

Epoch21

ADVANCED
TH60+
NANO-PVD COATING

MMC Hitachi Tool

No. 432

EPBTS-TH Epoch TH Hard Ball **Strong**

Micro Grain Solid Carbide End Mill
Epoch **Advanced TH** Ball Series
High speed direct milling
for Hardened steels

ADVANCED
TH60+
NANO-PVD COATING

- Strong (negative rake) edge geometry for efficient roughing application
- 3D edge shape for good finishing
- ATH coating for Hardened steels

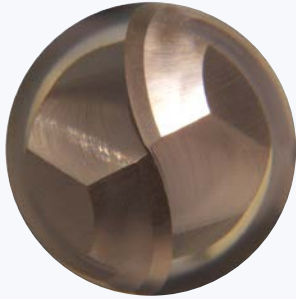


Micro Grain Solid Carbide End Mill

EPBTS | Epoch TH Hard Ball Strong

Features

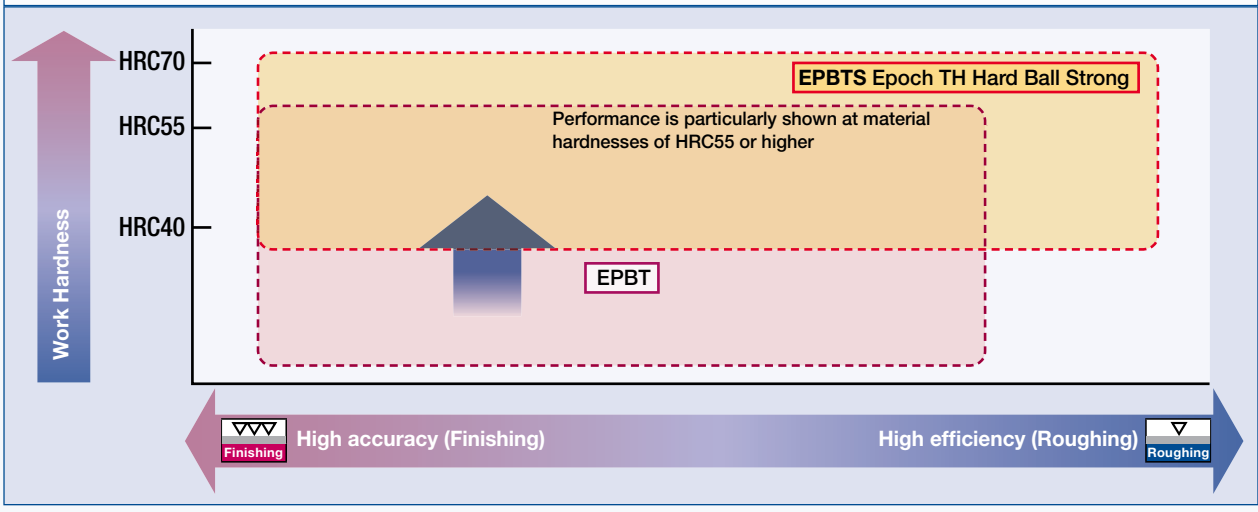
Flute tip shape provides both rigidity and good cutting performance.



3D ball shape provides good chip discharge characteristics and high rigidity.



Overview diagram of cutting regions



Theoretical cusp height in end milling (µm)

Die theoretische Rautiefe in der Fräsbearbeitung (µm)

Calcolo de altura de la cresta teórica en fresado (µm)

Cresta teórica de fresado (µm)

Hauteur de crête théorique en fraisage (µm)

Altura teórica da crista, em fresagem de acabamento (µm)

Feed pitch and cusp height

a_e (mm) Zeilensprung

Paso y altura de cresta

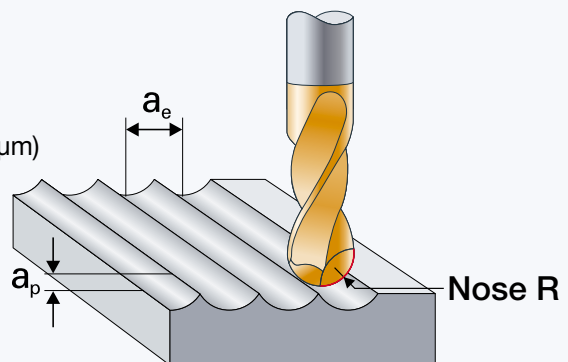
Relación Paso / Cresta

Pas et hauteur de crête

Passo e altura da crista

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

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

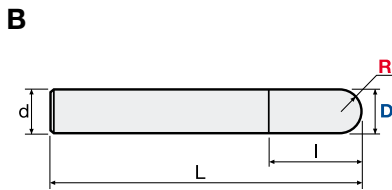
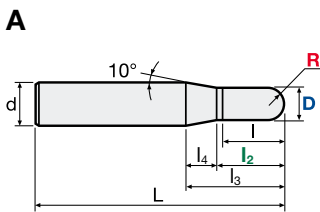
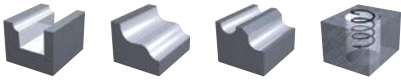


		a_e (Pick feed) mm										
		0.02	0.03	0.04	0.05	0.075	0.1	0.15	0.2	0.3	0.4	0.5
Nose R (mm)	0.5	0.10	0.23	0.40	0.63	1.41	2.51	5.66	10.10	23.03	41.74	66.99
	1	0.05	0.11	0.20	0.31	0.70	1.25	2.82	5.01	11.31	20.20	31.75
	1.5	0.03	0.08	0.13	0.21	0.47	0.83	1.88	3.34	7.52	13.39	20.98
	2	0.03	0.06	0.10	0.16	0.35	0.63	1.41	2.50	5.63	10.03	15.69
	2.5	0.02	0.05	0.08	0.13	0.28	0.50	1.13	2.00	4.50	8.01	12.53
	3	0.017	0.04	0.07	0.10	0.23	0.42	0.94	1.67	3.75	6.67	10.43
	4	0.013	0.03	0.05	0.08	0.18	0.31	0.70	1.25	2.81	5.00	7.82
	5	0.010	0.02	0.04	0.06	0.14	0.25	0.56	1.00	2.25	4.00	6.25
6	0.008	0.02	0.03	0.05	0.12	0.21	0.47	0.83	1.88	3.33	5.21	

Micro Grain Solid Carbide End Mill

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V max High Speed	Q max High Efficient	▽ Roughing	▽▽ Semi-Finishing	▽▽▽ Finishing	HRC 72	No. of Teeth 2
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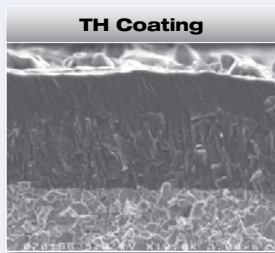
Carbide Micro Grain	TH60+ Nano-PVD Coating	Rake Angle Negative
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D	(0 / -0.01 mm)
R	± 0.005 mm
d	h5
Helix angle	30°

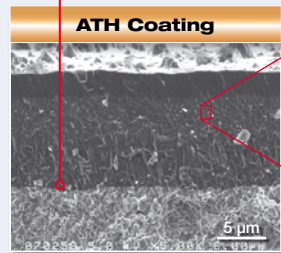
ID Code	Item Code	Z	D	R	l	l ₂	l ₃	l ₄	L	d	Type
EP855	EPBTS-2010-TH	2	1	0.5	1.5	2.5	11.0	8.5	50	4	A
EP856	EPBTS-2020-TH		2	1	3	4.0	15.3	11.3	50	6	
EP857	EPBTS-2030-TH		3	1.5	4.5	5.5	14.0	8.5	70		
EP858	EPBTS-2040-TH		4	2	6	7.0	12.7	5.7	80		
EP859	EPBTS-2050-TH		5	2.5	7.5	8.5	11.3	2.8	90		
EP860	EPBTS-2060-TH		6	3	9	-	-	-	100		
EP861	EPBTS-2080-TH		8	4	12	-	-	-	110		B
EP862	EPBTS-2100-TH		10	5	15	-	-	-	10		
EP863	EPBTS-2120-TH		12	6	18	-	-	-	12		

ATH (Advanced TH) Coating – Characteristics

- Excellent adhesion strength
- Oxidation temperature: 1200°C
- Coating Hardness: 3800Hv
- Higher temperature resistance and wear resistance



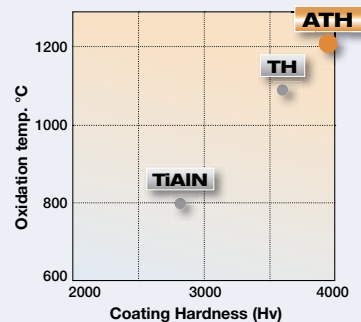
TH Coating (Conventional)



ATH Coating for hardened steel (45HRC-65HRC)

High hardness coating
High heat resistant coating

Nano size composite with atomic structure level



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Product Range

Solid Carbide End Mills



Indexable Milling Tools



WHNSB Drills



Milling Chucks



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