUSTABLE HOLDER Type

BKT

配合URMA IntraMax 49 - 88
for URMA IntraMax System 49-88

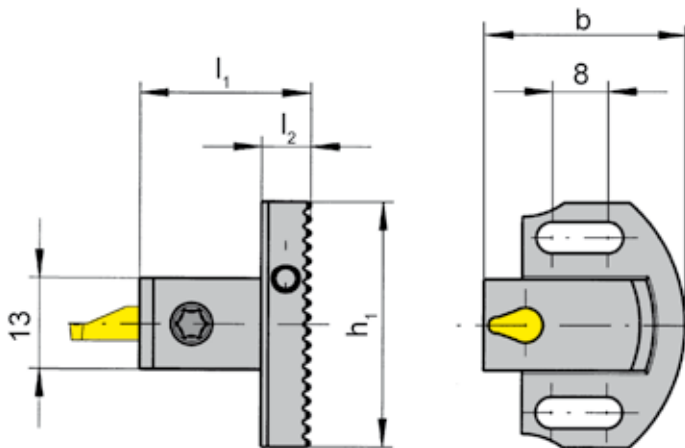


端面槽起始外径	from outer groove Ø	5,0 mm
切槽深度可达	Depth of groove up to	6,0 mm

夹持长度12mm
Clamping length 12 mm

配合 刀片
for use with Insert

型号 105
Type



产品型号 Part number	h_1	l_1	l_2	b
BKT105.U90K.01	35	24.5	7	28.5

尺寸单位：mm
Dimensions in mm

直径 $D_{amin} = 2 \times (6 \text{ mm} + f_{Insert})$ 以上时可以使用两个刀夹
2 Cartridges are suitable from $D_{amin} = 2 \times (6 \text{ mm} + f_{Insert})$

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

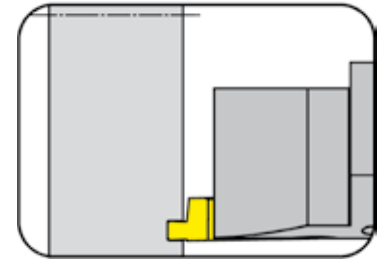
可调刀杆 Adjustable holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
BKT105.U90K.01	6.075T15P	T15PQ

刀夹 型号

CARTRIDGE Type

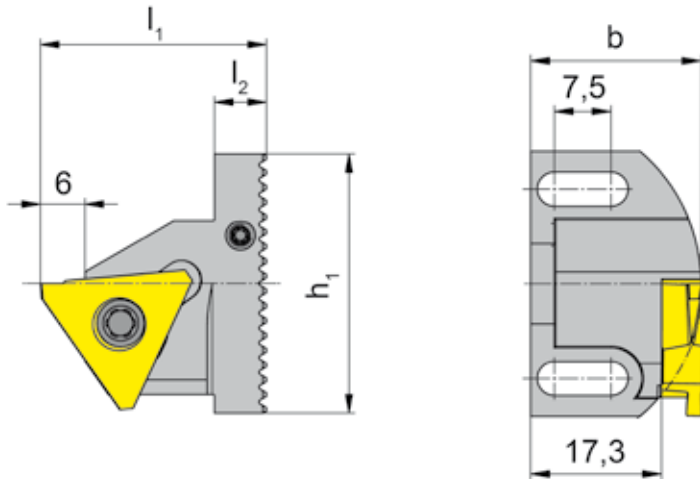
BKT

配合URMA IntraMax 49 - 88
for URMA IntraMax System 49-88



端面槽起始外径	from outer groove \varnothing	47.0 mm
切槽深度可达	Depth of groove up to	5.0 mm

夹持长度12mm
Clamping length 12 mm



配合 可转位刀片
for use with Indexable insert

型号 315
Type 需配合平衡块
only usable with
balancing weight
020.U00K.2040

产品型号 Part number	h_1	l_1	l_2	b
BKT356.U90K.05	35	30.5	7	22.8

尺寸单位：mm
Dimensions in mm

2 刀夹适用于 $\varnothing 47-87$ mm
2 Cartridges are suitable from $\varnothing 47 - 87$ mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

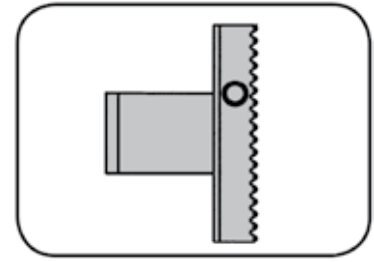
附件
Spare parts

刀夹 Cartridge	螺钉 Fixing screw	TORX PLUS® 扳手 TORX PLUS® Wrench
BKT356.U90K.05	5.12T20P	T20PQ

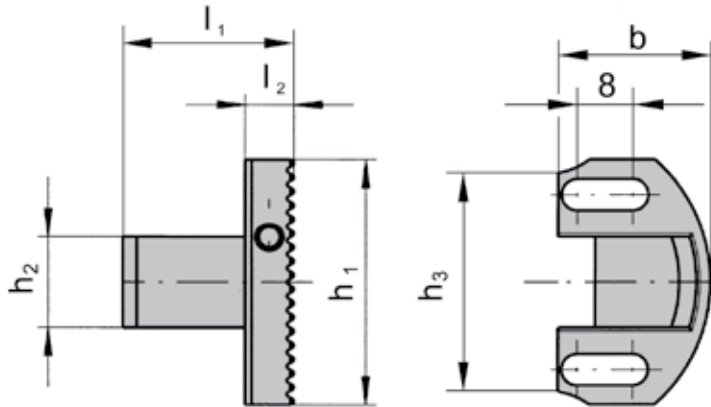
平衡块 型号

020

BALANCING WEIGHT Type



配合URMA IntraMax 49-88
for URMA IntraMax System 49-88



配合刀夹

for use with Cartridge

型号 BKT356.U90K.05

Type

产品型号 Part number	l_1	l_2	h_1	h_2	h_3	b
020.U00K.2040	24.5	7	35	13	31	22

尺寸单位：mm
Dimensions in mm

附件

Spare parts

平衡块 Balancing weight	螺钉 Fixing screw
020.U00K.2040	6.075T15

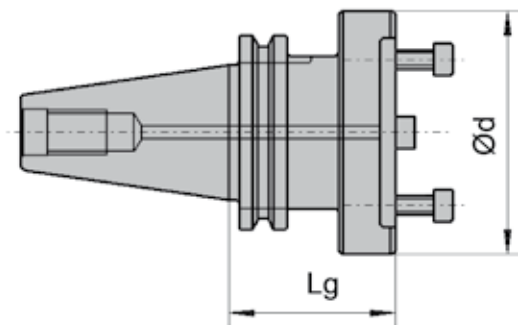
URMA常规刀柄 型号
BASIC HOLDER URMA Type

**D11/H11/
HSKA11/T11**



- 直接安装于刀夹BKT105.U90G.01, BKT110.U17G.02 和 BKT356.U90K.05
- 平衡块 B21 40 46 036
- 直径可扩展型 22 01...

- Direct mounting for cartridge type BKT105.U90G.01, BKT110.U17G.02 and BKT356.U90G.05
- for balance weight type B21 40 036
- for diameter bracked type 22 01...



产品型号 Part number	L _g	d	重量 Weight	直径范围 用于 Diameter range for 型号 type 105+110 / 315	系统 System
D114101054	54	80	1.4 kg	31 - 61 / 81 - 110	SK40/A
H114301054	54		1.4 kg		SK40/B
HSKA116301	60		1.4 kg		HSKA-63
T114101054	54		1.5 kg		MAS-BT40

附件

Spare parts

Urma常规刀杆 Basic Holder Urma	螺钉 Screw	螺钉 Screw	垫圈 Washer
D/H/HSKA/T11...	Z002120	C002202	K000220

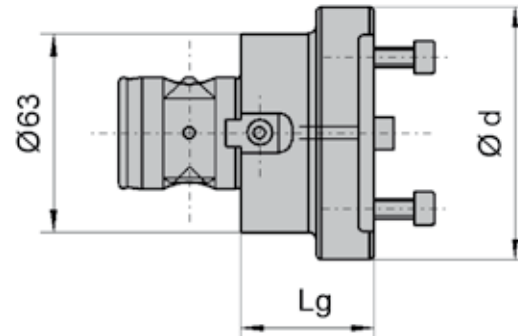
URMA中间连接头

Intermediate adaptors URMA

IntraMax 87-207



- 直接安装刀夹 BKT105.U90G.01, BKT110.U17G.02 和 BKT356.U90G.05
- 平衡块 230110036
- 直径可扩展型 22 01...
- Beta结构模块
- Direct mounting for cartridge type BKT105.U90G.01, BKT110.U17G.02 and BKT356.U90G.05
- for balance weight type 230110036
- for diameter extender type 22 01...
- coupling Beta module



产品型号 Part number	Beta模块 Beta module	d	L _g	重量 Weight	直径范围 用于 Diameter range for 型号 type 105+110 / 315
B21 63 80 042	63	80	42	0.8 kg	31-61 / 81-110

尺寸单位：mm
Dimensions in mm

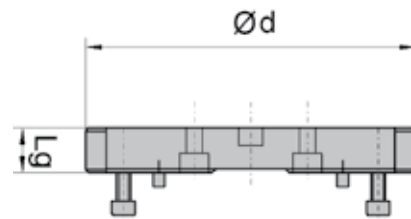
直径扩展 URMA

Diameter extender URMA

IntraMax 87-207

- 直接安装于刀夹BKT105.U90G.01 和 BKT110.U17G.02 和 BKT356.U90G.05

- Direct mounting for cartridge type BKT105.U90G.01 BKT110.U17G.02 and BKT356.U90G.05



产品型号 Part number	d	L _g	重量 Weight	直径范围 用于 Diameter range for 型号 type 105+110 / 315
22 01 11 018	110	18	0.8 kg	61-91 / 111-140.5
22 01 14 018	140	18	1.0 kg	91-122 / 140.5-170.5
22 01 17 018	170	18	1.2 kg	122-152 / 170.5-200

尺寸单位：mm
Dimensions in mm

备件

Spare parts

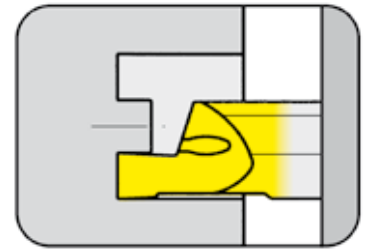
型号 type	螺钉 Screw	垫圈 Washer	定位销 Locating pin	键 Key	螺钉 Screw	螺钉 Screw	圆柱销 Cylindrical pin	调整螺钉 Bolt
B21...								Z006321
22 01...	C002202	K000220	Z006323	Z006025	C002205	Z002120	CC001208	-

可调刀杆 型号

ADJUSTABLE HOLDER Type

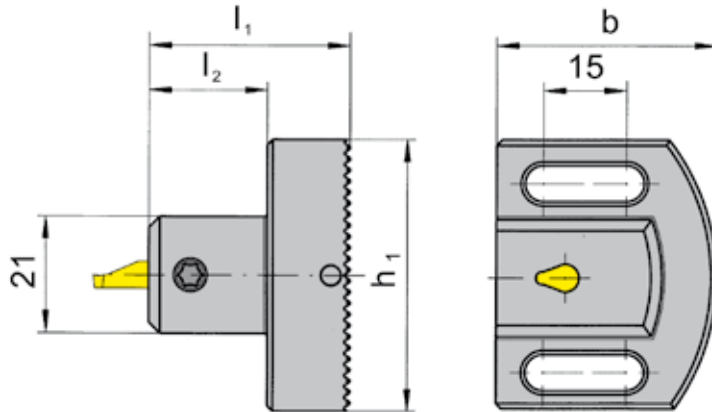
BKT

配合URMA IntraMax 87-207
for URMA IntraMax System 87-207



端面槽起始外径	from outer groove \varnothing	31,0 mm
切槽深度可达	Depth of groove up to	6,0 mm

夹持长度12mm
Clamping length 12 mm



配合 刀片
for use with Insert

型号 105
Type

产品型号 Part number	h_1	l_1	l_2	b
BKT105.U90G.01	49	36.4	24.4	39.5

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

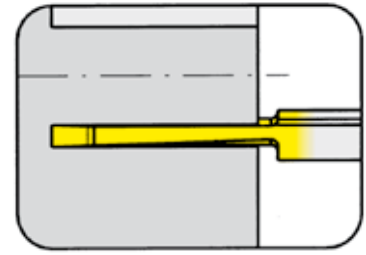
可调刀杆 Adjustable holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
BKT105.U90G.01	6.075T15P	T15PQ

刀夹 型号

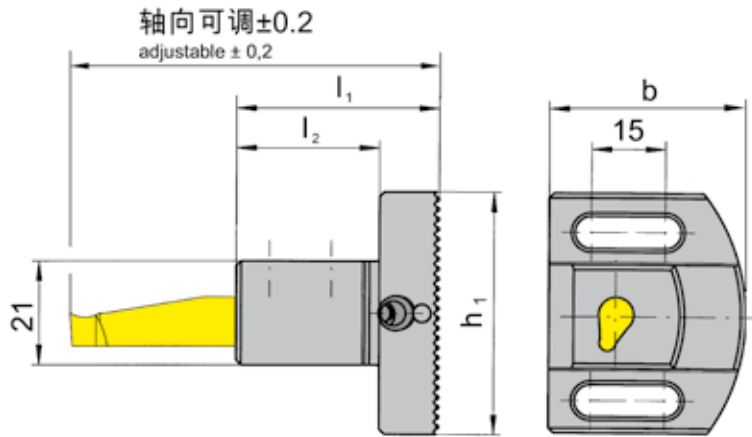
CARTRIDGE Type

BKT

配合URMA IntraMax 87-207
for URMA IntraMax System 87-207



端面槽起始外径	from outer groove \varnothing	31,0 mm
切槽深度可达	Depth of groove up to	30,0 mm



配合 刀片
for use with Insert

型号 A110
Type

产品型号 Part number	h_1	l_1	l_2	b
BKT110.U17G.02	49	41	26	39.5

尺寸单位：mm
Dimensions in mm

直径 $D_{amin} = 2x (13,5 \text{ mm} + f_{insert})$ 以上时可以使用两个刀夹
2 Cartridges are suitable from $D_{amin} = 2x (13,5 \text{ mm} + f_{insert})$

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

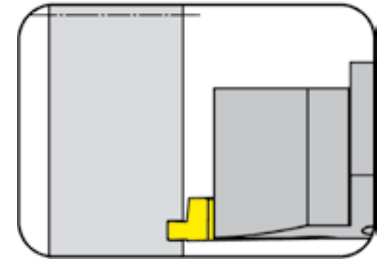
刀夹 Cartridge	螺钉 Screw	轴向调节螺钉 Adjusting screw	TORX PLUS® 扳手 TORX PLUS® Wrench
BKT110.U17G.02	6.075T15P	030.0006.0488	T15PQ

刀夹 型号

CARTRIDGE Type

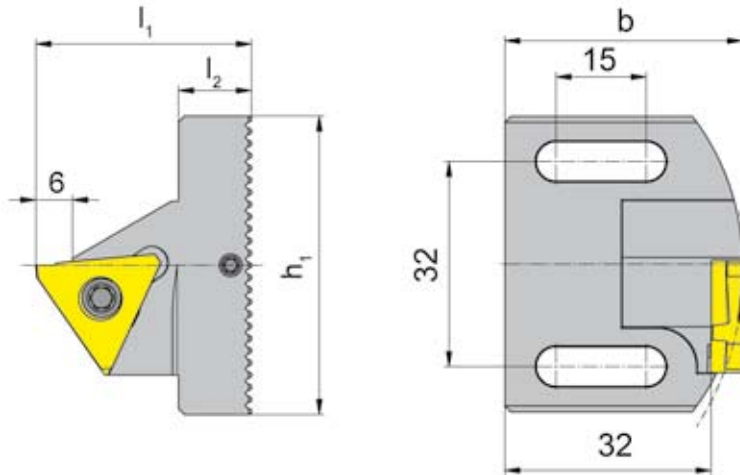
BKT

配合URMA IntraMax 87-207
for URMA IntraMax System 87-207



端面槽起始外径	from outer groove \varnothing	81.0 mm
切槽深度可达	Depth of groove up to	5.0 mm

夹持长度12mm
Clamping length 12 mm



配合 可转位刀片
for use with Indexable insert

型号 315
Type 需配合平衡块
only usable with
balancing weight
230 11 0036

产品型号 Part number	h_1	l_1	l_2	b
BKT356.U90G.05	49	42.4	12	39.8

尺寸单位：mm
Dimensions in mm

2 刀夹适用于 \varnothing 81-200 mm
2 Cartridges are suitable from \varnothing 81 - 200 mm

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

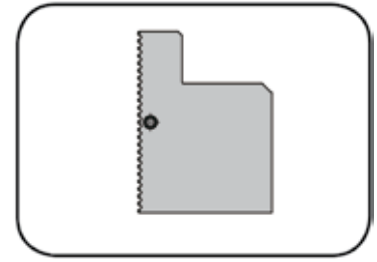
附件
Spare parts

刀夹 Cartridge	螺钉 Fixing screw	TORX PLUS® 扳手 TORX PLUS® Wrench
BKT356.U90G.05	5.12T20P	T20PQ

平衡块 型号

23

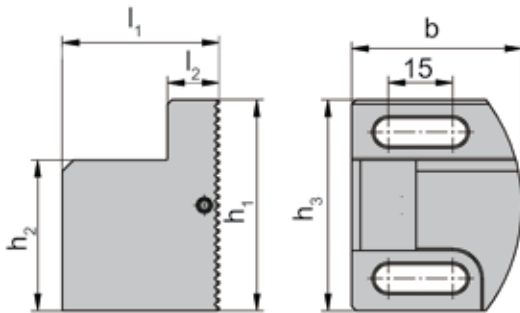
BALANCING WEIGHT Type



配合URMA IntraMax 87-207
for URMA IntraMax System 87-207

配合刀夹
for use with Cartridge

型号 BKT356.U90G.05
Type



产品型号 Part number	l_1	l_2	h_1	h_2	h_3	b	重量 Weight
230110036	36.4	12.5	49	34.8	49	39.5	0.3 kg

尺寸单位：mm
Dimensions in mm

附件
Spare parts

平衡块 Balancing weight	螺钉 Screw	垫圈 Washer
230110036	C002202	K000220

端面切槽

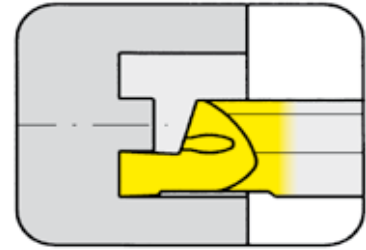
FACE GROOVING



S

刀片型号
INSERT Type

105

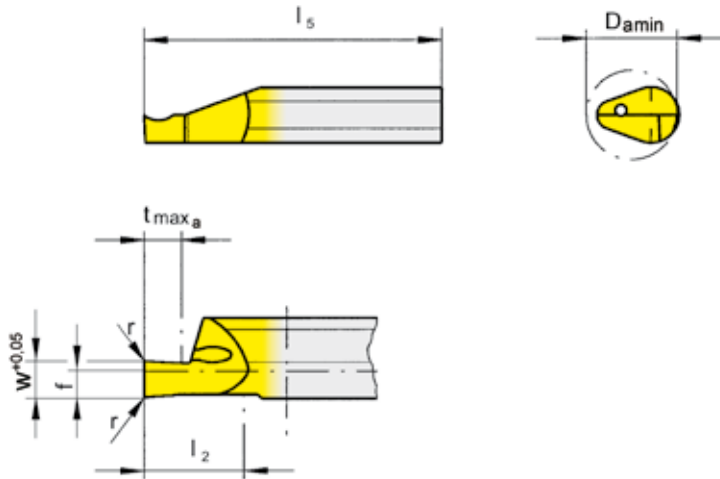


端面槽起始外径	from outer groove \varnothing	5.0 mm
槽深	Depth of groove	5.0 mm
槽宽可达	Width of groove up to	2.0 mm

夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	f	l ₂	l ₅	t _{max a}	D _{a min}	MG12	TN35	TI25	TH35
								▲/△	▲/△	▲/△	▲/△
R/L105.0510.1.8	1.0					2		▲/△		▲/△	
R/L105.0515.1.8	1.5	0.05	2	10	25	3	5	▲/△		▲/△	
R/L105.0520.1.8	2.0					5		▲/△		▲/△	
R/L105.0510.2.8	1.0					2		△/△		▲/△	
R/L105.0515.2.8	1.5	0.05	2	15	35	3	5	△/△		▲/△	
R/L105.0520.2.8	2.0					5		△/△		▲/△	

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P	○	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H			

硬质合金牌号
Carbide grades

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

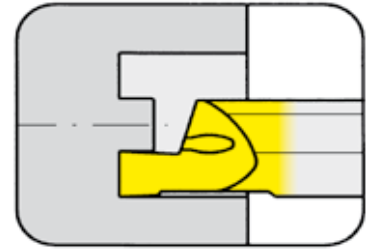
端面切槽 FACE GROOVING



S

刀片型号
INSERT Type

105

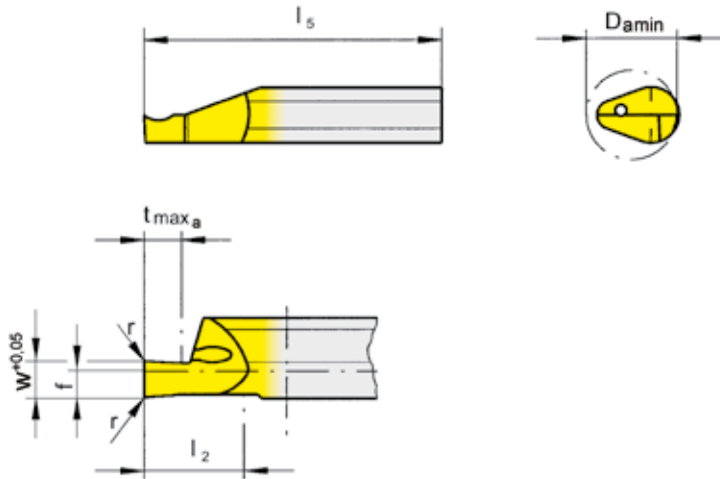


端面槽起始外径	from outer groove \varnothing	6.0 mm
槽深	Depth of groove	5.0 mm
槽宽可达	Width of groove up to	2.0 mm

夹持长度12mm
Clamping length 12 mm

配合刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	f	l ₂	l ₅	t _{max a}	D _{a min}	硬质合金牌号			
								MG12	TN35	TI25	TH35
R/L105.0610.1.8	1.0					2		▲/▲		▲/▲	
R/L105.0615.1.8	1.5	0.05	2	10	25	3	6	▲/▲		▲/▲	
R/L105.0620.1.8	2.0					5		▲/▲		▲/▲	
R/L105.0610.2.8	1.0					2		△/△		▲/△	
R/L105.0615.2.8	1.5	0.05	2	15	35	3	6	▲/		▲/△	
R/L105.0620.2.8	2.0					5		▲/△		▲/▲	
								P	○	●	
								M	●	●	
								K	●	●	
								N	●	●	
								S	●	●	
								H			

- ▲ 库存 / on stock △ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

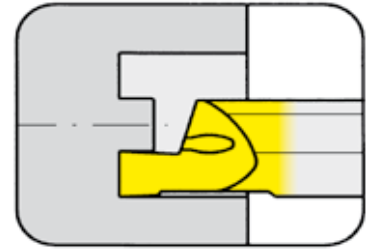
端面切槽 FACE GROOVING



S

刀片型号
INSERT Type

105

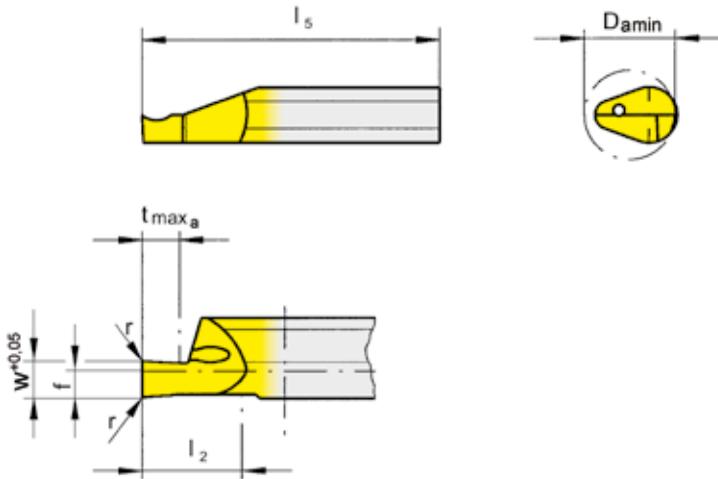


端面槽起始外径	from outer groove \varnothing	8.0 mm
槽深	Depth of groove	6.0 mm
槽宽可达	Width of groove up to	3.0 mm

夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	f	l_2	l_5	$t_{max a}$	$D_{a min}$		MG12	TN35	TI25	TH35
R/L105.0810.1.8	1.0					2					▲/▲	
R/L105.0815.1.8	1.5					3					▲/▲	
R/L105.0820.1.8	2.0	0.15	2	10	25	4	8				▲/▲	
R/L105.0825.1.8	2.5					5					▲/▲	
R/L105.0830.1.8	3.0					6					▲/▲	
R/L105.0810.2.8	1.0					2					▲/▲	
R/L105.0815.2.8	1.5					3					▲/▲	
R/L105.0820.2.8	2.0	0.15	2	15	35	4	8				▲/▲	
R/L105.0825.2.8	2.5					5					▲/▲	
R/L105.0830.2.8	3.0					6					▲/▲	
▲ 库存 / on stock									P		•	
● 主要应用 / main recommendation									M		•	
○ 可选推荐 / alternative recommendation									K		•	
■ 无涂层牌号 / uncoated grades									N		•	
■ 涂层牌号 / coated grades									S		•	
■ 钎焊/金属陶瓷 / brazed/Cermet									H			

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

端面切槽

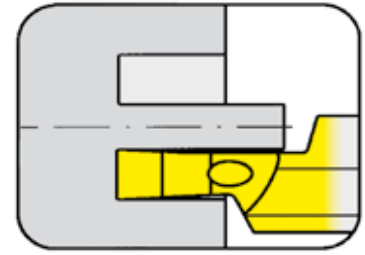
FACE GROOVING



S

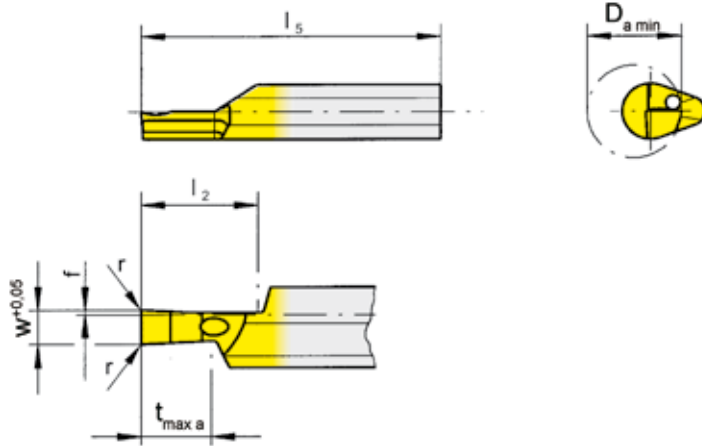
刀片型号
INSERT Type

105



端面槽起始外径	from outer groove \varnothing	8.0 mm
槽深	Depth of groove	6.0 mm
槽宽可达	Width of groove up to	3.0 mm

夹持长度12mm
Clamping length 12 mm



配合刀杆
for use with Toolholder

型号 B105
Type BKT

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	w	r	f	l_2	l_5	$t_{max a}$	$D_{a min}$	MG12	TN35	TI25	TH35
R/L105.0810.1.9	1.0					2				▲/▲	
R/L105.0815.1.9	1.5					3				▲/▲	
R/L105.0820.1.9	2.0	0.15	0.4	10	25	4	8			▲/▲	
R/L105.0825.1.9	2.5					5				▲/▲	
R/L105.0830.1.9	3.0					6				▲/▲	
▲ 库存 / on stock Δ 4周 / 4 weeks								P		•	
● 主要应用 / main recommendation								M		•	
○ 可选推荐 / alternative recommendation								K		•	
■ 无涂层牌号 / uncoated grades								N		•	
■ 涂层牌号 / coated grades								S		•	
■ 钎焊/金属陶瓷 / brazed/Cermet								H			

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

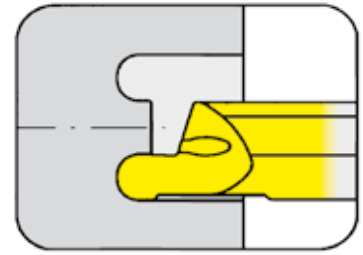
端面切槽 FACE GROOVING



S

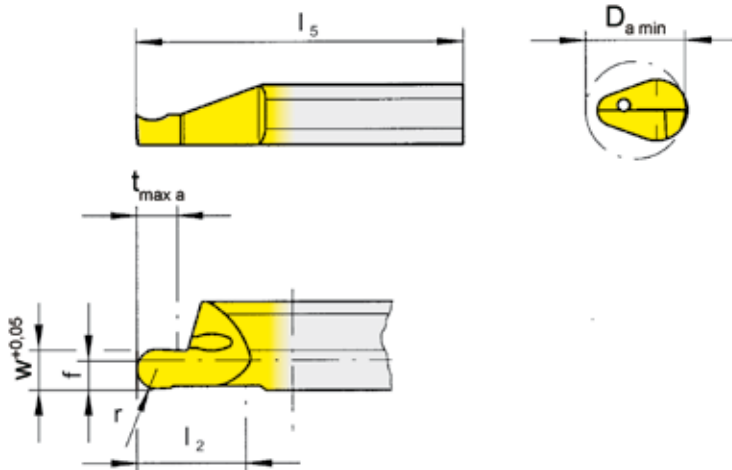
刀片型号
INSERT Type

105



端面槽起始外径	from outer groove \varnothing	8.0 mm
槽深	Depth of groove	6.0 mm
槽宽可达	Width of groove up to	3.0 mm

夹持长度12mm
Clamping length 12 mm



配合 刀杆
for use with Toolholder

型号 B105
Type BKT

R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

圆头
Full radius

产品型号 Part number	w	r	f	l_2	l_5	$t_{max a}$	$D_{a min}$	MG12	TN35	TI25	TH35
R/L105.8V10.1.8	1.0	0.50				2				▲/▲	
R/L105.8V16.1.8	1.6	0.80				3				▲/▲	
R/L105.8V20.1.8	2.0	1.00	2	10	25	4	8			▲/▲	
R/L105.8V25.1.8	2.5	1.25				5				▲/▲	
R/L105.8V30.1.8	3.0	1.50				6				▲/▲	
R/L105.8V10.2.8	1.0	0.50				2				▲/▲	
R/L105.8V16.2.8	1.6	0.80				3				▲/▲	
R/L105.8V20.2.8	2.0	1.00	2	15	35	4	8			▲/▲	
R/L105.8V25.2.8	2.5	1.25				5				▲/▲	
R/L105.8V30.2.8	3.0	1.50				6				▲/▲	

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

P			●
M			●
K			●
N			●
S			●
H			

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

注明R或L型
State R or L version

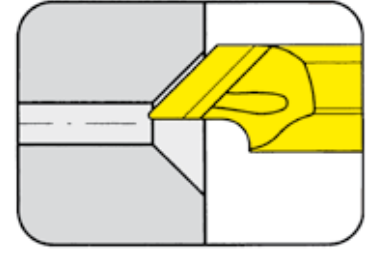
倒角 CHAMFERING



S

刀片 型号
INSERT Type

105

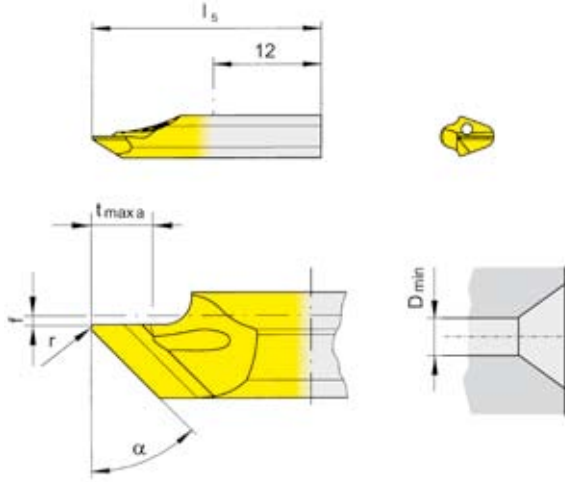


倒角角度	Angle of chamfer	45°/60°
倒角宽度可达	Width of chamfer up to	4.0 mm

夹持长度12mm
Clamping length 12 mm

配合 刀杆
for use with Toolholder

型号 B105
Type BKT



R=右手型-如图
R = right hand version shown

L=左手型
L = left hand version

产品型号 Part number	r	α	f	l ₂	l ₅	t _{max a}	D _{min}		MG12	TN35	TI25	TF45	TH35
R/L105.0045.1.1	0.2	45°	0.5	12	25	3.5	1					▲/▲	
R/L105.0060.1.1	0.2	60°	0.5	12	25	4.0	1					▲/▲	
▲ 库存 / on stock									P			•	
● 主要应用 / main recommendation									M			•	
○ 可选推荐 / alternative recommendation									K			•	
■ 无涂层牌号 / uncoated grades									N			•	
■ 涂层牌号 / coated grades									S			•	
■ 钎焊/金属陶瓷 / brazed/Cermet									H				

尺寸单位 : mm
Dimensions in mm

注明R或L型
State R or L version

硬质合金牌号
Carbide grades

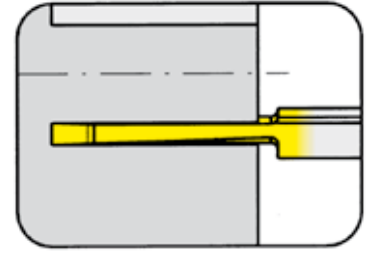
端面切槽 FACE GROOVING



S

刀片型号
INSERT Type

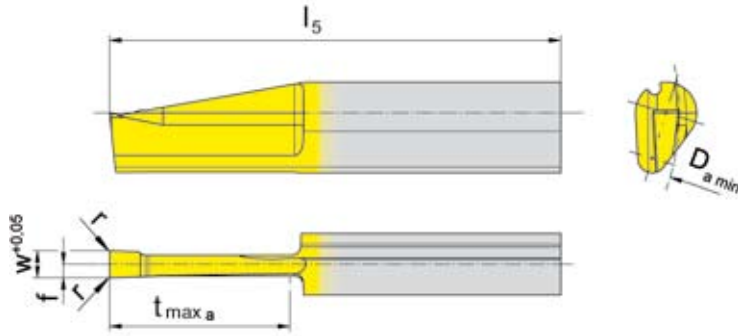
A110



端面槽起始外径	from outer groove \varnothing	20.0 mm
槽深	Depth of groove	30.0 mm
槽宽	Width of groove	3.0 mm

配合 刀杆
for use with Toolholder

型号 B110
Type



R=右手型-如图
R = right hand version shown

产品型号 Part number	w	r	f	l_5	$t_{max a}$	$D_{a min}$	MG12	TN35	Ti25	TF45	TH35
RA110.2030.3.0	3	0.2	1.5	50	20	20		▲	▲		▲
RA110.2030.5.0				60	30		▲	▲		▲	
RA110.5030.3.0	3	0.2	1.5	50	20	50			▲		
RA110.5030.5.0				60	30			▲			▲
							P	•	•		•
							M	•	•		•
							K	•	•		•
							N	•	•		•
							S	•	•		•
							H				

- ▲ 库存 / on stock Δ 4周 / 4 weeks
- 主要应用 / main recommendation
- 可选推荐 / alternative recommendation
- 无涂层牌号 / uncoated grades
- 涂层牌号 / coated grades
- 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

Dmin在20和50mm之间时，端面切槽可达满切下的最大切深。
Face grooving with full width of the full depth only possible between D_{amin} 20 - 50 mm.

端面切槽 FACE GROOVING

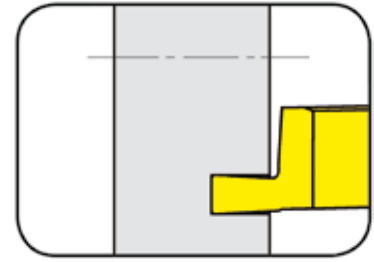


S

可转位刀片 型号

A315

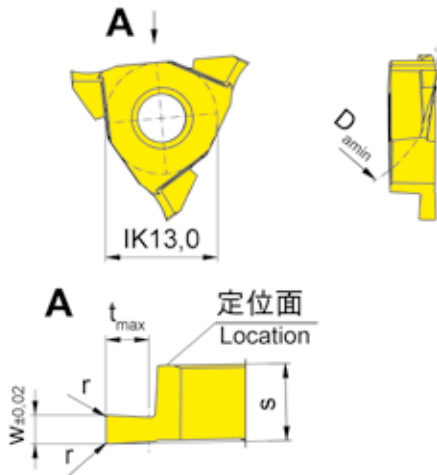
INDEXABLE INSERT Type



端面槽起始外径	from outer groove \varnothing	20.0 mm
槽深可达	Depth of groove up to	3.0 mm
槽宽	Width of groove	1.5 - 3.0 mm

配合 刀杆
for use with Toolholder

型号 BKT356
Type



R=右手型-如图
R = right hand version shown

刀片长度重复定位精度
 $\pm 0.02\text{mm}$
Indexability length $\pm 0,02\text{ mm}$

产品型号 Part number	w	s	r	t _{max}	D _{a min}	尺寸规格 Size	TI25	TA45	TH35
RA315.2015.02R	1.5			2	20	05			△
RA315.3020.02R	2.0	5.4	0.2	3	30				△
RA315.3030.02R	3.0			3	30				△
<ul style="list-style-type: none"> ▲ 库存 / on stock △ 4周 / 4 weeks ● 主要应用 / main recommendation ○ 可选推荐 / alternative recommendation ■ 无涂层牌号 / uncoated grades ■ 涂层牌号 / coated grades ■ 钎焊/金属陶瓷 / brazed/Cermet 							P		●
							M		●
							K		●
							N		●
							S		●
							H		

尺寸单位 : mm
Dimensions in mm

硬质合金牌号
Carbide grades

无涂层牌号

MG12 - 一种具有良好耐磨性的牌号，用于中低速加工钢件，铸铁和非铁材料。

涂层牌号

TN35 - 一种非常受欢迎的涂层TiN,用于中低速切削，推荐用于加工不锈钢和特种合金。

TI25 - TiCN涂层具有很高的耐磨性，推荐用于中速加工钢和有色金属材料

TF45 - 一种TiAlN涂层，具有非常好的热稳定性和高硬度，应用于特殊加工。
TA45

TH35 - 新的标准牌号-出色的热稳定性和高硬度，并且有非常低的摩擦系数。

AS45 - 新牌号为大多数加工的首选。该种牌号具有极高的抗氧化性和很高的硬度-很好的抗磨性。

UNCOATED GRADES

MG12 - a universal grade with good wear resistance. Used at low or medium cutting speeds for machining steel, cast iron and non ferrous materials

COATED GRADES

TN35 - a very popular grade TiN coated used to low or medium cutting speeds. Also recommended for machining stainless steel or exotic alloyed materials

TI25 - a TiCN coated grade with high abrasion resistance. Recommended for machining steel and non ferrous materials at medium cutting speeds

TF45 - a TiAlN coated grade. This coating has a very high temperature stability and high hardness and is only used for special applications.
TA45

TH35 - new standard grade - extreme Oxidation resistance with high hardness and very good coefficient of friction.

AS45 - new standard grade and first choice for most machining operations. This grade offers extreme Oxidation resistance and high hardness providing good wear resistance.

切削参数 CUTTING DATA



S

HORN各种刀具材质的推荐切削速度 Nominal cutting speeds with HORN grades

ISO	材料 Material	硬度 Brinell Hardness Brinell HB	进给率 f (mm/转) / Feed rate f (mm/rev)																																																																																																					
			Supermini®			Mini																																																																																																		
																																																																																																								
切削速度 / Cutting speed *v _c m/min																																																																																																								
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>MG12</th> <th>TN35</th> <th>TI25</th> <th>TF45</th> <th>TH35</th> <th>CB10/50</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>14-110</td> <td>14-180</td> <td>14-180</td> <td>14-180</td> <td>14-180</td> <td></td> </tr> <tr> <td>16-90</td> <td>16-150</td> <td>16-150</td> <td></td> <td>16-180</td> <td></td> </tr> <tr> <td></td> <td>19-90</td> <td>19-90</td> <td></td> <td>19-120</td> <td></td> </tr> <tr> <td>19-110</td> <td>19-180</td> <td>19-180</td> <td></td> <td>19-180</td> <td></td> </tr> <tr> <td></td> <td>19-90</td> <td>19-90</td> <td></td> <td>19-90</td> <td></td> </tr> <tr> <td>16-80</td> <td></td> <td></td> <td></td> <td>16-80</td> <td></td> </tr> <tr> <td>16-90</td> <td>16-150</td> <td>16-150</td> <td>16-150</td> <td>16-150</td> <td></td> </tr> <tr> <td>16-90</td> <td>16-130</td> <td>16-130</td> <td>16-150</td> <td>16-150</td> <td></td> </tr> <tr> <td>16-130</td> <td>16-130</td> <td>16-130</td> <td>16-150</td> <td>16-150</td> <td></td> </tr> <tr> <td></td> <td>14-220</td> <td>16-600</td> <td>16-600</td> <td></td> <td>16-600</td> </tr> <tr> <td></td> <td>14-220</td> <td>14-700</td> <td>14-700</td> <td></td> <td>14-700</td> </tr> <tr> <td></td> <td></td> <td></td> <td>18-75</td> <td>18-75</td> <td>18-75</td> </tr> <tr> <td></td> <td></td> <td></td> <td>18-40</td> <td>18-40</td> <td>18-40</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>20-140</td> </tr> </tbody> </table>									MG12	TN35	TI25	TF45	TH35	CB10/50							14-110	14-180	14-180	14-180	14-180		16-90	16-150	16-150		16-180			19-90	19-90		19-120		19-110	19-180	19-180		19-180			19-90	19-90		19-90		16-80				16-80		16-90	16-150	16-150	16-150	16-150		16-90	16-130	16-130	16-150	16-150		16-130	16-130	16-130	16-150	16-150			14-220	16-600	16-600		16-600		14-220	14-700	14-700		14-700				18-75	18-75	18-75				18-40	18-40	18-40						20-140
MG12	TN35	TI25	TF45	TH35	CB10/50																																																																																																			
14-110	14-180	14-180	14-180	14-180																																																																																																				
16-90	16-150	16-150		16-180																																																																																																				
	19-90	19-90		19-120																																																																																																				
19-110	19-180	19-180		19-180																																																																																																				
	19-90	19-90		19-90																																																																																																				
16-80				16-80																																																																																																				
16-90	16-150	16-150	16-150	16-150																																																																																																				
16-90	16-130	16-130	16-150	16-150																																																																																																				
16-130	16-130	16-130	16-150	16-150																																																																																																				
	14-220	16-600	16-600		16-600																																																																																																			
	14-220	14-700	14-700		14-700																																																																																																			
			18-75	18-75	18-75																																																																																																			
			18-40	18-40	18-40																																																																																																			
					20-140																																																																																																			
P	碳钢 Carbon steel	C < 0.4%	125																																																																																																					
		C > 0.4% < 0.6 %	150	14-110	14-180	14-180	14-180	14-180																																																																																																
		C > 0.4% < 0.6 %	200																																																																																																					
	低合金钢 low alloyed steel	退火 annealed	180																																																																																																					
		淬火 quenched	275	16-90	16-150	16-150		16-180																																																																																																
		淬火 quenched	300																																																																																																					
	高合金钢 high alloyed steel	退火 annealed	200		19-90	19-90		19-120																																																																																																
		淬火 quenched	325																																																																																																					
	铸钢 Cast steel	非合金 unalloyed	180																																																																																																					
低合金 low alloyed		220	19-110	19-180	19-180		19-180																																																																																																	
高合金 high alloyed		225																																																																																																						
M	不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200		19-90	19-90		19-90																																																																																																
		奥氏体 austenitic	180		16-80			16-80																																																																																																
K	灰铸铁 Grey cast iron		180-260	16-90	16-150	16-150	16-150	16-150																																																																																																
	球墨铸铁 Spheroidal graphite cast iron		180-260	16-90	16-130	16-130	16-150	16-150																																																																																																
	可锻铸铁 Malleable cast iron		130-230		16-130	16-130	16-150	16-150																																																																																																
N	铝合金 Al-alloys				14-220	16-600	16-600		16-600																																																																																															
	铜和青铜合金类 Copper and brass alloys				14-220	14-700	14-700		14-700																																																																																															
S	耐热合金 Heat resistant alloy	NiFe				18-75	18-75	18-75																																																																																																
		NiCo				18-40	18-40	18-40																																																																																																
H	硬化材料 hardened material								20-140																																																																																															

v_c 决定于刀具直径和机床的最大转速。

V_c is depending on the tool diameter and therefore of the maximum numbers of revolutions of the machine.

切削参数 切槽

CUTTING DATA Grooving



S

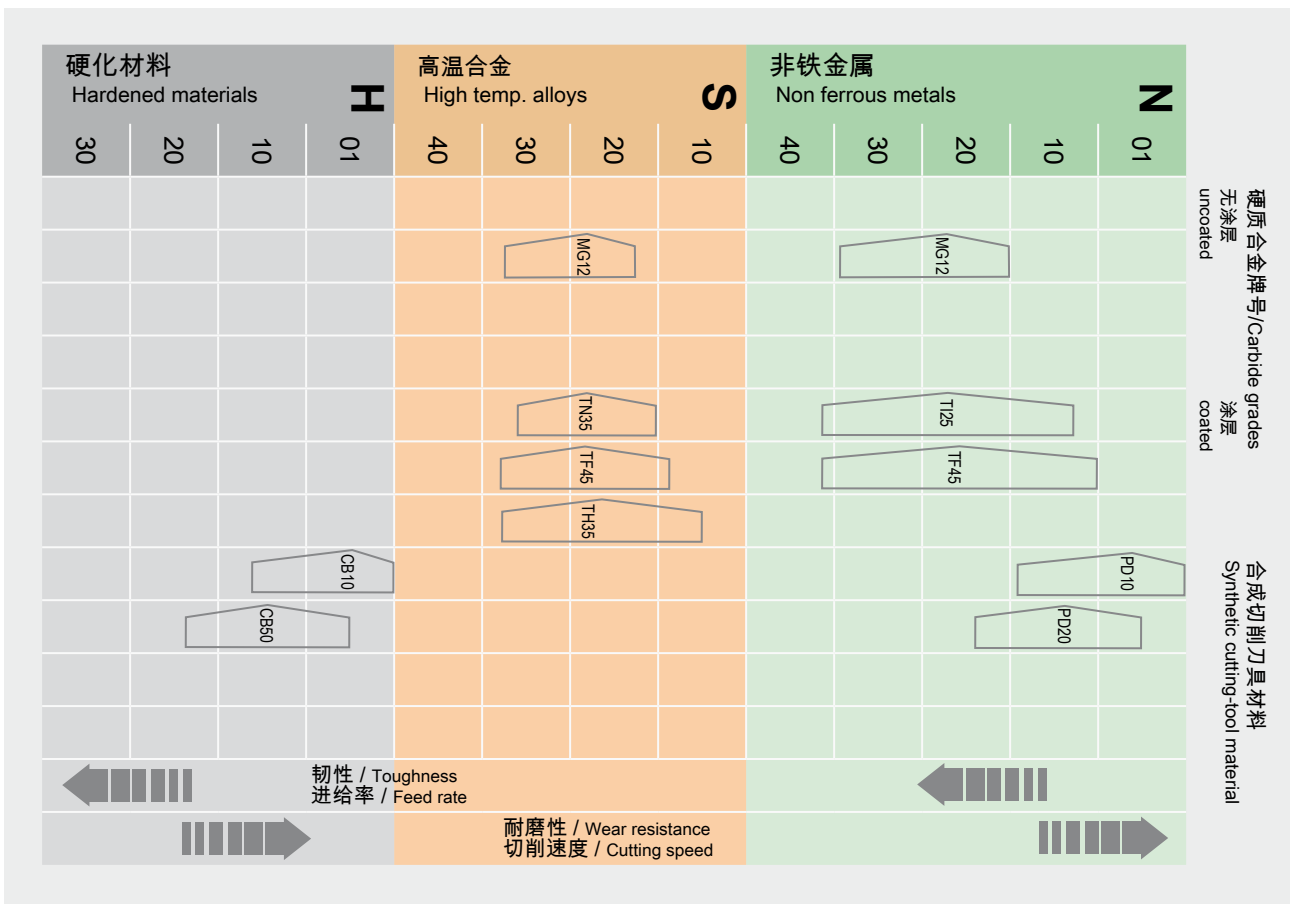
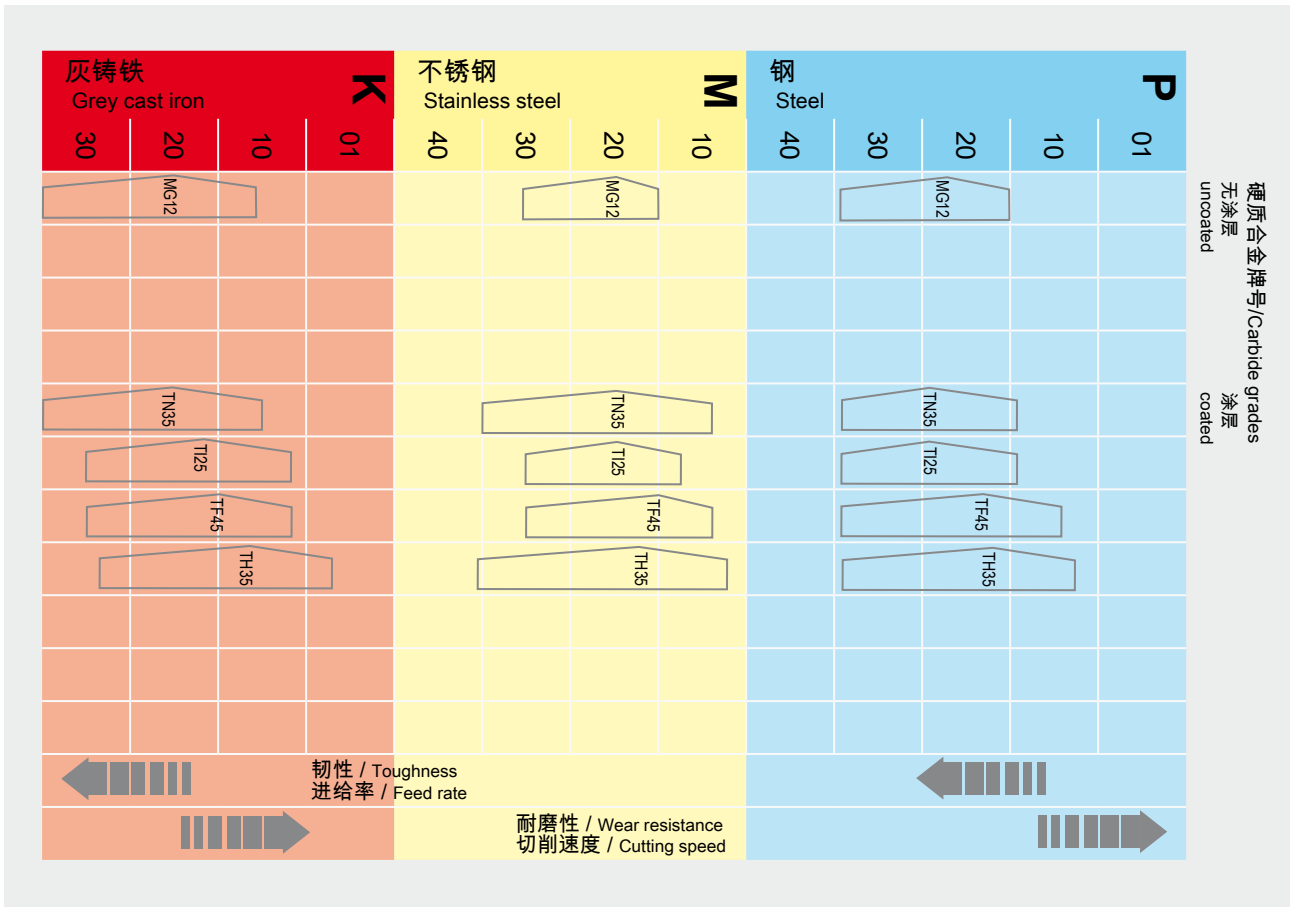
材料 Material			可转位刀片系列 / Indexable Insert Type 315								进给率 f (mm/转) Feed rate f (mm/rev)	
			切削速度 / Cutting speed v _c (m/min)									
			K10	MG12	P20	TI22 TN32	TI25 TN35	TF45 TH35	TF46	AS62		
P	碳钢 Carbon steel	0.2% C	140			180-120	200-160	180-130	100-80	280-180	250-180	0.03 - 0.15
		0.4% C	180			160-110	180-150	170-120	90-60	250-140	230-170	
		0.6% C	200			140-90	180-140	150-100		230-120	220-160	
	合金钢 Alloyed steel	退火 annealed	180			140-100	180-140	160-110	90-60	230-100	200-150	
		淬火 quenched	280			110-90	160-110	130-90		190-90	160-110	
		淬火 quenched	350			80	140-90	100-70		170-80	130-100	
	高合金钢 high alloyed steel (>5%)	退火 annealed	200			120-80	120-90			200-140	180-120	
		硬化 hardened	-									
	铸钢 Cast steel	非合金 unalloyed	180				130-100				200-150	
		合金 alloyed	220				110-80				160-100	
M	不锈钢 Stainless steel	马氏体, 铁素体 martensitic, ferritic	200		90-70		130-100	120-60		180-120	170-120	0.03 - 0.10
		奥氏体 austenitic	180		90-60			100-70		140-110		
K	灰铸铁 Grey cast iron	低拉伸强度 low tensile strength	180	90-60	80-60				130-90	180-120	180-120	0.03 - 0.20
		高拉伸强度 high tensile strength	250	90-60	80-60				90-70	140-100	140-100	
	球墨铸铁 Spheroidal graphite cast iron	铁素体 ferritic	160				90-70	90-70	120-80	170-90	170-90	0.03 - 0.15
		珠光体 perlitic	250				70-60	70-60	110-80	180-80	150-80	
	可锻铸铁 Malleable cast iron	铁素体 ferritic	125		100-80		140-120	100-70		120-100	190-140	
		珠光体 perlitic	225		70-50		100-80	80-60		90-80	140-100	
N	铝合金 Al-alloys	非热处理 not heat treatable	30-80	1000-600	800-400			1000-600				0.03 - 0.15
		热处理 heat treatable	80-120	400-220	300-200			400-220				
	铸铝合金 Al-cast-alloy	非热处理 not heat treatable	80	1000-600	800-400			1000-600				
		热处理 heat treatable	100	600-300	400-250			600-300				
	铜合金 Copper-alloys	非热处理 not heat treatable	90	200-120			200-150	210-130		200-150		
		热处理 heat treatable	100	150-90			150-60	160-90		150-110		
S	耐热合金 Heat resistant alloy (Fe)	退火 annealed	200		50-30			50-30				0.03 - 0.08
		硬化 hardened	275		40-20			40-20				
	耐热合金 Heat resistant alloy (Ni, Co)	退火 annealed	250		30-20			30-20				
		硬化 hardened	350		20-10			20-10				

硬质合金牌号的选择

CHOICE OF CARBIDE GRADES



S



HORN-DR系列 HORN-System DR

许可证
Licence



模块化刀具系列
Modular Tooling System

Ø 11.9 - 140.6 mm

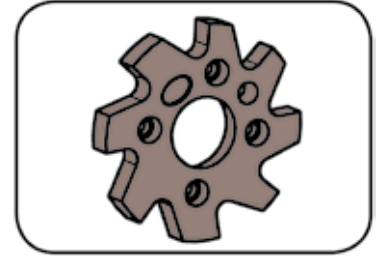
高性能铰削 HIGH-PERFORMANCE REAMING



刀片 型号
INSERT type

DR

直槽
straight fluted

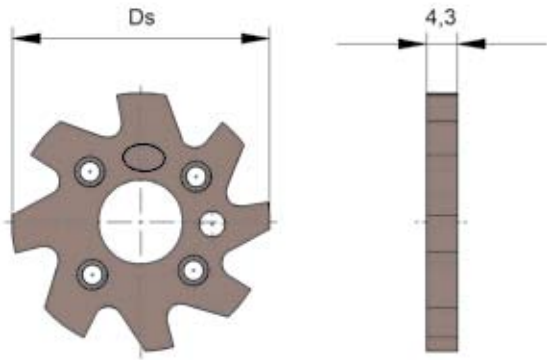


切削刃 \varnothing Ds Cutting edge \varnothing Ds 11.9 - 100.6 mm

加工通孔和盲孔
for through hole and blind hole

配合铰刀刀杆
for use with Reaming insert holder

型号 MDR
type ADR



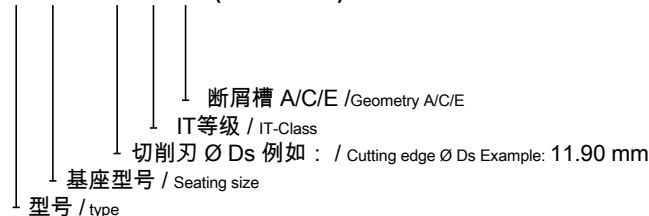
图示=右手型
Right hand version shown

产品型号 例如： Part number Example:	Ds	尺寸规格 Size	Z	推荐使用的硬质合金牌号 recommended carbide grades							推荐使用的金属陶瓷牌号 recommended cermet grades							
				MG10	AD3H	AD4H	AC4H	AC5H	HL3H	DT2H	H20	AD38	AD48	AC48	AC58	HL38	DT28	
DR.016.01190.H7.A1	11.90 - 15.60	016	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.019.01561.H7.A1	15.61 - 18.60	019	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.024.01861.H7.A1	18.61 - 23.60	024	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.029.02361.H7.A1	23.61 - 28.60	029	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.036.02861.H7.A1	28.61 - 35.60	036	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.044.03561.H7.A1	35.61 - 43.60	044	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.052.04361.H7.A1	43.61 - 51.60	052	10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.061.05161.H7.A1	51.61 - 60.60	061	10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.081.06061.H7.A1	60.61 - 80.60	081	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.101.10061.H7.A1	80.61 - 100.60	101	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

根据客户要求尺寸单位为：mm或 μ m
Dimensions in mm or μ m steps according customers request

如何订购：
Ordering example:

DR.016.01190.H7.A1 (牌号 / Grade)

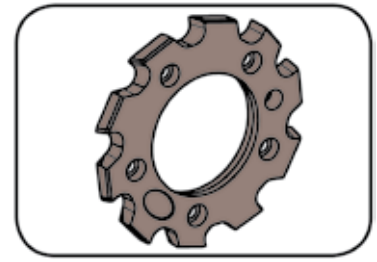


高性能铰削 HIGH-PERFORMANCE REAMING



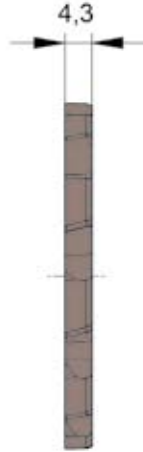
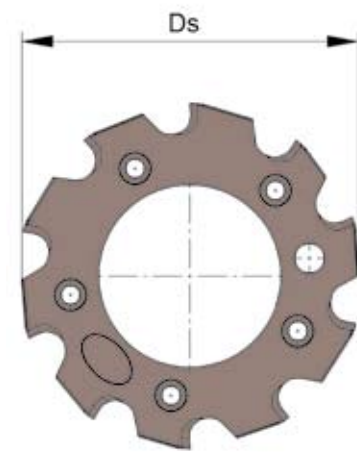
刀片 型号
INSERT type

DR
左旋
left helical fluted



切削刃 \varnothing Ds Cutting edge \varnothing Ds 11.9 - 100.6 mm

通孔
Through hole



配合铰刀刀杆
for use with Reaming insert holder

型号 MDR
type ADR

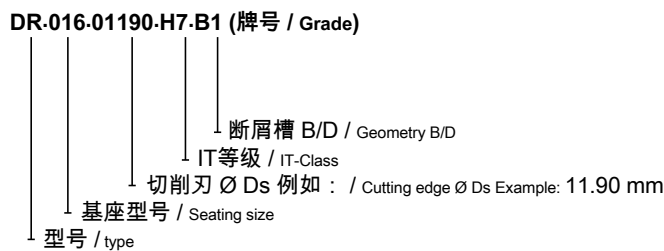


图示=右手型
Right hand version shown

产品型号 例如： Part number Example:	Ds	尺寸规格 Size	Z	推荐的硬质合金牌号 recommended carbide grades							推荐的金属陶瓷牌号 recommended cermet grades								
				MG10	AD3H	AD4H	AC4H	AC5H	HL3H	DT2H	H20	AD38	AD48	AC48	AC58	HL38	DT28		
DR.016.01190.H7.B1	11.90 - 15.60	016	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.019.01561.H7.B1	15.61 - 18.60	019	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.024.01861.H7.B1	18.61 - 23.60	024	6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.029.02361.H7.B1	23.61 - 28.60	029	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.036.02861.H7.B1	28.61 - 35.60	036	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.044.03561.H7.B1	35.61 - 43.60	044	8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.052.04361.H7.B1	43.61 - 51.60	052	10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.061.05161.H7.B1	51.61 - 60.60	061	10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.081.06061.H7.B1	60.61 - 80.60	081	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DR.101.10061.H7.B1	80.61 - 100.60	101	12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

根据客户要求尺寸单位为：mm或 μ m
Dimensions in mm or μ m steps according customers request

如何订购：
Ordering example:



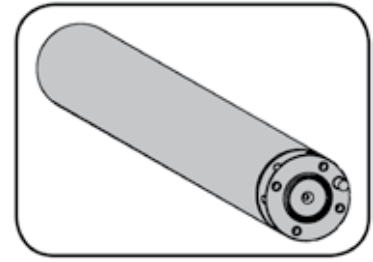
高性能铰削 HIGH-PERFORMANCE REAMING



铰刀刀杆 型号

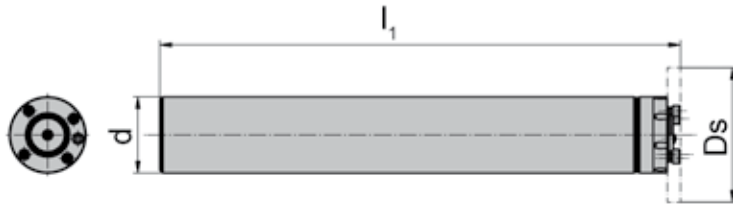
REAMING INSERT HOLDER Type

MDR



切削刃Ø Cutting edge Ø 11.9 - 35.6 mm

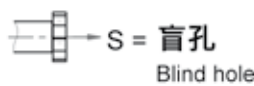
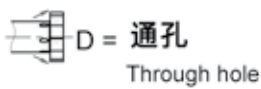
刀杆材质：HM = 硬质合金 ST = 钢
Material of shank: HM = Carbide ST = Steel



配合刀片
for use with Insert

型号 DR
Type

内冷
Through coolant supply



规格 / Form
A = 圆刀杆 DIN 1835-A
Cylindrical shank

产品型号 Part number	Ds	Ds _{max}	l ₁	d	规格 Form	尺寸规格 Size
MDR.016.ST10.100.A.D/S MDR.016.HM10.160.A.D/S MDR.016.ST10.160.A.D/S	11.900	15.6	100 160 160	10	A	016
MDR.019.ST12.115.A.D/S MDR.019.HM12.185.A.D/S MDR.019.ST12.185.A.D/S	15.601	18.6	115 185 185	12	A	019
MDR.024.ST16.128.A.D/S MDR.024.HM16.208.A.D/S MDR.024.ST16.208.A.D/S	18.601	23.6	128 208 208	16	A	024
MDR.029.ST20.145.A.D/S MDR.029.HM20.240.A.D/S MDR.029.ST20.240.A.D/S	23.601	28.6	145 240 240	20	A	029
MDR.036.ST25.170.A.D/S MDR.036.HM25.274.A.D/S MDR.036.ST25.274.A.D/S	28.601	35.6	170 274 274	25	A	036

注明R或S型
State D or S version

单位：mm
Dimensions in mm

1组螺钉，1个Torx扳手-无需单独订购！
1 Set of screws, 1 Torx wrench - no separate order required!

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铰刀刀杆 Reaming insert holder	螺钉 Screw
MDR.016-19...	C009000
MDR.024-36...	C009001

高性能铰削 HIGH-PERFORMANCE REAMING

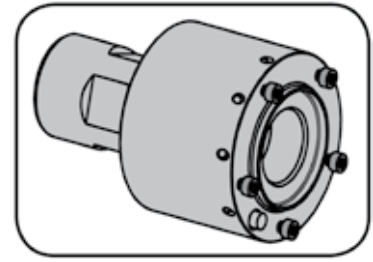


铰刀刀杆 型号

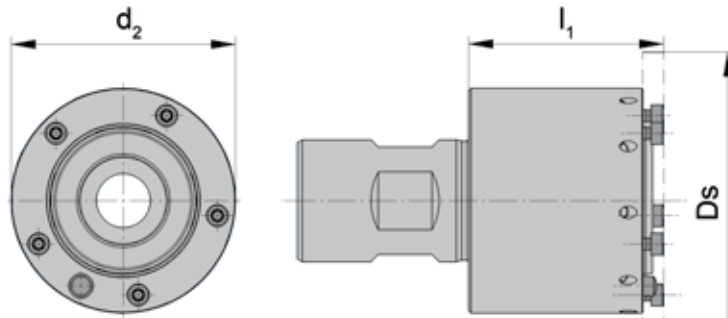
REAMING INSERT HOLDER Type

MDR

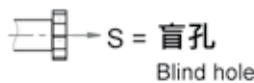
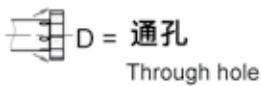
带内冷
with through coolant supply



切削刃Ø	Cutting edge Ø	35.601 - 140.6 mm
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内冷
Through coolant supply



配合刀片
for use with Insert

型号 DR
Type

规格 / Form
V = 配合VDR刀杆，可调“0”跳动
for use with shank type VDR, allowing
for “0” runout adjustment.

产品型号 Part number	Ds	Ds _{max}	l ₁	d ₂	规格 Form	尺寸规格 Size
MDR.044.32.30.V.D/S	35.601	43.6	30	32	V	044
MDR.052.39.35.V.D/S	43.601	51.6	35	39	V	052
MDR.061.46.40.V.D/S	51.601	60.6	40	46	V	061
MDR.081.56.50.V.D/S	60.601	80.6	50	56	V	081
MDR.101.76.60.V.D/S	80.601	100.6	60	76	V	101
MDR.121.76.60.V.D/S	100.601	120.6	60	76	V	121
MDR.141.76.60.V.D/S	120.601	140.6	60	76	V	141

注明R或S型
State D or S version

尺寸单位：mm
Dimensions in mm

1组螺钉，1个Torx扳手-无需单独订购！
1 Set of screws, 1 Torx wrench - no separate order required!

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铰刀刀杆 Reaming insert holder	螺钉 Screw
MDR.044-061...	C009002
MDR.081-101...	C009004

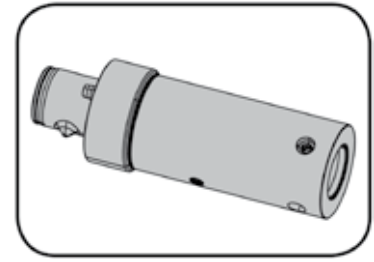
高性能铰削 HIGH-PERFORMANCE REAMING



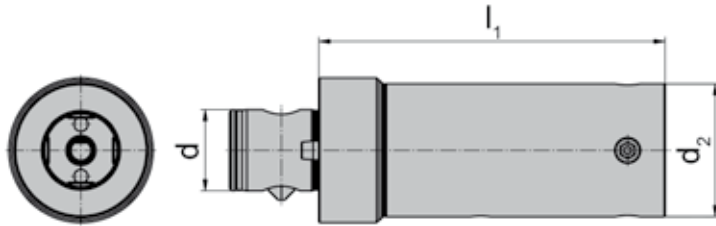
刀杆 型号
SHANK Type

VDR

带集成补偿装置
with integrated compensation mechanism



切削刃Ø Cutting edge Ø 35.601 - 60.6 mm



配合刀片
for use with Insert

型号 DR
Type

规格 / Form

A = 圆刀杆 DIN 1835-A
Cylindrical shank

B = weldon刀杆 DIN 1835-B
Weldon shank

E = Whistle-Notch DIN 1835-E
BM = URMA Beta模块 (ABS)
URMA Beta modul

产品型号 Part number	Ds	Ds _{max}	l ₁	d ₂	d	规格 Form	尺寸规格 Size
VDR.044.32.55.20.A VDR.044.32.55.20.B VDR.044.32.55.20.E VDR.044.32.55.32.BM	35.601	43.6	55	32	20 20 20 32	A B E BM	044
VDR.044.32.80.20.A VDR.044.32.80.20.B VDR.044.32.80.20.E VDR.044.32.80.32.BM	35.601	43.6	80	32	20 20 20 32	A B E BM	044
VDR.052.39.60.25.A VDR.052.39.60.25.B VDR.052.39.60.25.E VDR.052.39.60.40.BM	43.601	51.6	60	39	25 25 25 40	A B E BM	052
VDR.052.39.100.25.A VDR.052.39.100.25.B VDR.052.39.100.25.E VDR.052.39.100.40.BM	43.601	51.6	100	39	25 25 25 40	A B E BM	052
VDR.061.46.70.32.A VDR.061.46.70.32.B VDR.061.46.70.32.E VDR.061.46.70.50.BM	51.601	60.6	70	46	32 32 32 50	A B E BM	061
VDR.061.46.120.32.A VDR.061.46.120.32.B VDR.061.46.120.32.E VDR.061.46.120.50.BM	51.601	60.6	120	46	32 32 32 50	A B E BM	061

附件
Spare parts

单位 : mm
Dimensions in mm

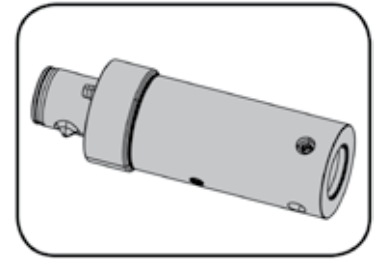
刀杆 Shank	定位销 Locating pin	螺钉 Screw	螺栓 Bolt
VDR.044.32....A/B/BM/E	Z003223	C009008	Z003221
VDR.052.39....A/B/BM/E	Z004023	C009010	Z004021
VDR.061.46....A/B/BM/E	Z005023	C009010	Z005021

高性能铰削 HIGH-PERFORMANCE REAMING

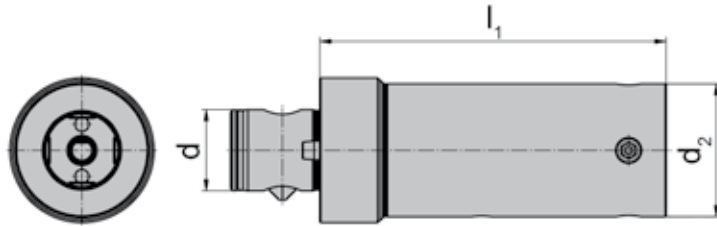


刀杆 型号
SHANK Type

VDR
带集成补偿装置
with integrated compensation mechanism



切削刃Ø	Cutting edge Ø	60.601 - 140.6 mm
------	----------------	-------------------



配合刀片
for use with Insert

型号 DR
Type

规格 / Form

A = 圆刀杆 DIN 1835-A
Cylindrical shank

B = weldon刀杆 DIN 1835-B
Weldon shank

E = Whistle-Notch DIN 1835-E
BM = URMA Beta模块 (ABS)
URMA Beta modul

产品型号 Part number	Ds	Ds _{max}	l ₁	d	d ₂	规格 Form	尺寸规格 Size
VDR.081.56.80.40.A	60.601	80.6	80	40	56	A	081
VDR.081.56.80.40.B				40		B	
VDR.081.56.80.40.E				40		E	
VDR.081.56.80.50.BM				50		BM	
VDR.081.56.140.40.A	60.601	80.6	140	40	56	A	081
VDR.081.56.140.40.B				40		B	
VDR.081.56.140.40.E				40		E	
VDR.081.56.140.50.BM				50		BM	
VDR.101.76.100.40.A	80.601	140.6	100	40	76	A	101 / 141
VDR.101.76.100.40.B				40		B	
VDR.101.76.100.40.E				40		E	
VDR.101.76.100.63.BM				63		BM	
VDR.101.76.160.40.A	80.601	140.6	160	40	76	A	101 / 141
VDR.101.76.160.40.B				40		B	
VDR.101.76.160.40.E				40		E	
VDR.101.76.160.63.BM				63		BM	

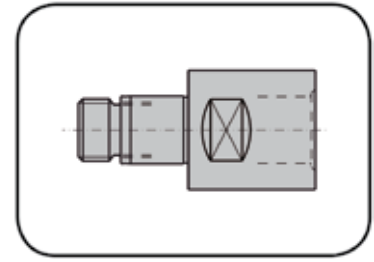
尺寸单位 : mm
Dimensions in mm

附件
Spare parts

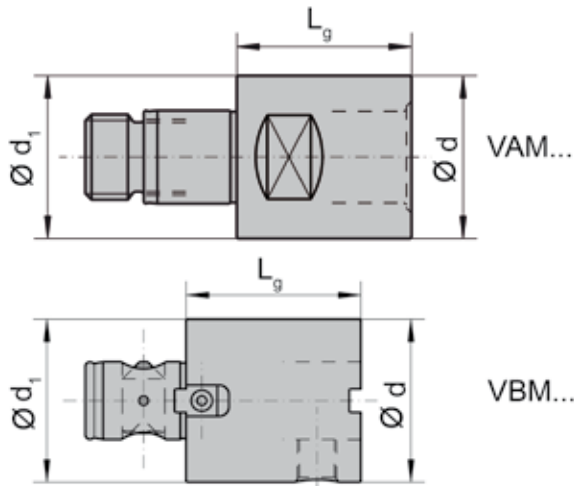
刀杆 Shank	定位销 Locating pin	螺钉 Screw	螺栓 Bolt
VDR.081.56.140.40.A	Z002523	C009012	Z005021
VDR.081.56.140.40.B	Z005023	C009012	Z002521
VDR.081.56....A/B/BM/E	Z005023	C009012	Z005021
VDR.101.76.1...A/B/BM/E	Z006323	C009016	Z006321

延长杆 型号
EXTENSION Type

VAM/VBM



配合alpha和beta模块
for alpha- and beta-modules



产品型号 Part number	alpha模块 alpha-modul	Beta模块 beta-modul	L_g	d	d_1	重量 Weight	SW
VAM.1818.025	18.5		25	18.5	18.5	0.1kg	17
VAM.1818.035			35				
VBM.2525.045		25	45	25.0	25.0	0.2 kg	-
VBM.2525.070		25	70	25.0	25.0	0.3 kg	
VBM.3232.035		32	35	32.0	32.0	0.2 kg	
VBM.3232.070		32	70	32.0	32.0	0.4 kg	
VBM.4040.045		40	45	42.0	42.0	0.4 kg	
VBM.4040.070		40	70	42.0	42.0	0.7 kg	
VBM.5050.065		50	65	50.0	50.0	1.0 kg	
VBM.5050.100		50	100	50.0	50.0	1.5 kg	
VBM.6363.060		63	60	63.0	63.0	1.3 kg	
VBM.6363.125		63	125	63.0	63.0	2.9 kg	

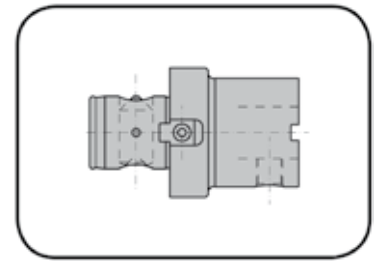
尺寸单位：mm
Dimensions in mm

附件
Spare parts

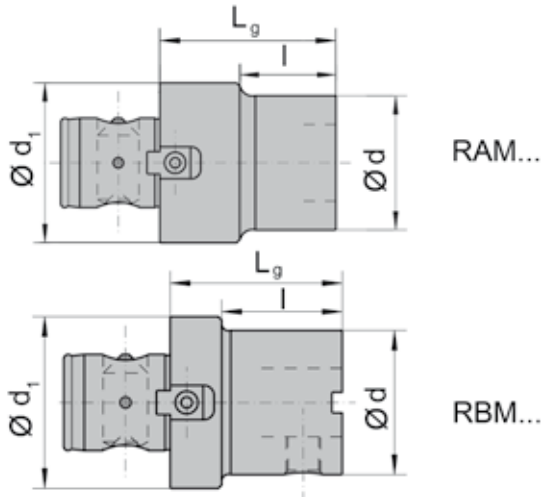
延长杆 Extension	定位销 Locating pin	螺钉 Screw	螺栓 Bolt	螺纹锁紧销 Threaded pin	键 Slot nut
VBM.2525.045/070	Z002523		Z002521	Z002524	
VBM.3232.035/070	Z003223		Z003221	Z003224	
VBM.4040.045/070	Z004023	C002258	Z004021	Z004024	Z004025
VBM.5050.065/100	Z005023	C002260	Z005021	Z005024	Z005025
VBM.6363.060/125	Z006323	C002205	Z006321	Z006324	Z006325

变径接头 型号
REDUCER Type

RAM/RBM



配合alpha和beta模块
for alpha- and beta-modules



产品型号 Part number	alpha模块 alpha-modul	Beta模块 beta-modul	L _g	l	d	d ₁	重量 Weight	SW
RAM.2518.040	18.5	25	40	25	18.5	25	0.1kg	17
RBM.3225.040		32 / 25	40	25	25.0	32	0.2 kg	
RBM.4025.040		40 / 25	40	25	25.0	42	0.3 kg	
RBM.4032.045		40 / 32	45	30	32.0	42	0.3 kg	
RBM.5040.050		50 / 40	50	35	42.0	50	0.5 kg	-
RBM.6325.045		63 / 25	45	25	25.0	63	0.7 kg	
RBM.6332.050		63 / 32	50	30	32.0	63	0.9 kg	
RBM.6340.055		63 / 40	55	35	42.0	63	1.1 kg	

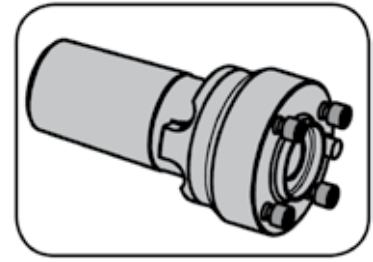
尺寸单位：mm
Dimensions in mm

附件
Spare parts

变径接头 Reducer	定位销 Locating pin	螺钉 Screw	螺栓 Bolt	螺纹锁紧销 Threaded pin	键 Slot nut
RAM.2518.040	Z002523		Z002521	Z002524	
RBM.3225.040	Z003223		Z003221	Z003224	
RBM.4025.040	Z002523	C002258	Z002521	Z004024	Z004025
RBM.4032.045	Z003223	C002258	Z004021	Z004024	Z004025
RBM.5040.050	Z004023	C002258	Z004021	Z004024	Z004025
RBM.6325.045	Z006323	C002205	Z006321	Z006324	Z006325
RBM.6332.050	Z006323	C002205	Z006321	Z003224	Z006325
RBM.6340.055	Z004023	C002205	Z004021	Z004024	Z004025

接头 型号
ADAPTOR Type

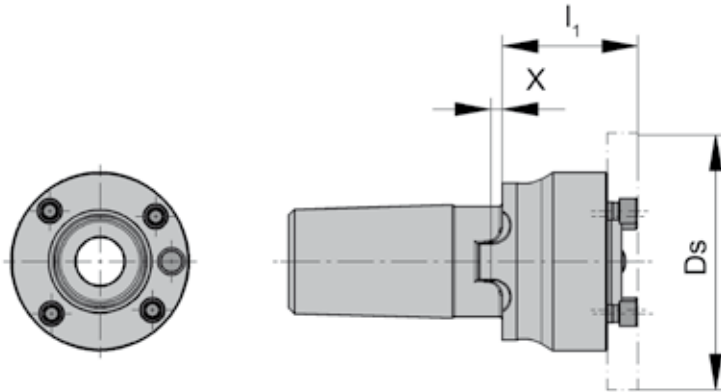
ADR



切削刃Ø Cutting edge Ø 12.6 - 60.6 mm

配合刀片
for use with Insert

型号 DR
Type



产品型号 Part number	Ds	Ds _{max}	X	l ₁	尺寸规格 Size
ADR.016.135.01	12.600	15.6	1.5	13.5	016
ADR.019.140.02	15.601	18.6	1.5	14.0	019
ADR.024.162.03	18.601	23.6	1.5	16.2	024
ADR.029.187.04	23.601	28.6	1.5	18.7	029
ADR.036.190.05	28.601	35.6	1.5	19.0	036
ADR.044.190.06	35.601	43.6	2.0	19.0	044
ADR.052.185.06	43.601	51.6	2.0	18.5	052
ADR.061.185.07	51.601	60.6	2.0	18.5	061

尺寸单位：mm
Dimensions in mm

1组螺钉，1个Torx扳手-无需单独订购！
1 Set of screws, 1 Torx wrench - no separate order required!

螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

接头 Adaptor	螺钉 Screw
ADR.01...01/02	C009000
ADR.0...03/04/05	C009001
ADR.0...06/07	C009002

URMA系统刀柄 型号

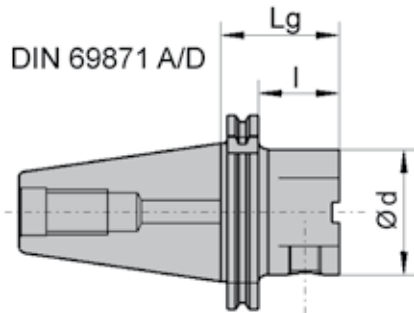
SYSTEM HOLDER URMA Type

BD



T

Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BD1040A25050	25	50	31	25	0.8 kg	SK40
BD1040A32050	32	50	31	35	0.9 kg	
BD1040A40035	40	35	16	42	0.9 kg	
BD1040A40050	40	50	31	42	1.1 kg	
BD1040A50050	50	50	31	50	1.2 kg	
BD1040A63065	63	65	46	63	1.5 kg	
BD1040A63090	63	90	70	63	2.0 kg	
BD1050A25060	25	60	41	25	2.8 kg	SK50
BD1050A32060	32	60	41	32	2.9 kg	
BD1050A40060	40	60	41	42	3.0 kg	
BD1050A50060	50	60	41	50	3.2 kg	
BD1050A63060	63	60	41	63	3.3 kg	
BD1050A80070	80	70	51	50	4.0 kg	
BD1050A100115	100	115	96	50	6.9 kg	

附件

Spare parts

尺寸单位 : mm
Dimensions in mm

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BD10...A25...	Z002524
BD10...A32...	Z003224
BD10...A40...	Z004024
BD10...A50...	Z005024
BD10...A63...	Z006324
BD1050A100115	Z0010024
BD1050A80070	Z008024

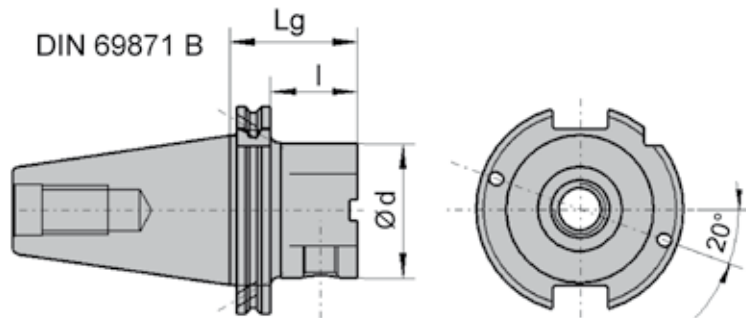
URMA系统刀柄 型号

SYSTEM HOLDER URMA Type

BD



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BD1040B25050	25	50	31	25	0.8 kg	SK40
BD1040B32050	32	50	31	35	0.9 kg	
BD1040B40035	40	35	16	42	0.9 kg	
BD1040B40050	40	50	31	42	1.1 kg	
BD1040B50050	50	50	31	50	1.2 kg	
BD1040B63065	63	65	46	63	1.5 kg	
BD1040B63090	63	90	70	63	2.0 kg	
BD1050B25060	25	60	41	25	2.8 kg	SK50
BD1050B32060	32	60	41	32	2.9 kg	
BD1050B40060	40	60	41	42	3.0 kg	
BD1050B50060	50	60	41	50	3.2 kg	
BD1050B63060	63	60	41	63	3.3 kg	
BD1050B80070	80	70	51	80	4.0 kg	
BD1050B100115	100	115	96	100	6.9 kg	

附件
Spare parts

尺寸单位 : mm
Dimensions in mm

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BD10...B25...	Z002524
BD10...B32...	Z003224
BD10...B40...	Z004024
BD10...B50...	Z005024
BD10...B63...	Z006324
BD1050B100115	Z0010024
BD1050B80070	Z008024

URMA系统刀柄 型号

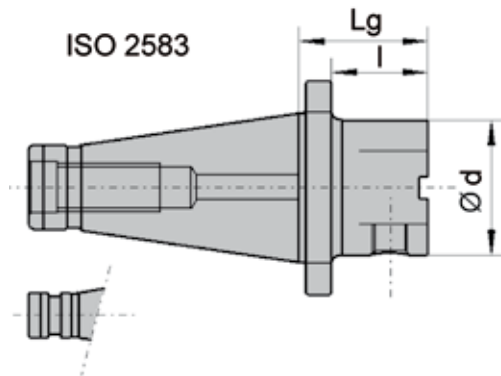
SYSTEM HOLDER URMA Type

BI



T

Beta模块40/63/100
Beta Module 40/63/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BI104040035	40	35	23	42	0.7 kg	SK40
BI104040050	40	50	38	42	1.1 kg	
BI104063070	63	70	58	63	1.8 kg	
BI105040060	40	60	45	42	3.0 kg	SK50
BI105063060	63	60	45	63	3.5 kg	
BI1050100100	100	100	85	100	6.8 kg	

尺寸单位：mm
Dimensions in mm

附件

Spare parts

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BI10...40...	Z004024
BI10...63...	Z006324
BI1050100100	Z0010024

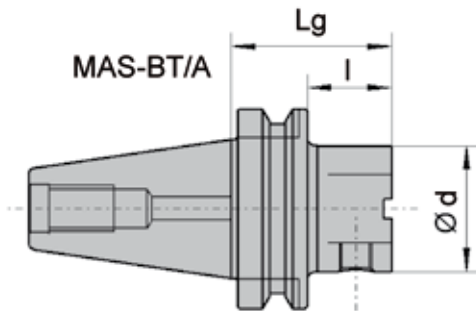
URMA系统刀柄 型号

SYSTEM HOLDER URMA Type

BT



Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BT1040A25060	25	60	33	25	0.8 kg	SK40
BT1040A32060	32	60	33	32	0.9 kg	
BT1040A40028	40	28	1	42	0.9 kg	
BT1040A40060	40	60	33	42	1.2 kg	
BT1040A50060	50	60	33	50	1.3 kg	
BT1040A63055	63	55	28	63	1.4 kg	
BT1040A63070	63	70	43	63	1.7 kg	
BT1050A32070	32	70	32	32	3.7 kg	SK50
BT1050A40070	40	70	32	42	3.9 kg	
BT1050A50070	50	70	32	50	4.1 kg	
BT1050A63080	63	80	42	63	4.3 kg	
BT1050A80100	80	100	62	80	5.5 kg	
BT1050A100100	100	110	72	100	7.0 kg	

尺寸单位：mm
Dimensions in mm

附件

Spare parts

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin
BT1040A25060	Z002524
BT10...A32...	Z003224
BT10...A40...	Z004024
BT10...A50...	Z005024
BT10...A63...	Z006324
BT1050A100100	Z0010024
BT1050A80100	Z008024

URMA系统刀柄 型号

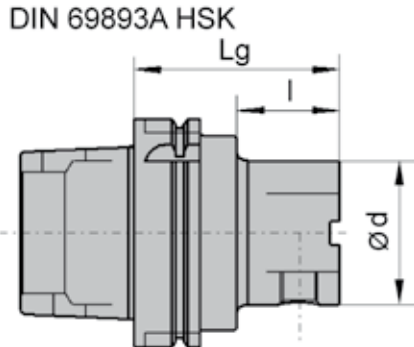
SYSTEM HOLDER URMA Type

BH



T

Beta模块25/32/40/50/63/80/100
Beta Module 25/32/40/50/63/80/100



产品型号 Part number	Beta模块 beta-modul	L _g	l	d	重量 Weight	系列 System
BH1050A25055	25	55	29	25	0.5 kg	HSK50
BH1050A32060	32	60	34	32	0.6 kg	
BH1050A40065	40	65	39	42	0.7 kg	
BH1063A25055	25	55	29	25	0.9 kg	HSK63
BH1063A32060	32	60	34	32	1.0 kg	
BH1063A40065	40	65	23	42	1.1 kg	
BH1063A50070	50	70	44	50	1.5 kg	
BH1063A63080	63	80	38	63	1.5 kg	HSK100
BH10100A40080	40	80	35	42	2.3 kg	
BH10100A50080	50	80	35	50	2.5 kg	
BH10100A63080	63	80	35	63	2.8 kg	
BH10100A80090	80	90	45	80	3.8 kg	
BH10100A100100	100	100	55	100	4.0 kg	

尺寸单位：mm
Dimensions in mm

附件

Spare parts

Urma系统刀柄 System Holder URMA	螺纹锁紧销 Threaded pin	冷却管 Coolant tube
BH10100A100100	Z0010024	H0010001
BH10100A40080	Z004024	H0010001
BH10100A50080	Z005024	H0010001
BH10100A63080	Z006324	H0010001
BH10100A80090	Z008024	H0010001
BH1050A25055	Z002524	H005001
BH1050A32060	Z003224	H005001
BH1050A40065	Z004024	H005001
BH1063A25055	Z002524	H006301
BH1063A32060	Z003224	H006301
BH1063A40065	Z004024	H006301
BH1063A50070	Z005024	H006301
BH1063A63080	Z006324	H006301

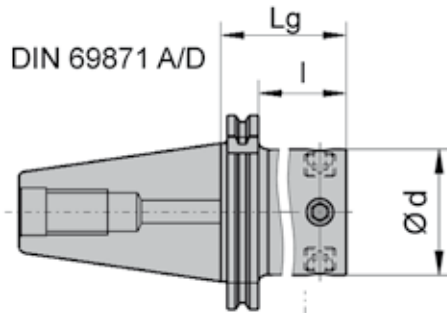
订货须知：
不包含冷却液管-需要单独订购！
Ordering note:
Coolant tube is not included - separate order required!

直接安装于URMA系统 型号
DIRECT MOUNTING URMA Type

VDR
带集成补偿装置
with integrated compensation mechanism



切削刃Ø Cutting edge Ø 35,61-100,6 mm



产品型号 Part number	l	d	L _g	重量 Weight	系列 System	尺寸规格 Size
VDR.044.065.40AD	46	32	65	1.1 kg	SK40	044
VDR.052.065.40AD	46	39	65	1.2 kg		052
VDR.061.075.40AD	56	46	75	1.4 kg		061
VDR.081.080.40AD	61	56	80	1.6 kg		081
VDR.101.095.40AD	76	76	95	2.2 kg		101
VDR.044.065.50AD	46	32	65	2.9 kg	SK50	044
VDR.052.065.50AD	46	39	65	3.0 kg		052
VDR.061.075.50AD	56	46	75	3.2 kg		061
VDR.081.085.50AD	66	56	85	3.6 kg		081
VDR.101.095.50AD	76	76	95	4.6 kg		101

按需提供更多尺寸
Further sizes upon request

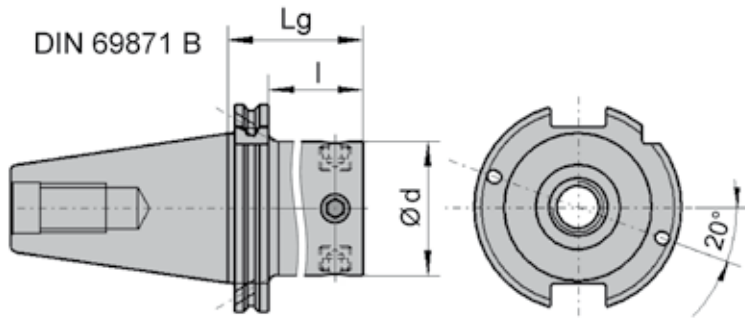
尺寸单位：mm
Dimensions in mm

直接安装于URMA系统 型号
DIRECT MOUNTING URMA Type

VDR
带集成补偿装置
with integrated compensation mechanism



切削刃Ø	Cutting edge Ø	35,61-100,6 mm
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产品型号 Part number	l	d	L _g	重量 Weight	系列 System	尺寸规格 Size
VDR.044.065.40BD	46	32	65	1.1 kg	SK40	044
VDR.052.065.40BD	46	39	65	1.2 kg		052
VDR.061.075.40BD	56	46	75	1.4 kg		061
VDR.081.080.40BD	61	56	80	1.6 kg		081
VDR.101.095.40BD	76	76	95	2.2 kg		101
VDR.044.065.50BD	46	32	65	2.9 kg	SK50	044
VDR.052.065.50BD	46	39	65	3.0 kg		052
VDR.061.075.50BD	56	46	75	3.2 kg		061
VDR.081.085.50BD	66	56	85	3.6 kg		081
VDR.101.095.50BD	76	76	95	4.6 kg		101

按需提供更多尺寸
Further sizes upon request

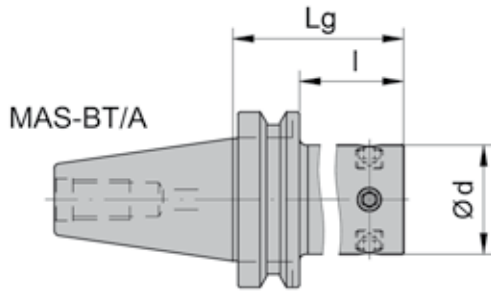
尺寸单位：mm
Dimensions in mm

直接安装于URMA系统 型号
DIRECT MOUNTING URMA Type

VDR
带集成补偿装置
with integrated compensation mechanism



切削刃Ø Cutting edge Ø 35,61-100,6 mm



产品型号 Part number	l	d	L _g	重量 Weight	系列 System	尺寸规格 Size
VDR.044.060.40BT	33	32	60	1.1 kg	SK40	044
VDR.052.065.40BT	38	39	65	1.3 kg		052
VDR.061.070.40BT	43	46	70	1.4 kg		061
VDR.081.080.40BT	53	56	80	1.7 kg		081
VDR.101.095.40BT	-	76	95	2.5 kg		101
VDR.044.065.50BT	27	32	65	3.7 kg	SK50	044
VDR.052.065.50BT	27	39	65	3.8 kg		052
VDR.061.075.50BT	37	46	75	4.0 kg		061
VDR.081.085.50BT	47	56	85	4.3 kg		081
VDR.101.095.50BT	57	76	95	5.1 kg		101

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

高性能铰削 HIGH-PERFORMANCE REAMING

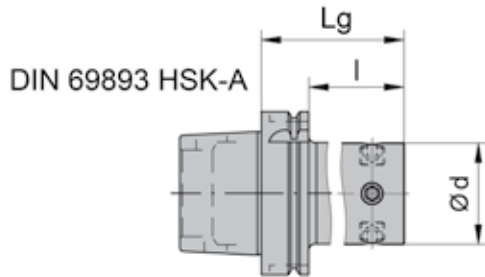


直接安装于URMA系统 型号
DIRECT MOUNTING URMA Type

VDR
带集成补偿装置
with integrated compensation mechanism



切削刃Ø	Cutting edge Ø	35,61-100,6 mm
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产品型号 Part number	l	d	L _g	重量 Weight	系列 System	尺寸规格 Size
VDR.044.090.A100	61	32	90	2.3 kg	HSK100	044
VDR.052.095.A100	66	39	95	2.6 kg		052
VDR.061.100.A100	71	46	100	2.8 kg		061
VDR.081.120.A100	91	56	120	3.5 kg		081
VDR.101.130.A100	101	76	130	5.0 kg		101
VDR.044.085.A063	59	32	85	1.0 kg	HSK63	044
VDR.052.090.A063	64	39	90	1.2 kg		052
VDR.061.100.A063	74	46	100	1.5 kg		061
VDR.081.105.A063	79	56	105	1.8 kg		081
VDR.101.120.A063	94	76	120	2.4 kg		101

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

附件
Spare parts

直接安装于URMA系统 Direct mounting URMA	冷却管 Coolant tube
VDR....A063	H006301
VDR....A100	H0010001

可调式液压膨胀刀柄

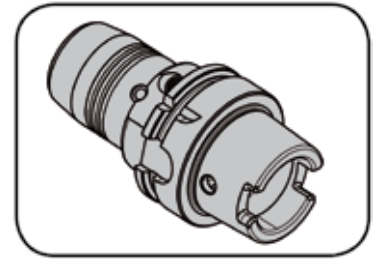
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



刀杆系统 型号

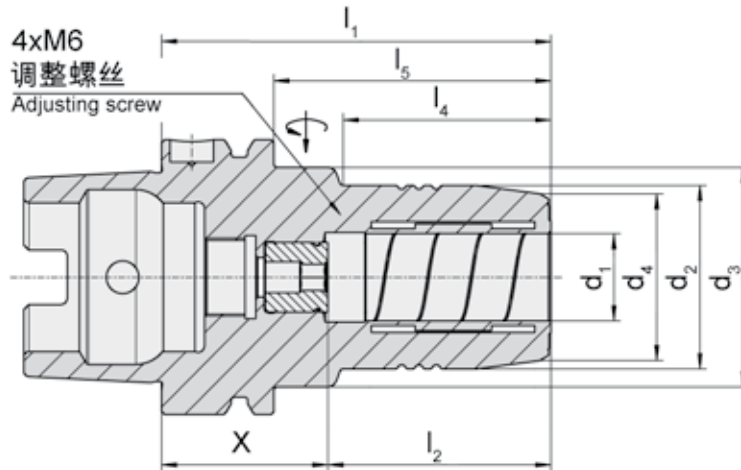
SYSTEM HOLDER Type

DRHD



跳动可调，轴向长度可调，自动换刀

Adjustable run-out, with axial length adjustment, for automatic tool change



HSK A DIN69882-7

HSK A DIN69882-7

产品型号 Part number	l_1	l_2	l_4	l_5	X	d_1	d_2	d_3	d_4	重量 Weight	系列 System
DRHD.12.A063	85	46	40	59	39	12	32	50	28	1.1 kg	HSK-A 63
DRHD.20.A063	90	51	48	64	39	20	42	50	38	1.3 kg	
DRHD.32.A063	125	61	63	99	64	32	64	75	60	2.7 kg	
DRHD.12.A100	95	46	47	66	49	12	32	50	28	2.6 kg	HSK-A 100
DRHD.20.A100	105	51	59	76	54	20	42	50	38	2.8 kg	
DRHD.32.A100	110	61	62	81	49	32	64	75	60	3.8 kg	

尺寸单位：mm
Dimensions in mm

订货须知：

不包含冷却液管-需要单独订购！

Ordering note:

Coolant tube is not included - separate order required!

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆系统 System Holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench	冷却管 Coolant tube
DRHD....A063	6.075T15P	T15PQ	H006301
DRHD....A100	6.075T15P	T15PQ	H0010001

可调式液压膨胀刀柄

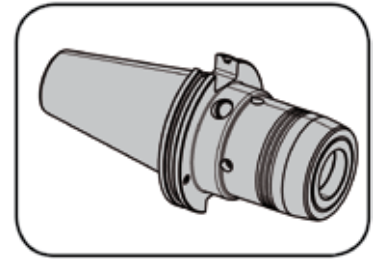
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



刀杆系统 型号

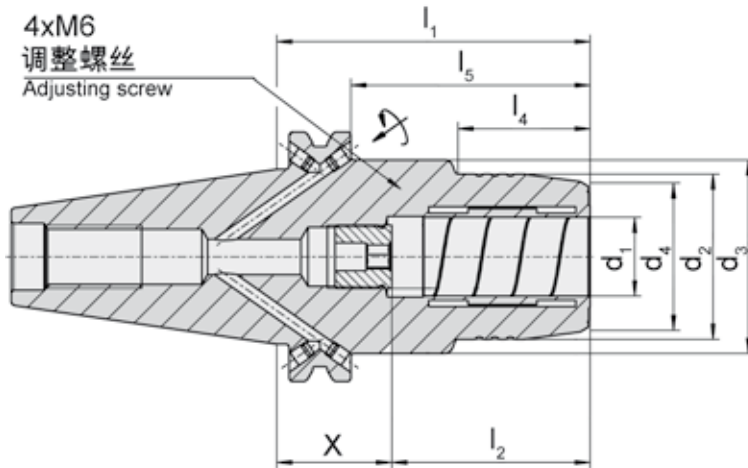
SYSTEM HOLDER Type

DRHD



跳动可调，轴向长度可调，自动换刀

Adjustable run-out, with axial length adjustment, for automatic tool change



SK DIN69871 AD/B
SK DIN69871 AD/B

产品型号 Part number	l_1	l_2	l_4	l_5	X	d_1	d_2	d_3	d_4	重量 Weight	系统 System
DRHD.12.040B		46	31.5		34.5	12	32	49.5	28	1.4 kg	SK 40
DRHD.20.040B	80.5	51	34.0	61.5	29.5	20	42	49.5	38	1.4 kg	
DRHD.32.040B		61	25.5		19.5	32	63	80.0	60	2.0 kg	
DRHD.12.050B		按照要求/upon request					12	按照要求/upon request			SK 50
DRHD.20.050B	80.5	51	34.0	61.5	29.5	20	42	49.5	38	3.3 kg	
DRHD.32.050B		按照要求/upon request					32	按照要求/upon request			

尺寸单位：mm
Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆系统 System Holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DRHD....	6.075T15P	T15PQ

可调式液压膨胀刀柄

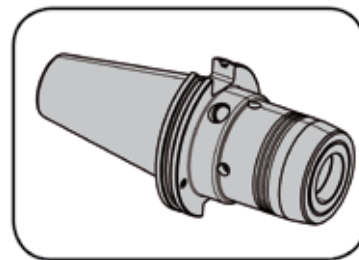
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



刀杆系统 型号

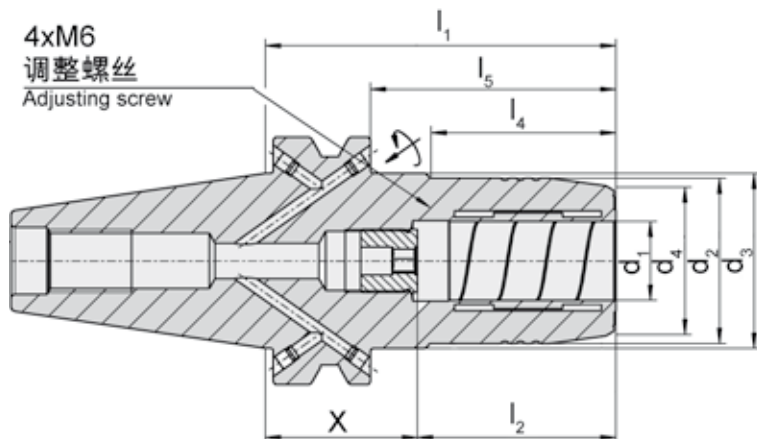
DRHD

SYSTEM HOLDER Type



跳动可调，轴向长度可调，自动换刀

Adjustable run-out, with axial length adjustment, for automatic tool change



JIS-BT JIS B 6339

JIS-BT JIS B 6339

产品型号 Part number	l_1	l_2	l_4	l_5	X	d_1	d_2	d_3	d_4	重量 Weight	系统 System
DRHD.12.BT40	90	46	44.5	63	44	12	32	44.5	28	1.4 kg	JIS-BT 40
DRHD.20.BT40		51	47.5		39	20	42		38	1.5 kg	
DRHD.12.BT50	90	46	34.0	52	44	12	32	44.5	28	4.0 kg	JIS-BT 50
DRHD.20.BT50		51	34.0		39	20	42		38	4.0 kg	
DRHD.32.BT50	按照要求/upon request					32	按照要求/upon request				

单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆系统 System Holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DRHD....	6.075T15P	T15PQ

可调式液压膨胀刀柄

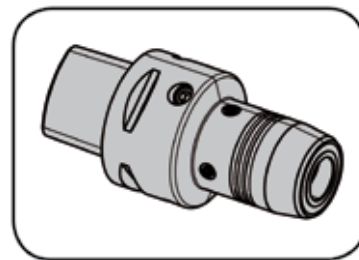
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



刀杆系统 型号

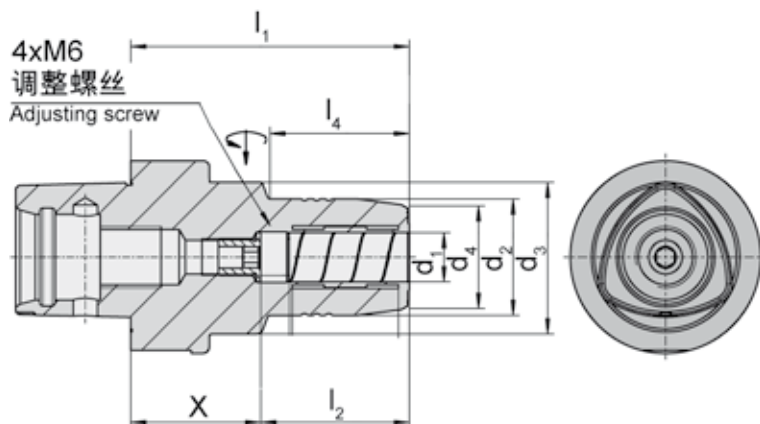
SYSTEM HOLDER Type

DRHD



跳动可调，轴向长度可调，自动换刀

Adjustable run-out, with axial length adjustment, for automatic tool change



HORN多边形刀柄
(ISO26623)

HORN Polygon shank
according to ISO 26623

产品型号 Part number	l_1	l_2	l_4	X	d_1	d_2	d_3	d_4	重量 Weight	系统 System
DRHD.12.C040	81	46	47	35	12	32.0	32.0	28	0.70 kg	C4
DRHD.20.C040	按照要求/upon request				20	按照要求/upon request				
DRHD.12.C050	85	46	44	39	12	32.0	32.0	28	0.90 kg	C5
DRHD.20.C050	90	51	52	39	20	42.0	42.0	38	1.05 kg	
DRHD.32.C050	按照要求/upon request				32	按照要求/upon request				
DRHD.12.C060	87	46	39	41	12	32.0	50.0	28	1.30 kg	C6
DRHD.20.C060	97	51	55	46	20	42.0	42.0	38	1.60 kg	
DRHD.32.C060	110	61	62	49	32	62.5	62.5	59	2.80 kg	

单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆系统 System Holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DRHD....	6.075T15P	T15PQ

可调式液压膨胀刀柄

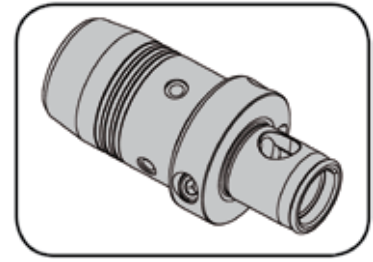
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



刀杆系统 型号

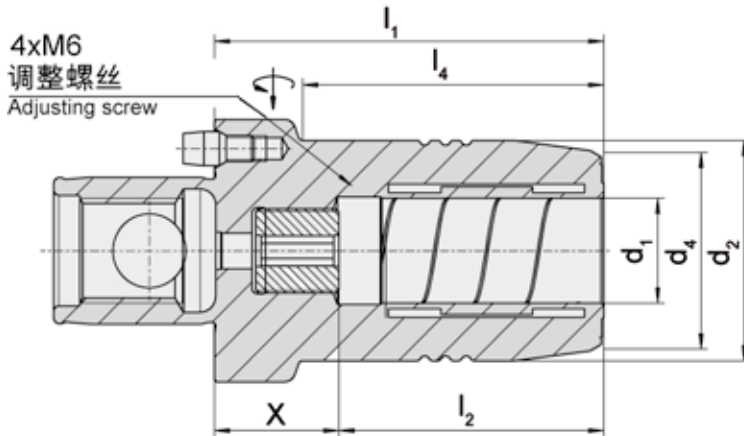
SYSTEM HOLDER Type

DRHD



跳动可调，轴向长度可调，自动换刀

Adjustable run-out, with axial length adjustment, for automatic tool change



ABS H Beta模块

ABS H Beta Modul

产品型号 Part number	l_1	l_2	l_4	X	d_1	d_2	d_4	重量 Weight	系统 System
DRHD.12.BM50	65	46	45.5	19	12	32	28	0.7 kg	ABS-H 50
DRHD.20.BM50	75	51	58.0	24	20	42	38	0.9 kg	
DRHD.32.BM50	按照要求/upon request				32	按照要求/upon request			

单位：mm

Dimensions in mm

螺丝的扭矩规格，详见技术说明。

For torque specifications of the screw, please see Technical Instructions.

附件

Spare parts

刀杆系统 System Holder	螺钉 Screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DRHD....	6.075T15P	T15PQ

可调式液压膨胀刀柄

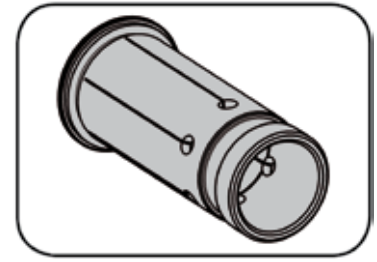
ADJUSTABLE HYDRAULIC EXPANSION TOOLHOLDER



中间套 型号

INTERMEDIATE SLEEVE Type

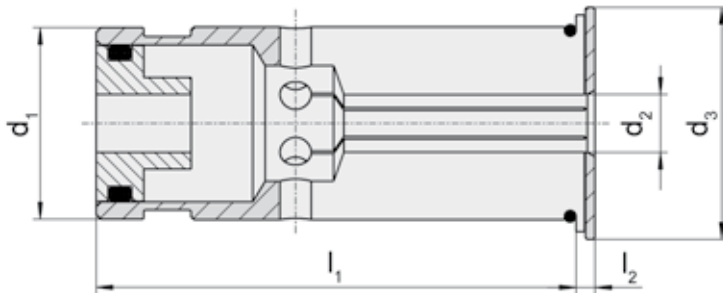
DRZB



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用于内冷

For internal coolant supply



产品型号 Part number	l_1	l_2	d_1	d_2	d_3
DRZB1206 DRZB1208	45.0	2	12	6 8	16.5
DRZB2006 DRZB2008 DRZB2010 DRZB2012 DRZB2016	50.5	2	20	6 8 10 12 16	24.0
DRZB3220 DRZB3225	60.5	3	32	20 25	35.5

尺寸单位：mm
Dimensions in mm

以下信息解释了铰刀正确的安装和设定。

The information below explains the proper handling and set up for reaming tools.

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在机床/主轴上直接调整刀具能够实现最高的精密度。

Tool adjustments should be performed directly in the machine/spindle to achieve highest precision.



将铰刀杆插入液压刀柄或变径套中直到其接触到底部。

Insert the reamer shaft into the Hydraulic Expansion Toolholder or reducer sleeve until it bottoms out.



使用内六角扳手拧紧液压刀柄的螺丝。

Tighten the clamping screw of the Hydraulic Expansion Toolholder with a hex wrench.



使用TORX-PLUS扳手T15PQ调整四个螺钉直到其接触，然后旋转刀具，通过查看微米指示器判断刀具的同心度。

Turn the four adjusting screws with the TORX-PLUS® wrench T15PQ until contact, and check the concentricity with a μm indicator inside the arbor by hand rotating the tool.



通过旋转轴向的调整螺丝，调整同心度。

Adjust the concentricity by turning the adjustment screws on their axis.



将刀片放入刀杆的定位槽内，轻轻拧紧螺丝。

Lay insert on shaft with positioning hole over the pin and tighten the screws lightly.



使用十字型可设定扭矩的扳手拧紧螺丝。

Tighten the screws with a torque setter screw driver in a crisscross pattern.

调整

为了达到最好的铰孔效果，刀具上的零跳动是最理想的。为了抵消自刀杆至机床主轴的任何跳动误差，建议使用：带补偿刀杆，液压卡盘，或热胀性刀杆。DR铰刀可通过不同的方法调整：

Adjusting

To achieve the best reaming results a tool with zero run-out is desirable. In order to compensate for any errors due to run-out from the tool holders or the machine spindle, the following holders are recommended: compensation holders, hydraulic chucks, or shrink fit holders. DR reamers can be measured with different methods:

关于刀柄短锥

铰刀拆卸测量直接在短锥上进行，精度高，操作简单方便。

Through insert holder short taper

With the reamer disassembled measure directly on the insert holders short taper. High accuracy, simple handling. This is the most accurate and preferred method.

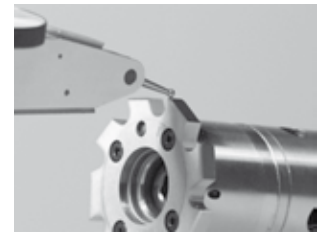


关于圆周接触点

在刀刃外圆上直接测量刃背部倒角角度。所有的接触误差都可避免。对于小径刀片来说这是一种非常好的测量方法。

Through circular land

Measuring directly behind chamfer angle on external insert diameter. All interface errors are eliminated. This is the preferred method for small diameter inserts.



关于刀杆外径

DR刀杆所有的尺寸精度都非常高，这就保证了可接受的精度并易于夹持。

On the external diameter of the insert holder

DR tool holders are manufactured very accurately on all diameters. A method easy to handle that offers reasonable measuring results.



带有集成补偿装置的刀柄

此类带有补偿装置的刀柄用于铰孔孔径大于35mm

Shanks with integrated compensation device

These shanks with integrated comp. must be used for reaming diameters bigger than 35 mm



操作

确保中心螺钉锁紧 (参照表中的数值1)。测量并设定刀片切削刃到最高点跳动。通过调整螺钉消除总跳动的一半，检查跳动，如需要再次调整。确保中心螺钉锁紧，参照下表中数值2。



Handling

Secure central locking screw (see value no 1). Measure run-out and set the cutting edge of the insert to the highest point. Compensate half of the total run-out by using the adjustment screws. Check run-out and repeat the adjustment if necessary. Secure central locking screw according to value 2 in chart below.

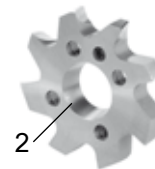
参数 Md Parameter Md	1 Nm	2 Nm
DR 044	35	-
DR 052	35	-
DR 061	55	-
DR 081	60	85
DR 101	60	120
DR 121	60	120
DR 141	60	120

更换刀片

1. 无需将刀柄自taper holder上取下，松开紧固螺钉，取出旧刀片。
2. 仔细清理刀柄的锥形部分，并检查是否有损坏。
3. 放入新刀片 (注意定位销)，然后拧紧紧固螺钉。
4. 尽量使用torxtorque扳手拧紧固定螺丝。



参数 Md Parameter Md	Nm
DR 016	0.75
DR 019	0.75
DR 024	1.5
DR 029	1.5
DR 036	1.5
DR 044	1.5
DR 052	1.5
DR 061	1.5
DR 081	3.5
DR 101	3.5



Changing inserts

1. Don't take the shank out of the taper holder. Remove clamping screws and used insert.
2. Clean short taper of the shank carefully and check for possible damages.
3. Set new insert on position (pay attention to the positioning pin) and slightly tighten the clamping screws.
4. If available, use the torxtorque screw driver to tighten the screws crosswise (see torque chart)



刀片直径的测量

DR刀片存在不等距的间距，通过标记的两个切削刃测量直径，刀片为锥形。

Measuring of insert diameter

DR inserts have an unequally spaced pitch. To measure the diameter line up the two marked cutting edges. Measure directly on the chamfered angle because the inserts are ground with taper.



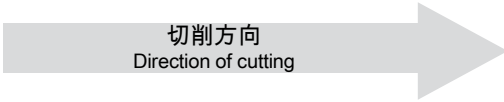
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ISO	Code	材料	Material	R _m N/mm ²	HB HRC
P	1	非合金碳钢 普通结构钢	Unalloyed carbon steel General structural steel	< 500	< 160
	2	低合金碳钢， 结构钢，铸钢，淬硬钢， 工具钢，低合金钢	Low-alloy carbon steel, Structural-, Cast-hardened-, Tool-, Low-alloy steel	500 - 900	140 - 325
	3	合金工具钢 渗氮钢	Alloyed tool steel Nitride steel	800 - 1200	250 - 350
	3.1	高合金钢	High alloyed steel	< 1000	
	3.2	高合金钢	High alloyed steel	< 1600	
	3.3	高速钢	High speed steel		
M	5	不锈钢，马氏体	Stainless steel, martenistic	500 - 1000	
	5.1	不锈钢，奥氏体	Stainless steel, austenitic		
	5.2	不锈钢， 耐热钢	Stainless heat resisting steel		
K	6	灰铸铁 合金灰铸铁	Grey cast iron Alloyed grey cast iron		< 250
	6.1	球墨铸铁 (GGG40)	Spheroidal graphite cast iron (GGG40)		
	6.2	球墨铸铁，铁素体/珠光体 可锻铸铁	Spheroidal graphite cast iron, ferritic/perlitic Malleable cast iron	> 550	
N	7	铝 < 10 % Si, 铝-锻造合金	Aluminium < 10 % Si, Al-wrough alloys		
	7.1	铝合金	Al-alloys		
	7.2	非铁金属，铜合金类，黄铜，青铜	Non ferrous metals, Copper alloys, Brass, Bronze		
	7.3	钛	Titanium		
	7.4	镍基合金	Nickelbased allyos		
S	8	热塑性塑料，热固性塑料	Thermo-plastics, Duroplast		
	8.1	纤维增强塑料	Fibre reinforced plastics		

HORN- 牌号 Grades	ISO513	性能 Properties	推荐应用 Recommended applications
硬质合金 / Carbide			
HL3H	HC	ALCrN- 涂层 Coating	加工钢和铸铁的首选。良好的热硬性和抗氧化能力。出色的润滑性能可防止积屑瘤的产生。使用冷却液冷却或喷雾冷却。铜色 First choice for Steel and cast iron. Extremely high hot hardness and high resistance against oxidation. High lubricity with resistance to build up edge. For high cutting speed and with coolant or mist coolant. Copper colour.
AC4H AC5H	HC	ALCrN- 涂层 Coating	与HL3H类似的结构和应用范围，灰色 Similar coating structure and application range to HL3H. Grey colour.
AD3H AD4H	HC	TiALN- 涂层 Coating	优异的润滑性能与良好的热硬性和抗氧化性，适于中高速切削和水雾冷却，抗积屑瘤 Good hot hardness and resistance against oxidation with excellent lubricity properties. For medium to high cutting speed and mist coolant. Resistant to build up edge.
MG10	HW	无涂层 (微粒) uncoated (micro grain)	通用系列适合大多数材质的低速切削。 Universal grade for most materials at low cutting speed. For Variopoint only.
DT2H	HC	PVD-DLC- 涂层 Coating	“类金刚石”。良好的润滑性防止积屑瘤的产生。出色的化学稳定性及高硬度。特别适合中速切削含Si12%的铝材。 "Diamond-Like-Carbon". Very good lubricity properties resistant to build up edge. Excellent chemical stability as well as very high hardness. Particularly suitable for Aluminum with less than 12 % Si at medium cutting speed.
Cermet			
H20	HT	无涂层 uncoated	铰孔加工碳钢和低合金钢可达1200N/mm ² 拉伸强度和高速加工球墨铸铁。具有很好的韧性适合断续切削。 Reaming of carbon and low alloyed steel of up to 1200 N/mm ² tensile strength and nodular cast iron at high cutting speed. Suitable for interrupted cuts due to high toughness.
AD38 AD48 AC48 AC58 HL38 DT28	-	涂层 coated	涂层等的应用有利于减少积屑瘤的形成，基材的特殊结构，断屑槽型和涂层都可提高刀具寿命。 Coatings similar to those for carbide with resistance to build up edge. Application specific combination of substrate, geometry and coatings for improved tool life.



切削参数 CUTTING DATA



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ISO	Code	刀片形式 Insert form	孔径 Bore		左旋 left helical fluted		直槽 straight fluted			推荐径向切削深度 recom. radial cutting depth a_p		
			D*	S*	25° B	30/4° D	45° A	45/8° C	20° E	Ø < 20 mm	Ø < 20-35 mm	Ø > 35 mm
P	1	L	●		●	○				0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
	2	L	●		●	○				0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
	3	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.10 - 0.25
	3.1	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.10 - 0.20
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.10 - 0.20
	3.2	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.10 - 0.20
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.10 - 0.20
3.3	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.10 - 0.20	
	G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.10 - 0.20	
M	5	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
	5.1	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
	5.2	L	●		●	○				0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
		G	●	●			●	○		0.05 - 0.10	0.08 - 0.15	0.08 - 0.20
K	6	L	●		●	○				0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
		G	●	●			●	○		0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
	6.1	L	●		●	○				0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
		G	●	●			●	○		0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
	6.2	L	●		●	○				0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
		G	●	●			●	○		0.10 - 0.18	0.08 - 0.20	0.10 - 0.25
N	7	L	●		●	○				0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
	7.1	L	●		●	○				0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.05 - 0.12	0.08 - 0.15	0.10 - 0.25
	7.2	L	●		●	○				0.08 - 0.15	0.08 - 0.15	0.10 - 0.25
		G	●	●			●	○		0.08 - 0.15	0.08 - 0.15	0.10 - 0.25
	7.3	L	○		●	○				0.05 - 0.10	0.05 - 0.12	0.08 - 0.18
		G	●	●			●	○	○	0.05 - 0.10	0.05 - 0.12	0.08 - 0.18
	7.4	L	○		●	○				0.05 - 0.10	0.05 - 0.12	0.08 - 0.18
		G	●	●			●	○	○	0.05 - 0.10	0.05 - 0.12	0.08 - 0.18
S	8	L	●		○					0.10 - 0.18	0.10 - 0.20	0.10 - 0.25
		G	●	●			○			0.10 - 0.18	0.10 - 0.20	0.10 - 0.25
	8.1	L								0.10 - 0.18	0.10 - 0.20	0.10 - 0.25
		G	●	●			○			0.10 - 0.18	0.10 - 0.20	0.10 - 0.25

L = 左旋
left helical fluted
G = 直槽
straight fluted

D* = 通孔
Through hole
S* = 盲孔
Blind hole

● = 标准
Standard
○ = 选项
Option

切削参数



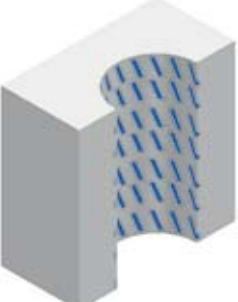
CUTTING DATA

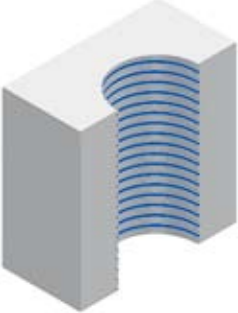
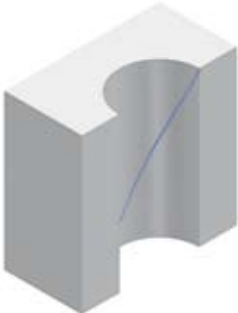




	无涂层 uncoated				涂层 coated			
	MG10 HM		H20 Cermet		HM / Cermet		DT2H DLC	
	v_c (m/min)	f_z (mm)	v_c (m/min)	f_z (mm)	v_c (m/min)	f_z (mm)	v_c (m/min)	f_z (mm)
	6 - 10	0.12 - 0.35	120 - 250	0.12 - 0.35	100 - 220	0.12 - 0.35		
	6 - 10	0.10 - 0.25	120 - 250	0.10 - 0.25	80 - 220	0.10 - 0.25		
	6 - 10	0.12 - 0.35	120 - 250	0.12 - 0.35	100 - 220	0.12 - 0.35		
	6 - 10	0.10 - 0.25	120 - 250	0.10 - 0.25	80 - 220	0.10 - 0.25		
	6 - 10	0.10 - 0.25	70 - 200	0.10 - 0.25	60 - 180	0.10 - 0.25		
	6 - 10	0.08 - 0.20	70 - 200	0.08 - 0.20	60 - 180	0.08 - 0.20		
	6 - 10	0.1 - 0.25			60 - 140	0.1 - 0.25		
	6 - 10	0.08 - 0.20			60 - 140	0.08 - 0.20		
	4 - 7	0.06 - 0.18			15 - 60	0.06 - 0.18		
	4 - 7	0.04 - 0.15			15 - 60	0.04 - 0.15		
	4 - 7	0.04 - 0.15			10 - 30	0.04 - 0.15		
	4 - 7	0.04 - 0.12			10 - 30	0.04 - 0.12		
	5 - 8	0.08 - 0.22			20 - 80	0.08 - 0.22		
	5 - 8	0.06 - 0.20			20 - 80	0.06 - 0.20		
	4 - 7	0.06 - 0.15			15 - 60	0.06 - 0.15		
	4 - 7	0.04 - 0.13			15 - 60	0.04 - 0.13		
	4 - 7	0.06 - 0.15			15 - 60	0.06 - 0.15		
	4 - 7	0.04 - 0.13			15 - 60	0.04 - 0.13		
	10 - 25	0.15 - 0.35			70 - 200	0.15 - 0.35		
	10 - 25	0.12 - 0.30			70 - 200	0.12 - 0.30		
	6 - 12	0.15 - 0.35	70 - 180	0.15 - 0.35	70 - 220	0.15 - 0.35		
	6 - 12	0.12 - 0.30	70 - 180	0.12 - 0.30	70 - 220	0.12 - 0.30		
	10 - 20	0.12 - 0.30			60 - 200	0.12 - 0.30		
	10 - 20	0.10 - 0.25			60 - 200	0.10 - 0.25		
	10 - 25	0.12 - 0.35					100 - 350	0.12 - 0.35
	10 - 25	0.10 - 0.30					100 - 350	0.10 - 0.30
	10 - 40	0.12 - 0.35					100 - 250	0.12 - 0.35
	10 - 40	0.10 - 0.30					100 - 250	0.10 - 0.30
	10 - 40	0.12 - 0.35	100 - 250	0.12 - 0.35	100 - 250	0.12 - 0.35	100 - 180	0.12 - 0.35
	10 - 40	0.10 - 0.30	100 - 250	0.10 - 0.30	100 - 250	0.10 - 0.30	100 - 180	0.10 - 0.30
	6 - 14	0.06 - 0.18			10 - 25	0.06 - 0.18		
	6 - 14	0.04 - 0.15			10 - 25	0.04 - 0.15		
	4 - 7	0.06 - 0.18			10 - 25	0.06 - 0.18		
	4 - 7	0.04 - 0.15			10 - 25	0.04 - 0.15		
	6 - 30	0.06 - 0.20	6 - 30	0.06 - 0.20				
	6 - 30	0.06 - 0.20	6 - 30	0.06 - 0.20				
	4 - 12	0.04 - 0.15					10 - 35	0.05 - 0.15

切削材质的说明，见31页
Description of cutting materials see page T31

T

缺陷 Fault	修正 Remedy
<p>孔过大 Hole too large</p> 	<ol style="list-style-type: none"> 1. 减少跳动误差并使用带补偿的刀杆 2. 降低切削速度 3. 增大进给率，增加切削液供给 4. 减小切削深度 5. 校对刀具磨损（特别注意积屑瘤） 6. 控制铰刀直径\varnothing <ol style="list-style-type: none"> 1. Reduce run-out error and use compensation holder 2. Reduce cutting speed 3. Increase feed rate, increase coolant mix 4. Reduce depth of cut 5. Check tool wear (especiall build-up edges) 6. Control reamer-\varnothing
<p>锥形孔 Tapered hole</p> 	<ol style="list-style-type: none"> 1. 减少跳动误差并使用带补偿的刀杆 2. 降低切削速度和进给，检查切削液浓度 3. 改进预加工 4. 改进工价的夹持 5. 测量孔夹紧和松开的情况 6. 检查切屑流向 <ol style="list-style-type: none"> 1. Reduce run-out error and use compensation holder 2. Reduce cutting speed and feed, check coolant mix 3. Improve pre-machining 4. Improve workpiece clamping 5. Measure bore in clamped and unclamped condition 6. Check chip flow
<p>孔内振纹 Hole shows chatter marks</p> 	<ol style="list-style-type: none"> 1. 减少跳动误差并使用带补偿的刀杆 2. 改变倒棱角度 3. 增强工件夹持 4. 降低切削速度 5. 增加进给率 <ol style="list-style-type: none"> 1. Reduce run-out error and use compensation holder 2. Change chamfer angle 3. Improve workpiece clamping 4. Reduce cutting speed 5. Increase feed rate

缺陷 Fault	修正 Remedy
<p>表面质量不理想 Surface quality unsatisfactory</p> 	<ol style="list-style-type: none"> 1. 检查刀片磨损 2. 减少跳动误差并使用补偿刀杆检查切削速度 3. 使用带内冷的刀杆 4. 增加切削液浓度 <ol style="list-style-type: none"> 1. Check insert wear 2. Reduce run-out error and use compensation holder, check cutting data 3. Use tool with internal coolant supply 4. Increase coolant mix
<p>孔内退刀槽 Retention marks in hole</p> 	<ol style="list-style-type: none"> 1. 减少跳动误差并使用带补偿的刀杆 2. 检查刀片磨损 (积屑瘤) 3. 降低切深 4. 使用更锋利的几何槽型 5. 降低进给 <ol style="list-style-type: none"> 1. Reduce run-out error and use compensation holder 2. Check insert wear (build-up edges) 3. Reduce depth of cut 4. Use a sharper geometry 5. Reduce pull back feed
<p>铰刀卡住 Reamer jams</p> 	<ol style="list-style-type: none"> 1. 降低切削液浓度 2. 增加切削深度 3. 检查刀片磨损 4. 改变倒棱角度 <ol style="list-style-type: none"> 1. Reduce coolant mix 2. Increase depth of cut 3. Check insert wear 4. Change chamfer angle
<p>孔过小 Hole too small</p> 	<ol style="list-style-type: none"> 1. 更换刀片 2. 降低切削液浓度 3. 增加切削深度 4. 增加切削速度 5. 降低进给率 <ol style="list-style-type: none"> 1. Change insert 2. Reduce coolant mix 3. Increase depth of cut 4. Increase cutting speed 5. Reduce feed rate



T

Z = 齿数
Number of teeth

d = 切削刃 Ø [mm]
Cutting edge Ø [mm]

L = 孔长 [mm]
Length of bore [mm]

SL = 安全距离 [mm]
Clearance distance [mm]

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d \cdot \pi} \text{ [1/min]}$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d \cdot \pi \cdot n}{1000} \text{ [m/min]}$$

f_z = 进给/齿
Feed/tooth

$$f_z = \frac{v_f}{Z \cdot n} \text{ [mm]}$$

f = 每转进给
Feed per revolutions

$$f = f_z \cdot Z \text{ [mm/转] [mm/rev]}$$

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \text{ [mm/min]}$$

T_c = 过程时间
Process time

$$T_c = \frac{L + SL}{v_f} \text{ [min]}$$

注释 / Notes



D 041 VL
型号 0,4-1 Nm
Model

带刻度的扭矩扳手
-扭矩可调
-屏幕显示调整扭矩

扭矩无极调节，符合人体工程学的多组件手柄，轻而紧凑的设计，当达到设定扭矩时单击信号按钮。
(标准: EN ISO 6798, BS EN 26789, ASME B 107.14.M.)
(精度: $\pm 6\%$)



D 15 VL
型号 1-5 Nm
Model

Torque screw driver with scale
- variable torque setting
- adjusted torque is shown on display

The Torque can be adjusted with a special torque setter (included). Ergonomical form gives perfect handling abilities. Audible signal when set torque is reached.
(Standard: EN ISO 6798, BS EN 26789, ASME B 107.14.M.)
(Precision: $\pm 6\%$)



D 28 VL
型号 2-8 Nm
Model



D515QL
型号 5-15 Nm
Model



ED 28 VL

扭矩设定器

设定扭矩的设备

柄部：醋酸纤维材质，表面为细微结构
刃部：八角形，硬化处理，镀锌



ED 515 QL

Torque setter

Device for setting the required torque.

Handle: Celluloseacetat with micro structured surface
Blade: Octogonal (8 flats) blade, hardened galvanized



DT6PK
DT7PK
DT8PK
DT9PK
DT10PK
DT15PK
DT20PK
DT25PK

刀头-Torx螺钉

刀头：高品质铬钒钢，硬化处理，镀铬
Wiha镀铬刀头保证了最好的精密度。

颜色代码为绿色

用途：拧紧螺钉到指定扭矩，和Wiha扭矩扳手刀柄组合。

Blade for TORX-Plus® screws

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.

Wiha Chrome Blade guarantees maximum precision.
Colored code dark green

Utilization: Controlled screw setting with definite torque in combination with Wiha torque screw driver handle.



DT15PQ
DT20PQ
DT25PQ
DT27PQ
DT30PQ

U



DT6K
DT8K
DT15K

刀头-Torx螺钉

刀头：高品质铬钒钢，硬化处理，镀铬
Wiha镀铬刀头保证了最好的精密度。

颜色代码为绿色

用途：拧紧螺钉到指定扭矩，和Wiha扭矩扳手刀柄组合。

Blade for Torx screws

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.

Wiha Chrome Blade guarantees maximum precision.
Colored code dark green

Utilization: Controlled screw setting with definite torque in combination with Wiha torque screw driver handle.



DSW15K
DSW20K
DSW25K
DSW30K
DSW40K

扳手刀头-内六角螺钉

刀头：高品质的铬钒钢，硬化处理，镀铬。

Wiha镀铬刀片保证了最好的精密度。

使用红色代码

应用：使用给定的扭紧扭矩，结合一个Wiha扭矩扳手。

Blade for allen screws

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.

Wiha Chrome Blade guarantees maximum precision.
Colored code red

Utilization: Controlled screw setting with definite torque in combination with Wiha torque screw driver handle



D14ZBK

通用钻套
适用于S-DM08、S-DM10及S-DM12，也用于所有的C6.3和E6.3(1/4")钻头

刀头：高品质铬钒钢，经过硬化处理，镀铬。

刀颈：不锈钢

应用：用于固定扭矩，扭矩标与柄部。



D14ZBQ

Universal Bitholder
For S-DM08, S-DM10 and S-DM12 also for all C6,3 and E6,3 (1/4") Bits

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.

Collar: Stainless steel

Utilization: For controlled screw setting with definite torque in combination with torque screw driver handle.



14ZQK

通用T型刀柄的钻套
适用于S-DM08、S-DM10及S-DM12，也用于所有的C6.3和E6.3(1/4")钻头

刀头：高品质铬钒钢，经硬化处理，镀铬

刀颈：不锈钢

应用：开关控制

Universal Bitholder with T-handle
For S-DM08, S-DM10 and S-DM12 also for all C6,3 and E6,3 (1/4") Bits

Blade: High quality Chrome-Vanadium steel, through hardened, chrome plated.

Collar: Stainless steel

Utilization: For controlled opening

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108	B9,B10,B11,B12,B13,G4
110	S24
111	B36,B37,B38,B39,B40,G12,G13
116	B73,B74,B75
306	B14,B15,B16,B17,B18,B19,B20,B21,B22,B23, G5,G6,G7
308	B41,B42,B43,B44,B45,B46,G14
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M308.M	B35
M308.ST	B32

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M311.M	B60
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M313.M	B86
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S117	Q3,Q7,Q8,Q3,Q7,Q8
S275	D6,D7,D8,K17
S310	F14
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WFB	B7,B34,B59,B85,B124,B142
Z313	B112

刀具材质-DIN ISO 513

Cutting Material Group per DIN ISO 513

主组 Main Group	缩写 Symbol	子组 Subgroups
硬质合金 Carbide	HW	WC基材非涂层硬质合金 uncoated carbides based upon WC
	HT	TIC/TIN基材非涂层硬质合金 (Cermets) uncoated carbides based upon TIC/TIN (cermets)
	HC	涂层硬质合金 coated carbides
陶瓷 Ceramic cutting material	CA	氧化物陶瓷 Al_2O_3 Oxide ceramics based upon Al_2O_3
	CM	混合陶瓷 Al_2O_3 + 硬质合金 Mixed ceramics Al_2O_3 + metal carbide
	CN	氮化物陶瓷 Si_3N_4 Nitride ceramics based upon Si_3N_4
	CC	涂层陶瓷 coated ceramics
氮化硼 Boron nitride	BN	多晶立方氮化硼 (CBN) Polycrystalline cubic boron nitride (CBN)
金刚石 Diamond	DP	多晶金刚石 (PCD) Polycrystalline diamond (PCD)

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