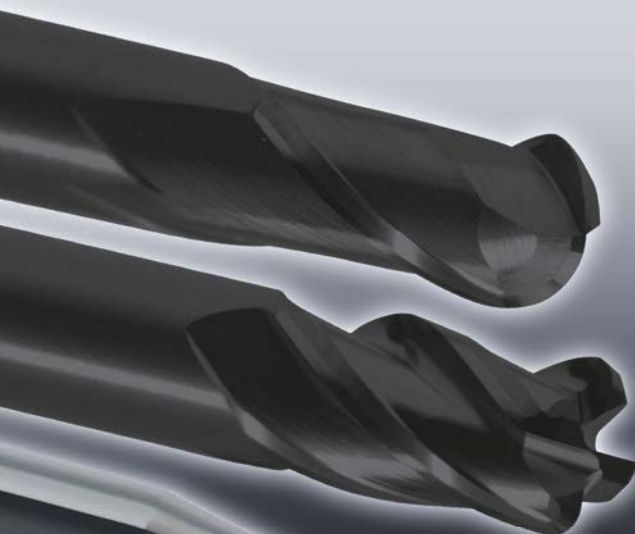


D-EPDB/EPDR HD-Coat

Solid Carbide End Mill
Epoch Deep HD Series for Graphite



D-EPDR-2001-0.2-001
D=0.1 mm
CR=0.01 mm



D 0.1 mm ~ D 10 mm

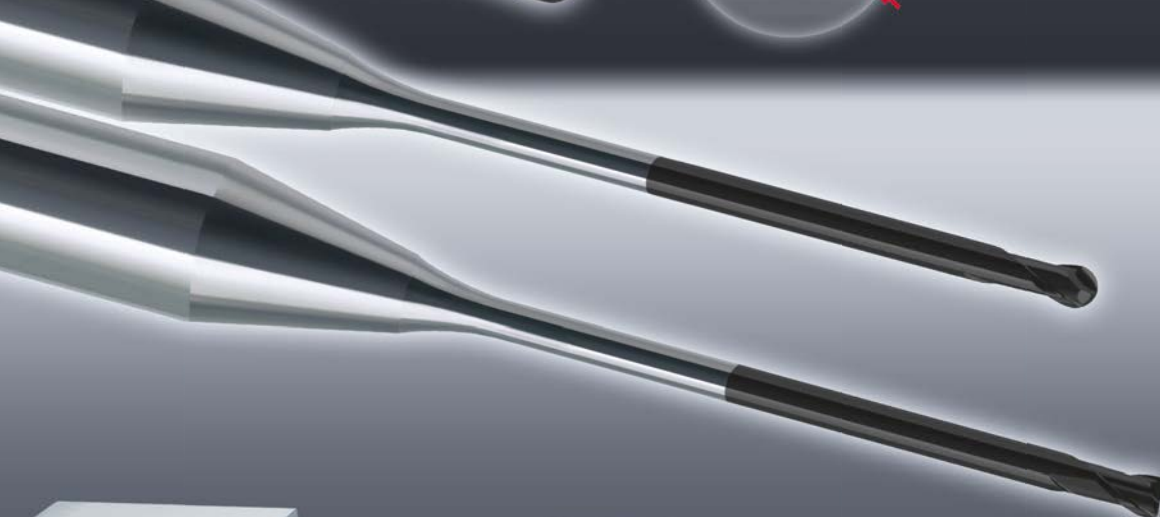
- **HD-High Adhesion**
Diamond Coating for Graphite
- **l_n max. 30xD**

D-EPDB:

- **62 Ball Nose Types**

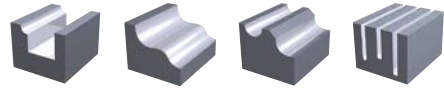
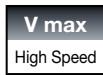
D-EPDR:

- **66 Radius Types**
- **CR:** 0.01 | 0.02 | 0.05
0.1 | 0.2 | 0.5 | 1.0

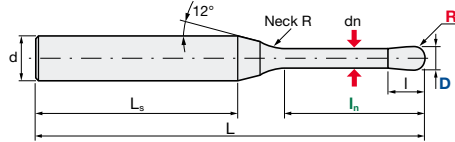


www.moldino.eu

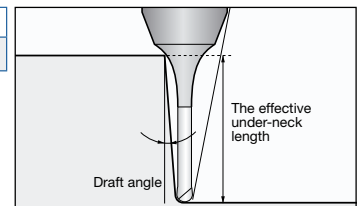
D-EPDB | Epoch HD Coated Deep Ball End Mill



A (D0.1–D4)



Helix Angle	d Tol.
30°	h5

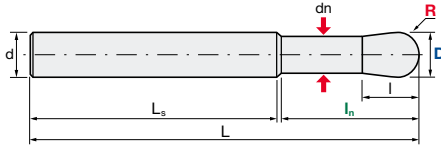


Size													Effective Underneck Using Length by Draft Angle						
ID Code	Item Code	Z	D	R	I _n	I	dn	L _s	NeckR	L	d	Type	0.5°	1°	1.5°	2°	3°		
DC077	D-EPDB-2001-0.2	2	0.1	0.05	0.2	0.15	0.08	35.63	1	45	4	A	0.35	0.37	0.39	0.41	0.44		
DC078	D-EPDB-2001-0.5				0.5			35.33					0.67	0.70	0.73	0.76	0.81		
DC079	D-EPDB-2002-0.5		0.2	0.1	1	0.3	0.17	40.56		50			0.70	0.72	0.75	0.77	0.82		
DC080	D-EPDB-2002-1				1			40.06					1.22	1.26	1.30	1.33	1.39		
DC081	D-EPDB-2002-1.5				1.5	39.56	1.74	1.79	1.84	1.88			2.05						
DC082	D-EPDB-2003-1		0.3	0.15	1	0.45	0.27	40.30	2	55			1.31	1.38	1.43	1.49	1.59		
DC083	D-EPDB-2003-2				2			39.30					2.36	2.46	2.55	2.62	2.76		
DC084	D-EPDB-2003-3				3			38.30					3.41	3.53	3.64	3.73	4.02		
DC085	D-EPDB-2004-1		0.4	0.2	1			0.6					0.37	40.53	2	50			1.31
DC086	D-EPDB-2004-2				2	39.53	2.36		2.46	2.54				2.62					2.75
DC087	D-EPDB-2004-4				4	37.53	4.45		4.59	4.71				4.83					5.33
DC088	D-EPDB-2004-6				6	35.53	6.52		6.70	6.89				7.22					7.99
DC089	D-EPDB-2005-1		0.5	0.25	1	0.75	0.47	40.77	2	50			1.31	1.37	1.42	1.47	1.57		
DC090	D-EPDB-2005-2				2			39.77					2.36	2.45	2.54	2.61	2.75		
DC091	D-EPDB-2005-4				4			37.77					4.45	4.59	4.71	4.82	5.32		
DC092	D-EPDB-2005-6				6			35.77					6.52	6.70	6.88	7.21	7.97		
DC093	D-EPDB-2005-8		0.6	0.3	8	0.9	0.57	33.77	2	50			8.58	8.79	9.16	9.60	10.63		
DC094	D-EPDB-2005-10				10			31.77					10.64	10.94	11.45	12.00	13.28		
DC095	D-EPDB-2006-2				2			40.00					2.52	2.66	2.79	2.91	3.13		
DC096	D-EPDB-2006-4				4			38.00					4.64	4.86	5.04	5.20	5.48		
DC097	D-EPDB-2006-6		0.6	0.3	6	0.9	0.57	36.00	2	50			6.75	7.02	7.23	7.42	7.96		
DC098	D-EPDB-2006-10				10			32.00					10.92	11.26	11.54	11.99	13.27		
DC099	D-EPDB-2008-2				2			40.47					2.51	2.65	2.78	2.89	3.11		
DC100	D-EPDB-2008-4				4			38.47					4.64	4.85	5.03	5.19	5.47		
DC101	D-EPDB-2008-6		0.8	0.4	6	1.2	0.77	36.47	4	55			6.74	7.01	7.23	7.41	7.92		
DC102	D-EPDB-2008-8				8			34.47					8.83	9.14	9.39	9.60	10.58		
DC103	D-EPDB-2008-12				12			30.47					12.99	13.36	13.71	14.36	15.89		
DC104	D-EPDB-2008-16				16			31.47					17.12	17.55	18.27	19.15	21.20		
DC001	D-EPDB-2010-5	1	0.5	5	1.5	0.95	47.94	6	80				5.74	5.97	6.16	6.33	6.63		
DC002	D-EPDB-2010-10			10			42.94						10.95	11.28	11.55	12.01	13.26		
DC123	D-EPDB-2010-15			15			37.94						16.39	16.90	17.31	17.99	19.90		
DC003	D-EPDB-2010-20			20			32.94						21.56	22.16	22.87	23.97	26.54		
DC124	D-EPDB-2010-25			25			27.94						26.72	27.38	28.57	29.95	–		
DC004	D-EPDB-2010-30			30			42.94						31.86	32.76	34.27	35.94	–		

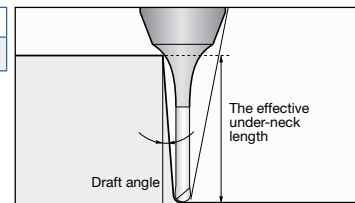
- = no contact

D-EPDB | Epoch HD Coated Deep Ball End Mill

B (D6-D10)



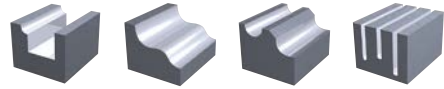
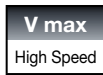
Helix Angle	d Tol.
30°	h5



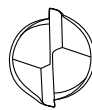
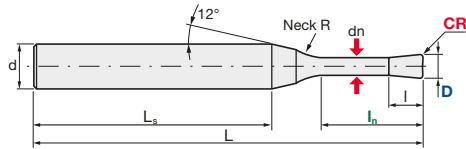
Size													Effective Underneck Using Length by Draft Angle						
ID Code	Item Code	Z	D	R	I _n	I	dn	L _s	NeckR	L	d	Type	0.5°	1°	1.5°	2°	3°		
DC125	D-EPDB-2015-5	2	1.5	0.75	5	2.25	1.4	49.12	4	60	A	A	5.86	6.05	6.22	6.38	6.70		
DC126	D-EPDB-2015-10				10			44.12					11.04	11.35	11.60	12.10	13.34		
DC005	D-EPDB-2015-15				15			39.12					16.20	16.58	17.27	18.08	19.98		
DC127	D-EPDB-2015-20				20			34.12					21.65	22.21	22.97	24.06	—		
DC006	D-EPDB-2015-30				30			44.12	6	80			31.93	32.87	34.37	36.03	—		
DC128	D-EPDB-2020-5		2	1	5	3	1.9	50.30	4	60			5.85	6.04	6.20	6.35	6.62		
DC007	D-EPDB-2020-10				10			45.30					11.04	11.33	11.58	12.05	13.26		
DC129	D-EPDB-2020-15				15			40.30					16.19	16.57	17.23	18.03	19.90		
DC008	D-EPDB-2020-20				20			35.30					21.32	21.95	22.93	24.02	—		
DC009	D-EPDB-2020-30				30			45.30					31.93	32.85	34.34	—	—		
DC010	D-EPDB-2020-40				40			35.30	6	80			42.17	43.74	—	—	—		
DC130	D-EPDB-2030-10		3	1.5	10	4.5	2.9	42.94	4	60			11.02	11.31	11.55	11.95	13.10		
DC131	D-EPDB-2030-20				20			32.94					21.31	21.91	22.87	23.92	26.37		
DC011	D-EPDB-2030-30				30			42.94					31.54	32.80	34.27	35.88	—		
DC132	D-EPDB-2030-40				40			32.94					42.16	43.70	45.68	—	—		
DC012	D-EPDB-2030-60				60			—	6	100			62.75	65.49	—	—	—		
DC133	D-EPDB-2040-10		4	2	10	8	3.8	45.30	4	60			11.18	11.43	11.66	12.14	13.25		
DC134	D-EPDB-2040-20				20			35.30					21.44	22.12	23.06	24.10	—		
DC135	D-EPDB-2040-30				30			45.30					31.68	33.01	34.47	—	—		
DC013	D-EPDB-2040-40				40			35.30					42.11	43.91	—	—	—		
DC014	D-EPDB-2040-80				80			45.30	6	130			83.83	—	—	—	—		
DC015	D-EPDB-2060-20		6	3	20	12	5.7	100.00	-	120	B		—	—	—	—	—		
DC136	D-EPDB-2060-40				40			80.00					—	—	—	—			
DC016	D-EPDB-2060-60				60			60.00					—	—	—	—			
DC017	D-EPDB-2080-25				25			115.00					—	—	—	—			
DC018	D-EPDB-2080-80				80			60.00					—	—	—	—			
DC019	D-EPDB-2100-30		10	5	30	20	9.5	120.00		140			—	—	—	—	—		
DC020	D-EPDB-2100-100				100			50.00					150		—	—	—	—	—

— = no contact

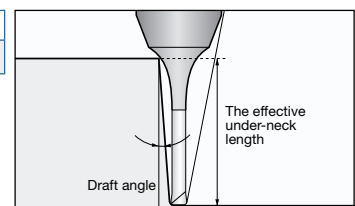
D-EPDR | Epoch HD Coated Deep Radius End Mill



A (D0.1–D4)



Helix Angle	d Tol.
30°	h5

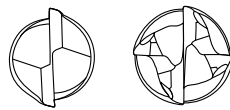
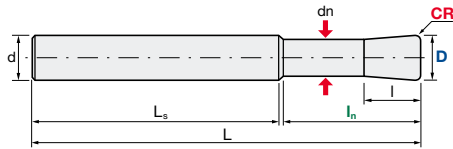


Size														Effective Underneck Using Length by Draft Angle					
ID Code	Item Code	Z	D	CR	I _n	I	dn	L _s	NeckR	L	d	Type	0.5°	1°	1.5°	2°	3°		
DC049	D-EPDR-2001-0.2-001	2	0.1	0.01	0.2	0.15	0.08	35.63	1	45	4	A	0.36	0.38	0.40	0.41	0.45		
DC050	D-EPDR-2001-0.5-001				0.5			35.33					0.67	0.70	0.73	0.76	0.81		
DC051	D-EPDR-2002-0.5-002				0.5			40.56					0.70	0.73	0.75	0.78	0.83		
DC052	D-EPDR-2002-1-002		0.2	0.02	1	0.3	0.17	40.06		1.22			1.26	1.30	1.34	1.41			
DC053	D-EPDR-2002-1.5-002				1.5			39.56		1.74			1.80	1.84	1.89	2.07			
DC054	D-EPDR-2003-1-002				1			40.30		1.32			1.39	1.45	1.51	1.62			
DC055	D-EPDR-2003-2-002		0.3		2	0.45	0.27	39.30	2.37	2.47			2.56	2.64	2.78				
DC056	D-EPDR-2003-3-002				3			38.30	3.42	3.54			3.65	3.74	4.06				
DC057	D-EPDR-2004-1-002				1			40.53	1.32	1.39			1.45	1.51	1.62				
DC058	D-EPDR-2004-2-002		0.4	0.04	2	0.6	0.37	39.53	2.37	2.47			2.56	2.64	2.78				
DC059	D-EPDR-2004-4-002				4			37.53	4.46	4.60			4.73	4.86	5.39				
DC060	D-EPDR-2004-6-002				6			35.53	6.53	6.71			6.92	7.26	8.05				
DC061	D-EPDR-2005-1-005		0.5		0.05	1	0.75	0.47	40.77	1.32			1.39	1.45	1.50	1.61			
DC062	D-EPDR-2005-2-005					2			39.77	2.37			2.47	2.56	2.64	2.77			
DC063	D-EPDR-2005-4-005					4			37.77	4.45			4.60	4.72	4.86	5.38			
DC064	D-EPDR-2005-6-005			6		35.77			6.53	6.71			6.91	7.25	8.04				
DC065	D-EPDR-2005-8-005			8		33.77			8.59	8.80			9.19	9.64	10.69				
DC066	D-EPDR-2005-10-005			10		31.77			10.64	10.96			11.47	12.04	13.35				
DC067	D-EPDR-2006-2-005	0.6	0.06	2	0.9	0.57	40.00	2.54	2.69	2.83	2.95	3.18							
DC068	D-EPDR-2006-4-005			4			38.00	4.66	4.88	5.07	5.23	5.52							
DC069	D-EPDR-2006-6-005			6			36.00	6.76	7.03	7.26	7.45	8.04							
DC070	D-EPDR-2006-10-005	0.8		0.08	10	1.2	0.77	32.00	10.93	11.28	11.55	12.04	13.35						
DC071	D-EPDR-2008-2-005				2			40.47	2.54	2.69	2.83	2.95	3.18						
DC072	D-EPDR-2008-4-005				4			38.47	4.66	4.88	5.07	5.23	5.52						
DC073	D-EPDR-2008-6-005		6		36.47			6.76	7.03	7.26	7.45	8.04							
DC074	D-EPDR-2008-8-005		8		34.47			8.85	9.16	9.41	9.64	10.69							
DC075	D-EPDR-2008-12-005		12		30.47			13.00	13.38	13.75	14.43	16.00							
DC076	D-EPDR-2008-16-005			16			31.47			55			17.13	17.56	18.32	19.22	21.31		
DC105	D-EPDR-2010-5-01	1	0.1	0.2	5	1.5	0.95	47.94	5	60	6	80	5.76	6.00	6.20	6.37	6.76		
DC024	D-EPDR-2010-5-02				5			47.94					5.76	5.99	6.19	6.36	6.72		
DC106	D-EPDR-2010-10-01				10			42.94					10.79	11.31	11.58	12.08	13.39		
DC021	D-EPDR-2010-10-02			10	42.94			10.96	11.30	11.57			12.06	13.36					
DC107	D-EPDR-2010-15-01			15	37.94			16.40	16.92	17.34			18.07	20.03					
DC108	D-EPDR-2010-15-02			15	37.94			16.40	16.92	17.33			18.05	20.00					
DC109	D-EPDR-2010-20-01			20	32.94			21.58	22.18	22.93			24.05	26.66					
DC022	D-EPDR-2010-20-02			20	32.94			21.57	22.17	22.91			24.03	26.63					
DC023	D-EPDR-2010-30-02			30	42.94			31.87	32.79	34.32			35.99	—					

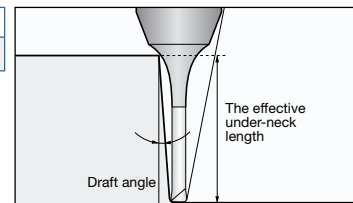
- = no contact

D-EPDR | Epoch HD Coated Deep Radius End Mill

B (D6-D10)



Helix Angle	d Tol.
30°	h5



Size													Effective Underneck Using Length by Draft Angle					
ID Code	Item Code	Z	D	CR	I _n	I	dn	L _s	NeckR	L	d	Type	0.5°	1°	1.5°	2°	3°	
DC110	D-EPDR-2015-5-02	2	1.5	0.2	5	2.25	1.4	49.12	4	60	4	A	5.88	6.09	6.27	6.43	6.88	
DC111	D-EPDR-2015-10-02				10			44.12					11.06	11.37	11.64	12.20	13.52	
DC025	D-EPDR-2015-15-02				15			39.12					16.21	16.60	17.34	18.19	20.15	
DC112	D-EPDR-2015-20-02				20			34.12					21.67	22.24	23.05	24.17	-	
DC026	D-EPDR-2015-30-02				30			44.12					31.95	32.92	34.45	-	-	
DC113	D-EPDR-2020-5-02		2		0.2	5	3	1.9	50.30	4			60	5.88	6.09	6.27	6.43	6.88
DC027	D-EPDR-2020-10-02					10			45.30					11.06	11.37	11.64	12.20	13.52
DC114	D-EPDR-2020-15-02					15			40.30					16.21	16.60	17.34	18.19	-
DC028	D-EPDR-2020-20-02					20			35.30					21.34	22.02	23.05	24.17	-
DC029	D-EPDR-2020-30-02					30			45.30					31.95	32.92	34.45	-	-
DC030	D-EPDR-2020-40-02	3	0.2	40	4.5	2.9	35.30	6	80	42.19	43.81	-	-	-				
DC115	D-EPDR-2030-10-02			10			42.94			11.06	11.37	11.64	12.20	13.52				
DC116	D-EPDR-2030-20-02			20			32.94			21.34	22.02	23.05	24.17	26.79				
DC031	D-EPDR-2030-30-02			30			42.94			31.57	32.92	34.45	36.14	-				
DC032	D-EPDR-2030-60-02			60			32.94			62.80	65.60	-	-	-				
DC117	D-EPDR-2040-10-05	4	0.5	10	8	3.8	65.30	4	80	11.22	11.50	11.87	12.43	13.73				
DC118	D-EPDR-2040-20-05			20			55.30			21.47	22.25	23.27	24.39	-				
DC119	D-EPDR-2040-30-05			30			45.30			31.75	33.15	34.68	-	-				
DC033	D-EPDR-2040-40-05			40			35.30			42.18	44.04	-	-	-				
DC034	D-EPDR-2040-80-05			80			45.30			83.89	-	-	-	-				
DC120	D-EPDR-2060-20-05	6	0.5	20	12	5.7	60.00	-	80	120	8	B	-	-	-	-	-	
DC121	D-EPDR-2060-40-05			40			40.00						-	-	-	-	-	
DC122	D-EPDR-2060-60-05			60			60.00						-	-	-	-	-	
DC035	D-EPDR-4060-20-10			20			100.00						-	-	-	-	-	
DC036	D-EPDR-4060-60-10			60			60.00						-	-	-	-	-	
DC037	D-EPDR-4080-25-10	8	1	25	16	7.6	115.00	-	140	150	10	-	-	-	-	-		
DC038	D-EPDR-4080-80-10			80			60.00					-	-	-	-			
DC040	D-EPDR-4100-30-10			30			120.00					-	-	-	-			
DC039	D-EPDR-4100-100-10	10	100	20	9.5	50.00	-	-	-	-	-							

- = no contact

D-EPDB | Epoch HD Coated Deep Ball End Mill

PLEASE NOTE: In Finishing application, please use the same V_c and keep f_z bigger than Graphite grain size, and please adjust a_p and a_e based on the required surface quality.

BITTE BEACHTEN SIE: Zum Schlichten behalten Sie bitte die V_c bei. Der f_z sollte größer als die Graphit-Korngröße sein. Passen Sie a_p und a_e entsprechend der erforderlichen Oberflächenqualität an.

NOTA BENE: In finitura si consiglia di usare lo stesso V_c e tenere un f_z più alto rispetto alla dimensione del grano di Grafite, impostare a_p e a_e a seconda della qualità superficiale richiesta.

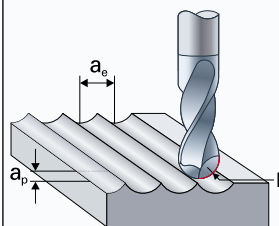
NOTA: En operaciones de acabado, por favor, utilizar la misma V_c y mantener una f_z más grande que el tamaño de grano del grafito, y ajuste a_p y a_e en base a la calidad superficial requerida.

VEUILLEZ NOTER : Lors d'opérations de finition, utiliser la même V_c et veillez à avoir une f_z supérieure à la taille des grains. Veuillez aussi adapter les a_p et a_e à la qualité surfacique désirée.

POR FAVOR NOTE: Em aplicações de acabamento, por favor, use a mesma V_c e manter f_z maior que o tamanho do grão do grafite por favor ajustar o a_p e a_e com base na qualidade da superfície pretendida.

Theoretical cusp height (μm)
Die theoretische Rautiefe (μm)
Cresta teorica (μm)

Cálculo de altura de la cresta teórica (mm)
Hauteur de crête théorique (μm)
Altura da crista teórica (μm)



$$h = R - \sqrt{\frac{(2 \cdot R)^2 - a_{pe}^2}{4}}$$

$$h = \frac{a_e^2}{8 \cdot R}$$

NOTA

- Usate centri di lavoro più precisi e rigidi possibile.
- Le condizioni di taglio espresse nel P50 Quickfinder sono da considerare per utilizzo generale. Per la lavorazione sul vostro pezzo modificare tali condizioni in funzione della morfologia del pezzo stesso, della tipologia di lavorazione e della macchina utensile a disposizione.
- In caso la disponibilità dei giri mandrino sia inferiore a quella raccomandata ricordarsi di abbassare della stessa percentuale anche la velocità di avanzamento.

		a_e (mm)							
		0.05	0.075	0.1	0.15	0.2	0.3	0.4	0.5
R (mm)	0.5	0.63	1.41	2.51	5.66	10.10	23.03	41.74	66.99
	1.0	0.31	0.70	1.25	2.82	5.01	11.31	20.20	31.75
	2.0	0.16	0.35	0.63	1.41	2.50	5.63	10.03	15.69
	3.0	0.10	0.23	0.42	0.94	1.67	3.75	6.67	10.43
	4.0	0.08	0.18	0.31	0.70	1.25	2.81	5.00	7.82
	5.0	0.06	0.14	0.25	0.56	1.00	2.25	4.00	6.25
	6.0	0.05	0.12	0.21	0.47	0.83	1.88	3.33	5.21
	8.0	0.04	0.09	0.16	0.35	0.63	1.41	2.50	3.91
	10.0	0.03	0.07	0.13	0.28	0.50	1.13	2.0	3.13

NOTE

- Use a highly rigid and accurate machine as available.
- The cutting conditions in P50 QuickFinder are a general guide. For your actual work piece adjust the conditions according to the machining shape, purpose and the machine tool to be used.
- If your available rpm is lower than in our recommendation, adjust the feed rate to the same ratio with the rpm.

NOTE

- Utiliser une machine aussi fiable et rigide que possible.
- Les conditions de coupe du P50 QuickFinder sont des conditions d'usage général. Pour le travail que vous avez à réaliser, ajustez ces paramètres en fonction de la géométrie, de la fonctionnalité de la pièce et de la machine utilisée.
- Si le nombre de tours est insuffisant ajuster les avances dans la même proportion que la rotation disponible.

ANMERKUNG

- Nutzen Sie für die Bearbeitungen die Maschine mit der höchsten Genauigkeit und der höchsten Steifigkeit.
- Die Schnittdaten im P50 QuickFinder stellen eine generelle Empfehlung dar. Die Werte sollten immer an die jeweilige Bearbeitung, deren Form und die verwendete Maschine angepasst werden.
- Sollte die Ihnen verfügbare Drehzahl niedriger als der in der Tabelle angegebene Wert sein, sollte der Vorschub im gleichen Verhältnis reduziert werden.

NOTA

- Use a máquina disponível mais rígida e precisa possível.
- As condições de corte no P50 QuickFinder são um guia geral. Para a sua peça de trabalho real ajustar as condições à máquina de acordo com forma da peça, finalidade e em que máquinas-feramenta deverá ser utilizada.
- Se a sua rpm disponível é menor do que o recomendado, ajuste o avanço para a mesma relação com a rpm.

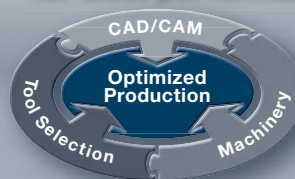
Graphite Classes

Material Class	1	2	3	4	5
Grain Size (μm)	1–3	4–6	7–9	10–12	13–15

The electronic MOLDINO Tool product catalogue



Quickly find the tools you need
for best performance in machining



www.production50.com

Download: www.moldino.eu/quickfinder



Always up to date: Please check our P50 QuickFinder



Attentions on Safety

1. Cautions regarding handling

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
- (3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.
- (5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

“MOLDINO” is a registered trademark of MOLDINO Tool Engineering, Ltd. in Japan.

Specifications for the products listed in this catalog are subject to change without notice due to replacement or modification.

MOLDINO Tool Engineering Europe GmbH

Itterpark 12 · 40724 Hilden · Germany · Phone +49 (0) 21 03-24 82-0 · Fax +49 (0) 21 03-24 82-30
E-Mail info@moldino.eu · Internet www.moldino.eu
© 2020 by MOLDINO Tool Engineering Europe GmbH · 3rd Edition · Printed in Germany