

crazy about

milling

CRAZYMILL COOL P&S

新型：圆角



NEW

CrazyMill Cool P&S 圆角半径 - Z3

带圆角半径的插铣削与槽铣削立铣刀

微晶粒硬质合金

经过精心研制、可满足机械性能的所有要求、具有出色的硬度与韧性比

高性能涂层

eXedur SNP涂层具有耐热及耐磨性、并保证最佳切屑冲洗功能

新的圆角半径几何形状

带圆角半径的多尺寸立铣刀

直径范围及长度

d = 1 - 8 mm、
A型 - 2.5倍径、C型 - 5倍径

一体式冷却

可对切削刃进行持续且广泛的冷却

特殊端面几何形状

经过精心研制、可垂直插入材料、因此可铣削占据空间极小的槽、型腔和侧面



NEW



CRAZYMILL™
by Mikron Tool
Cool

Mikron Tool扩展了可实现粗铣与精铣的CrazyMill Cool P&S系列。新的立铣刀适用于需要圆角的应用场合。新设计的切削刃可加工许多材料、主要包括不锈钢、钛、钴铬合金和超级合金。由于其具有特殊的特点、可垂直插入材料、非常适合铣削占据空间极小的槽、型腔和侧面。

优势

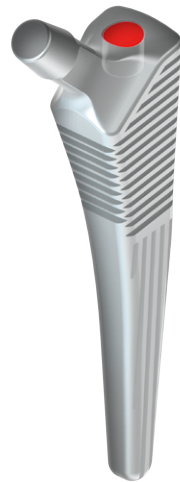
- 加工时间短 | 最高的排屑率
- 刀具寿命长 | 由于高效和的专利冷却
- 极佳表面质量 | $Ra \leq 0.5 \mu m$
- 出色的切屑控制 | 得益于特定切削几何形状和较大冷却剂流量

发现它!



NEW

P&S用于医疗领域



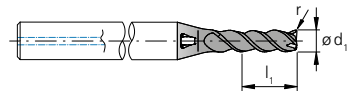
部件
阀杆

材质
TiAl6V4-ELI / 3.7165 / ASTM F136

机加工
插铣与平孔的侧面铣削

- 孔深度=5 mm
- 孔直径=5.2 mm

铣削刀具
Mikron Tool - CrazyMill Cool P&S 圆角 - A型



参数	MIKRON TOOL	竞品
刀具类型	CrazyMill Cool P&S 圆角 - 硬质合金 - 涂层型 - 一体式冷却	常规圆角半径立铣刀 - 硬质合金 - 涂层型 - 外部冷却
项目编号	2.CMC42.A3Z3.400.1	-
刀具特点	$d_1 = 4 \text{ mm}$ $l_1 = 2.5 \text{ 倍径}$ $r = 0.5 \text{ mm}$ $Z = 3 \text{ 齿}$	$d_1 = 4 \text{ mm}$ $l_1 = 3.75 \text{ 倍径}$ $r = 0.5 \text{ mm}$ $Z = 3 \text{ 齿}$
切削参数	<p>插铣 $v_c = 120 \text{ m/min}$ $f_z = 0.013 \text{ mm}$ $a_p = 1.0 \text{ mm}$ $a_e = 2.52 \text{ mm}$ $\alpha = 15^\circ$ $Q = 0.94 \text{ cm}^3/\text{min}$ $\Delta t = 13.2 \text{ s}$</p> <p>精铣 $v_c = 120 \text{ m/min}$ $f_z = 0.022 \text{ mm}$ $a_p = 5 \text{ mm}$ $a_e = 0.08 \text{ mm}$ $Q = 0.29 \text{ cm}^3/\text{min}$ $\Delta t = 1.3 \text{ s}$</p>	<p>插铣 $v_c = 52 \text{ m/min}$ $f_z = 0.026 \text{ mm}$ $a_p = 0.2 \text{ mm}$ $a_e = 2.52 \text{ mm}$ $\alpha = 3.5^\circ$ $Q = 0.17 \text{ cm}^3/\text{min}$ $\Delta t = 1 \text{ min } 10 \text{ s}$</p> <p>精铣 $v_c = 95 \text{ m/min}$ $f_z = 0.060 \text{ mm}$ $a_p = 5 \text{ mm}$ $a_e = 0.08 \text{ mm}$ $Q = 0.54 \text{ cm}^3/\text{min}$ $\Delta t = 0.7 \text{ s}$</p>



■ 结果:

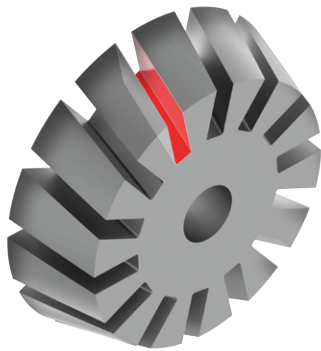
	CrazyMill Cool P&S 圆角		常规圆角半径立铣刀
切屑清除率 Q	Q = 0.94 cm ³ /min	5.5 x	Q = 0.17 cm ³ /min
总周期循环时间	15 s	5 x	1 min 11 s

刀具具有经过精心研制的切削槽型以及已获得专利的一体式冷却系统、因此与常规圆角刀具相比、增加了运行速度和深度 a_p 、也增加了俯仰角 α 、进而提高了切削清除率、使循环时间缩短了5倍。

减少每个零件循环时间: 56 s

NEW

P&S用于航空航天领域

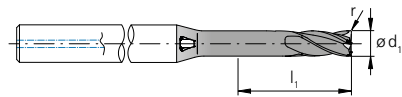


部件
涡轮机转子

材质
X12Cr13 / 1.4006 / AISI 410

机加工
粗铣和精铣14个槽
 ■ 槽深度=10 mm
 ■ 槽长度=20 mm
 ■ 槽宽度=3.8 mm

铣削刀具
Mikron Tool - CrazyMill Cool P&S 圆角 - C型



参数	MIKRON TOOL	竞品
刀具类型	CrazyMill Cool P&S 圆角 - 硬质合金 - 涂层型 - 一体式冷却	常规圆角半径立铣刀 - 硬质合金 - 涂层型 - 外部冷却
项目编号	2.CMC42.C3Z3.370.1	-
刀具特点	$d_1 = 3.7 \text{ mm}$ $l_1 = 5 \text{ 倍径}$ $r = 0.5 \text{ mm}$ $Z = 3 \text{ 齿}$	$d_1 = 3.0 \text{ mm}$ $l_1 = 3 \text{ 倍径}$ $r = 0.3 \text{ mm}$ $Z = 3 \text{ 齿}$
切削参数	<p>插铣 $v_c = 190 \text{ m/min}$ $f_z = 0.028 \text{ mm}$ $a_p = 1.85 \text{ mm}$ $a_e = 3.7 \text{ mm}$ $Q = 9.4 \text{ cm}^3/\text{min}$ $\Delta t = 1 \text{ min } 13 \text{ s}$</p> <p>精铣 $v_c = 215 \text{ m/min}$ $f_z = 0.023 \text{ mm}$ $a_p = 5$ $a_e = 0.05 \text{ mm}$ $Q = 0.3 \text{ cm}^3/\text{min}$ $\Delta t = 52 \text{ s}$</p>	<p>插铣 $v_c = 44 \text{ m/min}$ $f_z = 0.015 \text{ mm}$ $a_p = 0.77 \text{ mm}$ $a_e = 3 \text{ mm}$ $Q = 0.5 \text{ cm}^3/\text{min}$ $\Delta t = 16 \text{ min } 42 \text{ s}$</p> <p>半精铣 $v_c = 81 \text{ m/min}$ $f_z = 0.032 \text{ mm}$ $a_p = 0.77 \text{ mm}$ $a_e = 0.34 \text{ mm}$ $Q = 0.22 \text{ cm}^3/\text{min}$ $\Delta t = 8 \text{ min } 45 \text{ s}$</p> <p>精铣 $v_c = 105 \text{ m/min}$ $f_z = 0.052 \text{ mm}$ $a_p = 5$ $a_e = 0.06 \text{ mm}$ $Q = 0.5 \text{ cm}^3/\text{min}$ $\Delta t = 39 \text{ s}$</p>



■ 结果:

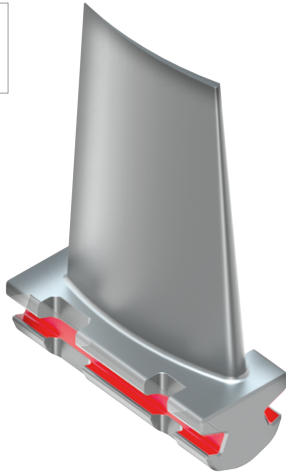
	CrazyMill Cool P&S 圆角	常规圆角半径立铣刀
切屑清除率 Q	Q = 9.4 cm ³ /min 19 x	Q = 0.5 cm ³ /min
总周期循环时间	2 min 5 s 12 x	26 min 6 s

刀具具有经过精心研制的切削槽型以及已获得专利的一体式冷却系统、因此与常规圆角刀具相比、增加了运行速度和深度 a_p 、也增加了俯仰角 α 、进而提高了切削清除率、使循环时间缩短了12倍。

减少每个零件循环时间: 24 min

NEW

P&S更多应用示例



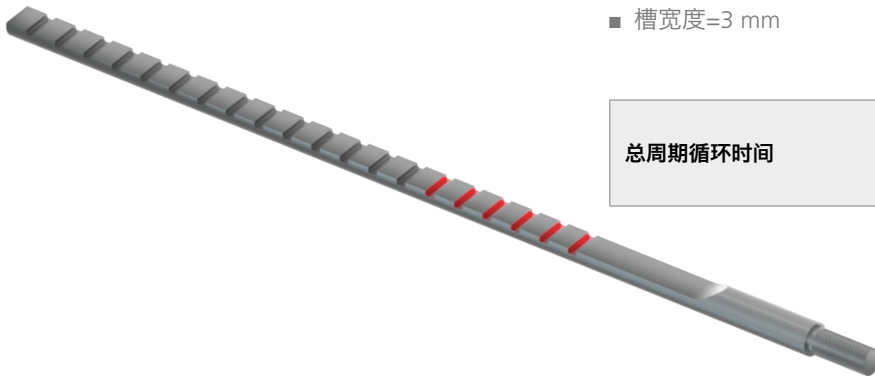
3. 涡轮盘

材质: X5NiCrTi26-15 / 1.4943 / Incoloy A-286

机加工: 粗铣和精铣槽

- 槽深度=4.6 mm
- 槽长度=10 mm
- 槽宽度=2.6 mm

	Mikron Tool	竞品
总周期循环时间	16 s 15 x	4 min 8 s



4. 传输系统

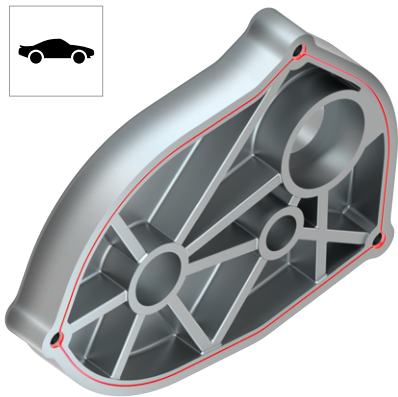
材质: X40CrMoV5-1 / 1.2344 / AISI H13

机加工: 粗铣20个槽(批量: 100个)

- 槽深度=1.5 mm
- 槽长度=10 mm
- 槽宽度=3 mm

	Mikron Tool	竞品
总周期循环时间	15 min 3 x	45 min 30 s

NEW



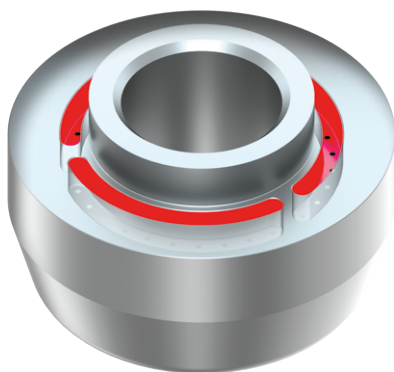
5. 齿轮盖箱

材质: GGG60 / 0.7060 / ASTM 80-60-03

机加工: 垫圈座线性斜坡与槽铣削

- 槽深度=2 mm
- 槽长度=800 mm
- 槽宽度=2 mm

	Mikron Tool	竞品
总周期循环时间	1 min 45 s 2 x	3 min 10 s



6. 喷涂涡轮

材质: TiAl6V4-ELI / 3.7165 / ASTM F136

机加工: 插铣削、粗铣和精铣槽

- 槽深度=8 mm
- 槽长度=210 mm
- 槽宽度=5.2 mm

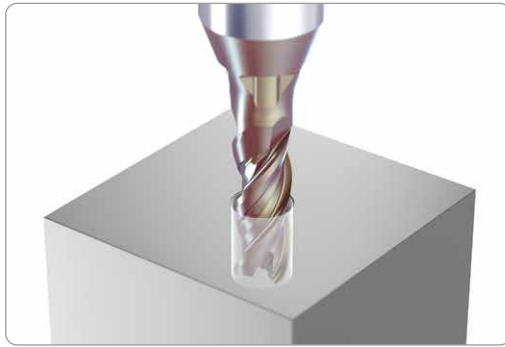
	Mikron Tool	竞品
总周期循环时间	2 min 10 s 2 x	3 min 56 s

NEW

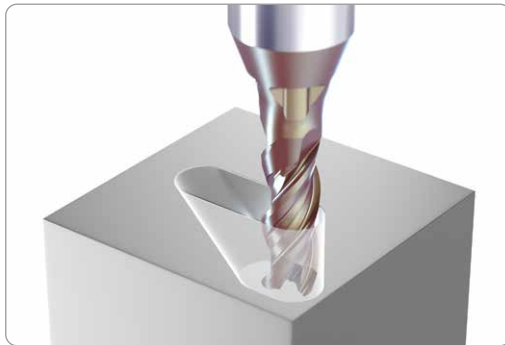
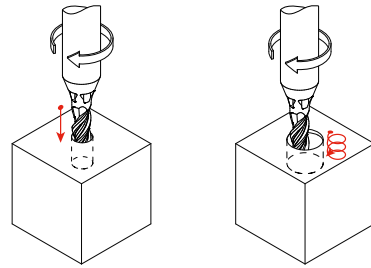
多种功能的刀具

对于难加工材料

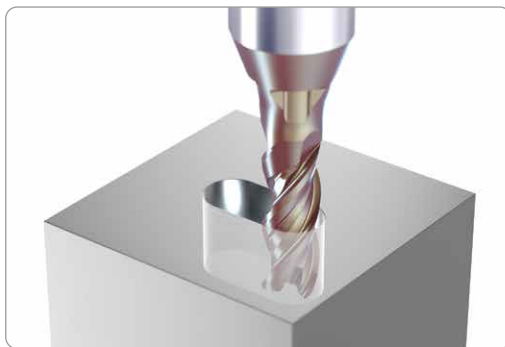
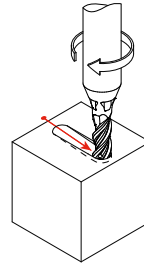
CrazyMill Cool P&S 圆角 对于:



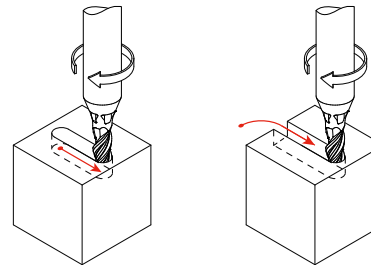
1. 插铣
直线或螺旋插补

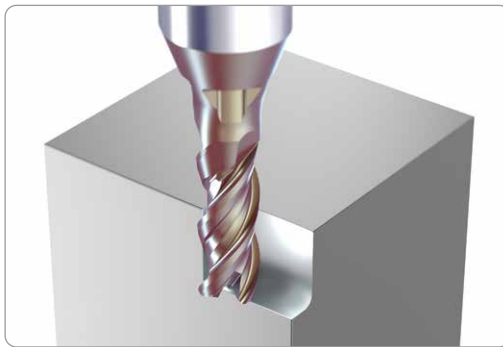


2. 斜坡式铣削
角度取决于材质

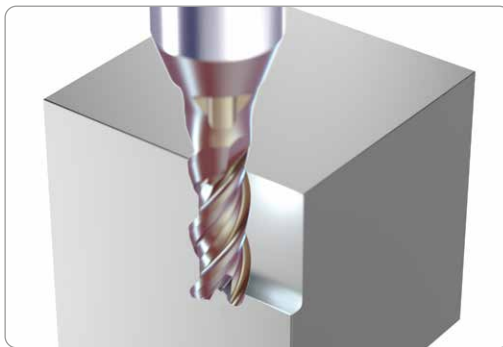
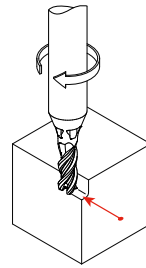


3. 槽铣
型腔或通槽

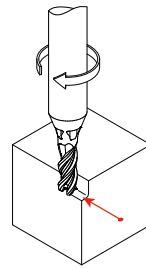




4. 侧铣 - 半精铣
 $a_p = 1 - 2 \times d$



5. 侧铣 - 精铣
 $a_p = 2.5 \times \text{直径} - \text{A型} / a_p = 2 \times \text{直径} - \text{C型}$



NEW

高性能的小直径铣刀

带集成冷却系统的可以插铣和开槽的立铣刀

米克朗刀具的CrazyMill Cool P&S 是针对难加工材料而扩充的铣刀产品新的立铣刀适用于需要圆角的应用场合。3齿的结构可以使得刀具适用于在实体材料上插铣和后续的铣削。并带有内冷结构。直径范围从1毫米到8毫米。最大切深5倍径。

- CrazyMill Cool P&S 圆角、A型 – 铣削深度：2.5倍径、切削长度：2.5倍径、具有贯通式刀柄冷却剂通道、3齿
- CrazyMill Cool P&S 圆角、C型 – 铣削深度：5倍径、切削长度：2倍径、具有贯通式刀柄冷却剂通道、3齿

2.5倍径

A型

- 涂层
- 内冷

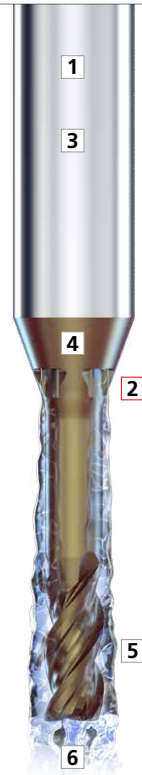


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5倍径

C型

- 涂层
- 内冷



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NEW

1 | 刀柄

强壮的硬质合金刀柄保证切削的稳定和避免振动。可以实现高精度和卓越的表面质量。

2 | 集成冷却-专利技术

集成冷却通道可保证切削刃的持续、充分冷却、并实现最佳排屑效果、进而达到更快的切削速度和更大的切削深度。

3 | 硬质合金

经专门研制的微细粒硬质合金满足机械性能的所有要求。

4 | 涂层

高性能的eXedur SNP涂层耐热、耐磨、可防止产生积屑瘤、并达到最佳的冲屑效果。由此保证刀具更长的使用寿命。

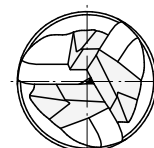
5 | 螺旋槽形

特殊设计的槽型提供高稳定性和充足的拍屑空间。可以顺畅的排屑。

6 | 底面槽型设计

在底面的特殊槽型设计、扩大了容屑空间。保证在插铣时、底部也排屑顺畅。修正过的横刃可以防止崩刃、减少冲击力和增加刀具寿命。

底面槽型 - 3齿

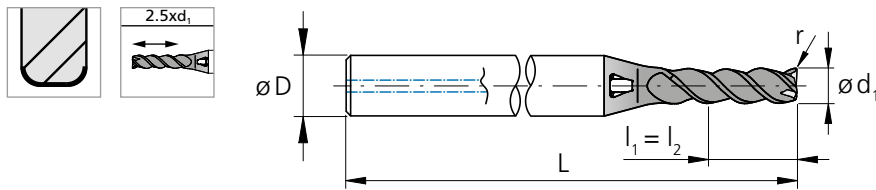


NEW

A型 - 2.5倍径 - 圆角 - Z3

集成冷却铣削








P&S - 圆角



l_1 = 有效长度
 l_2 = 切削长度

d_1	d_1	l_1	l_2	D	L	r	r	项目编号	库存情况
[mm]	[inch]	[mm]	[mm]	(h6) [mm]	[mm]	[mm]	[inch]		
1.0		2.50	2.50	4	40	0.10		2.CMC42.A2Z3.100.1	■
1.0		2.50	2.50	4	40	0.20		2.CMC42.A3Z3.100.1	■
1.1		2.75	2.75	4	40	0.10		2.CMC42.A2Z3.110.1	■
1.1		2.75	2.75	4	40	0.20		2.CMC42.A3Z3.110.1	■
1.2		3.00	3.00	4	40	0.10		2.CMC42.A2Z3.120.1	■
1.2		3.00	3.00	4	40	0.20		2.CMC42.A3Z3.120.1	■
1.3		3.25	3.25	4	40	0.10		2.CMC42.A2Z3.130.1	■
1.3		3.25	3.25	4	40	0.20		2.CMC42.A3Z3.130.1	■
1.4		3.50	3.50	4	40	0.10		2.CMC42.A2Z3.140.1	■
1.4		3.50	3.50	4	40	0.20		2.CMC42.A3Z3.140.1	■
1.5		3.75	3.75	4	40	0.10		2.CMC42.A2Z3.150.1	■
1.5		3.75	3.75	4	40	0.30		2.CMC42.A3Z3.150.1	■
1.587	1/16	3.97	3.97	4	40	0.127	.005	2.CMC.PSRA2Z3.F116	■
1.587	1/16	3.97	3.97	4	40	0.254	.010	2.CMC.PSRA3Z3.F116	■
1.6		4.00	4.00	4	40	0.10		2.CMC42.A2Z3.160.1	■
1.6		4.00	4.00	4	40	0.30		2.CMC42.A3Z3.160.1	■
1.7		4.25	4.25	4	40	0.10		2.CMC42.A2Z3.170.1	■
1.7		4.25	4.25	4	40	0.30		2.CMC42.A3Z3.170.1	■
1.8		4.50	4.50	4	40	0.10		2.CMC42.A2Z3.180.1	■
1.8		4.50	4.50	4	40	0.30		2.CMC42.A3Z3.180.1	■
1.9		4.75	4.75	4	40	0.10		2.CMC42.A2Z3.190.1	■
1.9		4.75	4.75	4	40	0.30		2.CMC42.A3Z3.190.1	■
2.0		5.00	5.00	4	40	0.10		2.CMC42.A2Z3.200.1	■
2.0		5.00	5.00	4	40	0.20		2.CMC42.A3Z3.200.1	■
2.0		5.00	5.00	4	40	0.50		2.CMC42.A4Z3.200.1	■
2.1		5.25	5.25	4	40	0.20		2.CMC42.A2Z3.210.1	■
2.1		5.25	5.25	4	40	0.50		2.CMC42.A3Z3.210.1	■
2.2		5.50	5.50	4	40	0.20		2.CMC42.A2Z3.220.1	■
2.2		5.50	5.50	4	40	0.50		2.CMC42.A3Z3.220.1	■
2.3		5.75	5.75	4	40	0.20		2.CMC42.A2Z3.230.1	■
2.3		5.75	5.75	4	40	0.50		2.CMC42.A3Z3.230.1	■
2.381	3/32	5.95	5.95	4	40	0.127	.005	2.CMC.PSRA2Z3.F332	■
2.381	3/32	5.95	5.95	4	40	0.254	.010	2.CMC.PSRA3Z3.F332	■
2.381	3/32	5.95	5.95	4	40	0.381	.015	2.CMC.PSRA4Z3.F332	■
2.4		6.00	6.00	4	40	0.20		2.CMC42.A2Z3.240.1	■
2.4		6.00	6.00	4	40	0.50		2.CMC42.A3Z3.240.1	■
2.5		6.25	6.25	6	50	0.20		2.CMC42.A2Z3.250.1	■
2.5		6.25	6.25	6	50	0.50		2.CMC42.A3Z3.250.1	■
2.6		6.50	6.50	6	50	0.20		2.CMC42.A2Z3.260.1	■
2.6		6.50	6.50	6	50	0.50		2.CMC42.A3Z3.260.1	■
2.7		6.75	6.75	6	50	0.20		2.CMC42.A2Z3.270.1	■
2.7		6.75	6.75	6	50	0.50		2.CMC42.A3Z3.270.1	■

■ 库存项目

硬质合金	Z3							
		$\varnothing d_1$	1.0 - 3.0 mm	3.1 - 6.0 mm	6.1 - 8.0 mm	r	0.1 - 1.524 mm	
		公差	- 0.014 mm - 0.028 mm	- 0.020 mm - 0.038 mm	- 0.025 mm - 0.047 mm	公差	$\pm 0.05 \cdot r$ mm	

d_1	d_1	l_1	l_2	D (h6)	L	r	r	项目编号	库存情况
[mm]	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[inch]		
2.8		7.00	7.00	6	50	0.20		2.CMC42.A2Z3.280.1	■
2.8		7.00	7.00	6	50	0.50		2.CMC42.A3Z3.280.1	■
2.9		7.25	7.25	6	50	0.20		2.CMC42.A2Z3.290.1	■
2.9		7.25	7.25	6	50	0.50		2.CMC42.A3Z3.290.1	■
3.0		7.50	7.50	6	50	0.20		2.CMC42.A2Z3.300.1	■
3.0		7.50	7.50	6	50	0.50		2.CMC42.A3Z3.300.1	■
3.1		7.75	7.75	6	50	0.20		2.CMC42.A2Z3.310.1	■
3.1		7.75	7.75	6	50	0.50		2.CMC42.A3Z3.310.1	■
3.175	1/8	7.94	7.94	6	50	0.254	.010	2.CMC.PSRA2Z3.F18	■
3.175	1/8	7.94	7.94	6	50	0.381	.015	2.CMC.PSRA3Z3.F18	■
3.3		8.25	8.25	6	50	0.20		2.CMC42.A2Z3.330.1	■
3.3		8.25	8.25	6	50	0.50		2.CMC42.A3Z3.330.1	■
3.7		9.25	9.25	6	50	0.20		2.CMC42.A2Z3.370.1	■
3.7		9.25	9.25	6	50	0.50		2.CMC42.A3Z3.370.1	■
3.968	5/32	9.92	9.92	6	50	0.254	.010	2.CMC.PSRA2Z3.F532	■
3.968	5/32	9.92	9.92	6	50	0.381	.015	2.CMC.PSRA3Z3.F532	■
4.0		10.00	10.00	6	50	0.20		2.CMC42.A2Z3.400.1	■
4.0		10.00	10.00	6	50	0.50		2.CMC42.A3Z3.400.1	■
4.3		10.75	10.75	8	60	0.20		2.CMC42.A2Z3.430.1	■
4.3		10.75	10.75	8	60	0.50		2.CMC42.A3Z3.430.1	■
4.7		11.75	11.75	8	60	0.20		2.CMC42.A2Z3.470.1	■
4.7		11.75	11.75	8	60	0.50		2.CMC42.A3Z3.470.1	■
4.762	3/16	11.91	11.91	8	60	0.254	.010	2.CMC.PSRA2Z3.F316	■
4.762	3/16	11.91	11.91	8	60	0.381	.015	2.CMC.PSRA3Z3.F316	■
4.8		12.00	12.00	8	60	0.20		2.CMC42.A2Z3.480.1	■
4.8		12.00	12.00	8	60	0.50		2.CMC42.A3Z3.480.1	■
5.0		12.50	12.50	8	60	0.20		2.CMC42.A2Z3.500.1	■
5.0		12.50	12.50	8	60	0.50		2.CMC42.A3Z3.500.1	■
5.3		13.25	13.25	10	65	0.20		2.CMC42.A2Z3.530.1	■
5.3		13.25	13.25	10	65	0.50		2.CMC42.A3Z3.530.1	■
5.560	7/32	13.90	13.90	10	65	0.381	.015	2.CMC.PSRA2Z3.F732	■
5.560	7/32	13.90	13.90	10	65	0.762	.030	2.CMC.PSRA3Z3.F732	■
5.7		14.25	14.25	10	65	0.20		2.CMC42.A2Z3.570.1	■
5.7		14.25	14.25	10	65	0.50		2.CMC42.A3Z3.570.1	■
6.0		15.00	15.00	10	65	0.20		2.CMC42.A2Z3.600.1	■
6.0		15.00	15.00	10	65	0.50		2.CMC42.A3Z3.600.1	■
6.0		15.00	15.00	10	65	1.00		2.CMC42.A4Z3.600.1	■
6.350	1/4	15.88	15.88	10	65	0.381	.015	2.CMC.PSRA2Z3.F14	■
6.350	1/4	15.88	15.88	10	65	0.762	.030	2.CMC.PSRA3Z3.F14	■
6.350	1/4	15.88	15.88	10	65	1.524	.060	2.CMC.PSRA4Z3.F14	■
8.0		20.00	20.00	12	70	0.20		2.CMC42.A2Z3.800.1	■
8.0		20.00	20.00	12	70	0.50		2.CMC42.A3Z3.800.1	■
8.0		20.00	20.00	12	70	1.50		2.CMC42.A4Z3.800.1	■

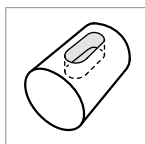
■ 库存项目

NEW

A型 - 键槽 - 插铣 - 槽

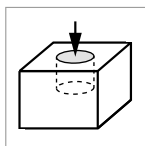
集成冷却铣削|切削参数概述

键槽铣



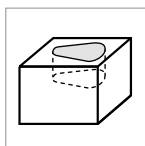
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- $f_{z,s}$: 用于槽铣

插铣

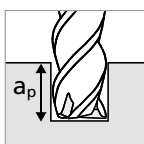
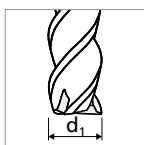
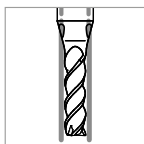


- $f_{z,p}$: 用于插铣

槽铣



- $f_{z,p}$: 用于插铣
- $f_{z,s}$: 用于槽铣

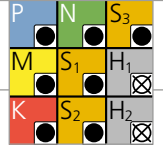


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm			
					v_c	$f_{z,p}$	$f_{z,s}$	a_p
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	100	0.0013	0.0046	1xd1
		1.0401	C15	AISI 1015				
		1.1191	C45E/CK45	AISI 1045				
		1.0044	S275JR	AISI 1020				
		1.0715	11SMn30	AISI 1215				
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	100	0.0014	0.0049	1xd1
		1.7131	16MnCr5	AISI 5115				
		1.3505	100Cr6	AISI 52100				
		1.7225	42CrMo4	AISI 4140				
		1.2842	90MnCrV8	AISI O2				
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	100	0.0012	0.0042	0.5xd1
		1.2436	X210CrW12	AISI D4/D6				
		1.3343	H56-5-2C	AISI M2 / UNS T11302				
		1.3355	HS18-0-1	AISI T1 / UNS T12001				
M	铁素体不锈钢	1.4016	X6Cr17	AISI 430 / UNS S43000	100	0.0010	0.0035	1xd1
		1.4105	X6CrMoS17	AISI 430F				
		1.4034	X46Cr13	AISI 420C				
	马氏体不锈钢	1.4112	X90CrMoV18	AISI 440B	100	0.0010	0.0035	0.5xd1
		1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	100	0.0010	0.0035	0.5xd1
	1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH					
	奥氏体不锈钢	1.4301	X5CrNi18-10	AISI 304	100	0.0010	0.0035	1xd1
		1.4435	X2CrNiMo18-14-3	AISI 316L				
		1.4441	X2CrNiMo18-15-3	AISI 316LM				
1.4539		X1NiCrMoCu25-20-5	AISI 904L					
K	铸铁	0.6020	GG20	ASTM 30	100	0.0013	0.0042	1xd1
		0.6030	GG30	ASTM 40B				
		0.7040	GGG40	ASTM 60-40-18				
		0.7060	GGG60	ASTM 80-60-03				
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	100	0.0012	0.0100	1xd1
		3.4365	AlZnMgCu1.5	ASTM 7075				
	铸造铝合金	3.2163	GD-ALSi9Cu3	ASTM A380	100	0.0012	0.0100	1xd1
		3.2381	GD-ALSi10Mg	UNS A03590				
	铜	2.0040	Cu-OF / CW008A	UNS C10100	100	0.0012	0.0100	1xd1
		2.0065	Cu-ETP / CW004A	UNS C11000				
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	100	0.0012	0.0100	1xd1
		2.0360	CuZn40 CW509L	UNS C28000				
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	100	0.0012	0.0100	1xd1
		2.1020	CuSn6	UNS C51900				
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	100	0.0012	0.0100	1xd1	
	2.0960	CuAl9Mn2	UNS C63200					
S ₁	超级合金	2.4856		Inconel 625	40	0.0010	0.0035	0.25xd1
		2.4668		Inconel 718				
		2.4617	NiMo28	Hastelloy B-2				
		2.4665	NiCr22Fe18Mo	Hastelloy X				
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	80	0.0010	0.0032	0.25xd1
		3.7065	Gr.4	ASTM B348 / F68				
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	80	0.0010	0.0032	0.25xd1
		9.9367	TiAl6Nb7	ASTM F1295				
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	60	0.0010	0.0035	0.5xd1
			CrCoMo28	ASTM F1537				
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1				
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2				

v_c [m/min] a_p [mm]
 $f_{z,p}$ [mm] $f_{z,s}$ [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



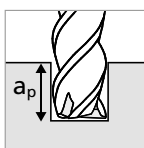
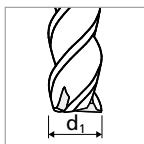
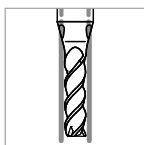
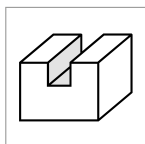
$\varnothing d_1$																							
1.5 mm 1/16"				2.0 mm 3/32"				3.0 mm 1/8"				4.0 mm 5/32"				5.0 mm 3/16" - 7/32"				6.0 mm - 8.0 mm 1/4"			
v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p
120	0.0020	0.0065	1xd1	120	0.0026	0.0091	1xd1	140	0.004	0.013	1xd1	140	0.005	0.020	1xd1	150	0.005	0.026	1xd1	160	0.006	0.033	1xd1
120	0.0021	0.0070	1xd1	120	0.0028	0.0098	1xd1	140	0.004	0.014	1xd1	140	0.005	0.021	1xd1	150	0.006	0.027	1xd1	160	0.006	0.034	1xd1
120	0.0018	0.0060	0.5xd1	120	0.0024	0.0084	0.5xd1	140	0.003	0.012	0.5xd1	140	0.004	0.017	0.5xd1	150	0.004	0.022	0.5xd1	160	0.005	0.028	0.5xd1
120	0.0015	0.0050	1xd1	120	0.0020	0.0070	1xd1	140	0.003	0.010	1xd1	140	0.004	0.015	1xd1	150	0.004	0.020	1xd1	160	0.005	0.025	1xd1
120	0.0015	0.0050	0.5xd1	120	0.0020	0.0070	0.5xd1	140	0.003	0.010	0.5xd1	140	0.004	0.015	0.5xd1	150	0.004	0.020	0.5xd1	160	0.005	0.025	0.5xd1
120	0.0015	0.0050	0.5xd1	120	0.0020	0.0070	0.5xd1	140	0.003	0.010	0.5xd1	140	0.004	0.015	0.5xd1	150	0.004	0.020	0.5xd1	160	0.005	0.025	0.5xd1
120	0.0015	0.0050	1xd1	120	0.0020	0.0070	1xd1	140	0.003	0.010	1xd1	140	0.004	0.015	1xd1	150	0.004	0.020	1xd1	160	0.005	0.025	1xd1
120	0.0019	0.0060	1xd1	120	0.0024	0.0084	1xd1	140	0.004	0.012	1xd1	140	0.004	0.017	1xd1	150	0.005	0.022	1xd1	160	0.005	0.028	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
120	0.0018	0.0160	1xd1	120	0.0024	0.0210	1xd1	150	0.004	0.034	1xd1	160	0.004	0.035	1xd1	170	0.005	0.036	1xd1	180	0.005	0.037	1xd1
40	0.0015	0.0050	0.25xd1	50	0.0020	0.0070	0.25xd1	50	0.003	0.010	0.25xd1	60	0.004	0.014	0.25xd1	80	0.004	0.018	0.25xd1	80	0.005	0.021	0.25xd1
90	0.0014	0.0045	0.25xd1	100	0.0018	0.0063	0.25xd1	110	0.003	0.010	0.25xd1	120	0.004	0.013	0.25xd1	120	0.004	0.016	0.25xd1	120	0.005	0.019	0.25xd1
90	0.0014	0.0045	0.25xd1	100	0.0018	0.0063	0.25xd1	110	0.003	0.010	0.25xd1	120	0.004	0.013	0.25xd1	120	0.004	0.016	0.25xd1	120	0.005	0.019	0.25xd1
60	0.0015	0.0050	0.5xd1	80	0.0020	0.0070	0.5xd1	80	0.003	0.010	0.5xd1	100	0.004	0.014	0.5xd1	100	0.004	0.018	0.5xd1	120	0.005	0.021	0.5xd1

NEW

A型 - 铣通槽

集成冷却铣削|切削参数概述

通槽铣削

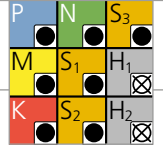


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm		
					v_c	f_z	a_p
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	140	0.009	1xd1
		1.0401	C15	AISI 1015			
		1.1191	C45E/CK45	AISI 1045			
		1.0044	S275JR	AISI 1020			
		1.0715	11SMn30	AISI 1215			
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	140	0.008	1xd1
		1.7131	16MnCr5	AISI 5115			
		1.3505	100Cr6	AISI 52100			
		1.7225	42CrMo4	AISI 4140			
		1.2842	90MnCrV8	AISI O2			
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	140	0.006	0.5xd1
		1.2436	X210CrW12	AISI D4/D6			
		1.3343	HS6-5-2C	AISI M2 / UNS T11302			
		1.3355	HS18-0-1	AISI T1 / UNS T12001			
		M	铁素体不锈钢	1.4016			
1.4105	X6CrMoS17			AISI 430F			
1.4034	X46Cr13			AISI 420C			
马氏体不锈钢	1.4112		X90CrMoV18	AISI 440B	140	0.009	1xd1
	1.4542		X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH			
	1.4545		X5CrNiCuNb15-5	ASTM 15-5 PH			
奥氏体不锈钢	1.4301		X5CrNi18-10	AISI 304	140	0.007	1xd1
	1.4435		X2CrNiMo18-14-3	AISI 316L			
	1.4441		X2CrNiMo18-15-3	AISI 316LM			
K	铸铁	0.6020	GG20	ASTM 30	120	0.007	1xd1
		0.6030	GG30	ASTM 40B			
		0.7040	GGG40	ASTM 60-40-18			
		0.7060	GGG60	ASTM 80-60-03			
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	140	0.010	1xd1
		3.4365	AlZnMgCu1.5	ASTM 7075			
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	140	0.010	1xd1
		3.2381	GD-AlSi10Mg	UNS A03590			
	铜	2.0040	Cu-OF / CW008A	UNS C10100	140	0.012	1xd1
		2.0065	Cu-ETP / CW004A	UNS C11000			
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	140	0.012	1xd1
		2.0360	CuZn40 CW509L	UNS C28000			
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	140	0.012	1xd1
		2.1020	CuSn6	UNS C51900			
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	140	0.011	1xd1	
	2.0960	CuAl9Mn2	UNS C63200				
S ₁	超级合金	2.4856		Inconel 625	80	0.005	0.5xd1
		2.4668		Inconel 718			
		2.4617	NiMo28	Hastelloy B-2			
		2.4665	NiCr22Fe18Mo	Hastelloy X			
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	100	0.009	0.5xd1
		3.7065	Gr.4	ASTM B348 / F68			
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	100	0.009	0.5xd1
		9.9367	TiAl6Nb7	ASTM F1295			
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	80	0.005	0.5xd1
			CrCoMo28	ASTM F1537			
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1			
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2			

v_c [m/min]
 f_z [mm]
 a_p [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



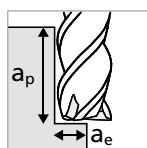
	1.5 mm 1/16"			2.0 mm 3/32"			3.0 mm 1/8"			4.0 mm 5/32"			5.0 mm 3/16" - 7/32"			6.0 mm - 8.0 mm 1/4"		
	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p
	180	0.015	1xd1	200	0.020	1xd1	220	0.029	1xd1	230	0.031	1xd1	240	0.031	1xd1	260	0.032	1xd1
	180	0.013	1xd1	200	0.019	1xd1	220	0.028	1xd1	230	0.029	1xd1	240	0.030	1xd1	260	0.031	1xd1
	180	0.012	0.5xd1	200	0.017	0.5xd1	220	0.025	0.5xd1	230	0.026	0.5xd1	240	0.026	0.5xd1	260	0.027	0.5xd1
	180	0.015	1xd1	200	0.020	1xd1	220	0.028	1xd1	230	0.029	1xd1	240	0.030	1xd1	260	0.031	1xd1
	180	0.013	1xd1	200	0.019	1xd1	220	0.027	1xd1	230	0.028	1xd1	240	0.029	1xd1	260	0.029	1xd1
	180	0.013	1xd1	200	0.019	1xd1	220	0.027	1xd1	230	0.028	1xd1	240	0.029	1xd1	260	0.029	1xd1
	180	0.011	1xd1	200	0.017	1xd1	220	0.025	1xd1	230	0.027	1xd1	240	0.027	1xd1	260	0.028	1xd1
	140	0.015	1xd1	160	0.017	1xd1	180	0.025	1xd1	200	0.031	1xd1	200	0.031	1xd1	200	0.032	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.034	1xd1	260	0.035	1xd1	300	0.036	1xd1	340	0.037	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.032	1xd1	260	0.034	1xd1	300	0.034	1xd1	340	0.036	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.034	1xd1	260	0.035	1xd1	300	0.036	1xd1	340	0.037	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.034	1xd1	260	0.035	1xd1	300	0.036	1xd1	340	0.037	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.034	1xd1	260	0.035	1xd1	300	0.036	1xd1	340	0.037	1xd1
	180	0.016	1xd1	200	0.021	1xd1	220	0.034	1xd1	260	0.035	1xd1	300	0.036	1xd1	340	0.037	1xd1
	80	0.006	0.5xd1	100	0.007	0.5xd1	100	0.010	0.5xd1	120	0.013	0.5xd1	120	0.013	0.5xd1	120	0.013	0.5xd1
	100	0.012	0.5xd1	120	0.017	0.5xd1	120	0.027	0.5xd1	140	0.027	0.5xd1	140	0.027	0.5xd1	140	0.028	0.5xd1
	100	0.012	0.5xd1	120	0.017	0.5xd1	120	0.027	0.5xd1	140	0.027	0.5xd1	140	0.027	0.5xd1	140	0.028	0.5xd1
	80	0.006	0.5xd1	100	0.007	0.5xd1	100	0.010	0.5xd1	120	0.013	0.5xd1	120	0.013	0.5xd1	120	0.013	0.5xd1

NEW

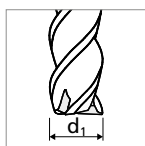
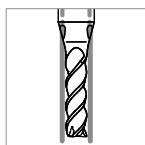
A型 - 侧铣 - 半精加工

集成冷却铣削|切削参数概述

半精加工



- $a_p = 1 \times d_1 - 2 \times d_1$
- $a_e = 0.2 \times d_1$

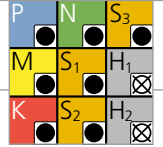


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm	
					v_c	f_z
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	140	0.013
		1.0401	C15	AISI 1015		
		1.1191	C45E/CK45	AISI 1045		
		1.0044	S275JR	AISI 1020		
		1.0715	11SMn30	AISI 1215		
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	140	0.012
		1.7131	16MnCr5	AISI 5115		
		1.3505	100Cr6	AISI 52100		
		1.7225	42CrMo4	AISI 4140		
		1.2842	90MnCrV8	AISI O2		
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	140	0.009
		1.2436	X210CrW12	AISI D4/D6		
		1.3343	H56-5-2C	AISI M2 / UNS T11302		
		1.3355	H518-0-1	AISI T1 / UNS T12001		
		M	铁素体不锈钢	1.4016		
1.4105	X6CrMoS17			AISI 430F		
1.4034	X46Cr13			AISI 420C		
马氏体不锈钢	1.4112		X90CrMoV18	AISI 440B	140	0.013
	1.4542		X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH		
马氏体不锈钢-沉淀硬化型	1.4545		X5CrNiCuNb15-5	ASTM 15-5 PH	140	0.013
	1.4301		X5CrNi18-10	AISI 304		
奥氏体不锈钢	1.4435		X2CrNiMo18-14-3	AISI 316L	140	0.010
	1.4441		X2CrNiMo18-15-3	AISI 316LM		
	1.4539	X1NiCrMoCu25-20-5	AISI 904L			
K	铸铁	0.6020	GG20	ASTM 30	120	0.009
		0.6030	GG30	ASTM 40B		
		0.7040	GGG40	ASTM 60-40-18		
		0.7060	GGG60	ASTM 80-60-03		
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	140	0.015
		3.4365	AlZnMgCu1.5	ASTM 7075		
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	140	0.015
		3.2381	GD-AlSi10Mg	UNS A03590		
	铜	2.0040	Cu-OF / CW008A	UNS C10100	140	0.017
		2.0065	Cu-ETP / CW004A	UNS C11000		
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	140	0.017
		2.0360	CuZn40 CW509L	UNS C28000		
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	140	0.017
		2.1020	CuSn6	UNS C51900		
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	140	0.015	
	2.0960	CuAl9Mn2	UNS C63200			
S ₁	超级合金	2.4856		Inconel 625	80	0.006
		2.4668		Inconel 718		
		2.4617	NiMo28	Hastelloy B-2		
		2.4665	NiCr22Fe18Mo	Hastelloy X		
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	120	0.014
		3.7065	Gr.4	ASTM B348 / F68		
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	120	0.014
		9.9367	TiAl6Nb7	ASTM F1295		
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	80	0.006
			CrCoMo28	ASTM F1537		
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1		
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2		

v_c [m/min]
 f_z [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



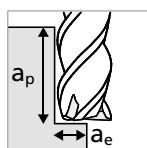
	1.5 mm 1/16"		2.0 mm 3/32"		3.0 mm 1/8"		$\varnothing d_1$ 4.0 mm 5/32"		5.0 mm 3/16" - 7/32"		6.0 mm 1/4"		8.0 mm	
	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
	200	0.020	220	0.029	240	0.037	260	0.040	260	0.040	260	0.043	260	0.051
	200	0.019	220	0.027	240	0.035	260	0.038	260	0.038	260	0.041	260	0.049
	200	0.017	220	0.026	240	0.032	260	0.034	260	0.034	260	0.036	260	0.043
	200	0.020	220	0.029	240	0.035	260	0.038	260	0.038	260	0.041	260	0.046
	200	0.019	220	0.027	240	0.035	260	0.037	260	0.037	260	0.039	260	0.045
	200	0.019	220	0.027	240	0.035	260	0.037	260	0.037	260	0.039	260	0.045
	200	0.014	220	0.026	240	0.032	260	0.035	260	0.035	260	0.037	260	0.043
	140	0.020	160	0.024	180	0.034	200	0.040	200	0.042	200	0.044	200	0.052
	200	0.022	220	0.031	240	0.046	260	0.048	260	0.048	260	0.051	260	0.063
	200	0.022	220	0.031	240	0.046	260	0.048	260	0.048	260	0.051	260	0.063
	200	0.022	220	0.031	240	0.046	260	0.048	260	0.048	260	0.051	260	0.063
	200	0.022	220	0.031	240	0.046	260	0.048	260	0.048	260	0.051	260	0.063
	200	0.022	220	0.031	240	0.046	260	0.048	260	0.048	260	0.051	260	0.063
	100	0.008	100	0.009	100	0.012	120	0.016	120	0.016	120	0.017	120	0.018
	120	0.017	130	0.024	130	0.032	150	0.035	150	0.035	150	0.037	150	0.040
	120	0.017	130	0.024	130	0.032	150	0.035	150	0.035	150	0.037	150	0.040
	100	0.008	100	0.009	100	0.012	120	0.016	120	0.016	120	0.017	120	0.018

NEW

A型 - 侧铣 - 精加工

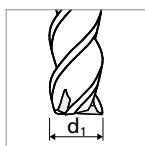
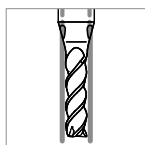
集成冷却铣削|切削参数概述

精加工



■ $a_p = 2.5 \times d_1$

■ $a_e = 0.05 - 0.10 \times d_1$

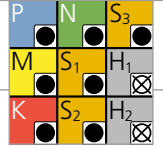


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm	
					v_c	f_z
P	非合金碳钢 Rm < 800 N/mm ²	1.0301	C10	AISI 1010	130	0.008
		1.0401	C15	AISI 1015		
		1.1191	C45E/CK45	AISI 1045		
		1.0044	S275JR	AISI 1020		
		1.0715	11SMn30	AISI 1215		
	低合金钢 Rm > 900 N/mm ²	1.5752	15NiCr13	ASTM 3415 / AISI 3310	130	0.007
		1.7131	16MnCr5	AISI 5115		
		1.3505	100Cr6	AISI 52100		
		1.7225	42CrMo4	AISI 4140		
		1.2842	90MnCrV8	AISI O2		
	高合金工具钢 Rm < 1200 N/mm ²	1.2379	X153CrMoV12	AISI D2	130	0.006
		1.2436	X210CrW12	AISI D4/D6		
		1.3343	HS6-5-2C	AISI M2 / UNS T11302		
		1.3355	HS18-0-1	AISI T1 / UNS T12001		
M	铁素体不锈钢	1.4016	X6Cr17	AISI 430 / UNS S43000	130	0.008
		1.4105	X6CrMoS17	AISI 430F		
	马氏体不锈钢	1.4034	X46Cr13	AISI 420C	130	0.008
		1.4112	X90CrMoV18	AISI 440B		
	马氏体不锈钢-沉淀硬化型	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	130	0.008
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH		
	奥氏体不锈钢	1.4301	X5CrNi18-10	AISI 304	130	0.006
		1.4435	X2CrNiMo18-14-3	AISI 316L		
1.4441		X2CrNiMo18-15-3	AISI 316LM			
	1.4539	X1NiCrMoCu25-20-5	AISI 904L			
K	铸铁	0.6020	GG20	ASTM 30	110	0.006
		0.6030	GG30	ASTM 40B		
		0.7040	GGG40	ASTM 60-40-18		
		0.7060	GGG60	ASTM 80-60-03		
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	130	0.009
		3.4365	AlZnMgCu1.5	ASTM 7075		
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	130	0.009
		3.2381	GD-AlSi10Mg	UNS A03590		
	铜	2.0040	Cu-OF / CW008A	UNS C10100	130	0.010
		2.0065	Cu-ETP / CW004A	UNS C11000		
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	130	0.010
		2.0360	CuZn40 CW509L	UNS C28000		
	黄铜、青铜 Rm < 400 N/mm ²	2.0401	CuZn39Pb3 / CW614N	UNS C38500	130	0.010
		2.1020	CuSn6	UNS C51900		
青铜 Rm < 600 N/mm ²	2.0966	CuAl10Ni5Fe4	UNS C63000	130	0.009	
	2.0960	CuAl9Mn2	UNS C63200			
S ₁	超级合金	2.4856		Inconel 625	110	0.004
		2.4668		Inconel 718		
		2.4617	NiMo28	Hastelloy B-2		
		2.4665	NiCr22Fe18Mo	Hastelloy X		
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	110	0.008
		3.7065	Gr.4	ASTM B348 / F68		
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	110	0.008
		9.9367	TiAl6Nb7	ASTM F1295		
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	110	0.004
			CrCoMo28	ASTM F1537		
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1		
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2		

v_c [m/min]
 f_z [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



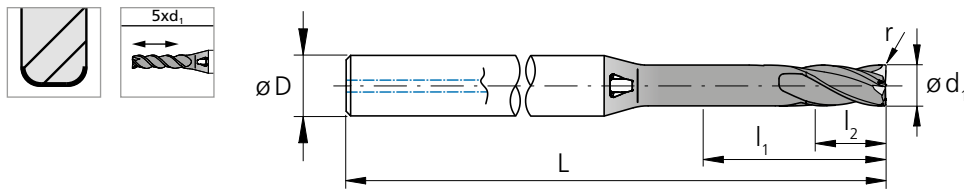
	1.5 mm 1/16"		2.0 mm 3/32"		3.0 mm 1/8"		$\varnothing d_1$ 4.0 mm 5/32"		5.0 mm 3/16" - 7/32"		6.0 mm 1/4"		8.0 mm	
	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
	180	0.012	200	0.017	210	0.023	220	0.025	220	0.028	220	0.033	220	0.042
	180	0.011	200	0.016	210	0.022	220	0.024	220	0.026	220	0.029	220	0.038
	180	0.010	200	0.015	210	0.020	220	0.021	220	0.023	220	0.025	220	0.034
	180	0.012	200	0.017	210	0.022	220	0.024	220	0.026	220	0.029	220	0.036
	180	0.011	200	0.016	210	0.022	220	0.023	220	0.025	220	0.028	220	0.037
	180	0.011	200	0.016	210	0.022	220	0.023	220	0.025	220	0.028	220	0.037
	180	0.008	200	0.015	210	0.020	220	0.022	220	0.024	220	0.026	220	0.035
	130	0.012	150	0.014	160	0.022	170	0.025	170	0.029	170	0.031	200	0.040
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	270	0.045
	120	0.005	130	0.005	130	0.008	140	0.010	140	0.011	150	0.012	160	0.021
	120	0.010	130	0.014	130	0.020	140	0.022	140	0.024	150	0.026	160	0.035
	120	0.010	130	0.014	130	0.020	140	0.022	140	0.024	150	0.026	160	0.035
	120	0.005	130	0.005	130	0.008	140	0.010	140	0.011	150	0.012	160	0.021

NEW

C型 - 5倍径 - 圆角 - Z3

集成冷却铣削










P&S - 圆角



l_1 = 有效长度
 l_2 = 切削长度

d_1	d_1	l_1	l_2	D	L	r	r	项目编号	库存情况
[mm]	[inch]	[mm]	[mm]	(h6) [mm]	[mm]	[mm]	[inch]		
1.0		5.00	2.00	4	40	0.10		2.CMC42.C2Z3.100.1	■
1.0		5.00	2.00	4	40	0.20		2.CMC42.C3Z3.100.1	■
1.1		5.50	2.20	4	40	0.10		2.CMC42.C2Z3.110.1	■
1.1		5.50	2.20	4	40	0.20		2.CMC42.C3Z3.110.1	■
1.2		6.00	2.40	4	40	0.10		2.CMC42.C2Z3.120.1	■
1.2		6.00	2.40	4	40	0.20		2.CMC42.C3Z3.120.1	■
1.3		6.50	2.60	4	40	0.10		2.CMC42.C2Z3.130.1	■
1.3		6.50	2.60	4	40	0.20		2.CMC42.C3Z3.130.1	■
1.4		7.00	2.80	4	40	0.10		2.CMC42.C2Z3.140.1	■
1.4		7.00	2.80	4	40	0.20		2.CMC42.C3Z3.140.1	■
1.5		7.50	3.00	4	40	0.10		2.CMC42.C2Z3.150.1	■
1.5		7.50	3.00	4	40	0.30		2.CMC42.C3Z3.150.1	■
1.587	1/16	7.94	3.17	4	45	0.127	.005	2.CMC.PSRC2Z3.F116	■
1.587	1/16	7.94	3.17	4	45	0.254	.010	2.CMC.PSRC3Z3.F116	■
1.6		8.00	3.20	4	45	0.10		2.CMC42.C2Z3.160.1	■
1.6		8.00	3.20	4	45	0.30		2.CMC42.C3Z3.160.1	■
1.7		8.50	3.40	4	45	0.10		2.CMC42.C2Z3.170.1	■
1.7		8.50	3.40	4	45	0.30		2.CMC42.C3Z3.170.1	■
1.8		9.00	3.60	4	45	0.10		2.CMC42.C2Z3.180.1	■
1.8		9.00	3.60	4	45	0.30		2.CMC42.C3Z3.180.1	■
1.9		9.50	3.80	4	44	0.10		2.CMC42.C2Z3.190.1	■
1.9		9.50	3.80	4	44	0.30		2.CMC42.C3Z3.190.1	■
2.0		10.00	4.00	4	44	0.10		2.CMC42.C2Z3.200.1	■
2.0		10.00	4.00	4	44	0.20		2.CMC42.C3Z3.200.1	■
2.0		10.00	4.00	4	44	0.50		2.CMC42.C4Z3.200.1	■
2.1		10.50	4.20	4	44	0.20		2.CMC42.C2Z3.210.1	■
2.1		10.50	4.20	4	44	0.50		2.CMC42.C3Z3.210.1	■
2.2		11.00	4.40	4	44	0.20		2.CMC42.C2Z3.220.1	■
2.2		11.00	4.40	4	44	0.50		2.CMC42.C3Z3.220.1	■
2.3		11.50	4.60	4	44	0.20		2.CMC42.C2Z3.230.1	■
2.3		11.50	4.60	4	44	0.50		2.CMC42.C3Z3.230.1	■
2.381	3/32	11.91	4.76	4	44	0.127	.005	2.CMC.PSRC2Z3.F332	■
2.381	3/32	11.91	4.76	4	44	0.254	.010	2.CMC.PSRC3Z3.F332	■
2.381	3/32	11.91	4.76	4	44	0.381	.015	2.CMC.PSRC4Z3.F332	■
2.4		12.00	4.80	4	44	0.20		2.CMC42.C2Z3.240.1	■
2.4		12.00	4.80	4	44	0.50		2.CMC42.C3Z3.240.1	■
2.5		12.50	5.00	6	55	0.20		2.CMC42.C2Z3.250.1	■
2.5		12.50	5.00	6	55	0.50		2.CMC42.C3Z3.250.1	■
2.6		13.00	5.20	6	55	0.20		2.CMC42.C2Z3.260.1	■
2.6		13.00	5.20	6	55	0.50		2.CMC42.C3Z3.260.1	■
2.7		13.50	5.40	6	55	0.20		2.CMC42.C2Z3.270.1	■
2.7		13.50	5.40	6	55	0.50		2.CMC42.C3Z3.270.1	■

■ 库存项目

Z3									
	$\varnothing d_1$	1.0 - 3.0 mm	3.1 - 6.0 mm	6.1 - 8.0 mm	r	0.1 - 1.524 mm			
公差	- 0.014 mm - 0.028 mm	- 0.020 mm - 0.038 mm	- 0.025 mm - 0.047 mm	公差	$\pm 0.05 \cdot r$ mm				

d_1	d_1	l_1	l_2	D (h6)	L	r	r	项目编号	库存情况
[mm]	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[inch]		
2.8		14.00	5.60	6	55	0.20		2.CMC42.C2Z3.280.1	■
2.8		14.00	5.60	6	55	0.50		2.CMC42.C3Z3.280.1	■
2.9		14.50	5.80	6	55	0.20		2.CMC42.C2Z3.290.1	■
2.9		14.50	5.80	6	55	0.50		2.CMC42.C3Z3.290.1	■
3.0		15.00	6.00	6	55	0.20		2.CMC42.C2Z3.300.1	■
3.0		15.00	6.00	6	55	0.50		2.CMC42.C3Z3.300.1	■
3.1		15.50	6.20	6	60	0.20		2.CMC42.C2Z3.310.1	■
3.1		15.50	6.20	6	60	0.50		2.CMC42.C3Z3.310.1	■
3.175	1/8	15.88	6.35	6	60	0.254	.010	2.CMC.PSRC2Z3.F18	■
3.175	1/8	15.88	6.35	6	60	0.381	.015	2.CMC.PSRC3Z3.F18	■
3.3		16.50	6.60	6	60	0.20		2.CMC42.C2Z3.330.1	■
3.3		16.50	6.60	6	60	0.50		2.CMC42.C3Z3.330.1	■
3.7		18.50	7.40	6	60	0.20		2.CMC42.C2Z3.370.1	■
3.7		18.50	7.40	6	60	0.50		2.CMC42.C3Z3.370.1	■
3.968	5/32	19.84	7.94	6	60	0.254	.010	2.CMC.PSRC2Z3.F532	■
3.968	5/32	19.84	7.94	6	60	0.381	.015	2.CMC.PSRC3Z3.F532	■
4.0		20.00	8.00	6	60	0.20		2.CMC42.C2Z3.400.1	■
4.0		20.00	8.00	6	60	0.50		2.CMC42.C3Z3.400.1	■
4.3		21.50	8.60	8	70	0.20		2.CMC42.C2Z3.430.1	■
4.3		21.50	8.60	8	70	0.50		2.CMC42.C3Z3.430.1	■
4.7		23.50	9.40	8	70	0.20		2.CMC42.C2Z3.470.1	■
4.7		23.50	9.40	8	70	0.50		2.CMC42.C3Z3.470.1	■
4.762	3/16	23.81	9.52	8	70	0.254	.010	2.CMC.PSRC2Z3.F316	■
4.762	3/16	23.81	9.52	8	70	0.381	.015	2.CMC.PSRC3Z3.F316	■
4.8		24.00	9.60	8	70	0.20		2.CMC42.C2Z3.480.1	■
4.8		24.00	9.60	8	70	0.50		2.CMC42.C3Z3.480.1	■
5.0		25.00	10.00	8	70	0.20		2.CMC42.C2Z3.500.1	■
5.0		25.00	10.00	8	70	0.50		2.CMC42.C3Z3.500.1	■
5.3		26.50	10.60	10	70	0.20		2.CMC42.C2Z3.530.1	■
5.3		26.50	10.60	10	70	0.50		2.CMC42.C3Z3.530.1	■
5.560	7/32	27.80	11.12	10	70	0.381	.015	2.CMC.PSRC2Z3.F732	■
5.560	7/32	27.80	11.12	10	70	0.762	.030	2.CMC.PSRC3Z3.F732	■
5.7		28.50	11.40	10	70	0.20		2.CMC42.C2Z3.570.1	■
5.7		28.50	11.40	10	70	0.50		2.CMC42.C3Z3.570.1	■
6.0		30.00	12.00	10	70	0.20		2.CMC42.C2Z3.600.1	■
6.0		30.00	12.00	10	70	0.50		2.CMC42.C3Z3.600.1	■
6.0		30.00	12.00	10	70	1.00		2.CMC42.C4Z3.600.1	■
6.350	1/4	31.75	12.70	10	70	0.381	.015	2.CMC.PSRC2Z3.F14	■
6.350	1/4	31.75	12.70	10	70	0.762	.030	2.CMC.PSRC3Z3.F14	■
6.350	1/4	31.75	12.70	10	70	1.524	.060	2.CMC.PSRC4Z3.F14	■
8.0		40.00	16.00	12	90	0.20		2.CMC42.C2Z3.800.1	■
8.0		40.00	16.00	12	90	0.50		2.CMC42.C3Z3.800.1	■
8.0		40.00	16.00	12	90	1.50		2.CMC42.C4Z3.800.1	■

■ 库存项目

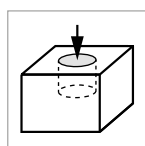
NEW

C型 - 插铣 - 槽

集成冷却铣削|切削参数概述

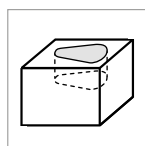
材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm			
					v_c	$f_{z,p}$	$f_{z,s}$	a_p
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	100	0.0013	0.0046	0.5xd1
		1.0401	C15	AISI 1015				
		1.1191	C45E/CK45	AISI 1045				
		1.0044	S275JR	AISI 1020				
		1.0715	11SMn30	AISI 1215				
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	100	0.0014	0.0049	0.5xd1
		1.7131	16MnCr5	AISI 5115				
		1.3505	100Cr6	AISI 52100				
		1.7225	42CrMo4	AISI 4140				
		1.2842	90MnCrV8	AISI O2				
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	100	0.0012	0.0042	0.25xd1
		1.2436	X210CrW12	AISI D4/D6				
1.3343		HS6-5-2C	AISI M2 / UNS T11302					
		1.3355	HS18-0-1	AISI T1 / UNS T12001				
M	铁素体不锈钢	1.4016	X6Cr17	AISI 430 / UNS S43000	100	0.0010	0.0035	0.5xd1
		1.4105	X6CrMoS17	AISI 430F				
	马氏体不锈钢	1.4034	X46Cr13	AISI 420C	100	0.0010	0.0035	0.25xd1
		1.4112	X90CrMoV18	AISI 440B				
	马氏体不锈钢-沉淀硬化型	1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	100	0.0010	0.0035	0.25xd1
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH				
	奥氏体不锈钢	1.4301	X5CrNi18-10	AISI 304	100	0.0010	0.0035	0.5xd1
		1.4435	X2CrNiMo18-14-3	AISI 316L				
1.4441		X2CrNiMo18-15-3	AISI 316LM					
		1.4539	X1NiCrMoCu25-20-5	AISI 904L				
K	铸铁	0.6020	GG20	ASTM 30	100	0.0013	0.0042	0.5xd1
		0.6030	GG30	ASTM 40B				
		0.7040	GGG40	ASTM 60-40-18				
		0.7060	GGG60	ASTM 80-60-03				
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	100	0.0012	0.0100	0.5xd1
		3.4365	AlZnMgCu1.5	ASTM 7075				
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	100	0.0012	0.0100	0.5xd1
		3.2381	GD-AlSi10Mg	UNS A03590				
	铜	2.0040	Cu-OF / CW008A	UNS C10100	100	0.0012	0.0100	0.5xd1
		2.0065	Cu-ETP / CW004A	UNS C11000				
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	100	0.0012	0.0100	0.5xd1
		2.0360	CuZn40 CW509L	UNS C28000				
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	100	0.0012	0.0100	0.5xd1
2.1020		CuSn6	UNS C51900					
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	100	0.0012	0.0100	0.5xd1	
	2.0960	CuAl9Mn2	UNS C63200					
S ₁	超级合金	2.4856		Inconel 625	40	0.0010	0.0035	0.25xd1
		2.4668		Inconel 718				
		2.4617	NiMo28	Hastelloy B-2				
		2.4665	NiCr22Fe18Mo	Hastelloy X				
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	80	0.0010	0.0032	0.25xd1
		3.7065	Gr.4	ASTM B348 / F68				
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	80	0.0010	0.0032	0.25xd1
		9.9367	TiAl6Nb7	ASTM F1295				
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	60	0.0010	0.0035	0.25xd1
			CrCoMo28	ASTM F1537				
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1				
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2				

插铣



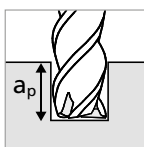
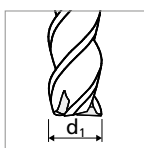
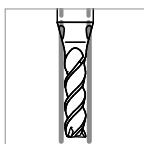
■ $f_{z,p}$: 用于插铣

槽铣



■ $f_{z,p}$: 用于插铣

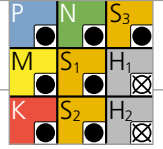
■ $f_{z,s}$: 用于槽铣



v_c [m/min] a_p [mm]
 $f_{z,p}$ [mm] $f_{z,s}$ [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



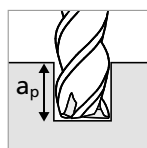
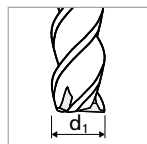
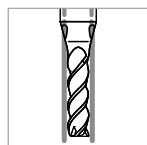
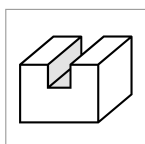
$\varnothing d_1$																							
1.5 mm 1/16"				2.0 mm 3/32"				3.0 mm 1/8"				4.0 mm 5/32"				5.0 mm 3/16" - 7/32"				6.0 mm - 8.0 mm 1/4"			
v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p	v_c	$f_{z,p}$	$f_{z,s}$	a_p
120	0.0020	0.0065	0.5xd1	120	0.0026	0.0091	0.5xd1	140	0.004	0.013	0.5xd1	140	0.005	0.020	0.5xd1	150	0.005	0.026	0.5xd1	160	0.006	0.033	0.5xd1
120	0.0021	0.0070	0.5xd1	120	0.0028	0.0098	0.5xd1	140	0.004	0.014	0.5xd1	140	0.005	0.021	0.5xd1	150	0.006	0.027	0.5xd1	160	0.006	0.034	0.5xd1
120	0.0018	0.0060	0.25xd1	120	0.0024	0.0084	0.25xd1	140	0.003	0.012	0.25xd1	140	0.004	0.017	0.25xd1	150	0.004	0.022	0.25xd1	160	0.005	0.028	0.25xd1
120	0.0015	0.0050	0.5xd1	120	0.0020	0.0070	0.5xd1	140	0.003	0.010	0.5xd1	140	0.004	0.015	0.5xd1	150	0.004	0.020	0.5xd1	160	0.005	0.025	0.5xd1
120	0.0015	0.0050	0.25xd1	120	0.0020	0.0070	0.25xd1	140	0.003	0.010	0.25xd1	140	0.004	0.015	0.25xd1	150	0.004	0.020	0.25xd1	160	0.005	0.025	0.25xd1
120	0.0015	0.0050	0.25xd1	120	0.0020	0.0070	0.25xd1	140	0.003	0.010	0.25xd1	140	0.004	0.015	0.25xd1	150	0.004	0.020	0.25xd1	160	0.005	0.025	0.25xd1
120	0.0015	0.0050	0.5xd1	120	0.0020	0.0070	0.5xd1	140	0.003	0.010	0.5xd1	140	0.004	0.015	0.5xd1	150	0.004	0.020	0.5xd1	160	0.005	0.020	0.5xd1
120	0.0019	0.0060	0.5xd1	120	0.0024	0.0084	0.5xd1	140	0.004	0.012	0.5xd1	140	0.004	0.017	0.5xd1	150	0.005	0.022	0.5xd1	160	0.005	0.028	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
120	0.0018	0.0160	0.5xd1	120	0.0024	0.0210	0.5xd1	150	0.004	0.034	0.5xd1	160	0.004	0.035	0.5xd1	170	0.005	0.036	0.5xd1	180	0.005	0.037	0.5xd1
40	0.0015	0.0050	0.25xd1	50	0.0020	0.0070	0.25xd1	50	0.003	0.010	0.25xd1	60	0.004	0.014	0.25xd1	80	0.004	0.018	0.25xd1	80	0.005	0.021	0.25xd1
90	0.0014	0.0045	0.25xd1	100	0.0018	0.0063	0.25xd1	110	0.003	0.010	0.25xd1	120	0.004	0.013	0.25xd1	120	0.004	0.016	0.25xd1	120	0.005	0.019	0.25xd1
90	0.0014	0.0045	0.25xd1	100	0.0018	0.0063	0.25xd1	110	0.003	0.010	0.25xd1	120	0.004	0.013	0.25xd1	120	0.004	0.016	0.25xd1	120	0.005	0.019	0.25xd1
60	0.0015	0.0050	0.25xd1	80	0.0020	0.0070	0.25xd1	80	0.003	0.010	0.25xd1	100	0.004	0.014	0.25xd1	100	0.004	0.018	0.25xd1	120	0.005	0.021	0.25xd1

NEW

C型 - 铣通槽

集成冷却铣削|切削参数概述

通槽铣削

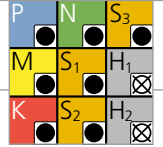


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm		
					v_c	f_z	a_p
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	120	0.009	0.5xd1
		1.0401	C15	AISI 1015			
		1.1191	C45E/CK45	AISI 1045			
		1.0044	S275JR	AISI 1020			
		1.0715	11SMn30	AISI 1215			
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	120	0.008	0.5xd1
		1.7131	16MnCr5	AISI 5115			
		1.3505	100Cr6	AISI 52100			
		1.7225	42CrMo4	AISI 4140			
		1.2842	90MnCrV8	AISI O2			
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	120	0.006	0.25xd1
		1.2436	X210CrW12	AISI D4/D6			
		1.3343	HS6-5-2C	AISI M2 / UNS T11302			
		1.3355	HS18-0-1	AISI T1 / UNS T12001			
M	铁素体不锈钢	1.4016	X6Cr17	AISI 430 / UNS S43000	120	0.009	0.5xd1
		1.4105	X6CrMoS17	AISI 430F			
		1.4034	X46Cr13	AISI 420C			
	马氏体不锈钢	1.4112	X90CrMoV18	AISI 440B	120	0.009	0.5xd1
		1.4542	X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH			
		1.4545	X5CrNiCuNb15-5	ASTM 15-5 PH			
	马氏体不锈钢-沉淀硬化型	1.4301	X5CrNi18-10	AISI 304	120	0.009	0.5xd1
		1.4435	X2CrNiMo18-14-3	AISI 316L			
		1.4441	X2CrNiMo18-15-3	AISI 316LM			
奥氏体不锈钢	1.4539	X1NiCrMoCu25-20-5	AISI 904L	120	0.007	0.5xd1	
K	铸铁	0.6020	GG20	ASTM 30	100	0.007	0.5xd1
		0.6030	GG30	ASTM 40B			
		0.7040	GGG40	ASTM 60-40-18			
		0.7060	GGG60	ASTM 80-60-03			
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	170	0.010	0.5xd1
		3.4365	AlZnMgCu1.5	ASTM 7075			
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	170	0.010	0.5xd1
		3.2381	GD-AlSi10Mg	UNS A03590			
	铜	2.0040	Cu-OF / CW008A	UNS C10100	170	0.012	0.5xd1
		2.0065	Cu-ETP / CW004A	UNS C11000			
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	170	0.012	0.5xd1
		2.0360	CuZn40 CW509L	UNS C28000			
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	170	0.012	0.5xd1
		2.1020	CuSn6	UNS C51900			
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	170	0.011	0.5xd1	
	2.0960	CuAl9Mn2	UNS C63200				
S ₁	超级合金	2.4856		Inconel 625	80	0.005	0.25xd1
		2.4668		Inconel 718			
		2.4617	NiMo28	Hastelloy B-2			
		2.4665	NiCr22Fe18Mo	Hastelloy X			
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	80	0.009	0.25xd1
		3.7065	Gr.4	ASTM B348 / F68			
S ₃	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	80	0.009	0.25xd1
		9.9367	TiAl6Nb7	ASTM F1295			
H ₁	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	80	0.005	0.25xd1
			CrCoMo28	ASTM F1537			
H ₂	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1			
	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2			

v_c [m/min]
 f_z [mm]
 a_p [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



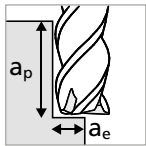
	1.5 mm 1/16"			2.0 mm 3/32"			3.0 mm 1/8"			4.0 mm 5/32"			5.0 mm 3/16" - 7/32"			6.0 mm - 8.0 mm 1/4"		
	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p	v_c	f_z	a_p
	140	0.015	0.5xd1	160	0.020	0.5xd1	180	0.029	0.5xd1	200	0.031	0.5xd1	200	0.031	0.5xd1	220	0.032	0.5xd1
	140	0.013	0.5xd1	160	0.019	0.5xd1	180	0.028	0.5xd1	200	0.029	0.5xd1	200	0.030	0.5xd1	220	0.031	0.5xd1
	140	0.012	0.25xd1	160	0.017	0.25xd1	180	0.025	0.25xd1	200	0.026	0.25xd1	200	0.026	0.25xd1	220	0.027	0.25xd1
	140	0.015	0.5xd1	160	0.020	0.5xd1	180	0.028	0.5xd1	200	0.029	0.5xd1	200	0.030	0.5xd1	220	0.031	0.5xd1
	140	0.013	0.5xd1	160	0.019	0.5xd1	180	0.027	0.5xd1	200	0.028	0.5xd1	200	0.029	0.5xd1	220	0.029	0.5xd1
	140	0.013	0.5xd1	160	0.019	0.5xd1	180	0.027	0.5xd1	200	0.028	0.5xd1	200	0.029	0.5xd1	220	0.029	0.5xd1
	140	0.011	0.5xd1	160	0.017	0.5xd1	180	0.025	0.5xd1	200	0.027	0.5xd1	200	0.027	0.5xd1	220	0.028	0.5xd1
	120	0.015	0.5xd1	140	0.017	0.5xd1	160	0.025	0.5xd1	180	0.031	0.5xd1	200	0.031	0.5xd1	200	0.032	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.034	0.5xd1	250	0.035	0.5xd1	250	0.036	0.5xd1	270	0.037	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.032	0.5xd1	250	0.034	0.5xd1	250	0.034	0.5xd1	270	0.036	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.034	0.5xd1	250	0.035	0.5xd1	250	0.036	0.5xd1	270	0.037	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.034	0.5xd1	250	0.035	0.5xd1	250	0.036	0.5xd1	270	0.037	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.034	0.5xd1	250	0.035	0.5xd1	250	0.036	0.5xd1	270	0.037	0.5xd1
	190	0.016	0.5xd1	210	0.021	0.5xd1	230	0.034	0.5xd1	250	0.035	0.5xd1	250	0.036	0.5xd1	270	0.037	0.5xd1
	80	0.006	0.25xd1	100	0.007	0.25xd1	100	0.010	0.25xd1	120	0.013	0.25xd1	120	0.013	0.25xd1	120	0.013	0.25xd1
	80	0.012	0.25xd1	100	0.017	0.25xd1	100	0.027	0.25xd1	120	0.027	0.25xd1	120	0.027	0.25xd1	140	0.028	0.25xd1
	80	0.012	0.25xd1	100	0.017	0.25xd1	100	0.027	0.25xd1	120	0.027	0.25xd1	120	0.027	0.25xd1	140	0.028	0.25xd1
	80	0.006	0.25xd1	100	0.007	0.25xd1	100	0.010	0.25xd1	120	0.013	0.25xd1	120	0.013	0.25xd1	120	0.013	0.25xd1

NEW

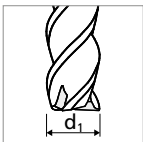
C型 - 侧铣 - 半精加工

集成冷却铣削|切削参数概述

半精加工



- $a_p = 1 \times d_1 - 2 \times d_1$
- $a_e = 0.1 \times d_1$

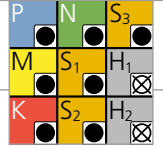


材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm				
					v_c	f_z			
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	120	0.017			
		1.0401	C15	AISI 1015					
		1.1191	C45E/CK45	AISI 1045					
		1.0044	S275JR	AISI 1020					
		1.0715	11SMn30	AISI 1215					
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	120	0.016			
		1.7131	16MnCr5	AISI 5115					
		1.3505	100Cr6	AISI 52100					
		1.7225	42CrMo4	AISI 4140					
		1.2842	90MnCrV8	AISI O2					
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	120	0.012			
		1.2436	X210CrW12	AISI D4/D6					
		1.3343	HS6-5-2C	AISI M2 / UNS T11302					
		1.3355	HS18-0-1	AISI T1 / UNS T12001					
		M	铁素体不锈钢	1.4016			X6Cr17	AISI 430 / UNS S43000	120
1.4105	X6CrMoS17			AISI 430F					
1.4034	X46Cr13			AISI 420C					
马氏体不锈钢	1.4112		X90CrMoV18	AISI 440B	120	0.017			
	1.4542		X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH					
	1.4545		X5CrNiCuNb15-5	ASTM 15-5 PH					
马氏体不锈钢-沉淀硬化型	1.4301		X5CrNi18-10	AISI 304	120	0.017			
	1.4435		X2CrNiMo18-14-3	AISI 316L					
	1.4441		X2CrNiMo18-15-3	AISI 316LM					
奥氏体不锈钢	1.4539	X1NiCrMoCu25-20-5	AISI 904L	120	0.013				
	K	铸铁	0.6020			GG20	ASTM 30	100	0.012
			0.6030			GG30	ASTM 40B		
0.7040			GGG40	ASTM 60-40-18					
0.7060			GGG60	ASTM 80-60-03					
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	170	0.020			
		3.4365	AlZnMgCu1.5	ASTM 7075					
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	170	0.020			
		3.2381	GD-AlSi10Mg	UNS A03590					
	铜	2.0040	Cu-OF / CW008A	UNS C10100	170	0.022			
		2.0065	Cu-ETP / CW004A	UNS C11000					
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	170	0.022			
		2.0360	CuZn40 CW509L	UNS C28000					
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	170	0.022			
		2.1020	CuSn6	UNS C51900					
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	170	0.020				
	2.0960	CuAl9Mn2	UNS C63200						
S ₁	超级合金	2.4856		Inconel 625	100	0.008			
		2.4668		Inconel 718					
		2.4617	NiMo28	Hastelloy B-2					
		2.4665	NiCr22Fe18Mo	Hastelloy X					
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	100	0.018			
		3.7065	Gr.4	ASTM B348 / F68					
		3.7165	TiAl6V4	ASTM B348 / F136					
S ₃	钛合金	9.9367	TiAl6Nb7	ASTM F1295	100	0.018			
		2.4964	CoCr20W15Ni	Haynes 25					
H ₁	钴铬合金		CrCoMo28	ASTM F1537	100	0.008			
		H ₂	硬化钢<洛氏硬度55	1.2510			100MnCrMoW4	AISI O1	
1.2379	X153CrMoV12			AISI D2					

v_c [m/min]
 f_z [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



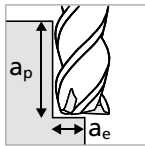
	1.5 mm 1/16"		2.0 mm 3/32"		3.0 mm 1/8"		$\varnothing d_1$ 4.0 mm 5/32"		5.0 mm 3/16" - 7/32"		6.0 mm 1/4"		8.0 mm	
	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
	140	0.026	160	0.038	180	0.048	200	0.050	200	0.052	220	0.056	220	0.068
	140	0.025	160	0.036	180	0.044	200	0.048	200	0.050	220	0.054	220	0.066
	140	0.022	160	0.035	180	0.042	200	0.043	200	0.045	220	0.048	220	0.058
	140	0.026	160	0.038	180	0.046	200	0.048	200	0.050	220	0.055	220	0.062
	140	0.025	160	0.036	180	0.044	200	0.046	200	0.048	220	0.052	220	0.060
	140	0.025	160	0.036	180	0.044	200	0.046	200	0.048	220	0.052	220	0.060
	140	0.016	160	0.034	180	0.042	200	0.044	200	0.046	220	0.049	220	0.058
	120	0.026	140	0.032	160	0.043	180	0.054	180	0.056	200	0.058	200	0.070
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	190	0.029	210	0.040	230	0.060	250	0.062	250	0.064	270	0.068	270	0.084
	100	0.010	120	0.012	120	0.016	140	0.018	140	0.020	160	0.022	160	0.024
	100	0.022	120	0.032	120	0.042	140	0.044	140	0.046	160	0.048	160	0.054
	100	0.022	120	0.032	120	0.042	140	0.044	140	0.046	160	0.048	160	0.054
	100	0.010	120	0.012	120	0.016	140	0.018	140	0.020	160	0.022	160	0.024

NEW

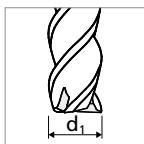
C型 - 侧铣 - 精加工

集成冷却铣削|切削参数概述

精加工



- $a_p = 2 \times d_1$
- $a_e = 0.02 - 0.05 \times d_1$



材料组别	材质	材料号	DIN	AISI/ASTM/UNS	1.0 mm	
					v_c	f_z
P	非合金碳钢 $R_m < 800 \text{ N/mm}^2$	1.0301	C10	AISI 1010	130	0.008
		1.0401	C15	AISI 1015		
		1.1191	C45E/CK45	AISI 1045		
		1.0044	S275JR	AISI 1020		
		1.0715	11SMn30	AISI 1215		
	低合金钢 $R_m > 900 \text{ N/mm}^2$	1.5752	15NiCr13	ASTM 3415 / AISI 3310	130	0.007
		1.7131	16MnCr5	AISI 5115		
		1.3505	100Cr6	AISI 52100		
		1.7225	42CrMo4	AISI 4140		
		1.2842	90MnCrV8	AISI O2		
	高合金工具钢 $R_m < 1200 \text{ N/mm}^2$	1.2379	X153CrMoV12	AISI D2	130	0.006
		1.2436	X210CrW12	AISI D4/D6		
		1.3343	HS6-5-2C	AISI M2 / UNS T11302		
		1.3355	HS18-0-1	AISI T1 / UNS T12001		
		M	铁素体不锈钢	1.4016		
1.4105	X6CrMoS17			AISI 430F		
马氏体不锈钢	1.4034		X46Cr13	AISI 420C	130	0.008
	1.4112		X90CrMoV18	AISI 440B		
马氏体不锈钢-沉淀硬化型	1.4542		X5CrNiCuNb16-4	AISI 630 / ASTM 17-4 PH	130	0.008
	1.4545		X5CrNiCuNb15-5	ASTM 15-5 PH		
奥氏体不锈钢	1.4301		X5CrNi18-10	AISI 304	130	0.006
	1.4435		X2CrNiMo18-14-3	AISI 316L		
	1.4441		X2CrNiMo18-15-3	AISI 316LM		
K	铸铁	0.6020	GG20	ASTM 30	110	0.006
		0.6030	GG30	ASTM 40B		
		0.7040	GGG40	ASTM 60-40-18		
		0.7060	GGG60	ASTM 80-60-03		
N	变形铝合金	3.2315	AlMgSi1	ASTM 6351	130	0.009
		3.4365	AlZnMgCu1.5	ASTM 7075		
	铸造铝合金	3.2163	GD-AlSi9Cu3	ASTM A380	130	0.009
		3.2381	GD-AlSi10Mg	UNS A03590		
	铜	2.0040	Cu-OF / CW008A	UNS C10100	130	0.010
		2.0065	Cu-ETP / CW004A	UNS C11000		
	无铅黄铜	2.0321	CuZn37 CW508L	UNS C27400	130	0.010
		2.0360	CuZn40 CW509L	UNS C28000		
	黄铜、青铜 $R_m < 400 \text{ N/mm}^2$	2.0401	CuZn39Pb3 / CW614N	UNS C38500	130	0.010
		2.1020	CuSn6	UNS C51900		
青铜 $R_m < 600 \text{ N/mm}^2$	2.0966	CuAl10Ni5Fe4	UNS C63000	130	0.009	
	2.0960	CuAl9Mn2	UNS C63200			
S ₁	超级合金	2.4856		Inconel 625	110	0.004
		2.4668		Inconel 718		
		2.4617	NiMo28	Hastelloy B-2		
		2.4665	NiCr22Fe18Mo	Hastelloy X		
S ₂	纯钛	3.7035	Gr.2	ASTM B348 / F67	110	0.008
		3.7065	Gr.4	ASTM B348 / F68		
S ₂	钛合金	3.7165	TiAl6V4	ASTM B348 / F136	110	0.008
		9.9367	TiAl6Nb7	ASTM F1295		
S ₃	钴铬合金	2.4964	CoCr20W15Ni	Haynes 25	110	0.004
			CrCoMo28	ASTM F1537		
H ₁	硬化钢<洛氏硬度55	1.2510	100MnCrMoW4	AISI O1		
H ₂	硬化钢≥洛氏硬度55	1.2379	X153CrMoV12	AISI D2		

v_c [m/min]
 f_z [mm]

使用推荐度

● 强烈推荐 | ○ 推荐 | ○ 可接受 | ⊗ 不推荐



	1.5 mm 1/16"		2.0 mm 3/32"		3.0 mm 1/8"		$\varnothing d_1$ 4.0 mm 5/32"		5.0 mm 3/16" - 7/32"		6.0 mm 1/4"		8.0 mm	
	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z	v_c	f_z
	180	0.012	200	0.017	210	0.023	220	0.025	220	0.028	220	0.033	220	0.042
	180	0.011	200	0.016	210	0.022	220	0.024	220	0.026	220	0.029	220	0.038
	180	0.010	200	0.015	210	0.020	220	0.021	220	0.023	220	0.025	220	0.034
	180	0.012	200	0.017	210	0.022	220	0.024	220	0.026	220	0.029	220	0.036
	180	0.011	200	0.016	210	0.022	220	0.023	220	0.025	220	0.028	220	0.037
	180	0.011	200	0.016	210	0.022	220	0.023	220	0.025	220	0.028	220	0.037
	180	0.008	200	0.015	210	0.020	220	0.022	220	0.024	220	0.026	220	0.035
	130	0.012	150	0.014	160	0.022	170	0.025	170	0.029	170	0.031	200	0.040
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	220	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	220	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	220	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	220	0.045
	180	0.013	200	0.018	210	0.029	220	0.030	220	0.033	220	0.036	220	0.045
	120	0.005	130	0.005	130	0.008	140	0.010	140	0.011	150	0.012	150	0.021
	120	0.010	130	0.014	130	0.020	140	0.022	140	0.024	150	0.026	150	0.035
	120	0.010	130	0.014	130	0.020	140	0.022	140	0.024	150	0.026	150	0.035
	120	0.005	130	0.005	130	0.008	140	0.010	140	0.011	150	0.012	150	0.021

NEW

工艺

精确、高效铣削

冷却剂类型、压力和过滤

冷却剂：为实现最佳效果、Mikron Tool建议使用切削油作为冷却剂。或者可选用8%或更高带有极压添加剂的乳剂、效果也不错。

过滤器：冷却通道较大、可使用过滤质量不超过0.05 mm的标准过滤器。

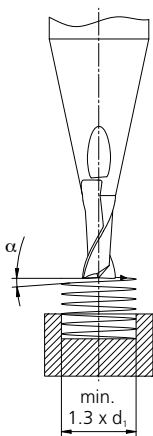
冷却剂压力：为了保证铣削的可靠性、冷却剂压力至少应为15 bar。一般而言、压力越高、越有利于提高冷却和排屑效果。

创新	[rpm]	≤ 10'000	> 10'000
最低压力	[bar]	15	30

刀柄

为了发挥刀具性能、米克朗刀具首推液压刀柄、也可选用热胀刀柄。更多关于刀柄系统的相关内容请参考我们主样本的"技术信息"。

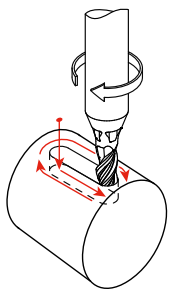
坡铣和螺旋铣的最大坡铣角度



材质		α - 坡铣	α - 螺旋角度
P	非合金碳钢	45°	47°
	低合金钢	45°	47°
	高合金工具钢	27°	28°
M	铁素体不锈钢	45°	47°
	马氏体不锈钢	27°	28°
	马氏体不锈钢-沉淀硬化型	27°	28°
	奥氏体不锈钢	45°	47°
K	铸铁	45°	47°
N	变形铝合金	45°	47°
	铸造铝合金	45°	47°
	铜	45°	47°
	无铅黄铜	45°	47°
	黄铜、青铜 Rm < 400 N/mm ²	45°	47°
	青铜 Rm < 600 N/mm ²	45°	47°
S ₁	超级合金	14°	15°
S ₂	纯钛 和 钛合金	14°	15°
S ₃	钴铬合金	27°	28°

铣削工艺

A. 键槽铣削 - 仅适用于A型

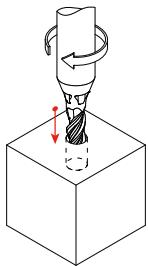


米克朗刀具建议通过3步加工来保证槽公差:

- 1. 插铣或坡铣
- 2. 槽铣
- 3. 侧铣 (精铣)

米克朗刀具一般推荐省时省空间的插铣 (垂直)、也可选择坡铣。

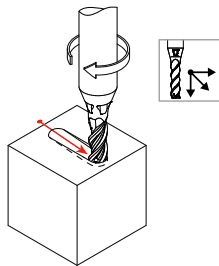
1. 插铣



当使用插铣时、铣出的直径约比相应钻头加工直径大0.05mm 与刀具的直径相比。
最大切深2.5倍径 (深度净给、最大 $1 \times d_1$)。
进给 $f_{z,p}$ 请参考插铣参数表 (第16页)。

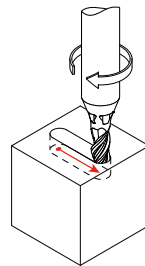
或

坡铣



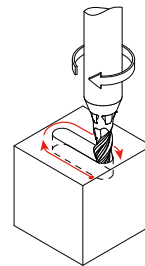
最大坡铣角 α 取决于材料且不能过切 (见左表)。
进给 $f_{z,s}$ 请参考键槽铣参数表 (第16页)。

2. 槽铣



请注意: 在槽铣之后要进行精加工。进给 $f_{z,s}$ 请参考槽铣参数表 (第16页)。对应刀具选型 (直径) 请参考 "刀具选型" (第38页)。

3. 侧铣

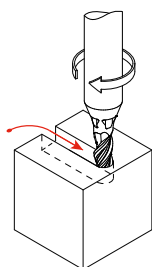


如有公差和平面度要求时、需要进行精加工。

NEW

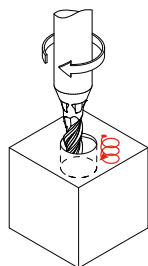
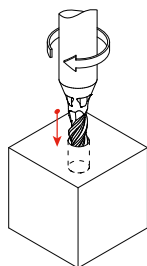
工艺

B. 开槽铣



开槽铣时可使用最大参数、请参考切削参数第18頁 / 第28頁。

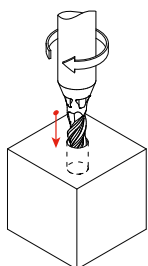
C. 插铣



使用 CrazyMill Cool P&S、插铣（钻）可用两种方式：

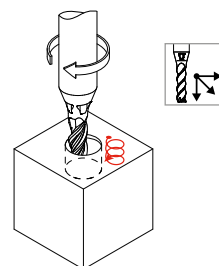
- 1. 直接插铣
- 2. 螺旋插补铣

1. 直接插铣



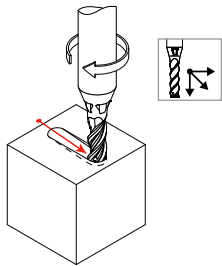
当使用插铣时、铣出的直径约比相应钻头加工直径大0.05mm与刀具的直径相比。
最大切深2.5倍径 - A型 / 5倍径 - C型
(深度净给、最大 $1 \times d_1$) 进给 $f_{z,p}$ 请参考插铣参数表 (第16頁 / 第26頁)。

2. 螺旋插补铣



最大坡铣角 α 取决于材料且不能过切 (请参阅第34頁)。进给 $f_{z,s}$ 请参考键槽铣铣参数表 (第16頁 / 第26頁)。
注意：最小孔径为： $d_{孔} = 1.3 \times d_{工具}$

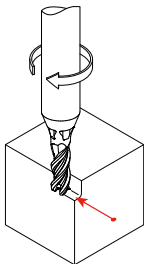
D. 坡铣



最大坡铣角 α 取决于材料且不能过切（请参阅第34页）。
进给 f_z, s 请参考键槽铣铣参数表（第16页 / 第26页）。

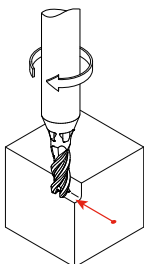
E. 侧铣

半精加工



建议切削参数
 v_c 和 f_z = 按切削参数表中的规定
 $a_p = 1 - 2$ 倍径
A型: $a_e = 0.2$ 倍径
C型: $a_e = 0.1$ 倍径

精加工



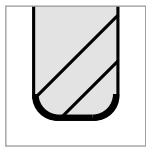
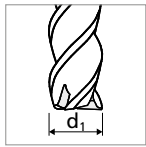
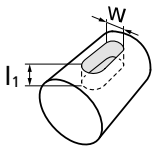
建议切削参数
 v_c 和 f_z = 按切削参数表中的规定
A型: $a_p = 2.5$ 倍径、 $a_e = 0.05 - 0.10$ 倍径、取决于要求的表面质量
C型: $a_p = 2$ 倍径、 $a_e = 0.02 - 0.05$ 倍径、取决于要求的表面质量

NEW

CrazyMill Cool P&S 工艺

键槽铣的最佳刀具 - 仅适用于A型

刀号选择



w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号
1.1		1.0	2.50	0.10	2.CMC42.A2Z3.100.1
		1.0	2.50	0.20	2.CMC42.A3Z3.100.1
1.2		1.0	2.50	0.10	2.CMC42.A2Z3.100.1
		1.0	2.50	0.20	2.CMC42.A3Z3.100.1
		1.1	2.75	0.10	2.CMC42.A2Z3.110.1
		1.1	2.75	0.20	2.CMC42.A3Z3.110.1
1.3		1.1	2.75	0.10	2.CMC42.A2Z3.110.1
		1.1	2.75	0.20	2.CMC42.A3Z3.110.1
		1.2	3.00	0.10	2.CMC42.A2Z3.120.1
		1.2	3.00	0.20	2.CMC42.A3Z3.120.1
1.4		1.2	3.00	0.10	2.CMC42.A2Z3.120.1
		1.2	3.00	0.20	2.CMC42.A3Z3.120.1
		1.3	3.25	0.10	2.CMC42.A2Z3.130.1
1.5		1.3	3.25	0.10	2.CMC42.A2Z3.130.1
		1.3	3.25	0.20	2.CMC42.A3Z3.130.1
		1.4	3.50	0.10	2.CMC42.A2Z3.140.1
1.587	1/16	1.4	3.50	0.10	2.CMC42.A2Z3.140.1
		1.4	3.50	0.20	2.CMC42.A3Z3.140.1
		1.5	3.75	0.10	2.CMC42.A2Z3.150.1
		1.5	3.75	0.30	2.CMC42.A3Z3.150.1
1.6		1.4	3.50	0.10	2.CMC42.A2Z3.140.1
		1.4	3.50	0.20	2.CMC42.A3Z3.140.1
		1.5	3.75	0.10	2.CMC42.A2Z3.150.1
		1.5	3.75	0.30	2.CMC42.A3Z3.150.1
1.7		1.5	3.75	0.10	2.CMC42.A2Z3.150.1
		1.5	3.75	0.30	2.CMC42.A3Z3.150.1
		1/16	3.97	0.127	2.CMC.PSRA2Z3.F116
		1/16	3.97	0.254	2.CMC.PSRA3Z3.F116
		1.6	4.00	0.10	2.CMC42.A2Z3.160.1
1.8		1.6	4.00	0.30	2.CMC42.A3Z3.160.1
		1.5	3.75	0.10	2.CMC42.A2Z3.150.1
		1.5	3.75	0.30	2.CMC42.A3Z3.150.1
		1/16	3.97	0.127	2.CMC.PSRA2Z3.F116
		1/16	3.97	0.254	2.CMC.PSRA3Z3.F116
1.9		1.6	4.00	0.10	2.CMC42.A2Z3.160.1
		1.6	4.00	0.30	2.CMC42.A3Z3.160.1
		1.7	4.25	0.10	2.CMC42.A2Z3.170.1
		1.7	4.25	0.30	2.CMC42.A3Z3.170.1
2.0		1.7	4.25	0.10	2.CMC42.A2Z3.170.1
		1.7	4.25	0.30	2.CMC42.A3Z3.170.1
		1.8	4.50	0.10	2.CMC42.A2Z3.180.1
2.1		1.8	4.50	0.10	2.CMC42.A2Z3.180.1
		1.8	4.50	0.30	2.CMC42.A3Z3.180.1
		1.9	4.75	0.10	2.CMC42.A2Z3.190.1
		1.9	4.75	0.30	2.CMC42.A3Z3.190.1
2.2		1.9	4.75	0.10	2.CMC42.A2Z3.190.1
		1.9	4.75	0.30	2.CMC42.A3Z3.190.1
		2.0	5.00	0.10	2.CMC42.A2Z3.200.1
		2.0	5.00	0.20	2.CMC42.A3Z3.200.1
2.2		2.0	5.00	0.50	2.CMC42.A4Z3.200.1
		2.0	5.00	0.20	2.CMC42.A3Z3.200.1

w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号
2.3		2.0	5.00	0.10	2.CMC42.A2Z3.200.1
		2.0	5.00	0.20	2.CMC42.A3Z3.200.1
		2.0	5.00	0.50	2.CMC42.A4Z3.200.1
		2.1	5.25	0.20	2.CMC42.A2Z3.210.1
		2.1	5.25	0.50	2.CMC42.A3Z3.210.1
2.381	3/32	2.0	5.00	0.10	2.CMC42.A2Z3.200.1
		2.0	5.00	0.20	2.CMC42.A3Z3.200.1
		2.0	5.00	0.50	2.CMC42.A4Z3.200.1
		2.1	5.25	0.20	2.CMC42.A2Z3.210.1
		2.1	5.25	0.50	2.CMC42.A3Z3.210.1
		2.1	5.25	0.50	2.CMC42.A3Z3.210.1
		2.2	5.50	0.50	2.CMC42.A3Z3.220.1
2.4		2.0	5.00	0.10	2.CMC42.A2Z3.200.1
		2.0	5.00	0.20	2.CMC42.A3Z3.200.1
		2.0	5.00	0.50	2.CMC42.A4Z3.200.1
		2.1	5.25	0.20	2.CMC42.A2Z3.210.1
		2.1	5.25	0.50	2.CMC42.A3Z3.210.1
		2.2	5.50	0.20	2.CMC42.A2Z3.220.1
		2.2	5.50	0.50	2.CMC42.A3Z3.220.1
2.5		2.1	5.25	0.20	2.CMC42.A2Z3.210.1
		2.1	5.25	0.50	2.CMC42.A3Z3.210.1
		2.2	5.50	0.20	2.CMC42.A2Z3.220.1
		2.2	5.50	0.50	2.CMC42.A3Z3.220.1
		2.3	5.75	0.20	2.CMC42.A2Z3.230.1
		2.3	5.75	0.50	2.CMC42.A3Z3.230.1
		2.2	5.50	0.20	2.CMC42.A2Z3.220.1
2.6		2.2	5.50	0.50	2.CMC42.A3Z3.220.1
		2.3	5.75	0.20	2.CMC42.A2Z3.230.1
		2.3	5.75	0.50	2.CMC42.A3Z3.230.1
		3/32	5.95	0.127	2.CMC.PSRA2Z3.F332
		3/32	5.95	0.254	2.CMC.PSRA3Z3.F332
		3/32	5.95	0.381	2.CMC.PSRA4Z3.F332
		2.4	6.00	0.20	2.CMC42.A2Z3.240.1
2.7		2.4	6.00	0.50	2.CMC42.A3Z3.240.1
		2.3	5.75	0.20	2.CMC42.A2Z3.230.1
		2.3	5.75	0.50	2.CMC42.A3Z3.230.1
		3/32	5.95	0.127	2.CMC.PSRA2Z3.F332
		3/32	5.95	0.254	2.CMC.PSRA3Z3.F332
		3/32	5.95	0.381	2.CMC.PSRA4Z3.F332
		2.4	6.00	0.20	2.CMC42.A2Z3.240.1
2.8		2.4	6.00	0.50	2.CMC42.A3Z3.240.1
		2.5	6.25	0.20	2.CMC42.A2Z3.250.1
		2.5	6.25	0.50	2.CMC42.A3Z3.250.1
		2.4	6.00	0.20	2.CMC42.A2Z3.240.1
		2.4	6.00	0.50	2.CMC42.A3Z3.240.1
		2.5	6.25	0.20	2.CMC42.A2Z3.250.1
		2.5	6.25	0.50	2.CMC42.A3Z3.250.1
2.9		2.6	6.50	0.20	2.CMC42.A2Z3.260.1
		2.6	6.50	0.50	2.CMC42.A3Z3.260.1
		2.5	6.25	0.20	2.CMC42.A2Z3.250.1
		2.5	6.25	0.50	2.CMC42.A3Z3.250.1
		2.6	6.50	0.20	2.CMC42.A2Z3.260.1
2.9		2.6	6.50	0.50	2.CMC42.A3Z3.260.1
		2.7	6.75	0.20	2.CMC42.A2Z3.270.1
		2.7	6.75	0.50	2.CMC42.A3Z3.270.1

w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号
3.0		2.6	6.50	0.20	2.CMC42.A2Z3.260.1
		2.6	6.50	0.50	2.CMC42.A3Z3.260.1
		2.7	6.75	0.20	2.CMC42.A2Z3.270.1
		2.7	6.75	0.50	2.CMC42.A3Z3.270.1
		2.8	7.00	0.20	2.CMC42.A2Z3.280.1
3.1		2.8	7.00	0.50	2.CMC42.A3Z3.280.1
		2.6	6.50	0.20	2.CMC42.A2Z3.260.1
		2.6	6.50	0.50	2.CMC42.A3Z3.260.1
		2.7	6.75	0.20	2.CMC42.A2Z3.270.1
		2.7	6.75	0.50	2.CMC42.A3Z3.270.1
		2.8	7.00	0.20	2.CMC42.A2Z3.280.1
		2.8	7.00	0.50	2.CMC42.A3Z3.280.1
3.175	1/8	2.9	7.25	0.20	2.CMC42.A2Z3.290.1
		2.9	7.25	0.50	2.CMC42.A3Z3.290.1
		2.7	6.75	0.20	2.CMC42.A2Z3.270.1
		2.7	6.75	0.50	2.CMC42.A3Z3.270.1
		2.8	7.00	0.20	2.CMC42.A2Z3.280.1
3.2		2.8	7.00	0.50	2.CMC42.A3Z3.280.1
		2.9	7.25	0.20	2.CMC42.A2Z3.290.1
		2.9	7.25	0.50	2.CMC42.A3Z3.290.1
		3.0	7.50	0.20	2.CMC42.A2Z3.300.1
		3.0	7.50	0.50	2.CMC42.A3Z3.300.1
		2.8	7.00	0.20	2.CMC42.A2Z3.280.1
		2.8	7.00	0.50	2.CMC42.A3Z3.280.1
3.3		2.9	7.25	0.20	2.CMC42.A2Z3.290.1
		2.9	7.25	0.50	2.CMC42.A3Z3.290.1
		3.0	7.50	0.20	2.CMC42.A2Z3.300.1
		3.0	7.50	0.50	2.CMC42.A3Z3.300.1
		3.1	7.75	0.20	2.CMC42.A2Z3.310.1
3.4		3.1	7.75	0.50	2.CMC42.A3Z3.310.1
		2.9	7.25	0.20	2.CMC42.A2Z3.290.1
		2.9	7.25	0.50	2.CMC42.A3Z3.290.1
		3.0	7.50	0.20	2.CMC42.A2Z3.300.1
		3.0	7.50	0.50	2.CMC42.A3Z3.300.1
3.5		3.1	7.75	0.20	2.CMC42.A2Z3.310.1
		3.1	7.75	0.50	2.CMC42.A3Z3.310.1
		1/8	7.94	0.254	2.CMC.PSRA2Z3.F18
		1/8	7.94	0.381	2.CMC.PSRA3Z3.F18
		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1
		3.0	7.50	0.20	2.CMC42.A2Z3.300.1
3.6		3.0	7.50	0.50	2.CMC42.A3Z3.300.1
		3.1	7.75	0.20	2.CMC42.A2Z3.310.1
		3.1	7.75	0.50	2.CMC42.A3Z3.310.1
		1/8	7.94	0.254	2.CMC.PSRA2Z3.F18
		1/8	7.94	0.381	2.CMC.PSRA3Z3.F18
		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1

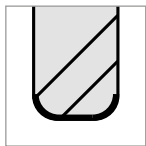
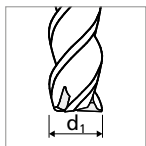
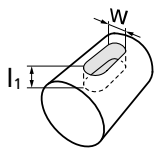
w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号
3.7		3.1	7.75	0.20	2.CMC42.A2Z3.310.1
		3.1	7.75	0.50	2.CMC42.A3Z3.310.1
		1/8	7.94	0.254	2.CMC.PSRA2Z3.F18
		1/8	7.94	0.381	2.CMC.PSRA3Z3.F18
		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1
3.8		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1
3.9		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1
		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
3.968	5/32	3.7	9.25	0.50	2.CMC42.A3Z3.370.1
		3.3	8.25	0.20	2.CMC42.A2Z3.330.1
		3.3	8.25	0.50	2.CMC42.A3Z3.330.1
4.0		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
		3.7	9.25	0.50	2.CMC42.A3Z3.370.1
4.1		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
		3.7	9.25	0.50	2.CMC42.A3Z3.370.1
4.2		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
		3.7	9.25	0.50	2.CMC42.A3Z3.370.1
		5/32	9.92	0.254	2.CMC.PSRA2Z3.F532
		5/32	9.92	0.381	2.CMC.PSRA3Z3.F532
		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
4.3		4.0	10.00	0.50	2.CMC42.A3Z3.400.1
		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
		3.7	9.25	0.50	2.CMC42.A3Z3.370.1
		5/32	9.92	0.254	2.CMC.PSRA2Z3.F532
		5/32	9.92	0.381	2.CMC.PSRA3Z3.F532
4.4		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
		4.0	10.00	0.50	2.CMC42.A3Z3.400.1
		3.7	9.25	0.20	2.CMC42.A2Z3.370.1
		3.7	9.25	0.50	2.CMC42.A3Z3.370.1
		5/32	9.92	0.254	2.CMC.PSRA2Z3.F532
4.5		5/32	9.92	0.381	2.CMC.PSRA3Z3.F532
		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
		4.0	10.00	0.50	2.CMC42.A3Z3.400.1
		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
4.6		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
		4.0	10.00	0.50	2.CMC42.A3Z3.400.1
		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
4.7		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
		4.0	10.00	0.50	2.CMC42.A3Z3.400.1
		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
4.762	3/16	4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
4.8		4.0	10.00	0.20	2.CMC42.A2Z3.400.1
		4.0	10.00	0.50	2.CMC42.A3Z3.400.1

NEW

CrazyMill Cool P&S 工艺

键槽铣的最佳刀具 - 仅适用于A型

刀号选择



w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号
4.9		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
5.0		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1
5.1		4.3	10.75	0.20	2.CMC42.A2Z3.430.1
		4.3	10.75	0.50	2.CMC42.A3Z3.430.1
		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1
5.2		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1
		5.0	12.50	0.20	2.CMC42.A2Z3.500.1
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1
5.3		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1
5.4		5.0	12.50	0.20	2.CMC42.A2Z3.500.1
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1
		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316
5.5		4.8	12.00	0.20	2.CMC42.A2Z3.480.1
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1
		5.0	12.50	0.20	2.CMC42.A2Z3.500.1
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1

w 槽 [mm]	w 槽 [inch]	d ₁ 工具 [mm][inch]	l _{1,max} [mm]	r [mm][inch]	项目编号		
5.560	7/32	4.7	11.75	0.20	2.CMC42.A2Z3.470.1		
		4.7	11.75	0.50	2.CMC42.A3Z3.470.1		
		3/16	11.91	0.254	2.CMC.PSRA2Z3.F316		
		3/16	11.91	0.381	2.CMC.PSRA3Z3.F316		
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1		
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1		
		5.0	12.50	0.20	2.CMC42.A2Z3.500.1		
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1		
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		5.6		4.7	11.75	0.20	2.CMC42.A2Z3.470.1
				4.7	11.75	0.50	2.CMC42.A3Z3.470.1
3/16	11.91			0.254	2.CMC.PSRA2Z3.F316		
3/16	11.91			0.381	2.CMC.PSRA3Z3.F316		
4.8	12.00			0.20	2.CMC42.A2Z3.480.1		
4.8	12.00			0.50	2.CMC42.A3Z3.480.1		
5.7		5.0	12.50	0.20	2.CMC42.A2Z3.500.1		
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1		
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		4.8	12.00	0.20	2.CMC42.A2Z3.480.1		
		4.8	12.00	0.50	2.CMC42.A3Z3.480.1		
5.8		5.0	12.50	0.20	2.CMC42.A2Z3.500.1		
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1		
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		5.0	12.50	0.20	2.CMC42.A2Z3.500.1		
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1		
5.9		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		7/32	13.90	0.381	2.CMC.PSRA2Z3.F732		
		7/32	13.90	0.762	2.CMC.PSRA3Z3.F732		
		5.7	14.25	0.20	2.CMC42.A2Z3.570.1		
		5.7	14.25	0.50	2.CMC42.A3Z3.570.1		
6.0		5.0	12.50	0.20	2.CMC42.A2Z3.500.1		
		5.0	12.50	0.50	2.CMC42.A3Z3.500.1		
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		7/32	13.90	0.381	2.CMC.PSRA2Z3.F732		
		7/32	13.90	0.762	2.CMC.PSRA3Z3.F732		
6.1		5.7	14.25	0.20	2.CMC42.A2Z3.570.1		
		5.7	14.25	0.50	2.CMC42.A3Z3.570.1		
		5.3	13.25	0.20	2.CMC42.A2Z3.530.1		
		5.3	13.25	0.50	2.CMC42.A3Z3.530.1		
		7/32	13.90	0.381	2.CMC.PSRA2Z3.F732		
		7/32	13.90	0.762	2.CMC.PSRA3Z3.F732		

CrazyMill Cool P&S 倒角 - Z3



已可获得: 倒角型



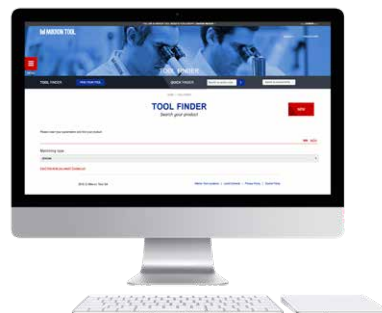
该产品已完全进入市场。由于其特殊的特点、因此对于需要加工难以加工的材料（如不锈钢、钛、钴铬合金及超级合金）的客户而言、可带来极大的益处。设计的切削刃在加工时具有和圆角半径型相同的优点。该立铣刀可垂直插入材料、非常适合铣削占据空间极小的槽、型腔和侧面。

优势

- 加工时间短 | 短达普通钻头的五分之一
- 刀具使用寿命长 | 长达普通钻头的5倍
- 工艺可靠性高 | 归因于较大的冷却剂流量
- 精度高 | 归因于特殊的切削几何形状

项目表、加工工艺与切削参数

对于倒角型、请参考ToolBook 2020的第540页以及在我们的网站上www.mikrontool.com、以了解项目表、加工工艺与切削参数的所有细节。



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