

Advanced
Engineering

Hitachi Tool

Advanced Engineering

Epoch21

Nano-PVD Coating
TH45+

MMC Hitachi Tool

No. 421.2

EMB / P Epoch Mega Feed Ball / Pencil Neck

Solid Carbide 3-flute Ball End Mill
for highly efficient milling



**Diameter checked.
(Labeled on box)**

MMC Hitachi Tool Engineering Europe GmbH
www.high-speed-cutting.com



Solid Carbide 3-flute Ball End Mill for highly efficient milling

EMB-TH/EMBP-TH | Epoch Mega Feed Ball End Mill/ Pencil Neck

🇬🇧 The performance of three – the accuracy of two flutes!

1. The Triangle Effect – patent pending

For radius accuracy and excellent finishing. Center point area is formed by "Triangle Face" that is different from relief angle on the radius section. This "Triangle Effect" improves radius accuracy.

2. 3 Flute Effect

For high efficiency with improved chip evacuation.

3. Unequal Division Effect

Unequal division is effective to avoid chatter and vibration especially in deep milling and high hardness materials.

🇩🇪 Die Leistung von drei Schneiden mit der Präzision eines Zweischneiders!

1. Der Dreiecks-Effekt – Patent angemeldet

Für hohe Radiusgenauigkeit und exzellente Oberflächen-güte. Die Fräuserspitze ist wie ein Dreieck geformt, welches sich vom Freiwinkel in der Radius-Sektion unterscheidet. Dieser "Dreiecks-Effekt" verbessert die Radiusgenauigkeit.

2. Der 3-Schneiden-Effekt

Für höchste Effizienz bei verbesserter Späneabfuhr.

3. Die unterschiedliche Winkelaufteilung

Die Aufteilung in drei verschieden große Winkel vermeidet Rattern und Vibration, besonders beim tiefen Fräsen in sehr hartem Material.

🇮🇹 La potenza di tre taglienti abbinata alla precisione di un utensile a due taglienti!

1. Per questo effetto triangolo è stato depositato un brevetto

Per un'elevata precisione del raggio e un'eccellente finitura superficiale. La punta della fresa è a forma triangolare e si differenzia dall'angolo di incidenza nella sezione del raggio. Questo "effetto triangolo" migliora notevolmente la precisione del raggio.

2. L'effetto 3 denti

Garantisce la massima efficienza migliorando la rimozione dei trucioli.

3. La differente suddivisione angolare

La suddivisione in tre differenti angoli impedisce le vibrazioni e i saltellamenti, soprattutto durante le operazioni di fresatura eseguite in profondità nei materiali molto duri.

🇪🇸 ¡El rendimiento de una fresa de tres labios con la precisión de una de dos labios!

1. El efecto triangular – patente en trámite.

Para una alta precisión de radio y una excelente calidad superficial. La punta de la fresa tiene un área triangular con diferente ángulo de incidencia que en la sección del radio. Este "efecto triangular" mejora la precisión del radio.

2. El efecto de 3 labios.

Garantiza una máxima eficiencia y mejora la evacuación de viruta.

3. La distinta subdivisión angular.

La división en tres ángulos de distinto tamaño evita las vibraciones, especialmente en el fresado profundo de materiales duros.

■ ■ Les performances d'une fraise à trois dents – la précision d'une deux dents !

1. L'effet triangulaire - breveté

Pour les tolérances du rayon et une excellente finition. Le point central est constitué d'une « surface triangulaire », différente de l'angle de dépouille à l'intersection du rayon. « L'effet triangulaire » améliore la précision du rayon.

2. L'effet trois dents

Pour une efficacité maximale avec amélioration de l'évacuation des copeaux.

3. L'effet des angles différentiels

La différence de l'angle entre chaque dent évite les phénomènes de broutage et de résonance, particulièrement lors de passes profondes et dans l'usinage de matériaux durs.

🇧🇷 O rendimento de uma fresa de três navalhas com a precisão de duas.

1. O efeito triangular – patente pendente

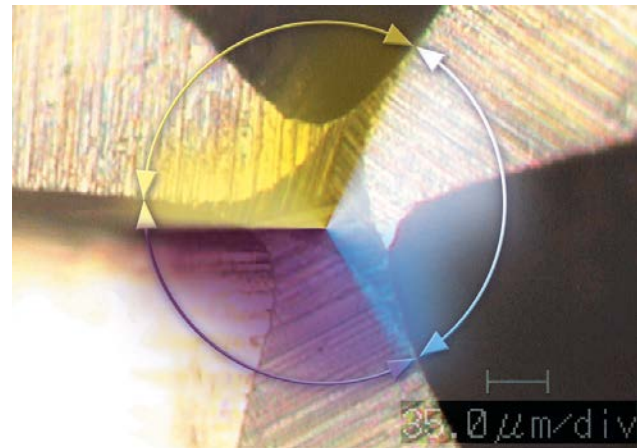
Para uma alta precisão do raio e uma excelente qualidade superficial a ponta da fresa têm uma área triangular com diferentes ângulos de incidência com a secção do raio. Este "efeito triangular" melhora a precisão do raio.

2. O efeito de três navalhas

Garantia de uma máxima eficácia e melhoria na remoção das aparas.

3. A diferente subdivisão angular

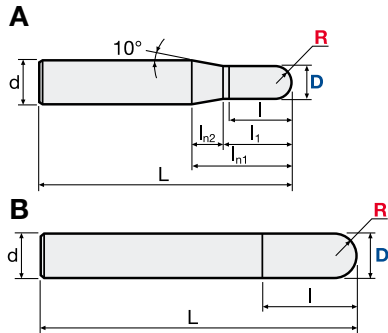
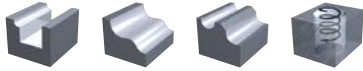
A divisão em três ângulos de diferente tamanho evita as vibrações, especialmente em fresagem profunda de materiais duros.



Solid Carbide 3-flute Ball End Mill for highly efficient milling

EMB-TH | Epoch Mega Feed Ball

V max High Speed	Q max High Efficient	▽ Roughing	▽▽ Semi-Finishing	▽▽▽ Finishing	HRC 65	No. of Teeth 3
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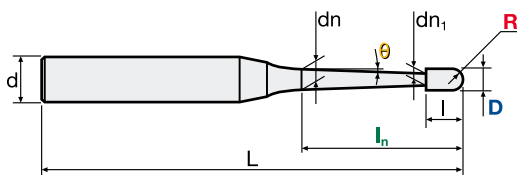


Carbide Micro Grain	TH45+ Nano-PVD Coating	Rake Angle Negative
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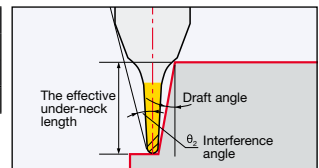
D	(0 / -0.02)
R	± 0.01
d	h5
Helix angle	40°

ID Code	Item Code	D	R	I	I ₁	I _{n1}	I _{n2}	L	d	Type
EP633	EMB-3020TH	2	1	3	4	15.3	11.3	50	6	A
EP634	EMB-3030TH	3	1.5	4.5	5.5	14	8.5	70		
EP635	EMB-3040TH	4	2	6	7	12.7	5.7	80		
EP636	EMB-3050TH	5	2.5	7.5	8.5	11.3	2.8	90		
EP637	EMB-3060TH	6	3	9	-	-	-	100	8	B
EP638	EMB-3080TH	8	4	12				10		
EP639	EMB-3100TH	10	5	15				12		
EP640	EMB-3120TH	12	6	18						

EMBP-TH | Epoch Mega Feed Ball Pencil Neck



D	(0 / -0.02)
R	± 0.01
d	h5
Helix angle	40°



ID Code	Item Code	Size				I	dn ₁	dn	L	d	Actual Effective Length in Incline Angles		
		D	I _n	R	theta						1°	2°	3°
EP641	EMBP-3040-30-10TH	4	30	2	1°	6	3.9	4.738	80	6	31.41	x	x
EP642	EMBP-3040-40-10TH		40					5.087	90		41.72	x	x
EP643	EMBP-3040-50-10TH		50					5.436	100		51.72	x	x
EP644	EMBP-3040-60-10TH		60					5.785	x		x	x	
EP645	EMBP-3050-40-10TH	5	40	2.5	7.5	4.9	6.035	90	8	41.50	44.46	x	
EP646	EMBP-3050-60-10TH		60				6.733	110		61.83	x	x	
EP647	EMBP-3060-50-10TH		50				7.331	100		51.58	x	x	
EP648	EMBP-3060-60-10TH	6	60	3	9	5.9	7.680	110	10	x	x	x	
EP649	EMBP-3060-70-10TH		70				8.030	120		71.93	x	x	
EP650	EMBP-3060-80-10TH		80				8.379	130		81.93	x	x	
EP651	EMBP-3080-60-10TH	8	60	4	12	7.9	9.576	120	10	x	x	x	
EP652	EMBP-3080-70-10TH		70				9.925	130		x	x	x	
EP653	EMBP-3080-80-10TH		80				10.274	140		82.11	x	x	
EP654	EMBP-3100-60-10TH	10	60	5	15	9.9	11.471	130	12	61.88	x	x	
EP655	EMBP-3100-75-10TH		75				11.995	140		x	x	x	

x = no contact

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Product Range

Solid Carbide End Mills



Indexable Milling Tools



WHNSB Drills



Milling Chucks



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