Tungaloy
Member IMC Group

Keeping the Customer First

Tungaloy Report No. 403-US

MILLLINE Super high feed cutter

DOFEED SERIES

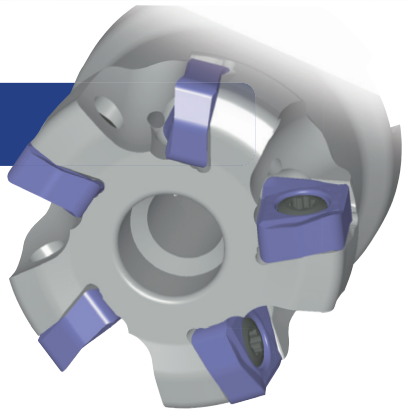
NEW

TXN / EXN type

New-generation of high feed cutters offering incredible productivity

This new generation of su cutter has now been exten

Two new sizes of insert now allow a wider te



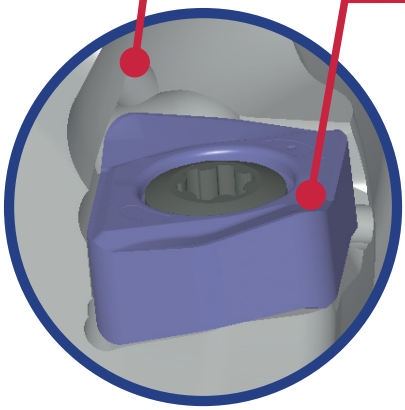
Innovations behind super high productivity

Excellent chip evacuation

- Holes for air blast to reduce edge chipping caused by re-cutting chips

Remarkable chip control

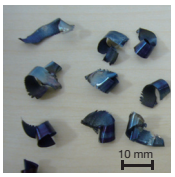
- Large inclination improves chip flow



DOFEED SERIES

Good

Consistent chip curling with an optimum length



Competitor

Bad

Packed or unstable chip shapes

Cutter	: TXN06R200U075A05
Insert	: LNMU06X5ZER-MJ
Grade	: AH725
Work material	: Carbon steels (1055)
Cutting speed	: *Vc* = 590 sfm
Feed per tooth	: *fz* = .070 ipt
Depth of cut	: *ap* =.039"
Coolant	: Dry
Machine	: Vertical M/C, BT50

High density inserts for improved productivity

Tool diameter	Tool dia. ø*Dc* (in)	No. of inserts		Productivity with competitor
		DOFEED SERIES	Competitor	
EXN03	ø.750	4	3	1.3 times
	ø1.000	5	4	1.3 times
TXN06 EXN06	ø2.000	5	4	1.3 times
	ø3.000	7	5	1.4 times

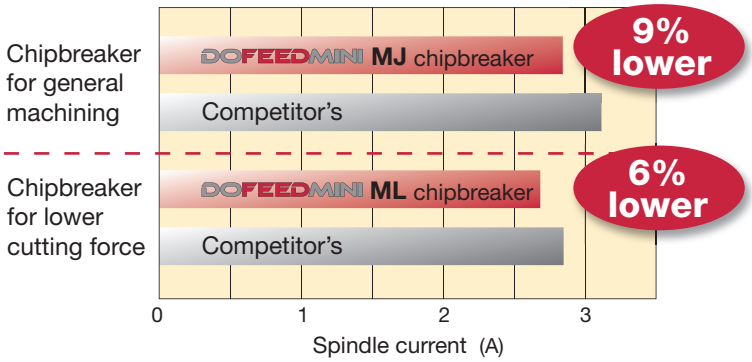
uper high feed
nded !

ool diameter range

Reduced chattering with low cutting forces

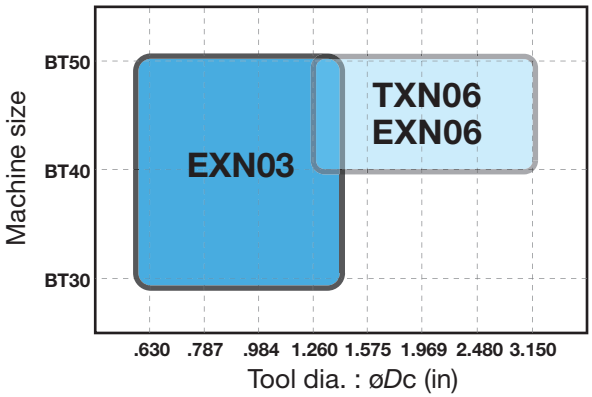
● Negative type insert with low cutting forces

■ **Comparison of spindle load**



Cutter	: EXN03R100U0100-05 (ø1.000", z = 5)
Insert	: LNMU0303ZER-MJ / ML
Grade	: AH725
Work material	: Carbon steels (1055)
Cutting speed	: *Vc* = 820 sfm
Feed per tooth	: *fz* = .020 ipt (1 insert)
Depth of cut	: *ap* = .020"
Width of cut	: *ae* = 1.000" (Slot milling)
Coolant	: Dry
Machine	: Vertical M/C, BT40

■ **Applicable area**

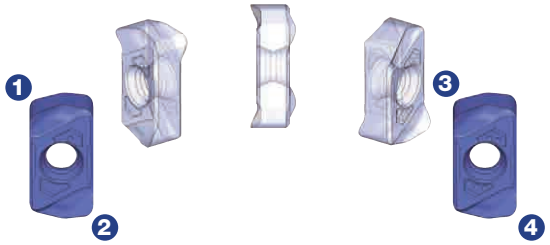


● Suitable for any machine size

EXN03	· Highly efficient milling tools for mid to small range machines · Tool dia.: ø*D*c = .625 ~ 1.250" · Max. depth of cut: Max. *ap* = .039"
TXN06 EXN06	· Highly efficient milling tools for large to mid range machines · Tool dia.: ø*D*c = 1.250 ~ 3.000" · Max. depth of cut: Max. *ap* = .059"

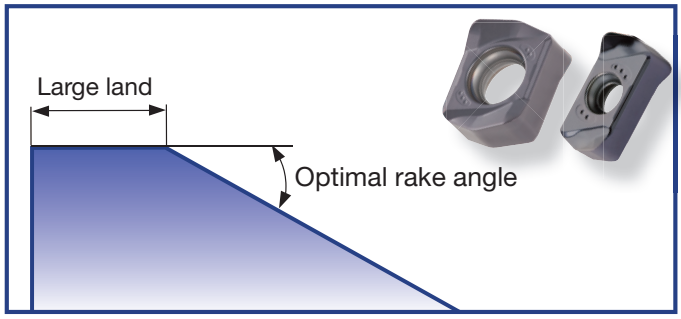
● Scaled up insert

Economical insert with 4 cutting edges!



Chipbreaker

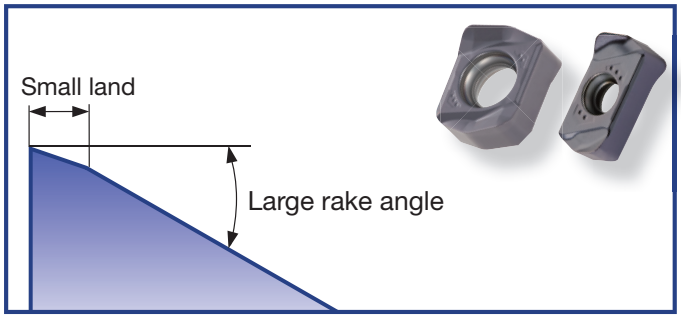
MJ Chipbreaker for general machining



P Steel K Cast iron H Hard Materials

- Excellent combination of sharpness and strength
- Ideal for machining steels, cast iron and hardened steel

ML Chipbreaker for lower cutting forces



M Stainless S Superalloys

- Exceptional sharpness
- Suitable for cutting stainless steel and titanium alloy
- Reduces chattering when cutting with low rigidity set-ups

Grades

Special Surface Technology

PREMIUMTEC
TUNGALOY

AH725

P Steel K Cast iron S Superalloys H Hard Materials

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

AH130

M Stainless P Steel

- Newly developed substrate
- Excellent balance between hardness and toughness
- Suitable for stainless steels

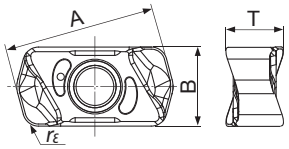
AH120

P Steel K Cast iron

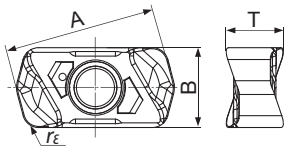
- Tough substrate with high reliability
- Outstanding wear resistance
- Ideal grade for cast iron milling

Insert

LNMU03 type

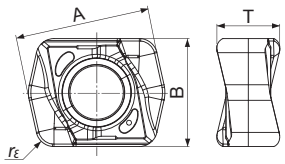


MJ (for general purpose)

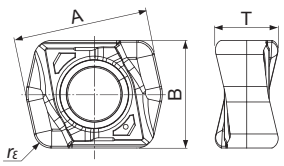


ML (for low cutting force)

LNMU06 type



MJ (for general purpose)



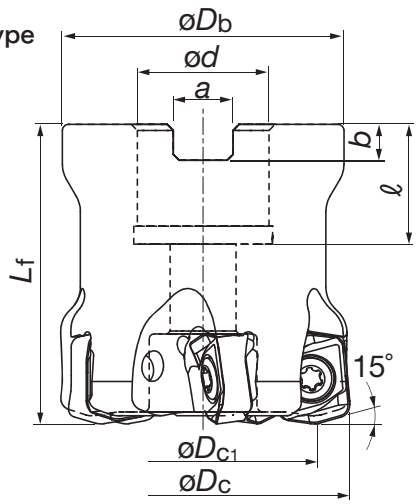
ML (for low cutting force)

Cat. No.	Accuracy	Honing	Grades			Dimensions (in)			
			AH725	AH120	AH130	A	B	T	rε
LNMU0303ZER-MJ	M	with	●		●	.456	.236	.169	.047
LNMU0303ZER-ML	M	with	●		●				
LNMU06X5ZER-MJ	M	with	●	●	●	.591	.472	.276	.079
LNMU06X5ZER-ML	M	with	●	●	●				

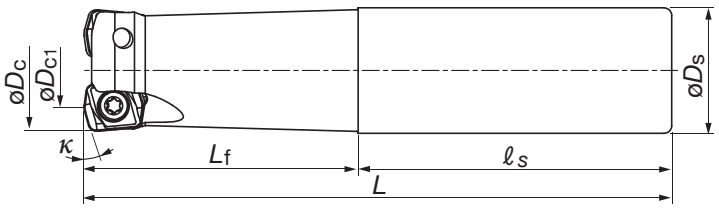
● : Stocked items

Cutter

TXN06 type
Bore type



EXN03, EXN06 type
Shank type



LNMU03 type: Max. *a*p = .039"
LNMU06 type: Max. *a*p = .059"

Parts

Descriptions		Parts Cat. No.		
Applicable cutter		TXN06R...	EXN03R...	EXN06R...
Clamping screw		CSPB-5	CSPB-2.5	CSPB-5
Wrench	Bit	BLD IP20/S7	IP-8D	IP-20D
	Handle	H-TBS		

Bore type

Cat. No.	Stock	No. of Inserts	Dimensions (in)								Weight (lb)	Air hole	Insert
			*ø*Dc	*ø*Dc1	*ø*Db	*ød*	ℓ	*L*f	*b*	*a*			
TXN06R200U075A05	●	5	2.000	1.513	1.850	.750	.750	2.000	.197	.315	.88	with	**LNMU06X5ZER-M***
TXN06R300U100A07	●	7	3.000	2.512	2.835	1.000	1.024	2.500	.236	.374	3.31		

Shank type

Type	Cat. No.	Stock	No. of Inserts	Dimensions (mm)						Weight (lb)	Air hole	Insert
				*ø*Dc	*ø*Ds	*ø*Dc1	*L*	*L*f	ℓ s			
Standard	**EXN03R062U0062-02**	●	2	.625	.625	.374	4.000	1.250	2.750	.44	with	**LNMU0303ZER-M***
	EXN03R068U0062-02	●	2	.688	.625	.433	4.000	1.250	2.750	.44		
	EXN03R075U0075-03	●	3	.750	.750	.496	5.000	2.000	3.000	.66		
	EXN03R087U0075-03	●	3	.875	.750	.634	5.000	2.000	3.000	.66		
	EXN03R100U0100-05	●	5	1.000	1.000	.756	5.500	2.500	3.000	1.10		
	EXN03R112U0100-05	●	5	1.125	1.000	.882	5.500	2.500	3.000	1.10		
	EXN03R125U0125-06	●	6	1.250	1.250	1.008	6.000	3.000	3.000	2.43		
	EXN06R125U100W02	●	2	1.250	1.250	0.766	5.000	3.000	2.000	1.76	with	**LNMU06X5ZER-M***
	EXN06R150U125W03	●	3	1.500	1.250	1.014	6.000	3.500	2.500	1.98		
Long	**EXN03R062U0062-02L**	●	2	.625	.625	.374	6.000	2.000	4.000	.44	with	**LNMU0303ZER-M***
	EXN03R068U0062-02L	●	2	.688	.625	.433	6.000	1.000	5.000	.44		
	EXN03R075U0075-03L	●	3	.750	.750	.496	6.500	3.500	3.000	.66		
	EXN03R087U0075-03L	●	3	.875	.750	.634	6.500	1.250	5.250	.88		
	EXN03R100U0100-04L	●	4	1.000	1.000	.756	7.000	4.000	3.000	1.32		
	EXN03R112U0100-04L	●	4	1.125	1.000	.882	7.000	1.500	5.500	1.54		
	EXN03R125U0125-05L	●	5	1.250	1.250	1.008	8.000	5.000	3.000	2.43		
	EXN06R125U100-02L	●	2	1.250	1.250	0.766	8.000	5.000	3.000	2.43	with	**LNMU06X5ZER-M***
	EXN06R150U125-03L	●	3	1.500	1.250	1.014	10.000	2.000	8.000	2.87		

● : Stocked items

Standard cutting conditions EXN03 type

Work material		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth: *fz* (ipt) Tool dia.: ø.625~ ø.875	Tool dia.: ø1.0 ~ ø1.25	Plunging
Carbon steels 1045, 1055 etc.		~ 300HB	First choice	**AH725**	**MJ**	330 - 980	.020 - .050	.020 - .060	.004
			for low cutting force	**AH725**	**ML**		.020 - .030	.020 - .040	
			for impact resistance	**AH130**	**MJ**		.020 - .050	.020 - .060	
Alloy steels 4140, SCr415 etc.		~ 300HB	First choice	**AH725**	**MJ**	330 - 660	.020 - .050	.020 - .060	.004
			for low cutting force	**AH725**	**ML**		.020 - .030	.020 - .040	
			for impact resistance	**AH130**	**MJ**		.020 - .050	.020 - .060	
Prehardened steels		30 ~ 40HRC	-	**AH725**	**ML**	330 - 660	.020 - .030	.020 - .040	.004
Stainless steels 304, 316 etc.		~ 200HB	First choice	**AH130**	**ML**	330 - 490	.012 - .020	.012 - .030	.003
			for impact resistance	**AH130**	**MJ**		.012 - .031	.012 - .031	
Grey cast irons No35B, No45B etc.		150 ~ 250HB	-	**AH120**	**MJ**	330 - 980	.020 - .050	.020 - .060	.004
Ductile cast irons 60-40-18 etc.		150 ~ 250HB	-	**AH120**	**MJ**	330 - 660	.020 - .050	.020 - .060	.004
Titanium alloy Ti-6Al-4V etc.		~ 40HRC	-	**AH725**	**ML**	100 - 200	.012 - .020	.012 - .030	.003
Hardened steels	H13 etc.	40 ~ 50HRC	-	**AH725**	**MJ**	260 - 430	.004 - .008	.004 - .012	.002
	D2 etc.	50 ~ 60HRC				160 - 230	.001 - .002	.001 - .003	.001

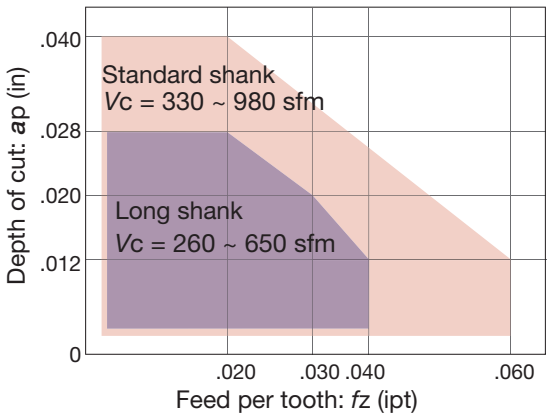
■ When chips stay in the cutting zone during slotting or pocketing, use air blast to remove chips from the work area.

■ 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.

Cautionary points in use

■ The use of a standard or long shank

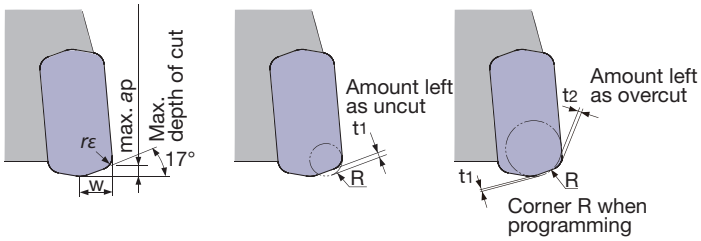
When using a long shank, please lower the cutting conditions (*Vc*, *fz*, *ap*) to 70% of the maximum conditions for the standard shank.



Tool ø : ø*Dc* = ø .625 ~ 1.250" Standard shank: L/D ≤ 3
Work material : 1055 (200HB) Long shank: L/D = 4
L/D ratio of overhang

■ Tool geometry on programming

When programming for CAM, the tool should be considered as a radius cutters. Usually, the corner radius should be set as R = .060". If a larger radius is used, overcutting will occur. The following table shows the amount left as uncut (t_1) and overcut (t_2).



Max. depth of cut max ap (in)	Corner radius rε (in)	W (in)	Corner R when program-ming	Amount left as uncut t1 (in)	Amount left as overcut t2 (in)
.039	.047	.118	.039	.024	-
			.060	.020	-
			.079	.010	.003
			.098	.006	.010

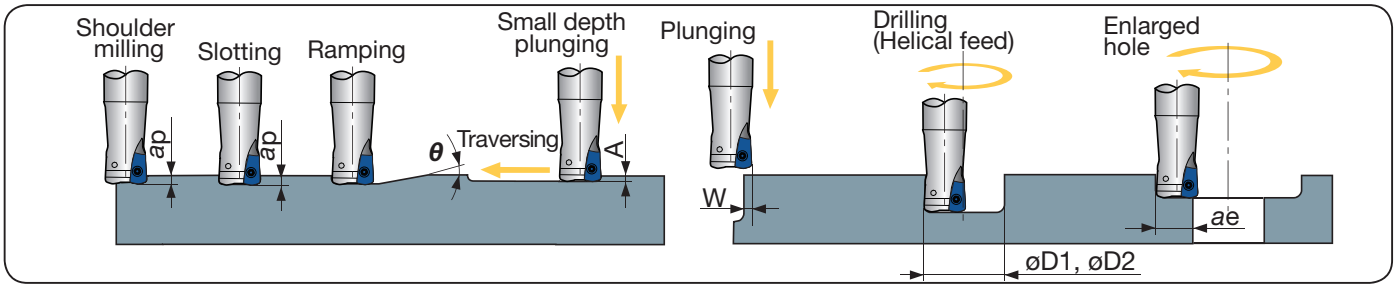
Each value in table is calculated theoretically at the maximum condition.

Tool dia.: øDc (in), Number of revolutions: n (rpm), Feed speed: Vf (ipm), Max. depth of cut: ap = .039"													
ø.625, z = 2		ø.688, z = 2		ø.750, z = 3		ø.875, z = 3		ø1.000, z = 5		ø1.125, z = 5		ø1.250, z = 6	
n	Vf	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf	n	Vf
4030	242	3660	220	3360	302	2880	259	2520	504	2240	448	2020	485
Vc = 660 sfm, fz = .030 ipt								Vc = 660 sfm, fz = .040 ipt					
4030	202	3660	183	3360	252	2880	216	2520	378	2240	336	2020	364
Vc = 660 sfm, fz = .025 ipt								Vc = 660 sfm, fz = .030 ipt					
4030	242	3660	220	3360	302	2880	259	2520	504	2240	448	2020	485
Vc = 660 sfm, fz = .030 ipt								Vc = 660 sfm, fz = .040 ipt					
2990	179	2720	163	2500	227	2140	193	1870	374	1660	332	1500	360
Vc = 490 sfm, fz = .030 ipt								Vc = 490 sfm, fz = .040 ipt					
2990	150	2720	136	2500	189	2140	161	1870	281	1660	249	1500	270
Vc = 490 sfm, fz = .025 ipt								Vc = 490 sfm, fz = .030 ipt					
2990	179	2720	163	2500	227	2140	193	1870	374	1660	332	1500	360
Vc = 490 sfm, fz = .030 ipt								Vc = 490 sfm, fz = .040 ipt					
2990	150	2720	136	2500	189	2140	161	1870	281	1660	249	1500	270
Vc = 490 sfm, fz = .025 ipt								Vc = 490 sfm, fz = .030 ipt					
2440	78	2220	71	2040	98	1750	84	1530	153	1360	136	1220	146
Vc = 400 sfm, fz = .016 ipt								Vc = 400 sfm, fz = .020ipt					
2440	98	2220	89	2040	122	1750	105	1530	168	1360	150	1220	161
Vc = 400 sfm, fz = .020 ipt								Vc = 400 sfm, fz = .022 ipt					
4030	242	3660	220	3360	302	2880	259	2520	504	2240	448	2020	485
Vc = 660 sfm, fz = .030 ipt								Vc = 660 sfm, fz = .040 ipt					
2990	179	2720	163	2500	225	2140	193	1870	374	1660	332	1500	360
Vc = 490 sfm, fz = .030 ipt								Vc = 490 sfm, fz = .040 ipt					
920	29	830	27	760	36	650	31	570	57	510	51	460	55
Vc = 150 sfm, fz = .016 ipt								Vc = 150 sfm, fz = .020 ipt					
2020	24	1830	24	1680	30	1440	26	1260	50	1120	45	1010	48
Vc = 330 sfm, fz = .006 ipt								Vc = 330 sfm, fz = .008 ipt					
1220	4	1110	3	1020	5	870	4	760	8	680	7	610	7
Vc = 200 sfm, fz = .0015 ipt								Vc = 200 sfm, fz = .002 ipt					

■ The above table shows the conditions for standard shank type cutters. When using long shank type cutters, the number of teeth may be different. In this case, the cutting conditions should be changed by referring to: “The usage of standard and long shanks” shown in page 6.

■ 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.

Applications



Cat. No.	Tool dia. øDc (in)	Max. depth of cut ap (in)	Max. ramping angle θ	Max. plunging depth A (in)	Max. cutting width in plunging W (in)	Min. machinable hole dia. ø D1 (in)	Max. machinable hole dia. ø D2 (in)	Max. cutting width in enlarged hole ae (in)
EXN03R062U0062-□□□	.625	.039	2.1°	.012	.138	.866	1.181	.492
EXN03R068U0062-□□□	.688	.039	1.7°	.012	.138	1.024	1.339	.571
EXN03R075U0075-□□□	.750	.039	1.4°	.012	.138	1.181	1.496	.650
EXN03R087U0075-□□□	.875	.039	1.2°	.012	.138	1.339	1.654	.728
EXN03R100U0100-□□□	1.00	.039	1.0°	.012	.138	1.575	1.890	.846
EXN03R112U0100-□□□	1.125	.039	0.8°	.012	.138	1.811	2.126	.965
EXN03R125U0125-□□□	1.250	.039	0.7°	.012	.138	2.126	2.441	1.122

Standard cutting conditions EXN06 / TXN06 type

Work material		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)	Feed when plunging *fz* (ipt)
Carbon steels 1045, 1055 etc.		~ 300HB	first choice	**AH725**	**MJ**	330 - 980	.020 - .059	.006
			for wear resistance	**AH120**	**MJ**			
			for impact resistance	**AH130**	**MJ**			
Alloy steels 4140, SCr415 etc.		~ 300HB	first choice	**AH725**	**MJ**	330 - 660	.020 - .059	.006
			for wear resistance	**AH120**	**MJ**			
			for impact resistance	**AH130**	**MJ**			
Prehardened steels		30 ~ 40HRC	-	**AH725**	**ML**	330 - 660	.020 - .039	.006
Stainless steels 304, 316 etc.		~ 200HB	first choice	**AH130**	**ML**	330 - 490	.012 - .028	.004
			for impact resistance	**AH130**	**MJ**		.012 - .031	
Grey cast irons No35B, No45B etc.		150 ~ 250HB	first choice	**AH120**	**MJ**	330 - 980	.020 - .059	.006
			for low cutting force	**AH120**	**ML**		.020 - .039	
Ductile cast irons 60-40-18 etc.		150 ~ 250HB	first choice	**AH120**	**MJ**	260 - 660	.020 - .059	.006
			for low cutting force	**AH120**	**ML**		.020 - .039	
Titanium alloy (Ti-6Al-4V etc.)		~ 40HRC	-	**AH725**	**ML**	100 - 200	.012 - .028	.003
Hardened steels	H13 etc.	40 ~ 50HRC	-	**AH725**	**MJ**	260 - 430	.004 - .012	.002
	D2 etc.	50 ~ 60HRC		**AH725**	**MJ**	160 - 230	.001 - .003	.001

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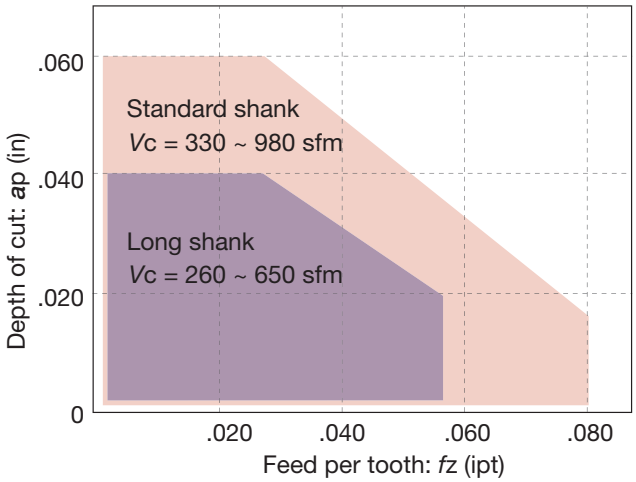
■ The usage of a standard & long shank

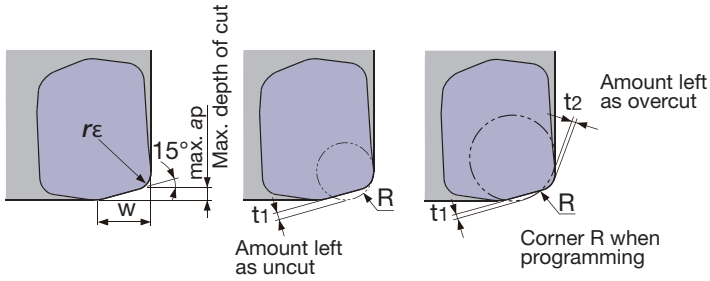
When using a long shank, please lower the cutting conditions (*Vc*, *fz*, *ap*) to 70% of the maximum conditions for the standard shank.



Tool dia.: ø*Dc* = ø1.250 ~ 1.500" Standard shank: L/D ≦ 3
Work material: 1055 (200HB) Long shank: L/D = 4
L/D ratio of overhang

■ Tool geometry on programming

When programming for CAM, the tool should be considered as a radius cutters. Usually, the corner radius should be set as R = .118". If a larger radius is used, overcutting will occur. The following table shows the amount left as uncut (t_1) and overcut (t_2).



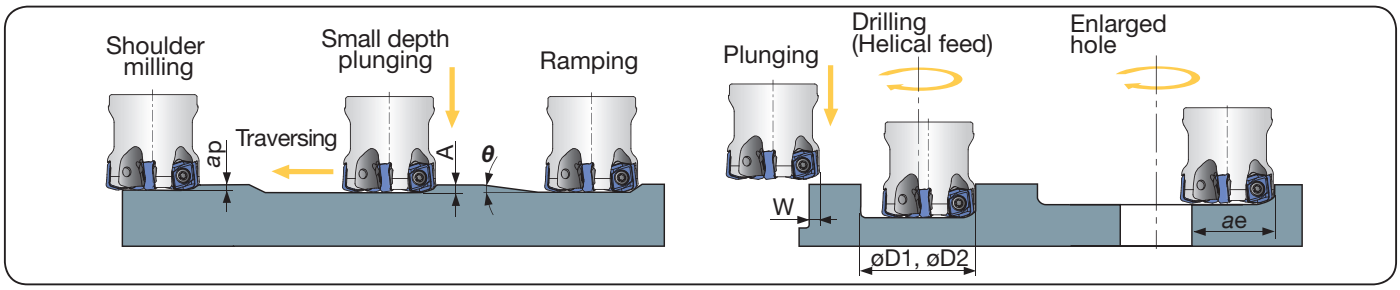
Max. depth of cut max *ap* (in)	Corner radius *r*ε	W (in)	Corner R when programming	Amount left as uncut t_1 (in)	Amount left as overcut t_2 (in)
.059	.079	.236	.079	.004	-
			.118	.030	-
			.157	.021	.010

Each value in table is calculated theoretically at the maximum condition.

Tool dia.: øDc (in), Number of revolutions: n (rpm), Feed speed: Vf (ipm), Max. depth of cut: ap = .059"							
ø1.250", z = 2		ø1.500", z = 3		ø2.000", z = 5		ø3.000", z = 7	
n	*Vf*	*n*	*Vf*	*n*	*Vf*	*n*	*Vf*
2,020	162	1,680	202	1,260	252	840	235
Vc = 660 sfm, *fz* = .040 ipt							
1,500	120	1,250	150	940	188	620	174
Vc = 490 sfm, *fz* = .040 ipt							
1,500	90	1,250	113	940	141	620	130
Vc = 490 sfm, *fz* = .030 ipt							
1,220	49	1,020	61	760	76	510	71
Vc = 400 sfm, *fz* = .020 ipt							
1,220	59	1,020	73	760	91	510	86
Vc = 400 sfm, *fz* = .024 ipt							
2,020	97	1,680	121	1,260	151	840	141
Vc = 660 sfm, *fz* = .024 ipt							
2,020	121	1,680	151	1,260	189	840	176
Vc = 660 sfm, *fz* = .030 ipt							
1,500	72	1,250	90	940	113	620	104
Vc = 490 sfm, *fz* = .040 ipt							
1,500	90	1,250	113	940	141	620	130
Vc = 490 sfm, *fz* = .030 ipt							
460	18	380	23	290	29	190	27
Vc = 150 sfm, *fz* = .020 ipt							
1,010	16	840	20	630	25	420	24
Vc = 330 sfm, *fz* = .008 ipt							
610	2	510	3	380	4	250	4
Vc = 200 sfm, *fz* = .002 ipt							

- The above table shows the conditions for standard shank type cutters. When using long shank type cutters, the number of teeth may be different. In this case, the cutting conditions should be changed by referring to: “The usage of standard and long shanks” shown in page 8.
- 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.

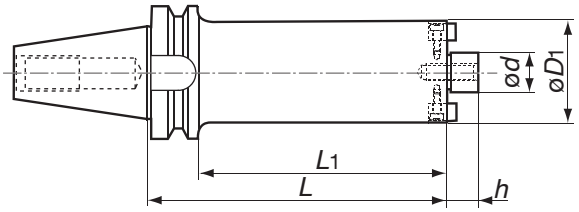
Applications



Cat. No.	Tool dia. øDc (in)	Max. depth of cut ap (in)	Max. ramping angle θ	Max. plunging depth A (in)	Max. cutting width in plunging W (in)	Min. machinable hole dia. øD1 (in)	Max. machinable hole dia. øD2 (in)	Max. cutting width in enlarged hole ae (in)
TXN06R200U...	ø2.000	.059	0.9	.020	.236	3.330	3.800	1.720
TXN06R300U...	ø3.000	.059	0.6	.020	.236	5.330	5.800	2.720
EXN06R125U...	ø1.250	.059	2.0	.020	.236	1.830	2.300	.970
EXN06R150U...	ø1.500	.059	1.7	.020	.236	2.330	2.800	1.220

Arbors

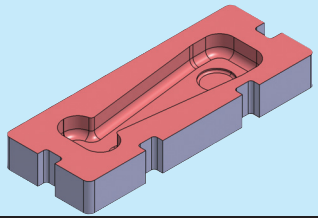
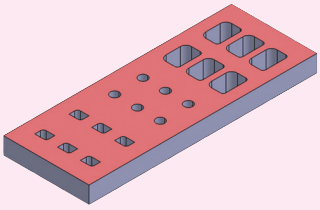
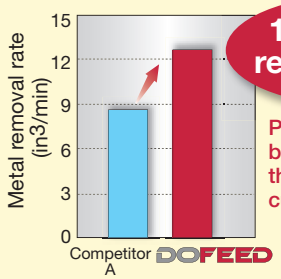
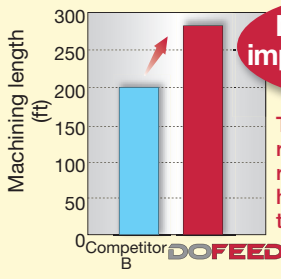
CAT50 SEM

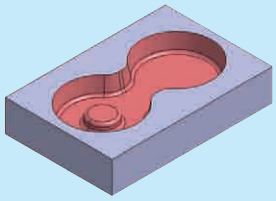
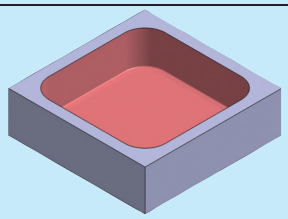
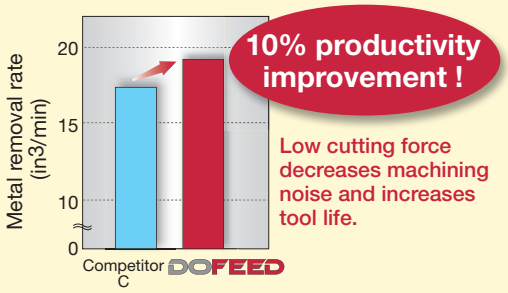
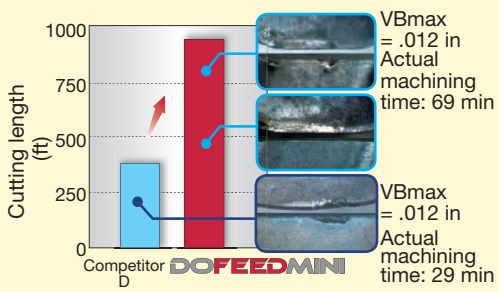


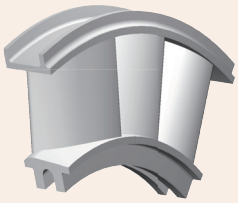
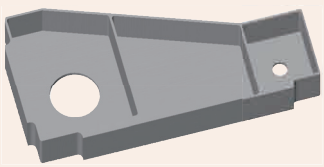
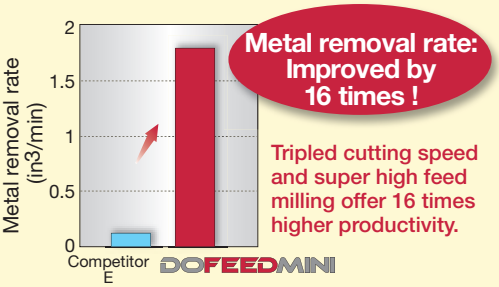
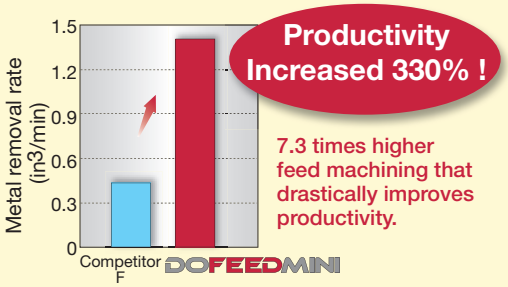
※No through air hole.

Cat. No.	Stock	Dimensions (in)					Applicable TAC mills
		L	*L*1	ø*D*1	ø*d*	*h*	
CAT50 SEM 3/4X1.500		1.5	.750	1.772	.750	.669	**TXN06R200U075A05**
CAT50 SEM 3/4X1.920X8.00		8	7.250	1.920	.750	.669	
CAT50 SEM 3/4X3.500		3.5	.750	1.772	.750	.669	
CAT50 SEM 3/4X5.500		5.5	4.750	2.362	.750	.669	
CAT50 SEM 1X2.000		2	1.250	2.165	1.000	.669	**TXN06R300U100A07**
CAT50 SEM 1X2.42X12.00		12	11.25	2.420	1.000	.669	
CAT50 SEM 1X4.000		4	3.250	2.165	1.000	.669	
CAT50 SEM 1X6.000		6	5.250	2.165	1.000	.669	

Practical examples

Workpiece type		**Mold for plastic products**	**Mold for pressing**
Cutter		**TXN06R063M22.0E06** (ø63mm, z = 6)	**TXN06R063M22.0E06** (ø63mm, z = 6)
Insert		**LNMU06X5ZER-ML**	**LNMU06X5ZER-MJ**
Grade		**AH725**	**AH120**
Work material		**Prehardened steel (30HRC)**	**No.25 (150HB)**
			
Cutting conditions	Cutting speed: ***Vc*** **(sfm)**	660	660
	Feed per tooth: ***fz*** **(ipt)**	.050	.040
	Depth of cut: ***ap*** **(in)**	.031	.039
	Width of cut: ***ae*** **(in)**	1.600	2.480
	Process	Face milling, Pocket milling	Face milling
	Coolant	Dry (air)	Dry (air)
	Machine	Horizontal M/C, BT50	Special machine, BT50
Results		 **150% metal removal rate !** Productivity is increased by 1.5 times credit to the high density insert cutter.	 **Machining time improved by 140% !** The high wear resistance of the AH120 reduces load while its high density improves tool life.

Workpiece type		Machine parts	Machine parts
Cutter		TXN06R200U075A05 (ø2.000", z = 5)	EXN03R100U0100-05 (ø1.000", z = 5)
Insert		LNMU06X5ZER-MJ	LNMU0303ZER-MJ
Grade		AH725	AH725
Work material		S55C (200HB)	Prehardened steel (40HRC)
			
Cutting conditions	Cutting speed: *Vc* (sfm)	460	330
	Feed per tooth: *fz* (ipt)	.060	.031
	Depth of cut: *ap* (in)	.039	.020
	Width of cut: *ae* (in)	2.000	.070
	Process	Pocket milling	Pocket milling
	Coolant	Dry (air)	Dry (air)
	Machine	Horizontal M/C, BT50	Vertical M/C, BT40
Results			

Workpiece type		Turbine stator nozzle	Aerospace component
Cutter		EXN03R030M32.0-05 (ø30mm, z = 5)	EXN03R100U0100-05 (ø1.000", z = 5)
Insert		LNMU0303ZER-ML	LNMU0303ZER-ML
Grade		AH725	AH725
Work material		Heat resistant cast steel	Ti-6Al-4V (36HRC)
			
Cutting conditions	Cutting speed: *Vc* (sfm)	230	160
	Feed per tooth: *fz* (ipt)	.020	.028
	Depth of cut: *ap* (in)	.020	.020
	Width of cut: *ae* (in)	1.000	.750
	Process	Shoulder milling	Pocket milling
	Coolant	Wet	Wet
	Machine	Vertical M/C, BT50	Vertical M/C, BT40
Results			

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