

Powerful high-feed milling cutter with improved metal removal rate





ACCELERATED MACHINING



MillQuadFeed, simple but **powerful high-feed milling cutter** for large depths of cut, boosts performance and productivity.

Highly productive face milling operation of large components

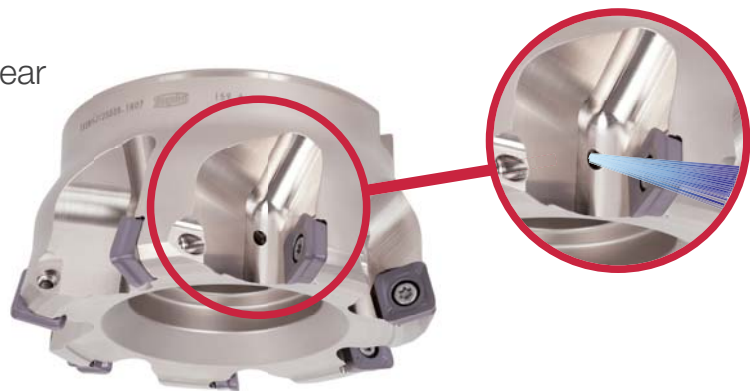
High metal removal rates

- Large depth of cut up to 2.5 mm
- High feed rate up to 2.0 mm/tooth



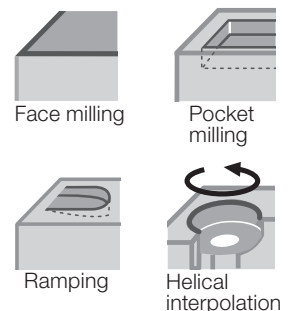
Good chip evacuation

- Wavy cutting edge controls chip formation, quickly removing chips from pockets.
- Large chip gullet on the cutter body assists smooth chip evacuation.
- Air blow to the cutting edge helps clear chips in pocket machining.



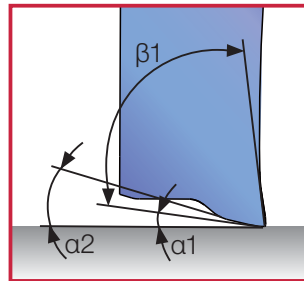
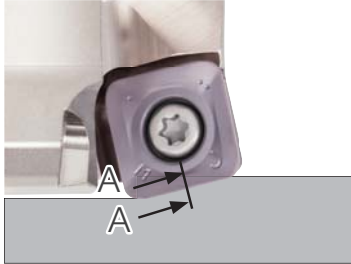
Versatility in machining

- Large ramping & helical interpolation angle due to positive flank.
- Optimized rake angle on the cutting edge reduces cutting force and makes the insert suitable for machining all types of materials with extended tool life.



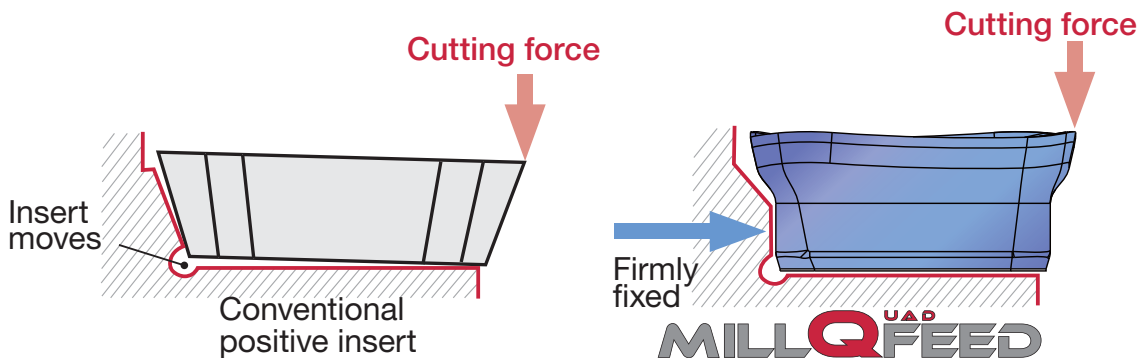
Higher stability in machining

- Optimized relief angles (α_1 & α_2) reduce chattering during high-feed milling.
- Strengthened included angle (β_1) of the cutting edge improves fracture resistance.



A-A cross section

- The insert's straight sides secure the insert on the pocket against cutting force.
 - Ensures reliability in heavy machining
 - Replaces top clamp with simple screw clamping



GRADE

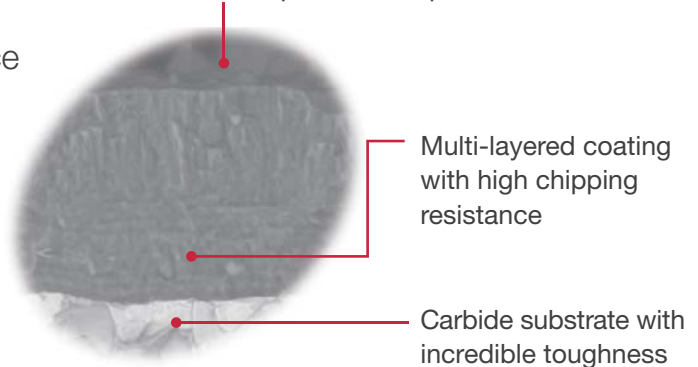
- AH3135 **P** **M**

- New grade for steel and stainless steel
- Improved chipping and fracture resistance

Special Surface Technology

PREMIUM G^{FORCE} TEC

Smooth surface prevents chip adhesion

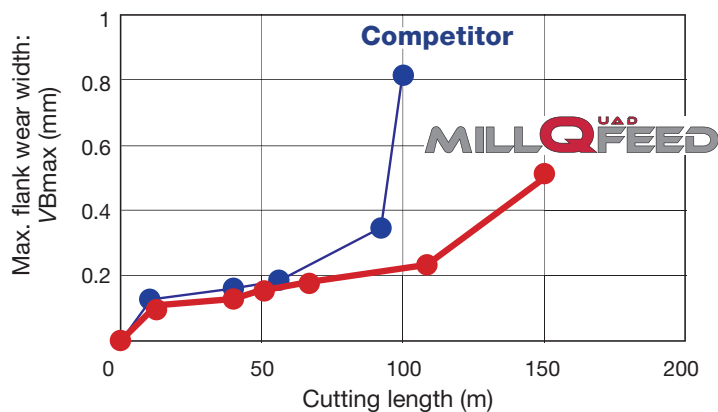


Multi-layered coating with high chipping resistance

Carbide substrate with incredible toughness

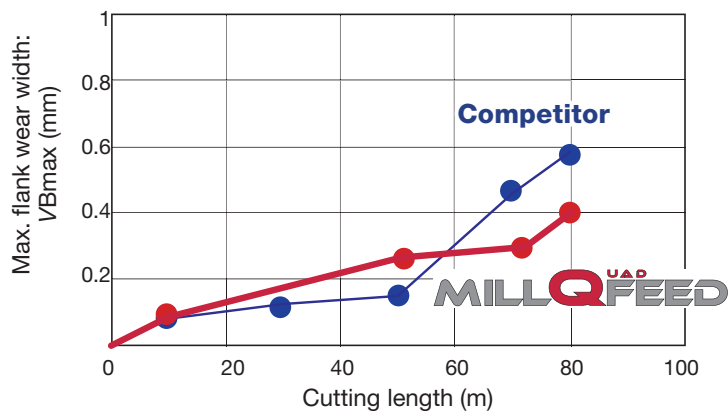
CUTTING PERFORMANCE

Tool life for carbon steel



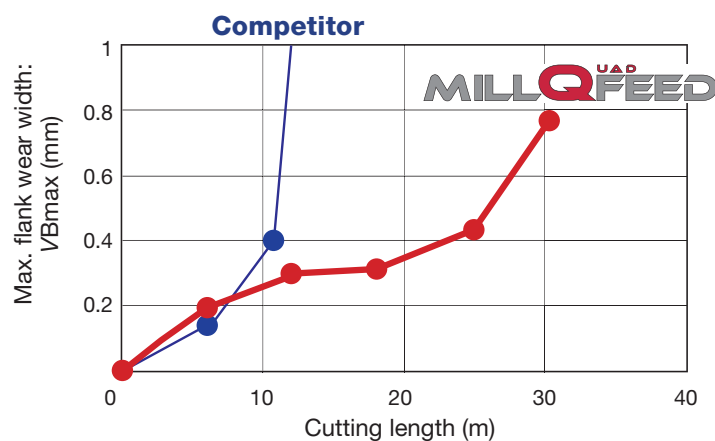
Cutter : TXSW15J080B31.7R05
 (øDc = 80 mm, z = 1)
 Insert : SWMT1506ZER-MJ AH3135
 Workpiece material : S55C (194 - 201 HB)
 Cutting speed : $V_c = 150$ m/min
 Feed : $f = 2.0$ mm/t
 Depth of cut : $a_p = 2.5$ mm
 Width of cut : $a_e = 65$ mm
 Machine : Vertical M/C, BT50, 37 kW

Tool life for cast iron



Cutter : TXSW15J080B31.7R05
 (øDc = 80 mm, z = 1)
 Insert : SWMT1506ZER-MJ AH120
 Workpiece material : FCD600 (235 - 250 HB)
 Cutting speed : $V_c = 150$ m/min
 Feed : $f = 2.0$ mm/t
 Depth of cut : $a_p = 2.5$ mm
 Width of cut : $a_e = 50$ mm
 Machine : Vertical M/C, BT50, 37 kW

Tool life for stainless steel



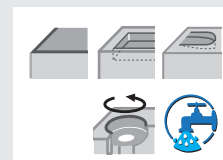
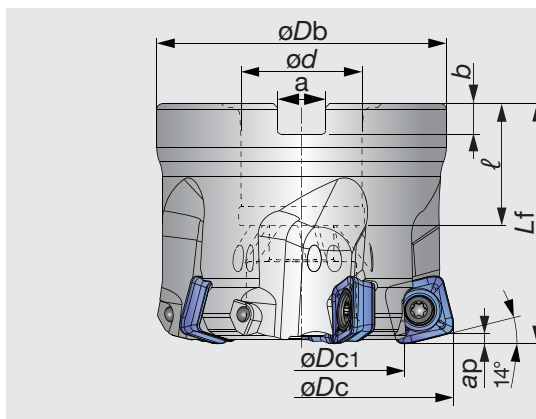
Cutter : TXSW15J080B31.7R05
 ($\phi D_c = 80 \text{ mm}$, $z = 1$)
 Insert : SWMT1506ZER-MJ AH3135
 Workpiece material : SUS304 (159 - 164 HB)
 Cutting speed : $V_c = 150 \text{ m/min}$
 Feed : $f = 1.0 \text{ mm/t}$
 Depth of cut : $a_p = 2.5 \text{ mm}$
 Width of cut : $a_e = 65 \text{ mm}$
 Machine : Vertical M/C, BT50, 37 kW



High-feed milling cutter for large depth of cut

CUTTER - BORE TYPE

MillQuadFeed TXSW



Designation	Max. ap	ϕDc	z	$\phi Dc1$	ϕDb	L_f	ϕd	ℓ	a	b	Kg	C.bolt	Insert
TXSW15M050B22.0R03	2.5	50.00	3	24.1	47	50.0	22.000	20.00	10.40	6.30	0.40	SR PS 118-0273	SWMT15**
TXSW15M063B22.0R04	2.5	63.00	4	37.1	59	50.0	22.000	20.00	10.40	6.30	0.66	FSHM10-40H	SWMT15**
TXSW15J080B31.7R05	2.5	80.00	5	54.1	76	63.0	31.750	32.00	12.70	8.00	1.31	CM16X40H	SWMT15**
TXSW15M080B27.0R05	2.5	80.00	5	54.1	76	63.0	27.000	22.00	12.40	7.00	1.41	CM12X30H	SWMT15**
TXSW15J100B31.7R06	2.5	100.00	6	74.1	96	63.0	31.750	32.00	12.70	8.00	2.25	CM16X40H	SWMT15**
TXSW15M100B32.0R06	2.5	100.00	6	74.1	96	63.0	32.000	25.00	14.40	8.00	2.26	CM16X40H	SWMT15**
TXSW15J125B38.1R07	2.5	125.00	7	99.1	100	63.0	38.100	43.00	15.90	10.00	2.91	TMBA-M20H	SWMT15**
TXSW15M125B40.0R07	2.5	125.00	7	99.1	100	63.0	40.000	37.00	16.40	9.00	2.83	TMBA-M20H	SWMT15**
TXSW15J160B50.8R08	2.5	160.00	8	134.1	100	63.0	50.800	46.00	19.00	11.00	3.93	TMBA-M24H	SWMT15**
TXSW15M160B40.0R08	2.5	160.00	8	134.1	100	63.0	40.000	37.00	16.40	9.00	4.23	TMBA-M20H	SWMT15**

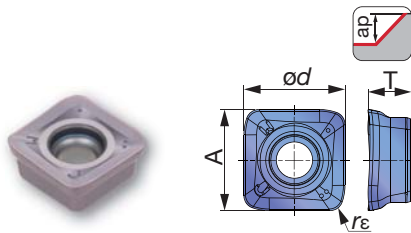
SPARE PARTS



ϕDc	Clamping Screw	Wrench	
		Torx Bit	Handle
$\leq \phi 100$	TS50115I	BT20S	H-TB2W
$\phi 125, 160$	TS50115I	BT20M	H-TB2W

INSERT

SWMT-MJ



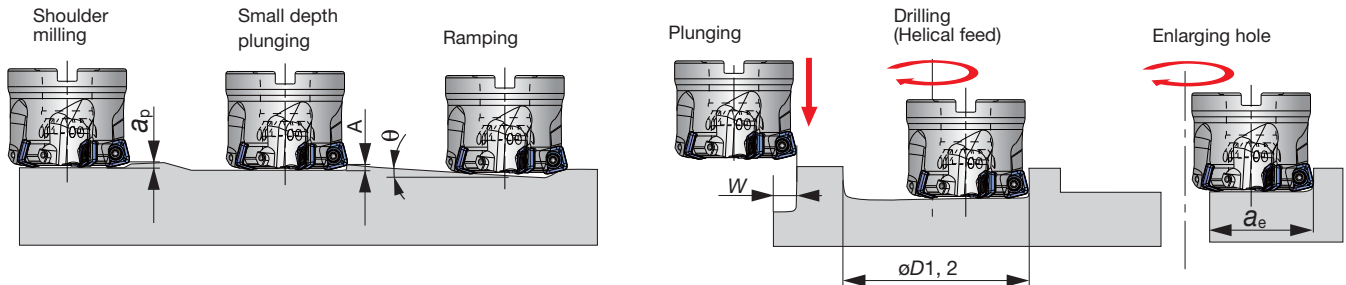
Designation	Max. ap	A	ød	T	rε	AH3135	AH120
SWMT1506ZER-MJ	2.5	15.875	15.875	6.8	2	● ● ● ● ●	○ ● ● ● ●
						P M K S H	P M K S H

● First choice

STANDARD CUTTING CONDITIONS

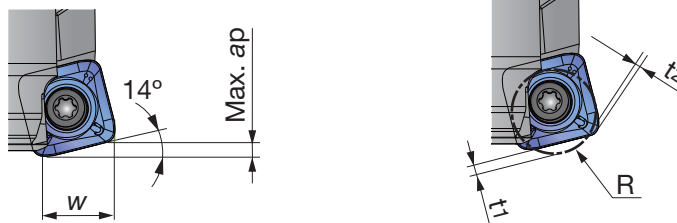
ISO	Workpiece materials	Hardness	Priority	Grades	Chip-breaker	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
P	Low carbon steel (S15C / C15E4, SS400 / E275A, etc.)	- 300 HB	First choice	AH3135	MJ	100 - 300	0.5 - 2.0
		- 300 HB	Second choice	AH120	MJ	100 - 300	0.5 - 2.0
	Carbon steel and alloy steel (S55C / C55, SCM440 / 42CrMo4, etc.)	- 300 HB	First choice	AH3135	MJ	100 - 200	0.5 - 2.0
		- 300 HB	Second choice	AH120	MJ	100 - 200	0.5 - 2.0
M	Prehardened steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH3135	MJ	100 - 200	0.5 - 1.5
		30 - 40 HRC	Second choice	AH120	MJ	100 - 200	0.5 - 1.5
M	Stainless steel (SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.)	- 200 HB	First choice	AH3135	MJ	100 - 150	0.3 - 1.0
K	Grey cast iron (FC250 / 250, FC300 / 300, etc.)	150 - 250 HB	First choice	AH120	MJ	100 - 300	0.5 - 2.0
	Ductile cast iron (FC400, FCD600 / 600-3, etc.)	150 - 250 HB	First choice	AH120	MJ	80 - 200	0.5 - 2.0
S	Titanium alloys (Ti-6Al-4V, etc.)	- 40 HRC	First choice	AH3135	MJ	30 - 60	0.3 - 0.7
	Superalloys (Inconel718, etc.)	- 40 HRC	First choice	AH120	MJ	20 - 50	0.1 - 0.3
H	Hardened steel	(SKD61 / X40CrMoV5-1, etc.) 40 - 50 HRC	First choice	AH3135	MJ	80 - 130	0.1 - 0.3
		(SKD11 / X153CrMoV12, etc.) 50 - 60 HRC	First choice	AH120	MJ	50 - 70	0.03 - 0.07

APPLICATION RANGE



Designation	ϕDc	Max. depth of cut ap	Max. plunging A	Max. ramping angle θ	Max. cutting width in plunging W	Min. machining dia. $\phi D1$	Max. machining dia. $\phi D2$	Max. cutting width in enlarging ae
TXSW15M050B***	50	2.5	0.7	4.8°	14.5	70	95	36
TXSW15M063B***	63	2.5	0.7	2.9°	14.5	96	121	49
TXSW15J080B***	80	2.5	0.7	2°	14.5	130	155	66
TXSW15J100B***	100	2.5	0.7	1.4°	14.5	170	195	86
TXSW15J125B***	125	2.5	0.7	1°	14.5	220	245	111
TXSW15J160B***	160	2.5	0.7	0.7°	14.5	290	315	146

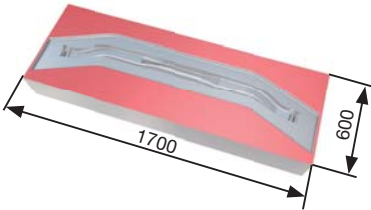
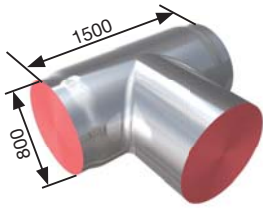
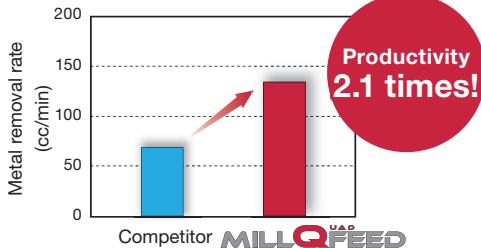
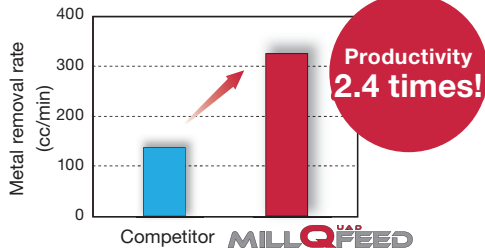
TOOL GEOMETRY ON PROGRAM



Max. ap (mm)	Actual corner radius r_c (mm)	W (mm)	Programmed corner radius R (mm)	Uncut amount $t1$ (mm)	Overcut amount $t2$ (mm)
2.5	2	12.7	4	1.99	-
2.5	2	12.7	4.5	1.88	-
2.5	2	12.7	5	1.78	0.01

- When programming for CAM, the tool should be considered as a radius cutter. Usually, the corner radius should be set in $R = 4.5$ mm. If a larger radius is used, overcutting may occur. The above table shows the uncut ($t1$) and overcut ($t2$) amounts for the programmed corner radius.

PRACTICAL EXAMPLES

Workpiece type		Forging mold (Axle)	Joint for thermal power part
Cutter		TXSW15J100B31.7R06 ($\phi 100$, $z = 6$)	TXSW15J100B31.7R06 ($\phi 100$, $z = 6$)
Insert		SWMT1506ZER-MJ	SWMT1506ZER-MJ
Grade		AH3135	AH3135
		SKT4 (JIS, Mold steel) 35HRC	9Cr-1Mo
Workpiece material			
Cutting conditions	Cutting speed: V_c (m/min)	100	120 (Competitor: $V_c = 100$)
	Feed per tooth: f_z (mm/t)	0.40 (Competitor: $f_z = 0.33$)	1.0
	Feed speed: V_f (m/min)	763 (Competitor: $V_f = 600$)	2280 (Competitor: $V_f = 1920$)
	Depth of cut: a_p (mm)	2.5 (Competitor: $a_p = 2.5$)	2.0 (Competitor: $a_p = 1.0$)
	Width of cut: a_e (mm)	70	70
	Machining	Face milling (Re-sinking)	Face milling
	Coolant	Dry	Air
Machine		Vertical M/C, BT50	Vertical M/C, BT40
Results		 Capability of machining large depth at high-feed improves productivity in mold machining.	 Outstanding cutting performance of MillQuadFeed allows depth of cut to be increased even in high-feed machining.

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