

45° Lead Angle



C1~C16

45° Lead Angle

C2~C16

MFPN45

C2-C8

MOF45

C9-C11

MOFX45

C12-C13

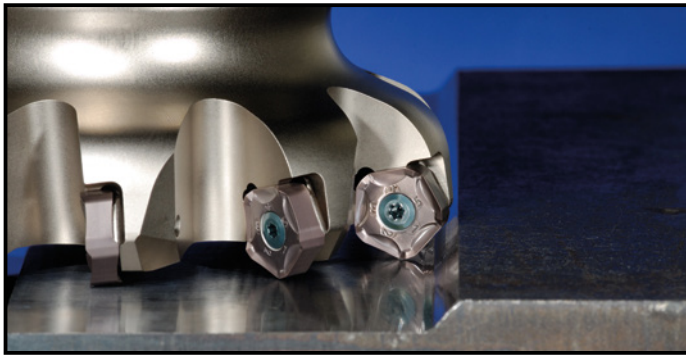
MSE45

C14

MSO45-S / MSO45

C15-C16

C



High Efficiency Mill

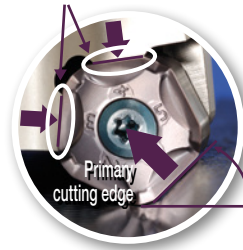
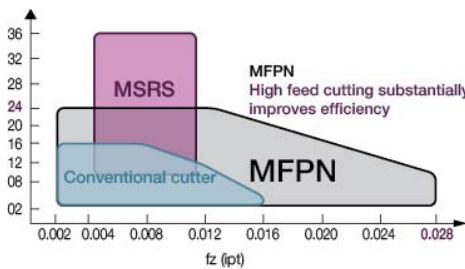
MFPN

Milling-Facing PeNtagonal type

Five Advantages of the MFPN

1 A Roughing and General-purpose Mill with 10-Edge Pentagonal Inserts

- Stable cutting due to two-face contact
- 10-edge insert reduces cutting costs



Insert pocket is designed to take advantage of cutting force direction to help secure insert

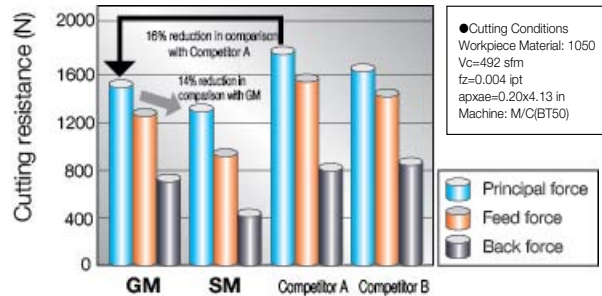
Highly stabilized accuracy

2 Low Cutting Forces Due to Helical Cutting-Edge Design

- Helical cutting-edge design with low cutting force reduces chattering
- High Axial Rake Angle (A.R. Max. +10°)

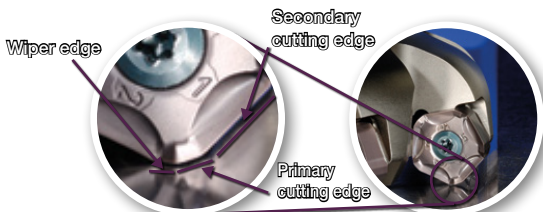


● Cutting Force Comparison

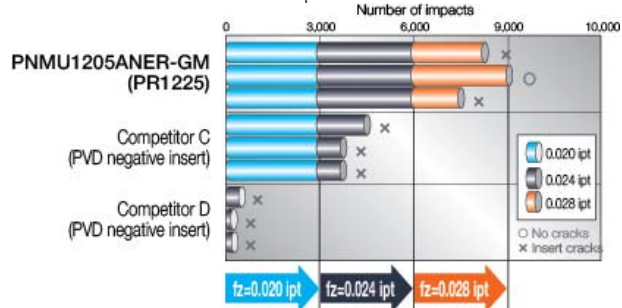


3 Tough and Reliable Dual Cutting Edge Design

- Dual Cutting Edge
 - Primary edge makes chips thinner and reduces impact forces



● Fracture resistance comparison



● Cutting Conditions
Workpiece: 4140(25-30HRC)
(workpiece with 0.787in width slot)
machine: BT50 M/C
Vc=325sfm
fz=0.018-0.028ipt
apxae=0.079x3.937in

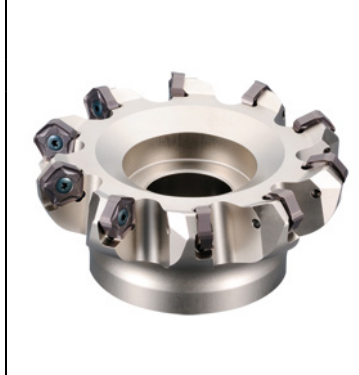
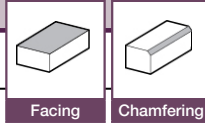
4 Molded Chipbreakers Improve Chip Evacuation

5 Longer Tool Life with PR12-Series MEGACOAT Carbide Inserts

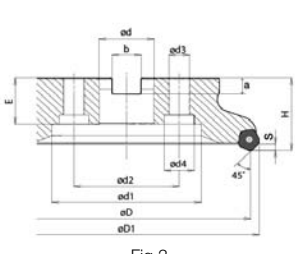
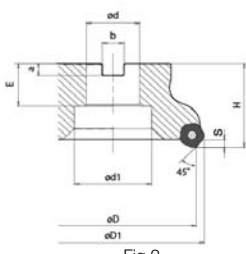
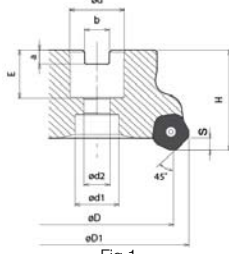
C

45° Lead Angle

MFPN45 Face Mill (Inch-Size)



Rake Angles (°)	Axial Rake	Radial Rake	
	max +10°	∅D=2.50-3.00 : -10°	∅D=4.00-10.00 : -6°



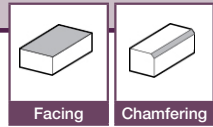
Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (inch)												Drawing	Weight (kg)	Shim	Applicable Inserts B17	
			∅D	∅D1	∅d	∅d1	∅d2	H	E	a	b	∅d3	∅d4						
Inch Spec Coarse pitch	MFPN 452500R-4T	●	4	2.50	3.01	0.750	0.67	0.43	1.57	0.750	0.19	0.312			Fig.1	0.5	Yes	PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W	
	453000R-5T	●	5	3.00	3.51	1.00	0.87	0.55	1.97	1.06	0.24	0.375			Fig.1	1.1			
	454000R-6T	●	6	4.00	4.51	1.50	2.05	-	1.97	1.14	0.39	0.625	-	-	Fig.2	1.4			
	455000R-7T	●	7	5.00	5.51	1.50	2.28	-	2.48	1.42	0.39	0.625			Fig.2	2.6			
	456000R-8T	●	8	6.00	6.51	2.00	2.00	-	2.48	1.50	0.43	0.750			Fig.2	3.8			
	458000R-10T	●	10	8.00	8.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	6.6			
	451000R-12T	●	12	10.00	10.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	9.3			
Inch Spec Fine pitch	MFPN 452500R-5T	●	5	2.50	3.01	0.750	0.67	0.43	1.57	0.750	0.19	0.312			Fig.1	0.5	No		PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W
	453000R-6T	●	6	3.00	3.51	1.00	0.87	0.55	1.97	1.06	0.24	0.375			Fig.1	1.1			
	454000R-8T	●	8	4.00	4.51	1.50	2.05	-	1.97	1.14	0.39	0.625	-	-	Fig.2	1.3			
	455000R-10T	●	10	5.00	5.51	1.50	2.28	-	2.48	1.42	0.39	0.625			Fig.2	2.6			
	456000R-12T	●	12	6.00	6.51	2.00	2.83	-	2.48	1.50	0.43	0.750			Fig.2	3.9			
	458000R-14T	●	14	8.00	8.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	6.6			
	451000R-16T	●	16	10.00	10.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	9.3			
Inch Spec Extra fine pitch	MFPN 452500R-6T	●	6	2.50	3.01	0.750	0.67	0.43	1.57	0.750	0.19	0.312			Fig.1	0.5	No	PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W	
	453000R-8T	●	8	3.00	3.51	1.00	0.87	0.55	1.97	1.06	0.24	0.375			Fig.1	1.1			
	454000R-10T	●	10	4.00	4.51	1.50	2.05	-	1.97	1.14	0.39	0.625	-	-	Fig.2	1.3			
	455000R-13T	●	13	5.00	5.51	1.50	2.28	-	2.48	1.42	0.39	0.625			Fig.2	2.6			
	456000R-16T	●	16	6.00	6.51	2.00	2.83	-	2.48	1.50	0.43	0.750			Fig.2	3.9			
	458000R-18T	●	18	8.00	8.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	6.6			
	451000R-20T	●	20	10.00	10.51	2.50	3.94	4.00	2.48	1.57	0.55	1.000	0.71	1.02	Fig.3	9.3			

* Dimension S: 0.236in (GM, SM, GH Chipbreakers), 0.197in (GL Chipbreaker)



MFPN45 High Efficiency Mill



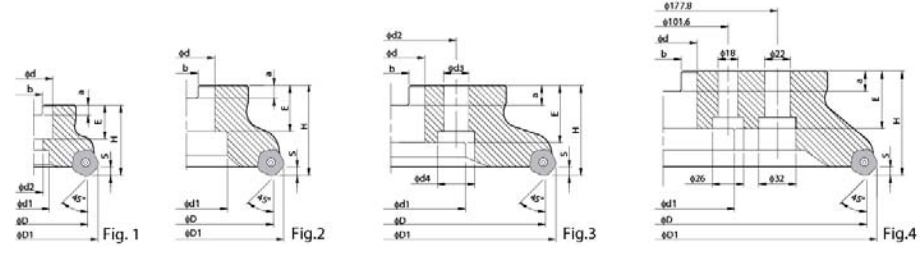
Facing

Chamfering

MFPN45 Face Mill (Metric-Size)



Rake Angles (°)	Axial Rake	Radial Rake	
	max +10°	∅D=63 : -10°	∅D=100-315 : -6°
		∅D=80 : -8°	



Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)												Drawing	Weight (kg)	Shim	Applicable Inserts B17		
			∅D	∅D1	∅d	∅d1	∅d2	H	E	a	b	∅d3	∅d4							
Coarse pitch	MFPN 45063R-4T-M	○	4	63	76	22	19	11	40	21	6.3	10.4			Fig. 1	0.5	Yes	PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W		
	45080R-5T-M	○	5	80	93	27	22	13	50	24	7	12.4			Fig. 1	1.1				
	45100R-6T-M	○	6	100	113	32	48			30	8	14.4			Fig. 2	1.4				
	45125R-7T-M	○	7	125	138		58			32	9	16.4			Fig. 2	2.6				
	45160R-8T-M	○	8	160	173	40	68	66.7	63	32	9	16.4	14	20	Fig. 3	3.8				
	45200R-10T-M	○	10	200	213					40	14	25.7	18	26	Fig. 3	6.4				
	45250R-12T-M	○	12	250	263	60	110	101.6	63	40	14	25.7	18	26	Fig. 3	9.1				
NEW 45315R-14T-M	△	14	315	328				80						Fig. 4	21.3					
Metric Fine pitch	MFPN 45063R-5T-M	○	5	63	76	22	19	11	40	21	6.3	10.4			Fig. 1	0.5	No		PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W	
	45080R-6T-M	○	6	80	93	27	22	13	50	24	7	12.4			Fig. 1	1.0				
	45100R-8T-M	○	8	100	113	32	48			30	8	14.4			Fig. 2	1.4				
	45125R-10T-M	○	10	125	138		58			32	9	16.4			Fig. 2	2.5				
	45160R-12T-M	○	12	160	173	40	68	66.7	63	32	9	16.4	14	20	Fig. 3	3.8				
	45200R-14T-M	○	14	200	213					40	14	25.7	18	26	Fig. 3	6.5				
	45250R-16T-M	○	16	250	263	60	110	101.6	63	40	14	25.7	18	26	Fig. 3	9.1				
NEW 45315R-18T-M	△	18	315	328				80						Fig. 4	21.7					
Extra fine pitch	MFPN 45063R-6T-M	○	6	63	76	22	19	11	40	21	6.3	10.4			Fig. 1	0.5	No			PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W
	45080R-8T-M	○	8	80	93	27	22	13	50	24	7	12.4			Fig. 1	1.1				
	45100R-10T-M	○	10	100	113	32	48			30	8	14.4			Fig. 2	1.3				
	45125R-13T-M	○	13	125	138		58			32	9	16.4			Fig. 2	2.6				
	45160R-16T-M	○	16	160	173	40	68	66.7	63	32	9	16.4	14	20	Fig. 3	3.9				
	45200R-18T-M	○	18	200	213					40	14	25.7	18	26	Fig. 3	6.6				
	45250R-20T-M	○	20	250	263	60	110	101.6	63	40	14	25.7	18	26	Fig. 3	9.3				
Bore Dia. Inch spec Coarse pitch	MFPN 45080R-5T	○	5	80	93	1.000"	22	13	50	27	6	0.375"			Fig. 1	1.1	Yes	PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W		
	45100R-6T	○	6	100	113	1.250"	48			32	8	0.500"			Fig. 1	1.4				
	45125R-7T	○	7	125	138	1.500"	58			36	10	0.625"			Fig. 2	2.6				
	45160R-8T	○	8	160	173	2.000"	72			38	11	0.750"			Fig. 2	4.0				
	45200R-10T	○	10	200	213					40	14	1.000"	18	26	Fig. 3	6.7				
	45250R-12T	○	12	250	263	1.875"	110	4.000"	63	40	14	1.000"	18	26	Fig. 3	9.4				
	NEW 45315R-14T	△	14	315	328			80							Fig. 4	21.2				
Bore Dia. Inch spec Fine pitch	MFPN 45080R-6T	○	6	80	93	1.000"	22	13	50	27	6	0.375"			Fig. 1	1.1	No		PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W	
	45100R-8T	○	8	100	113	1.250"	48			32	8	0.500"			Fig. 1	1.4				
	45125R-10T	○	10	125	138	1.500"	58			36	10	0.625"			Fig. 2	2.7				
	45160R-12T	○	12	160	173	2.000"	72			38	11	0.750"			Fig. 2	4.0				
	45200R-14T	○	14	200	213					40	14	1.000"	18	26	Fig. 3	6.9				
	45250R-16T	○	16	250	263	1.875"	110	4.000"	63	40	14	1.000"	18	26	Fig. 3	9.6				
	NEW 45315R-18T	△	18	315	328			80							Fig. 4	21.5				
Bore Dia. Inch spec Extra fine pitch	MFPN 45080R-8T	○	8	80	93	1.000"	22	13	50	27	6	0.375"			Fig. 1	1.1	No			PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W
	45100R-10T	○	10	100	113	1.250"	48			32	8	0.500"			Fig. 1	1.3				
	45125R-13T	○	13	125	138	1.500"	58			36	10	0.625"			Fig. 2	2.7				
	45160R-16T	○	16	160	173	2.000"	72			38	11	0.750"			Fig. 2	4.0				
	45200R-18T	○	18	200	213					40	14	1.000"	18	26	Fig. 3	6.9				
	45250R-20T	○	20	250	263	1.875"	110	4.000"	63	40	14	1.000"	18	26	Fig. 3	9.6				
	NEW 45315R-20T	△	20	315	328			80							Fig. 3	9.6				

* Dimension S: 6 mm (GM, SM, GH Chipbreakers), 5 mm (GL Chipbreaker)

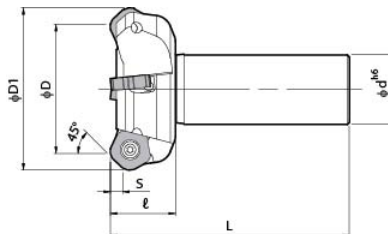
● : Stock Std. ○ : World Express △ : Made to Order



45° Lead Angle

NEW ITEM

MFPN45 Endmill



Description	Stock	No. of Inserts	Dimension						Rake Angle (°)		Shank Type	Spare Parts			Applicable Inserts B17		
			Unit	ØD	ØD1	Ød	L	ℓ	S	A.R. (MAX)		R.R.	Clamp Screw	Wrench		Anti-seize Compound	
MFPN 452000R-W125-3T	●	3	inch	2.00	2.31							-12°	Weldon	SB-50140TR	TT-15	MP-1	PNMU1205ANER-GM PNMU1205ANER-SM PNMU1205ANER-GH PNEU1205ANER-GL PNEU1205ANER-W
452500R-W125-4T	●	4		2.50	2.81	1.25	3.60	1.18	0.23 *(0.19)	+10°	-10°						
453000R-W125-5T	●	5		3.00	3.31						-8°						
MFPN 45050R-S32-3T	○	3	mm	50	63							-12°	Cylindrical	SB-50140TR	TT-15	MP-1	Tightening torque 4.2Nm
45063R-S32-4T	○	4		63	76	32	110	30	6 *(5)	+10°	-10°						
45080R-S32-5T	○	5		80	93						-8°						

* Dimension S: 0.23in (GM, SM, GH Chipbreakers), 0.19in (GL Chipbreaker)

● Spare Parts (inch/inch spec)

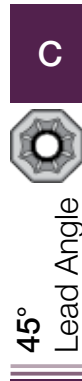
Description		Clamp Screw	Wrench		Shim	Shim Screw	Wrench	Anti-seize Compound	Mounting bolt
			TT	DTM					
Coarse pitch	MFPN 452500R-4T	SB-50140TR	TT-15		MFPN-45	SPW-7050	LW-5	MP-1	HH3/8x1.25
	MFPN 453000R-5T								HH1/2x1.25
	MFPN 454000R-6T								-
	4510000R-12T								-
Fine pitch	MFPN 452500R-6T	SB-40140TRN		DTM-15				MP-1	HH3/8x1.25
	MFPN 453000R-8T								HH1/2x1.25
	MFPN 454000R-10T								-
	4510000R-20T								-
Extra Fine pitch	MFPN 452500R-6T	SB-40140TRN		DTM-15				MP-1	HH3/8x1.25
	MFPN 453000R-8T								HH1/2x1.25
	MFPN 454000R-10T								-
	4510000R-20T								-

● Spare Parts (mm/mm & mm/inch spec)

Description		Clamp Screw	Wrench		Shim	Shim Screw	Wrench	Anti-seize Compound	Mounting bolt
			TT	DTM					
Coarse pitch	MFPN 45063R-4T-M	SB-50140TR	TT-15		MFPN-45	SPW-7050	LW-5	MP-1	HH10x30
	MFPN 45080R-5T-(M)								HH12x35
	MFPN 45100R-6T-(M)								-
	45315R-12T-(M)								-
Fine pitch	MFPN 45063R-5T-M	SB-50140TR	TT-15					MP-1	HH10x30
	MFPN 45080R-6T-(M)								HH12x35
	MFPN 45100R-8T-(M)								-
	45315R-16T-(M)								-
Extra fine pitch	MFPN 45063R-6T-M	SB-40140TRN		DTM-15				MP-1	HH10x30
	MFPN 45080R-8T-(M)								HH12x35
	MFPN 45100R-10T-(M)								-
	45250R-20T-(M)								-


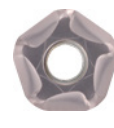



Apply thin coat of anti-seize compound (MP-1) on taper and thread of screw when indexing inserts.

● : Stock Std. ○ : World Express



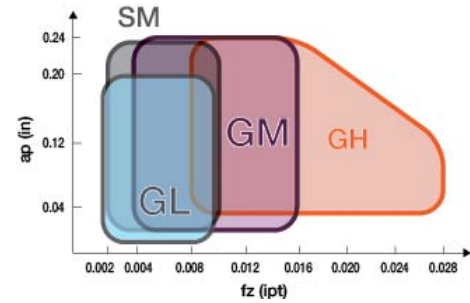
MFPN45 High Efficiency Mill

Applicable Inserts (fit both face mills and endmills)

Cutter Body	Applicable Inserts B17				
					
MFPN 45...	PNMU 1205ANER-GM	PNMU 1205ANER-SM	PNMU 1205ANER-GH	PNEU 1205ANER-GL	PNEU 1205ANER-W NEW

Recommended Cutting Conditions C7

Applicable Chipbreaker Range



How to Use the Wiper Inserts

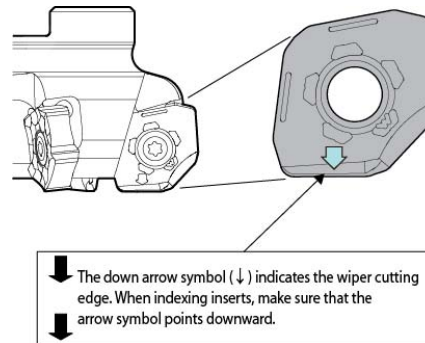
1) Use only one wiper insert per cutter load. (If you use more than 2 wiper inserts on one cutter, the workpiece surface finish may become hazy.) Load the remaining pockets with the GM or SM Chipbreakers

2) Combination of Wiper Insert with Other Chipbreakers

Chipbreaker	GM	SM	W
Combination			
Recommended Combination	●		●
Recommended Combination		●	●

*Do not use the wiper insert with the GH or GL Chipbreakers

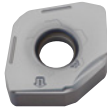

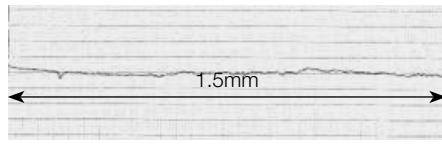


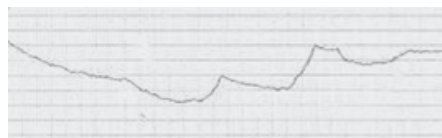
How to install wiper inserts in the MFPN cutter



Improved Surface Finish by using a Wiper Insert

Workpiece: Structural Steel

Cutting Conditions: $V_c = 650\text{sfm}$, $n(510\text{RPM})$, $f_z = 0.008\text{ ipt}$ $V_f=40.1\text{ ipm}$
MFPN45125R-10T : $a_p \times a_e = 0.12 \times 3.94"$, DRY

Chipbreaker Combination	Insert	Surface Finish	Workpiece Surface	Surface Finish
PNEU1205ANER-W PR1525 (1pc, wiper) PNMU1205ANER-GM PR1525 (9pcs)		$R_a = 0.48\ \mu\text{m}$ $R_z = 3.39\ \mu\text{m}$	 Shiny Surface	 25μm 1.5mm
PNEU1205ANER-GL PR1225 (10pcs) (No wiper insert loaded)		$R_a = 2.50\ \mu\text{m}$ $R_z = 11.41\ \mu\text{m}$	 Shiny Surface	

The surface roughness also depends on the workpiece, cutting conditions or situation of each user.
When the surface roughness is unstable, please increase the cutting speed, decrease the feed rate, or use a wiper insert (TN100M).

45° Lead Angle

NEW ITEM

MFPN45 High Efficiency Mill

Precautions for use (How to change an insert)

1. Be sure to remove dust and chips from the insert mounting pocket.
2. After applying anti-seize compound on portion of taper and thread, while pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten the screw with appropriate torque. Ref. to **Fig.1** and **Fig.2**. Recommended tightening torque → The torque for coarse pitch and fine pitch (using M5 screw) is 4.2 Nm

The torque for extra fine pitch (using M4 screw) is 3.5 Nm.

3. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the holder and between the insert side surfaces and the constraint surface of the toolholder.

4. To change the cutting edge of the insert, turn the insert counterclockwise (ref. to **Fig.3**).

Insert corner identification number is stamped on the top surface of insert (**Fig.4**). To protect the wiper edge, use the corners of insert in the sequence of corner numbers.



Fig.1



Fig.2



Fig.3

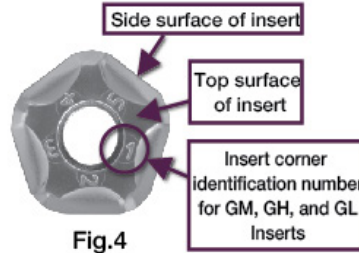


Fig.4

Case studies

Structural Steel	
<ul style="list-style-type: none"> Construction machine part Vc=550 sfm apxae=0.16x3.94" fz=0.012ipt Vf=51.2ipm DRY Cutter MFPN45125R-10T (10 flutes) Insert PNMU1205ANER-GM (PR1225) 	<p>Face milling (with flame-cut surface)</p>
MFPN (PR1225)	3 pcs/edge 3 times longer tool life
Competitor A	1 pcs/edge
<ul style="list-style-type: none"> MFPN face mill enables stable milling due to reduced chip-biting and edge cracks. MFPN face mill, did not chatter, showed 3 times longer tool life than competitor. <p>(Customer Evaluation)</p>	

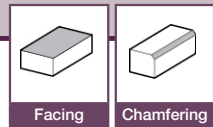
Alloy Steel	
<ul style="list-style-type: none"> Construction machine part Vc=574 sfm apxae=0.06x3.94in fz=0.010 ipt Vf=41.8 ipm DRY Cutter MFPN45160R-12T (12 flutes) Insert PNMU1205ANER-GM (PR1225) 	
MFPN (PR1225)	2 pcs/edge Twice the tool life
Competitor B	1 pcs/edge
<ul style="list-style-type: none"> MFPN face mill showed 2 times longer tool life than competitor. Competitor's insert was damaged due to chip-biting. MFPN face mill had no cracks and allowed stable milling. MFPN facemill enabled twice the table feed rate compared with the competitor. Milling efficiency improved two-fold. <p>(Customer Evaluation)</p>	

304SS	
<ul style="list-style-type: none"> Case Vc=295 sfm apxae=0.016x1.97in fz=0.008 ipt Vf=17.2 ipm DRY Cutter MFPN45080R-6T (6 flutes) Insert PNMU1205ANER-SM (PR1225) 	
MFPN (PR1225)	1.5 pcs/edge 1.5 times increased milling efficiency
Competitor C (Roughing)	1 pcs/edge
<ul style="list-style-type: none"> Even when the cutting depth, cutting speed and feed rate cannot be raised due to the low rigidity of a workpiece, MFPN face mill enables stable milling without chattering and also has an improved tool life of 1.5 times. <p>(Customer Evaluation)</p>	

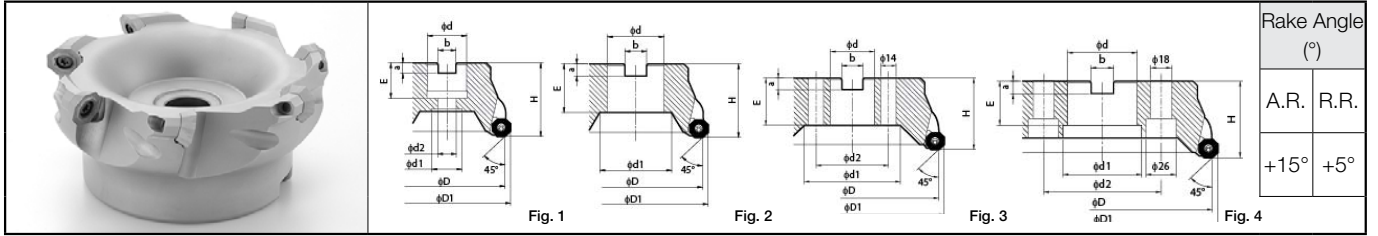
Ductile Iron	
<ul style="list-style-type: none"> Pipe Vc=600 sfm apxae=0.08x3.15in fz=0.017 Vf=79.2ipt DRY Cutter MFPN45125R-10T (10 flutes) Insert PNMU1205ANER-GM (PR1210) 	
MFPN (PR1210)	3 pcs/edge 1.5 times longer tool life
Competitor D	2 pcs/edge
<ul style="list-style-type: none"> MFPN facemill showed 1.5 times longer tool life than the competitor. High feed rate of MFPN allowed 1.3 times higher milling efficiency compared to the competitor. <p>(Customer Evaluation)</p>	

C
45° Lead Angle

Octagonal MOF Mill



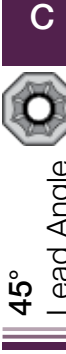
MOF45 Face Mill (05 type & 07 type)



Rake Angle (°)	
A.R.	R.R.
+15°	+5°




Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)											Drawing	Weight (kg)	Applicable Inserts		
			ØD	ØD1	Ød	Ød1	Ød2	H	E	a	b	S						
Metric	MOF	45040R-05-3T-M	○	3	40	49	16	13.5	8.5	40	19	5.6	8.4	-	Fig.1	OFMT05	0.3	
		45050R-05-4T-M	○	4	50	59	22	17	11								0.4	
		45063R-05-5T-M	○	5	63	72	27	20	13								0.6	
		45080R-05-6T-M	○	6	80	89											1.1	
		45100R-05-7T-M	○	7	100	109	32	45	-	63	30	8	14.4		Fig.2		1.8	
		45125R-05-8T-M	○	8	125	134	40	55									3.7	
		45160R-05-10T-M	○	10	160	169	40	88	66.7	63	38	14	25.7				Fig.3	5.1
		45200R-05-12T-M	○	12	200	209	60	68	101.6								Fig.4	8.0
	MOF	45063R-07-4T-M	○	4	63	75	22	17	11	40	21	6.3	10.4	-	Fig.1	OFMT07	0.6	
		45080R-07-5T-M	○	5	80	92	27	20	13								1.2	
		45100R-07-6T-M	○	6	100	112	32	45	-	63	30	9	16.4		Fig.2		1.9	
		45125R-07-8T-M	○	8	125	137	40	55									3.7	
45160R-07-10T-M		○	10	160	172	40	88	66.7	63	38	14	25.7	Fig.3		5.1			
45200R-07-12T-M		○	12	200	212	60	68	101.6					Fig.4		8.0			
Bore Dia. Inch spec	MOF	45080R-05-6T	○	6	80	89	1.000"	20	13	50	26	6	0.375"	-	Fig.1	OFMT05	1.1	
		45100R-05-7T	○	7	100	109	1.250"	45	63								38	11
		45125R-05-8T	○	8	125	134	1.500"	55		-	63	38	11		0.750"			
		45160R-05-10T	○	10	160	169	2.000"	88	63								38	11
		45200R-05-12T	○	12	200	209	1.875"	68		101.6	63	38	11		0.750"			
		45200R-05-12T	○	12	200	209	1.875"	68	101.6	63							38	11
	MOF	45080R-07-5T	○	5	80	92	1.000"	20	13		50	26	6	0.375"	-	Fig.1		
		45100R-07-6T	○	6	100	112	1.250"	45	63	38							11	0.750"
		45125R-07-8T	○	8	125	137	1.500"	55			-	63	38	11		0.750"		
		45160R-07-10T	○	10	160	172	2.000"	88	63	38							11	0.750"
		45200R-07-12T	○	12	200	212	1.875"	68			101.6	63	38	11		0.750"		
		45200R-07-12T	○	12	200	212	1.875"	68	101.6	63	38						11	0.750"



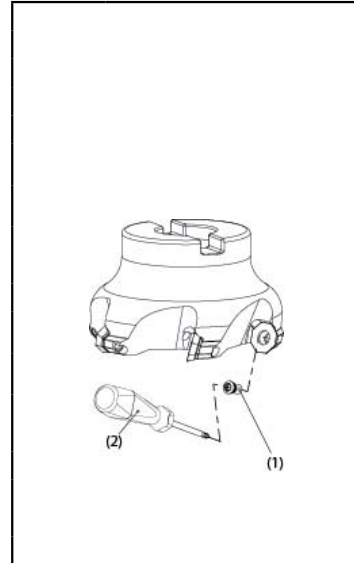
Octagonal MOF Mill

● Spare Parts

Description	(1)Clamp Screw 	(2)Wrench 	Arbor clamp screw 			
MOF 45040R-05-3T-M	SB-4082TPR	DTP-15	HH8X25			
45050R-05-4T-M			HH10X30M			
45063R-05-5T-M			-			
45080R-05-6T-M						
45100R-05-7T-M			-			
45125R-05-8T-M						
45160R-05-10T-M						
45200R-05-12T-M						
MOF 45063R-07-4T-M	SB-50120TRS	DTP-15	HH10X30S			
45080R-07-5T-M			HH12X35M			
45100R-07-6T-M			-			
45125R-07-8T-M						
45160R-07-10T-M			-			
45200R-07-12T-M						
MOF 45080R-05-6T				SB-4082TPR	DTP-15	HH12X35M
45100R-05-7T						-
45125R-05-8T						
45160R-05-10T						
45200R-05-12T						
MOF 45080R-07-5T	SB-50120TRS	DTP-15	HH12X35M			
45100R-07-6T			-			
45125R-07-8T						
45160R-07-10T						
45200R-07-12T						

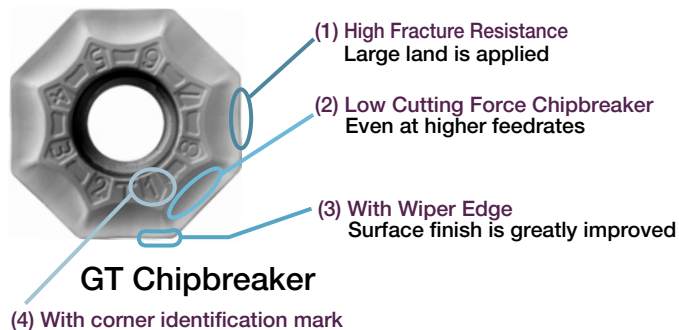
● Max. ap and usable edges

Usable edges	Max. ap (in)	
	OFMT05 type	OFMT07 type
4 edges (using 2 edges at a time)	0.28in	0.40in
8 edges (using 1 edge at a time)	0.10in	0.16in



45° Lead Angle

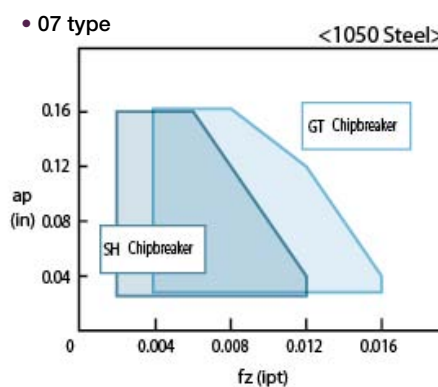
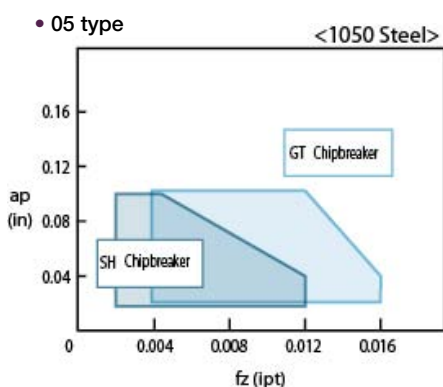
General purpose “SH Chipbreaker”, Tough Edge type “GT Chipbreaker”



	OFMT05 type	OFMT07 type
GT Chipbreaker (Tough Edge type)		
SH Chipbreaker (General purpose)		

Note 1) OFMT07 type insert cannot be used with MOFX type cutters (Ref. page [B17](#)).

Applicable Chipbreaker Range



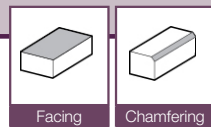
● Recommended Cutting Conditions (MOF / MOFX)

Workpiece Material	fz (ipt)		Recommended Insert Grades (Cutting Speed Vc: sfm)				
	GT Chipbreaker (Tough Edge type)	SH Chipbreaker (General purpose)	MEGACOAT		PVD Coated Carbide		
			PR1225	PR1210	PR830	PR1025	PR905
Stainless Steel	-	0.003~0.005~0.010	★ 400~525~725	-	-	☆ 400~500~675	-
Carbon Steel	0.004~0.010~0.016	0.004~0.006~0.012	★ 400~600~820	-	☆ 400~500~675	☆ 325~400~600	-
Alloy Steel	0.004~0.010~0.014	0.004~0.006~0.012	★ 325~525~725	-	☆ 325~500~600	-	-
Mold Steel	0.004~0.008~0.014	0.003~0.005~0.010	★ 250~460~600	-	☆ 250~400~500	-	-
Gray Cast Iron	0.004~0.010~0.016	0.004~0.006~0.012	-	★ 400~600~820	-	-	☆ 325~500~675
Nodular Cast Iron	0.004~0.008~0.014	0.003~0.005~0.010	-	★ 325~500~675	-	-	☆ 250~400~525

★: 1st Recommendation ☆: 2nd Recommendation



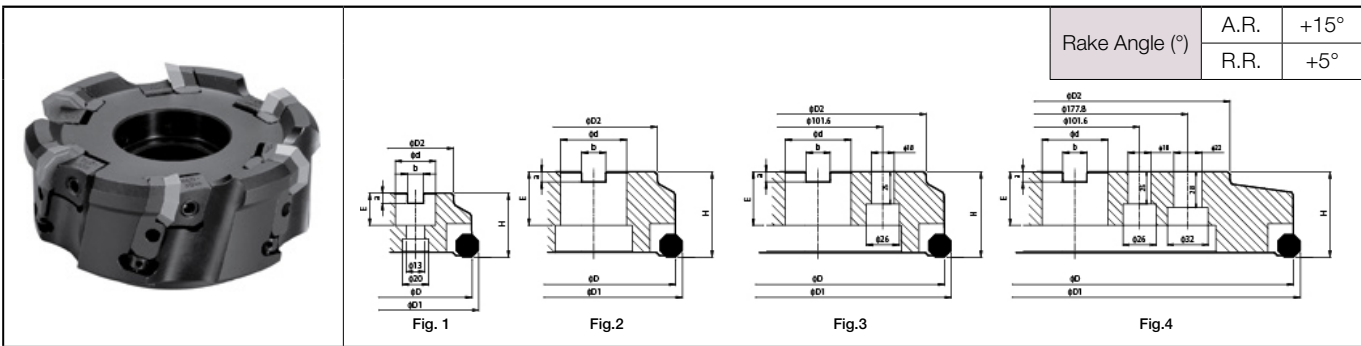
Octagonal MOFX Mill



Facing

Chamfering

MOFX45 Face Mill



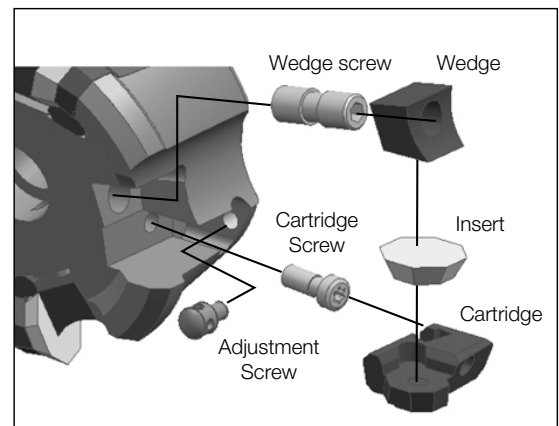
Rake Angle (°)	A.R.	+15°
	R.R.	+5°

Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)											Drawing	Weight (kg)	Applicable Inserts B17
			ØD	ØD1	ØD2	Ød	Ød1	Ød2	a	b	E	H				
Metric	MOFX 45080R07-5T-MSF	○	5	80	91	70	27	20	14	7	12.4	22	50	Fig.1	1.4	OFMR07 type
	45100R07-6T-MSF	○	6	100	111	85	32			8	14.4	28	50	Fig.2	2.1	
	45125R07-8T-MSF	○	8	125	136	100	40			9	16.4	30	63		Fig.3	
	45160R07-10T-MSF	○	10	160	171	120				10		30	63	Fig.4		
	45200R07-12T-MSF	○	12	200	211	140	60			15	25.4	38	63		Fig.3	
	45250R07-16T-MSF	○	16	250	261	180								20		
	45315R07-20T-MSF	△	20	315	326	240										
Bore Dia. Inch spec	MOFX 45080R-07-5T-SF	○	5	80	91	70	1.000"	20	14	6	0.375"	25	50	Fig.1	1.4	OFMR07 type
	45100R-07-6T-SF	○	6	100	111	80	1.250"			8	0.500"	32	Fig.2	2.1		
	45125R-07-8T-SF	○	8	125	136	100	1.500"			10	0.625"	38		63	Fig.3	
	45160R-07-10T-SF	○	10	160	171	120	2.000"			11	0.750"		Fig.4			
	45200R-07-12T-SF	○	12	200	211	130	1.875"			14	1.000"	38		63	Fig.3	
	45250R-07-16T-SF	○	16	250	261	180							20			
	45315R-07-20T-SF	△	20	315	326	240										

Spare Parts




Cartridge	Cartridge Screw	Wedge	Wedge screw	Adjustment Screw
LOF07R	SH-50150TR	WOF07R	W8x21	AJ-412
Wrench (for Wedge)	Wrench (for Cartridge)			
TH-4	TTC-20			




Advantages

- 1) Wedge clamp system
- 2) Exceptional surface finish (Easy edge adjustment system)
- 3) 8-edge insert provides high cost efficiency
- 4) High axial rake angle and double positive angle on chipbreaker provide low cutting forces
- 5) SH chipbreaker (for general purpose / low cutting force) and GT chipbreaker (Tough edge)

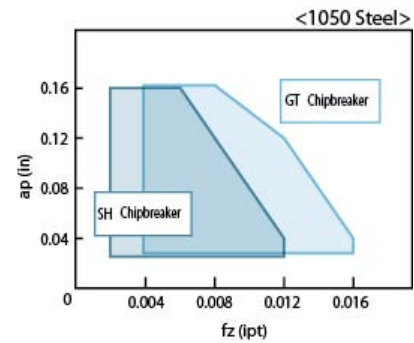
●Applicable Inserts

Applicable Inserts 		
Description		
MOFX45...-SF	OFMR 070405EN-SH	OFMR 070408EN-GT

Recommended Cutting Conditions 

Note 1) OFMR070405EN-GT / SH is a neutral insert. It can be also used for Left-hand (L) cutter (special order item).
 Note 2) Inserts for MOFX type cutter cannot be used for MOF type cutters (Ref. page )

Chipbreaker range

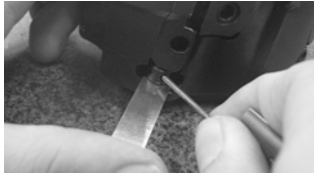



Max ap and usable edges


Usable edges	Max. ap (in)
	OFMR07 type
4 edges (using 2 edges at the same time)	0.40in
8 edges (using only 1 edge at a time)	0.16in


■ How to Adjust Edge Height


1. Set the edge height adjustment screw



 - Set the distance between the bottom of edge height adjustment screw and the cutter box to approximately 0.040".
2. Set the cartridge


 - Set the cartridge to the cutter body with the cartridge screw. Recommended torque: 5Nm
3. Set the wedge


 - After setting the insert to the cartridge, set the wedge with the wedge screw. Recommended torque: 6Nm
4. Loosen the screws (Preparation for edge height adjustment)



 - Loosen the wedge screw by approximately 10°.
 - Loosen the cartridge screw by approximately 45°.
5. Correct the edge height

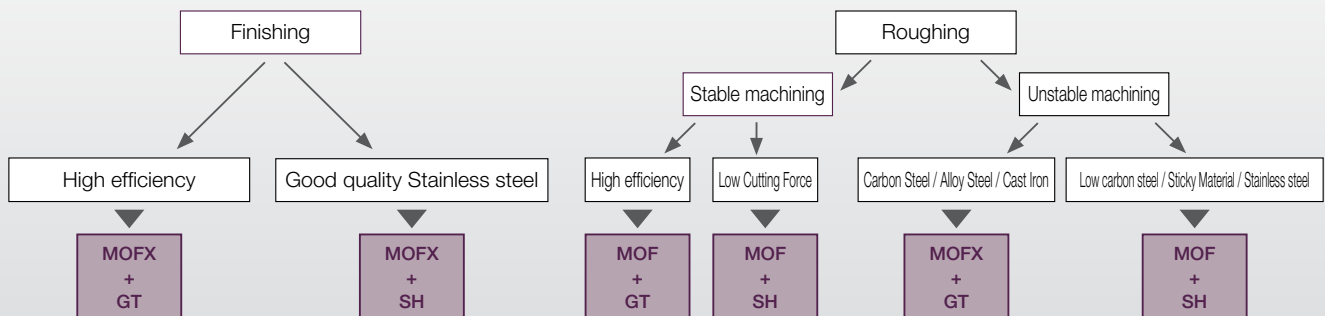

 - Measure the front edge height. Using the most protruding insert as the reference, turn the edge height adjustment screw counterclockwise to raise the front edge height to match.
6. Make the final adjustment


 - Tighten the cartridge screw Recommended torque: 5Nm
 - Tighten the wedge screw Recommended torque: 6Nm
 - Measure the front edge height again.

Outlines of MOFX / MOF Mill

[MOFX]
 High durability of cutter body due to the cartridge design.
 Best for finishing due to easy edge height adjustment.

[MOF] (Ref. page )
 Excellent chips evacuation when roughing sticky materials such as low carbon steel and stainless steel.

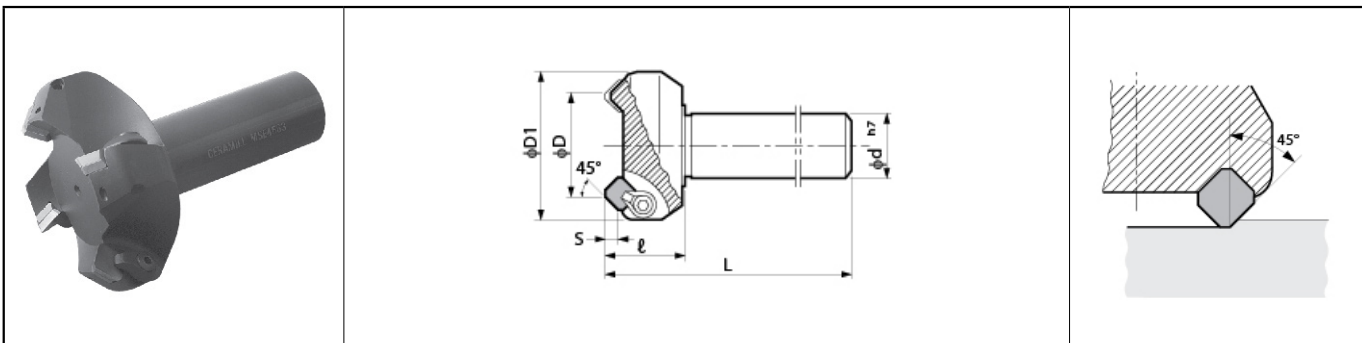


MOFX is suitable for high precision machining and unstable machining.



High-Efficiency Multi-Edge MSE45

MSE45 Endmill (High Rake)



Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)					Rake Angle (°)		Spare Parts				
			ØD	ØD1	Ød	L	ℓ	S	A.R.	R.R.	Clamp Set	Wrench	Shim	Shim Screw
MSE 4550	○	3	50	73	32	120	40	6	+20°	-3°	CPS-6M	LW-3	MSE-4245	SP3X8
MSE 4563	○	4	63	86										
MSE 4580-32	○	4	80	103										

Applicable Inserts

Description	Applicable Inserts B13			Applicable Inserts B27
	MSE4500-00	SEMR 42AFER-H	SEKR 42AFEN-S	SEEN 42AFTN SEKN 42AFTN 42AFFN

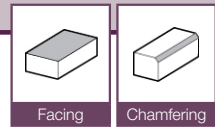
Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)												
		Cermet			MEGACOAT		PVD Coated Carbide					Carbide		PCD
		TN60	TN100M	TC60	PR1225	PR1210	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10
Stainless Steel	~0.010	☆	☆	★		☆	☆	☆	☆	☆		☆		
Carbon Steel	~0.012	☆	★	☆	★		☆	☆	☆	☆		☆		
Alloy Steel	~0.012	☆	★	☆	★		☆	☆	☆	☆		☆		
Mold Steel	~0.010	☆	★	☆	★		☆	☆	☆	☆		☆		
Cast Iron	~0.012					★					☆		☆	
Non-ferrous Metals	~0.008					★							★	★

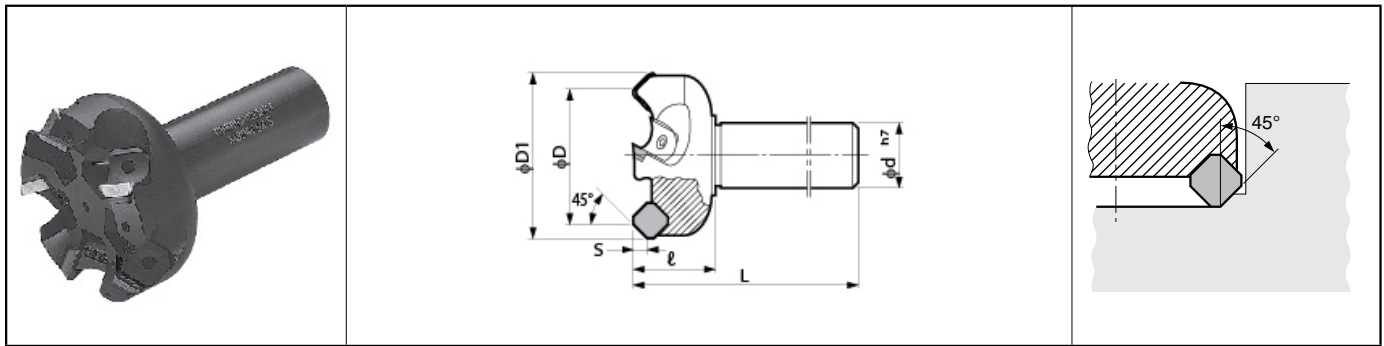
★: 1st Recommendation ☆: 2nd Recommendation

45° Lead Angle

MSO45



MSO45-S Endmill (High Rake)

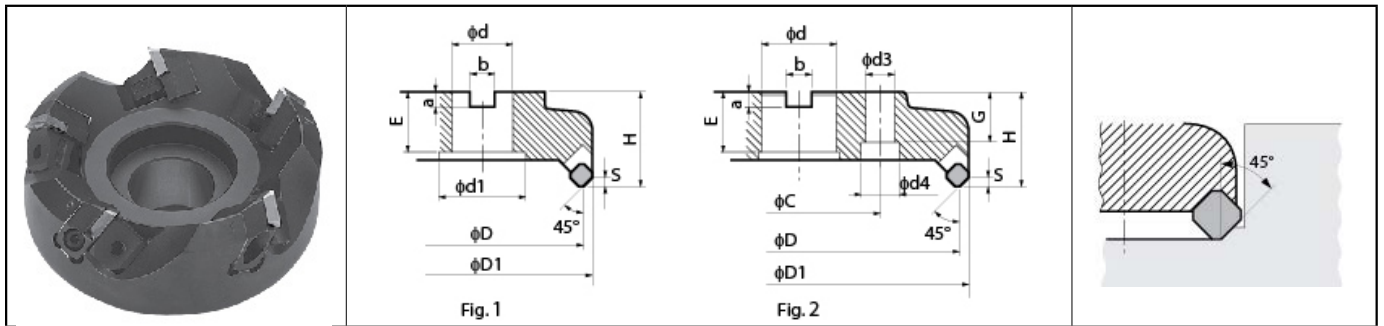


Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)							Rake Angle (°)		Spare Parts				
			ϕD	$\phi D1$	ϕd	L	ℓ	S	A.R.	R.R.	Shim	Shim Screw	Clamp	Clamp Screw	Clamp Screw	
MSO 4550-S	O	4	50	66	32	120	40	7.1	+27°	-8°	MSO-4T245	SP3X6	CH-20R	TH8X15	TH-4	
4563-S	O	5	63	79												
4580-S	O	5	80	96												



MSO45 Face Mill (High Rake)

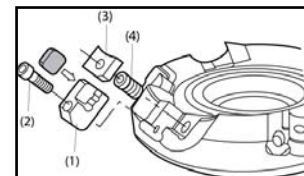


Toolholder Dimensions

Description	Stock	No. of Inserts	Dimension (mm)													Rake Angle (°)		Drawing	Weight (kg)				
			ϕD	$\phi D1$	ϕd	$\phi d1$	$\phi d2$	$\phi d3$	$\phi d4$	ϕC	H	E	G	a	b	S	A.R.			R.R.			
MSO 45100R	O	5	100	114.8	1.250"	48									32		8	0.500"	7.1	+27°	-8°	Fig.1	2.5
45125R	O	6	125	140.0	1.500"	58								60		-	10	0.625"					3.7
45160R	O	8	160	174.5	2.000"	68								38		-	11	0.750"					5.4
45200R	O	10	200	214.5	1.875"	-			18	26	101.6			32		14	1.000"	8.4					

Spare Parts

Description	(1) Cartridge	(2) Cartridge Screw	(3) Clamp	(4) Clamp Screw	Clamp Screw
MSO 45...R	LSO-445R	HH4X16	CH-20R	TH8X15	TH-4



Applicable Inserts

Description	Applicable Inserts B13		Applicable Inserts B27	
	MSO 45...	SOKR 13T3AXEN-J	SOKN 13T3AXTN 13T3AXFN	SOKN 13T3AXFN-NE (PCD)

◆ Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)												
		Cermet			MEGACOAT		PVD Coated Carbide					Carbide		PCD
		TN60	TN100M	TC60	PR1225	PR1210	PR630	PR730	PR830	PR660	PR905	PW30	KW10	KPD230
Stainless Steel	~0.010		☆ 400-675	☆ 400-675	★ 400-725	-	☆ 400-675	☆ 400-675		☆ 325-675	-	-	-	
Carbon Steel	~0.012		★ 400-675	☆ 400-675	★ 400-820	-	☆ 400-675	☆ 400-675		☆ 325-600	-	-	-	
Alloy Steel	~0.012		★ 325-600	☆ 325-600	★ 325-725	-	☆ 325-600	☆ 325-600		☆ 250-500	-	-	-	
Mold Steel	~0.010		★ 325-600	☆ 325-600	★ 250-600	-	☆ 250-500	☆ 250-500		☆ 200-425	-	-	-	
Cast Iron	~0.012		-	-	-	★ 325-725	-	-		-	☆ 325-675	☆ 250-500	-	
Non-ferrous Metals	~0.008		-	-	-	-	-	-		-	-	★ 325-1000	★ 1000-2500	

★: 1st Recommendation ☆: 2nd Recommendation



45°
Lead Angle