

硬质合金铣刀目录 INDEX OF CARBIDE END MILLS

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 形状別目录


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 硬质合金铣刀目录
 INDEX OF CARBIDE END MILLS

页码 Page	形状 Appearance	产品记号 Abbreviation	式样 Specification	表面处理 Surface Treatment	库存尺寸 Stocked Sizes	含钴 Cobalt
石墨加工用金刚石涂层硬质合金系列 石墨加工专用的DIA涂层铣刀。 Diamond Coated Carbide Series for Graphite						
317		DG-LN-EMS	4刃 石墨用 长颈短刃型 4 Flutes Long Neck Short for Graphite	DG	1 6	○
332		DG-EBD	2刃 石墨用 球头型 2 Flutes Ball-end for Graphite	DG	R2 R6	○
335		DG-EBM	4刃 石墨用 球头型 4 Flutes Ball-end for Graphite	DG	R2 R5	○
353		DG-LN-EBD	2刃 石墨用 长颈球头型 2 Flutes Long Neck Ball-end for Graphite	DG	R0.2 R2	○
354		DG-LN-EBM	4刃 石墨用 长颈球头型 4 Flutes Long Neck Ball-end for Graphite	DG	R1 R1.5	○
406		DG-CPR	2刃 4刃 石墨用 长颈·长颈圆弧角短刃型 2 Flutes/4 Flutes Long Neck/Pencil Neck Short with Corner Radius for Graphite		0.5 12	○
石墨用系列 石墨加工专用的铣刀系列，其中DIA涂层的产品可在石墨加工中抑制磨损，大幅提高工具寿命。 Regular Grain Carbide Series for Graphite						
387		DIA-LS-CRED	石墨用 2刃 圆弧角长柄型 2 Flutes Long Shank with Corner Radius for Graphite	DIA	5 11	○
硬质合金MG系列 Uncoated Micro Grain Carbide Series						
276 277		MG-EDS	2刃 短刃型 2 Flutes Short		1 25	○
277		MG-EDS OH1	2刃短刃型(OH1) 2 Flutes Short (OH1)		1 12	○
275		MG-EDS-3	2刃 小径短刃型 2 Flutes Short Miniature (φ3 shank)		0.1 3	○

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硬质合金MG系列

Uncoated Micro Grain Carbide Series

282		MG-EDN	2刃 中刃型 2 Flutes Medium		3 12	○
285		MG-EDL	2刃 长刃型 2 Flutes Long		2.5 25	○
285		MG-EXDL	2刃 超长刃型 2 Flutes Extra Long		3 20	○
325 327		MG-EBD	2刃 球头型 2 Flutes Ball-end		R0.4 R12.5	○
293		MG-EMS	4刃 短刃型 4 Flutes Short		2 25	○
296		MG-EML	4刃 长刃型 4 Flutes Long		2.5 25	○
296		MG-EXML	4刃 超长刃型 4 Flutes Extra Long		3 20	○
278		MG-EKD	2刃 键槽型 (OH1、OL1) 2 Flutes for Key Way		3 12	○
417		MG-TRC	梯形铣刀 (2刃) Trapezoidal Runner Cutter (2 Flutes)		2 6	○
282		MG-STDN	2刃 直刃成型用 2 Flutes Straight Reforming		1 12	○

CBN系列

CBN Endmill Series

刃尖采用CBN烧结体的铣刀系列，优秀的耐热性和耐磨性在碳素钢、合金钢以及淬火钢等材质的加工中，可实现超高速加工。并通过工具磨损的抑制达到长时间的高精度断续加工。

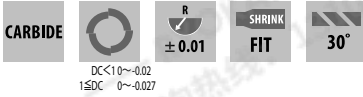
328 329		CBN-SXB	2刃 球头型 2 Flutes Ball-end		R0.2 R1.5	○
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DG涂层 石墨用2刃·4刃 长颈型

DG Coated-2 Flutes/4 Flutes-Long Neck-for Graphite

DG-CPR

切削条件 Cutting Conditions P620



(单位:mm) (Unit:mm)

商品号 EDP No.	外径 × 球半径 × 颈锥半角 × 颈长 DC × RE × θ_n × LU	外径 DC	球半径 RE	颈长 LU	刃长 APMX	颈径 DN	刃尖至柄部的有效长度(参考值) L ₂	刃数 ZEFP	柄径 DCON	全长 LF	库存 Stock	重量 (g)			
8554511	0.5 × R0.1 × 0° × 4	0.5	0.1	4	0.9	0.44	10.98	2	4	50	●	14			
8554512	0.5 × R0.1 × 0° × 6			6			12.98				●	14			
8554513	0.5 × R0.1 × 0° × 8			8			14.98				●	14			
8554514	0.5 × R0.1 × 0° × 10			10			16.98				●	14			
8554515	0.5 × R0.1 × 0° × 15			15			21.98				●	14			
8554516	0.5 × R0.1 × 0° × 20			20			26.98				●	14			
8554521	1 × R0.2 × 0° × 6	1	0.2	6	1.5	0.93	12.05			50	●	14			
8554522	1 × R0.2 × 0° × 10			10			16.05				●	14			
8554523	1 × R0.2 × 0° × 16			16			22.05				●	14			
8554524	1 × R0.2 × 0° × 20			20			26.05				●	14			
8554525	1 × R0.2 × 0° × 30			30			36.05				●	16			
8554526	1 × R0.2 × 0° × 40			40			46.05				●	14			
8554531	1.5 × R0.2 × 0° × 6	1.5	0.2	6	2.3	1.41	11.07	60	●	14					
8554532	1.5 × R0.2 × 0° × 10			10			15.07		●	14					
8554533	1.5 × R0.2 × 0° × 20			20			25.07		●	14					
8554534	1.5 × R0.2 × 0° × 30			30			35.07		●	17					
8554535	1.5 × R0.2 × 0° × 40			40			45.07		●	17					
8554541	2 × R0.2 × 0° × 6			2			0.2		6	3	1.87	10.35	70	●	18
8554542	2 × R0.2 × 0° × 10	10	14.35		●	18									
8554543	2 × R0.2 × 0° × 16	16	20.35		●	18									
8554544	2 × R0.2 × 0° × 20	20	24.35		●	18									
8554545	2 × R0.2 × 0° × 40	40	44.35		●	19									
8554546	2 × R0.2 × 0° × 60	60	64.35		●	16									
8554561	3 × R0.2 × 0° × 10	3	0.2	10	4.5	2.87	12.48	80	●	12					
8554562	3 × R0.2 × 0° × 16			16			18.48		●	12					
8554563	3 × R0.2 × 0° × 20			20			22.48		●	12					
8554564	3 × R0.2 × 0° × 40			40			42.48		●	14					
8554581	4 × R0.2 × 0° × 40			4			0.2		40	6	3.87	—	120	●	17
8554582	4 × R0.2 × 0° × 60								60			—		●	27
8554621	6 × R0.5 × 0° × 30	6	0.5	30	8	7.57	—	6	100	●	45				
8554622	6 × R1 × 0° × 30		1				—			●	45				
8554661	8 × R0.5 × 0° × 32	8	0.5	32	10	9.47	—	8	125	●	76				
8554662	8 × R1 × 0° × 32		1				—			●	76				
8554701	10 × R0.5 × 0° × 40	10	0.5	40	12	11.37	—	12	150	●	145				
8554702	10 × R1 × 0° × 40		1				—			●	145				
8554721	12 × R0.5 × 0° × 48	12	0.5	48	—	—	—	—	—	●	248				
8554722	12 × R1 × 0° × 48		1				—			●	249				

加工材料 Work Material	碳钢 Carbon Steel	合金钢 Alloy Steel	预硬钢 Prehardened Steel	不锈钢 Stainless Steel	铸铁 Cast Iron	铜合金 Copper Alloy	铝合金 Aluminum Alloy	石墨 Graphite	钛合金 Titanium Alloy	耐热合金 Heat Resistant Alloy	塑料 Plastic
商品记号 Abbreviation	预硬钢 Prehardened Steel	工具钢 Tool Steel	淬火钢 Hardened Steel	~40HRC	~45HRC ~55HRC ~60HRC ~65HRC	~35HRC	~350HB				
DG-CPR								○	◎		

库存标识 Inventory symbols

● = 标准库存品
standard stock item

▲ = 由新产品及后续产品取代 (请确认库存)
Scheduled to be replaced by new product or successor item

□ = 特定代理店库存品
Stocked by specific distributors. Contact us for price & availability.

硬质合金铣刀
CARBIDE END MILLS

高速钢铣刀
HSS END MILLS

可转位铣刀
INDEXABLE TOOL

GHEBROUWETS
钻头/钻头

索引
INDEX

CARBIDE SQUARE
硬质合金平头铣刀

CARBIDE LONG
NECK SQUARE
硬质合金长颈型
平头铣刀

CARBIDE BALL NOSE
硬质合金球头
铣刀

CARBIDE BALL NOSE
WITH LONG NECK
硬质合金长颈型
球头铣刀

CARBIDE PENCIL
NECK BALL NOSE
硬质合金锥颈型
球头铣刀

CARBIDE CORNER RADIUS
硬质合金圆弧
R角铣刀

CARBIDE ROUGHING
硬质合金波纹
铣刀

CARBIDE TAPER
硬质合金锥形
铣刀

CARBIDE
COUNTERBORING
硬质合金沉孔
铣刀

CARBIDE CHAMFERING
硬质合金倒角
铣刀

ROUTER FOR CFRP
CFRP用铣刀

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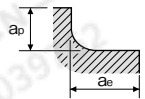
CUTTING CONDITIONS FOR CARBIDE END MILLS 硬质合金铣刀切削条件基准表

DG涂层石墨用2刃/4刃长颈·锥颈 圆弧角型 DG-CPR
DG COATED 2/4 FLUTES LONG NECK·PENCIL NECK WITH CORNER RADIUS FOR GRAPHITE

加工材料 Work Material	石墨 Graphite													
	粗加工 Roughing					精加工 Finishing								
	转速 (min ⁻¹)		进给速度 (mm/min)			切深量 (mm)		转速 (min ⁻¹)		进给速度 (mm/min)			切深量 (mm)	
外径×球半径×颈部锥半角×颈长 DC×REXθn×LU	短 Short	长 Long	短 Short	长 Long	短 Short	长 Long	短 Short	长 Long	短 Short	长 Long	短 Short	长 Long	短 Short	长 Long
	0.5 × R0.1 × 0° × 4	20,000	~ 16,000	720	~ 575	0.05	0.24	20,000	~ 16,000	600	~ 480	0.05	0.12	
0.5 × R0.1 × 0° × 6	20,000	~ 16,000	720	~ 575	0.05	0.24	20,000	~ 16,000	600	~ 480	0.05	0.12		
0.5 × R0.1 × 0° × 8	18,000	~ 14,000	650	~ 505	0.05	0.18	18,000	~ 14,000	540	~ 420	0.05	0.12		
0.5 × R0.1 × 0° × 10	16,000	~ 12,000	575	~ 430	0.04	0.15	16,000	~ 12,000	480	~ 360	0.04	0.1		
0.5 × R0.1 × 0° × 15	11,000	~ 9,000	395	~ 325	0.03	0.12	11,000	~ 9,000	330	~ 270	0.03	0.08		
0.5 × R0.1 × 0° × 20	11,000	~ 8,000	395	~ 290	0.03	0.09	11,000	~ 8,000	330	~ 240	0.03	0.06		
1 × R0.2 × 0° × 6	16,000	~ 12,000	1,150	~ 865	0.12	0.48	16,000	~ 12,000	960	~ 720	0.08	0.24		
1 × R0.2 × 0° × 10	16,000	~ 12,000	1,150	~ 865	0.1	0.48	16,000	~ 12,000	960	~ 720	0.08	0.24		
1 × R0.2 × 0° × 16	14,000	~ 11,000	1,000	~ 790	0.1	0.43	14,000	~ 11,000	840	~ 660	0.08	0.24		
1 × R0.2 × 0° × 20	12,000	~ 8,000	865	~ 575	0.1	0.4	12,000	~ 8,000	720	~ 480	0.08	0.2		
1 × R0.2 × 0° × 30	9,000	~ 7,000	650	~ 505	0.08	0.36	9,000	~ 7,000	540	~ 420	0.06	0.18		
1 × R0.2 × 0° × 40	9,000	~ 7,000	650	~ 505	0.06	0.3	9,000	~ 7,000	540	~ 420	0.06	0.15		
1.5 × R0.2 × 0° × 6	16,000	~ 13,000	1,450	~ 1,100	0.17	0.88	16,000	~ 13,000	1,200	~ 910	0.08	0.44		
1.5 × R0.2 × 0° × 10	16,000	~ 13,000	1,450	~ 1,100	0.12	0.88	16,000	~ 13,000	1,200	~ 910	0.08	0.44		
1.5 × R0.2 × 0° × 20	14,000	~ 11,000	1,200	~ 925	0.1	0.88	14,000	~ 11,000	980	~ 770	0.08	0.44		
1.5 × R0.2 × 0° × 30	12,000	~ 8,000	1,000	~ 670	0.08	0.88	12,000	~ 8,000	840	~ 560	0.06	0.38		
1.5 × R0.2 × 0° × 40	10,000	~ 7,000	925	~ 590	0.08	0.7	10,000	~ 7,000	770	~ 490	0.06	0.32		
2 × R0.2 × 0° × 6	16,000	~ 12,000	2,050	~ 1,500	0.3	1.28	16,000	~ 12,000	1,450	~ 1,100	0.08	0.64		
2 × R0.2 × 0° × 10	16,000	~ 12,000	2,050	~ 1,500	0.3	1.28	16,000	~ 12,000	1,450	~ 1,100	0.08	0.64		
2 × R0.2 × 0° × 16	13,000	~ 9,000	1,650	~ 1,150	0.2	1.28	13,000	~ 9,000	1,150	~ 810	0.08	0.64		
2 × R0.2 × 0° × 20	11,000	~ 8,000	1,400	~ 1,000	0.18	1.2	11,000	~ 8,000	990	~ 720	0.08	0.64		
2 × R0.2 × 0° × 40	8,000	~ 6,000	1,000	~ 755	0.13	0.8	8,000	~ 6,000	720	~ 540	0.05	0.64		
2 × R0.2 × 0° × 60	6,000	~ 4,000	755	~ 505	0.07	0.6	6,000	~ 4,000	540	~ 360	0.03	0.55		
3 × R0.2 × 0° × 10	16,000	~ 12,000	2,450	~ 1,850	0.35	2	16,000	~ 12,000	1,750	~ 1,300	0.08	1		
3 × R0.2 × 0° × 16	14,000	~ 10,000	2,150	~ 1,550	0.3	2	14,000	~ 10,000	1,550	~ 1,100	0.08	1		
3 × R0.2 × 0° × 20	12,000	~ 8,000	1,850	~ 1,250	0.2	1.8	12,000	~ 8,000	1,300	~ 880	0.08	1		
3 × R0.2 × 0° × 40	7,000	~ 4,000	1,100	~ 615	0.15	1.6	7,000	~ 4,000	770	~ 440	0.05	0.8		
4 × R0.2 × 0° × 40	12,000	~ 8,000	3,450	~ 2,300	0.35	2.8	12,000	~ 8,000	2,450	~ 1,650	0.08	1.4		
4 × R0.2 × 0° × 60	6,000	~ 3,000	1,700	~ 855	0.2	2	6,000	~ 3,000	1,200	~ 610	0.05	1		
6 × R0.5 × 0° × 30	12,000	~ 7,000	4,300	~ 2,500	1.5	4	12,000	~ 7,000	3,050	~ 1,800	0.2	2		
6 × R1 × 0° × 30	12,000	~ 7,000	4,300	~ 2,500	1.5	3.2	12,000	~ 7,000	3,050	~ 1,800	0.4	1.6		
8 × R0.5 × 0° × 32	10,000	~ 7,000	3,800	~ 2,650	2	5.6	10,000	~ 7,000	2,700	~ 1,900	0.2	2.8		
8 × R1 × 0° × 32	10,000	~ 7,000	3,800	~ 2,650	2	4.8	10,000	~ 7,000	2,700	~ 1,900	0.4	2.4		
10 × R0.5 × 0° × 40	8,000	~ 4,000	3,050	~ 1,500	2.5	7.2	8,000	~ 4,000	2,200	~ 1,100	0.2	4.4		
10 × R1 × 0° × 40	8,000	~ 4,000	3,050	~ 1,500	2.5	6.4	8,000	~ 4,000	2,200	~ 1,100	0.4	3.2		
12 × R0.5 × 0° × 48	6,000	~ 3,000	2,300	~ 1,150	3	9	6,000	~ 3,000	1,650	~ 815	0.2	4.4		
12 × R1 × 0° × 48	6,000	~ 3,000	2,300	~ 1,150	3	8	6,000	~ 3,000	1,650	~ 815	0.4	4		

斜角切入角度请按照0.3°~0.5°的基准设定。 Set the diagonal plunge angle to be approximately 0.3° and 0.5°.

1. 请根据加工形状、机械刚性、夹具刚性、工件固定情况等使用状况，调节转速，进给速度和切深量。
2. 转速和进给速度无法依上表调高的情况下请同比例调低转速和进给速度。
3. 当发生工件崩损或对加工精度较高时，请根据情况降低进给速度。
4. 根据不同的形状，当加工中产生振动时请同比例调低转速和进给速度。
5. 请使用专机进行石墨加工，为防止吸入粉尘，请一定使用防尘、吸尘的集尘机和防尘面罩。
6. 加工时请将铣刀切尖的跳动控制在0.01 mm以下。
7. 直径4mm以上的粗加工时圆弧R角以下的Z轴切深可按上表提高3倍进给速度。
8. 高效率精加工时，进给速度调整上限为上表的2倍。
9. 高效率加工时将槽加工等负荷较大的部分的进给速度减少30%后，刀具的偏转可减轻切削残留。
10. 水平面的精加工时，请降低进给40%，使用噪音较低的加工设备。
11. 圆弧R角部位的精加工时，请调整加工量为(圆弧R角×0.06=精加工)
12. 当加工形状为角状时，可通过程序对圆弧角进行处理，调节转速使不产生振动，并在角部减速60%。



1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. When making a rough cut with a ø4 end mill or greater, you can raise the feed rate as high as triple the rate, for making a Z cut depth that is less than the corner radius.
8. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
9. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
10. When finishing a horizontal plane, lower the feed rate as far down as 40% on a milling machine that operates quietly.
11. When finishing a shape with a corner radius, change the milling pitch (corner radius × 0.06 = finishing pitch).
12. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).