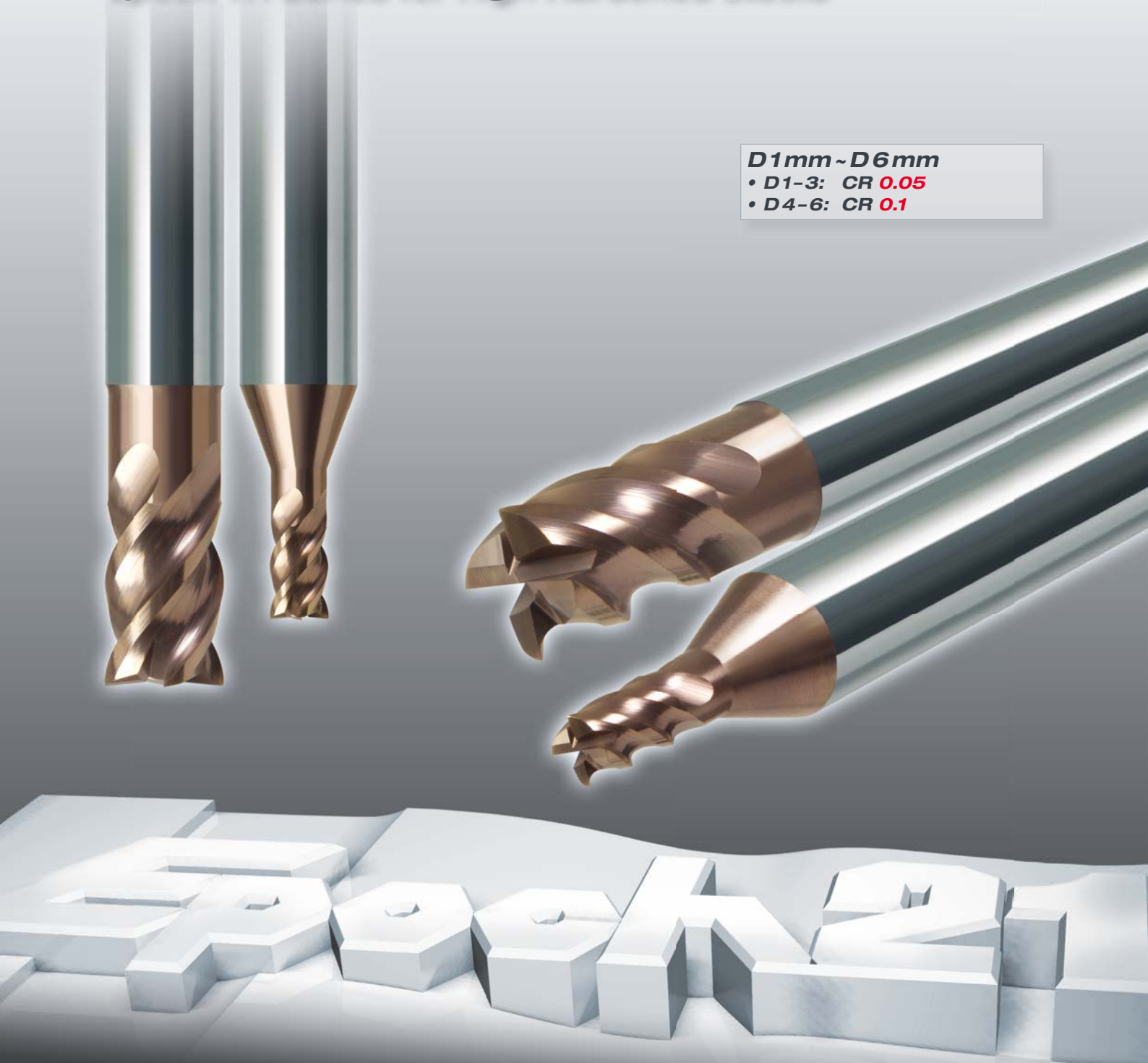


EPPP-TH Epoch TH Power Mill ***Precision Plus***

Epoch TH Series for High Hardened Steels

D1mm~D6mm

- ***D1-3: CR 0.05***
- ***D4-6: CR 0.1***



www.moldino.eu

FEATURES

An innovation in end mill design. Can be used efficiently on existing machinery, but to even better effect on equipment using High Speed Machining techniques.

Even at large depths of cut, table feeds of more than twice that of other end milling cutters can be used. **Epoch Power Mill Precision** is a multi function cutter, which is used to reduce cycle times of operations on CNC and conventional machines.

Epoch Power Mill Precision have a wide application area, offering long tool life on a variety of materials, from mild steel to heat resisting steels and other difficult to machine materials.

The **Epoch Power Mill Precision** corner radius cutters are suitable for 3D profile features, as well as producing stress free corners. The high helix angle reduces the possibility of chatter. Flute shape ensures smooth ejection of chips, preventing re-cutting and edge damage. Cutter cross section is designed to have maximum rigidity.

BESONDERHEITEN

Die Innovation im Fräserdesign. Eine neue Fräsergeometrie erlaubt den Einsatz sowohl auf konventionellen Maschinen als auch in der HSC-Technologie.

Auch bei Einsatz mit hohen Auskraglängen können die Tischvorschübe gegenüber herkömmlichen Wettbewerbsfräsern verdoppelt werden.

Epoch Power Mill Precision ist ein Werkzeug, das die Bearbeitungszeiten auf CNC- und konventionellen Maschinen stark reduziert.

Epoch Power Mill Precision Fräser bieten viele Einsatzmöglichkeiten, die darüber hinaus längste Standzeiten in unterschiedlichen Werkstoffen, wie z.B. weichen, hitzebeständigen und schwer zu zerspanenden Stählen ermöglichen.

Epoch Power Mill Precision mit Eckenradius sind sehr gut in der 3D-Bearbeitung einzusetzen, darüber hinaus schützen die Eckradien die empfindlichen Schneidkanten vor Ausbrüchen. Der starke Drallwinkel verringert den Schnittdruck und somit Vibrationen bei hohen Vorschüben und hohen Auskraglängen. Die Geometrie der Spankammer ermöglicht eine weiche Spanabfuhr und verhindert jeglichen Spänestau oder das nochmalige Schneiden eines Spanes. Der vergrößerte Kerndurchmesser erhöht die Stabilität (Deflektion) des Fräasers.

CARATTERISTICHE

Una innovazione nel design delle frese frontali. Possono essere usate con buon rendimento sulle macchine tradizionali, ma permettono risultati ancora migliori nelle macchine ad alta velocità. Anche a profondità di taglio elevate è possibile utilizzare velocità di avanzamento della tavola più che doppie rispetto alle altre frese a codolo tradizionali.

Epoch Power Mill Precision è una fresa multifunzionale utilizzata per ridurre i tempi di ciclo della lavorazione su macchine a controllo numerico e su macchine convenzionali.

Le frese **Epoch Power Mill Precision** hanno un'ampia gamma di applicazioni, permettendo una lunga durata dell'utensile su una ampia gamma di materiali che va dall'acciaio dolce agli acciai resistenti al calore ed altri materiali di difficile lavorazione.

La fresa **Epoch Power Mill Precision** toriche sono adatte per la fresatura a profilo tridimensionale come pure per la produzione di angoli privi di tensioni. L'angolo dell'elica elevato riduce la possibilità di vibrazioni. La forma del canale di spogli assicura un'espulsione dolce dei trucioli, che evita il taglio multiplo e danni ai taglienti. La sezione trasversale della fresa è studiata per ottenere la massima rigidità.

CARACTERÍSTICAS

La última novedad en diseño de fresas. Capaz de rendir eficazmente en máquinas convencionales, pero todavía más espectacular utilizando las técnicas del mecanizado a alta velocidad.

Incluso en las pasadas más profundas pueden utilizarse avances de mesa de más del doble de lo usual.

La **Epoch Power Mill Precision** es una fresa multifunción que se utiliza para reducir los tiempos de trabajo en centros CNC y máquinas convencionales.

La **Epoch Power Mill Precision** tiene un amplio campo de aplicación y una gran duración en diversos tipos de materiales, desde aceros convencionales hasta templados y otros materiales de difícil mecanización.

Las **Epoch Power Mill Precision** con radio son útiles tanto para el mecanizado 3D como para realizar ángulos de fondo reforzados. Su pronunciada hélice reduce la posibilidad de vibraciones. La forma del canal de desprendimiento expulsa suavemente la viruta evitando el remecanizado de la misma y el mellado del filo. La estructura de la sección transversal está diseñada para obtener una máxima rigidez.

CARACTÉRISTIQUES

Une nouvelle innovation dans la géométrie des fraises. Peut être utilisée efficacement sur les machines existantes mais avec de bien meilleurs résultats sur des équipements utilisant les techniques d'usinage grande vitesse.

Même avec de grandes profondeurs de passe, des gammes d'avances supérieures au double de celles des autres fraises peuvent être utilisées.

La fraise **Epoch Power Mill Precision** est une fraise multi-usages qui est utilisée pour réduire les temps de cycle sur machines CNC et conventionnelles. Elle offre une grande plage d'utilisation avec une longue durée de vie dans des matériaux variés, de l'acier doux aux aciers réfractaires ainsi que pour d'autres matériaux difficiles à usiner.

Les fraises **Epoch Power Mill Precision** à angle rayonné sont appropriées pour l'usinage en 3D sans angles vifs. L'important angle d'hélice diminue les risques de vibrations. La forme de denture garantit une évacuation régulière des copeaux en évitant le réusinage et la détérioration des arêtes de coupe. La section de l'âme de l'outil est appropriée pour obtenir un maximum de rigidité.

CARACTERÍSTICAS

Inovação no desenho de fresas. Pode ser utilizada de modo eficiente nas máquinas actuais, mas consegue-se ainda melhor resultado em equipamento de Maquinação de Alta Velocidade.

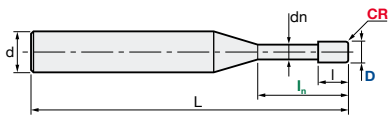
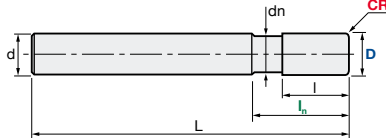
Mesmo em cortes profundos, podem ser utilizados avanços mais rápidos, em mais do dobro, do que com outras fresas. **Epoch Power Mill Precision** é uma fresa multi funções, utilizada para reduzir os tempos de operação em máquinas CNC's e máquinas convencionais.

Epoch Power Mill Precision tem uma área ampla de aplicação, proporcionando maior tempo de vida numa variedade de materiais, desde aço macio a aço resistente ao calor e outros materiais de difícil maquinação.

As navalhas de raio de corte da **Epoch Power Mill Precision** são apropriadas para funções de 3D, bem como para maquinar cantos sem criar atrito no raio. O alto ângulo de hélice reduz a possibilidade de vibração. A forma da navalha assegura uma fácil remoção de aparas, evitando a necessidade de nova passagem e a danificação de arestas. O corte transversal da navalha está desenhado para ter a máxima rigidez.

EPPP-TH | Epoch TH Power Mill Precision

Q max High Efficient	▽ Roughing	▽▽ Semi-Finishing	▽▽▽ Finishing	HRC 69	No. of Teeth 4
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A

B


Carbide Micro Grain	TH45+ Nano-PVD Coating	Rake Angle Neutral
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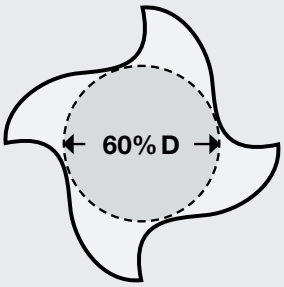
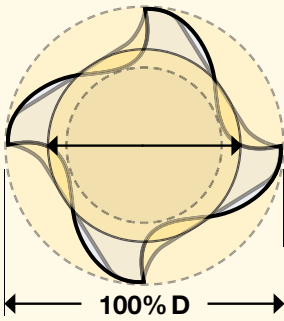
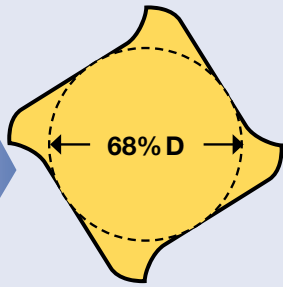
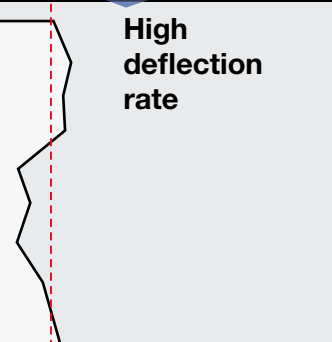
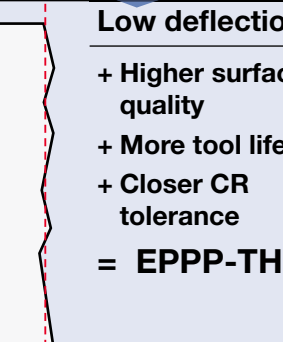


Helix Angle	R Tol. [mm]	D Tol. [mm]	d Tol.
43°	+/-0.005	0/-0.01	h4

ID Code	Item Code	Z	D	CR	l_n	l	dn	L	d	Type
EP761	EPPP-4010-005-TH	4	1	0.05	2.5	1.5	0.95	50	6	A
EP762	EPPP-4015-005-TH		1.5		3.8	2.3	1.43			
EP763	EPPP-4020-005-TH		2		5.0	3.0	1.90			
EP764	EPPP-4025-005-TH		2.5		6.3	3.8	2.38			
EP765	EPPP-4030-005-TH		3	0.1	7.5	4.5	2.85			B
EP766	EPPP-4040-01-TH		4		10.0	6.0	3.80			
EP767	EPPP-4050-01-TH		5		12.5	7.5	4.75			
EP768	EPPP-4060-01-TH		6		15.0	9.0	5.70			

EPPP-TH | Special Core Geometry

Larger Core diameter than conventional end mill:


















Conventional	Comparison	EPPP: Core diameter 68% of D
		
	Comparison of surface deflection	
High deflection rate		Low deflection rate: + Higher surface quality + More tool life + Closer CR tolerance = EPPP-TH

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:

EPPP-TH | Epoch TH Power Mill | Page 4-5

<p>PLEASE NOTE:</p> <p>The values in these tables are only recommended under the following conditions:</p>	<p>1. The use of a machining centre and toolholder with highest precision, concentricity and rigidity</p>	<p>2. All components – including machine and controller – are of the latest technology</p>
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EPPP-TH | Epoch TH Power Mill Precision | Recommended Cutting Conditions

D2.5		D3				D3				D5				D6			
																	
Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist	Air blow	Mist
105	125	215	110	105	125	215	110	105	125	215	110	105	125	215	110	105	125
13400	15900	22800	11700	11100	13300	17100	8800	8400	9900	13700	7000	6700	8000	11400	5800	5600	6600
0.021	0.021	0.036	0.020	0.025	0.025	0.050	0.028	0.035	0.035	0.065	0.036	0.050	0.050	0.080	0.045	0.060	0.060
1130	1340	3280	940	1110	1330	3420	990	1180	1390	3560	1010	1340	1600	3650	1040	1340	1580
1.25	0.025-0.05	3	3	1.5	0.03-0.06	4	4	2	0.04-0.08	5	5	2.5	0.05-0.1	6	6	3	0.06-0.12
2.5	1.75-2	0.3	0.03	3	2.1-2.4	0.4	0.04	4	2.8-3.2	0.5	0.05	5	3.5-4	0.6	0.06	6	4.2-4.8
93	115	170	100	93	115	170	100	93	115	170	100	93	115	170	100	93	115
11800	14600	18000	10600	9900	12200	13500	8000	7400	9200	10800	6400	5900	7300	9000	5300	4900	6100
0.017	0.017	0.030	0.019	0.020	0.020	0.040	0.026	0.030	0.030	0.550	0.034	0.040	0.040	0.070	0.042	0.050	0.050
800	990	2160	810	790	980	2160	830	890	1100	23760	870	940	1170	2520	890	980	1220
1.25	0.025-0.05	3	3	1.5	0.03-0.06	4	4	2	0.04-0.08	5	5	2.5	0.05-0.1	6	6	3	0.06-0.12
2.5	1.75-2	0.3	0.03	3	2.1-2.4	0.4	0.04	4	2.8-3.2	0.5	0.05	5	3.5-4	0.6	0.06	6	4.2-4.8
55	66	128	85	55	66	128	85	55	66	128	85	55	66	128	85	55	66
7000	8400	13600	9000	5800	7000	10200	6800	4400	5300	8100	5400	3500	4200	6800	4500	2900	3500
0.013	0.013	0.021	0.0165	0.015	0.015	0.028	0.023	0.025	0.025	0.035	0.031	0.031	0.031	0.045	0.039	0.038	0.038
360	440	1140	590	350	420	1140	630	440	530	1130	670	430	520	1220	700	440	530
0.75	0.025-0.05	3	3	0.9	0.03-0.06	4	4	1.2	0.04-0.08	5	5	1.5	0.05-0.1	6	6	1.8	0.06-0.12
2.5	1.75-2	0.24	0.024	3	2.1-2.4	0.32	0.032	4	2.8-3.2	0.4	0.04	5	3.5-4	0.48	0.048	6	4.2-4.8
45	55	100	70	45	55	100	70	45	55	100	70	45	55	100	70	45	55
5700	7000	10600	7400	4800	5800	8000	5600	3600	4400	6400	4500	2900	3500	5300	3700	2400	2900
0.011	0.011	0.015	0.014	0.013	0.013	0.020	0.021	0.018	0.018	0.025	0.027	0.025	0.025	0.030	0.035	0.030	0.030
250	310	640	410	250	300	640	470	260	320	640	490	290	350	640	520	290	350
0.375	0.025-0.05	3	3	0.45	0.03-0.06	4	4	0.6	0.04-0.08	5	5	0.75	0.05-0.1	6	6	0.9	0.06-0.12
2.5	1.75-2	0.15	0.015	3	2.1-2.4	0.2	0.02	4	2.8-3.2	0.25	0.025	5	3.5-4	0.3	0.03	6	4.2-4.8
25	30	65	50	25	30	65	50	25	30	65	50	25	30	65	50	25	30
3200	3800	6900	5300	2700	3200	5200	4000	2000	2400	4100	3200	1600	1900	3400	2700	1300	1600
0.008	0.008	0.011	0.012	0.009	0.009	0.014	0.017	0.013	0.013	0.018	0.023	0.018	0.018	0.021	0.030	0.021	0.021
100	110	290	250	100	120	290	270	100	120	290	290	110	130	290	320	110	130
0.25	0.025-0.05	3	3	0.3	0.03-0.06	4	4	0.4	0.04-0.08	5	5	0.5	0.05-0.1	6	6	0.6	0.06-0.12
2.5	1.75-2	0.12	0.012	3	2.1-2.4	0.16	0.016	4	2.8-3.2	0.2	0.02	5	3.5-4	0.24	0.024	6	4.2-4.8
60	72	140	70	60	72	140	70	60	72	140	70	60	72	140	70	60	72
7600	9200	14900	7400	6400	7600	11100	5600	4800	5700	8900	4500	3800	4600	7400	3700	3200	3800
0.009	0.009	0.030	0.014	0.010	0.010	0.040	0.021	0.015	0.015	0.055	0.027	0.018	0.018	0.070	0.035	0.025	0.025
260	310	1790	410	260	300	1780	470	290	340	1960	490	270	330	2070	520	320	380
0.375	0.025-0.05	3	3	0.45	0.03-0.06	4	4	0.6	0.04-0.08	5	5	0.75	0.05-0.1	6	6	0.9	0.06-0.12
2.5	1.75-2	0.15	0.015	3	2.1-2.4	0.2	0.02	4	2.8-3.2	0.25	0.025	5	3.5-4	0.3	0.03	6	4.2-4.8
25	30	65	50	25	30	65	50	25	30	65	50	25	30	65	50	25	30
3200	3800	6900	5300	2700	3200	5200	4000	2000	2400	4100	3200	1600	1900	3400	2700	1300	1600
0.008	0.008	0.015	0.012	0.010	0.010	0.020	0.017	0.015	0.015	0.025	0.023	0.018	0.018	0.030	0.030	0.023	0.023
100	120	410	250	110	130	420	270	120	140	410	290	120	140	410	320	120	150
0.375	0.025-0.05	3	3	0.45	0.03-0.06	4	4	0.6	0.04-0.08	5	5	0.75	0.05-0.1	6	6	0.9	0.06-0.12
2.5	1.75-2	0.15	0.015	3	2.1-2.4	0.2	0.02	4	2.8-3.2	0.25	0.025	5	3.5-4	0.3	0.03	6	4.2-4.8
80	96	215	110	80	96	215	110	80	96	215	110	80	96	215	110	80	96
10200	12200	22800	11700	8500	10200	17100	8800	6400	7600	13700	7000	5100	6100	11400	5800	4200	5100
0.021	0.021	0.035	0.020	0.025	0.025	0.050	0.028	0.035	0.035	0.065	0.036	0.050	0.050	0.080	0.045	0.060	0.060
860	1020	3190	940	850	1020	3420	990	900	1060	3560	1010	1020	1220	3650	1040	1010	1220
0.75	0.025-0.05	3	3	0.9	0.03-0.06	4	4	1.2	0.04-0.08	5	5	1.5	0.05-0.1	6	6	1.8	0.06-0.12
2.5	1.75-2	0.24	0.024	3	2.1-2.4	0.32	0.032	4	2.8-3.2	0.4	0.04	5	3.5-4	0.48	0.048	6	4.2-4.8
168	168	285	120	180	180	285	120	180	180	285	120	180	180	285	120	180	180
21400	21400	30200	12700	19100	19100	22700	9500	14300	14300	18100	7600	11500	11500	15100	6400	9500	9500
0.021	0.021	0.036	0.020	0.025	0.025	0.050	0.028	0.035	0.035	0.065	0.036	0.050	0.050	0.080	0.045	0.060	0.060
1800	1800	4350	1020	1910	1910	4540	1060	2000	2000	4710	1090	2300	2300	4830	1150	2280	2280
1.25	0.025-0.05	3	3	1.5	0.03-0.06	4	4	2	0.04-0.08	5	5	2.5	0.05-0.1	6	6	3	0.06-0.12
2.5	1.75-2	0.3	0.03	3	2.1-2.4	0.4	0.04	4	2.8-3.2	0.5	0.05	5	3.5-4	0.6	0.06	6	4.2-4.8



Modification if too high:

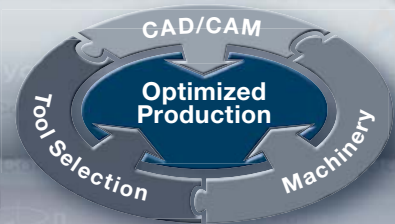
- Keep f_z stable
- Reduce rpm to set best result on non-HQ machines

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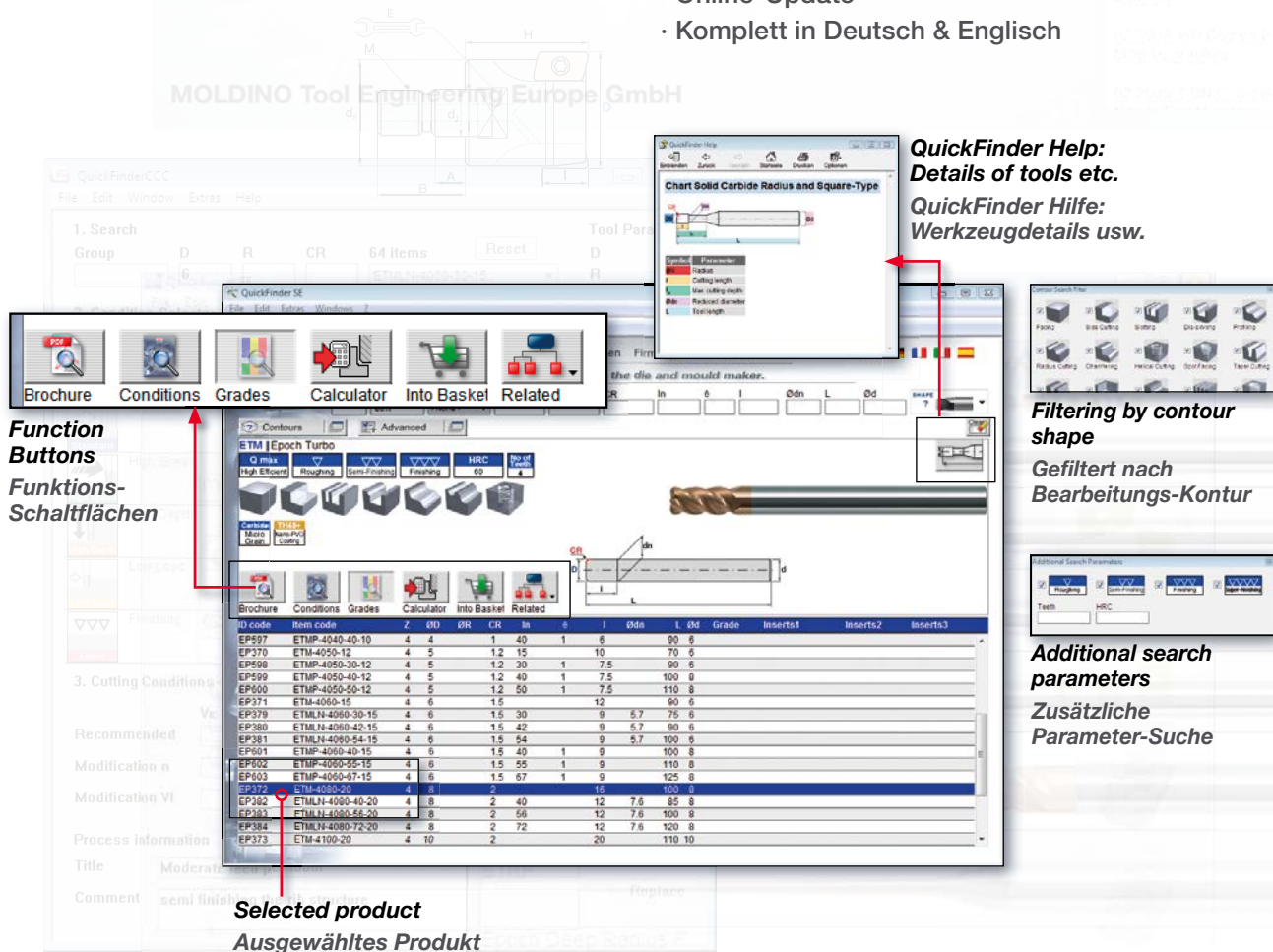
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Function Buttons
Funktions-Schaltflächen

QuickFinder Help:
Details of tools etc.
QuickFinder Hilfe:
Werkzeugdetails usw.

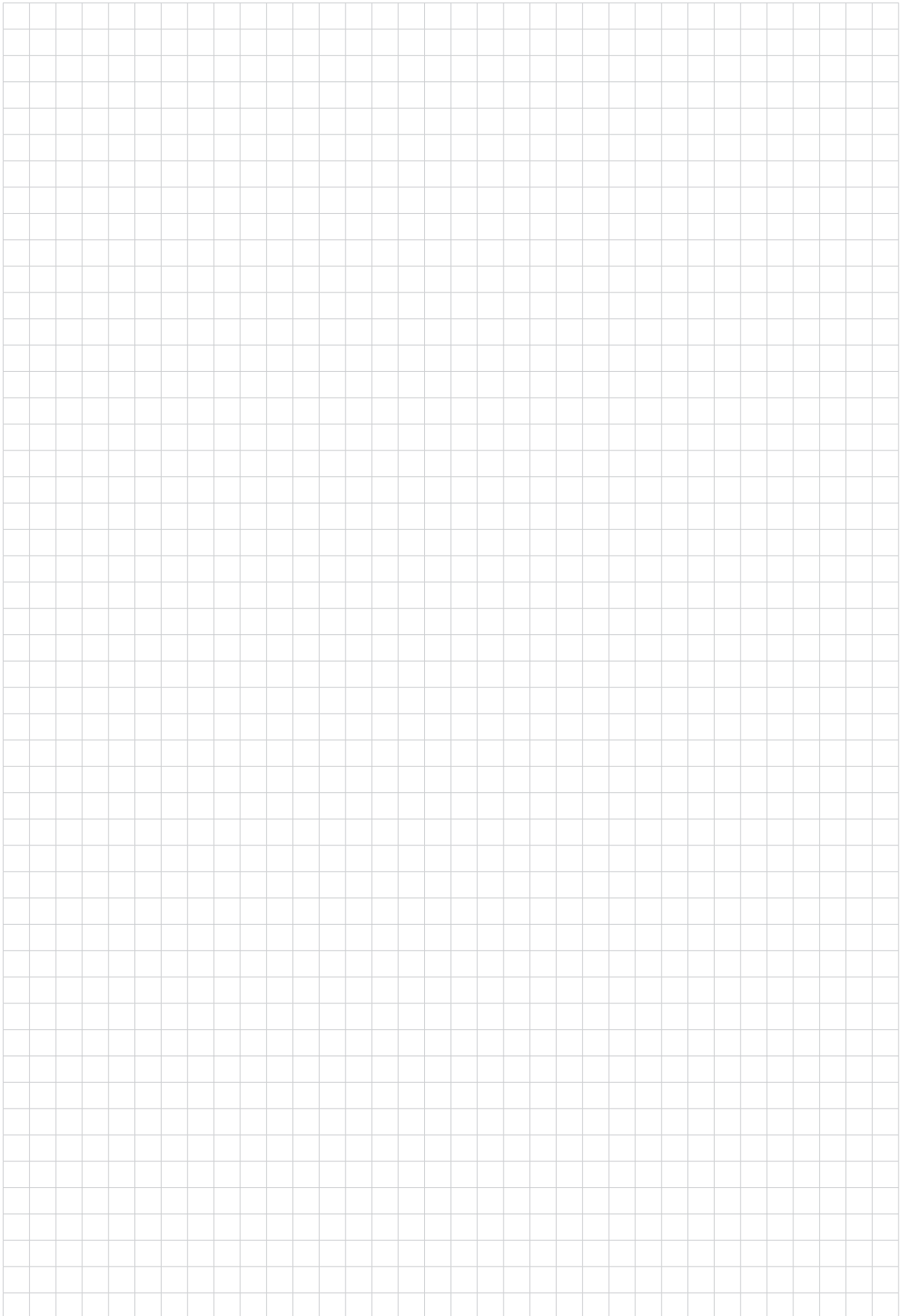
Filtering by contour shape
Gefiltert nach Bearbeitungs-Kontur

Additional search parameters
Zusätzliche Parameter-Suche

Selected product
Ausgewähltes Produkt

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EP370	ETMP-4050-12	4	5	1.2	15	1	10	70	6						
EP598	ETMP-4050-30-12	4	5	1.2	30	1	7.5	90	6						
EP599	ETMP-4050-40-12	4	5	1.2	40	1	7.5	100	8						
EP600	ETMP-4050-50-12	4	5	1.2	50	1	7.5	110	8						
EP371	ETMP-4050-15	4	6	1.5			12	90	6						
EP379	ETMLN-4060-30-15	4	6	1.5	30	1	9	5.7	75	6					
EP380	ETMLN-4060-42-15	4	6	1.5	42	1	9	5.7	90	6					
EP381	ETMLN-4060-54-15	4	6	1.5	54	1	9	5.7	100	6					
EP601	ETMP-4060-40-15	4	6	1.5	40	1	9	100	8						
EP602	ETMP-4060-55-15	4	6	1.5	55	1	9	110	8						
EP603	ETMP-4060-67-15	4	6	1.5	67	1	9	125	8						
EP372	ETMP-4030-20	4	8	2			16	100	8						
EP382	ETMLN-4080-40-20	4	8	2	40	1	12	7.6	85	8					
EP383	ETMLN-4080-60-20	4	8	2	60	1	12	7.6	100	8					
EP384	ETMLN-4080-72-20	4	8	2	72	1	12	7.6	120	8					
EP373	ETMP-4100-20	4	10	2			20	110	10						

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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.

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