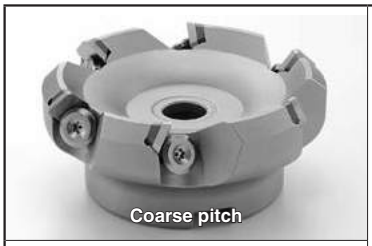
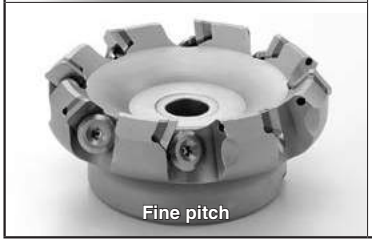
MSE45 Face Mill (Coarse pitch / Fine pitch)





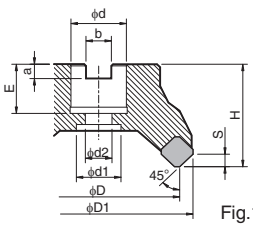


Fig.1

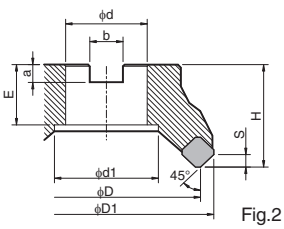


Fig.2

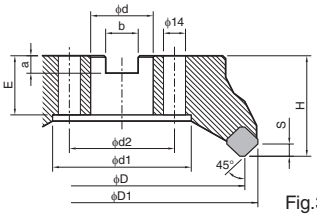


Fig.3

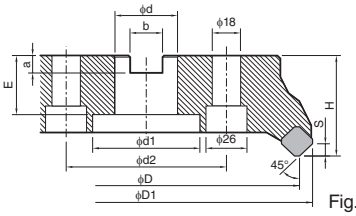


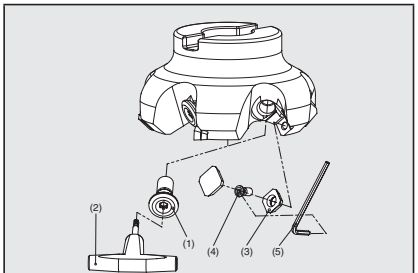
Fig.4

Toolholder Dimensions

Description			Std.	No. of Inserts	Dimension (mm)										Rake Angle		Drawing	Weight (kg)
					φD	φD1	φd	φd1	φd2	H	E	a	b	S	A.R.	R.R.		
Metric	Coarse pitch	MSE 45040R-3T-M	○	3	40	53	16	11.5	8.5	45	20	5.6	8.4	6	+20°	-5.0°	Fig.1	0.4
		45050R-4T-M	○	4	50	63	22	17	11	48	21	6.3	10.4			-5.0°		0.5
		45063R-5T-M	○	5	63	76				40						-10°		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	55		63	33	9	16.4			-6.5°		3.4
		45160R-8T-M	□	8	160	173		88	66.7		30					-5.5°	Fig.3	5.2
		45200R-10T-M	□	10	200	213	60	68	101.6		32	14	25.7			-5.0°	Fig.4	8.6
	Fine pitch	MSE 45040R-4T-M	○	4	40	53	16	11.5	8.5	45	20	5.6	8.4	6	+20°	-5.0°	Fig.1	0.4
		45050R-5T-M	○	5	50	63	22	17	11	48	21	6.3	10.4			-5.0°		0.5
		45063R-6T-M	○	6	63	76				40						-10°		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	55		63	33	9	16.4			-6.5°		3.3
		45160R-10T-M	□	10	160	173		88	66.7		30					-5.5°	Fig.3	5.1
		45200R-13T-M	□	13	200	213	60	68	101.6		32	14	25.7			-5.0°	Fig.4	7.4
Bore Dia. Inch spec	Coarse pitch	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°		1.8
		45125R-7T	○	7	125	138	38.1	55	-	63	38	10	15.9			-6.5°	Fig.2	3.4
		45160R-8T	○	8	160	173	50.8	88				11	19.1			-5.5°		5.2
		45200R-10T	□	10	200	213	47.625	68	101.6			14	25.4			-5.0°	Fig.4	8.6
	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°		1.7
		45125R-9T	○	9	125	138	38.1	55	-	63	38	10	15.9			-6.5°	Fig.2	3.3
		45160R-10T	○	10	160	173	50.8	88				11	19.1			-5.5°		5.1
		45200R-13T	□	13	200	213	47.625	68	101.6			14	25.4			-5.0°	Fig.4	7.4

Spare Parts

Description	(1) Clamp Screw	(2) Wrench	(3) Shim	(4) Shim Clamp Screw	(5) Wrench
MSE 45040R-○T-M 45050R-○T-M	CP8X15TL (Left-hand Thread)	TTC-25	MSE-4245S	SP4X9	LW-2 (for Shim Clamp Screw)
MSE 45063R-○T-M ~ 45200R-○○T-M	CP8X23TL (Left-hand Thread)				
MSE 45080R-○T ~ 45200R-○○T					

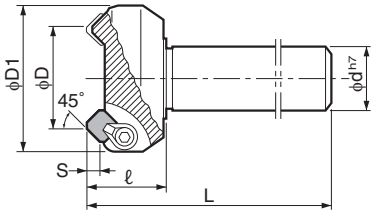


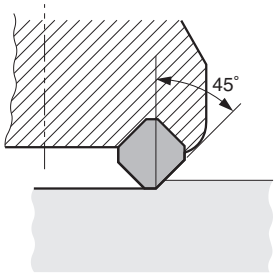
Clamp Screw (1) has Left-hand thread.
Therefore turn the wrench to the right to remove the insert.

· Mounting bolt (SP8X35) is included for MSE45040R-○T-M.
· Mounting bolt (HH10X30S) is included for MSE45050R-○T-M and MSE45063R-○T-M.
· Mounting bolt (HH12X35M) is included for MSE45080R-○T-M and MSE45080R-○T.

○ : Check Availability
□ : Deleted from the next catalogue

MSE45 with Cylindrical shank (High Rake)





Toolholder Dimensions

Description		Std.	No. of Inserts	Dimension (mm) φD	φD1	φd	L	ℓ	S	Rake Angle A.R.	R.R.	Spare Parts: Clamp Set	Wrench	Shim	Shim Clamp Screw
MSE	4550	○	3	50	73	32	120	40	6	+20°	-3°	CPS-6M	LW-3	MSE-4245	SP3X8
	4563	○	4	63	86										
	4580-32	○	4	80	103										

Applicable Inserts

Description	Applicable Inserts ➔ M10			Applicable Inserts ➔ M25
				
MSE45○○-○○ MSE45○○○R-○T MSE45○○○R-○T-M	SEMR 1203AFER-H	SEKR 1203AFEN-S	SEEN 1203AFTN SEKN 1203AFTN 1203AFFN	SEEN 1203AFFN-NE 1203AFFN (PCD)

Recommended Cutting Conditions

Workpiece Material	fz (mm/t)	Recommended Insert Grades (Cutting Speed Vc: m/min) Cermet TN100M	MEGACOAT PR1225	PR1210	PVD Coated Carbide PR830	Carbide KW10	PCD KPD001 (KPD010)
Carbon Steel	~0.30	★ 120~200	★ 120~250	-	☆ 120~200	-	-
Alloy Steel	~0.30	★ 100~180	★ 100~220	-	☆ 100~180	-	-
Mold Steel	~0.25	★ 100~180	★ 80~180	-	☆ 80~150	-	-
Stainless Steel	~0.25	☆ 120~200	★ 120~220	-	☆ 120~200	-	-
Cast Iron	~0.30	-	-	★ 100~220	-	☆ 80~150	-
Non-ferrous Metals	~0.20	-	-	-	-	★ 100~300	★ 300~800

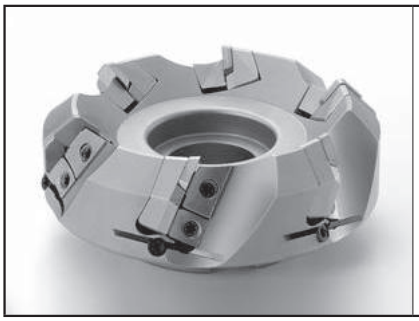
★:1st Recommended ☆:2nd Recommended

○ : Check Availability

Easy edge adjustment MSE45-SF

Facing | Chamfering

MSE45-SF Face Mill (Easy edge adjustment)



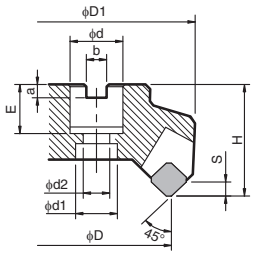


Fig.1

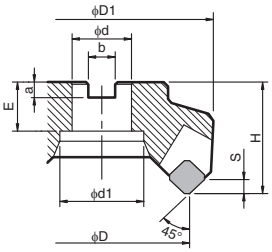


Fig.2

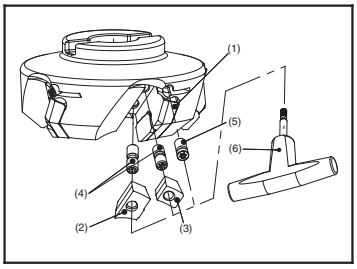
Toolholder Dimensions

Description		Std.	No. of Inserts	Dimension (mm)										Rake Angle		Drawing	Weight (kg)
				φD	φD1	φd	φd1	φd2	H	E	a	b	S	A.R.	R.R.		
Metric	MSE 45063R-4T-M-SF	○	4	63	85	22	17	11	50	21	6.3	10.4	6	+20°	-10°	Fig.1	1.2
	45080R-5T-M-SF	○	5	80	101	27	40	13		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	30	9	16.4			-6.5°		4.0
Bore Dia. Inch 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	38	10	15.9			-6.5°		4.0

Spare Parts

Description	(1) Cartridge	(2) Clamp	(3)Clamp	(4) Clamp Screw	(5) Adjustment Screw	(6) Wrench
MSE 45○○R-○T-M -SF	LSE-445SR	C43R (for Insert)	C44R (for Cartridge)	W6X17	SV-60136TR	TTC-20
MSE 45○○R-○T-SF						

· Mounting bolt (HH10X30S) is included for MSE45063R-4T-M-SF.
· Mounting bolt (HH12X35M) is included for MSE45080R-5T-M-SF.



Applicable Inserts

Description	Applicable Inserts ➔ M10				Applicable Inserts ➔ M25	
				With Wiper Edge		With Wiper Edge
MSE45...-SF	SEMR 1203AFER-H	SEKR 1203AFEN-S	SEEN 1203AFTN SEKN 1203AFTN 1203AFFN	SEEN 1203AFTR-W 1203AFFR-W	SEEN 1203AFFN-NE 1203AFFN (PCD)	SEEN 1203AFFR-W (PCD)

Recommended Cutting Conditions

Workpiece Material	fz (mm/t)	Recommended Insert Grades (Cutting Speed Vc: m/min)					
		Cermet	MEGACOAT		PVD Coated Carbide	Carbide	PCD
		TN100M	PR1225	PR1210	PR830	KW10	KPD001 (KPD010)
Carbon Steel	~0.30	★ 120~200	★ 120~250	-	☆ 120~200	-	-
Alloy Steel	~0.30	★ 100~180	★ 100~220	-	☆ 100~180	-	-
Mold Steel	~0.25	★ 100~180	★ 80~180	-	☆ 80~150	-	-
Stainless Steel	~0.25	☆ 120~200	★ 120~220	-	☆ 120~200	-	-
Cast Iron	~0.30	-	-	★ 100~220	-	☆ 80~150	-
Non-ferrous Metals	~0.20	-	-	-	-	★ 100~300	★ 300~800

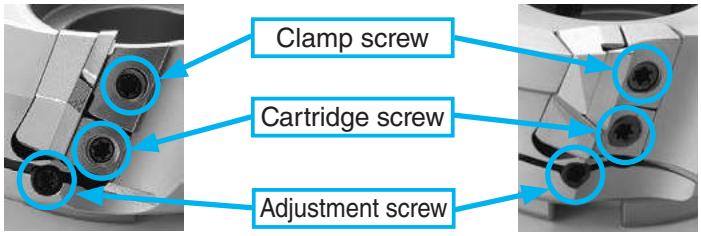
★:1st Recommended ☆:2nd Recommended

○ : Check Availability

How to Adjust Cutting Edge height

Screw names

MSE45-SF



MTE90-SF

Adjustable height for the cutting edge

· For model MSE45-SF: Approx. 20μm
· For model MTE90-SF: Approx. 50μm
(The difference in adjustable heights varies because of the difference in lead angles.)

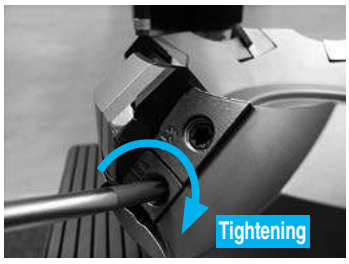
* For the explanations below, refer to the screw names indicated above. Milling Cutter shown here is model MSE45-SF.

1) Partial adjustment of the adjustment screw

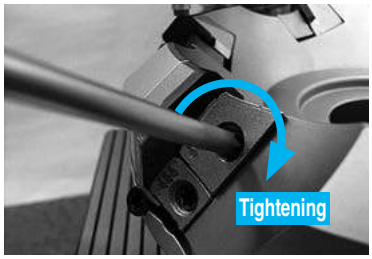
(1) Loosen the edge adjustment screw
(2) Tighten as much as the edge adjustment screw is tensioned

2) Partial tightening of the clamp screw and cartridge screw

(1) Notes) Partial tighten the cartridge screw.



(2) Notes) Partial tighten the clamp screw.

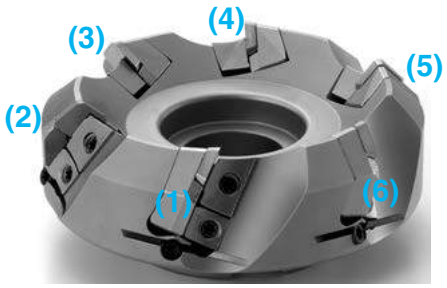


* Perform work with all inserts attached in their correct positions.

Notes) Partial tightening: Tighten the adjustment screw only partially, so that further adjustment is still possible.

3) Measuring the cutting edge fluctuation

Example: Measuring the front cutting edge fluctuation



No.	Measurement results	Results	Edge fluctuation
(1)	0.263mm		-6μm
(2)	0.258mm		-11μm
(3)	0.254mm		-15μm
(4)	0.269mm	Max.	0μm
(5)	0.261mm		-8μm
(6)	0.250mm	Min.	-19μm

Current fluctuation:19μm

(Number (1)~(6) are not indicated on cutter body)

* With each of these screws partial tightened: cartridge screw, clamp screw, adjustment screw, measure the cutting edge fluctuation.

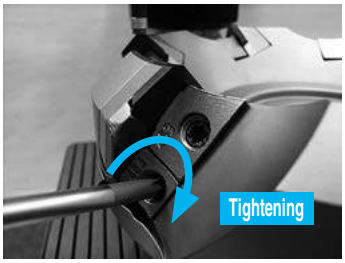
4) Adjusting the fluctuation

Based on the measurement results, adjust the fluctuation.

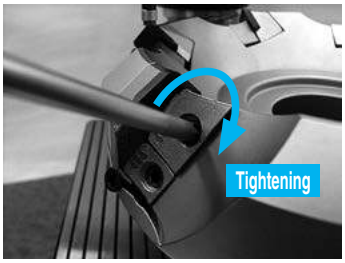
Using the measured amount of fluctuation, adjust so that the fluctuation is adjusted at the highest corner of the cutting edge, then fully tighten the adjusting screw.

5) Firm tightening of the cartridge and insert

(1) Fully tighten the cartridge screw



(2) Fully tighten the clamp screw



Easy edge adjustment MSE45-SF

The usage of SEEN wiper insert

Features of the wiper insert

By installing one wiper insert on the cutter that also has a standard insert attached, the surface roughness can be improved.
The edge geometry of wiper insert is arc style and overhang is slightly prominent to axis direction when cutter is installed.
Finishing with a wiper insert enables better surface quality.

Recommended Cutting Conditions

1) Vc, fz···within recommended cutting conditions
2) ap ≤ 0.5mm

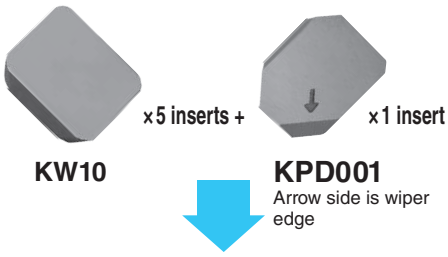
How to attach wiper insert

1) Install only one wiper insert against standard insert.
2) As only one edge of the wiper insert is used, please attach insert arrow " ↓ " that faces to workpiece cutting surface.
3) Check overhang amount for wiper insert using MSE45-SF type.
So you canobtain much more stable surface roughness.

How to set up amount of overhang 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.

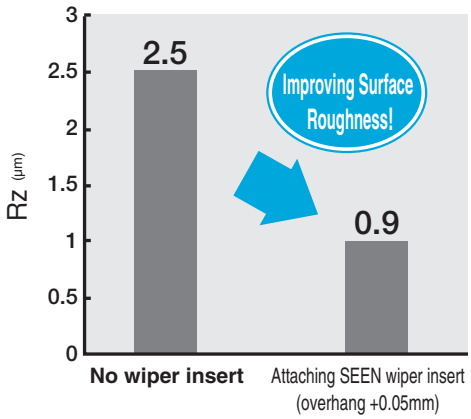
For example, when finishing Aluminum with ϕ125···



Low cost and good cutting surface

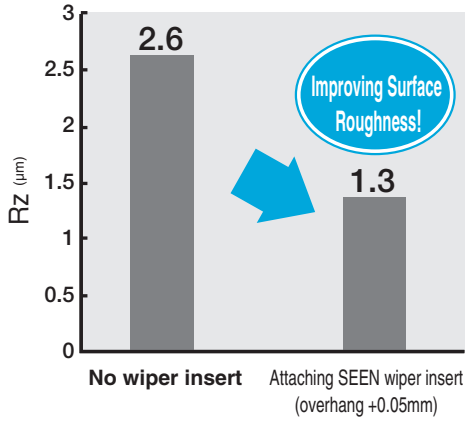
Case Studies

In case of Aluminum (A5052)



Cutting Conditions
·MSE45100R-6T-SF
·Vc=300m/min
·ap=0.2mm
·fz=0.2mm/t
·Wet
·No wiper insert
SEKN1203AFFN (KW10)
6 inserts
·With wiper insert
SEKN1203AFFN (KW10)
5 inserts
SEEN1203AFFR-W (KPD001)
1 insert

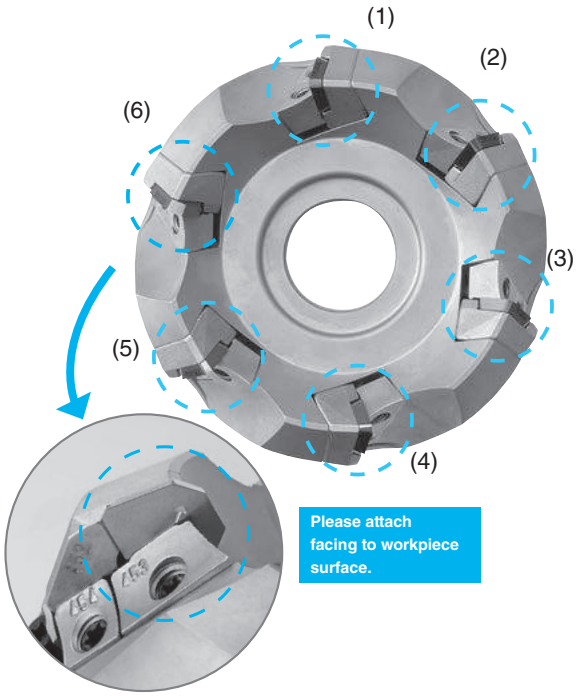
In case of S50C



Cutting Conditions
·MSE45100R-6T-SF
·Vc=200m/min
·ap=0.2mm
·fz=0.1mm/t
·Dry
·No wiper insert
SEKN1203AFTN (TN100M)
6 inserts
·With wiper insert
SEKN1203AFTN (TN100M)
5 inserts
SEEN1203AFTR-W (TN100M)
1 insert

Example of attaching wiper insert

No.	Insert	Edge fluctuation
(1)	Standard	-6μm
(2)	Standard	-11μm
(3)	Standard	-15μm
(4)	Standard	0μm
(5)	Standard	-8μm
(6)	With Wiper Edge	+0.03~+0.1mm



Please attach facing to workpiece surface.