

**Tungaloy**

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Keeping the Customer First

Tungaloy Report No. 414-US

**MILLLINE** Super high feed face milling cutter

**DOFEEDQUAD**



**TXQ type**

High productivity and economical solution



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

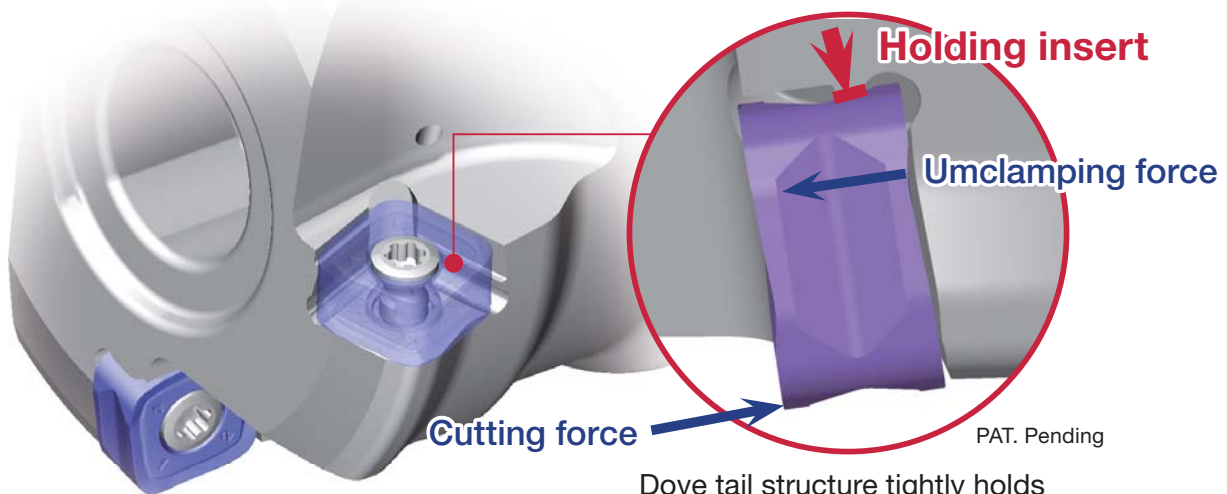
## Economical advantages

- Double sided insert with 8 corners for high feed milling.



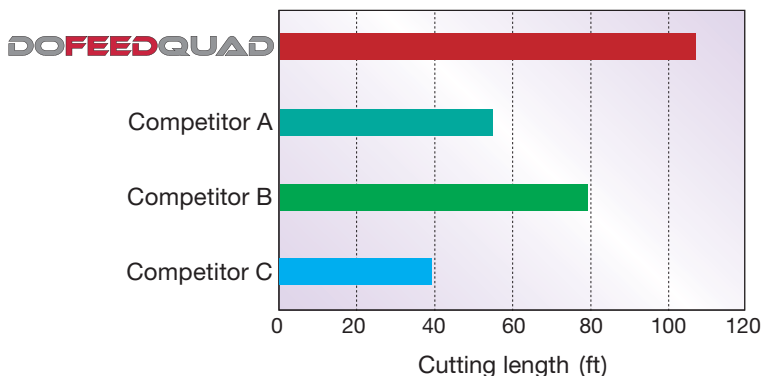
## Remarkable reliability in high feed milling

- 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.

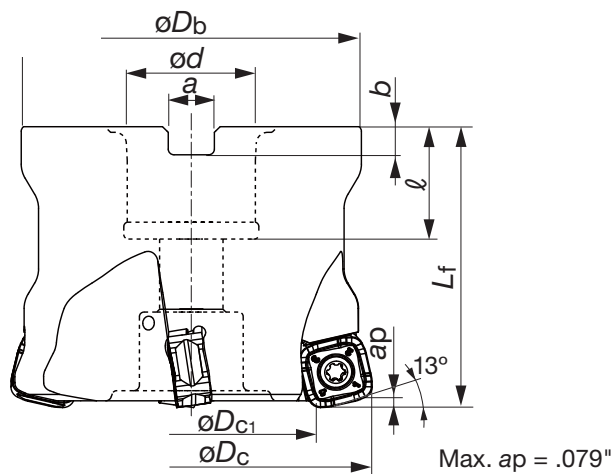
### ■ Comparison of reliability



**Rigid clamping provides the high reliability and long tool life.**

Cutter : TXQ12R200U0075A03  
(Single insert cutting)  
Insert : SQMU1206ZSR-MJ  
Grade : AH725  
Work material : Prehardened steels (40HRC)  
Cutting speed :  $V_c = 330$  sfm  
Feed per tooth:  $f_z = .039$  ipt  
Depth of cut :  $a_p = .039$ "  
Width of cut :  $a_e = 1.1$ "  
Overhang length: 7.4"  
Coolant : Dry  
Machine : Vertical M/C, BT50

# Cutter



## Replacement parts

Description	Parts Cat. No.
Clamping screw	<b>CSPB-4</b>
Bit	<b>BLD IP15/S7</b>
Handle	<b>H-TBS</b>

## ● Bore type

Cat. No.	Stock	No. of inserts	Dimensions (in)								Weight (lb)	Air hole	Center bolt	Insert
			$\phi D_c$	$\phi D_{C1}$	$\phi D_b$	$\phi d$	$\ell$	$L_f$	$b$	$a$				
TXQ12R200U0075A03	●	3	2.000	1.362	1.850	.750	.750	1.969	.197	.315	1.12	with	(C0.375X1.125H)	<b>SQMU1206 ZSR-MJ</b>
TXQ12R200U0075A04	●	4	2.000	1.362	1.850	.750	.750	1.969	.197	.315	1.12		(C0.375X1.125H)	
TXQ12R250U0075A04	●	4	2.500	1.862	2.323	.750	.750	1.969	.197	.315	1.76		(C0.375X1.125H)	
TXQ12R300U0100A05	●	5	3.000	2.362	2.835	1.000	1.024	2.480	.236	.374	3.77		(C0.500X1.375H)	
TXQ12R400U0150A06	●	6	4.000	3.362	3.780	1.500	1.457	2.480	.394	.626	5.71		(TMBA-0.750H)	
TXQ12R500U0150A07	●	7	5.000	4.362	3.780	1.500	1.457	2.480	.394	0.626	7.01		(TMBA-0.750H)	
TXQ12R600U0200A08	●	8	6.000	5.37	3.937	2.000	1.496	2.48	.433	.748	7.35		(TMBA-M24H)	

● : Stocked items

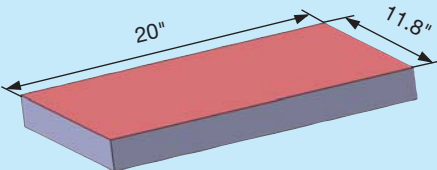
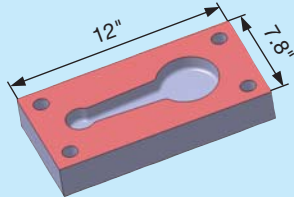
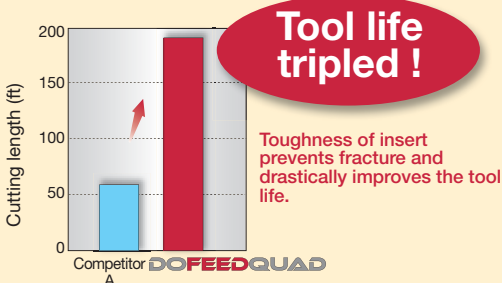
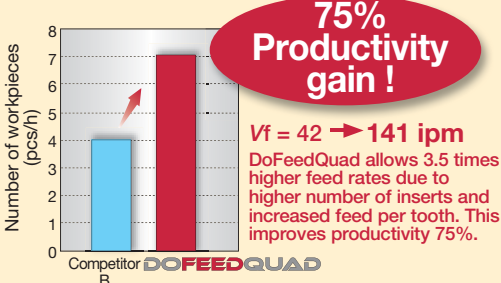
# Standard cutting conditions

Work material	Hardness	Priority	Grades	Cutting speed Vc (sfm)	Feed per tooth fz (ipt)
High carbon steels (1045, 1055 etc.)	~ 300HB	First choice	<b>AH725</b>	330 - 980	.020 - .080
		For wear resistance	<b>T3130</b>		
		For impact resistance	<b>AH130</b>		
Alloyed steels (4140 etc.)	~ 300HB	First choice	<b>AH725</b>	330 - 660	.020 - .060
		For wear resistance	<b>T3130</b>		
		For impact resistance	<b>AH130</b>		
Prehardened steels (NAK80, PX5, etc.)	30 ~ 40HRC	-	<b>AH725</b>	330 - 660	.020 - .040
Stainless steel (304, 316 etc.)	~ 200HB	-	<b>AH130</b>	330 - 500	.012 - .030
Gray cast iron (No.25, No.30 etc.)	-	-	<b>AH120</b>	330 - 980	.020 - .080
Ductile cast irons (60-40-18, 65-45-12 etc.)	-	-	<b>AH120</b>	260 - 660	.020 - .080
Titanium alloy (Ti-6Al-4V etc.)	~ 40HRC	-	<b>AH725</b>	100 - 200	.012 - .028
Hardened steels	(H13 etc.)	40 ~ 50HRC	<b>AH725</b>	260 - 430	.004 - .012
	(D2 etc.)	50 ~ 60HRC		160 - 230	.001 - .003

- 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.

# Practical examples

Workpiece type		Plate	Machine part
Cutter		TXQ12R500U0150A07 ( $\phi 5.000"$ , $z = 7$ )	TXQ12R300U0100A05 ( $\phi 3.000"$ , $z = 5$ )
Insert		SQMU1206ZSR-MJ	SQMU1206ZSR-MJ
Grade		AH725	AH725
Work material		<b>Prehardened steels (40HRC)</b>	<b>Low carbon steel</b>
			
Cutting conditions	Cutting speed: $V_c$ (sfm)	260	590
	Feed per tooth: $f_z$ (ipt)	.028	.039
	Depth of cut: $a_p$ (in)	.039 ~ .079	.039
	Width of cut: $a_e$ (in)	3	2.8
	Process	Face milling	Face milling
	Coolant	Dry	Dry
Machine		Vertical M/C, BT50	Vertical M/C, BT50
Results		 <p><b>Tool life tripled !</b> Toughness of insert prevents fracture and drastically improves the tool life.</p>	 <p><b>75% Productivity gain !</b> <math>V_f = 42 \rightarrow 141</math> ipm DoFeedQuad allows 3.5 times higher feed rates due to higher number of inserts and increased feed per tooth. This improves productivity 75%.</p>



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