车槽 切断 铣槽 插削 仿形铣削 铰削

新产品

NEW

最大可加工模数 30 的齿轮

Gear machining up to module 30

HORN-卓越于技术

HORN - EXCELLENCE IN TECHNOLOGY

GROOVING PARTING OFF GROOVE MILLING BROACHING PROFILE MILLING REAMING

最大可加工模数 30 的齿轮

随着铣齿系统扩展到模数 30，我们提供从模数 0.5 到模数 30 的齿轮刀具。
齿轮范围包括铣削直齿圆柱齿轮、铣削轴/轮毂连接、插削内齿、铣削蜗杆轴及非标齿轮。
根据模数尺寸（DIN 3972，基准齿条 1），
针对各应用领域提供不同铣削系统：
至模数 3：
606 到 636 型刀片（也了用作三联刀）
至模数 4：
M274 或 M279 铣削系统 - 适合宽齿形的单排和双排系统
至模数 6 的新型 M121 铣削系统
从模数 7 开始：
适合高进给铣削的不同系统
高进给铣削过程将用于粗加工操作（从模数 7 开始）。
要使用整体硬质合金铣刀进行精加工，将使用仿形铣削过程。
要针对各种尺寸的内部和外部装齿进行插齿，配有 105 型和 110 型 Supermini® 加上 S117 型和 315 型插削刀具。
只需使用一个刀片执行最初和最终插削工作便可显著缩短周期时间。

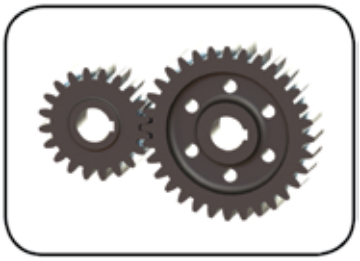
Gear machining up to module 30

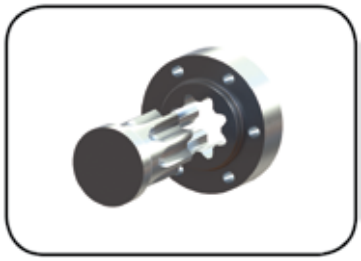
With the expansion of the gear milling systems up to module 30, we offer integrated tool systems from module 0.5 to module 30. The gear range includes milling spur gears, milling shaft/hub connections, broaching internal toothing, milling worm shafts and milling customer-specific gear profiles.
Depending on the module size (DIN 3972, basic rack profile 1), there are various milling systems for the area of application:

- Up to module 3: Inserts of type 606 to 636 (also as triple cutters)
- Up to module 4: M274 or M279 milling systems - single-row and two-row for wide profiles
- The new M121 milling system up to module 6
- From module 7: Different systems for high feed milling

The high feed milling process will be used for roughing operations from module 7. For finishing with solid carbide emills the copy milling process will be used.
Broaching toothing, both for internal and external toothing in various toothing sizes, is covered by the type 105 and type 110 Supermini®, plus type S117 and type 315 tool systems. Carrying out preliminary and final broaching work using just one insert significantly shortens cycle times.

模数 [m_n] Module	刀具/使用 Tools / Use	刀具说明 Tools description	刀具系统 HORN Tooling system HORN	页 Page
	适合传统齿轮加工的现有刀具目录 **Existing catalogue tools for conventional gear machining**			
m_n 0,5 可达 / up to 3	带渐开线齿面的圆柱齿轮，用于精加工 Cylindrical gears with involted flanks, for finishing	切槽铣削刀片完整外形 Groove milling insert full profile	**606; 608; 611; 613; 628; 632; 635; 636**	6 - 9
可达 / up to m_n 4	圆柱齿轮，齿轮轴，蜗杆轴，精加工 Cylindrical gears, gear shafts, worm shafts, finishing	心轴安装铣刀 > Ds ø50 Arbor mounted milling cutter	**M274**	11
可达 / up to m_n 4	圆柱齿轮，齿轮轴，蜗杆轴，精加工 Cylindrical gears, gear shafts, worm shafts, finishing	心轴安装铣刀 > Ds ø80 Arbor mounted milling cutter	**M279**	12 - 13
可达 / up to m_n 6	齿轮，根据客户要求提供其他外形 Gears, further profiles upon customers request	心轴安装铣刀 Ds ø63; ø80 Arbor mounted milling cutter	**M121**	14
	高进给铣削和仿形铣削 **High feed milling and Copy milling**			
自 / from m_n 7 - 20	Ds ø6 - ø16 推荐用于粗铣 / recommended for rough milling	立铣刀 Endmill	**DSDS**	16
m_n 20 - 30	Ds ø10; ø12; ø16; ø20 推荐用于粗铣/ recommended for rough milling	切削刀片 Cutting insert	**DGH**	24
取决于模数/ depending on module	Ds ø10; ø12; ø16; ø20 齿根圆的精加工 / Finishing of root circle	切削刀片 Cutting insert	**DGK**	26
m_n 5 - 30	Ds ø10; ø12; ø16 去除齿面毛刺/ deburring of tooth flanks	切削刀片 Cutting insert	**DGFF**	32
m_n 20 - 30	Ds ø12 bis ø25 用于粗铣/ for rough milling	高进给铣刀 High feed milling cutter	**DAHM·25**	37 - 40
m_n 25 - 30	Ds ø20 bis ø63 用于粗铣 / for rough milling	高进给铣刀 High feed milling cutter	**DAHM·37**	44 - 47
m_n > 30	Ds ø10; ø12; ø16; ø20 齿面的精加工 / finishing of tooth flanks	切削刀片 Cutting insert	**DGVZ**	25
	根据客户要求提供其他外形 **Tooth shape machining with broaching process**			
根据客户要求提供其他外形 further profiles upon customers request	外部和内部装齿，直形和螺旋形 External and internal toothing, straight and helical form	插削系统 H117 Broaching system H117	**S117**	60





用于正齿轮和齿轮轴的铣削刀片
Milling inserts for spur gears and gear shafts

圆柱齿轮/齿条 Cylindrical gears / Tooth bars 基本外形 1，符合 DIN3972 Basic profile 1 according to DIN 3972	齿轮轴/轴轮毂/锯齿 DIN 5480 / ANSI B92.1 Gear shafts / Shaft-hub / Serration DIN 5480 / ANSI B92.1	刀片 型号 Insert type	Ds [mm]
$m_n \leq 0,8$	$m_n \leq 1$ / $d_B \geq 40$	606	11.7
$m_n \leq 1$	$m_n \leq 1,5$ / $d_B \geq 40$	608	15.7
$m_n \leq 1,25$	$m_n \leq 2$ / $d_B \geq 40$	611	17.7
$m_n \leq 1,5$	$m_n \leq 3$ / $d_B \geq 22$	613	21.7
$m_n \leq 2$	$m_n \leq 2,5$ / $d_B \geq 40$	628	27.7
$m_n \leq 2,5$ / Nr. 5 - 8	$m_n \leq 2,5$ / $d_B \geq 30$	632	31.7
$m_n \leq 2,25$ / Nr. 2 - 8			
$m_n \leq 2$ Nr. 1 - 8			
$m_n \leq 3$	$m_n \leq 3$ / $d_B \geq 50$	635	34.7
$m_n \leq 1,5$	$m_n \leq 2$ / $d_B \geq 60$	636	35.7

齿轮铣削

· 模数 0,5 - 3

· 刀片 型号
613 / 628 / 632 / 635

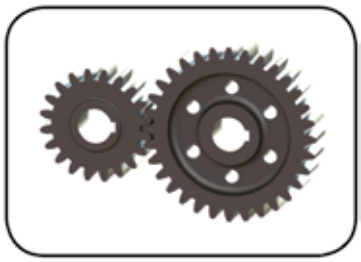
Gear milling

· Module 0,5 - 3

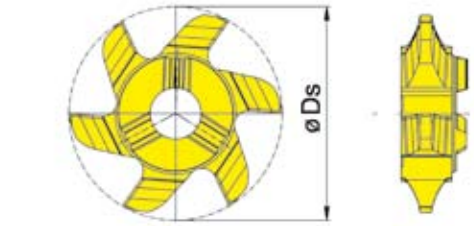
· Inserts type
613 / 628 / 632 / 635

刀片 型号
INSERT type

613



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



可与铣刀柄配合使用
for use with Milling shank

型号 M313
type

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	E_1	s	Ds	MG12	TN35	TI25	TA45	AS45
613.3972.050.1	0.5	12 - 13	2.5	5.7	21.7					▲
613.3972.050.2	0.5	14 - 16								▲
613.3972.050.3	0.5	17 - 20								▲
613.3972.050.4	0.5	21 - 25								▲
613.3972.050.5	0.5	26 - 34								▲
613.3972.050.6	0.5	35 - 54								▲
613.3972.050.7	0.5	55 - 134								▲
613.3972.050.8	0.5	≥ 135								▲
613.3972.100.1	1	12 - 13								▲
613.3972.100.2	1	14 - 16								▲
613.3972.100.3	1	17 - 20								▲
613.3972.100.4	1	21 - 25								▲
613.3972.100.5	1	26 - 34								▲
613.3972.100.6	1	35 - 54								▲
613.3972.100.7	1	55 - 134								▲
613.3972.100.8	1	≥ 135								Δ
						P				●
						M				●
						K				●
						N				o
						S				●
						H				

▲ 库存品 / on stock　Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可替换推荐 / alternative recommendation
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grade

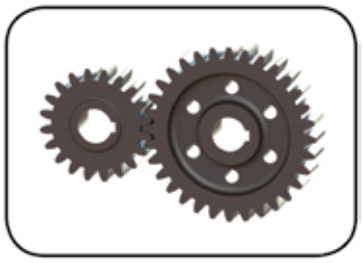
铣刀N° Milling cutter N°	*z (N°圆柱齿轮齿数) *z (N° of teeth cylindrical gear)
1	12 - 13
2	14 - 16
3	17 - 20
4	21 - 25
5	26 - 34
6	35 - 54
7	55 - 134
8	≥ 135... 齿条/Tooth bar

订购示意: **613.3972.100.8**
Ordering example:

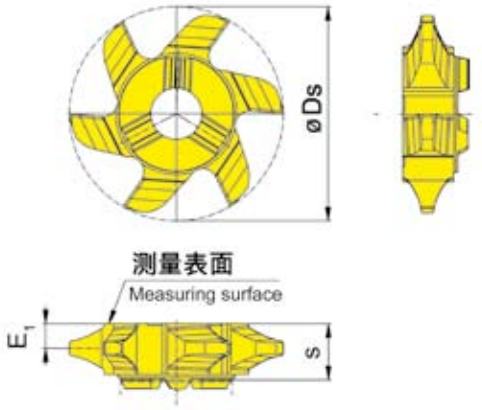
/ Milling cutter N° 8
模数 1 / Module 1
DIN 3972
铣刀 型号 / Milling cutter type 613

刀片 型号
INSERT type

613 / 628



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



可与铣刀柄配合使用
for use with Milling shank

型号 M313
type M328

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	E_1	s	Ds	MG12	TN35	TI25	TA45	AS45
613.3972.125.1	1.25	12 - 13								▲
613.3972.125.2	1.25	14 - 16								▲
613.3972.125.3	1.25	17 - 20								▲
613.3972.125.4	1.25	21 - 25								▲
613.3972.125.5	1.25	26 - 34								▲
613.3972.125.6	1.25	35 - 54								▲
613.3972.125.7	1.25	55 - 134								▲
613.3972.125.8	1.25	≥ 135								▲
613.3972.150.1	1.5	12 - 13	2.5	5.7	21.7					Δ
613.3972.150.2	1.5	14 - 16								▲
613.3972.150.3	1.5	17 - 20								▲
613.3972.150.4	1.5	21 - 25								▲
613.3972.150.5	1.5	26 - 34								▲
613.3972.150.6	1.5	35 - 54								Δ
613.3972.150.7	1.5	55 - 134								Δ
613.3972.150.8	1.5	≥ 135								Δ
628.3972.175.1	1.75	12 - 13								Δ
628.3972.175.2	1.75	14 - 16								Δ
628.3972.175.3	1.75	17 - 20								Δ
628.3972.175.4	1.75	21 - 25	3.4	7.45	27.7					Δ
628.3972.175.5	1.75	26 - 34								Δ
628.3972.175.6	1.75	35 - 54								Δ
628.3972.175.7	1.75	55 - 134								Δ
628.3972.175.8	1.75	≥ 135								Δ
						P				•
						M				•
						K				•
						N				o
						S				•
						H				

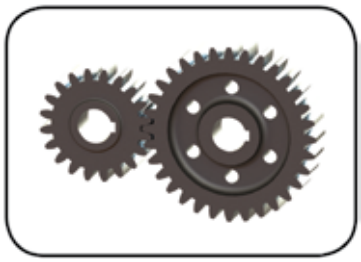
▲ 库存品 / on stock　Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可替换推荐 / alternative recommendation
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

尺寸单位：mm
Dimensions in mm

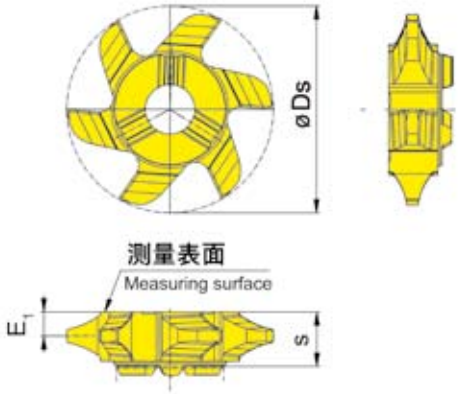
硬质合金牌号
Carbide grade

刀片 型号
INSERT type

628 / 632 / 635



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



可与铣刀柄配合使用
for use with Milling shank

型号 M328
type M332
M335

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	E_1	s	Ds	MG12	TN35	TI25	TA45	AS45
628.3972.200.1	2	12 - 13	3.4	7.45	27.7					▵
628.3972.200.2	2	14 - 16								▵
628.3972.200.3	2	17 - 20								▵
628.3972.200.4	2	21 - 25								▵
628.3972.200.5	2	26 - 34								▵
628.3972.200.6	2	35 - 54								▵
628.3972.200.7	2	55 - 134								▵
628.3972.200.8	2	≥ 135								▵
635.3972.225.1	2.25	12 - 13	5.5	11.9	34.7					▵
632.3972.225.2	2.25	14 - 16	3.45	7.5	31.7					▵
632.3972.225.3	2.25	17 - 20								▵
632.3972.225.4	2.25	21 - 25								▵
632.3972.225.5	2.25	26 - 34								▵
632.3972.225.6	2.25	35 - 54								▵
632.3972.225.7	2.25	55 - 134								▵
632.3972.225.8	2.25	≥ 135								▵
P										•
M										•
K										•
N										o
S										•
H										

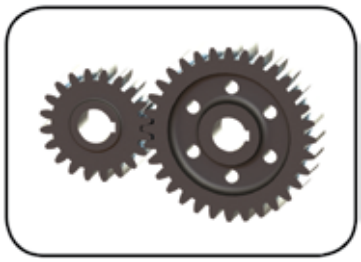
▲ 库存品 / on stock　Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可替换推荐 / alternative recommendation
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

尺寸单位：mm
Dimensions in mm

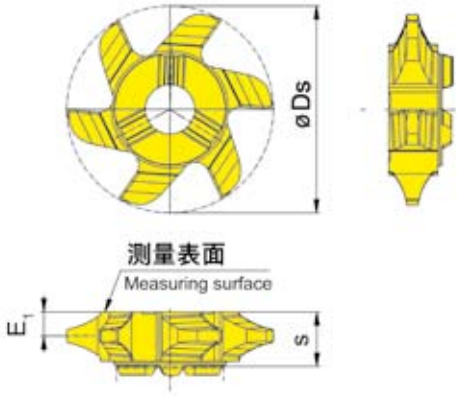
硬质合金牌号
Carbide grade

刀片 型号
INSERT type

635



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



可与铣刀柄配合使用
for use with Milling shank

型号 M335
type

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	E_1	s	Ds		MG12	TN35	TI25	TA45	AS45
635.3972.250.1	2.5	12 - 13	5.5	11.9	34.7						Δ
635.3972.250.2	2.5	14 - 16									Δ
635.3972.250.3	2.5	17 - 20									Δ
635.3972.250.4	2.5	21 - 25									Δ
635.3972.250.5	2.5	26 - 34									Δ
635.3972.250.6	2.5	35 - 54									Δ
635.3972.250.7	2.5	55 - 134									Δ
635.3972.250.8	2.5	≥ 135									Δ
635.3972.275.1	2.75	12 - 13									Δ
635.3972.275.2	2.75	14 - 16									Δ
635.3972.275.3	2.75	17 - 20									Δ
635.3972.275.4	2.75	21 - 25									Δ
635.3972.275.5	2.75	26 - 34									Δ
635.3972.275.6	2.75	35 - 54									Δ
635.3972.275.7	2.75	55 - 134									Δ
635.3972.275.8	2.75	≥ 135									Δ
635.3972.300.1	3	12 - 13									Δ
635.3972.300.2	3	14 - 16									Δ
635.3972.300.3	3	17 - 20									Δ
635.3972.300.4	3	21 - 25									Δ
635.3972.300.5	3	26 - 34									Δ
635.3972.300.6	3	35 - 54									Δ
635.3972.300.7	3	55 - 134									Δ
635.3972.300.8	3	≥ 135									Δ
						P					•
						M					•
						K					•
						N					o
						S					•
						H					

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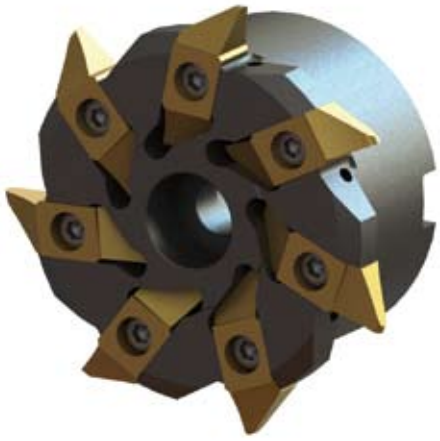
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

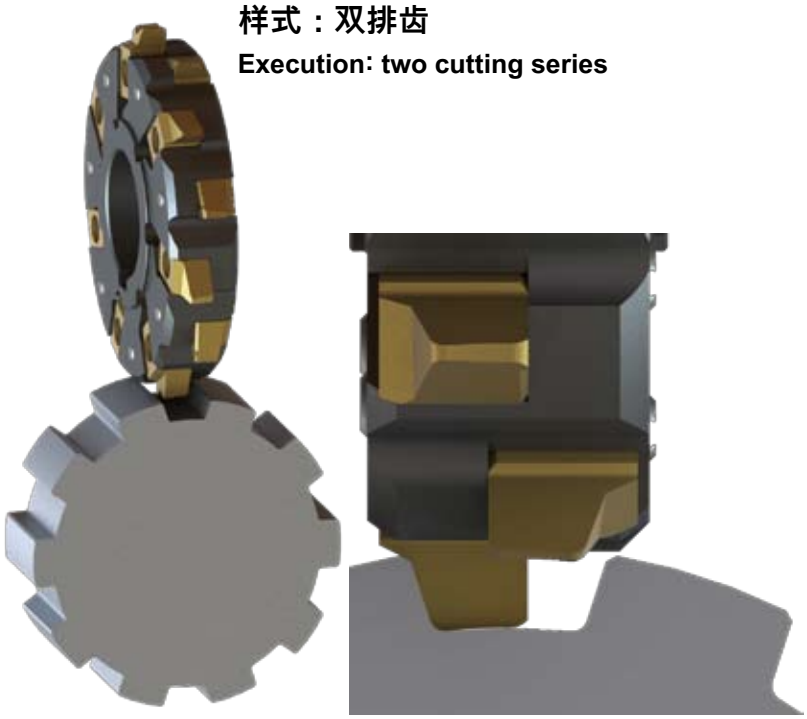
尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grade

样式：单排齿
Execution: one cutting serie



样式：双排齿
Execution: two cutting series



齿轮铣削

系列 S274
- 模数 3,25 - 4
- 铣刀 型号 R/LM274
- 刀片 型号 RS274

或者

系列 S279
- 模数 3,25 - 4
- 铣刀 型号 R/LM279
- 刀片 型号 RS279

RS279刀片不能装在M274刀盘上

Gear milling

System S274
- Module 3,25 - 4
- Milling cutter type R/LM274
- Inserts type RS274

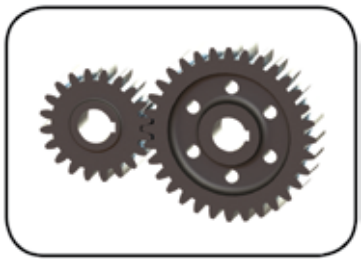
or

System S279
- Module 3,25 - 4
- Milling cutter type R/LM279
- Inserts type RS279

Inserts RS279 are not compatible with M274

铣刀 / 盘铣刀 型号
Milling cutter / Disc milling cutter type

M274

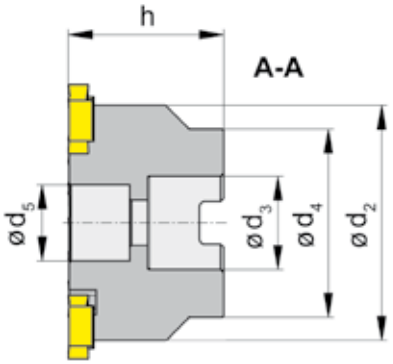


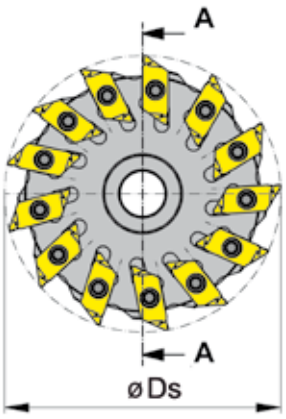
切削刃 Ø	Cutting edge Ø	Ds 63/80/119 mm

刀孔和交叉键槽，符合 DIN 138
Cutterhole and cross keyway as per DIN 138

适合与可转位刀片配合使用
for use with indexable insert

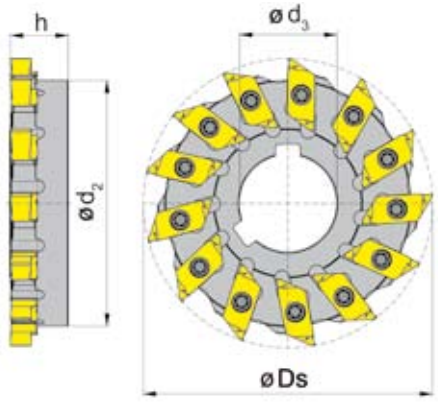
型号 S274
type





带内冷
with through coolant supply

图片 = 铣刀 M274...A...
Picture = Milling cutter M274...A...



无冷却液供应
no through coolant

图片 = 右手盘形铣刀 RM274...S...
Picture = right hand disc milling cutter RM274...S...

产品型号 Part number	Z	Ds	h	d_2	d_3	d_4	d_5
M274.0063.A22.7.10.IK	10	63	40	51	22	48	18,5
M274.0080.A27.7.13.IK	13	80	45	68	27	60	22,0

产品型号 Part number	Z	Ds	h	d_2	d_3
R/LM274.0080.S27.7.13	13	80	16	68	27
R/LM274.0119.S40.7.19	19	119	20	107	40

注明R或L型
State R or L version

尺寸单位：mm
Dimensions in mm

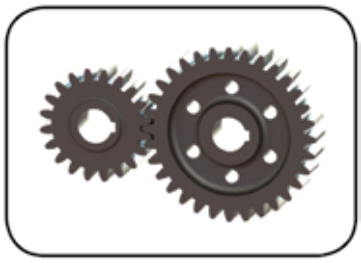
备件
Spare parts

铣刀 Milling cutter	螺钉 Screw	锁紧螺钉 Screw	TORX PLUS®扳手 TORX PLUS® Wrench	垫圈 Washer
M274.0063.A22.7.10.IK	**DIN912-M10x25**	**030.3513.T15P**	**T15PQ**	**DIN433-10.5-St**
M274.0080.A27.7.13.IK	**DIN912-M12x30**	**030.3513.T15P**	**T15PQ**	**DIN433-13-St**

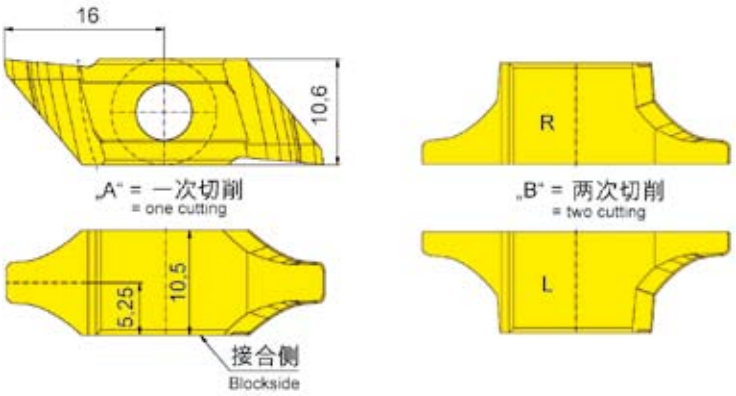
盘铣刀 Disc milling cutter	锁紧螺钉 Screw	TORX PLUS®扳手 TORX PLUS® Wrench
R/LM274.0080.S27.7.13	**030.3513.T15P**	**T15PQ**
R/LM274.0119.S40.7.19	**030.3513.T15P**	**T15PQ**

刀片 型号
INSERT type

RS279



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



适合与盘形铣刀配合使用
for use with Disc milling cutter

型号 M279
type

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	规格 Form	MG12	TN35	TI25	TA45	AS45
RS279.3972.325.1	3.25	12 - 13	A					Δ
RS279.3972.325.2	3.25	14 - 16						Δ
RS279.3972.325.3	3.25	17 - 20						Δ
RS279.3972.325.4	3.25	21 - 25						Δ
RS279.3972.325.5	3.25	26 - 34						Δ
RS279.3972.325.6	3.25	35 - 54						Δ
RS279.3972.325.7	3.25	55 - 134						Δ
RS279.3972.325.8	3.25	> 135						Δ
RS279.3972.350.1L	3.5	12 - 13	B					Δ
RS279.3972.350.1R								Δ
RS279.3972.350.2L	3.5	14 - 16	B					Δ
RS279.3972.350.2R								Δ
RS279.3972.350.3	3.5	17 - 20	A					Δ
RS279.3972.350.4	3.5	21 - 25						Δ
RS279.3972.350.5	3.5	26 - 34						Δ
RS279.3972.350.6	3.5	35 - 54						Δ
RS279.3972.350.7	3.5	55 - 134						Δ
RS279.3972.350.8	3.5	> 135						Δ
				P				•
				M				•
				K				•
				N				o
				S				•
				H				

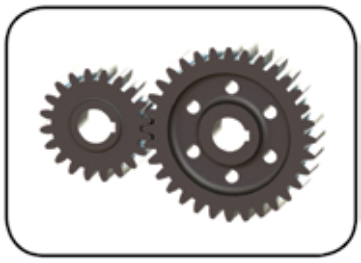
▲ 库存品 / on stock　Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可替换推荐 / alternative recommendation
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

尺寸单位：mm
Dimensions in mm

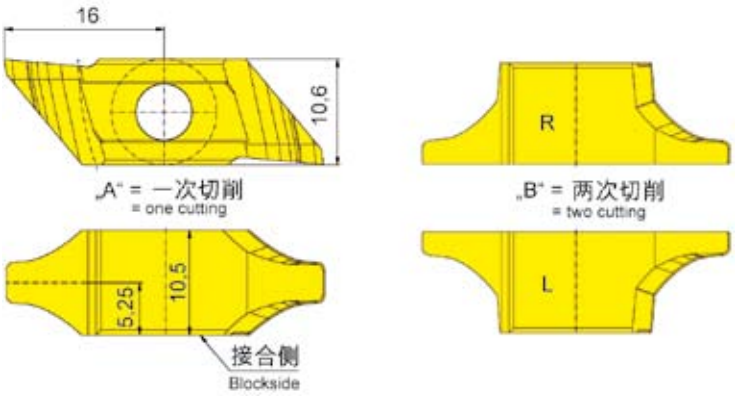
硬质合金牌号
Carbide grade

刀片 型号
INSERT type

RS279



用于带渐开线齿面的圆柱齿轮的齿轮铣刀，符合 DIN 867 基本外形 1，符合 DIN 3972，用于精加工
Gear milling cutter for cylindrical gears with involuted flanks according to DIN 867 Basic profile 1 according to DIN 3972 for finishing



适合与盘形铣刀配合使用
for use with Disc milling cutter

型号 M279
type

压力角 20°
Pressure angle 20°

产品型号 Part number	模数 Module	z*	规格 Form	MG12	TN35	TI25	TA45	AS45
RS279.3972.375.1L RS279.3972.375.1R	3.75	12 - 13	B					Δ Δ
RS279.3972.375.2L RS279.3972.375.2R	3.75	14 - 16	B					Δ Δ
RS279.3972.375.3L RS279.3972.375.3R	3.75	17 - 20	B					Δ Δ
RS279.3972.375.4L RS279.3972.375.4R	3.75	21 - 25	B					Δ Δ
RS279.3972.375.5 RS279.3972.375.6 RS279.3972.375.7 RS279.3972.375.8	3.75	26 - 34 35 - 54 55 - 134 > 135	A					Δ Δ Δ Δ
RS279.3972.400.1L RS279.3972.400.1R	4	12 - 13	B					Δ Δ
RS279.3972.400.2L RS279.3972.400.2R	4	14 - 16	B					Δ Δ
RS279.3972.400.3L RS279.3972.400.3R	4	17 - 20	B					Δ Δ
RS279.3972.400.4L RS279.3972.400.4R	4	21 - 25	B					Δ Δ
RS279.3972.400.5L RS279.3972.400.5R	4	26 - 34	B					Δ Δ
RS279.3972.400.6L RS279.3972.400.6R	4	36 - 54	B					Δ Δ
RS279.3972.400.7 RS279.3972.400.8	4	55 - 134 > 135	A					Δ Δ
P								•
M								•
K								•
N								o
S								•
H								

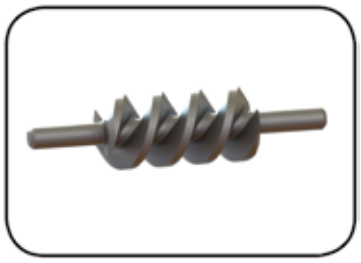
▲ 库存品 / on stock Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可替换推荐 / alternative recommendation
无涂层牌号 / uncoatet grades
涂层牌号 / coatet grades
钎焊 MCD / brazed MCD

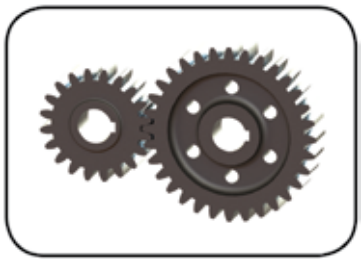
尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grade

铣刀
Milling cutter

M121

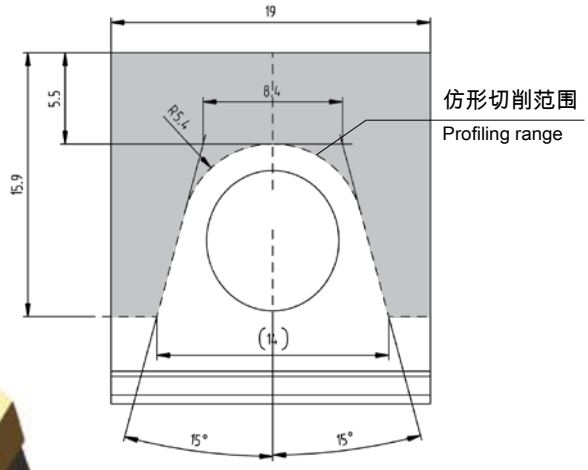




适合至模数 6 的齿轮装置
基本外形 1，符合 DIN 3972，用于精加工

For gearings up to module 6
Basic profile 1 according to DIN 3972 for finishing

D	齿数 Number of teeth
63	4
80	6



齿轮轴 DIN 5480 / ANSI B92.1 Gear shafts DIN 5480 / ANSI B92.1	Ds [mm]	圆柱齿轮/齿条 基本外形 1， 符合 DIN 3972 Cylindrical gears / Tooth bars Basic profile 1 according to DIN 3972	蜗杆轴 DIN 3975 Worm shafts DIN 3975
$m_n \leq 2{,}5$ / $d_B \geq 30$	≥ 50	$m_n \leq 2.3$	$m_x \leq 2.3$
$m_n \leq 4$ / $d_B \geq 50$	≥ 100	$m_n \leq 4$	$m_x \leq 4$

根据客户要求提供外形
Profiles upon customers request

大进给铣削

立铣刀 DSDS

切削刃 Ø Ds Ø6- Ø16

High Feed Milling

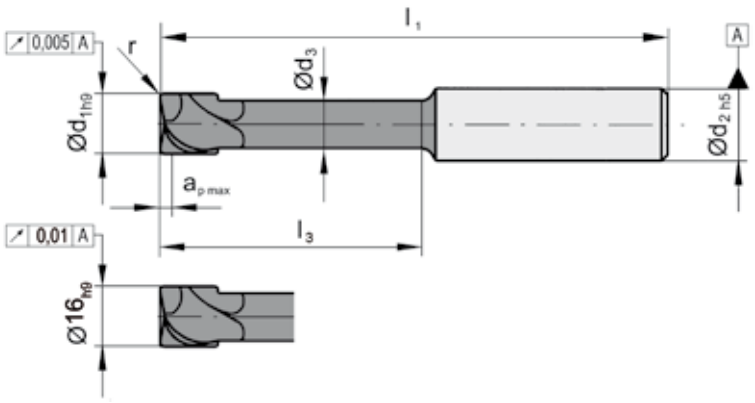
Endmill DSDS

Cutting edge Ø Ds Ø6- Ø16

推荐加工III类材料 - 软铣
Recommended material group III - soft milling

DSDS

4刃
4-fluted



产品型号 Part number	d_1	d_2	d_3	l_1	l_3	r_{theo}	$a_{p\ max}$	Z	TS3K
DSDS.4.06.63.06.08 **DSDS.4.06.77.06.08**	6	6	5.4	63 77	15	0.8	0.4	4	▲ ▲
DSDS.4.08.63.08.10 **DSDS.4.08.77.08.10**	8	8	7.2	63 77	20	1.4	0.5	4	▲ ▲
DSDS.4.10.77.10.15 **DSDS.4.10.99.10.15**	10	10	9.0	77 99	25	2.0	0.7	4	▲ ▲
DSDS.4.12.77.12.15 **DSDS.4.12.99.12.15**	12	12	10.8	77 99	30	2.1	0.8	4	▲ Δ
DSDS.4.16.77.16.20 **DSDS.4.16.99.16.20**	16	16	14.4	77 99	40	2.8	1.0	4	▲ Δ

▲ 库存 / on stock　Δ 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

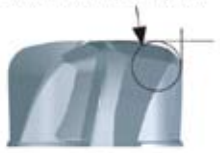
	TS3K
P	●
M	
K	
N	
S	
H	●

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

按需提供更多尺寸
Further sizes upon request

理论圆角半径 r_{th} = 编程半径，
根据要求提供实际外形
theoretical corner radius r_{th} = programming radius
actual outline upon request!



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	< 750	< 250	
	合金钢 / Alloyed steel	> 1000	< 300	
	工具钢 / Tool steel	> 850 > 1000	> 250 > 300	170-250 150-200
M	不锈钢 / Stainless steel	< 600 < 850	< 200 < 250	
K	可锻铸铁 / Malleable cast iron		< 260	180-250
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	

AlTiN涂层
AlTiN coated

建议冷却:
1. 最小量润滑
2. 空气

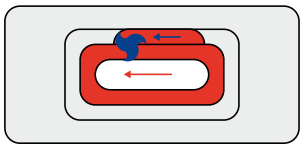
recommended cooling:
1. Minimum lubrication
2. Air

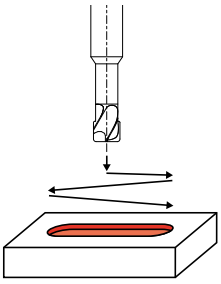
HSM

双半径
Double radius

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 rampingdown.





肩铣削
Shoulder milling

型腔铣削
Pocket 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)
DSDS	4	6.0	< 0.4	< 3.0	0.6 - 1.0	< 0.4	< 6.0	0.5 - 1.0
DSDS	4	8.0	< 0.5	< 4.0	0.6 - 1.0	< 0.5	< 8.0	0.5 - 1.0
DSDS	4	10.0	< 0.7	< 5.0	0.6 - 1.0	< 0.7	< 10.0	0.5 - 1.0
DSDS	4	12.0	< 0.8	< 6.0	0.6 - 1.0	< 0.8	< 12.0	0.5 - 1.0
DSDS	4	16.0	< 1.0	< 8.0	0.6 - 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.

螺纹锁紧铣刀
型号 406

适用于刀杆类型 MD

Screw-in cutter
type 406

usable in adaptor type MD

铣削系统 DG

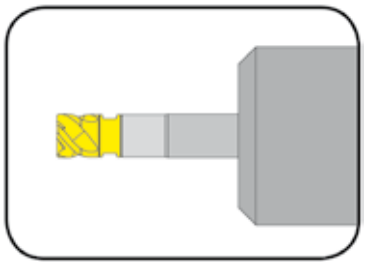
-中心加工和槽铣削
-倒角和定心加工
-仿形铣削
-大进给铣削

Milling system DG

- Centre cutting and groove milling
- Chamfering
- Copy milling
- High feed 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 切削刀片
for use with Cutting insert

型号
Type

DGF
DGFF
DGH
DGK
DGM
DGR
DGRR

产品型号 Part number	系列 System	l_1	l_2	d_1	d
MDG.10.0010.90.00.A **MDG.10.0010.90.01.A**	DG10	72.8 101.8	30.0 56.8	9.8	10
MDG.12.0012.90.00.A **MDG.12.0012.90.01.A**	DG12	83.3 114.3	36.0 59.3	11.7	12
MDG.16.0016.90.00.A **MDG.16.0016.90.01.A**	DG16	98.8 129.8	48.0 64.8	15.6	16
MDG.20.0020.90.00.A **MDG.20.0020.90.01.A**	DG20	112.3 150.3	60.0 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

对于刀MDG10...请注意螺纹未分段。
For toolholders MDG10... Please note the threads are NOT segmented.

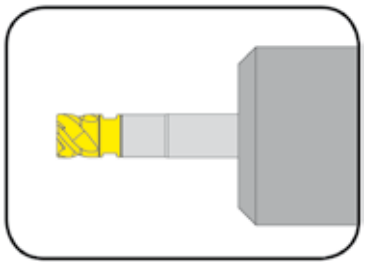
配件
扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页35。

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 35.

HORN可以返修损坏的铣刀杆基座座。
Milling cutter shanks with damaged seating can be repaired by HORN.

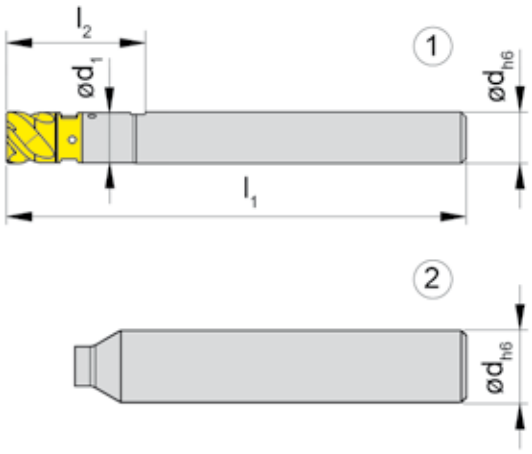
铣刀杆 型号
MILLING SHANK Type

MDG
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 切削刀片
for use with Cutting insert

型号
Type

DGF
DGFF
DGH
DGK
DGM
DGR
DGRR

产品型号 Part number	系列 System	l_1	l_2	d	d_1	规格 Form
MDG.10.ST10.90.01.A **MDG.10.ST16.90.01.A**	DG10	91.8	36.8 19.8	10 16	9.8	1 2
MDG.12.ST12.90.01.A **MDG.12.ST16.90.01.A**	DG12	109.3 99.3	44.3 22.3	12 16	11.7	1 2
MDG.16.ST16.90.01.A **MDG.16.ST20.90.01.A**	DG16	134.8 104.8	49.8 27.8	16 20	15.6	1 2
MDG.20.ST20.90.01.A **MDG.20.ST25.90.01.A**	DG20	150.3 110.3	60.3 33.3	20 25	19.5	1 2

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

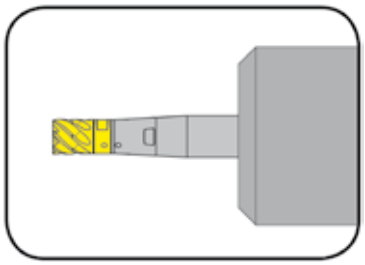
对于刀MDG10...请注意螺纹未分段。
For toolholders MDG10... Please note the threads are NOT segmented.

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35。

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 35.

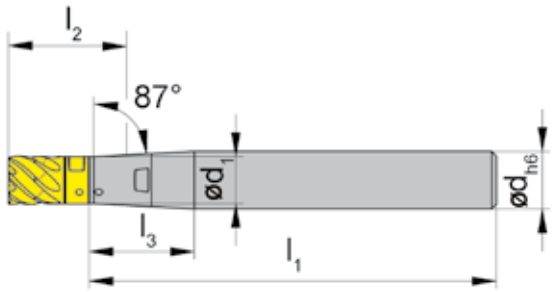
铣刀杆 型号
MILLING SHANK Type

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 切削刀片
for use with Cutting insert

型号
Type

DGF
DGFF
DGH
DGK
DGM
DGR
DGRR

产品型号 Part number	系列 System	l_1	l_2	l_3	d	d_1
MDG.10.0012.87.01.A	DG10	85	19.7	22	12	9.8
MDG.12.0016.87.01.A	DG12	100	23.1	42	16	11.7
MDG.16.0020.87.01.A	DG16	100	29.6	43	20	15.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

对于刀MDG10...请注意螺纹未分段。
For toolholders MDG10... Please note the threads are NOT segmented.

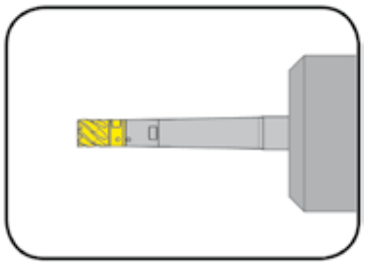
配件
扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页35。

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 35.

HORN可以返修损坏的铣刀杆基座座。
Milling cutter shanks with damaged seating can be repaired by HORN.

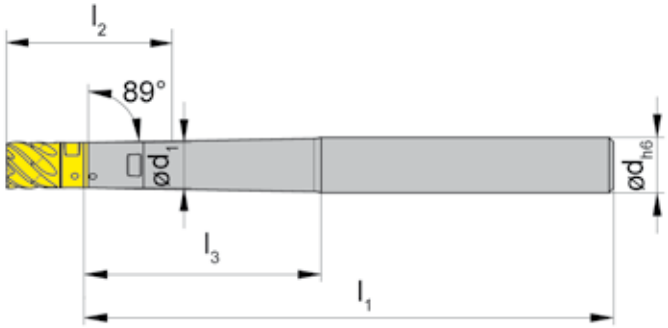
铣刀杆 型号
MILLING SHANK Type

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
Type

DGF
DGFF
DGH
DGK
DGM
DGR
DGRR

产品型号 Part number	系列 System	l_1	l_2	l_3	d	d_1
MDG.10.0012.89.01.A	DG10	115	23.5	50	12	9.8
MDG.12.0016.89.01.A	DG12	140	28.8	75	16	11.7
MDG.16.0020.89.01.A	DG16	160	37.2	75	20	15.6

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

对于刀MDG10...请注意螺纹未分段。
For toolholders MDG10... Please note the threads are NOT segmented.

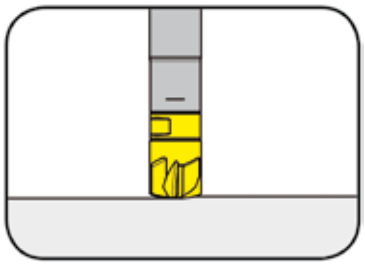
配件
扳手和附加设备不包含在铣削刀杆中，需另行订购！
更多细节和扭矩规格详见技术参考页35。

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 35.

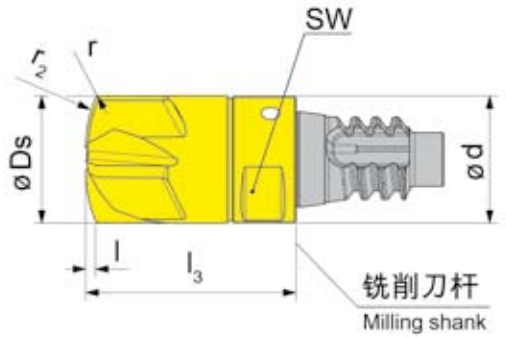
HORN可以返修损坏的铣刀杆基座座。
Milling cutter shanks with damaged seating can be repaired by HORN.

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

端面加工切削刃不过中心
face cutting edge
not 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	r_2	r_{theo}	l	l_3	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	▲

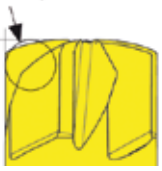
▲ 库存 / on stock Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可选推荐 / alternative recommendation
无涂层牌号 / uncoated grades
涂层牌号 / coated grades
钎焊/金属陶瓷 / brazed/Cermet

	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

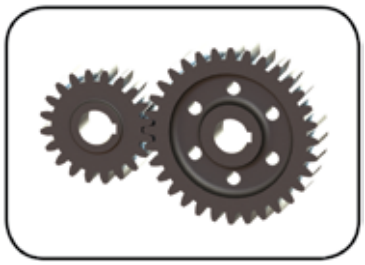
硬质合金牌号
Carbide grades

理论圆角半径 r_{th} = 编程半径，
根据要求提供实际外形
theoretical corner radius r_{th} = programming radius
actual outline upon request!

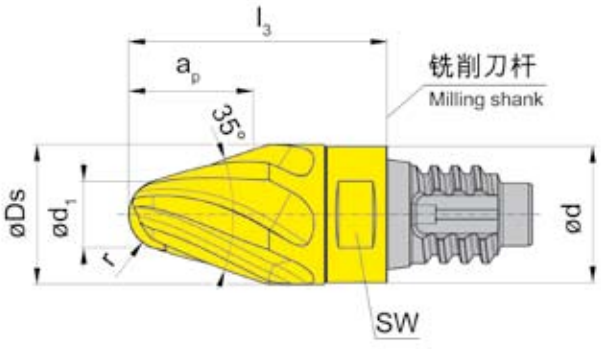


刀片 型号
CUTTING INSERT Type

DGVZ



切削刀片小圆锥球头
Cutting insert conicle ballnose



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	d_1	r	l_3	a_p	AN2P
DGVZ.4.10.35.15.00	DG10	8	4	10	9.8	2.86	1.5	21	12.30	Δ
DGVZ.4.12.35.20.00	DG12	10	4	12	11.7	3.82	2.0	24	14.30	Δ
DGVZ.6.16.35.30.00	DG16	13	6	16	15.6	5.72	3.0	32	18.40	Δ
DGVZ.6.20.35.50.00	DG20	17	6	20	19.5	9.54	5.0	37	20.09	Δ

▲ 库存 / on stock　Δ 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

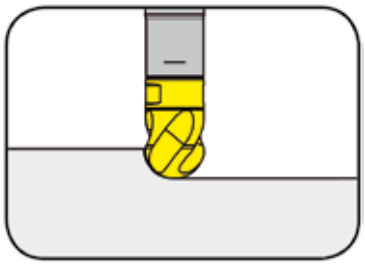
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

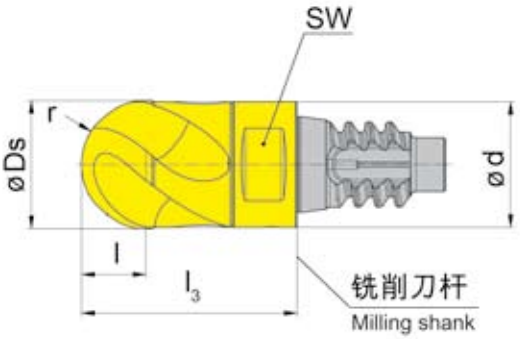
硬质合金牌号
Carbide grades

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

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	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
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

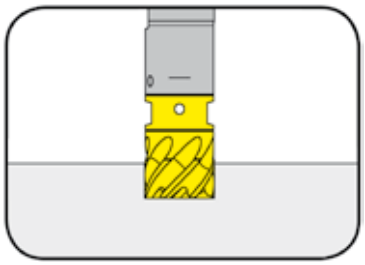
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

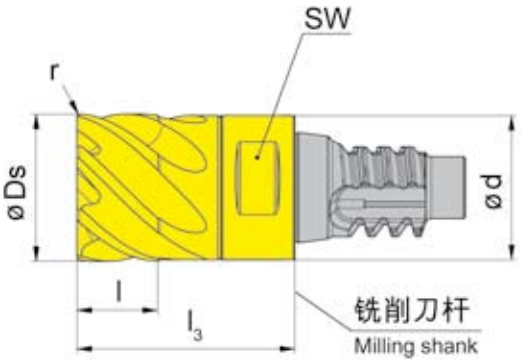
硬质合金牌号
Carbide grades

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

端面加工切削刃不过中心
face cutting edge
not 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	AN2P
DGM.7.10.1000.02.0 **DGM.7.10.1000.10.0**	DG10	8	7	10	9.8	0.2 1.0	5.5	16.8	▲ ▲
DGM.7.12.1200.02.0 **DGM.7.12.1200.10.0**	DG12	10	7	12	11.7	0.2 1.0	6.5	19.3	▲ ▲
DGM.9.16.1600.02.0 **DGM.9.16.1600.10.0**	DG16	13	9	16	15.6	0.2 1.0	9.0	24.8	▲ ▲
DGM.9.20.2000.02.0 **DGM.9.20.2000.10.0**	DG20	17	9	20	19.5	0.2 1.0	11.0	30.3	▲ ▲

▲ 库存 / on stock Δ 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

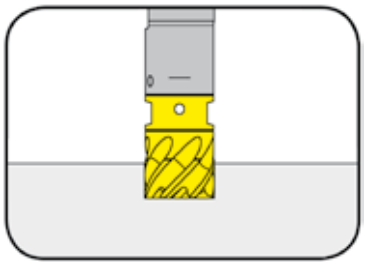
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

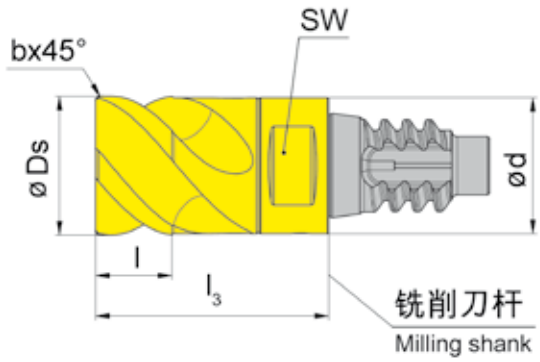
硬质合金牌号
Carbide grades

刀片 型号
CUTTING INSERT Type

DGF



带刀尖倒角的刀片
Cutting insert with corner chamfer



图示=右手型
Picture = right hand cutting version

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

产品型号 Part number	系列 System	SW	Z	Ds	d	l	l_3	b	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
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

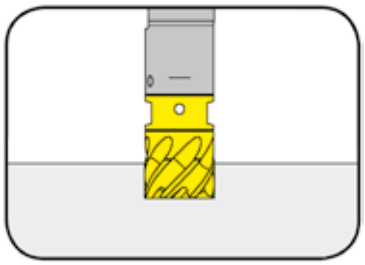
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

刀片 型号
CUTTING INSERT Type

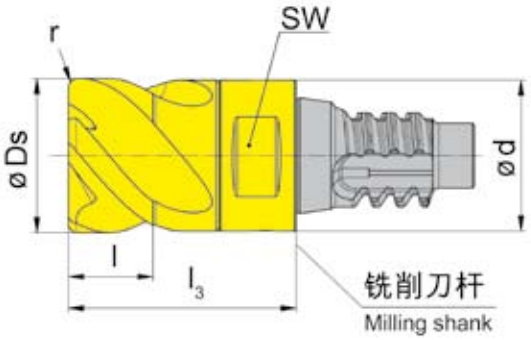
DGR



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	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
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

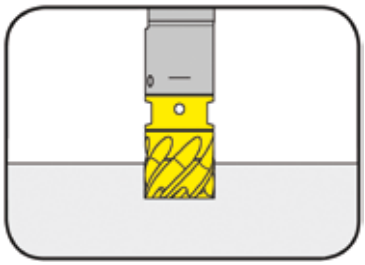
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

刀片 型号
CUTTING INSERT Type

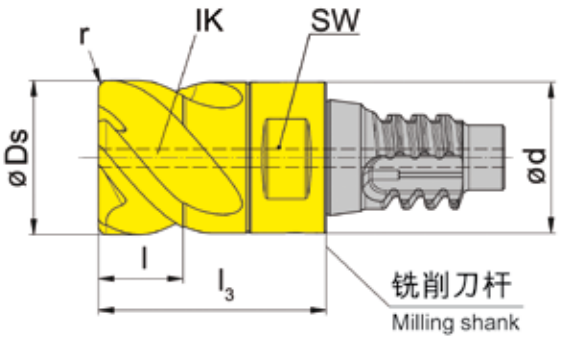
DGR
带内冷
with through coolant supply



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



端面加工切削刃不过中心
face cutting edge
not 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	AN2P
DGR.3.10.1000.05.IK	DG10	8	3	10	9.8	0.5	5.5	16.8	▲
DGR.3.10.1000.10.IK			3			1.0			▲
DGR.4.10.1000.05.IK			4			0.5			▲
DGR.4.10.1000.10.IK			4			1.0			▲
DGR.3.12.1200.05.IK	DG12	10	3	12	11.7	0.5	6.5	19.3	▲
DGR.4.12.1200.05.IK			4			0.5			▲
DGR.4.12.1200.10.IK			4			1.0			▲
DGR.5.16.1600.05.IK	DG16	13	5	16	15.6	0.5	8.5	24.8	▲
DGR.5.16.1600.10.IK						1.0			▲
DGR.5.16.1600.15.IK						1.5			▲
DGR.5.16.1600.20.IK						2.0			▲

▲ 库存 / on stock　Δ 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

	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

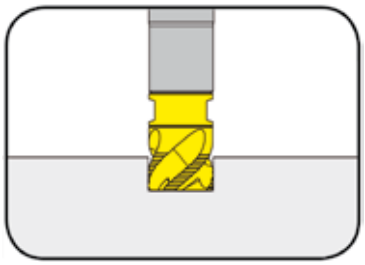
尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

粗加工立铣刀
ROUGHING ENDMILL

刀片 型号
CUTTING INSERT Type

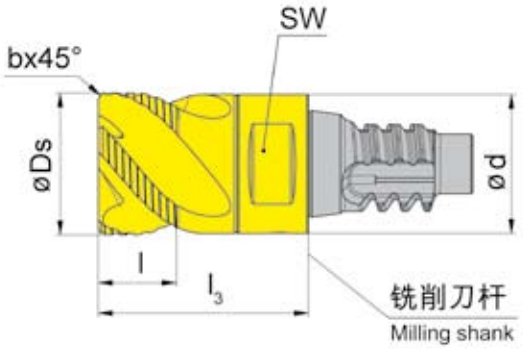
DGRR



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	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
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

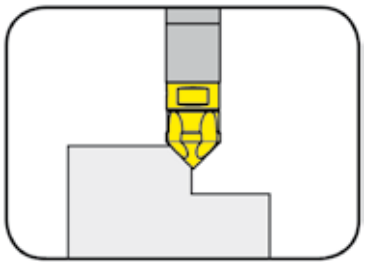
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

硬质合金牌号
Carbide grades

刀片 型号
CUTTING INSERT Type

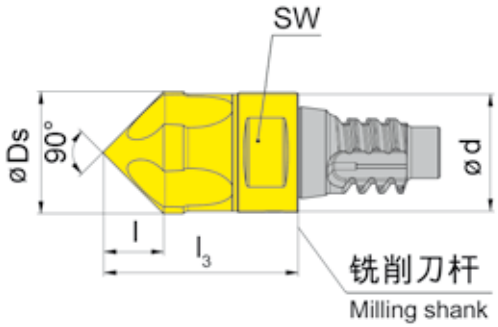
DGFF



倒角角度	Angle of chamfer	45 °

配合 铣刀杆
for use with Milling shank

型号 MDG
Type



不适合面铣
not face cutting

图示=右手型
Picture = right hand cutting version

产品型号 Part number	系列 System	SW	Z	Ds	d	d_1	l	l_3	AN2P
DGFF.3.10.45.00	DG10	8	3	10	9.8	2	4.0	16.8	▲
DGFF.4.10.45.00	DG10	8	4	10	9.8	1	4.5	16.8	▲
DGFF.3.12.45.00	DG12	10	3	12	11.7	2	5.0	19.3	▲
DGFF.4.12.45.00	DG12	10	4	12	11.7	1	5.5	19.3	▲
DGFF.3.16.45.00	DG16	13	3	16	15.6	2	7.0	24.8	▲
DGFF.6.16.45.00	DG16	13	6	16	15.6	1	7.5	24.8	▲

▲ 库存 / on stock Δ 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

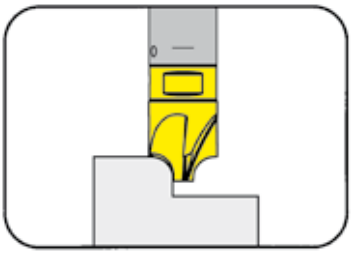
	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

尺寸单位：mm
Dimensions in mm

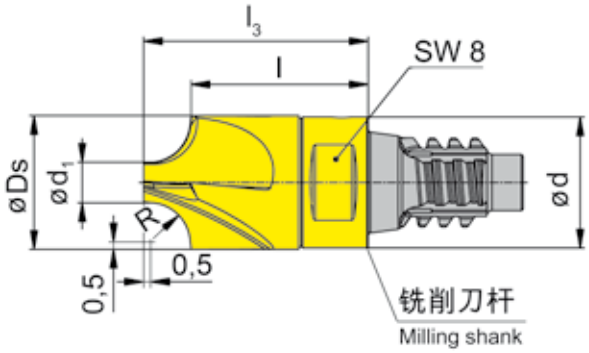
硬质合金牌号
Carbide grades

刀片 型号
CUTTING INSERT Type

DGV



半径凹面	Radius concave	R 0.2 - 3.0 mm



图示=右手型
Picture = right hand cutting version

配合 铣刀杆
for use with Milling shank

型号 MDG
Type

不适合面铣
not face cutting

产品型号 Part number	SW	Z	Ds	d	d_1	r	l	l_3	AN2P
DGV.4.10.R020.00	8	4	10	9.8	8.6	0.20	16.10	16.8	▲
DGV.4.10.R050.00					8.0	0.50	15.80		▲
DGV.4.10.R100.00					7.0	1.00	15.30		▲
DGV.4.10.R125.00					6.5	1.25	15.05		▲
DGV.4.10.R150.00					6.0	1.50	14.80		▲
DGV.4.10.R200.00					5.0	2.00	14.30		▲
DGV.4.10.R250.00					4.0	2.50	13.80		▲
DGV.4.10.R300.00					3.0	3.00	13.30		▲

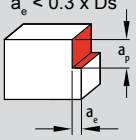
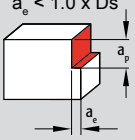
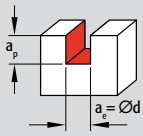
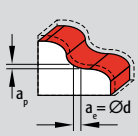
▲ 库存 / on stock Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可选推荐 / alternative recommendation
无涂层牌号 / uncoated grades
涂层牌号 / coated grades
钎焊/金属陶瓷 / brazed/Cermet

	AN2P
P	●
M	●
K	o
N	o
S	o
H	o

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 x Ds a_e < 0.3 x Ds 	肩铣削 Shoulder milling a_p < 0.5 x Ds a_e < 1.0 x Ds 	槽铣削 Groove milling a_p < 0.5 x Ds 	仿形铣 Copy milling a_p < 0.02 x Ds 
				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	25	25		

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	10	**8**	S.DG1012	D.DG1001	D0525VK 5 - 25 Nm	D1050VK 10 - 50 Nm
DG12	14	**10**		D.DG1201		
DG16	25	**13**	S.DG1620	D.DG1601	D20100VK 20 - 100 Nm	
DG20	35	**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.

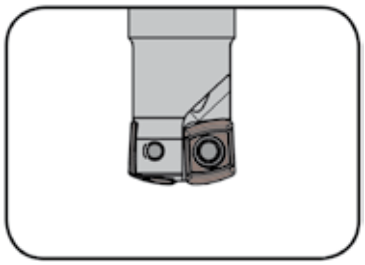
Note:
The use of lubricant reduces friction between cutting insert and tool holder. For optimum radial and axial run-out precision it is crucial that interfaces and seat surfaces are clean. Applying the recommended tightening torque for gripping cutting inserts guarantees the correct insert fit.

大进给铣削
系列 DAH25

High Feed Milling
System DAH25

铣刀杆 型号
MILLING SHANK Type

DAHM

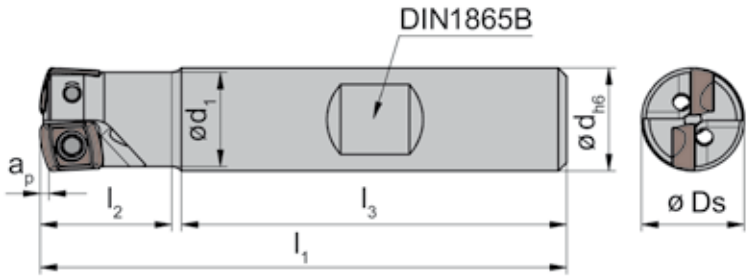


切削刃Ø	Cutting edge Ø	12/16/20/25 mm

刀杆材料：钢
Material of shank: Steel

配合 可转位刀片
for use with Indexable insert

型号 DAH25
Type



产品型号 Part number	Z	Ds	a_p	l_1	l_2	l_3	d	d_1
DAHM·25·012·D122·02B	2	12	1	61.5	15	45	12	11.0
DAHM·25·016·D163·03B	3	16	1	69.5	20	48	16	14.5
DAHM·25·020·D204·03B	3	20	1	76.5	25	50	20	18.0
DAHM·25·025·D255·04B	4	25	1	85.5	28	56	25	23.0

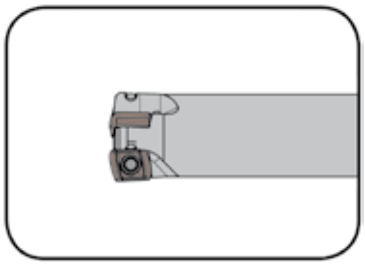
尺寸单位：mm
Dimensions in mm
螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Clamping screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.25.012.D122.02B	**030·2547·T8P**	**T8PL**
DAHM.25.0...03B/04B	**030·2553·T8P**	**T8PL**

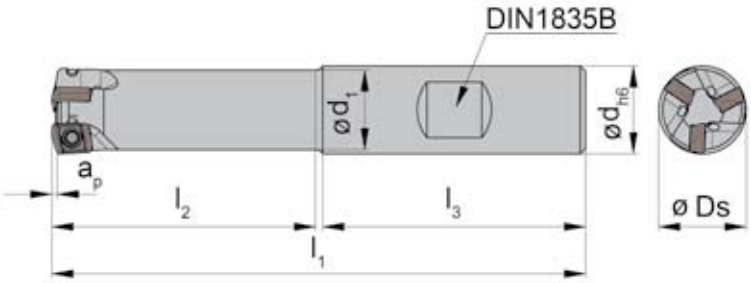
铣刀杆 型号
MILLING SHANK Type

DAHM



切削刃Ø	Cutting edge Ø	12/16/20/25 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 DAH25
Type

产品型号 Part number	Z	Ds	a_p	l_1	l_2	l_3	d_1	d
DAHM·25·012·D124·02B	2	12	1	82.5	36	45	11.5	12
DAHM·25·016·D165·02B	2	16	1	97.5	48	48	15.4	16
DAHM·25·016·D165·03B	3	16	1	97.5	48	48	15.4	16
DAHM·25·020·D206·03B	3	20	1	111.5	60	50	19.0	20
DAHM·25·025·D257·04B	4	25	1	132.5	75	56	24.0	25

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

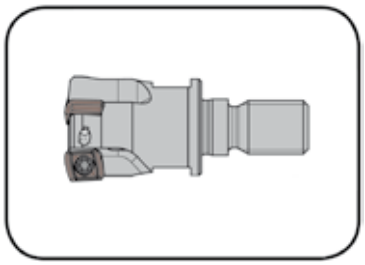
螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

铣刀杆 Milling shank	螺钉 Clamping screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.25.012.D124.02B	**030·2547·T8P**	**T8PL**
DAHM.25.0...02B/03B/04B	**030·2553·T8P**	**T8PL**

螺纹锁紧铣刀 型号
SCREW-IN CUTTER Type

DAHM

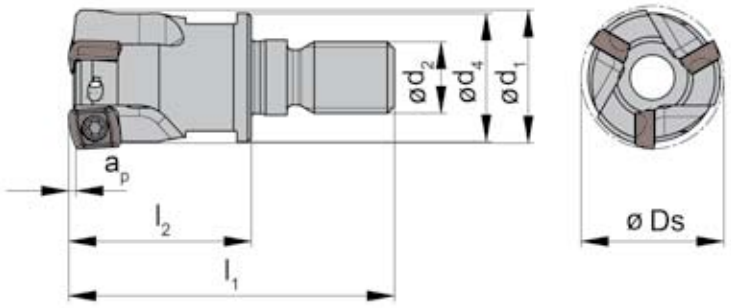


切削刃Ø	Cutting edge Ø	12/16/20/25 mm

刀杆材料：钢
Material of shank: Steel

配合 可转位刀片
for use with Indexable insert

型号 DAH25
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
DAHM.25.012.M062.02	2	12	1	26	13.5	11	M6	11.5
DAHM.25.016.M083.02	2	16	1	39	20.5	13	M8	15.4
DAHM.25.016.M083.03	3	16	1	39	20.5	13	M8	15.4
DAHM.25.020.M104.03	3	20	1	45	25.5	18	M10	19.0
DAHM.25.025.M125.04	4	25	1	50	28.0	21	M12	24.0

按需提供更多尺寸
Further sizes upon request

尺寸单位：mm
Dimensions in mm

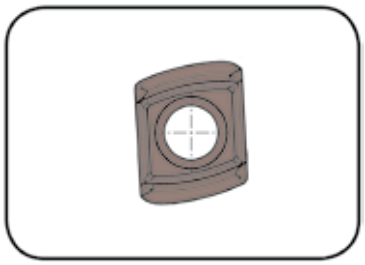
螺丝的扭矩规格，详见技术说明。
For torque specifications of the screw, please see Technical Instructions.

附件
Spare parts

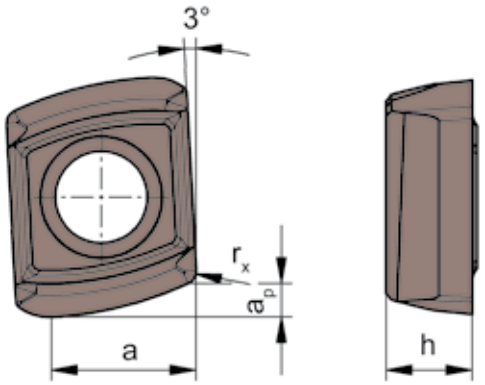
螺纹锁紧铣刀 Screw-in cutter	螺钉 Clamping screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.25.012.M062.02	**030.2547.T8P**	**T8PL**
DAHM.25.0...02/03/04	**030.2553.T8P**	**T8PL**

可转位刀片 型号
INDEXABLE INSERT Type

DAH25



切深可达	Depth of cut up to	1.0 mm



配合 铣刀杆
for use with Milling shank

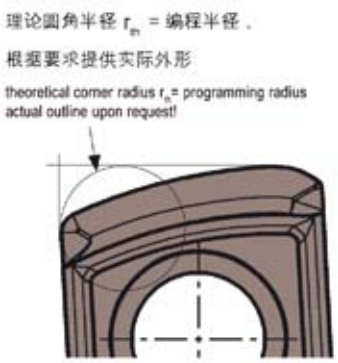
产品型号 Part number	a_p	a	h	r_x	r_{theo}	SA4B
DAH.25.011.D.04	1	4.4	2.6	0.4	1.4	▲

▲ 库存 / on stock　Δ 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

	SA4B
P	●
M	●
K	●
N	●
S	
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

$$n = \frac{v_c \cdot 1000}{d_{eff} \cdot Ù} \quad [1/min]$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d_{eff} \cdot Ù \cdot n}{1000} \quad [m/min]$$

f_z = 进给/齿
Feed/tooth

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

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \quad [mm/min]$$

Q = 材料去除率
Material removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \quad [cm^3/min]$$

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
Ds = 刀具直径
K_D = 修正值表
$d_{eff} = K_D + (Ds - 20)$
$d_{eff} = K_D + (Ds - 12)$

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
Ds = cutter diameter
K_D = from Correction value chart
$d_{eff} = K_D + (Ds - 12)$

修正数值
Correction value

a_p [mm]	K_D [mm]
0,1	5,3
0,2	6,5
0,3	7,4
0,4	8,1
0,5	8,8
0,6	9,4
0,7	10,0
0,8	10,5
0,9	11,0
1,0	12,0

切削参数 系列 DAH25
CUTTING DATA System DAH25

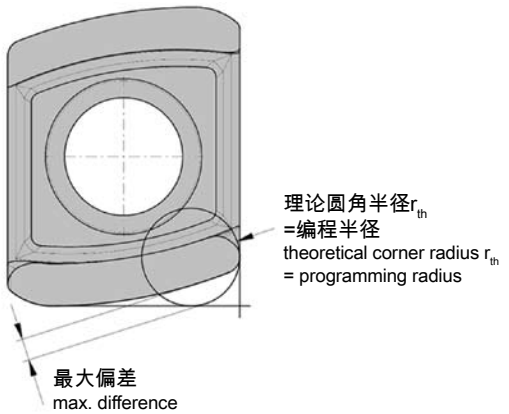
ISO	材料 Material	硬度 HB Hardness HB	进给/齿 f_z (mm) Feed/tooth f_z (mm)	切削速度 Cutting speed v_c (m/min)
P	非合金钢 unalloyed steel	125	0,6 ~ 1,8	200 - 300
	非合金钢 unalloyed steel	190	0,6 ~ 1,8	200 - 300
	低合金钢 low alloyed steel	200	0,6 ~ 1,6	180 - 300
	低合金钢 low alloyed steel	300	0,6 ~ 1,6	160 - 280
	高合金钢 high alloyed steel	200	0,5 ~ 1,5	150 - 250
M	不锈钢 马氏体 Stainless steel martenistic	240	0,6 ~ 1,5	140 - 220
	不锈钢 奥氏体 Stainless steel austenitic	180	0,5 ~ 1,2	120 - 200
K	可锻铸铁 铁素体 Malleable cast iron ferritic	130	0,6 ~ 1,8	160 - 280
	可锻铸铁 珠光体 Malleable cast iron perlitic	230	0,6 ~ 1,5	150 - 250
	球墨铸铁 铁素体/珠光体 Spheroidal graphite cast iron ferritic/perlitic	180	0,6 ~ 1,5	150 - 250
	球墨铸铁 珠光体 Spheroidal graphite cast iron perlitic	260	0,6 ~ 1,5	140 - 240
	灰铸铁 Grey cast iron	160	0,6 ~ 2,2	180 - 320
N	铝合金 Al-alloys	90	0,8 ~ 2,5	1000 - 1500

切入角
Diving angle

Ø (mm)	切入角 (°) Diving angle (°)
12	6,5
16	2,5
20	1,5
25	1,0

编程半径和偏差
Programming radius and difference

r_{th}(mm)	最大偏差 (mm) max. difference (mm)
1,4	0,61

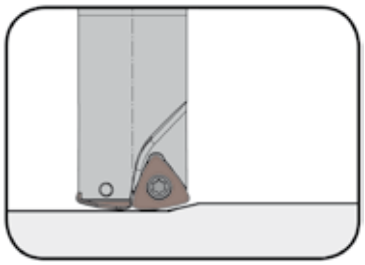


大进给铣削
系列 DAH37

High Feed Milling
System DAH37

铣刀头 型号
MILLING HEAD Type

DAHM

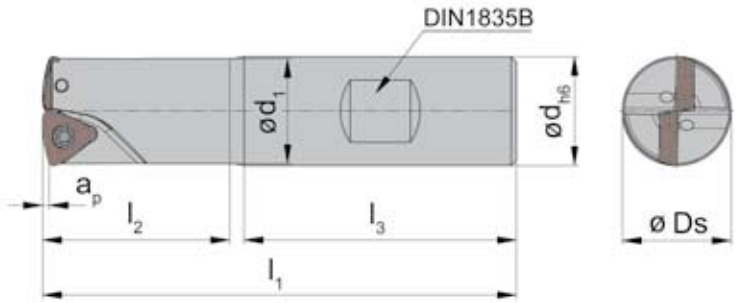


切削刃Ø	Cutting edge Ø	20/25/32/40 mm

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	a_p	l_1	l_2	l_3	d	d_1
DAHM·37·020·D204·02B	2	20	1.2	87	34	50	20	19
DAHM·37·025·D255·03B	3	25	1.2	101	41	56	25	24
DAHM·37·032·D326·04B	4	32	1.2	111	47	60	32	31
DAHM·37·040·D326·05B	5	40	1.2	111	47	60	32	39

尺寸单位：mm
Dimensions in mm

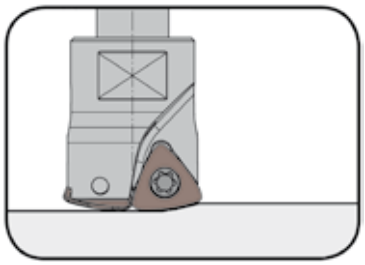
螺钉030.3070.T10P的扭矩规格=3.4Nm。
Torque specification of the screw 030.3070.T10P = 3,4 Nm.

附件
Spare parts

铣刀头 Milling head	螺钉 Clamping 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

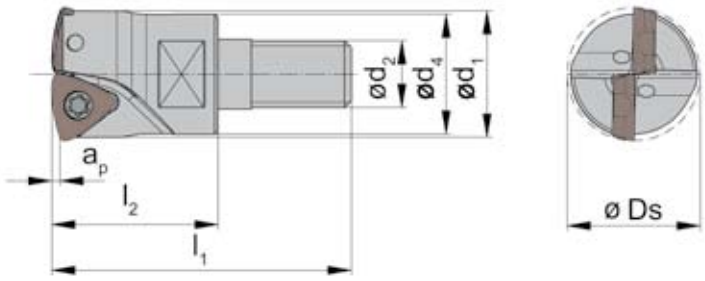


切削刃Ø	Cutting edge Ø	20/25/32/40 mm

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

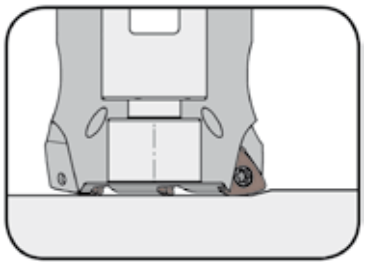
螺钉030.3070.T10P的扭矩规格=3.4Nm。
Torque specification of the screw 030.3070.T10P = 3,4 Nm.

附件
Spare parts

螺纹锁紧铣刀 Screw-in cutter	螺钉 Clamping screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.37.0...	**030.3070.T10P**	**T10PL**

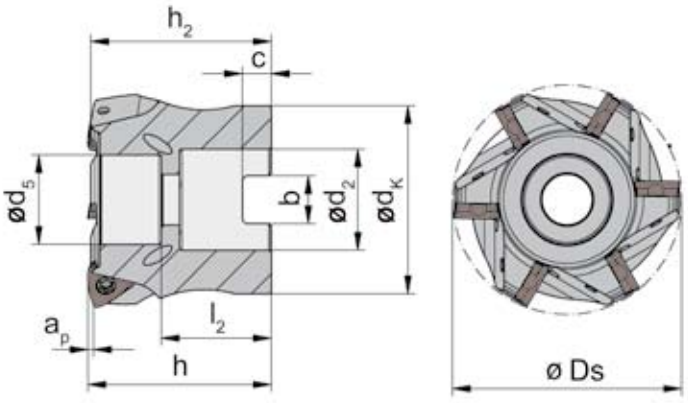
铣刀 型号
MILLING CUTTER Type

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



图示=右手型
Picture = right hand cutting version

配合可转位刀片
for use with Indexable insert

型号 DAH37
Type

配合刀柄
Type arbor mounted

产品型号 Part number	Z	Ds	a_p	h	h_2	d_k	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 **DAHM.37.063.A2740.07**	7	63	1.2	40 45	39.4 44.4	49	22 27	19.5 21.5	10.4 12.4	6.3 7.0	24 27
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

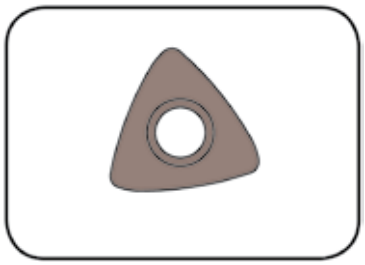
螺钉030.3070.T10P的扭矩规格=3.4Nm。
Torque specification of the screw 030.3070.T10P = 3,4 Nm.

附件
Spare parts

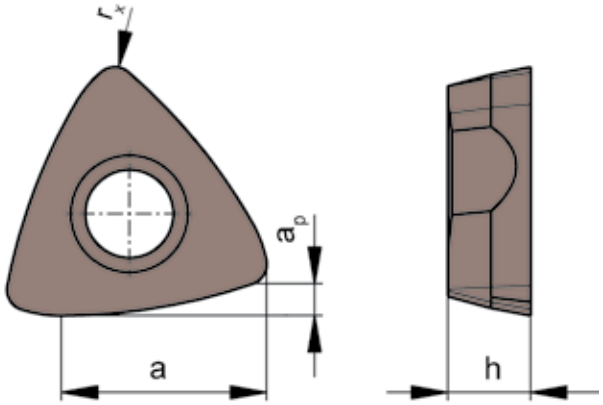
铣刀 Milling cutter	螺钉 Clamping screw	TORX PLUS® 扳手 TORX PLUS® Wrench
DAHM.37.0...	**030.3070.T10P**	**T10PL**

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

前刀面为平面
neutral geometry

产品型号 Part number	a_p	a	h	r_x	r_{theo}
DAH.37.022.N.08	1.2	7.9	3.18	0.8	0.83

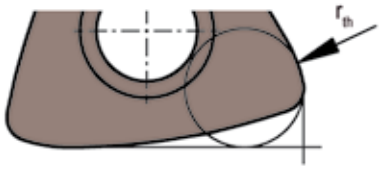
▲ 库存 / on stock Δ 4周 / 4 weeks
● 主要应用 / main recommendation
o 可选推荐 / alternative recommendation
无涂层牌号 / uncoated grades
涂层牌号 / coated grades
钎焊/金属陶瓷 / brazed/Cermet

	SA4B	SC6A
	▲	▲
P	●	●
M	●	●
K	●	●
N	●	●
S		
H		

尺寸单位：mm
Dimensions in mm

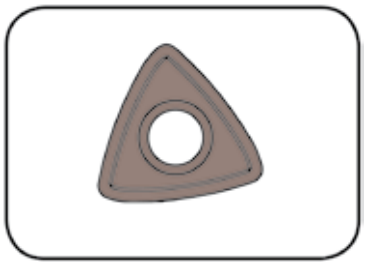
硬质合金牌号
Carbide grades

理论圆角半径 r_{th} = 编程半径，
根据要求提供实际外形
theoretical corner radius r_{th} = programming radius
actual outline upon request!

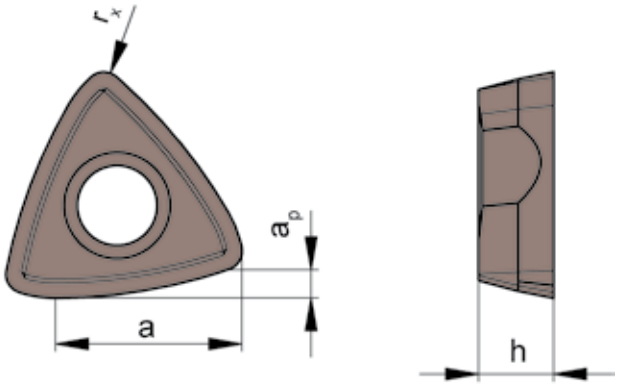


可转位刀片 型号
INDEXABLE INSERT Type

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

正前角槽型
positiv geometry

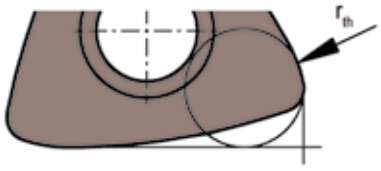
产品型号 Part number	a_p	a	h	r_x	r_{theo}	SA4B
DAH.37.022.S.08	1.2	7.9	3.18	0.8	0.83	▲
						P ●
						M ●
						K ●
						N ●
						S
						H

▲ 库存 / on stock Δ 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

硬质合金牌号
Carbide grades

理论圆角半径 r_{th} = 编程半径，
根据要求提供实际外形
theoretical corner radius r_{th} = programming radius
actual outline upon request!



Z = 齿数
Number of teeth

d_{eff} = 有效切削刃Ø
effective cutting edge Ø

n = 转速
Revolutions

$$n = \frac{v_c \cdot 1000}{d_{eff} \cdot Ù} \quad [1/min]$$

v_c = 切削速度
Cutting speed

$$v_c = \frac{d_{eff} \cdot Ù \cdot n}{1000} \quad [m/min]$$

f_z = 进给/齿
Feed/tooth

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

v_f = 进给率
Feed rate

$$v_f = f_z \cdot Z \cdot n \quad [mm/min]$$

Q = 材料去除率
Material removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \quad [cm^3/min]$$

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
Ds = 刀具直径
K_D = 修正值表
$d_{eff} = K_D + (Ds - 20)$

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
Ds = cutter diameter
K_D = from Correction value chart
$d_{eff} = K_D + (Ds - 20)$

修正数值
Correction value

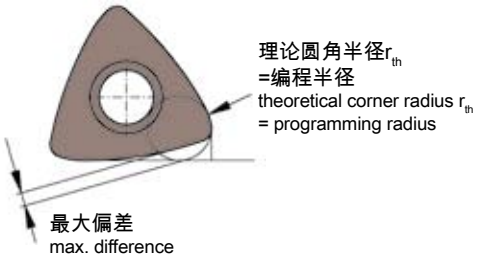
a_p [mm]	K_D [mm]
0.1	9.71
0.2	11.47
0.3	12.81
0.4	13.93
0.5	14.92
0.6	15.82
0.7	16.63
0.8	17.39
0.9	18.10
1.0	18.77
1.1	19.40
1.2	20.00

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 martenistic	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

Ø (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

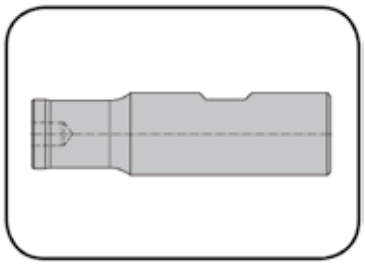
编程半径和偏差
Programming radius and difference



r_{th}(mm)	最大偏差 (mm) max. difference (mm)
2	0.83

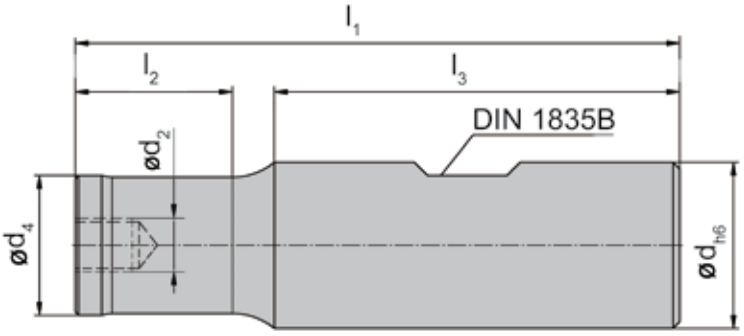
接头 型号
ADAPTOR Type

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)



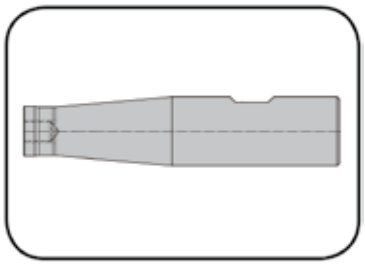
产品型号 Part number	d	l_1	l_2	l_3	d_2	d_4
MD13.02.00.D16B	16	73	14	53	**M8**	13
MD18.04.00.D20B	20	80	20	55	**M10**	18
MD21.06.00.D25B	25	91	23	61	**M12**	21
MD29.08.00.D32B	32	100	29	65	**M16**	29

Ø25mm以上为2个夹持面
from Ø 25 mm 2 clamping flats

尺寸单位：mm
Dimensions in mm

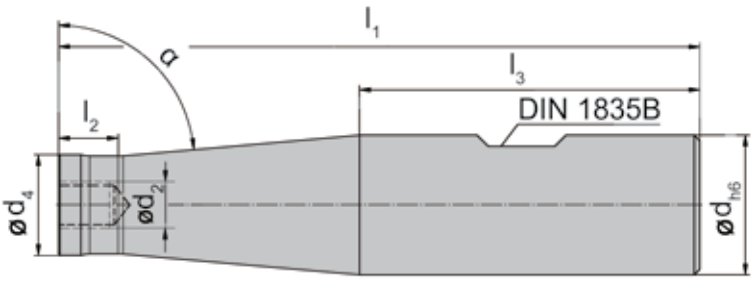
接头 型号
ADAPTOR Type

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)



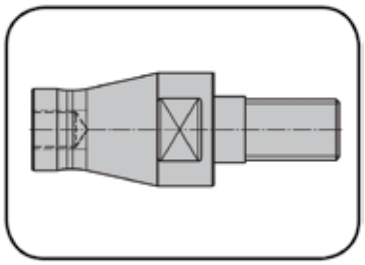
产品型号 Part number	d	l_1	l_2	l_3	d_2	d_4	α
MD13·02·85·D20B	20	105	7	55	**M8**	13	85°
MD18·04·85·D25B	25	115	10	61	**M10**	18	
MD21·06·85·D32B	32	140	8	65	**M12**	21	
MD29·08·85·D40B	40	150	8	75	**M16**	29	

Ø25mm以上为2个夹持面
from Ø 25 mm 2 clamping flats

尺寸单位：mm
Dimensions in mm

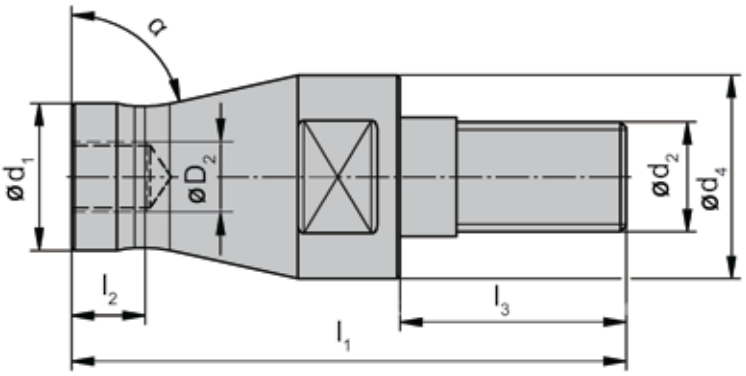
异径 型号
REDUCER Type

MD



配合DAM...M铣刀头的变径杆
Reducer for milling head DAM/DAHM...M

刀杆材料：钢
Material of shank: Steel

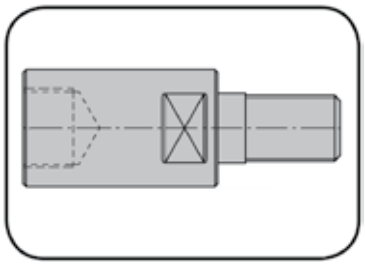


产品型号 Part number	l_1	l_2	l_3	D_2	d_2	d_1	d_4	SW	α
MD18.02.77.M10	49	6	20	M8	**M10**	13	18	15	77.5°
MD21.04.77.M12	56	10	22	M10	**M12**	18	21	17	77.5°
MD29.06.77.M16	52	6	23	M12	**M16**	21	29	24	77.5°

尺寸单位：mm
Dimensions in mm

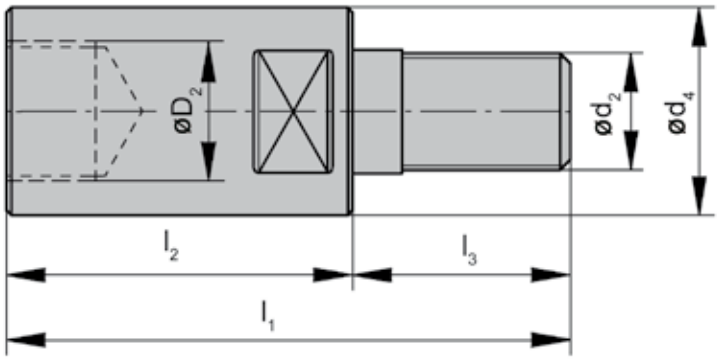
接长杆 型号
EXTENSION Type

MD



配合DAM/DAHM...M的加长杆
Lenghtening 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_2	d_4	SW
MD13.02.00.M08	48	30	18	M8	**M8**	13	10
MD18.04.00.M10	55	35	20	M10	**M10**	18	15
MD21.06.00.M12	57	35	22	M12	**M12**	21	17
MD29.08.00.M16	58	35	23	M16	**M16**	29	24

尺寸单位：mm
Dimensions in mm

加工实例
Examples for machining

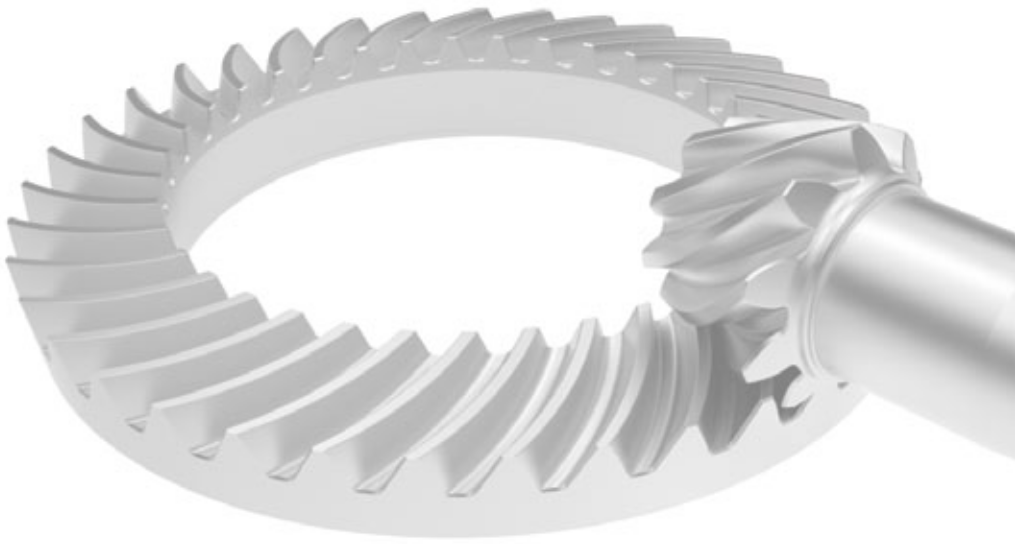
- 人字齿轮
  Herringbone gearing

- 正齿轮
  Spur gearing

- 蜗轮
  Worm gears

- 摆线-准渐开线齿形系统
  Cycloid palloid tooth system

- 拉齿
  Gear broaching



类似模数 10
similar Module 10

粗加工高进给铣削/精加工仿形铣削
Roughing high feed milling / Fishing copy milling

DAHM.25

材料 Material	工具 Tools	Ds [mm]	v_c [m/min]	v_f [mm/min]	加工中心 Machining centre
18CrNiMo7	DAHM.25	12	250	6600	5 轴 5-axis

30 直槽，可达 Ø 4000 mm

Module 30 straight fluted, up to Ø 4000 mm

粗加工高进给铣削/精加工高仿形铣削

Roughing high feed milling / Finishing high copy milling

DAHM.37

DGH

材料 Material	工具 Tools	Ds [mm]	v_c [m/min]	Q [cm^3/min]	加工中心 Machining centre
St52	DAHM.37	40	280	720	5 轴 5-axis
	DGH	20	280	410	

轴向模数 7,9 / Ø 420 mm
Axial module 7,9 / Ø 420 mm

常规粗加工/精加工仿形铣削
Roughing conventionally / Finishing copy milling

DPTP **DSK** **DPTR**

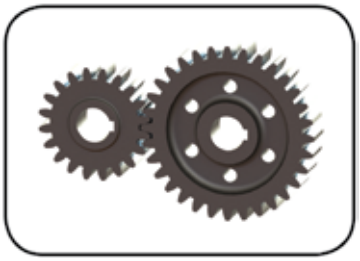
材料 Material	工具 Tools	Ds [mm]	v_c [m/min]	Q [cm^3/min]	加工中心 Machining centre
CuSn12Ni	DPTP	8	200	145	5 轴 5-axis
	DSK	8	225	80	
	DPTR	6	225		

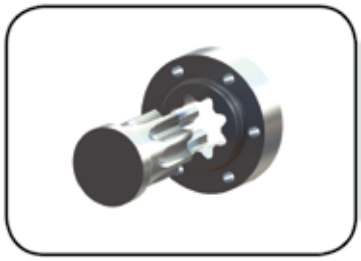
模数 13,56
Module 13,56

粗加工高进给铣削/精加工仿形铣削
Roughing high feed milling / Finishing copy milling

DGH **DSDS** **DSK** **DSM**

材料 Material	工具 Tools	Ds [mm]	v_c [m/min]	加工中心 Machining centre
C45	DGH	12 /16	300	5 轴 5-axis
	DSDS	8	200	
	DSK	10	190	
	DSM	12	260	



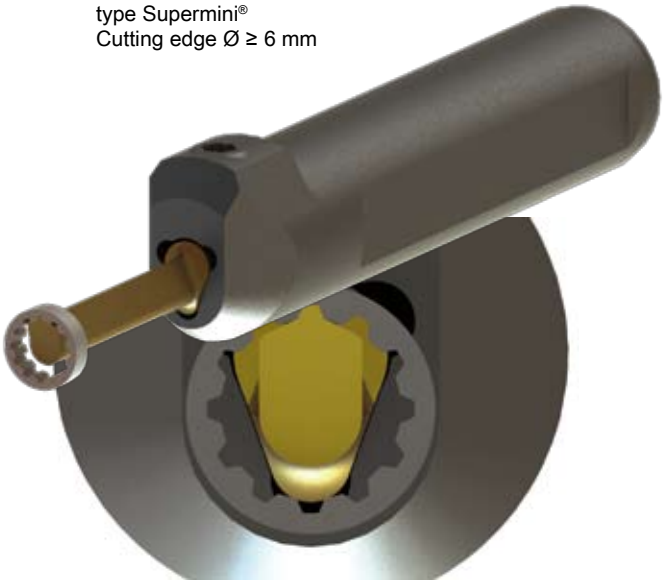


型号 S117
切削刃 Ø ≥ 14 mm

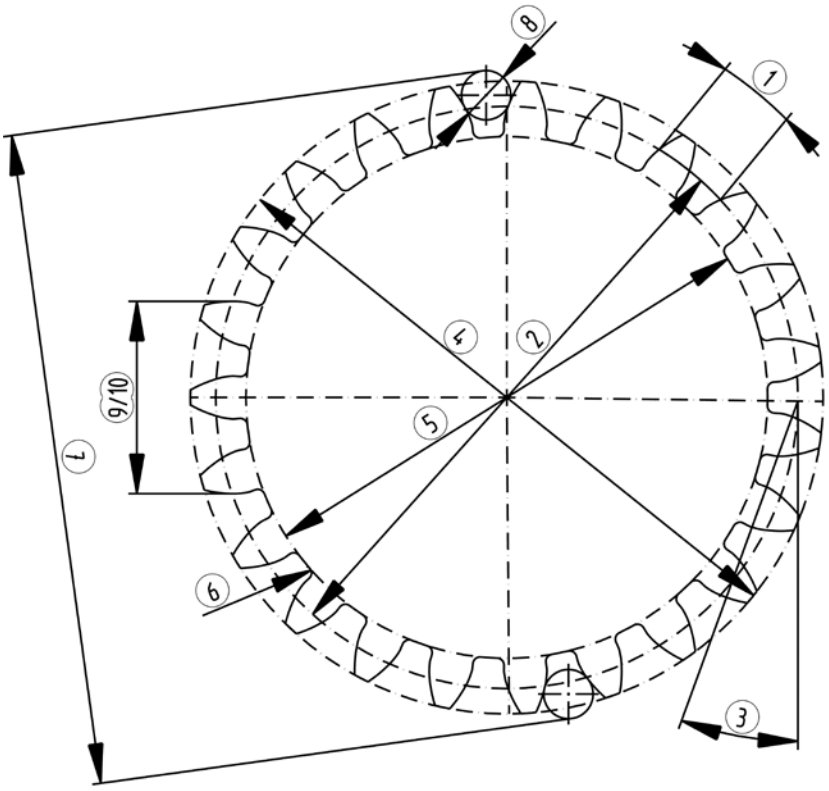
type S117
Cutting edge Ø ≥ 14 mm

型号 Supermini®
切削刃 Ø ≥ 6 mm

type Supermini®
Cutting edge Ø ≥ 6 mm



根据客户要求提供外形和外部齿轮装置。
Profiles upon customers request



	需要的信息（附公差） Information required (with tolerances)	
	齿数 Number of teeth	z
1	节距/模数 Flanck pitch/ Module	p / m_n
2	节圆直径 Pitch diameter	d
3	压力角 Pressure angle	α
	螺旋角 Helix angle	β
	螺旋方向 Helix direction	RH / LH
4	齿顶圆 Tip circle	d_a
5	齿根圆 Root circle	d_f
6	齿根半径 Root radius	ϱ_f
	磨削余量（粗加工） Grinding stock (roughing)	q
7	直径 2 辊尺寸/2 球尺寸 Diametral 2-roll dimension / 2-ball dimension	M_{dR} / M_{dK}
8	Ø 计量辊/Ø 测量球 Ø Metering roller / Ø Measuring ball	D_M
9	齿宽 Tooth width	W_k
10	测量齿 Measuring teeth	k

蜗杆轴						圆柱齿轮（直）		带渐开线齿面的轴毂连接		
	DIN3975				特殊形状				轴	轮毂
	ZA	ZN	ZK	ZI						
齿面形状	x	x	x	x		法向模数	x	标准的完整描述 (DIN5480, DIN5482, NF E 22-141, ANSI B92.1 ...	x	x
轴向模数 或： 法向模数和螺旋角 或： 节距和参考圆	x	x	x	x		齿数	x			
						法向压力角	x			
						齿顶圆	x	或：		
齿数	x	x	x	x		齿根圆	x	法向模数	x	x
啮合角	x	x	x	x		齿顶修正系数 或：直径 2 辊尺寸及辊 Ø 或：直径 2 球尺寸及球 Ø 或：公法线长度及测量齿数	x	齿数	x	x
螺纹方向	x	x	x	x	x	齿顶/齿根半径和/或齿形修整	x	法向压力角	x	x
参考圆	x	x	x	x	x			齿顶圆	x	x
齿顶圆	x	x	x	x	x			齿根圆	x	x
齿根圆	x	x	x	x				齿顶修正系数 或：直径 2 辊尺寸及辊 Ø 或：直径 2 球尺寸及球 Ø 或：公法线长度及测量齿数	x	x
轴向齿厚度 或：法向模数和螺旋角 或：节距和参考圆	x	x	x	x						
螺纹 或导程角 或螺旋角					x			齿顶/齿根半径和/或齿形修整	x	x
外形（坐标或 DXF 文件等） 使用轴向、法向或横切面 或：铣刀外形（包括刃角和 Ds）					x					
发生圆直径			x							
齿顶/齿根半径和/或齿形修整	x	x	x	x						

x = 所需信息
x = information required

Worm shafts						Cylindrical gears (straight)		Shaft-hub-connection with involuted flanks		
	DIN3975				Special shapes				Shaft	Hub
	ZA	ZN	ZK	ZI						
Flank shape	x	x	x	x		Normal module	x	complete describtion of norm (DIN5480, DIN5482, NF E 22-141, ANSI B92.1 ...	x	x
Axial module or: Normal module and helix angle or: Pitch and reference circle	x	x	x	x		Number of teeth	x			
						Normal pressure angle	x			
						Tip circle	x	or:		
Number of teeth	x	x	x	x		Root circle	x	Normal module	x	x
Generating angle	x	x	x	x		Addendum modification coefficient: or: diametral 2-rollers-dimension with roller-Ø or: diametral 2-ball-dimension with ball-Ø or: base tangent length with number of measured teeth	x	Number of teeth	x	x
Thread direction	x	x	x	x	x	Tip-/root radii and/or relief	x	Normal pressure angle	x	x
Reference circle	x	x	x	x	x			Tip circle	x	x
Tip circle	x	x	x	x	x			Root circle	x	x
Root circle	x	x	x	x				Addendum modification coefficient: or: diametral 2-rollers-dimension with roller-Ø or: diametral 2-ball-dimension with ball-Ø or: base tangent length with number of measured teeth	x	x
Axial tooth thickness or: Normal module and helix angle or: Pitch and reference circle	x	x	x	x						
Lead or lead angle or helix angle					x			Tip-/root radii and/or relief	x	x
Profile shape (coordinates or DXF file, etc.) using axial, normal or transverse section or: Profile shape of the milling cutter (including blade angle and Ds)					x					
Generating diameter			x							
Tip-/root radii and/or relief	x	x	x	x						

x = 所需信息
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