

Tungaloy

Member IMC Group

Keeping the Customer First

Tungaloy Report No.022 USA

MILLLINE Face milling cutter

NEW!

DOOCTO
DOQUAD

The best solution for steel and cast iron milling!



Features

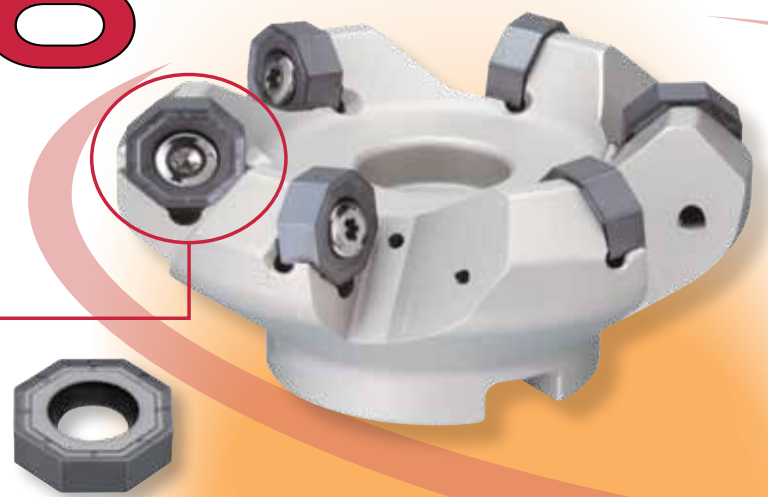
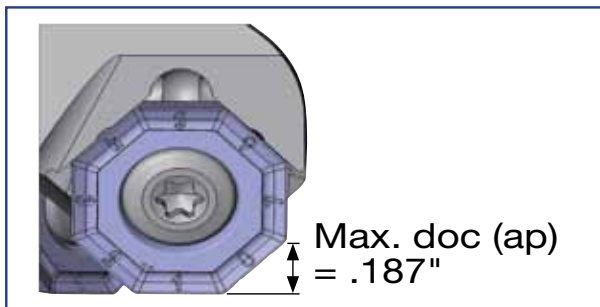
1. Two insert shapes

Octagonal or square inserts, please choose one type per cutter body.

DOOCTO

Economical milling cutter

Octagonal insert
(double sided, 16 corners)

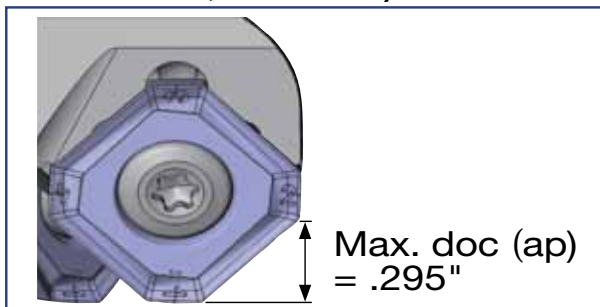


Screw on type

DOQUAD

Productive milling cutter

Square insert
(double sided, 8 corners)



2. Two clamping systems

Screw on



- Large gullet for excellent chip evacuation
- With air hole

Wedge



- Fine pitch for high productivity

3. Extremely versatile series

- The ideal solution for steel and cast iron milling
- Coarse, Medium, and Fine pitch cutter bodies available
- Available in ML, MJ type chipbreaker and wiper inserts



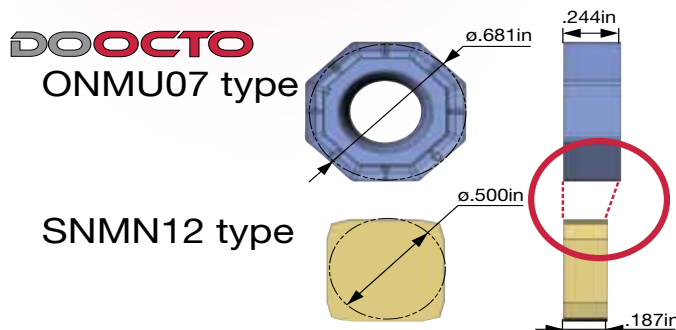
Wedge type



How to select a cutter

Work material	Clamp system	Pitch	Shape
 Steel Cast irons Cast iron	Screw	Coarse	
		Medium	
	Wedge	Fine	

4. Remarkable reliability!



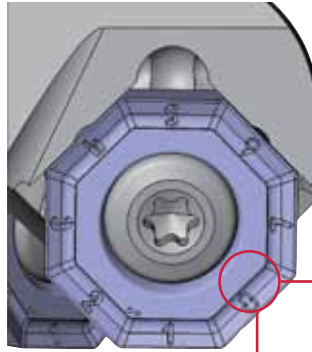
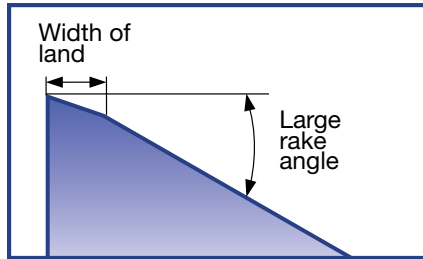
Large and thick insert improves strength!!

Variation of inserts

Chipbreaker

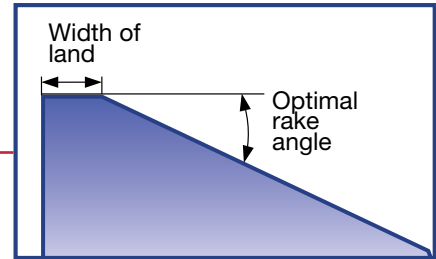
ML type

K
Cast iron



MJ type

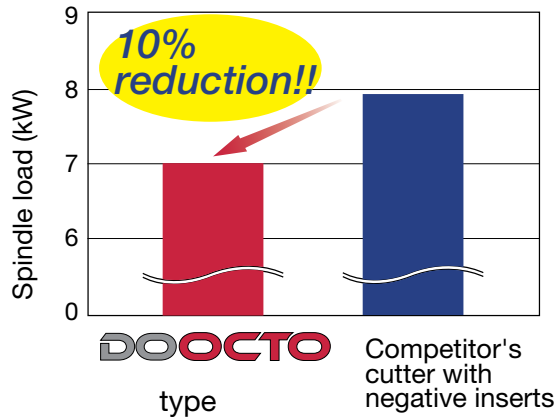
P
Steel



- Low cutting force
- High sharpness

- General purpose insert
- Excellent balance of sharpness and strength

Comparison of spindle load

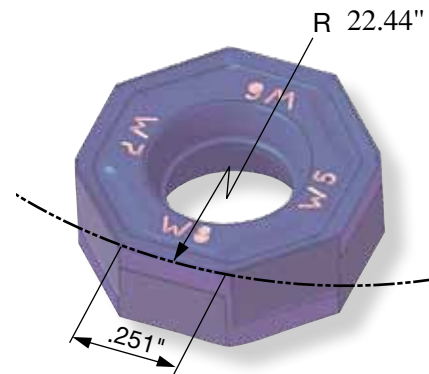
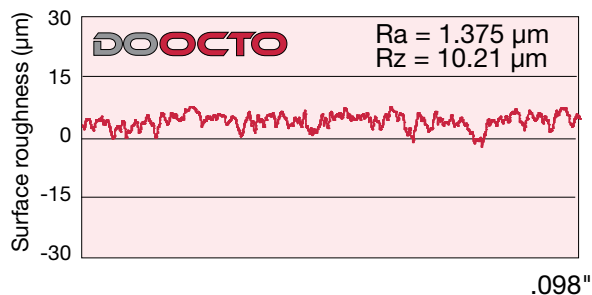


Cutter : TAN07R300U0100A10W (ø3.00", 10teeth)
 Insert : ONMU0705ANPN-ML
 Grade : AH120
 Work material : Cast Iron (180HB)
 Cutting speed : Vc = 660 SFM
 Feed per tooth : fz = .012" ipt
 Depth of cut : ap = .120"
 Width of cut : ae = 2.00"
 Coolant : Dry

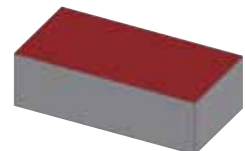
Wiper insert

- Wide wiper with slightly curved edge

Surface roughness with wiper



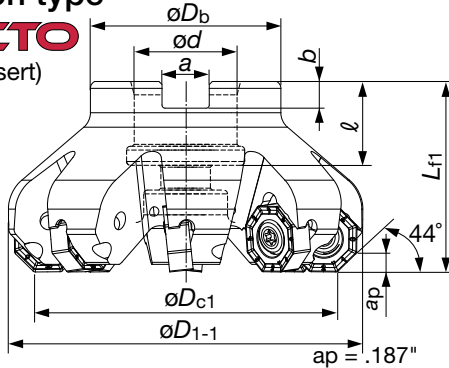
Cutter : TAN07R300UA0100A08 (ø3.00", z = 8)
 Insert : ONHU0705ANTN-ML
 : ONHU0705ANFN-W
 Grade : AH120
 Work material : Cast Iron (180HB)
 Cutting speed : Vc = 820 SFM
 Feed per tooth : fz = .008" ipt
 Depth of cut : ap = .120"
 Width of cut : ae = 2.36"
 Coolant : Dry



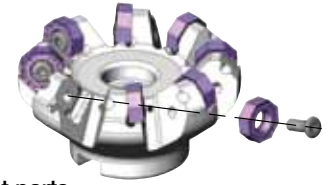
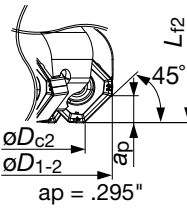
Cutter

Screw on type

DOOCTO
(Octagonal insert)



DOQUAD
(Square insert)



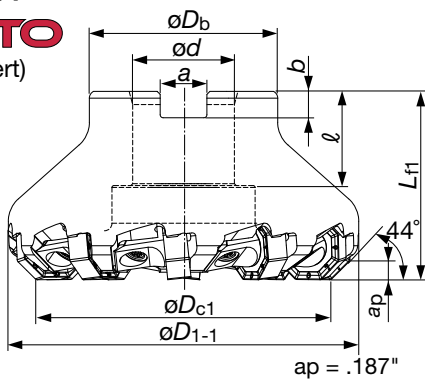
Replacement parts

Description		Parts	
Applicable Cutter	TAN07R...	TAN07R600...	TAN07R800...
Clamping screw	CSPE-5L150		
Wrench	Torx Bit	BLD IP20/S7	BLD IP20/M7
	Grip	H-TB	H-TB
Mono block type substitution wrench	IP-20T		

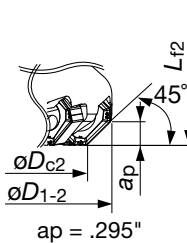
Cat. No.	Stock	No. of Inserts	Dimensions (inch)										(kg)	Air Hole	Center bolt (optional)
			ϕD_{c1}	ϕD_{c2}	ϕD_{1-1}	ϕD_b	ϕd	L_{f1}	L_{f2}	ℓ	b	a			
TAN07R250U0075A05	●	5	2.50	2.39	3.01	1.75	0.75	1.75	1.81	0.75	0.19	0.31	.5	With	C0.375X1.125H
TAN07R250U0075A06	●	6	2.50	2.39	3.01	1.75	0.75	1.75	1.81	0.75	0.19	0.31	.5	With	C0.375X1.125H
TAN07R300U0100A06	●	6	3.00	2.89	3.51	2.00	1.00	2.00	2.06	0.75	0.22	0.38	1.0	With	C0.500X1.375H
TAN07R300U0100A08	●	8	3.00	2.89	3.51	2.00	1.00	2.00	2.06	0.75	0.22	0.38	1.0	With	C0.500X1.375H
TAN07R400U0150A07	●	7	4.00	3.89	4.51	2.40	1.50	2.00	2.06	1.00	0.38	0.63	1.5	With	TMBA-0.750H
TAN07R400U0150A10	●	10	4.00	3.89	4.51	2.40	1.50	2.00	2.06	1.00	0.38	0.63	1.5	With	TMBA-0.750H
TAN07R500U0150A08	●	8	5.00	4.89	5.51	2.40	1.50	2.50	2.56	1.00	0.38	0.63	2.5	With	TMBA-0.750H
TAN07R500U0150A12	●	12	5.00	4.89	5.51	2.40	1.50	2.50	2.56	1.00	0.38	0.63	2.5	With	TMBA-0.750H
TAN07R600U0200A10	●	10	6.00	5.89	6.51	4.00	2.00	2.50	2.56	1.00	0.44	0.75	4.0	without	-
TAN07R600U0200A15	●	15	6.00	5.89	6.51	4.00	2.00	2.50	2.56	1.00	0.44	0.75	4.0	without	-
TAN07R800U0250A12	●	12	8.00	7.89	8.51	5.30	2.50	2.50	2.56	1.40	0.53	1.00	6.5	without	-
TAN07R800U0250A18	●	18	8.00	7.89	8.51	5.30	2.50	2.50	2.56	1.40	0.53	1.00	6.5	without	-

Wedge type

DOOCTO
(Octagonal insert)



DOQUAD
(Square insert)



Replacement parts

Description		Parts	
Applicable cutter	TAN07R...W		
Clamping screw	DS6P		
Wedge	CL ARM-10-TUNG1		
Wrench	Torx Bit	BLD IP15/S7	
	Grip	H-TBS	

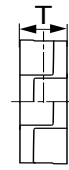
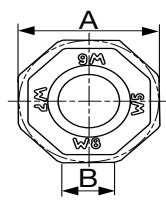
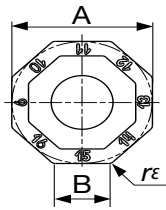
Cat. No.	Stock	No. of Inserts	Dimensions (inch)										(kg)	Air Hole
			ϕD_{c1}	ϕD_{c2}	ϕD_{1-1}	ϕD_b	ϕd	L_{f1}	L_{f2}	ℓ	b	a		
TAN07R250U0075A08W	●	8	2.50	2.39	3.01	1.75	0.75	1.75	1.81	0.75	0.19	0.31	.6	without
TAN07R300U0100A10W	●	10	3.00	2.89	3.51	2.00	1.00	2.00	2.06	0.75	0.22	0.38	1.1	without
TAN07R400U0150A14W	●	14	4.00	3.89	4.51	2.40	1.50	2.00	2.06	1.00	0.38	0.63	1.6	without
TAN07R500U0150A18W	●	18	5.00	4.89	5.51	2.40	1.50	2.50	2.56	1.00	0.38	0.63	2.5	without
TAN07R600U0200A22W	●	22	6.00	5.89	6.51	4.00	2.00	2.50	2.56	1.00	0.44	0.75	3.6	without
TAN07R800U0250A28W	●	28	8.00	7.89	8.51	5.30	2.50	2.50	2.56	1.40	0.53	1.00	5.8	without

● : Stocked Standard

Inserts Specification

Octagonal insert

DOOCTO



MJ, ML (16 corner type)

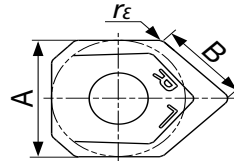
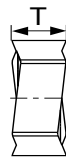
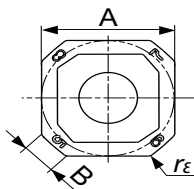
W (Wiper, 8 corner type)

Insert	Accuracy	Honing	Stocked Grades			Dimensions (inch)			
			AH120	AH140	AH725	A	B	T	r _E
ONMU0705ANPN-MJ	M	with		●	●	.681	.283	.244	.031
ONHU0705ANPN-MJ	H	with		●	●				
ONMU0705ANPN-ML	M	with	●						
ONHU0705ANTN-ML	H	with	●	●	●				
ONHU0705ANPR-W	H	with	●			.689	.252	.228	-

* Note: See page 7 for wiper insert info.

Square insert

DOQUAD



MJ, ML (8 corner type)

W (Wiper, 2 corner type)

Insert	Accuracy	Honing	Stocked Grades			Dimensions (inch)			
			AH120	AH140	AH725	A	B	T	r _E
SNMU1706ANPR-MJ	M	with		●	●	.681	.173	.275	.031
SNHU1706ANPR-MJ	H	with		●	●				
SNMU1706ANTR-ML	M	with	●						
SNHU1706ANTR-ML	H	with	●						
SNHU1706ANFN-W	H	without	●			.894	.433	.256	.016

* Note: See page 7 for wiper insert info.

● : Stocked Standard

Standard cutting conditions

Work material	Hardness HB	Recommendations			Cutting Speed V _c (SFM)	Feed per tooth: fz (ipt)
		First choice	Grades	Chipbreaker		
Low carbon steels	~ 200	First choice	AH725	MJ	330 - 590 - 820	.008 - .012 - .020
		Second choice	AH140	MJ		
High carbon steels	200 ~ 300	First choice	AH725	MJ	330 - 490 - 760	.008 - .012 - .016
		Second choice	AH140	MJ		
Alloy steels	150 ~ 300	First choice	AH725	MJ	330 - 490 - 760	.008 - .012 - .016
		Second choice	AH140	MJ		
Tool steels	~ 300	First choice	AH725	MJ	330 - 390 - 590	.008 - .012 - .016
Grey cast irons	150 ~ 250	First choice	AH120	ML	460 - 590 - 820	.007 - .012 - .020
Ductile cast irons		Second choice	AH725	MJ		

Practical Examples

Part of workpiece		Machine bed	Parts of machine structure
Cutter		TAN07R600U0200A15 (ø6.00", z = 15)	TAN07R500U150A08 (ø5.00", z = 8)
Insert		ONHU0705ANTN-ML	SNMU1706ANTR-ML
Grade		AH120	AH120
Workpiece material		FC300 (GG30)	FCD700 (GGG70)
Cutting conditions	Cutting speed: Vc (SFM)	590	390
	Feed per tooth: fz (ipt)	.007" → .008"	.009" → .020"
	Feed speed: Vf (ipm)	30" → 43"	28" → 47"
	Depth of cut: ap (in)	.118"	.118" (x 5 passes) → .197" (x 3 passes)
	Cutting width: ae (in)	4.00"	~ 3.150"
	Method of machining	Face milling	Face milling
	Coolant	Dry	Dry
	Machine	Vertical machining center BT50	Vertical machining center BT50
Results		<p>170% tool life!</p> <p>140% productivity! 40% reduction in manufacturing costs!!</p>	<p>300% tool life!</p> <p>70% reduction of cycle time!</p>

Attention for wiper inserts

DOOCTO

1

2

Just one wiper insert is needed in a cutter
Feed rate: $f < .216''$ ipr

DOQUAD

1

2

Just one wiper insert is needed in a cutter
Feed rate: $f < .374''$ ipr

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**New Address Late
Summer 2010*

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