Advanced Engineering

MMC Hitachi Tool

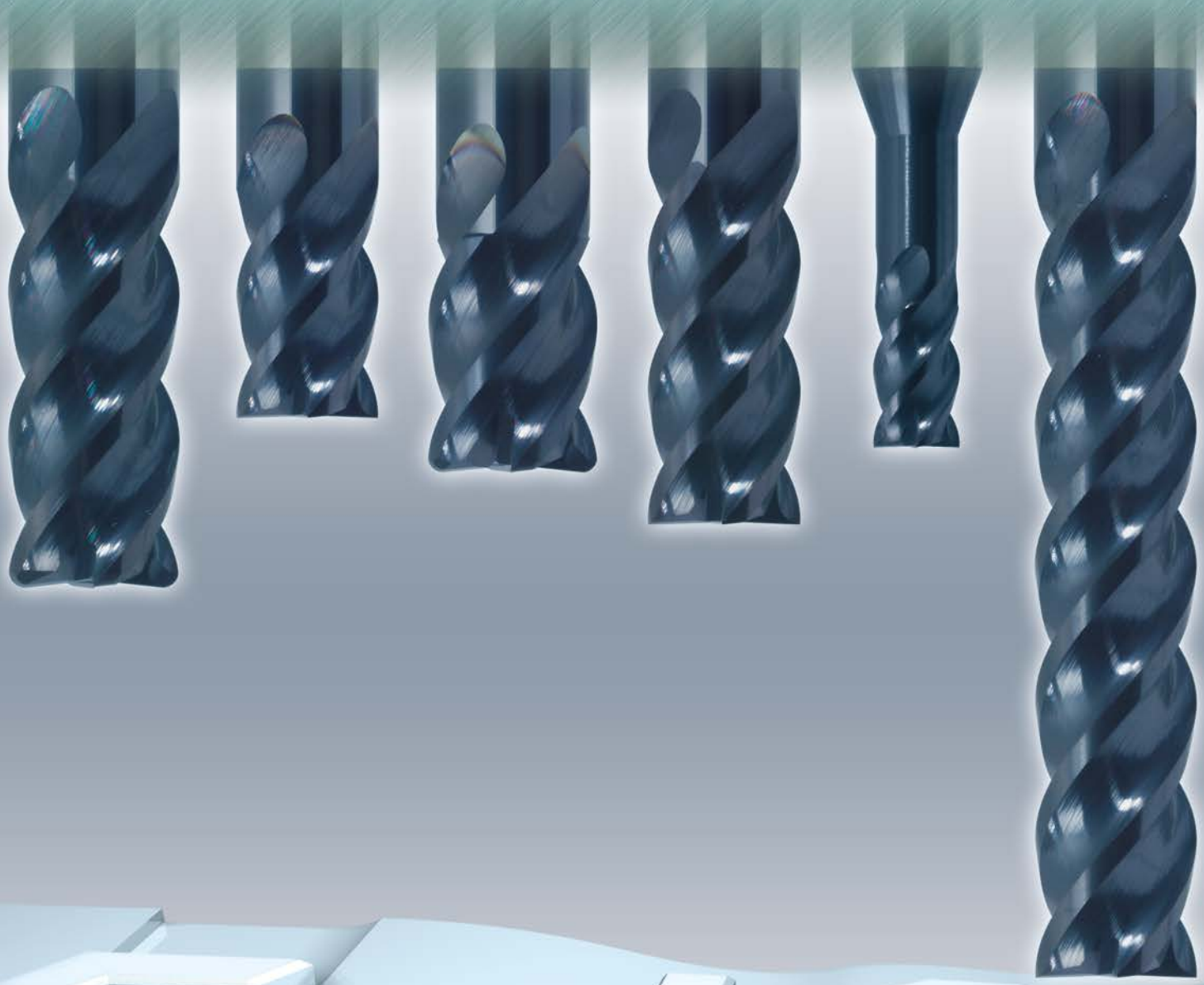
No. 405.2

Epoch21

EPP Epoch Power Mill

An Innovation in Multifunction End Mill Design

Micro Grain Carbide – TiAlN Century Coated



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

Micro Grain Carbide – TiAlN Century Coated

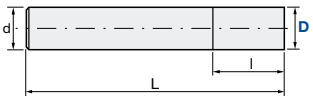
EPPS | Epoch Power Mill Short

Q max	▽	▽▽	▽▽▽	HRC	No. of Teeth
High Efficient	Roughing	Semi-Finishing	Finishing	60	4

B

A

B



Rake Angle
Positive

D 3.0	-0.014/-0.028
D 4.0~D 6.0	-0.020/-0.038
D 8.0~D 20.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	D	l	L	d	Type
EP229	**EPPS-4030**	4	**3**	4.5	60	6	A
EP230	**EPPS-4040**		**4**	6			
EP231	**EPPS-4050**		**5**	7.5			
EP232	**EPPS-4060**		**6**	9			B
EP233	**EPPS-4080**		**8**	12	75	8	
EP234	**EPPS-4100**		**10**	15	80	10	
EP235	**EPPS-4120**		**12**	18	100	12	
EP236	**EPPS-4160**		**16**	24	110	16	
EP237	**EPPS-4200**		**20**	30	125	20	

Cutting Conditions | Schnittwerte | Condizioni di taglio | Condiciones de Corte | Conditions de coupe | Valores de corte:	
D3 – D20	p. 11

Micro Grain Carbide – TiAlN Century Coated

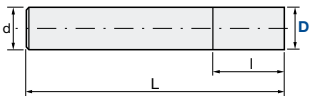
EPP | Epoch Power Mill

Q max	▽	▽▽	▽▽▽	HRC	No. of Teeth
High Efficient	Roughing	Semi-Finishing	Finishing	60	4

B

A

B



Rake Angle
Positive

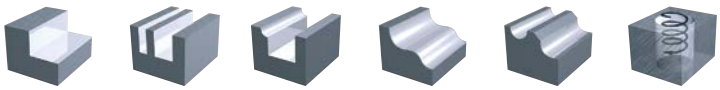
D 3.0	-0.014/-0.028
D 4.0~D 6.0	-0.020/-0.038
D 8.0~D 20.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	D	l	L	d	Type
EP031	**EPP-4030**	4	**3**	8	60	6	A
EP032	**EPP-4040**		**4**	11			
EP033	**EPP-4050**		**5**	13			
EP034	**EPP-4060**		**6**				B
EP035	**EPP-4080**		**8**	19	75	8	
EP036	**EPP-4100**		**10**	22	80	10	
EP037	**EPP-4120**		**12**	26	100	12	
EP038	**EPP-4160**		**16**	32	110	16	
EP039	**EPP-4200**		**20**	38	125	20	

Micro Grain Carbide – TiAlN Century Coated

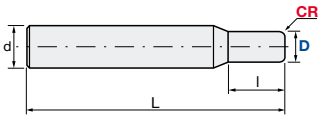
EPP-00 | Epoch Power Mill Corner Radius

Q max	▽	▽▽	▽▽▽	HRC	No. of Teeth
High Efficient	Roughing	Semi-Finishing	Finishing	60	4



B

A



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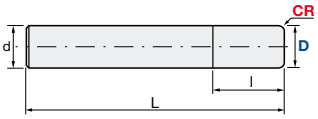


Rake Angle
Positive

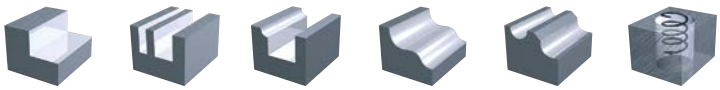
R	± 0.015
D 3.0	-0.014/-0.028
D 4.0~D 6.0	-0.020/-0.038
D 8.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	CR	D	l	L	d	Type
EP041	**EPP-4030-02**	4	0.2	3	8	60	6	A
EP042	**EPP-4030-05**		0.5					
EP043	**EPP-4040-02**		0.2	4	11			
EP044	**EPP-4040-05**		0.5					
EP045	**EPP-4040-10**		1					
EP046	**EPP-4050-02**		0.2	5	13			
EP047	**EPP-4050-05**		0.5					
EP048	**EPP-4050-10**		1					
EP049	**EPP-4060-03**		0.3	6				B
EP050	**EPP-4060-05**		0.5					
EP051	**EPP-4060-10**		1					
EP052	**EPP-4060-15**		1.5					
EP053	**EPP-4080-03**		0.3	8	19	75	8	
EP054	**EPP-4080-05**		0.5					
EP055	**EPP-4080-10**		1					
EP056	**EPP-4080-15**		1.5					
EP057	**EPP-4080-20**		2					

Micro Grain Carbide – TiAlN Century Coated

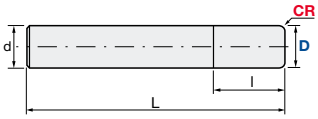
EPP-00 | Epoch Power Mill Corner Radius

Q max	▽	▽▽	▽▽▽	HRC	No. of Teeth
High Efficient	Roughing	Semi-Finishing	Finishing	60	4



B

B



Rake Angle
Positive

R	± 0.015
D 10.0~D 20.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	CR	D	l	L	d	Type
EP058	**EPP-4100-05**	4	0.5	10	22	80	10	B
EP059	**EPP-4100-10**		1					
EP060	**EPP-4100-15**		1.5					
EP061	**EPP-4100-20**		2					
EP062	**EPP-4120-05**		0.5	12	26	100	12	
EP063	**EPP-4120-10**		1					
EP146	**EPP-4120-15**		1.5					
EP147	**EPP-4120-20**		2					
EP148	**EPP-4160-10**		1	16	32	110	16	
EP149	**EPP-4160-15**		1.5					
EP150	**EPP-4160-20**		2					
EP151	**EPP-4160-30**		3					
EP153	**EPP-4200-15**		1.5	20	38	125	20	
EP154	**EPP-4200-20**		2					

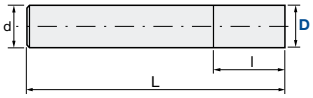
Micro Grain Carbide – TiAlN Century Coated

EPPL | Epoch Power Mill Long

Semi-Finishing	Finishing	HRC	No. of Teeth
▽▽	▽▽▽	60	4

B

B



Rake Angle
Positive

D 6.0	-0.020/-0.038
D 8.0~D 20.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	D	l	L	d	Type
EP238	**EPPL-4060**	4	**6**	25	70	6	B
EP239	**EPPL-4080**		**8**	35	90	8	
EP240	**EPPL-4100**		**10**	45	100	10	
EP241	**EPPL-4120**		**12**	55	120	12	
EP242	**EPPL-4160**		**16**	65	135	16	
EP243	**EPPL-4200**		**20**	75	155	20	

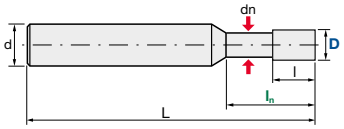
Micro Grain Carbide – TiAlN Century Coated

EPPLS | Epoch Power Mill Long Shank

Semi-Finishing	Finishing	HRC	No. of Teeth
▽▽	▽▽▽	60	4

A

A



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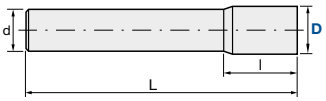


Rake Angle
Positive

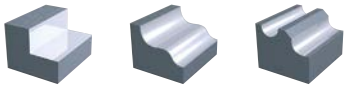
D 3.0	-0.014/-0.028
D 4.0~D 5.0	-0.020/-0.038
D 7.0~D 17.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	D	l_n	l	dn	L	d	Type
EP156	**EPPLS-4030**	4	3	10.5	4.5	2.9	80	6	A
EP157	**EPPLS-4040**		4	14	6	3.8			
EP158	**EPPLS-4050**		5	17.5	7.5	4.8	100		
EP159	**EPPLS-4070**		7	–	9	–	120		C
EP160	**EPPLS-4090**		9		12		135	8	
EP161	**EPPLS-4110**		11		15		150	10	
EP162	**EPPLS-4130**		13		18		160	12	
EP163	**EPPLS-4170**		17		24		180	16	

Micro Grain Carbide – TiAlN Century Coated

EPPLS-00 | Epoch Power Mill Long Shank Corner Radius

Semi-Finishing	Finishing	HRC	No. of Teeth
▽▽	▽▽▽	60	4



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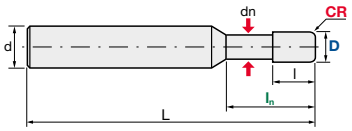
A



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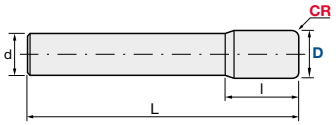


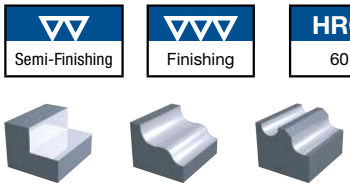
Rake Angle
Positive

R	± 0.015
D 3.0	-0.014/-0.028
D 4.0~D 5.0	-0.020/-0.038
D 7.0~D 11.0	-0.025/-0.047
d	h6

ID Code	Item Code	Z	CR	D	l_n	l	dn	L	d	Type
EP164	**EPPLS-4030-02**	4	0.2	3	10.5	4.5	2.9	80	6	A
EP165	**EPPLS-4030-05**		0.5							
EP166	**EPPLS-4040-02**		0.2	4	14	6	3.8			
EP167	**EPPLS-4040-05**		0.5							
EP168	**EPPLS-4050-02**		0.2	5	17.5	7.5	4.8	100		
EP169	**EPPLS-4050-05**		0.5							
EP170	**EPPLS-4070-03**		0.3	7	–	9	–	120		C
EP171	**EPPLS-4070-05**		0.5							
EP172	**EPPLS-4070-10**		1							
EP173	**EPPLS-4090-05**		0.5	9		12		135	8	
EP174	**EPPLS-4090-10**		1							
EP175	**EPPLS-4090-15**		1.5							
EP176	**EPPLS-4110-05**		0.5	11		15		150	10	
EP177	**EPPLS-4110-10**		1							
EP178	**EPPLS-4110-15**		1.5							

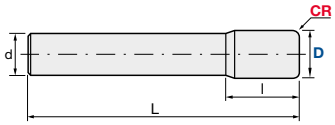
Micro Grain Carbide – TiAlN Century Coated

EPPLS-00 | Epoch Power Mill Long Shank Corner Radius



C

C



R	± 0.015
D 13.0~D 17.0	-0.025/-0.047
d	h6

Rake Angle
Positive

ID Code	Item Code	Z	CR	D	l	L	d	Type
EP179	**EPPLS-4130-05**	4	0.5	13	18	160	12	C
EP180	**EPPLS-4130-10**		1					
EP182	**EPPLS-4130-20**		2					
EP183	**EPPLS-4170-10**		1	17	24	180	16	
EP184	**EPPLS-4170-15**		1.5					
EP185	**EPPLS-4170-20**		2					

MATERIAL CLASSIFICATION:

I. Carbon Steels, Construction Steels
up to 200HB (~700 N/mm²)

II. Alloy Steels, Case Hardening Steels,
Heat Treatable Steels
200~300HB (~1,000 N/mm²)

III. Alloy Steels
30~45HRC (~1,400 N/mm²)

IV. Tool Steels (hot & cold), Hardened Steels
45~55HRC (~2,000 N/mm²)

V. Tool Steels (cold), Hardened Steels, HSS
55~70HRC (2,000 N/mm² ~)

VI. Stainless Steels
20~40HRC (800~1,200 N/mm²)

VII. Heat Resisting Steels, Titanium,
Nickel & Cobalt Alloys, incl. Inconel
25~60HRC (850~2,180 N/mm²)

VIII. Cast Irons (GG), Ductile Cast Iron (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Aluminium, Copper Alloys, incl. Brass

MATERIALKLASSIFIKATION:

I. Kohlenstoffstähle, Baustähle
bis 200HB (~700 N/mm²)

II. Legierte Stähle, Einsatzstähle,
Hitzebehandelbare Stähle
200~300HB (~1.000 N/mm²)

III. Legierte Stähle
30~45HRC (~1.400 N/mm²)

IV. Werkzeugstähle (warm & kalt), Gehärtete Stähle
45~55HRC (~2.000 N/mm²)

V. Werkzeugstähle (kalt), Gehärtete Stähle, HSS
55~70HRC (2.000 N/mm² ~)

VI. Rostfreie Stähle
20~40HRC (800~1.200 N/mm²)

VII. Hitzebeständige Stähle,
Titan, Nickel & Kobalt Legierungen, inkl. Inconel
25~60HRC (850~2.180 N/mm²)

VIII. Gusseisen (GG), Schmiedbares Gusseisen (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Aluminium, Kupfer-Legierungen, inkl. Bronze

CLASSIFICATION POUR LES MATIERES:

I. Acier au carbone, Acier de construction
jusqu'à 200HB (~700 N/mm²)

II. Acier allié, Acier coulé,
200~300HB (~1.000 N/mm²)

III. Acier allié
30~45HRC (~1.400 N/mm²)

IV. Acier à outil, Acier traité
45~55HRC (~2.000 N/mm²)

V. Acier à outil, Acier traité, Acier rapide
55~70HRC (2.000 N/mm² ~)

VI. Acier inoxydable
20~40HRC (800~1.200 N/mm²)

VII. Acier résistant à la chaleur, Titane,
Nickel et alliage, Inconel
25~60HRC (850~2.180 N/mm²)

VIII. Fonte malléable (GG), Fonte sphéroïdale (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Aluminium et alliage de cuivre, Laiton

CLASIFICACION DE MATERIAL:

I. Acero, Acero de construcción
hasta 200HB (~700 N/mm²)

II. Acero aleado, Acero de cementación,
Acero termo-tratable
200~300HB (~1.000 N/mm²)

III. Acero aleado
30~45HRC (~1.400 N/mm²)

IV. Acero de herramienta (frio & caliente),
Acero endurecido
45~55HRC (~2.000 N/mm²)

V. Acero de herramienta (frio), Acero endurecido,
Acero rápido
55~70HRC (2.000 N/mm² ~)

VI. Acero inoxidable
20~40HRC (800~1.200 N/mm²)

VII. Acero termo-resistente,
Aleaciones exóticas (Ti, Ni, Co)
25~60HRC (850~2.180 N/mm²)

VIII. Fundición (GG), Fundición maleable (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Aleaciones de aluminio y cobre, Latón

CLASSIFICAZIONE DEL MATERIALE:

I. acciaio al carbonio, acciaio da costruzione
superiore a 200HB (~700 N/mm²)

II. acciaio legato,
acciaio flammato (tempra ad induzione)
200~300HB (~1.000 N/mm²)

III. acciaio legato
30~45HRC (~1.400 N/mm²)

IV. acciaio per utensile (caldo & freddo),
acciaio temprato
45~55HRC (~2.000 N/mm²)

V. acciaio per utensile (freddo), acciaio temprato, HSS
55~70HRC (2.000 N/mm² ~)

VI. acciaio inossidabile
20~40HRC (800~1.200 N/mm²)

VII. acciaio resistente al calore,
Ti-, Ni-, Co-legato, Inconel
25~60HRC (850~2.180 N/mm²)

VIII. ghisa (GG), ghisa malleabile (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Al-, Cu-legato, Ottone

CLASSIFICAÇÃO DO MATERIAL:

I. Aço carbono, Aço de Construção
até 200HB (~700 N/mm²)

II. Liga de Aço, Aço cementado, Aço endurecido
por tratamento térmico
200~300HB (~1,000 N/mm²)

III. Liga de aço
30~45HRC (~1,400 N/mm²)

IV. Aço para ferramentas (quente & frio), Aço temperado
45~55HRC (~2,000 N/mm²)

V. Aço para ferramentas (frio), Aço temperado, HSS
55~70HRC (2,000 N/mm² ~)

VI. Aço inoxidável
20~40HRC (800~1,200 N/mm²)

VII. Aço refratário, Ligas de Titânio, Níquel & Cobalto, incluindo
Inconel 25~60HRC (850~2,180 N/mm²)

VIII. Ferro fundido (GG), Ferro fundido dúctil (GGG)
GG~120HB (100~400 N/mm²)
GGG~240HB (350~800 N/mm²)

IX. Ligas de Alumínio e Cobre, incluindo Bronze.

Advanced Engineering

MMC Hitachi Tool

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Product Range

Solid Carbide End Mills

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Indexable Milling Tools

Indexable Milling

WHNSB Drills

WHNSB NON STEP BOREN

Milling Chucks

Milling Chucks

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HTT615 1505 EPP-6.5 BW-DS