

THE NEW VALUE FRONTIER



New Milling Series

Metric type is added for all line up!!

Octagonal MOF mill
MOF

**Tough edge
GT chip breaker**

Easy edge adjustment
MSE45-SF

Square Insert~90° Shoulders
New **MSO90**

Wiper insert is added
for MSE45-SF type.

Easy edge adjustment
MTE90-SF

Highly efficient multiple insert design
New **MSE45**

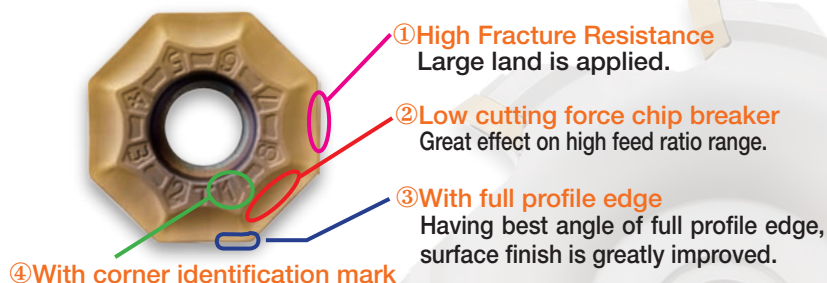
ADVANCING PRODUCTIVITY

■Features

- 1 Economical with 8-corner insert (Octagonal)
- 2 Low resistance because of high rake and double positive design...A.R. +15°, R.R. +5°
- 3 Easy corner change...Improved productivity by easy corner change
- 4 Body durability improved by hard silver coating

Line up expansion

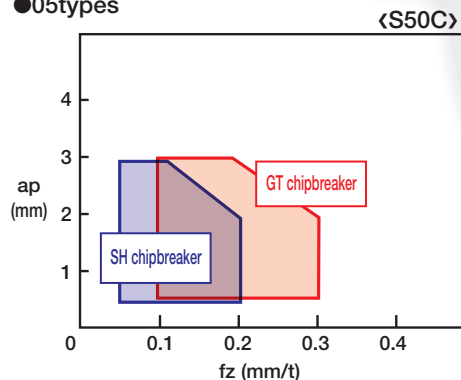
■In addition to existing SH chip breaker, the tough edge GT chip breaker is newly added.



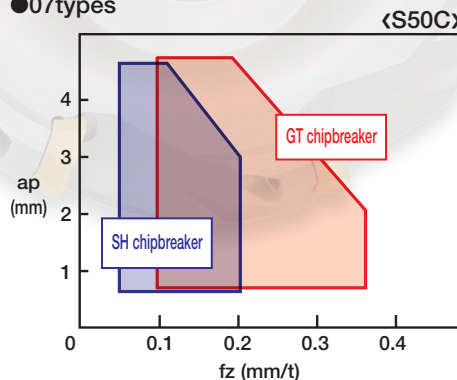
	OFMT05types	OFMT07types
GT chipbreaker		
SH chipbreaker		

■Chipbreaker applicable range

●05types



●07types



●Recommended cutting conditions

Workpiece material	GT chipbreaker (Tough edge type)			SH chipbreaker (General-purpose type)			
	fz(mm/t)	Recommended grade (Cutting speed Vc:m/min)		fz(mm/t)	Recommended grade (Cutting speed Vc:m/min)		
		PVD coated			PVD coated		
		PR830	PR905		PR830	PR1025	PR905
Stainless steel (SUS304)	-	-	-	0.08~ 0.12 ~0.25	-	★ 120~ 150 ~200	-
Carbon steel (SxxC)	0.10~ 0.25 ~0.40	★ 120~ 150 ~200	-	0.10~ 0.15 ~0.30	★ 120~ 150 ~200	☆ 100~ 120 ~180	-
Alloy steel (SCM)	0.10~ 0.25 ~0.35	★ 100~ 150 ~180	-	0.10~ 0.15 ~0.30	★ 100~ 150 ~180	-	-
Mold steel (SKD/NAK)	0.10~ 0.20 ~0.35	★ 80~ 120 ~150	-	0.08~ 0.12 ~0.25	★ 80~ 120 ~150	-	-
Gray cast iron (FC)	0.10~ 0.25 ~0.40	-	100~ 150 ~200	0.10~ 0.15 ~0.30	-	-	100~ 150 ~200
Nodular cast iron (FCD)	0.10~ 0.20 ~0.35	-	80~ 100 ~120	0.08~ 0.12 ~0.25	-	-	80~ 100 ~120

★:1st Recommendation ☆:2nd Recommendation

MOF45 Face mill (05 Type 07 Type)

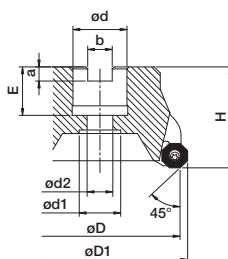


Fig.1

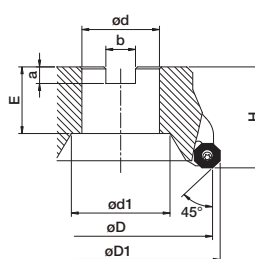


Fig.2

Rake angle(°)

A.R. R.R.

+15° +5°

Holder dimension

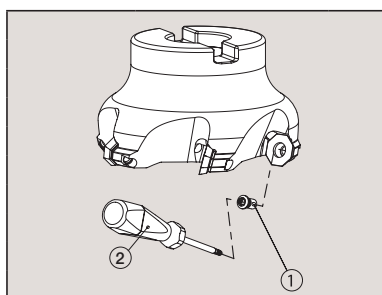
Description					Stock	No of inserts	Dimension(mm)								Shape	Weight (Kg)	Applicable Insert
							øD	øD1	ød	ød1	ød2	H	E	a			
Bore Dia. (inch spec)	MOF	45080R-05-6T	●	6	80	89	25.4	20	13	50	26	6	9.5	Fig.1	1.1	OFMT05 Type	
		45100R-05-7T	●	7	100	109	31.75	45	-		32	8	12.7	Fig.2	1.8		
		45125R-05-8T	●	8	125	134	38.1	55	-	63	38	10	15.9	Fig.2	2.8		
	MOF	45080R-07-5T	●	5	80	92	25.4	20	13	50	26	6	9.5	Fig.1	1.2	OFMT07 Type	
		45100R-07-6T	●	6	100	112	31.75	45	-		32	8	12.7	Fig.2	1.8		
		45125R-07-8T	●	8	125	137	38.1	55	-	63	38	10	15.9	Fig.2	3.7		
NEW mm spec	MOF	45050R-05-4T-M	●	4	50	59	22	17	11	40	21	6.3	10.4	Fig.1	0.4	OFMT05 Type	
		45063R-05-5T-M	●	5	63	72									0.6		
		45080R-05-6T-M	●	6	80	89	27	20	13	50	24	7	12.4	Fig.2	1.1		
	45100R-05-7T-M	●	7	100	109	32	45	-	32						8		14.4
	45125R-05-8T-M	●	8	125	134	40	32	22	63	30	9	16.4	Fig.1	2.9	OFMT07 Type		
	MOF	45063R-07-4T-M	●	4	63	75	22	17	11	40	21	6.3	10.4	Fig.1		0.6	
		45080R-07-5T-M	●	5	80	92	27	20	13							50	24
		45100R-07-6T-M	●	6	100	112	32	45	-	32	8	14.4	1.9				
		45125R-07-8T-M	●	8	125	137	40	32	22	63	30	9	16.4	Fig.1		3.7	

Spare parts

Description	①Clamp screw	②Wrench	Mounting bolt
MOF 45080R-05-6T	SB-4082TPR	DTP-15	HH12X35M
45100R-05-7T			-
45125R-05-8T			-
MOF 45080R-07-5T	SB-50120TRS	DTP-15	HH12X35M
45100R-07-6T			-
45125R-07-8T			-
MOF 45050R-05-4T-M	SB-4082TPR	DTP-15	HH10X30M
45063R-05-5T-M			HH10X30M
45080R-05-6T-M			HH12X35M
45100R-05-7T-M			-
45125R-05-8T-M			-
MOF 45063R-07-4T-M	SB-50120TRS	DTP-15	HH10X30S
45080R-07-5T-M			HH12X35M
45100R-07-6T-M			-
45125R-07-8T-M			-

Max ap and usable edges

Usable edges	Max.ap(mm)	
	OFMT05types	OFMT07types
4 edges	7mm	10mm
8 edges	2.5mm	4mm



Applicable insert

Shape	Description	Dimension (mm)					Angle(°)			PVD coated		
		A	T	ød	X	Z (Wiper edge)	α	β	γ	PR830	PR1025	PR905
Right-hand shown 	OFMT 050405EN-GT	13.35	4.83	4.6	R0.5	1.4	26°	26°	45°	●		●
	070408EN-GT	17.85	5.12	5.9	R0.8	1.2				●		●
	OFMT 050405ER-SH	13.47	4.76	4.5	R0.5	1.7	26°	22°	45°	●	●	●
	070405EN-SH	17.98	4.86	5.9		-				●	●	●

Inserts are sold in 10 piece boxes.

●:Standard Stock

MSE45-SF

Features

- 1 Easy adjustment of axial position with simple adjustment mechanism
- 2 Low cutting resistance because of high rake and double positive design...A.R. +20°
- 3 Body durability is improved by hard silver coating

MSE45-SF Face mill (Adjustable insert height)

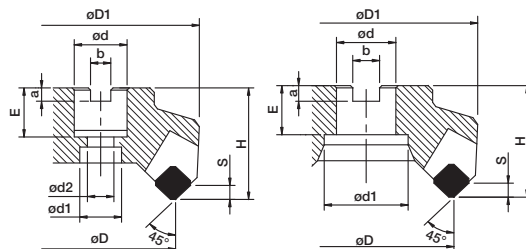


Fig.1

Fig.2

Holder dimension

Description		Stock	No of inserts	Dimension(mm)										Rake angle(°)		Shape	Weight (Kg)
				øD	øD1	ød	ød1	ød2	H	E	a	b	S	A.R.	R.R.		
NEW Bore Dia. (inch spec) mm spec	MSE 45080R-5T-SF	●	5	80	101	25.4	38	-	50	26	6	9.5	6	+20°	-8.5°	Fig.2	1.5
	45100R-6T-SF	●	6	100	119	31.75	45		32	8	12.7	-7.5°			2.2		
	45125R-7T-SF	●	7	125	143	38.1	55		63	10	15.9	-6.5°			4.0		
	MSE 45063R-4T-M-SF	●	4	63	85	22	17	-	50	21	6.3	10.4	6	+20°	-10°	Fig.1	1.2
	45080R-5T-M-SF	●	5	80	101	27	38		24	7	12.4	-8.5°			1.5		
	45100R-6T-M-SF	●	6	100	119	32	45		32	8	14.4	-7.5°			Fig.2	2.2	
	45125R-7T-M-SF	●	7	125	143	40	55		63	9	16.4	-6.5°				4.0	

Spare parts

Description	①Cartridge	②Clamp	③Clamp	④Clamp screw	⑤Adjustment screw	⑥Wrench
MSE 4500R-0T-SF	LSE445SR	C43R (For insert)	C44R (For cartridge)	W6X17	SV-60136TR	TTC-20
MSE 4500R-0T-M-SF						

•Mounting bolt(HH10X30S) is included for MSE45063R-4T-M-SF.

Applicable insert

Shape Right-hand shown	Description	Dimension (mm)					Angle(°)			Cermet			PVD coated			Carbide		PCD								
		A	T	X	Z	S	α	β	γ	TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010				
 (KPD Series)	SEMR 1203AFER-H	12.70	3.18	R1.0	1.0	20°	25°	45°				●	●	●												
	SEKR 1203AFEN-S			0.5	1.7					●			●	●	●	●										
	SEKN 1203AFTN			0.5	1.4				-		●	○	●	●	●	●	●							●		
	SEKN 1203AFFN			0.5	1.4																		●			
	SEEN 1203AFTN			0.5	1.4				3.5																●	●
	SEEN 1203AFFN			0.5	1.4				3.0																	
	SEEN 1203AFFN-NE			0.5	1.4				3.0																	●
wiper insert	SEEN 1203AFTR-W	12.50	3.18	B		20°	25°	45°		●																
SEEN 1203AFFR-W	14.56			3.5	2.0																		●	●		
 (TN100M/KW10) (KPD001) (Arrow side is wiper edge.)																										

●:Standard Stock ○:Check Availability

Inserts are sold in 10 piece boxes.

PCD are sold in 1 piece boxes.

Wiper inserts (TN100M-KW10) are sold in 5 piece boxes.

The usage of SEEN wiper insert

◆The features of the wiper insert

By inserting one wiper insert to the cutter which has been attached standard insert, surface roughness can be improved. The edge geometry of wiper insert is arc style and over hang is slightly prominent to axis direction when cutter is installed. Having finish by only wiper insert bottom of workpiece, good surface finish can be realized.

◆A recommended cutting condition

- 1) V_c, f_z ...within recommended cutting conditions
- 2) $D.O.C \dots a_p \leq 0.5\text{mm}$

◆How to attach wiper insert

- 1) Insert only one wiper insert against standard insert.
- 2) As wiper insert is one corner use, please attach insert arrow "↓" that faces to workpiece cutting surface.
- 3) Please control overhang amount for wiper insert using MSE45-SF type. So you can obtain much more stable surface roughness.

◆How to set up amount of over hang for wiper edge

- 1) Please adjust wiper insert overhang within 0.03 to 0.1mm from the largest overhang standard insert. If overhang is larger than this, life of insert should be lower.
- 2) It is recommended having wiper insert overhang about 0.05mm.

For example, when you finish aluminum with Dia 125mm



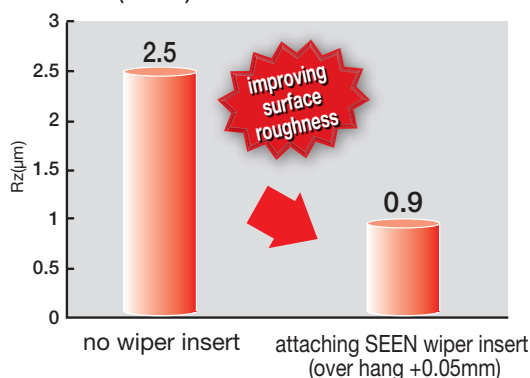
Low cost and good cutting surface

<Example of attaching wiper insert>

NO.	insert	edge deviation
①	Standard	-6 μm
②	Standard	-11 μm
③	Standard	-15 μm
④	Standard	0 μm
⑤	Standard	-8 μm
⑥	wiper insert	+0.03~+0.1mm

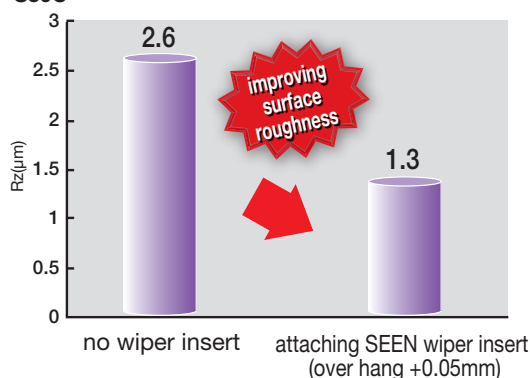
■Case studies

Aluminium(A5052)

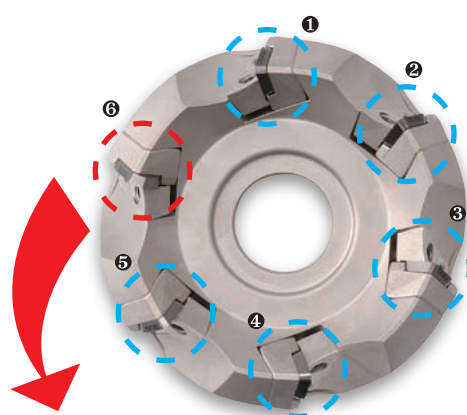


<Cutting condition>
 -MSE45100R-6T-SF
 - $V_c=300\text{m/min}$
 - $a_p=0.2\text{mm}$
 - $f_z=0.2\text{mm/t}$
 -Wet
 -No wiper insert
 SEKN1203AFFN(KW10) 6edges
 -With wiper insert
 SEKN1203AFFN(KW10) 5edges
 SEEN1203AFFR-W(KPD001) 1edge

S50C



<Cutting condition>
 -MSE45100R-6T-SF
 - $V_c=200\text{m/min}$
 - $a_p=0.2\text{mm}$
 - $f_z=0.1\text{mm/t}$
 -Dry
 -No wiper insert
 SEKN1203AFTN(TN100M) 6edges
 -With wiper insert
 SEKN1203AFTN(TN100M) 5edges
 SEEN1203AFTR-W(TN100M) 1edge



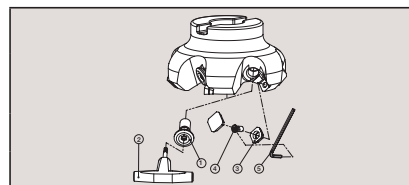
Please attach facing to workpiece surface



1 High efficiency fine pitch design **2** Low cutting resistance due to high rake angle...A.R. +20° **3** Body durability improved by hard silver coating

Description			Stock	No of inserts	Dimension(mm)										Rake angle(°)		Shape	Weight (Kg)	
					øD	øD1	ød	ød1	ød2	H	E	a	b	S	A.R.	R.R.			
Bore Dia. (inch spec)	Standard	MSE	45080R-6T	●	6	80	93	25.4	20	13	50	26	6	9.5	6	+20°	-8.5°	Fig.1	1.1
			45100R-6T	●	6	100	113	31.75	46	-		32	8	12.7			-7.5°	Fig.2	1.8
			45125R-7T	●	7	125	138	38.1	55		63	38	10	15.9			-6.5°		3.4
	Fine pitch	MSE	45080R-7T	●	7	80	93	25.4	20	13	50	26	6	9.5	6	+20°	-8.5°	Fig.1	1.1
			45100R-8T	●	8	100	113	31.75	46	-		32	8	12.7			-7.5°	Fig.2	1.7
			45125R-9T	●	9	125	138	38.1	55		63	38	10	15.9			-6.5°		3.3
mm spec	Standard	MSE	45063R-5T-M	●	5	63	76	22	17	11	40	21	6.3	10.4	6	+20°	-10°	Fig.1	0.6
			45080R-6T-M	●	6	80	93	27	20	13	50	24	7	12.4			-8.5°		1.1
			45100R-6T-M	●	6	100	113	32	46	-		32	8	14.4			-7.5°	Fig.2	1.8
			45125R-7T-M	●	7	125	138	40	32	22	63	30	9	16.4			-6.5°	Fig.1	3.4
	Fine pitch	MSE	45063R-6T-M	●	6	63	76	22	17	11	40	21	6.3	10.4	6	+20°	-10°	Fig.1	0.6
			45080R-7T-M	●	7	80	93	27	20	13	50	24	7	12.4			-8.5°		1.1
			45100R-8T-M	●	8	100	113	32	46	-		32	8	14.4			-7.5°	Fig.2	1.7
			45125R-9T-M	●	9	125	138	40	32	22	63	30	9	16.4			-6.5°	Fig.1	3.3

Description	①Clamp screw	②Wrench	③Shim	④Clamp screw	⑤Wrench
MSE 45○○○R-○T	CP8X23TL	TTC-25	MSE-4245S	SP4X9	LW-2
MSE 45○○○R-○T-M	(Left hand screw)				(For clamp screw④)



- Applicable insert

[illegible]

Workpiece material	fz (mm/t)	Recommended grade (Vc:m/min)												
		Cermet			PVD coated						Carbide		PCD	
		TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010
Stainless steel (SUS304)	~0.25		[☆] 120~200	[☆] 120~200	[☆] 120~200	[☆] 120~200	[☆] 120~200	[☆] 100~200	[★] 100~200		[☆] 80~120			
Carbon steel (SxxC)	~0.30	[☆] 150~220	[★] 120~200	[☆] 120~200	[☆] 120~200	[☆] 120~200	[★] 120~200	[☆] 100~180	[☆] 100~180		[☆] 80~150			
Alloy steel (SCM)	~0.30	[☆] 120~200	[★] 100~180	[☆] 100~180	[☆] 100~180	[☆] 100~180	[★] 100~180	[☆] 80~150			[☆] 80~150			
Mold steel (SKD/NAK)	~0.25	[☆] 120~200	[★] 100~180	[☆] 80~150	[☆] 80~150	[☆] 80~150	[★] 80~150	[☆] 60~130			[☆] 80~150			
Cast iron (FC/FCD)	~0.30									[★] 100~200		[☆] 80~150		
Non-ferrous metal (Aluminum etc.)	~0.20											[★] 100~300	[★] 300~800	[☆] 300~800

★:1st Recommendation		☆:2nd Recommendation	
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

Inserts are sold in 10 piece boxes.	PCD are sold in 1 piece boxes.
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MTE90-SF

■ Features

- 1 Easy adjustment of axial position with simple adjustment mechanism
- 2 Low resistance because of high rake and double positive design...A.R. +17°
- 3 Body durability improved by hard silver coating

■ MTE90-SF Face mill (Adjustable insert height)

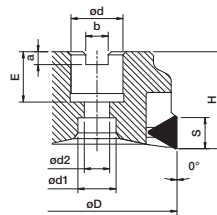
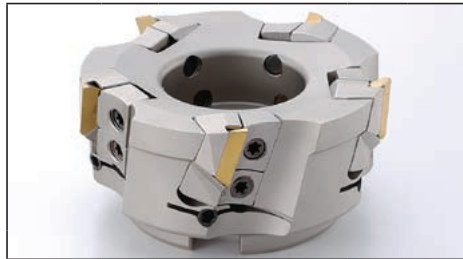


Fig.1

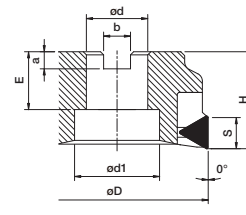


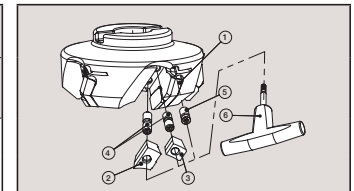
Fig.2

● Holder dimension

Description		Stock	No of inserts	Dimension(mm)									Rake angle(°)		Shape	Weight (Kg)	
				øD	ød	ød1	ød2	H	E	a	b	S	A.R.	R.R.			
NEW Bore Dia. (inch spec) mm spec	MTE	90080R-4T-SF	●	4	80	25.4	20	13	50	26	6	9.5	17	+17°	+3°	Fig.1	1.0
		90100R-5T-SF	●	5	100	31.75	45	-		32	8	12.7			+4°	Fig.2	1.5
		90125R-6T-SF	●	6	125	38.1	55		63	38	10	15.9			+5°		3.0
	MTE	90080R-4T-SF-M	●	4	80	27	20	13	50	24	7	12.4	17	+17°	+3°	Fig.1	1.0
		90100R-5T-SF-M	●	5	100	32	45	-		32	8	14.4			+4°	Fig.2	1.5
		90125R-6T-SF-M	●	6	125	40	55		63	30	9	16.4			+5°		3.0

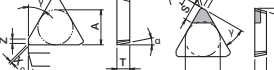
● Spare parts

Description	① Cartridge	② Clamp	③ Clamp	④ Clamp screw	⑤ Adjustment screw	⑥ Wrench	⑦ Wrench
MTE 90000R-OT-SF	LTE490SR	C91R (for insert)	C92R (for cartridge)	W8X16	SV-60136R	TTC-25	LW-4 (for adjustment screw)
MTE 90000R-OT-SF-M							



·Mounting bolt(HH12X35M) is included for MSE90080R-4T-SF and MSE90080R-4T-SF-M.

● Applicable insert

Shape	Description	Dimension (mm)					Angle(°)			Cermet			PVD coated					Carbide		PCD		
		A	T	X	Z	S	α	β	γ	TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010
Right-hand shown																						
 (KPD Series)	TEMR 2204PTER-H			R1.0	1.4								●	●	●							
	TEKR 2204PTER-S			R1.0	1.4						●			●	●	●	●					
	TEEN 2204PTTR			R1.0	1.4	-				●	●	○							●			
	TEKN 2204PTTR	12.70	4.76	R1.0	1.4		20°	22°	30°	●	●	○	●	●	●	●	●		●			
	2204PTFR			0.7	1.4													●				
	TEKN 2204PTFR			0.7	1.8	4.8															●	●
	TEKN 2204PTFR-NE			0.7	1.8	4.2															●	

● Recommended cutting conditions

Workpiece material	fz (mm/t)	Recommended grade (Vc:m/min)												
		Germet			PVD coated						Carbide		PCD	
		TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010
Stainless steel (SUS304)	~0.20		☆ 120~200	☆ 120~200	☆ 120~200	☆ 120~200	☆ 120~200	☆ 100~200	★ 100~200		☆ 80~120			
Carbon steel (SxxC)	~0.25	☆ 150~220	★ 120~200	☆ 120~200	☆ 120~200	☆ 120~200	★ 120~200	☆ 100~180	☆ 100~180		☆ 80~150			
Alloy steel (SCM)	~0.25	☆ 120~200	★ 100~180	☆ 100~180	☆ 100~180	☆ 100~180	★ 100~180	☆ 100~150			☆ 80~150			
Mold steel (SKD/NAK)	~0.20	☆ 120~200	★ 100~180	☆ 100~180	☆ 80~150	☆ 80~150	★ 80~150	☆ 80~130			☆ 80~150			
Cast iron (FC/FCD)	~0.25									★ 100~200		☆ 80~150		
Non-ferrous metal (Aluminum etc.)	~0.20											★ 100~300	★ 300~800	☆ 300~800

●:Standard stock ○:Standard stock (Check availability)

★:1st Recommendation ☆:2nd Recommendation

Inserts are sold in 10 piece boxes. PCD are sold in 1 piece boxes.

New MSO90

■ Features

- 1 Economical~4 cutting edges
- 2 Safty design with sheet
- 3 High efficiency, fine pitch design
- 4 High rake reduces cutting resistance~A.R. +15°
- 5 Easy corner change~Improved productivity by easy corner change
- 6 Body durability improved by hard silver coating

■ MSO90 Face mill (Standard / Fine pitch)

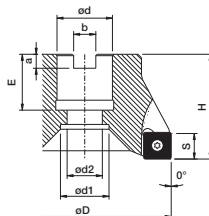


Fig.1

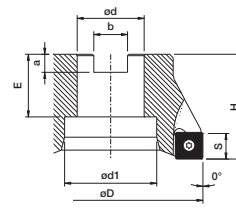


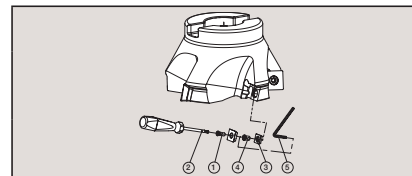
Fig.2

● Holder dimension

Description			Stock	No of inserts	Dimension(mm)									Rake angle(°)		Shape	Weight (Kg)
					øD	ød	ød1	ød2	H	E	a	b	S	A.R.	R.R.		
Bore Dia. (Inch spec)	Standard	MSO 90080R-15-4T	●	4	80	25.4	20	13	50	26	6	9.5	13	+15°	-9°	Fig.1	0.8
		90100R-15-5T	●	5	100	31.75	48	-	60	32	8	12.7			Fig.2	1.3	
		90125R-15-6T	●	6	125	38.1	59			38	10	15.9				-8°	2.3
	Fine pitch	MSO 90080R-15-6T	●	6	80	25.4	20	13	50	26	6	9.5	13	+15°	-9°	Fig.1	0.8
		90100R-15-6T	●	6	100	31.75	48	-	60	32	8	12.7			Fig.2	1.3	
		90125R-15-7T	●	7	125	38.1	59			38	10	15.9				-8°	2.3
mm spec	Standard	MSO 90080R-15-4T-M	●	4	80	27	20	13	50	26	7	12.4	13	+15°	-9°	Fig.1	0.8
		90100R-15-5T-M	●	5	100	32	48	-	60	32	8	14.4			Fig.2	1.3	
		90125R-15-6T-M	●	6	125	40	59			38	9	16.4				-8°	2.3
	Fine pitch	MSO 90080R-15-6T-M	●	6	80	27	20	13	50	26	7	12.4	13	+15°	-9°	Fig.1	0.8
		90100R-15-6T-M	●	6	100	32	48	-	60	32	8	14.4			Fig.2	1.3	
		90125R-15-7T-M	●	7	125	40	59			38	9	16.4				-8°	2.3

● Spare parts

Description	①Clamp screw	②Wrench	③Shim	④Clamp screw	⑤Wrench
MSO 90000R-15-OT	SB-45130TR	DTP-20	MSO-5200	SPW-6045	LW-4.5
MSO 90000R-15-OT-M					(For clamp screw④)



•Mounting bolt(HH12X35M) is included for MSO90080R-15-OT and MSO90080R-OT-M.

● Applicable insert

Shape	Description	Dimension (mm)				Angle(°)			Cermet			PVD coated					Carbide		PCD		
		A	T	ød	R	α			TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010
	SEMM 150408PESR	15.875	4.76	5.5	0.8	20°				●		●	●	●	●	●		●			

● Recommended cutting conditions

Workpiece material	fz (mm/t)	Recommended grade (Vc:m/min)													
		Cermet			PVD coated					Carbide		PCD			
		TN60	TN100M	TC60M	PR630	PR730	PR830	PR660	PR1025	PR905	PW30	KW10	KPD001	KPD010	KPD010
Stainless steel (SUS304)	~0.20		120~200		120~200	120~200	120~200	100~200	100~200						
Carbon steel (SxxC)	~0.20		120~200		120~200	120~200	120~200	100~180	100~180						
Alloy steel (SCM)	~0.20		100~180		100~180	100~180	100~180	80~150							
Mold steel (SKD/NAK)	~0.20		100~180		80~150	80~150	80~150	60~130							
Cast iron (FC/FCD)	~0.20									100~200		80~150			
Non-ferrous meta l(Aluminum etc.)	~0.20											100~300			

Inserts are sold in 10 piece boxes.

●:Standard stock ★:1st Recommendation ☆:2nd Recommendation