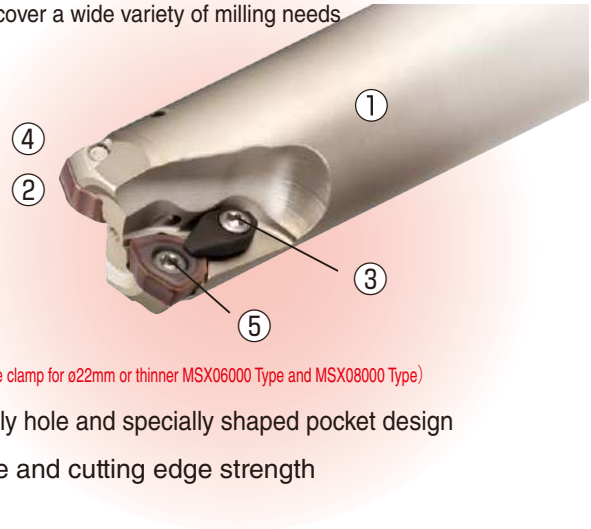


SEC-Metal Slash Mill MSX Type



General Features

The SEC-Metal Slash Mill MSX Type is a multi-purpose cutter capable of roughing at ultra-high feeds. Its wide application range dramatically boosts efficiency. Inserts are available in four sizes, ranging from a $\phi 16\text{mm}$ to the large diameter $\phi 100\text{mm}$ model, to cover a wide variety of milling needs.



Characteristics

- ① **Highly Durable Body** Special surface treatment improves scratch resistance
- ② **Versatile Machining Operations** Use for ramping, helical, and drilling work
- ③ **Double Lock** Extra-strong clamping ensures stable cutting performance (Single clamp for $\phi 22\text{mm}$ or thinner MSX06000 Type and MSX08000 Type)
- ④ **With oil hole** Improved chip evacuation with air or coolant supply hole and specially shaped pocket design
- ⑤ **Insert Shape** Unique tool shape packs cutting performance and cutting edge strength

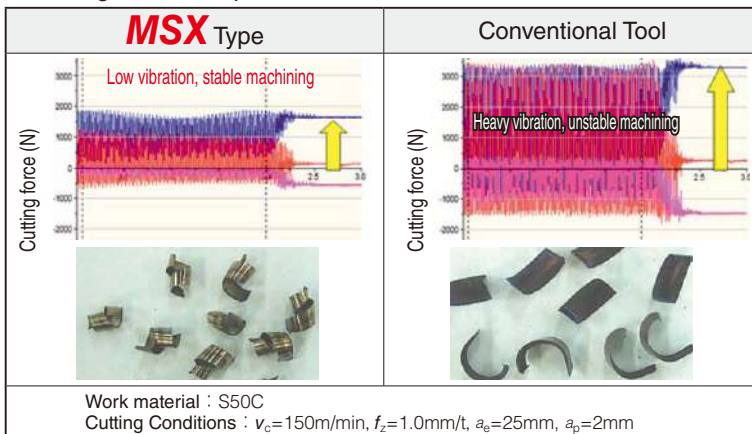
Insert Applications and Types

- Insert utilises a special cutting edge profile.
- Economical, three-cornered insert

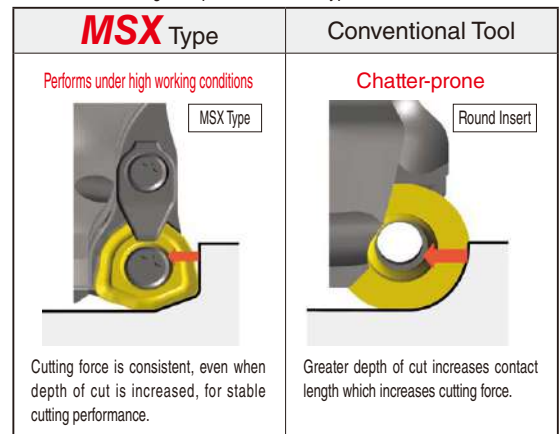
Type	General Purpose Edge Type	Strong Edge Type
Application	General Turning (First choice)	Interrupted Cutting
Appearance/ Characteristics	 Sharper Edge	 Emphasis on Fracture Resistance

Cutting Performance

● Cutting Force Comparison



● Shoulder Milling Comparison of MSX Type and Conventional Tool

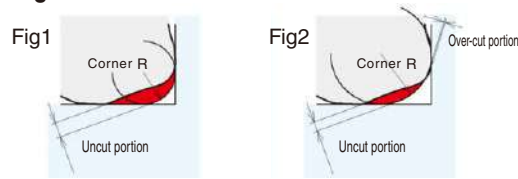


Series

	Type	Dia.(mm)	No. of Teeth	Applicable Insert
Shell Type 	MSX 08000R	$\phi 40$	4	WDMT 08 Type
	MSX 12000R	$\phi 50$ to $\phi 63$	4 to 5	WDMT 12 Type
	MSX 14000R	$\phi 50$ to $\phi 100$	3 to 6	WDMT 14 Type
Endmill Type 	MSX 06000E	$\phi 16$ to $\phi 25$	2 to 3	WDMT 06 Type
	MSX 08000E	$\phi 20$ to $\phi 35$	2 to 3	WDMT 08 Type
	MSX 12000E	$\phi 32$ to $\phi 50$	2 to 4	WDMT 12 Type
	MSX 14000E	$\phi 40$ to $\phi 63$	2 to 4	WDMT 14 Type
Modular Type 	MSX 06000M	$\phi 16$ to $\phi 25$	2 to 3	WDMT 06 Type
	MSX 08000M	$\phi 25$ to $\phi 35$	2 to 3	WDMT 08 Type
	MSX 12000M	$\phi 32$ to $\phi 40$	2 to 3	WDMT 12 Type

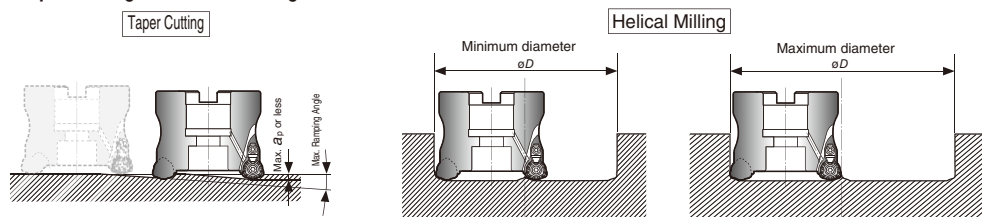
Notes on Corner Finishing

* Actual machined corners will have uncut and over-cut portions due to the shape of the inserts.



Corner R	MSX06000Type			MSX08000Type			MSX12000Type			MSX14000Type		
	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig
2.0	0.403	0	1	0.735	0	1	1.312	0	1	1.642	0	1
2.5	0.263	0.087	2	0.593	0	1	1.171	0	1	1.501	0	1
3.0				0.451	0.031	2	1.030	0	1	1.360	0	1
3.5							0.888	0.001	2	1.219	0	1
4.0										1.078	0.016	2

Taper Cutting and Helical Milling



Centre uncut portion cannot be remove with same cutter. Centre uncut portion can be remove with same cutter.

ϕD_c	MSX06000Type				MSX08000Type				MSX12000Type				MSX14000Type			
	Taper Cutting		Helical Milling		Taper Cutting		Helical Milling		Taper Cutting		Helical Milling		Taper Cutting		Helical Milling	
	Max. Ramping Angle	Min.	Max.		Max. Ramping Angle	Min.	Max.		Max. Ramping Angle	Min.	Max.		Max. Ramping Angle	Min.	Max.	
16	6° 00'	21	30													
17	5° 00'	23	32													
18	4° 30'	25	34													
20	3° 30'	29	38		7° 30'	25	38									
22	3° 00'	33	42		5° 30'	29	42									
25	2° 00'	39	48		4° 00'	35	48									
28					3° 00'	41	54									
32					2° 30'	49	62		6° 30'	42	62					
35					2° 00'	55	68		5° 00'	48	68					
40					2° 00'	65	78		4° 00'	58	78		6° 00'	53	78	
50									2° 30'	78	98		3° 30'	73	98	
63									2° 00'	103	124		2° 00'	99	124	
80													1° 30'	133	158	
100													1° 00'	173	198	

Recommended Cutting Conditions

Insert Cat. No.	Max. a_p	r_E	Approx. f_z
WDMT 0603	1.0	1.5	2.0
WDMT 0804	1.5	2.0	2.5
WDMT 1205	2.0	2.0	3.0
WDMT 1406	2.5	2.0	3.5

(a_p : Depth of Cut f_z : Feed Rate)

Work Material	Grade	Cutting Speed v_c (m/min)	Insert Cat. No.	Endmill Type										Shell Type			
				$\phi 16$		$\phi 20$		$\phi 25$		$\phi 32$		$\phi 40$		$\phi 50/\phi 63$		$\phi 80/\phi 100$	
				a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)	a_p (mm)	f_z (mm/t)
General Steel Below 200HB	ACP200	100-150-200	WDMT 0603	0.8	0.8	0.8	0.8	—	—	—	—	—	—	—	—	—	—
			WDMT 0804	—	—	1.0	1.0	1.0	1.2	1.0	1.2	—	—	—	—	—	—
			WDMT 1205	—	—	—	—	—	—	1.2	1.4	1.2	1.4	1.2	1.4	—	—
			WDMT 1406	—	—	—	—	—	—	—	—	1.5	1.5	1.5	1.5	1.5	1.5
			WDMT 0603	0.7	0.8	0.7	0.8	—	—	—	—	—	—	—	—	—	—
Alloy Steel Below 45HRC	ACP200	80-130-180	WDMT 0804	—	—	0.8	1.0	0.8	1.2	0.8	1.2	—	—	—	—	—	—
			WDMT 1205	—	—	—	—	—	—	1.0	1.4	1.0	1.4	1.0	1.4	—	—
			WDMT 1406	—	—	—	—	—	—	—	—	1.3	1.5	1.3	1.5	1.3	1.5
			WDMT 0603	0.8	0.7	0.8	0.7	—	—	—	—	—	—	—	—	—	—
			WDMT 0804	—	—	1.0	0.8	1.0	0.8	1.0	0.8	—	—	—	—	—	—
Stainless Steel SUS304, Others	ACP300	80-120-150	WDMT 1205	—	—	—	—	—	—	1.2	1.2	1.2	1.2	1.2	1.2	—	—
			WDMT 1406	—	—	—	—	—	—	—	—	1.5	1.3	1.5	1.3	1.5	1.3
			WDMT 0603	0.8	1.0	0.8	1.0	—	—	—	—	—	—	—	—	—	—
			WDMT 0804	—	—	1.0	1.2	1.0	1.4	1.0	1.4	—	—	—	—	—	—
			WDMT 1205	—	—	—	—	—	—	1.2	1.5	1.2	1.5	1.2	1.5	—	—
Cast Iron FC, FCD	ACK200 ACK300	100-150-200	WDMT 1406	—	—	—	—	—	—	—	—	1.5	1.8	1.5	1.8	1.5	1.8
			WDMT 0603	0.5	0.5	0.5	0.5	—	—	—	—	—	—	—	—	—	—
			WDMT 0804	—	—	0.5	0.6	0.5	0.8	0.5	0.8	—	—	—	—	—	—
			WDMT 1205	—	—	—	—	—	—	0.6	1.0	0.6	1.0	0.6	1.0	—	—
			WDMT 1406	—	—	—	—	—	—	—	—	1.0	1.2	1.0	1.2	1.0	1.2

The above recommended cutting conditions may require adjustment according to machine rigidity and work rigidity. The above figures are guidelines for use with the BT50 machine tool.

The above cutting conditions assume a tool overhang length of $L/D=3$ (i.e. overhang length is 3 times tool diameter) or less.

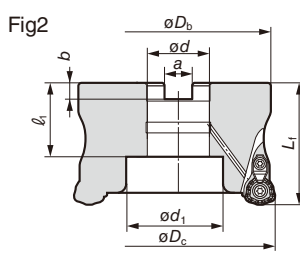
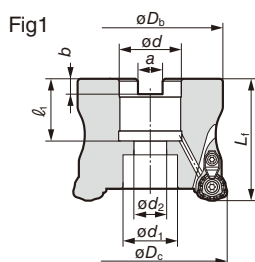
When tool overhang is more than $L/D=3$ and less than or equal $L/D=5$, settings should be adjusted to approximately 70 to 80% of those indicated in the above cutting conditions (i.e. a_p and f_z).

When tool overhang is more than $L/D=5$ and less than or equal $L/D=8$, settings should be adjusted to approximately 50 to 60% of those indicated in the above cutting conditions (i.e. a_p and f_z).

MSX08000R / 12000R / 14000R Type

Rake Angle	Radial	3° to 8°	1.5mm	20°	2.0mm	20°	2.5mm	20°	P	M	K	N	S	H
	Axial	8°	(08000 Type)	(12000 Type)	(14000 Type)				Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Exotic Alloy	Hardened Steel

High Efficiency Machining for Steel, Cast Iron, and Stainless Steel



■ Body (MSX08000) Insert: WDMT08 Type

Metric

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
		ϕD_c	ϕD_b	L_1	ϕd	a	b	ℓ_1	ϕd_1	ϕd_2			
MSX 08040RS	●	40	37	45	16	8.4	5.6	18	13.5	9	4	0.2	1

■ Body (MSX12000) Insert: WDMT12 Type

Metric

Cat. No.	Stock	ϕD_c	ϕD_b	L_1	ϕd	a	b	ℓ_1	ϕd_1	ϕd_2	No. of Teeth	Weight (kg)	Fig
MSX 12050RS	●	50	47	50	22	10.4	6.3	20	18	11	4	0.3	1
12063RS	●	63	60	50	22	10.4	6.3	20	18	11	5	0.6	1

■ Body (MSX14000) Insert: WDMT14 Type

	Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
			ϕD_c	ϕD_b	L_1	ϕd	a	b	ℓ_1	ϕd_1	ϕd_2			
Metric	MSX 14050RS	●	50	47	50	22	10.4	6.3	20	17	11	3	0.3	1
	14063RS	●	63	60	50	22	10.4	6.3	20	18	11	4	0.6	1
	14080RS	●	*80	76	63	27	12.4	7.0	25	20	13.5	5	1.4	1
	14100RS	●	100	96	63	32	14.4	8.5	32	44	—	6	2.2	2
Imperial	MSX 14080R	●	*80	76	63	31.75	12.7	8.0	32	28	17	5	1.3	1
	14100R	●	*100	96	63	31.75	12.7	8.0	32	28	17	6	2.4	1



Inserts are not included.

*Please use JISB1176 hexagonal bolt ($\phi 80$: M12 $\times$ 30-35mm, $\phi 100$: M16 $\times$ 40-45mm) for securing the $\phi 80$ or $\phi 100$ cutter to the arbour.

■ Inserts

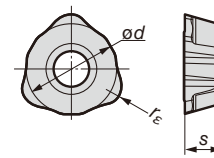
Grade		Coated Carbide			
Application	High Speed/Light				K
	General Purpose	P	M		K
	Roughing	P	M		K
Usage	Cat. No.	ACP200	ACP300	ACK200	ACK300
		Dimensions (mm)			
General Purpose	WDMT 0804ZDTR	●	●	●	●
	1205ZDTR	●	●	●	●
	1406ZDTR	●	●	●	●
Strong Edged	WDMT 0804ZDTR-H	●	●	●	●
	1205ZDTR-H	●	●	●	●
	1406ZDTR-H	●	●	●	●

■ Identification Details

MSX 08 040 R S

(1) Cutter Series (2) Insert Size (3) Cutter (4) Direction (5) Metric Bore

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel



■ Spare Parts

Screws	Spanner	Clamp	C Ring	Clamp Screw	Applicable Body		
 							
BFTX0306IP	2.0	TRDR08IP	CCH3.5	CR03		BFTX03510IP08	MSX08000R Type
BFTX0409IP	3.0	TRDR15IP	CCH3.5	CR03		BFTX03510IP15	MSX12000R Type
BFTX0511IP	5.0	TRDR20IP	CCH4.5	CR03		BFTX04513IP20	MSX14000R Type

N-m Recommended Tightening Torque (N-m)

■ Recommended Cutting Conditions

H65

Rake Angle	Radial -3° to -8° Axial 8°	1.0mm 20°	1.5mm 20°	2.0mm 20°	2.5mm 20°	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Exotic Alloy	H Hardened Steel
		(06000 Type)	(08000 Type)	(12000 Type)	(14000 Type)						

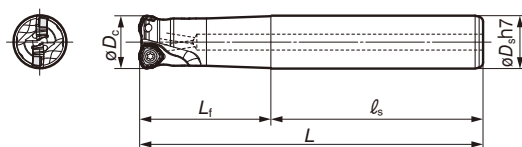
SEC-Metal Slash Mill

MSX06000E / 08000E / 12000E / 14000E Type

High Efficiency Machining for Steel, Cast Iron, and Stainless Steel

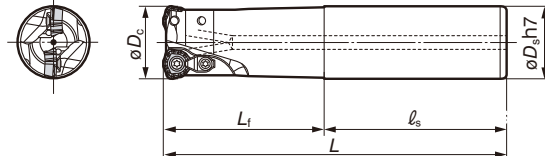
Single Lock

Fig 1



Double Lock

Fig 2



Body (MSX06000E) Insert: WDMT06 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ls	L			
MSX 06016ES	●	16	16	30	80	110	2	0.2	1
06016EM	●	16	16	70	80	150	2	0.2	1
MSX 06017EM	●	17	16	20	130	150	2	0.2	1
MSX 06018EM	●	18	16	20	130	150	2	0.2	1
MSX 06020ES	●	20	20	50	80	130	3	0.3	1
06020EM	●	20	20	100	80	180	3	0.4	1
MSX 06022EM	●	22	20	30	150	180	3	0.4	1
MSX 06025ES	●	25	25	60	80	140	3	0.5	1
06025EM	●	25	25	120	130	250	3	0.8	1

Body (MSX12000E) Insert: WDMT12 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ls	L			
MSX 12032ES	●	32	32	70	80	150	2	0.8	2
12032EM	●	32	32	120	130	250	2	1.4	2
MSX 12035EM	●	35	32	50	200	250	2	1.4	2
MSX 12040ES	●	40	32	50	100	150	3	0.9	2
12040EM	●	40	32	50	200	250	3	1.5	2
MSX 12050EM	●	50	42	50	200	250	4	2.6	2

Body (MSX08000E) Insert: WDMT08 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ls	L			
MSX 08020ES	●	20	20	50	80	130	2	0.3	1
08020EM	●	20	20	100	80	180	2	0.3	1
MSX 08022EM	●	22	20	30	150	180	2	0.4	1
MSX 08025ES	●	25	25	60	80	140	2	0.4	2
08025EM	●	25	25	120	130	250	2	0.8	2
MSX 08028EM	●	28	25	40	210	250	2	0.9	2
MSX 08032ES	●	32	32	70	80	150	3	0.8	2
08032EM	●	32	32	120	130	250	3	1.4	2
MSX 08035EM	●	35	32	50	200	250	3	1.5	2

Body (MSX14000E) Insert: WDMT14 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ls	L			
MSX 14040ES	●	40	32	50	100	150	2	0.9	2
14040EM	●	40	32	50	200	250	2	1.5	2
MSX 14050ES	●	50	42	50	100	150	3	1.5	2
14050EM	●	50	42	50	200	250	3	2.5	2
MSX 14063ES	●	63	42	50	100	150	4	1.7	2
14063EM	●	63	42	50	200	250	4	2.8	2

Inserts are not included.

Inserts

Grade		Coated Carbide			
Application	High Speed/Light			K	
	General Purpose	M	M	K	
	Roughing	M	M	K	
Usage	Cat. No.	ACP200	ACP300	ACK200	ACK300
General Purpose	WDMT 0603ZDTR	●	●	●	●
	0804ZDTR	●	●	●	●
	1205ZDTR	●	●	●	●
	1406ZDTR	●	●	●	●
Strong Edged	WDMT 0603ZDTR-H	●	●	●	●
	0804ZDTR-H	●	●	●	●
	1205ZDTR-H	●	●	●	●
	1406ZDTR-H	●	●	●	●

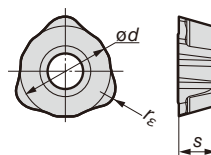
Identification Details

MSX 06 016 E S

(1) Cutter Series (2) Insert Size (3) Cutter (4) Endmill Type (5) S : Short M : Medium

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Applicable Cutter



Spare Parts

Screws	Spanner	Clamp	C Ring	Clamp Screw	Applicable Body
BFTX02505IP	1.5	TRDR08IP	—	—	MSX06000E Type
BFTX0306IP	2.0	TRDR08IP	—	—	MSX08020E, MSX08022E Type
BFTX0306IP	2.0	TRDR08IP	CCH3.5	CR03	Other MSX08000E types except the above items
BFTX0409IP	3.0	TRDR15IP	CCH3.5	CR03	MSX12000E Type
BFTX0511IP	5.0	TRDR20IP	CCH4.5	CR03	MSX14000E Type

(N·m) Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

H65

H67

H
Milling
Cutters

Face
Milling

Radius

Multi-
Purpose

Shoulder
Milling

R/Copying

Groove/
T-Slot

Chamfering

Aluminum/
Light Alloys

High-Speed
Cast Iron