

MillLine

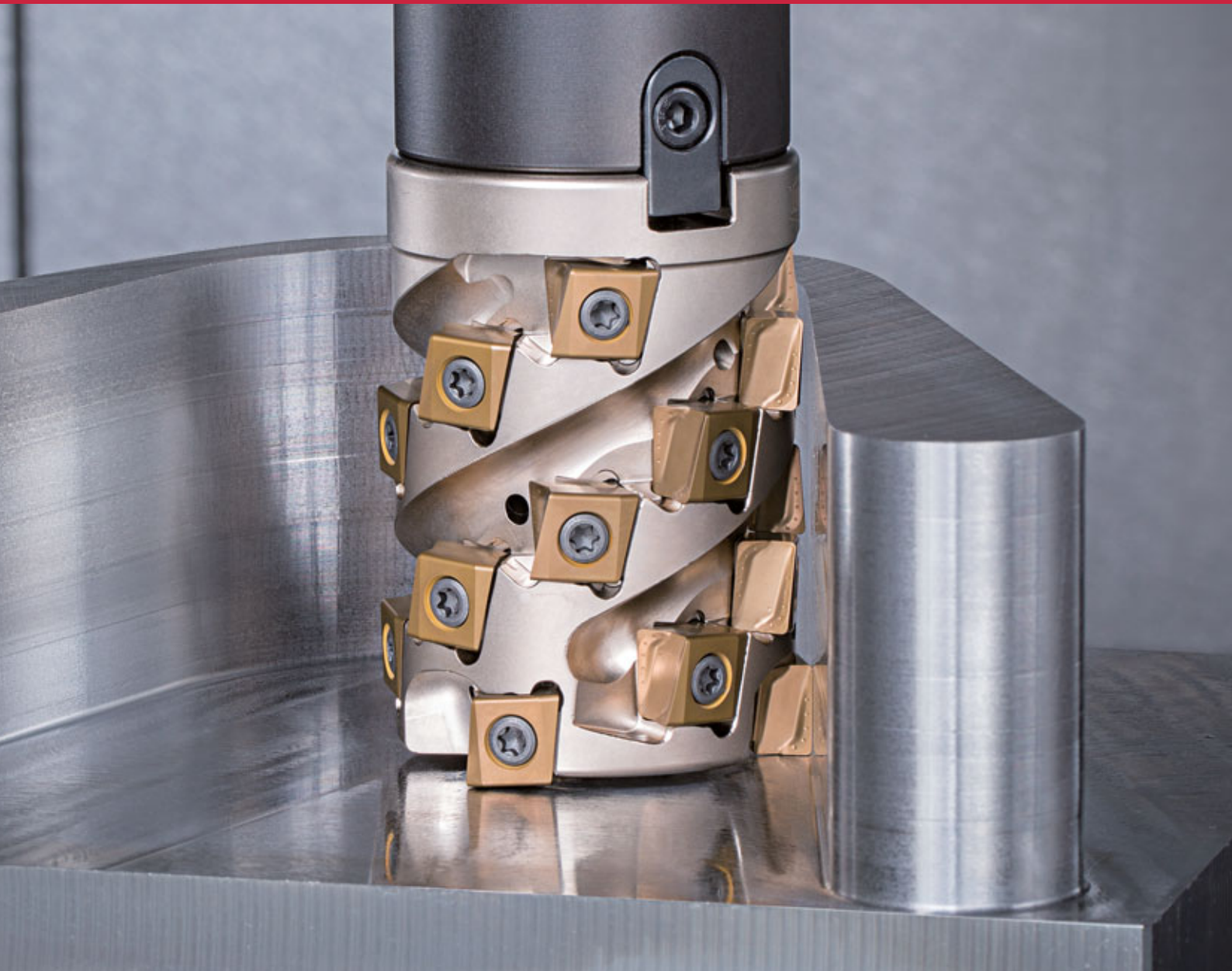
TECMILL

www.tungaloy.com

Tungaloy Report No. 374-G

Member IMC Group
Tungaloy

Unprecedented stability in roughing / finishing due to highly reliable tangential insert



INDUSTRY 4.0
FEED the SPEED!

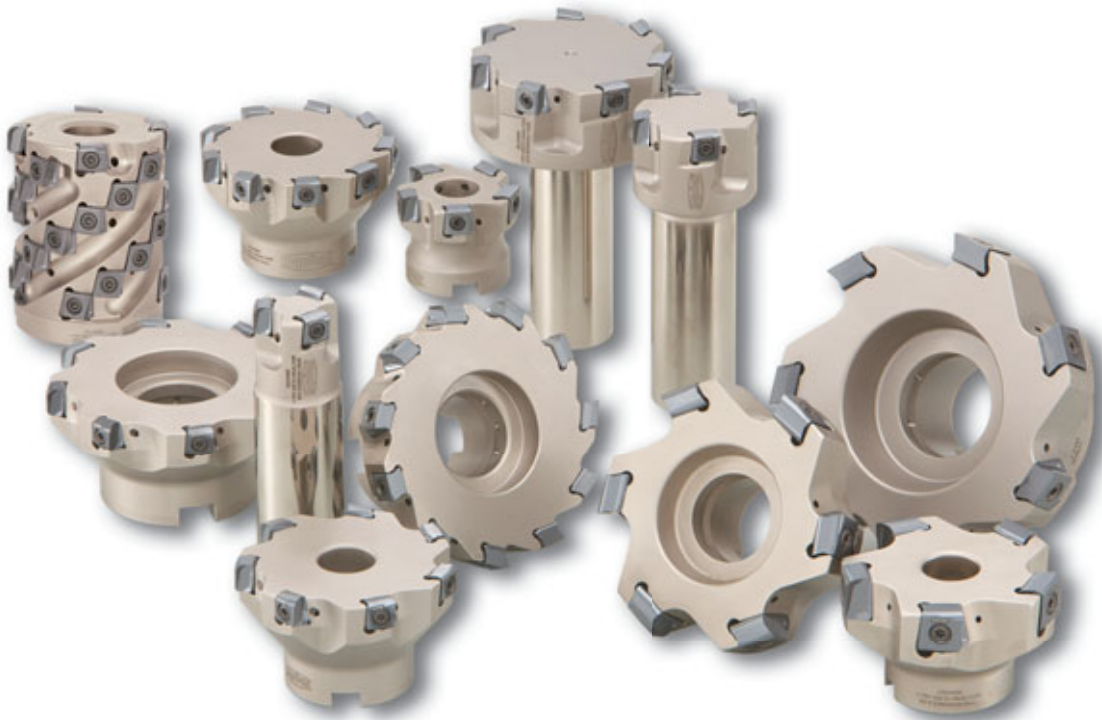


Tungaloy

ACCELERATED MACHINING

MillLine

TECMILL
TUNGALOY



High productivity and stable cutting with large depth of cut in shouldering and finishing

Tangential insert with **high stability** guarantees exceptional reliability in rough shouldering and finishing

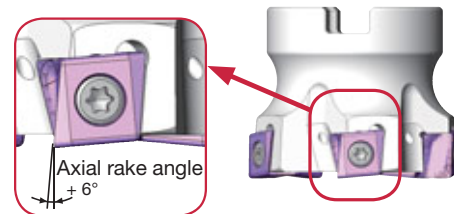
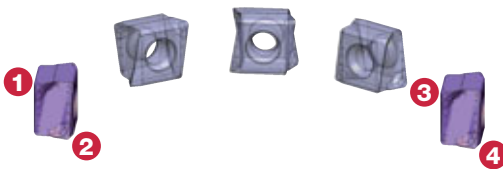
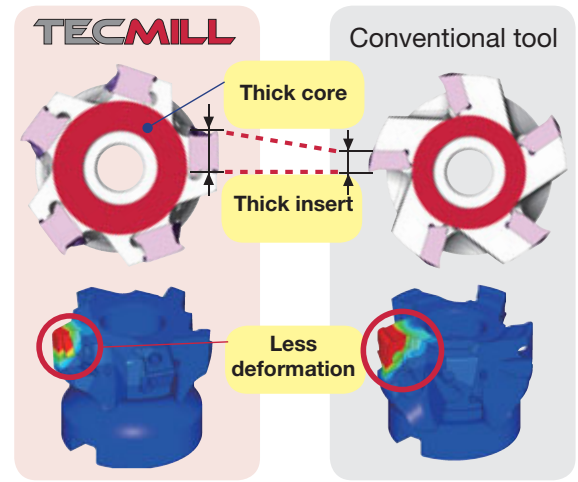
Reliable operation

Delivers high productivity with large depth of cut

- Highly rigid cutter with thicker core
- Tangentially mounted insert with thicker cross section and tough cutting edges

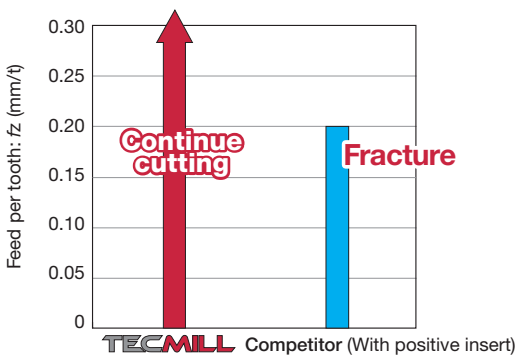
4-cornered insert

- Economical double sided insert
- Large rake and inclination angles reduce cutting forces and provide stable, smooth cutting



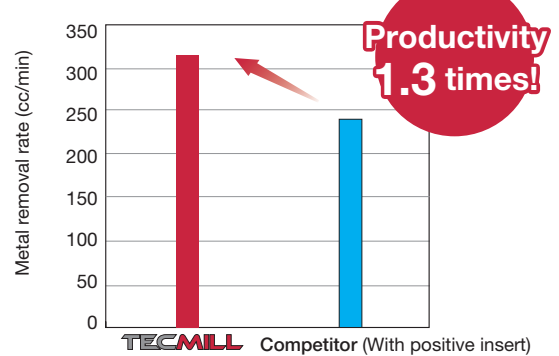
CUTTING PERFORMANCE

■ Comparison of cutting edge toughness



Workpiece : S55C / C55 (200HB)
 Tool ø : ø50 mm
 Cutting speed : Vc = 250 m/min
 Depth of cut : ap = 3 mm
 Width of cut : ae = 12.5 mm

■ Comparison of metal removal rate



Workpiece : S55C / C55 (200HB) Depth of cut : ap = 10 mm
 Tool ø : ø63 mm Width of cut : ae = 35 mm
 Cutting speed : Vc = 150 m/min Cutting fluids : Dry
 Feed per tooth
 TECMILL : fz = 0.2 mm/t (z = 6)
 Competitor : fz = 0.15 mm/t (z = 6)

Rich grade lineup for every kind of material

A total of four grades, including two new CVD grades

New

AH3135

P M
Steel Stainless

- PVD grade with high chipping resistance
- Suitable for machining steel and stainless steel in general cutting conditions

New

T1215

K
Cast iron

- CVD grade with outstanding wear and chipping resistance
- Best for cast iron at high-speed machining

New

T3225

P M
Steel Stainless

- CVD grade with outstanding wear and chipping resistance
- Most suited for steel and stainless steel at high-speed machining

AH725

P S H
Steel Superalloys Hard materials

- PVD grade with high wear resistance
- Suitable for difficult-to-cut materials and high-hardened steel

AH120

P K
Steel Cast iron

- PVD grade with a well-balanced wear and fracture resistance
- Ideal for general machining of steel and stainless steel

AH140

P M
Steel Stainless

- PVD grade with high chipping resistance
- Suitable for workpieces required interrupted cutting and stainless steel

T3225 / T1215
TUNGALOY

Special Surface Technology **PREMIUMTEC**
TUNGALOY

Enhanced coating resistance to chipping and peeling

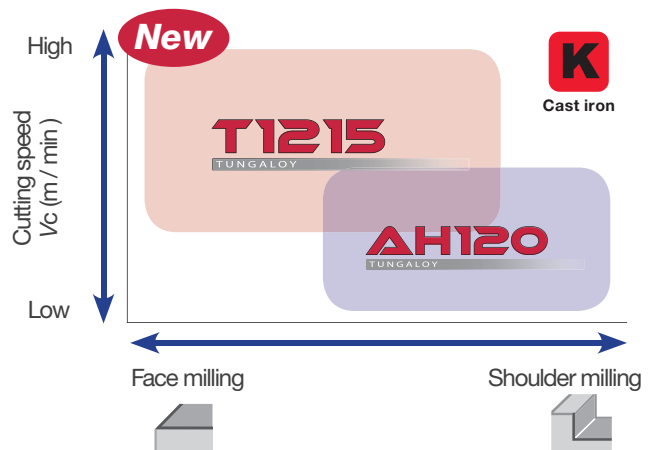
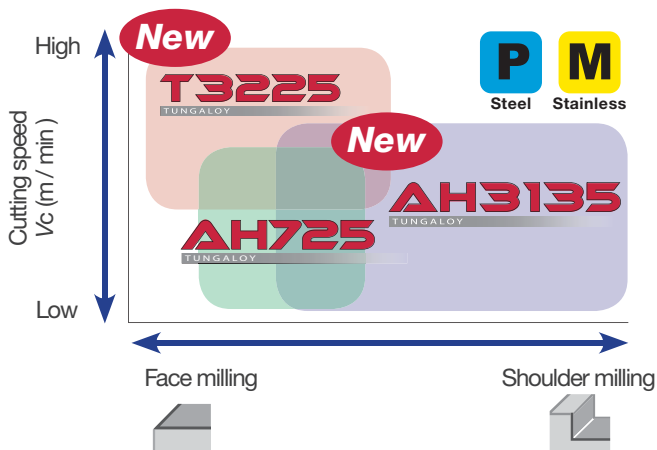
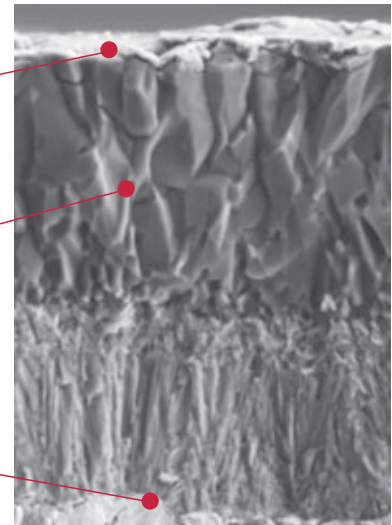
- Special surface post-treatment technology improves surface smoothness

Superior wear resistance in high speed cutting

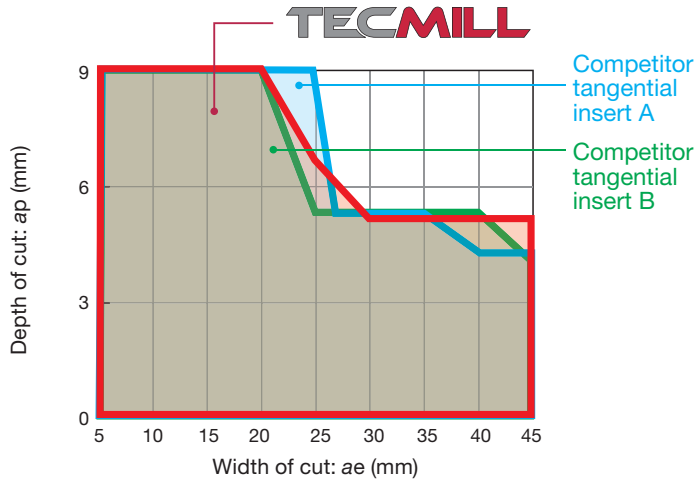
- A thick alumina (Al₂O₃) layer improves insert life in a high cutting temperature generated during high speed machining

Enhanced coating resistance to peeling

- Strong adhesion between the carbide substrate and the coating layer improves coating resistance to peeling



APPLICATION RANGE

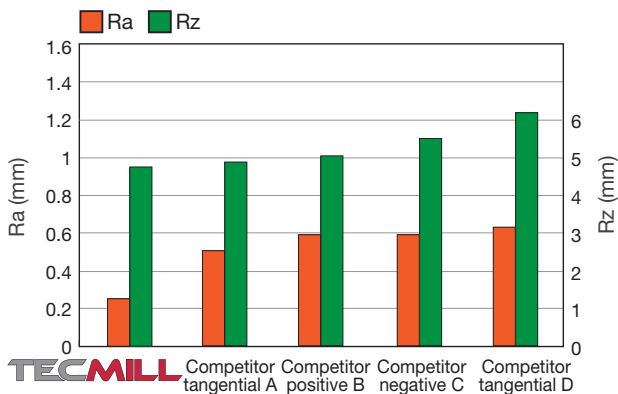


Cutter	: TPM11R050M22.0E05 ($\phi D_c = 50$ mm, $z = 5$)
Insert	: LMMU110708PNER-MJ AH3135
Workpiece material	: S55C / C55
Cutting speed	: $V_c = 180$ m/min
Feed per tooth	: $f_z = 0.2$ mm/t
Feed speed	: $V_f = 1146$ mm/min
Number of revolutions	: $n = 1146$ min ⁻¹
Coolant	: Dry
Machine	: Vertical M/C, BT50

TecMill maximizes the application area of tangential inserts.

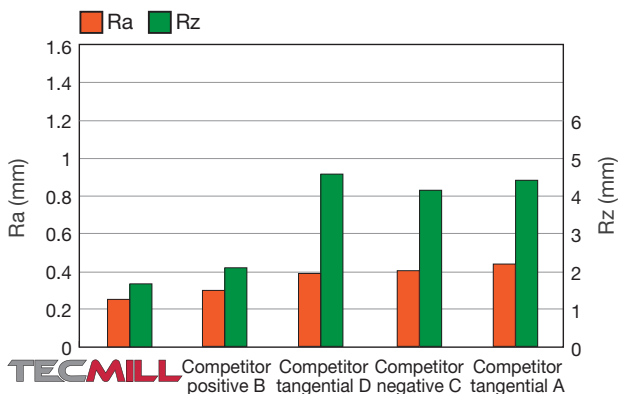
CUTTING PERFORMANCE

Surface finish: Carbon steel



P	Cutter	: TPM11R050M22.0E05 ($\phi D_c = 50$ mm, $z = 5$)
	Insert	: LMMU110708PNER-MJ AH3135
	Workpiece material	: S55C / C55
	Cutting speed	: $V_c = 250$ m/min
	Feed per tooth	: $f_z = 0.1$ mm/t
	Feed speed	: $V_f = 636.6$ mm/min
	Number of revolutions	: $n = 1591$ min ⁻¹
	Depth of cut	: $a_p = 1.5$ mm
	Cutting width	: $a_e = 40$ mm
	Coolant	: Dry
	Machine	: Vertical M/C, BT50

Surface finish: Stainless steel

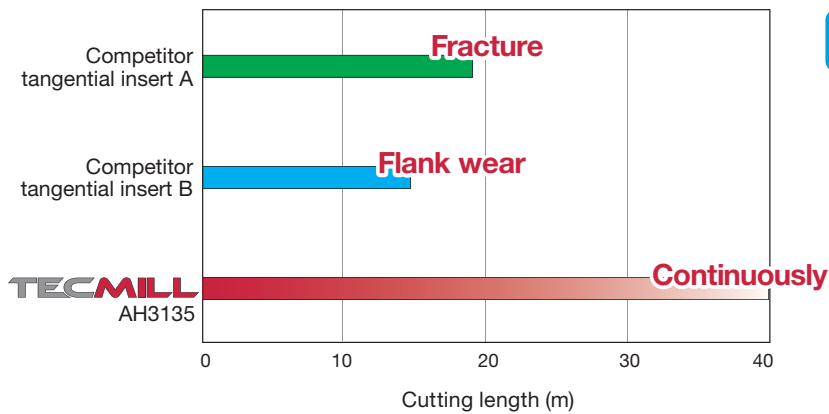


M	Cutter	: TPM11R050M22.0E05 ($\phi D_c = 50$ mm, $z = 5$)
	Insert	: LMMU110708PNER-MJ AH3135
	Workpiece material	: SUS304 / X5CrNi18-9
	Cutting speed	: $V_c = 150$ m/min
	Feed per tooth	: $f_z = 0.1$ mm/t
	Feed speed	: $V_f = 477$ mm/min
	Number of revolutions	: $n = 955$ min ⁻¹
	Depth of cut	: $a_p = 2$ mm
	Cutting width	: $a_e = 40$ mm
	Coolant	: Wet
	Machine	: Vertical M/C, BT50

Surface roughness:
Highly reliable insert and body provide excellent surface roughness compared to the competitors including positive inserts and tangential inserts.

CUTTING PERFORMANCE

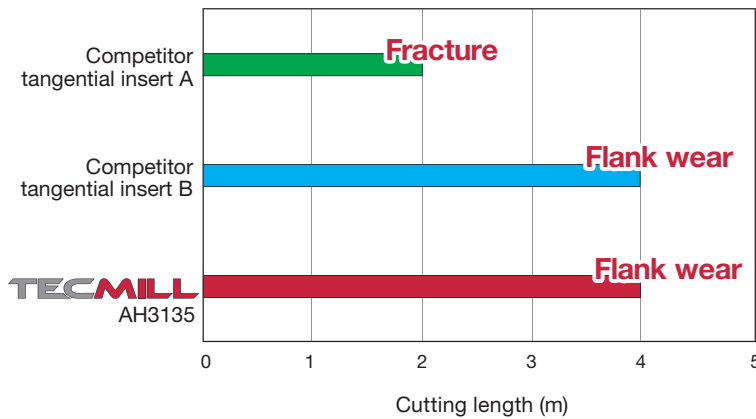
Tool life: Carbon steel



P

Cutter : TPM11R050M22.0E05
 ($\phi D_c = 50$ mm, $z = 5$)
 Insert : LMMU110708PNER-MJ AH3135
 Workpiece material : S55C / C55
 Cutting speed : $V_c = 180$ m/min
 Feed per tooth : $f_z = 0.2$ mm/t
 Feed speed : $V_f = 229$ mm/min
 Number of revolutions : $n = 1146$ min⁻¹
 Depth of cut : $a_p = 5$ mm
 Cutting width : $a_e = 30$ mm
 Coolant : Dry
 Machine : Vertical M/C, BT50

Tool life: Cast iron



K

Cutter : TPM11R050M22.0E05
 ($\phi D_c = 50$ mm, $z = 5$)
 Insert : LMMU110708PNER-MJ T1215
 Workpiece material : FC250 /GG25 / 250
 Cutting speed : $V_c = 250$ m/min
 Feed per tooth : $f_z = 0.2$ mm/t
 Feed speed : $V_f = 318$ mm/min
 Number of revolutions : $n = 1592$ min⁻¹
 Depth of cut : $a_p = 5$ mm
 Cutting width : $a_e = 20$ mm
 Coolant : Dry
 Machine : Vertical M/C, BT50

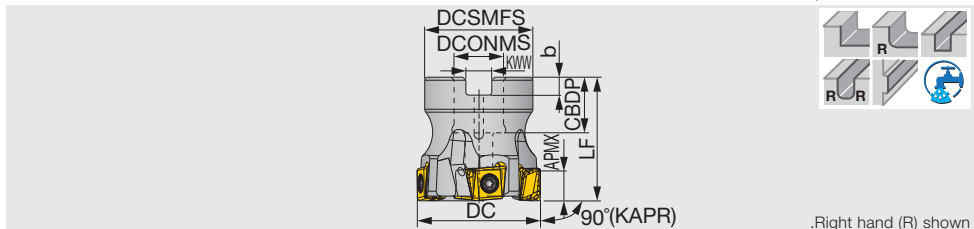
Tool life:

Due to tough cutting edges and a new grade, tool life is increased to 200% at the maximum.

TPM11,16

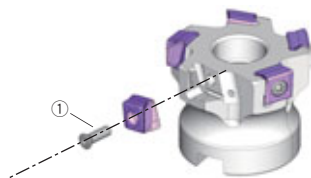
Square shoulder mills with LMMU type tangential clamped insert with 4 edges

A.R. = +5° ~ +6°, R.R. = +9° ~ +13°



.Right hand (R) shown

Designation	APMX	DC	CICT	DCSMFS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TPM11R050M22.0-05	9.7	50	5	41	40	22	20	10	6	0.3	with	LMMU1107...
TPM11R050M22.0E05	9.7	50	5	41	40	22	20	10.4	6.3	0.3	with	LMMU1107...
TPM11R063M22.0-06	9.7	63	6	41	40	22	20	10	6	0.5	with	LMMU1107...
TPM11R063M22.0E06	9.7	63	6	41	40	22	20	10.4	6.3	0.5	with	LMMU1107...
TPM11R080M25.4-07	9.7	80	7	46	50	25.4	26	9.5	6	0.9	with	LMMU1107...
TPM11R080M25.4-09	9.7	80	9	46	50	25.4	26	9.5	6	1	with	LMMU1107...
TPM11R100M31.7-08	9.7	100	8	60	50	31.75	32	12.7	8	1.4	with	LMMU1107...
TPM11R100M31.7-11	9.7	100	11	60	50	31.75	32	12.7	8	1.5	with	LMMU1107...
TPM16R080M25.4-05	15.1	80	5	46	50	25.4	26	9.5	6	1	with	LMMU1609...
TPM16R100M31.7-06	15.1	100	6	60	50	31.75	32	12.7	8	1.6	with	LMMU1609...
TPM16R125M38.1-07	15.1	125	7	80	63	38.1	38	15.9	10	3	with	LMMU1609...



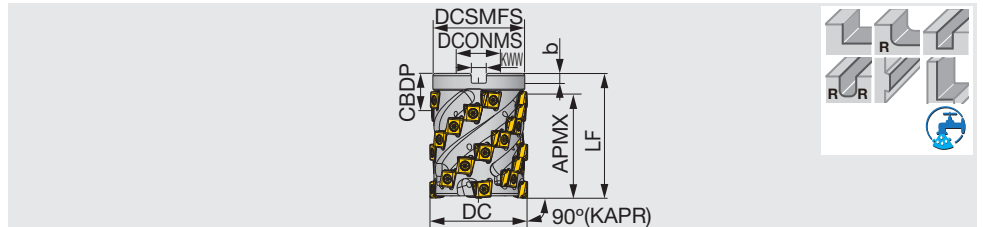
SPARE PARTS

Designation	① Clamping screw	Grip	Center bolt	Center bolt 1	Torx bit
TPM11R050, 063...	CSTB-3.5L110	H-TB	-	CM10X30H	BT15S
TPM11R080M...	CSTB-3.5L110	H-TB	-	CM12X30H	BT15S
TPM11R100M...	CSTB-3.5L110	H-TB	TMBA-M16H	-	BT15S
TPM16R080M25.4-05	CSTB-5L159	H-TB	-	CM12X30H	BT20S
TPM16R100M31.7-06	CSTB-5L159	H-TB	TMBA-M16H	-	BT20S
TPM16R125M38.1-07	CSTB-5L159	H-TB	TMBA-M20H	-	BT20S

TLM11

Square shoulder mills for roughing with LMMU type tangential clamped insert with 4 edges

A.R. = +5° ~ +6°, R.R. = +9° ~ +13°



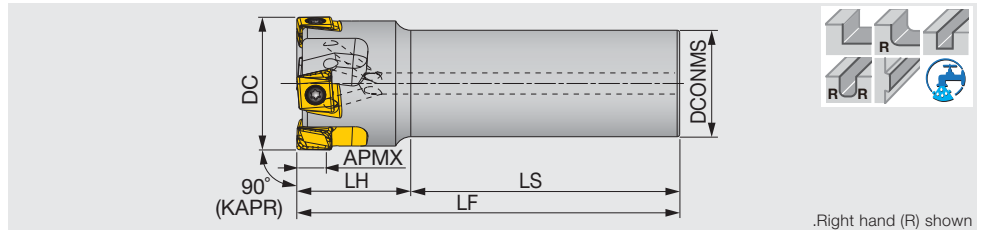
Designation	APMX	DC	ZEFP	CICT	DCSMFS	LF	DCONMS	CBDP	KWW	b	WT(kg)	Air hole	Insert
TLM11R050M22.0E03	58.5	50	3	21	47	70	22	20	10.4	6.3	0.8	with	LMMU1107...
TLM11R063M25.4-04	66.9	63	4	32	59	80	25.4	26	9.5	6	1.4	with	LMMU1107...

SPARE PARTS

Designation	Clamping screw	Grip	Center bolt	Torx bit
TLM11R050M22.0E03	SM35-114-H0	H-TB	SD06-A3	BT15S
TLM11R063M25.4-04	SM35-114-H0	H-TB	SD08-98	BT15S

EPM11

Square shoulder endmills with LMMU type tangential clamped insert with 4 edges



Designation	APMX	DC	CICT	DCONMS	LS	LH	LF	WT(kg)	Air hole	Insert
EPM11R032M32.0-03	9.7	32	3	32	80	35	115	0.6	with	LMMU1107...
EPM11R040M32.0-04	9.7	40	4	32	80	35	115	0.7	with	LMMU1107...
EPM11R050M32.0-04	9.7	50	4	32	80	40	120	0.9	with	LMMU1107...
EPM11R063M32.0-06	9.7	63	6	32	80	40	120	1.2	with	LMMU1107...
EPM11R080M32.0-07	9.7	80	7	32	80	40	120	1.6	with	LMMU1107...

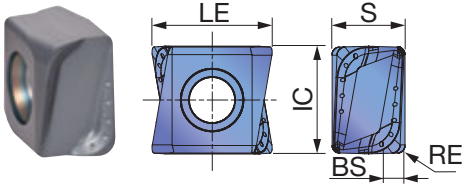
SPARE PARTS



Designation	Clamping screw	Wrench
EPM11...	CSTB-3.5L110	T-15DB

INSERTS

LMMU11/16-MJ



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

★: First choice
☆: Second choice

Designation	RE	APMX	Coated						LE	IC	S	BS
			AH3135	AH725	AH120	AH140	T1215	T3225				
LMMU110708PNER-MJ	0.8	9.7	●	●	●	●	●	●	11.7	10.5	7.1	2
LMMU110716PNER-MJ	1.6	9.7	●	●	●	●	●	●	11.7	10.5	7.1	1.2
LMMU110724PNER-MJ	2.4	9.7		●	●	●			11.7	10.5	7.1	0.4
LMMU110732PNER-MJ	3.2	9.7		●	●	●			11.7	10.5	7.1	-
LMMU160908PNER-MJ	0.8	15.1	●	●	●	●	●	●	17.3	16	1	2.4
LMMU160916PNER-MJ	1.6	15.1	●	●	●	●	●		17.3	16	1	1.6
LMMU160924PNER-MJ	2.4	15.1		●	●	●			17.3	16	1	0.8
LMMU160932PNER-MJ	3.2	15.1		●	●	●			17.3	16	1	-

●: New product
●: Line up

STANDARD CUTTING CONDITIONS



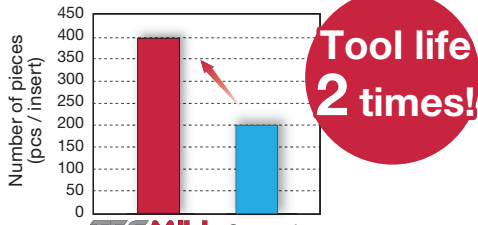
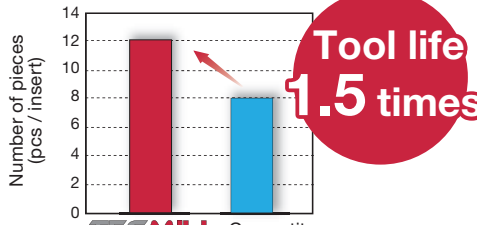
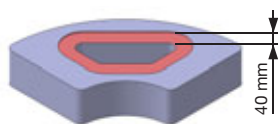
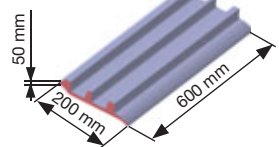
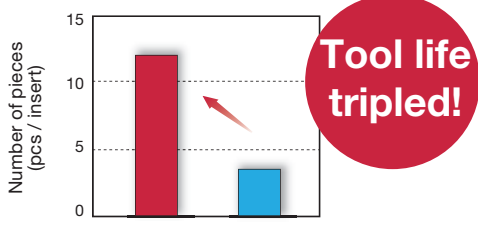
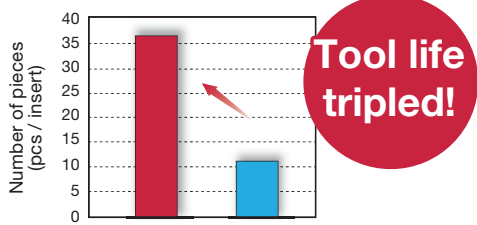
Bore, shank type

ISO	Workpiece materials	Hardness	Priority	Grades	Cutting speed V _c (m/min)	Feed per tooth f _z (mm/t)	
P	Low carbon steel (S15C / C15E4, SS400 / E275A, etc.)	- 200 HB	First choice	AH3135	100 - 250	0.12 - 0.3	
		- 200 HB	Priority on wear resistance	T3225	150 - 350	0.08 - 0.2	
	Carbon steel and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)	- 300 HB	First choice	AH3135	100 - 230	0.1 - 0.25	
		- 300 HB	Priority on wear resistance	T3225	150 - 350	0.08 - 0.2	
	Prehardend steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH3135	100 - 230	0.1 - 0.25	
		30 - 40 HRC	Priority on wear resistance	T3225	120 - 350	0.08 - 0.2	
M	Stainless steel (SUS304 / X5CrNi18-9, etc.)	-	First choice	AH3135	90 - 180	0.1 - 0.25	
K	Grey cast iron (FC250 / 250, etc.)	150 - 250 HB	First choice	AH120	140 - 250	0.12 - 0.3	
		150 - 250 HB	Priority on wear resistance	T1215	120 - 350	0.08 - 0.2	
	Ductile cast iron (FCD400, FCD600 / 600-3, etc.)	150 - 250 HB	First choice	AH120	110 - 200	0.12 - 0.3	
		150 - 250 HB	Priority on wear resistance	T1215	120 - 350	0.08 - 0.2	
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH725	30 - 60	0.08 - 0.2	
	Superalloys (Inconel718, etc.)	-	First choice	AH725	20 - 50	0.06 - 0.1	
H	Hardened steel	(SKD61 / X40CrMoV5-1, etc.)	40 - 50 HRC	First choice	AH725	45 - 70	0.08 - 0.15
		(SKD11 / X153CrMoV12, etc.)	50 - 60 HRC	First choice	AH725	40 - 65	0.06 - 0.1

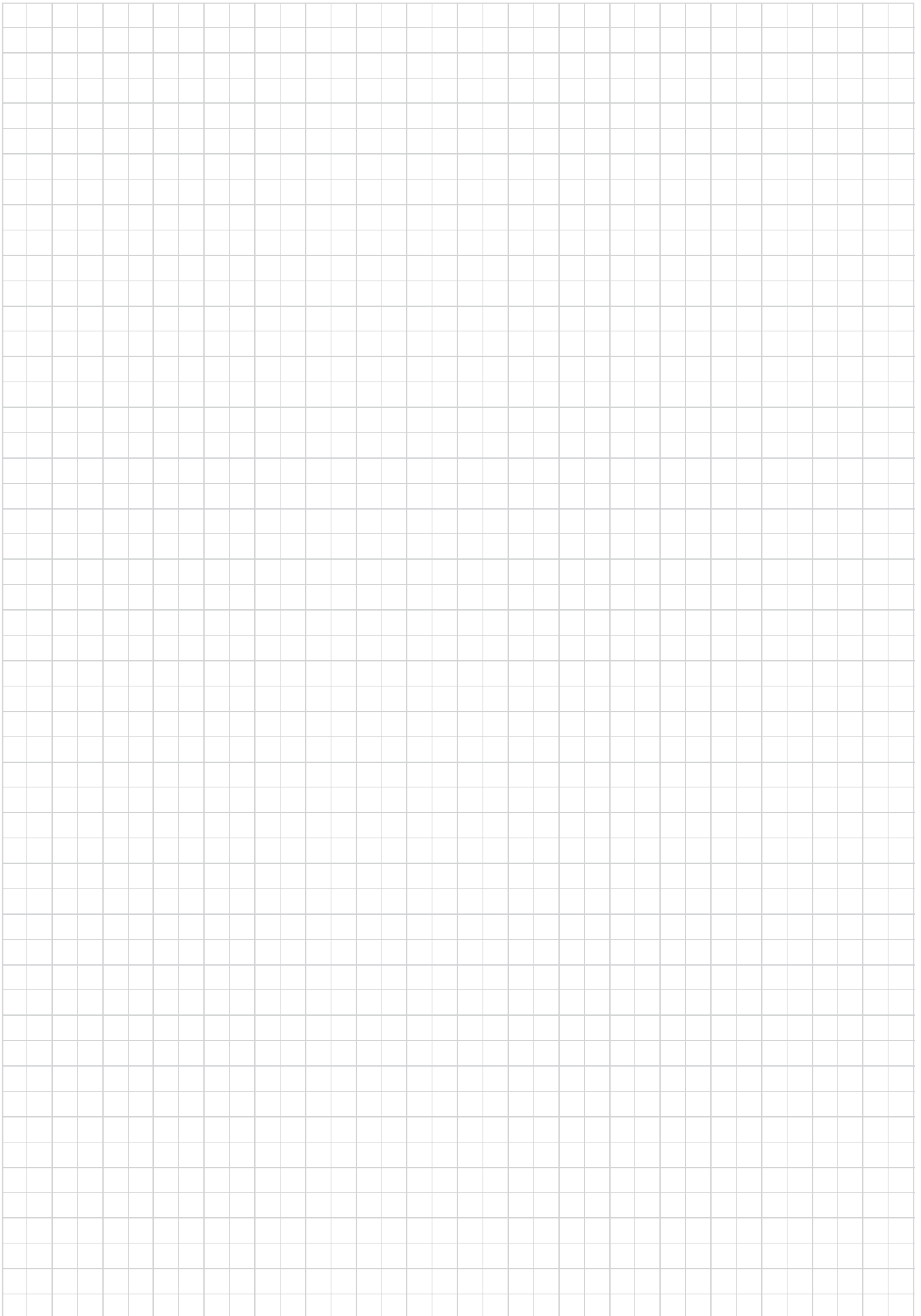
Roughing type

ISO	Workpiece materials	Hardness	Priority	Grades	Cutting speed V _c (m/min)	Feed per tooth f _z (mm/t)	
P	Low carbon steel (S15C / C15E4, SS400 / E275A, etc.)	- 200 HB	First choice	AH3135	100 - 250	0.1 - 0.25	
		- 300 HB	Priority on wear resistance	T3225	150 - 350	0.1 - 0.2	
	Carbon steel and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)	- 300 HB	First choice	AH3135	100 - 200	0.1 - 0.2	
		- 300 HB	Priority on wear resistance	T3225	150 - 300	0.1 - 0.2	
	Prehardend steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH3135	100 - 200	0.1 - 0.2	
		30 - 40 HRC	Priority on wear resistance	T3225	120 - 300	0.1 - 0.2	
M	Stainless steel (SUS304 / X5CrNi18-9, etc.)	-	First choice	AH3135	90 - 150	0.1 - 0.25	
K	Grey cast iron (FC250 / 250, etc.)	150 - 250 HB	First choice	AH120	100 - 250	0.1 - 0.25	
		150 - 250 HB	Priority on wear resistance	T1215	120 - 350	0.1 - 0.25	
	Ductile cast iron (FCD400, FCD600 / 600-3, etc.)	150 - 250 HB	First choice	AH120	100 - 200	0.1 - 0.25	
		150 - 250 HB	Priority on wear resistance	T1215	120 - 350	0.1 - 0.25	
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH725	20 - 50	0.06 - 0.15	
	Superalloys (Inconel718, etc.)	-	First choice	AH725	20 - 40	0.06 - 0.1	
H	Hardened steel	(SKD61 / X40CrMoV5-1, etc.)	40 - 50 HRC	First choice	AH725	30 - 60	0.08 - 0.15
		(SKD11 / X153CrMoV12, etc.)	50 - 60 HRC	First choice	AH725	25 - 55	0.06 - 0.1

PRACTICAL EXAMPLE

Workpiece type		Planetary carrier	Gear case housing
Cutter		Special ($\phi 78$ mm, $z = 2$)	TPM11R200U0075A05 ($\phi 50.8$ mm, $z = 5$)
Insert		LMMU160932PNER-MJ	LMMU110708PNER-MJ
Grade		AH3135 S35C	T1215 FCD450 / GGG45 / 450-10S
Workpiece material		 P	 K
Cutting conditions	Cutting speed: V_c (m/min)	250	175
	Feed per tooth: f_z (mm/t)	0.1	0.15
	Feed speed: V_f (m/min)	200	840
	Depth of cut: a_p (mm)	40	4
	Width of cut: a_e (mm)	30	20
	Machining	Plunging	Shoulder milling
Coolant	Dry	Dry	
Machine	Vertical M/C, BT50	Vertical M/C, BT50	
Results			
	<p>Tool life was doubled with AH3135, the combination of the substrate for high fracture resistance and the coating for high wear resistance.</p> <p>Tool life was extended by 1.5 times due to T1215 with high wear resistance.</p>		
Workpiece type		Case	Shoe
Cutter		TPM16R100M31.7-06 ($\phi 100$, $z = 6$)	TLM11R050M22.0E03 ($\phi 50$, $z = 3$)
Insert		LMMU160908PNER-MJ	LMMU110708PNER-MJ
Grade		AH725	AH140
Workpiece material		Stainless steel  M	Forged steel  K
Cutting conditions	Cutting speed: V_c (m/min)	100	100
	Feed per tooth: f_z (mm/t)	0.3	0.1
	Feed speed: V_f (m/min)	-	191
	Depth of cut: a_p (mm)	10	43
	Width of cut: a_e (mm)	40	12
	Machining	Shoulder milling	Shoulder milling
Coolant	Dry	Dry	
Machine	Vertical M/C, BT50	Vertical M/C, BT50	
Results			
	<p>Chipping on cutting edge is significantly reduced, and the machining cost is cut due to increased number of corners.</p> <p>Chipping on cutting edge is reduced in interrupted cutting, and tool life is 3 times longer than the competitor.</p>		

MEMO



ACCELERATED MACHINING

Tungaloy

EPM11R032M32.0-03

MAX RPM=19,900 min-1

96800010

Tungaloy Corporation (Head office)

11-1 Yoshima-Kogyodanchi
Iwaki-city, Fukushima, 970-1144 Japan
Phone: +81-246-36-8501
Fax: +81-246-36-8542
www.tungaloy.co.jp

Tungaloy America, Inc.

3726 N Ventura Drive
Arlington Heights, IL 60004, U.S.A.
Phone: +1-888-554-8394
Fax: +1-888-554-8392
www.tungaloyamerica.com

Tungaloy Canada

432 Elgin St. Unit 3
Brantford, Ontario N3S 7P7, Canada
Phone: +1-519-758-5779
Fax: +1-519-758-5791
www.tungaloy.co.jp/ca

Tungaloy de Mexico S.A.

C Los Arellano 113,
Parque Industrial Siglo XXI
Aguascalientes, AGS, Mexico 20290
Phone: +52-449-929-5410
Fax: +52-449-929-5411
www.tungaloy.co.jp/mx

Tungaloy do Brasil Ltda.

Avd. Independencia N4158 Residencial Flora
13280-000 Vinhedo, São Paulo, Brasil
Phone: +55-19-38262757
Fax: +55-19-38262757
www.tungaloy.com.br

Tungaloy Germany GmbH

An der Alten Ziegelei 1
D-40789 Monheim, Germany
Phone: +49-2173-90420-0
Fax: +49-2173-90420-19
www.tungaloy.de

Tungaloy France S.A.S.

ZA Courtaboeuf - Le Rio
1 rue de la Terre de feu
F-91952 Courtaboeuf Cedex, France
Phone: +33-1-6486-4300
Fax: +33-1-6907-7817
www.tungaloy.fr

Tungaloy Italia S.r.l.

Via E. Andolfato 10
I-20126 Milano, Italy
Phone: +39-02-252012-1
Fax: +39-02-252012-65
www.tungaloy.it

Tungaloy Czech s.r.o.

Turanka 115
CZ-627 00 Brno, Czech Republic
Phone: +420-532 123 391
Fax: +420-532 123 392
www.tungaloy.cz

Tungaloy Ibérica S.L.

C/Miquel Servet, 43B, Nau 7
Pol. Ind. Bufalvent
ES-08243 Manresa (BCN), Spain
Phone: +34 93 113 1360
Fax: +34 93 876 2798
www.tungaloy.es

Tungaloy Scandinavia AB

Bultgatan 38
442 40 Kungälv, Sweden
Phone: +46-462119200
www.tungaloy.se

Tungaloy Rus, LLC

Andropova avenue, h.18/7,
11 floor, office 3, 115432,
Moscow, Russia
Phone: +7-499-683-01-80
Fax: +7-499-683-01-81
www.tungaloy.co.jp/ru

Tungaloy East LLC

620075, Russian Federation, Sverdlovsk
Region, Ekaterinburg, Mamina-Sibiryaka str.,
bldg. 101, room 202
Phone: +7-343-286-48-23/24
Fax: +7-912-284-91-69
www.tungaloy.co.jp/ru

Tungaloy Polska Sp. z o.o.

ul. Genewska 24
03-963 Warszawa, Poland
Phone: +48-22-617-0890
Fax: +48-22-617-0890
www.tungaloy.co.jp/pl

Tungaloy U.K. Ltd

The Technology Centre,
Wolverhampton Science Park
Glaisher Drive, Wolverhampton
West Midlands WV10 9RU, UK
Phone: +44 121 4000 231
Fax: +44 121 270 9694
www.tungaloy.co.uk
salesinfo@tungaloyuk.co.uk

Tungaloy Hungary Kft

Erzsébet királyné útja 125
H-1142 Budapest, Hungary
Phone: +36 1 781-6846
Fax: +36 1 781-6866
www.tungaloy.co.jp/hu
info@tungaloytools.hu

Tungaloy Turkey

Dudullu, OSB 4. Cad No:4
34776 Umraniye Istanbul, TURKEY
Phone: +90 216 540 04 67
Fax: +90 216 540 04 87
www.tungaloy.com.tr
info@tungaloy.com.tr

Tungaloy Benelux b.v.

Tjalk 70
NL-2411 NZ Bodegraven, Netherlands
Phone: +31 172 630 420
Fax: +31 172 630 429
www.tungaloy-benelux.com

Tungaloy Croatia

Josipa Kozarca 4
10432 Bregana, Croatia
Phone: +385 1 3326 604
Fax: +385 1 3327 683
www.tungaloy.hr

Tungaloy Cutting Tool (Shanghai) Co.,Ltd.

Rm No 401 No.88 Zhabei
Jiangchang No.3 Rd
Shanghai 200436, China
Phone: +86-21-3632-1880
Fax: +86-21-3621-1918
www.tungaloy.co.jp/tcts

Tungaloy Cutting Tool (Thailand) Co.,Ltd.

Interlink tower 4th Fl.
1858/5-7 Bangna-Trad Road
km.5 Bangna, Bangna, Bangkok 10260
Thailand
Phone: +66-2-751-5711
Fax: +66-2-751-5715
www.tungaloy.co.th

Tungaloy Singapore (Pte.), Ltd.

62 Ubi Road 1, #06-11 Oxley BizHub 2
Singapore 408734
Phone: +65-6391-1833
Fax: +65-6299-4557
www.tungaloy.co.jp/tspl

Tungaloy Vietnam

LE 04-38, Lexington Residence
67 Mai Chi Tho, Dist. 2,
Ho Chi Minh City, Vietnam
Phone: +84-8-37406660
Fax: +84-8-37406662
www.tungaloy.co.jp/tspl

Tungaloy India Pvt. Ltd.

Indiabulls Finance Centre,
Unit # 902-A, 9th Floor,
Tower 1, Senapati Bapat Marg,
Elphinstone Road (West),
Mumbai -400013, India
Phone: +91-22-6124-8804
Fax: +91-22-6124-8899
www.tungaloy.co.jp/in

Tungaloy Korea Co., Ltd

#1312, Byucksan Digital Valley 5-cha
Beotkkot-ro 244, Geumcheon-gu
153-788 Seoul, Korea
Phone: +82-2-2621-6161
Fax: +82-2-6393-8952
www.tungaloy.co.jp/kr

Tungaloy Malaysia Sdn Bhd

50 K-2, Kelana Mall, Jalan SS6/14
Kelana Jaya, 47301
Petaling Jaya, Selangor Darul Ehsan
Malaysia
Phone: +603-7805-3222
Fax: +603-7804-8563
www.tungaloy.co.jp/my

Tungaloy Australia Pty Ltd

PO Box 2232, Rowville,
Victoria 3178, Australia
Phone: +61-3-9755-8147
Fax: +61-3-9755-6070
www.tungaloy.com.au

PT. Tungaloy Indonesia

Kompleks Grand Wisata Block AA-10 No.3-5
Cibitung
Bekasi 17510, Indonesia
Phone: +62-21-8261-5808
Fax: +62-21-8261-5809
www.tungaloy.co.jp/id



www.tungaloy.com

follow us at:
facebook.com/tungaloyjapan
twitter.com/tungaloyjapan

To see this product in action visit:

Tung-TV

www.youtube.com/tungaloycorporation

Distributed by:



DOWNLOAD
Dr. Carbide App



Available on the
App Store



GET IT ON
Google play



AS9100 Certified
78006
2015.11.04
ISO14001 Certified
EC97J1123
1997.11.26

Produced from Recycled paper

Oct. 2017 (TJ)