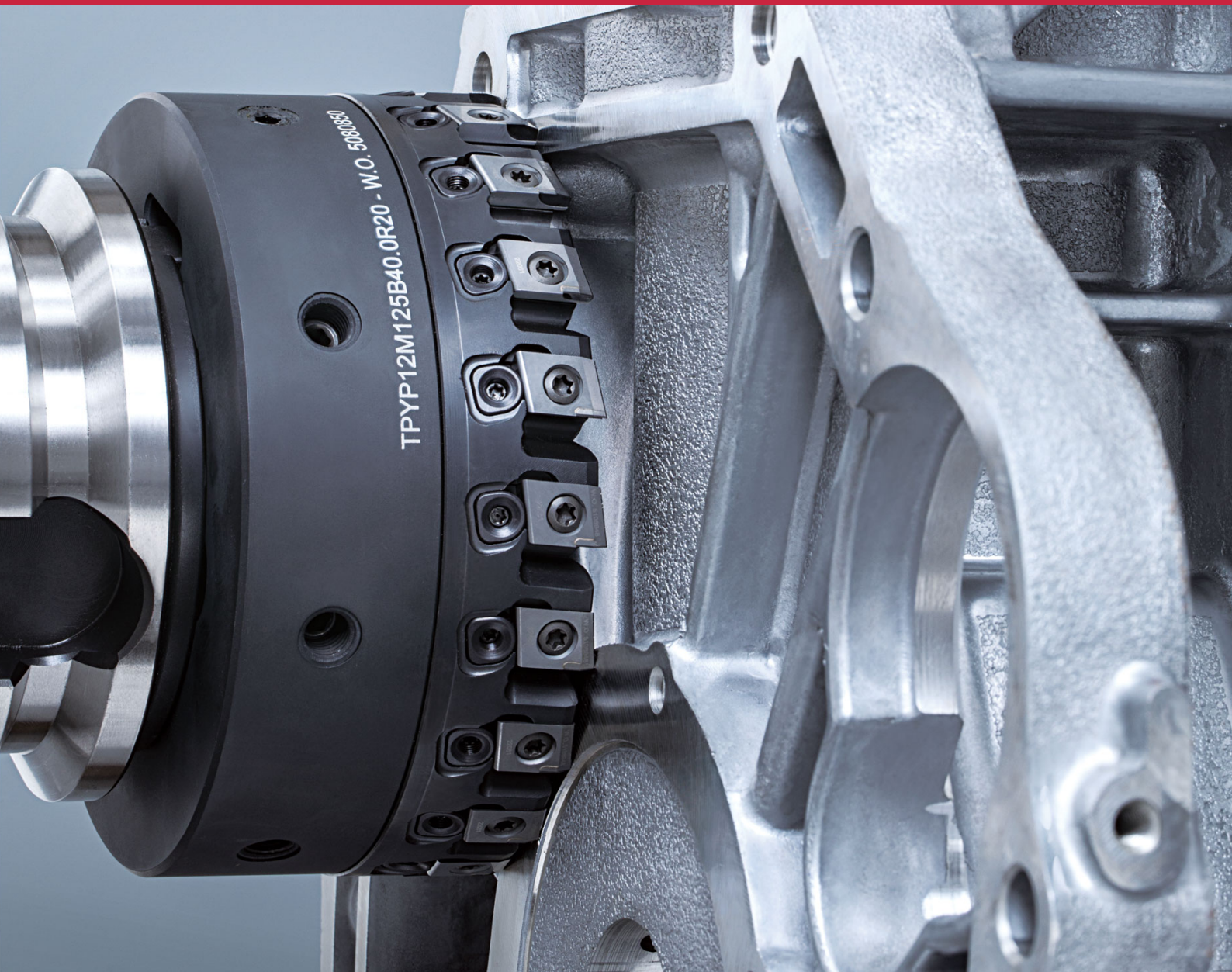


High speed face milling cutter for finishing aluminum



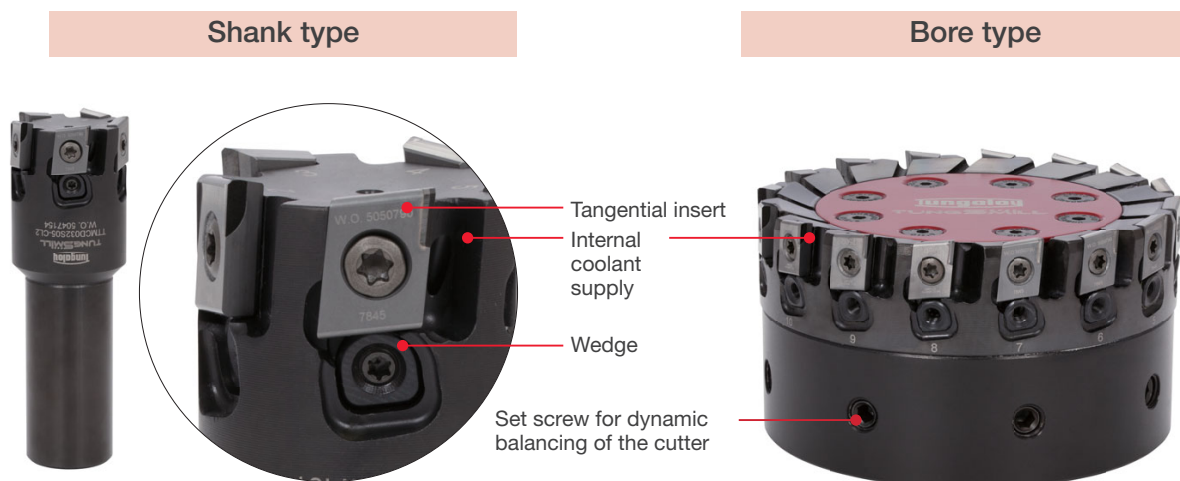
TungSpeed-Mill with **tangentially clamped inserts** for improved face milling efficiency

Features

- High density for high speed milling
- Tangential inserts create stronger insert orientation and higher productivity
- Cutter bodies are available in shell mill (bore) type in $\varnothing 50$ mm and larger and cylindrical (shank) type in $\varnothing 40$ mm and smaller
- PCD inserts come in various geometries including double-edged and long-edge styles

Tough body for high performance

The cutter body is made of part steel for secure insert clamping and durability and part aluminum for reduced cutter weight. Titanium body is also available upon request for higher durability and lighter weight.



Designation system for Insert

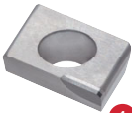
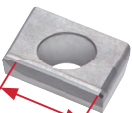
Y P E B 1 2 X 3 - 1 A 01 R - D

1

2

3

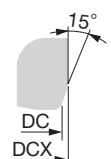
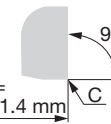
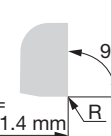
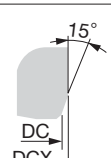
1 Number of PCD tips on insert

Symbol	Type
1	 Single edge - Cutting edge length = 4 mm - Grade: DX160 - General purpose
2	 Double edges - Cutting edge length = 4 mm - Grade: DX160 - Economical
F	 Full edged - Cutting edge length = 11 mm - Grade: DX160 - Long cutting edge length for deep depth of cut

2 Cutter diameter

Symbol	Type
P	DC ≤ ø50 mm For cutter diameter of 50 mm or less
A	DC > ø50 mm For cutter diameter of over 50 mm (50 mm not inclusive)

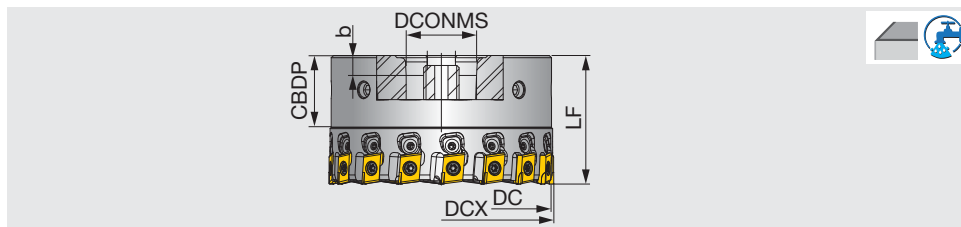
3 Cutter edge geometry

Symbol	Shape	Applications	Surface finish quality
01		Recommended for finishing surfaces without square shoulders. Suitable for roughing also.	$0.4 \leq Ra \leq 0.8$
02		Recommended for finishing square shoulder surfaces. Suitable for roughing also.	$0.4 \leq Ra \leq 0.8$
05*		Designed for roughing or for cutting material with a high impurity content or gates. Edge prepared (T-land: $0.2 \times 10^\circ$) for fracture resistance.	$0.4 \leq Ra \leq 1$
07		Optimized for finishing rough surfaces.	$0.4 \leq Ra \leq 1$
09*		For heavy roughing operations.	$0.8 \leq Ra \leq 3.2$

* Made to order

TPYP12

High speed PCD mill for non ferrous metal



Designation	DC	DCX	CICT	LF	DCONMS	CDBP	KWW	b	WT(kg)	Air hole	Insert
TPYP12M050B22.0R08	50	51.4	8	55	22	20	10.4	6.3	0.9	With	YPEB12X3-*P...
TPYP12M063B22.0R10	63	64.4	10	55	22	20	10.4	6.3	1.3	With	YPEB12X3-*A...
TPYP12M080B27.0R12	80	81.4	12	58	27	22	12.4	7	2.2	With	YPEB12X3-*A...
TPYP12J080B25.4R12	80	81.4	12	58	25.4	26	9.5	6	2.2	With	YPEB12X3-*A...
TPYP12M100B32.0R16	100	101.4	16	58	32	25	14.4	8	1.9	With	YPEB12X3-*A...
TPYP12J100B31.7R16	100	101.4	16	58	31.75	32	12.7	8	1.9	With	YPEB12X3-*A...
TPYP12M125B40.0R20	125	126.4	20	58	40	28	16.4	9	2.9	With	YPEB12X3-*A...
TPYP12J125B38.1R20	125	126.4	20	58	38.1	38	15.9	10	2.9	With	YPEB12X3-*A...

*DCX: Outside diameter

DC: Diameter with O1 type insert

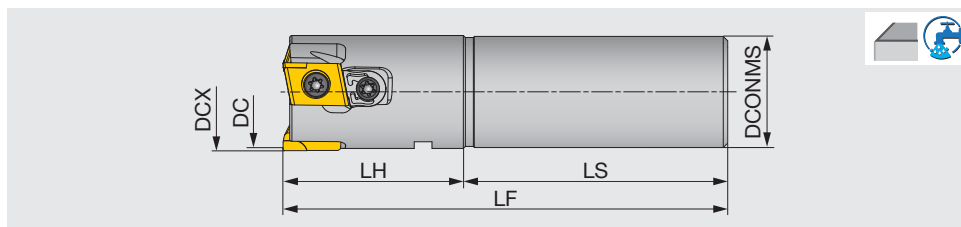
SPARE PARTS

Designation	Clamping screw	Wrench	Wedge fixing screw	Wedge	Wrench	Cover	Shell locking bolt
TPYP12M050B22.0R08	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	-	RSFTS-050M
TPYP12M063B22.0R10	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6063M	VC004762110035F
TPYP12M080B27.0R12	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6080	VC00TED112040F
TPYP12J080B25.4R12	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6080	VC00TED112040F
TPYP12M100B32.0R16	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6100	VC00TANG16040F
TPYP12J100B31.7R16	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6100	VC00TANG16040FI
TPYP12M125B40.0R20	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6125	VC00TED120040F
TPYP12J125B38.1R20	VX040024A	T-15F	RSRGR7M40	RSFTC1008	T-8F	RSFTS6125	VC00TANG120040F

*Recommended clamping torque (N·m): VX040024A=4.5

EPYP12

High speed PCD endmill for non ferrous metal



Designation	DC	DCX	CICT	DCONMS	LF	LH	LS	WT(kg)	Air hole	Insert
EPYP12M025C25.0R03	25	26.4	3	25	100	50	50	0.4	With	YPEB12X3-*P...
EPYP12M032C25.0R05	32	33.4	5	25	100	45	55	0.5	With	YPEB12X3-*P...

*DCX: Outside diameter

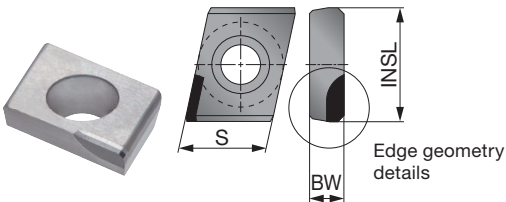
DC: Diameter with O1 type insert

SPARE PARTS

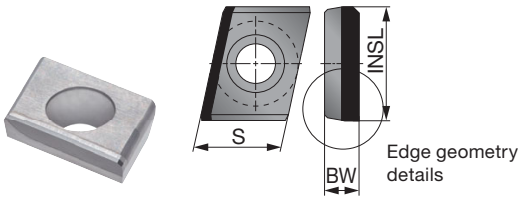
Designation	Clamping screw	Wrench	Wedge fixing screw	Wedge	Wrench
EPYP12M025C25.0R03	VX040024A	T-15F	VX040028A	RSFTC1011	T-8F
EPYP12M032C25.0R05	VX040024A	T-15F	RSRGR7M40	RSFTC1009	T-8F

*Recommended clamping torque (N·m): VX040024A=4.5

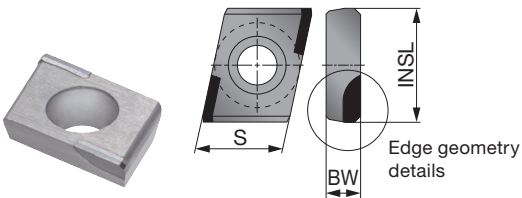
YPEB12X3-1A



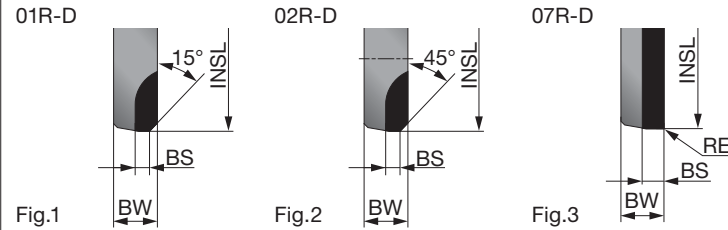
YPEB12X-FP



YPEB12X3-2A/P



Edge geometry details



P	Steel			
M	Stainless			
K	Cast iron			
N	Non-ferrous	★		
S	Superalloys			
H	Hard materials			

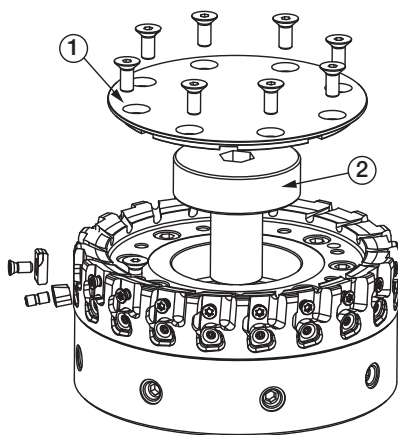
Designation	No. of corner	RE	APMX	PCD									INSL	S	BW	BS	Applicable cutter diameter	Fig.
				DX160														
YPEB12X3-1A01R-D	1	-	4	●									12.77	9.525	3.85	1.59	Dc > ø50 mm	1
YPEB12X3-1A02R-D	1	-	4	●									12.756	9.525	3.85	1.29	Dc > ø50 mm	2
YPEB12X3-1A07R-D	1	0.4	4	●									12.756	9.525	3.85	1.34	Dc > ø50 mm	3
YPEB12X3-1P02R-D	1	-	4	●									12.817	9.525	3.85	1.37	Dc ≤ ø50 mm	2
YPEB12X3-1P07R-D	1	0.4	4	●									12.817	9.525	3.85	1.37	Dc ≤ ø50 mm	3
YPEB12X3-FP02R-D	1	-	11	●									12.817	9.525	3.85	1.37	Dc ≤ ø50 mm	2
YPEB12X3-FP07R-D	1	0.4	11	●									12.817	9.525	3.85	1.37	Dc ≤ ø50 mm	3
YPEB12X3-2A01R-D	2	-	4	●									12.8	9.525	3.868	1.59	Dc > ø50 mm	1
YPEB12X3-2A02R-D	2	-	4	●									12.8	9.525	3.868	2.07	Dc > ø50 mm	2
YPEB12X3-2A07R-D	2	0.4	4	●									12.8	9.525	3.868	2.07	Dc > ø50 mm	3
YPEB12X3-2P07R-D	2	0.4	4	●									12.876	9.525	3.85	2.07	Dc ≤ ø50 mm	3

● : Line up

100

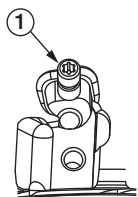
ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed per tooth fz (mm/z)
N	Aluminum cast Si < 13%	DX160	≤ 6000	0.05 - 0.25
	Aluminum cast Si ≥ 13%	DX160	≤ 1500	0.05 - 0.25
	Copper, brass, etc.	DX160	≤ 2000	0.05 - 0.25
	Non metallic material	DX160	≤ 3000	0.05 - 0.25

■ Mounting on holder

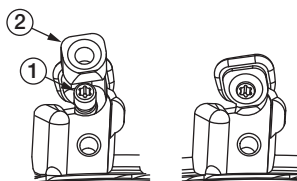


1. Remove the cover ① and the bolt ② from the cutter
2. Connect the holder to the cutter body, making sure the drivers of the holder fit into the cutter's slots
3. Drive in the bolt ②
4. Put the cover ① back on its seat
5. Fasten the cover ① with screws

■ Mounting on inserts



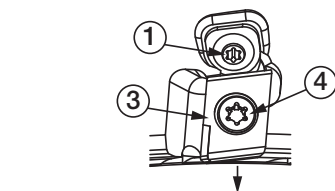
1. Insert set screw ① into its own seat and screw it down partially (1/2 threads).



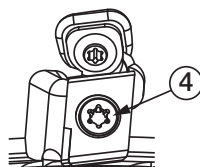
2. Connect wedge ② with its own set screw ① and screw it until the maximum gap over the cutter body is approximately 1 mm.



3. Put insert ③ into its own seat pushing as per the arrow. Slightly clamp clamping screw ④.



4. Apply torque on screw ① and then on clamping screw ④ if needed (unscrew slightly) to adjust the axial height of Insert ③.

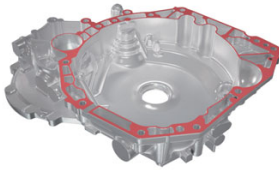
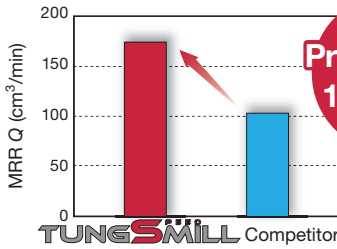
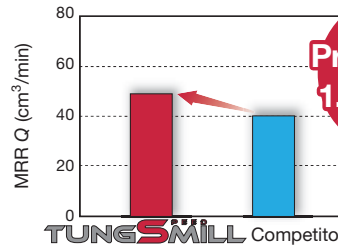


5. When axial location is achieved, tighten the clamping screw at 4.5 N.m ④. Repeat the procedure for each insert.

We recommend to replace screw ④ every two changes of the insert.

Note: Run out should not exceed 10 microns.

PRACTICAL EXAMPLES

Workpiece type		Case	Housing
Cutter		Special tool (ø32 mm, z = 5)	Special tool (ø32 mm, z = 5)
Insert		YPEB12X3-1A07R-D	YPEB12X3-1A07R-D
Grade		DX160	DX160
		ADC12	ADC12
Workpiece material			
Cutting conditions	Cutting speed: V_c (m/min)	1,000	1,000
	Feed per tooth: f_z (mm/t)	0.07	0.02
	Depth of cut: a_p (mm)	2	2
	Width of cut: a_e (mm)	25	25
	Coolant	Wet (Internal)	Wet (Internal)
Results		 TungSpeed-Mill's ø32 mm cutter carrying 5 inserts vs the competitor's 3 inserts gained 1.7x productivity.	 Unpredictable tool life for the competitor's tool, lacking insert height adjusters. TungSpeed-Mill, with precision adjustments and high density design, provided improved predictability and 1.25x productivity.

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