

Tungaloy Report No. 414-US



TXQ type

High productivity and economical solution





New super high feed cutter series with 8 corner type inserts !

Economical advantages

 Double sided insert with 8 corners for high feed milling.



Remarkable reliability in high feed milling

- Dovetail structure improves the clamping strength by 50%*. * Calculated with Finite Element Analysis (FEA)
- Rigid clamping with one screw.
- Simple structure offers a high level of cutter body rigidity with easy operation.



Dove tail structure tightly holds the insert against unclamping force.



Cutter



Bore type

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		_	<u> øD</u> c	1		≜ †					nch		Bit	BL	D IP15/S7
Bore type		-	ØDo	;		M	ах. <i>а</i> р	= .079)"		Wre	Н	andle		H-TBS
		Nie of		Dimonoiono (in)							14/-:	۸:			
Cat. No.	Stock	inserts	ØDc	ØDc1	øDh	ød	l l) Lf	b	а	(lb)	hole	Center	bolt	Insert
(Q12R200U0075A03	•	3	2.000	1.362	1.850	.750	.750	1.969	.197	.315	1.12		(C0.375X1	.125H)	
(Q12R200U0075A04	٠	4	2.000	1.362	1.850	.750	.750	1.969	.197	.315	1.12		C0.375X1.	125H)	
(Q12R250U0075A04	٠	4	2.500	1.862	2.323	.750	.750	1.969	.197	.315	1.76		(C0.375X1	.125H)	
(Q12R300U0100A05		5	3.000	2.362	2.835	1.000	1.024	2.480	.236	.374	3.77	with	(C0.500X1	.375H)	SQMU1206
(Q12R400U0150A06		6	4.000	3.362	3.780	1.500	1.457	2.480	.394	.626	5.71		(TMBA-0.	750H)	231-1013
(Q12R500U0150A07		7	5.000	4.362	3.780	1.500	1.457	2.480	.394	0.626	7.01		(TMBA-0.	750H)	
(Q12R600U0200A08		8	6.000	5.37	3.937	2.000	1.496	2.48	.433	.748	7.35		(TMBA-N	124H)	

• : Stocked items

Parts Cat. No.

CSPB-4

Replacement parts Description

Clamping screw

Standard cutting conditions

Work	material	Hardness	Priority	Priority Grades		Feed per tooth fz (ipt)	
High carbon steels			First choice	AH725		.020080	
(1045, 1055 etc.)		~ 300HB	For wear resistance	T3130	330 - 980		
		For impact resistance AH130		AH130			
Alloved steels			First choice	AH725			
(4140 etc.)		~ 300HB	For wear resistance	For wear resistance T3130		.020060	
(For impact resistance	AH130			
Prehardened steels (NAK80, PX5, etc.)	30 ~ 40HRC	-	AH725	330 - 660	.020040	
Stainless steel (304, 316 etc.)		~ 200HB	-	AH130	330 - 500	.012030	
Gray cast iron (No.25, No.30 etc.)		-	-	AH120	330 - 980	.020080	
Ductile cast irons (60-40-18, 65-45-12 etc.)		-	-	AH120	260 - 660	.020080	
Titanium alloy (Ti-6Al	-4V etc.)	~ 40HRC	-	AH725	100 - 200	.012028	
Hardened steels	(H13 etc.)	40 ~ 50HRC		AU725	260 - 430	.004012	
	(D2 etc.)	50 ~ 60HRC	-	AN/20	160 - 230	.001003	

· Slot or pocket milling is not recommended, since the chip re-cutting easily occurs.

· Tool overhang length must be as short as possible to avoid chatter. When the tool overhang length is long, decrease the number of revolutions and feed.

· Cutting conditions are generally limited by the rigidity and power of the machine and the rigidity of the workpiece. When setting the conditions, start from half of the values of the standard cutting conditions and then increase the value gradually while making sure the machine is running normally.

Insert



Cat. No.	Accuracy	Honing		Gra	des		Dimensions (in)		
			AH725	AH130	AH120	T3130	А	Т	r ε
SQMU1206ZSR-MJ	М	with				•	.461	.236	.079

Grade selection

Grades	P Steel	Stainless	K Cast Iron	Super alloys	Hard Materials
AH725	O		0	Ø	O
AH130	For impact resistance	Ø			
AH120			O		
T3130	O For wear resistance				

 $[\]bigcirc$: First choice \bigcirc : Applicable

	То	ol dia.: øDc	(in), Number	of revolutio	ns: <i>n</i> (rpm), F	eed speed:	Vf (ipm), Ma	ax. depth of	cut: <i>a</i> p = .07	'9"
[ø2.000		ø2.	500	ø3.	000	ø4.	000	ø5.000	
	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf
	1,260	227	1,010	242	790	237	630	227	500	210
	<i>V</i> c = 660 sfm, <i>f</i> z = .060 ipt									
	950	114	750	120	590	118	470	113	380	106
					<i>V</i> c = 500 sfm	, <i>f</i> z = .040 ipt	t			
	950	86	750	90	590	89	470	85	380	80
					Vc = 500 sfm	, <i>f</i> z = .030 ipt	t			
	760	46	600	48	470	47	380	46	300	42
					<i>V</i> c = 400 sfm	, <i>f</i> z = .020 ipt	t			
	1,260	227	1,010	242	790	237	630	227	500	210
					<i>V</i> c = 660 sfm	, <i>f</i> z = .060 ipt	t			
	950	171	750	180	590	177	470	170	380	160
					Vc = 500 sfm	, <i>f</i> z = .060 ipt	t			
	250	15	200	16	150	15	120	14	100	14
	<i>V</i> c = 130 sfm, <i>f</i> z = .020 ipt									
	630	15	500	16	390	16	310	15	250	14
					Vc = 330 sfm	, <i>f</i> z = .008 ipt	<u> </u>			
	380	2	300	2	240	2	190	2	150	2
ſ					<i>V</i> c = 200 sfm	, fz = .002 ipt				



Ideal insert for high productivity



Low cutting force even in high feed cutting

- · Large rake angle
- · Optimum land width

High fracture resistance

Thickness of insert: .236"
 Tough cutting edge

Excellent chip control

Large inclination provides optimum chip flow

Wiper edge

Grade

AH725



Steel Super alloys Hard Materials

- Newly developed coating layer with a unique substrate . Well balanced with
- excellent wear and chipping resistance
- Suitable for steels

M

Stainless

Stainless

- Unique substrate
 Vell balanced grade with
 hardness and toughness
- First choice for stainless steels

AH120



Cast Iro

- Tough substrate with high reliability
- Outstanding wear resistance
- Ideal grade for cast iron milling



T3130

 Tough substrate with a highly adhered coating

Steel

- Thick coating for exceptional wear resistance
- · Suitable for steels in high speed cutting



AH130

Low cutting force and tough edges provide exceptional stability.

Cutter : TXQ12R200U0075A03 (Single insert cutting) : SQMU1206ZSR-MJ Insert Grade : AH725 Work material : Prehardened steels (33HRC) Cutting speed : Vc = 500 sfm Feed per tooth : fz = .059 ipt -Depth of cut : *a*p = .039" Width of cut : ae = 1.1" Overhang length: 7.4" Coolant : Dry Machine : Vertical M/C, BT50

Practical examples

	Workpiece type	Plate	Machine part			
	Cutter	TXQ12R500U0150A07 (ø5.000", z = 7)	TXQ12R300U0100A05 (ø3.000", z = 5)			
	Insert	SQMU1206ZSR-MJ	SQMU1206ZSR-MJ			
	Grade	AH725	AH725			
		Prehardened steels (40HRC)	Low carbon steel			
	Work material	20" 77.8%				
JS	Cutting speed: Vc (sfm)	260	590			
tio	Feed per tooth: fz (ipt)	.028	.039			
jdi	Depth of cut: ap (in)	.039 ~ .079	.039			
CO	Width of cut: ae (in)	3	2.8			
bu	Process	Face milling	Face milling			
Iţ	Coolant	Dry	Dry			
õ	Machine	Vertical M/C, BT50	Vertical M/C, BT50			
Results		200 150 150 100 50 0 Competitor DOFEEDCUAD	second definition of the second definition of			

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