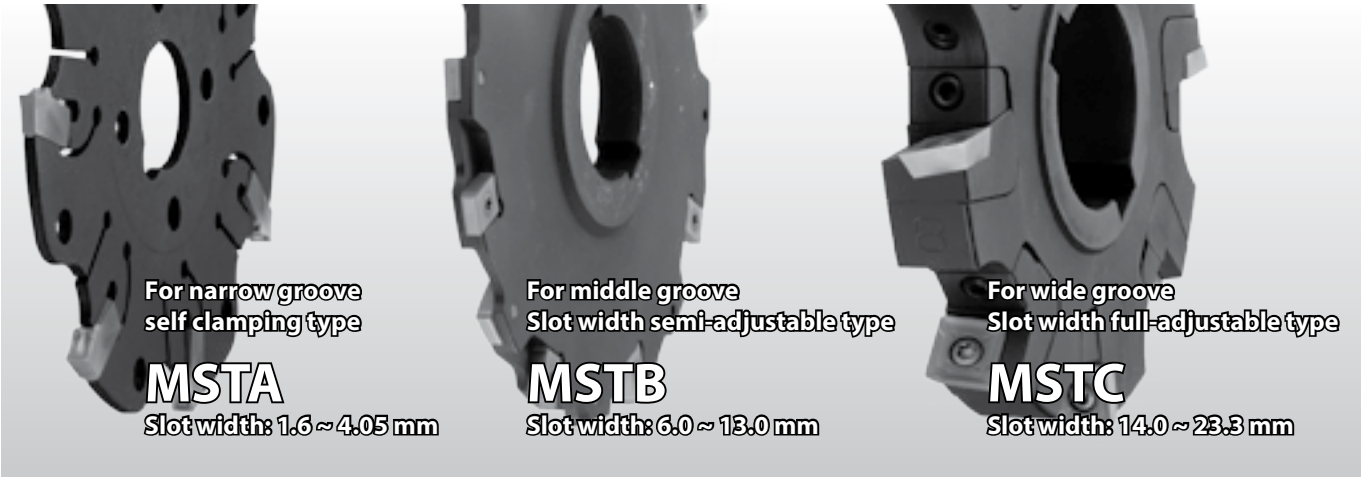




Full range from 1.6 mm to 23.3 mm in 3 types

Lineup of MST series slot mills

Type	Applicable inserts	Features	Slot width (mm)													
			1.6	2.2 (2.25)	3.05	4.05	6	8	10	13	14	16	18	20	22	24
MSTA	SLT..	1.6 ~ 4.05 mm fixed	●	●	●	●										
MSTB	LNEU12..	6 ~ 13 mm semi-adjustable					* Adjustable in 0.5mm increments between 6mm and 13mm with the combination of inserts									
MSTC	SP..10T3..	14 ~ 18 mm full-adjustable									* Adjustable between 14mm and 18mm					
	SD..1204...	18 ~ 23.3 mm full-adjustable									* Adjustable between 18mm and 23.3mm					

Slot mill MSTA (Slot width 1.6, 2.2(2.25), 3.05, 4.05 mm)

Self-clamping type slot mill

MSTA slot mills have simple self-clamping system to allow for easy attachment by just installing the insert.

High rigidity clamping system

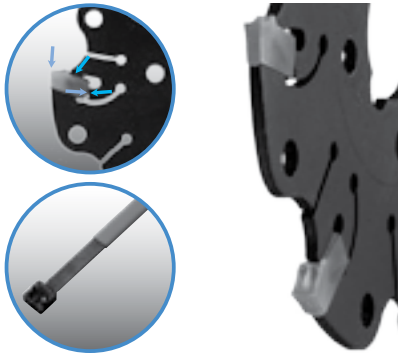
Owing to the high rigidity clamping system – with an end – stopper, the toolholder enable high operability and stable slotting by maintaining an accurate edge position.

Double-prism clamping system

High replacement precision with the double-prism clamping system

Easy replacement

The replacement of inserts is easy and quick by using special wrench.



Wrench is not attached. Please purchase it separately.

Slot mill MSTB (Slot width 6.0 ~ 13.0mm)

Up-right type/semi-adjustable slot width

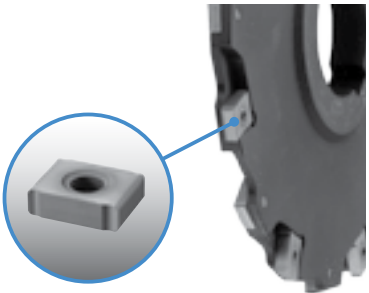
Easy and secure screw holding

Inserts can be attached to the MSTB slot mills very easily by using clamp screws.

Economical inserts with 4 cutting edges

Applicable to a variety of slotting by choosing different inserts

By changing the thickness of inserts, it's a applicable to various slotting widths up to max 13mm in 0.5mm increments.



Slot mill MSTC (Slot width 14.0 ~ 23.3 mm)

Lay-down type/full-adjustable slot width

Applicable to various slotting needs. Slotting widths: 14.0mm to 23.3mm.

Cutter dia.: from 100mm to 160mm

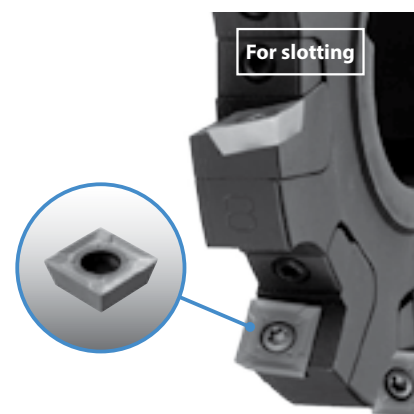
Smooth slotting width adjustment is possible owing to unique cam style adjustment mechanism.

Economical 4-edge Insert

A wide range of corner-R is suitable for various work.

Owing to the wiper edge insert, an excellent surface finish can be expected.

Owing to numerous insert geometries and grades, they are applicable for various types of workpiece machining.



*Change to silver coating in sequence.

Features of insert grades

Insert shape			
Symbol	SB	SD	SE
Rake angle			
Shape			

CA0835

- TiN+TiCN+Al₂O₃ based CVD coated carbide
- For carbon steel, alloy steel, stainless steel and nodular cast iron.
- For middle to high speed machining.

PR0725

- TiN+TiCN+TiN based multi-layer PVD coated carbide
- For carbon steel, alloy steel, stainless steel, heat-resistant alloys and cast iron.
- For middle speed machining.

PR0110

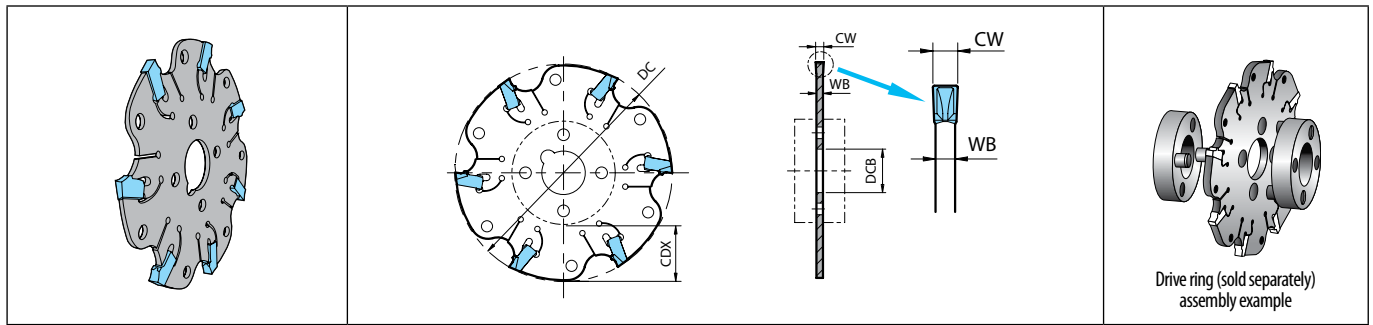
- TiB₂ based PVD coated carbide
- For non-ferrous metals such as aluminum alloys (Si<10%) and titanium alloys.
- For high speed machining.

M



Milling

MSTA



Toolholder dimensions (Metric)

Description	Availability	N	Dimension (mm)					Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Applicable inserts M240
			DC	DCB	CDX	WB	CW				
MSTA 63N16-5T	●	5	63	16	15	1.3	1.6	No	5100	0.03	SLT...SKB SLT...SKD
80N16-7T	●	7	80	21					4000	0.04	
100N16-9T	●	9	100	22	27				3200	0.07	
125N16-11T	●	11	125	32	35				2600	0.1	
MSTA 63N22-5T	●	5	63	16	15	1.8	2.2 (2.25)	No	5100	0.03	SLT...SKB SLT...SKD
80N22-7T	●	7	80	21					4000	0.05	
100N22-9T	●	9	100	22	27				3200	0.08	
125N22-11T	●	11	125	32	35				2600	0.12	
160N22-14T	●	14	160	40	40				2000	0.3	
MSTA 63N30-4T	●	4	63	16	15	2.4	3.05	No	5100	0.05	SLT...SKB SLT...SKD
80N30-6T	●	6	80	21					4000	0.08	
100N30-9T	●	9	100	22	27				3200	0.13	
125N30-11T	●	11	125	32	35				2600	0.2	
160N30-14T	●	14	160	40	40				2000	0.35	
MSTA 63N40-4T	●	4	63	16	15	3.4	4.05	No	5100	0.06	SLT...SKB SLT...SKD
80N40-6T	●	6	80	21					4000	0.1	
100N40-9T	●	9	100	22	27				3200	0.15	
125N40-11T	●	11	125	32	35				2600	0.25	
160N40-14T	●	14	160	40	40				2000	0.4	

Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold singularly.

Please purchase two drive rings per one MSTA slot mill.

Do not exceed the max. revolution.

Do not operate cutting on reverse revolution.

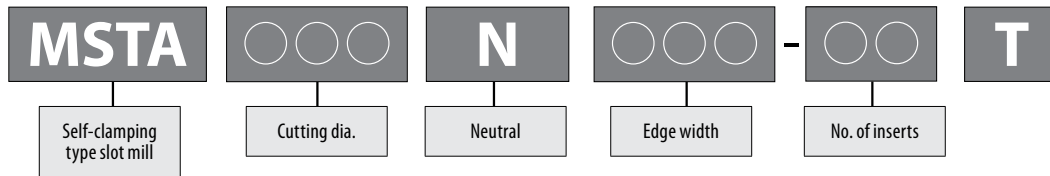
Wrench (MS-FRW1) is not attached. Please purchase it separately.

Drive ring (For Metric)

Shape			Description	Availability	Dimension (mm)					Drawing	Applicable toolholders
DCON	WB	DIOUT			DCB	DIOUT	WB	KWW	DCON		
Fig. 1	Fig. 2	Fig. 3	DR16-32A	●	16	32	8	4.1	3	Fig. 2	MSTA 63N16-5T 63N22-5T
			DR16-32B	●					4	Fig. 1	MSTA 63N30-4T 63N40-4T
			DR16-38	●		38					MSTA 80N○○○T
			DR22-46	●	22	46	10	6.1	5	Fig. 3	MSTA 100N○○○T
			DR32-55	●	32	55		8.1	6		MSTA 125N○○○T
			DR40-80	●	40	80	12	10.1	12		MSTA 160N○○○T

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

Identification system MSTA toolholder



Toolholder dimensions (inch spec)

Description	Availability	Inserts	Dimension (in , (mm))					Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Applicable inserts ➡ M240
			DC	DCB	CDX	CW	WB				
MSTA 02N063-5T	●	5	2.5 (63.5)	0.625 (15.875)	0.625 (15.875)	0.063 (1.6)	0.051 (1.3)	No	5100	0.03	SLT...SKB SLT...SKD
03N063-7T	●	7	3 (76.2)		0.875 (22.225)				4000	0.04	
04N063-9T	●	9	4 (101.6)	1 (25.4)	1.063 (27)				3200	0.07	
05N063-11T	●	11	5 (127)	1.25 (31.75)	1.375 (34.925)				2600	0.1	
MSTA 03N089-7T	●	7	3 (76.2)	0.625 (15.875)	0.875 (22.225)	0.089 (2.2)	0.071 (1.8)	No	4000	0.05	SLT...SKB SLT...SKD
04N089-9T	●	9	4 (101.6)	1 (25.4)	1.063 (27)				3200	0.08	
06N089-14T	●	14	6 (152.4)	1.25 (31.75)	1.438 (36.525)				2000	0.3	
MSTA 02N126-4T	●	4	2.5 (63.5)	0.625 (15.875)	0.625 (15.875)	0.120 (3.05)	0.095 (2.4)	No	5100	0.05	SLT...SKB SLT...SKD
03N126-6T	●	6	3 (76.2)		0.875 (22.225)				4000	0.08	
04N126-9T	●	9	4 (101.6)	1 (25.4)	1.063 (27)				3200	0.13	
05N126-11T	●	11	5 (127)	1.25 (31.75)	1.375 (34.925)				2600	0.2	
06N126-14T	●	14	6 (152.4)		1.438 (36.525)				2000	0.35	
MSTA 03N164-6T	●	6	3 (76.2)	0.625 (15.875)	0.875 (22.225)	0.160 (4.05)	0.134 (3.4)	No	4000	0.1	SLT...SKB SLT...SKD
04N164-9T	●	9	4 (101.6)	1 (25.4)	1.063 (27)				3200	0.15	
05N164-11T	●	11	5 (127)	1.25 (31.75)	1.375 (34.925)				2600	0.25	

Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold singularly.

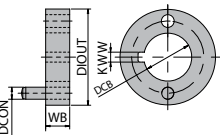
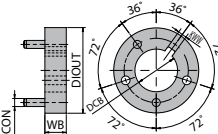
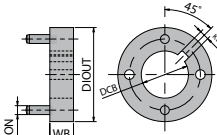
Please purchase two drive rings per one MSTA slot mill.

Do not exceed the max. revolution.

Do not operate cutting on reverse revolution.

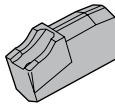
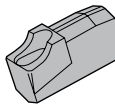
Wrench (MS-FRW1) is not attached. Please purchase it separately.

Drive ring (For Inch spec)

Shape		Description	Availability	Dimension (inch)					Drawing	Applicable toolholders
				DCB	DIOUT	WB	KWW	DCON		
		DR0625-1250A	●					.158 (4mm)	Fig. 1	MSTA 02N126-4T
		DR0625-1250B	●	.625 (15.875mm)	1.250 (31.75mm)	.315 (8mm)	.130 (3.3mm)	.120 (3mm)	Fig. 2	MSTA 02N063-5T
		DR0625-1250C	●						Fig. 3	MSTA 03N○○○○-T
	DR1000-1875	●	1.000 (25.4mm)	1.875 (47.625mm)	.394 (10mm)	.256 (6.5mm)	.200 (5mm)	MSTA 04N○○○○-T		
	DR1250-2250	●	1.250 (31.75mm)	2.250 (57.15mm)	.319 (8.1mm)	.319 (8.1mm)	.240 (6mm)	MSTA 05N○○○○-T		
	DR1250-3125	●	1.250 (31.75mm)	3.125 (79.375mm)	.472 (12mm)	.319 (8.1mm)	.472 (12mm)	MSTA 06N○○○○-T		

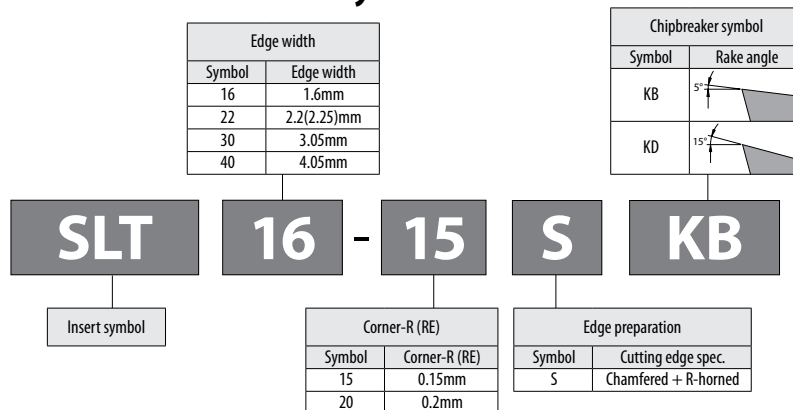
● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

SLT

Classification of usage ● : 1st Choice ○ : 2nd Choice		Carbon steel / Alloy steel						●	○	P
		Mold and die steel								
		Stainless steel						○	●	M
		Gray cast iron						○		K
		Nodular cast iron						○		
		Non-ferrous metals								N
		Heat-resistant alloy							●	S
		Titanium alloy								
Hard materials								H		
Insert	Description	Dimension (mm)		Angle (°)	Tolerance (mm)		Carbi-de		Applicable toolholder M238 M239	
		CW	RE	GAN	CW min.	CW max.	CVD CA0835 PVD PR0735			
	SLT 16-15SKB	1.6	0.15	5	-0.1	0	●	●	MSTA...	
	SLT 22-20SKB	2.2	0.2	5	-0.05	+0.08	●	●		
	SLT 30-20SKB	3.05	0.2	5	0	+0.15	●	●		
	SLT 40-20SKB	4.05	0.2	5	0	+0.15	●	●		
 Low cutting force	SLT 16-15SKD	1.6	0.15	15	-0.1	0	●	●		
	SLT 22-20SKD	2.25	0.2	15	0	+0.15	●	●		
	SLT 30-20SKD	3.05	0.2	15	0	+0.15	●	●		
	SLT 40-20SKD	4.05	0.2	15	0	+0.15	●	●		

Recommended cutting conditions ➡ M241

Inserts identification system



Selection of chipbreaker

KB chipbreaker ... general purpose chipbreaker for steel and cast iron

KD chipbreaker ... low cutting force chipbreaker for stainless steel

Features of insert grades

CA0835

- TiN+TiCN+Al₂O₃ based CVD Coated carbide
- For carbon steel, alloy steel, stainless steel and cast iron
- For middle to high speed machining

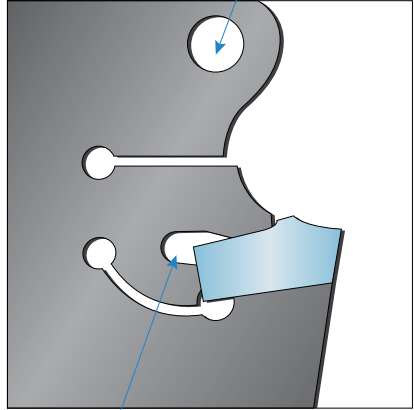
PR0735

- TiN base PVD Coated carbide
- For stainless steel, heat-resistant alloys, etc.
- For low to middle speed machining

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

M240

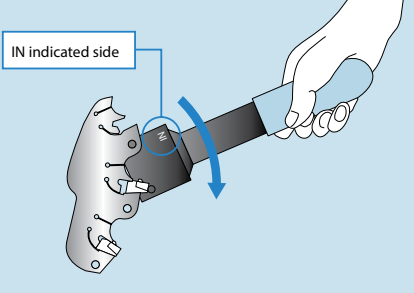
Set up



Wrench support hole

Insert removal hole for wrench

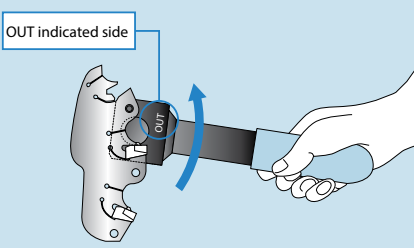
How to attach inserts



IN indicated side

1. Put insert inside the slot mill.
2. Insert one of the pins on the wrench (on IN indicated side) into the wrench support hole.
3. Using the other pin, push the front relief surface of the insert.
4. Rotate the wrench until insert's back end makes contact with slot mill.

How to detach inserts



OUT indicated side

1. Insert one of the pins on the wrench (on OUT indicated side) into the wrench support hole, and insert other pin into the insert releasing hole.
2. Insert can be uninstalled by rotating the wrench counterclockwise. (A magnet is installed on OUT indicated side.)

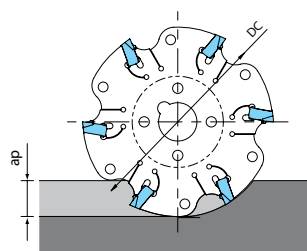
Note: Use appropriate wrench for set up.

Recommended cutting conditions

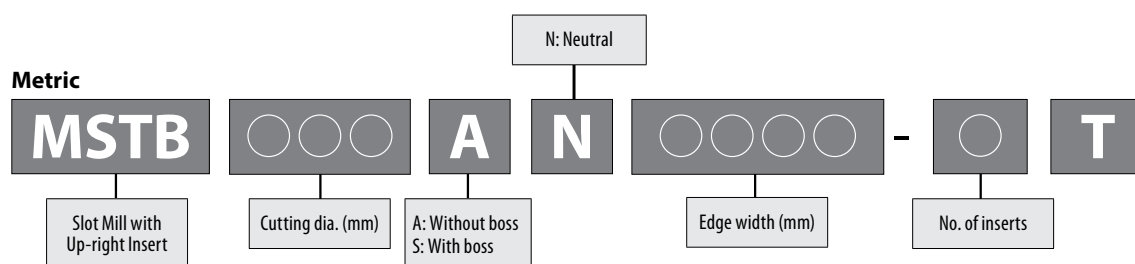
Workpiece material		Hardness (HB)	Recommended insert grades (Vc: m/min)		fz (mm/t)				Remarks
			CVD coated carbide	PVD coated carbide	Edge width (mm)				
			CA0835	PR0735	1.6	2.2(2.25)	3.05	4.05	
Low carbon steel	C10 ~ C25	125	250~310	200~250	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	Coolant
Carbon steel	C30 ~ C60 (Annealed)	190	160~190	130~160	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	
	C30 ~ C60 (Heat treated)	250	140~180	110~150	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	
Alloy steel	CrMo, Cr (Annealed)	180	140~180	110~150	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	
	CrMo, Cr (Heat treated)	275	120~160	100~130	0.03~0.10	0.04~0.12	0.06~0.16	0.08~0.18	
High carbon alloy	X153CrMoV12, X40CrMoV51, etc.	280	100~140	80~120	0.03~0.10	0.04~0.12	0.06~0.16	0.08~0.18	
Stainless steel	Austenitic related X5CrNi18 10, X5CrNiMo17 12 2, CrNi2520, etc.	220	150~190	80~120	0.03~0.10	0.04~0.12	0.06~0.16	0.08~0.18	
	Martensitic related X10Cr13, X6Cr17 etc.	300	140~180	60~80	0.03~0.10	0.04~0.12	0.06~0.16	0.08~0.18	
Gray cast iron	GG25 ~ GG35	260	160~200	-	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	Dry
Nodular cast iron	GGG40 ~ GGG50	160	130~160	-	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	
	GGG60 ~ GGG80	250	110~140	-	0.03~0.12	0.04~0.14	0.06~0.18	0.08~0.20	

Note: 1. Use down-cut machining.

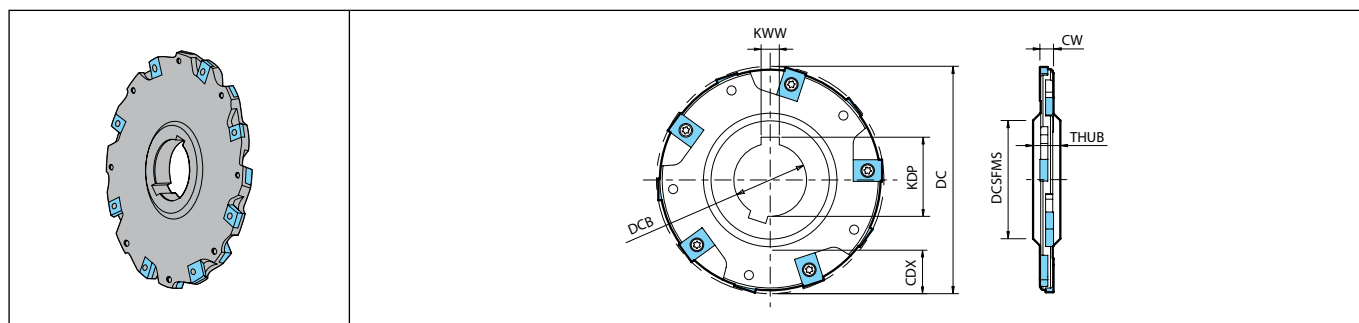
2. If a_p is 1/10 or under of cutter dia.(DC), it is possible to increase feed per tooth (fz) by 40%.



Identification system toolholder MSTB



MSTB (Without Boss, Metric)



In order to be used in combination with two or more mills, this slot mill has 2 key slots.

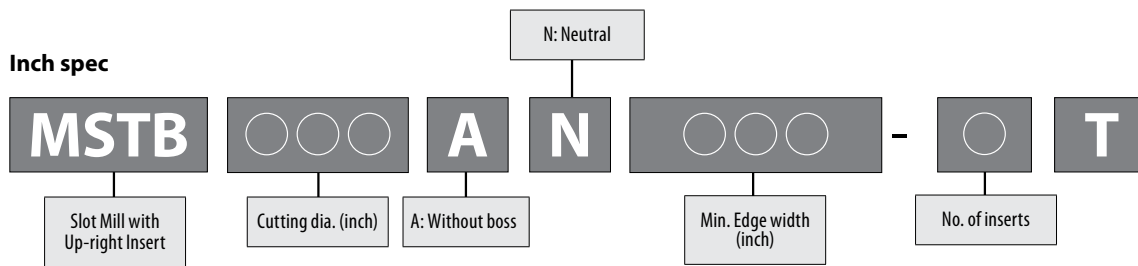
Toolholder dimensions

Description	Availability	Inserts	Edge line	Dimension (mm)										Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Spare parts			Applicable inserts ➡ M245
				DC	DCSFS	DCB	KDP	KWW	CDX	THUB	CW min.	CW max.								
MSTB 80AN0607-4T 100AN0607-5T 125AN0607-6T 160AN0607-8T	●	8	4	80	44	27	29.8	7	15	12	6	7	No	9240	0.3	P-37	SE-40050TRN	TT-15	LNEU12...	
	●	10	5	100	52	32	34.8	8	21					8270	0.4					
	●	12	6	125	63	40	43.5	10	28					7390	0.7					
	●	16	8	160					45.5					6540	1.1					
MSTB 80AN0809-4T 100AN0809-5T 160AN0809-8T	●	8	4	80	44	27	29.8	7	16	12	8	9	No	9240	0.4	P-37	SE-40068TR	TT-15	LNEU12...	
	●	10	5	100	52	32	34.8	8	22					8270	0.5					
	●	16	8	160	63	40	43.5	10	45.5					6540	1.3					
MSTB 125AN1011-4T 160AN1011-5T	●	12	4	125	63	40	43.5	10	30	12	10	11	No	7390	0.9	P-37	SE-40068TR	TT-15	LNEU12...	
	●	15	5	160					47.5					6540	1.6					
MSTB 160AN1213-5T	●	15	5	160	63	40	43.5	10	48.5	12	12	13	No	6540	1.6	P-37	SE-40090TR	TT-15	LNEU12...	

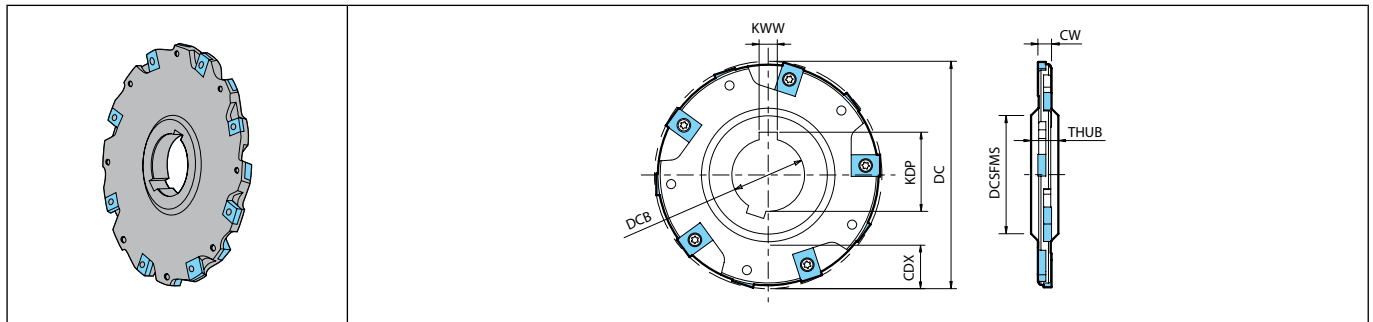
Coat anti-seize compound thinly on portion of taper and thread when insert is fixed.

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

Identification system toolholder MSTB



MSTB (Without Boss, Inch spec)



In order to be used in combination with two or more mills, this slot mill has 2 key slots.

Toolholder dimensions

Description	Availability	Inserts	Edge line	Dimension (in , (mm))										Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Spare parts			Applicable inserts ➡ M245
	N			DC	DCSfMS	DCB	KDP	KWW	CDX	THUB	CW min.	CW max.								
MSTB 3000AN250-4T 4000AN250-5T 5000AN250-6T 6000AN250-8T	●	8	4	3 (76.2)	1.5 (38.1)	1 (25.4)	1.106 (28.1)	0.25 (6.35)	0.625 (15.875)	0.5 (12.7)	0.25 (6.35)	0.289 (7.34)	No	9470	0.3	P-37	SE-40055TR	TT-15	LNEU12...	
	●	10	5	4 (101.6)	1.88 (47.8)	1.25 (31.75)	1.386 (35.2)	0.312 (7.92)	0.935 (23.8)					8200						
	●	12	6	5 (127)					1.435 (36.4)					7300						0.7
	●	16	8	6 (152.4)	2.25 (57.2)	1.5 (38.1)	1.665 (42.3)	0.375 (9.52)	1.75 (44.45)					6700						
MSTB 4000AN312-5T 5000AN312-6T 6000AN312-8T	●	10	5	4 (101.6)	1.88 (47.8)	1.25 (31.75)	1.386 (35.2)	0.312 (7.92)	0.966 (24.5)	0.5 (12.7)	0.312 (7.92)	0.351 (8.91)	No	7400	0.5	P-37	SE-40068TR	TT-15	LNEU12...	
	●	12	6	5 (127)					1.466 (37.2)					6600						0.8
	●	16	8	6 (152.4)	2.25 (57.2)	1.5 (38.1)	1.665 (42.3)	0.375 (9.52)	1.781 (45.2)					6000						
MSTB 4000AN375-3T 5000AN375-4T 6000AN375-5T	●	9	3	4 (101.6)	1.88 (47.8)	1.25 (31.75)	1.386 (35.2)	0.312 (7.92)	1 (25.4)	0.5 (12.7)	0.375 (9.525)	0.414 (10.52)	No	7400	0.5	P-37	SE-40068TR	TT-15	LNEU12...	
	●	12	4	5 (127)					1.5 (38.1)					6600						0.8
	●	15	5	6 (152.4)	2.25 (57.2)	1.5 (38.1)	1.665 (42.3)	0.375 (9.52)	1.812 (46)					6000						
MSTB 4000AN500-3T 5000AN500-4T 6000AN500-5T	●	9	3	4 (101.6)	1.88 (47.8)	1.25 (31.75)	1.386 (35.2)	0.312 (7.92)	1.06 (26.9)	0.5 (12.7)	0.5 (12.7)	0.539 (13.69)	No	4900	0.6	P-37	SE-40090TR	TT-15	LNEU12...	
	●	12	4	5 (127)					1.56 (39.6)					4400						1.1
	●	15	5	6 (152.4)	2.25 (57.2)	1.5 (38.1)	1.665 (42.3)	0.375 (9.52)	1.875 (47.6)					4000						

Coat anti-seize compound thinly on portion of taper and thread when insert is fixed.

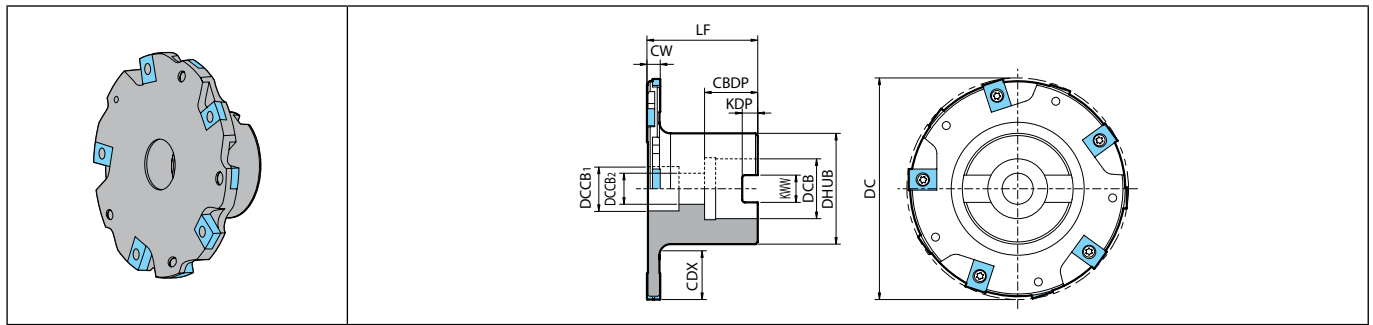
● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

M



Milling

MSTB (With Boss, Metric)



Toolholder dimensions

Description	Availability	Inserts	Edge line	Dimension (mm)														Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Spare parts				Applicable inserts 🔩 M245
	N			DC	DCB	DCB ₁	DCB ₂	LF (min.)	CDBP	KDP	KWW	CDX	DHUB	CW min.	CW max.	Anti-seize compound	Mounting bolt				Screw	Wrench			
																									
MSTB 80SN0607-4T	●	8	4	80	22	18	12	50	23	6.3	10.4	16	40	6	7	No	9240	0.7	P-37	HH10X35	SE-40050TRN	TT-15	LNEU12...		
100SN0607-5T	●	10	5	100	27	20	14		24	7	12.4	21	50				8270	1		HH12X35					
160SN0607-8T	●	16	8	160	40	33	22		28	9	16.4	41	70				6540	1.9		HH20X40					
MSTB 80SN0809-4T	●	8	4	80	22	18	12	50	23	6.3	10.4	16	40	8	9	No	9240	0.8	P-37	HH10X35	SE-40068TR	TT-15	LNEU12...		
100SN0809-5T	●	10	5	100	27	20	14		24	7	12.4	21	50				8270	1.2		HH12X35					
160SN0809-8T	●	16	8	160	40	33	22		28	9	16.4	41	70				6540	2.2		HH20X40					
MSTB 125SN1011-4T	●	12	4	125	40	33	22	50	28	9	16.4	26	70	10	11	No	7390	2	P-37	HH20X40	SE-40068TR	TT-15	LNEU12...		
160SN1011-5T	●	15	5	160								43					6540	2.5							

LF (min.) dimension shows in case of minimum of edge width (CW).

Coat anti-seize compound thinly on portion of taper and thread when insert is fixed.

M



Milling

Cutting edge angle
45°~70°Cutting edge angle
75°Cutting edge angle
88°/90°Cutter for
FinishingHigh Feed
CutterMulti-
Function

Slot Mill

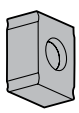
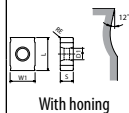
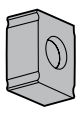
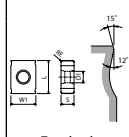
Ball-nose
Radius

Others

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

M244

LNEU

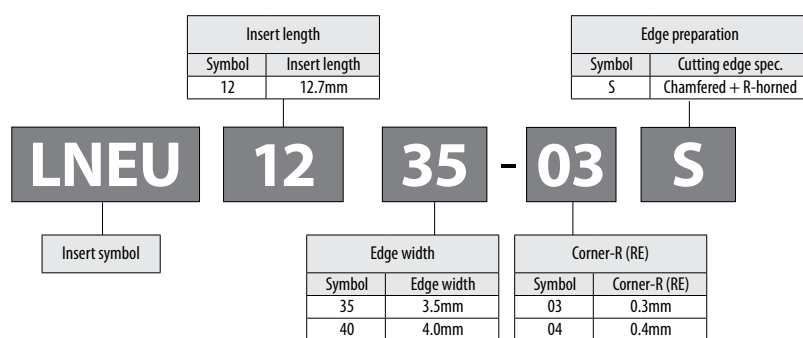
Classification of usage ● : 1st Choice ○ : 2nd Choice				Carbon steel / Alloy steel			●	P	
				Mold and die steel					
				Stainless steel			●	M	
				Gray cast iron					○
				Nodular cast iron			○		
				Non-ferrous metals				●	N
				Heat-resistant alloy			○		
				Titanium alloy				○	H
Hard materials									
Insert		Description	No. of edges	Dimension (mm)			Carbide PVD PR0725	Applicable toolholder ➡ M242~M244	Applicable clamp screw
				S	D1	RE			
	 With honing	LNEU 1235-03-4	4	3.5	4.4	0.3	●	MSTB...	SE-40050TRN
		LNEU 1240-08-4	4	4	4.4	0.8	●		SE-40055TR
		LNEU 1245-04 1245-08	4	4.5	4.2	0.4 0.8	● ●		SE-40068TR
		LNEU 1250-04 1250-08	4	5	4.2	0.4 0.8	● ●		SE-40080TR
		LNEU 1255-04 1255-08	4	5.5	4.2	0.4 0.8	● ●		SE-40090TR
		LNEU 1260-04	4	6	4.2	0.4	●		SE-40100TR
			 Tough edge	LNEU 1235-03S-4	4	3.5	4.4		0.3
LNEU 1240-03S-4	4			4	4.4	0.3	●	SE-40055TR	
LNEU 1245-04S 1245-08S	4			4.5	4.2	0.4 0.8	● ●	SE-40068TR	
LNEU 1250-04S 1250-08S	4			5	4.2	0.4 0.8	● ●	SE-40080TR	

Please select the applicable clamp screw depending on each insert description.

See page M246 for insert description and applicable clamp screw depending on edge width.

Recommended cutting conditions ➡ M247

Inserts identification system



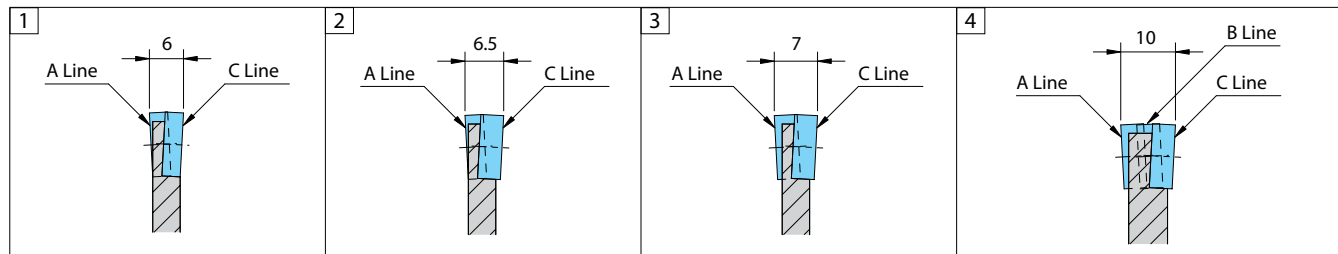
● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

Combination of applicable inserts

Description			Clamp screw (Standard attachment parts)	Edge width		A Line		B Line		C Line		Wrench for clamp screw	Tightening torque (N·m)		
				mm	inch (mm)	Applicable inserts	Clamp screw	Applicable inserts	Clamp screw	Applicable inserts	Clamp screw				
Metric	MSTB	○○○AN0607-○T	SE-40050TRN	6	-	LNEU1235..	SE-40050TRN	-	-	LNEU1235..	SE-40050TRN	TT-15	3		
		○○○SN0607-○T		6.5						LNEU1240..	SE-40055TR			LNEU1240..	SE-40055TR
				7						LNEU1240..	SE-40055TR				
	MSTB	○○○AN0809-○T	SE-40068TR	8	-	LNEU1245..	SE-40068TR	-	-	LNEU1245..	SE-40068TR				
		○○○SN0809-○T		8.5						LNEU1250..	SE-40080TR			LNEU1250..	SE-40080TR
				9						LNEU1250..	SE-40080TR				
	MSTB	○○○AN1011-○T	SE-40068TR	10	-	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR				
		○○○SN1011-○T		10.5						LNEU1250..	SE-40080TR			LNEU1250..	SE-40080TR
				11						LNEU1250..	SE-40080TR			LNEU1250..	SE-40080TR
	MSTB	○○○AN1213-○T	SE-40090TR	12	-	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR				
				12.5						LNEU1260...	SE-40100TR			LNEU1260...	SE-40100TR
				13						LNEU1260...	SE-40100TR			LNEU1260...	SE-40100TR
Inch spec	MSTB	○○○○AN250-○T	SE-40055TR	-	²⁵⁰ (6.35mm)	LNEU1240..	SE-40055TR	-	-	LNEU1240..	SE-40055TR	TT-15	3		
		²⁷⁰ (6.86mm)			LNEU1245..					SE-40068TR	LNEU1245..			SE-40068TR	
		²⁸⁹ (7.34mm)			LNEU1245..					SE-40068TR	LNEU1245..			SE-40068TR	
	MSTB	○○○○AN312-○T	SE-40068TR	-	³¹² (7.92mm)	LNEU1245..	SE-40068TR	-	-	LNEU1245..	SE-40068TR				
		³³² (8.43mm)			LNEU1250..					SE-40080TR	LNEU1250..			SE-40080TR	
		³⁵¹ (8.91mm)			LNEU1250..					SE-40080TR	LNEU1250..			SE-40080TR	
	MSTB	○○○○AN375-○T	SE-40068TR	-	³⁷⁵ (9.525mm)	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR				
		³⁹⁵ (10.33mm)			LNEU1250..					SE-40080TR	LNEU1250..			SE-40080TR	
		⁴¹⁴ (10.52mm)			LNEU1250..					SE-40080TR	LNEU1250..			SE-40080TR	
	MSTB	○○○○AN500-○T	SE-40090TR	-	⁵⁰⁰ (12.7mm)	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR				
		⁵²⁰ (13.21mm)			LNEU1260...					SE-40100TR	LNEU1260...			SE-40100TR	
		⁵³⁹ (13.69mm)			LNEU1260...					SE-40100TR	LNEU1260...			SE-40100TR	

For clamp screw, above listed "Standard attachment parts" are attached. In case of necessity of another size of clamp screw by changing slotting width, please purchase separately.

Slot width (Edge width) adjustment



The slot width (Edge width) of MSTB slot mills is adjustable by a maximum of 1 mm with the combination of inserts.

1. In the case of MSTB○○○○AN0607-○T the width (W) is 6mm by installing LNEU1235 on both A line and C line.
2. By replacing C line only with LNEU1240 the width (W) is 6.5 mm.
3. By replacing A line and C line with LNEU1240 the width (W) is 7 mm.
4. If the slotting width (Edge width) is 10 mm, the B line (Middle edge) is necessary.

* Caution

1. There is no description such as "A line", "B line", and "C line" on the actual slot mill. These are only for explanation of the combination of insert.
2. Use proper clamp screws for applicable inserts on the basis of the above chart.
3. Please do not use any slot mills, that have a difference of width of more than 1 mm.

Bottom cutting shape of MSTB slot mill

Slot bottom shape will be (Fig. 1) convex shape.

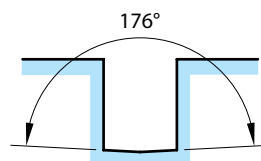


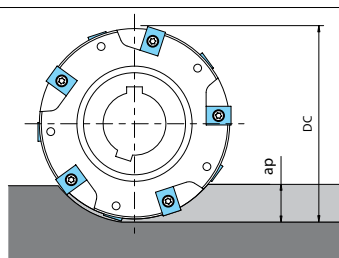
Fig. 1 Convex bottom shape

Recommended cutting conditions

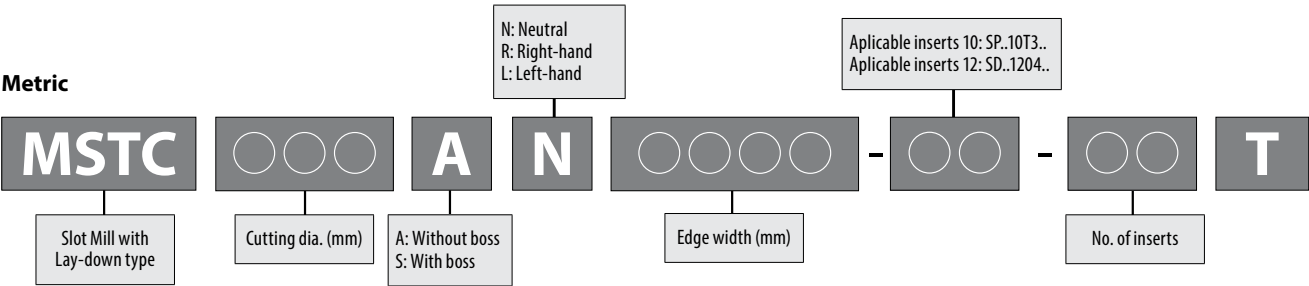
Workpiece material		Hardness (HB)	Recommended insert grades (Vc: m/min)	fz (mm/t)		Remarks
			PVD Coated carbide	Insert thickness (mm)		
			PR0725	3.5~4.0	4.5~6.0	
Low carbon steel	C10 ~ C25	125	170~210	0.07~0.20	0.10~0.22	Dry
Carbon steel	C30 ~ C60 (Annealed)	190	100~140	0.07~0.20	0.10~0.22	
	C30 ~ C60 (Heat treated)	250	90~120	0.07~0.20	0.10~0.22	
Alloy steel	CrMo, Cr (Annealed)	180	90~120	0.07~0.20	0.10~0.22	
	CrMo, Cr (Heat treated)	275	80~110	0.05~0.18	0.08~0.20	
High carbon alloy	X153CrMoV12, X40CrMoV51, etc.	280	70~90	0.05~0.18	0.08~0.20	Coolant
Stainless steel	Austenitic related X5CrNi18 10, X5CrNiMo17 12 2, CrNi2520, etc.	220	110~140	0.05~0.18	0.08~0.20	
	Martensitic related X10Cr13, X6Cr17 etc.	300	100~120	0.05~0.18	0.08~0.20	
Heat-resistant alloys	Ni-base heat-resistant alloys	350	15~30	0.05~0.18	0.08~0.20	
Titanium alloys	Ti-6Al-4V, etc.	270	20~50	0.05~0.18	0.08~0.20	
Gray cast iron	GG25 ~ GG35	260	110~130	0.07~0.22	0.10~0.25	
Nodular cast iron	GGG40 ~ GGG50	160	80~100	0.07~0.22	0.10~0.25	
	GGG60 ~ GGG80	250	70~90	0.07~0.22	0.10~0.25	

Note: 1. Use down-cut machining.

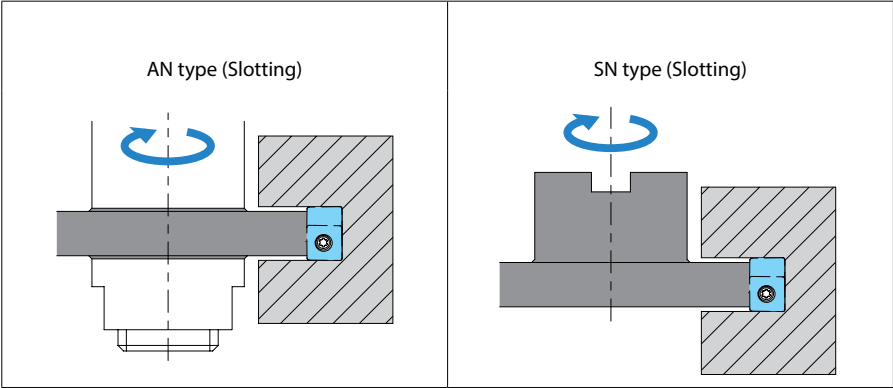
2. If a_p is 1/10 or under of cutter dia.(DC), it is possible to increase feed per tooth (fz) by 40%.



Identification system toolholder MSTC



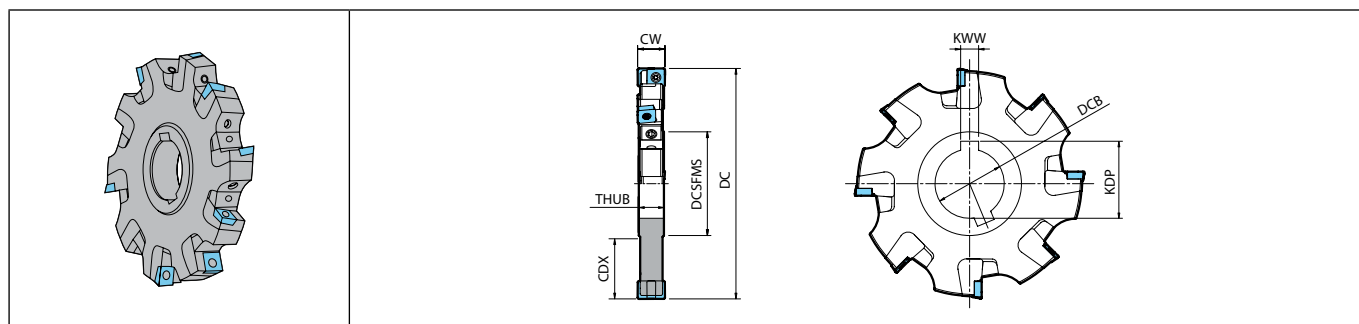
Cutting direction of MSTC slot mill



M

Milling

Cutting edge angle 45°~70°
Cutting edge angle 75°
Cutting edge angle 88°/90°
Cutter for Finishing
High Feed Cutter
Multi- Function
Slot Mill
Ball-nose Radius
Others

MSTC (Without Boss)

In order to be used in combination with two or more mills, this slot mill has 2 key slots.

Toolholder dimensions (Without Boss, Metric)

Description		Availability	Inserts	Edge line	Dimension (mm)									Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Applicable inserts ➡ M252 M253
					DC	DCSfMS	DCB	KDP	KWW	CDX	THUB	CW min.	CW max.				
MSTC	100AN1416-10-3T	●	6	3	100	46.8	32	34.8	8	25.9					17250	0.5	SPCT10T3... SPET10T3...
	125AN1416-10-4T	●	8	4	125	54.8	40	43.5	10	34.4	13.9	14	16	No	15450	0.8	
	160AN1416-10-5T	●	10	5	160					51.9					13650	1.5	
MSTC	125AN1618-10-4T	●	8	4	125	54.8	40	43.5	10	34.4	15.9	16	18	No	15450	1	SPCT10T3... SPET10T3...
	160AN1618-10-5T	●	10	5	160					51.9					13650	1.8	
MSTC	125AN1820-12-4T	●	8	4	125	54.8	40	43.5	10	34	18.2	18	20.6	No	10350	1	SDCT1204... SDET1204...
	160AN1820-12-5T	●	10	5	160					51.5					9150	1.8	
MSTC	125AN2123-12-4T	●	8	4	125	54.8	40	43.5	10	34	20.8	20.6	23.3	No	10350	1.2	SDCT1204... SDET1204...
	160AN2123-12-5T	●	10	5	160					51.5					9150	2.1	

Spare parts ➡ M251

Slot width (Edge width) adjustment ➡ M255 - M257

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability



Milling

MSTC (With Boss)

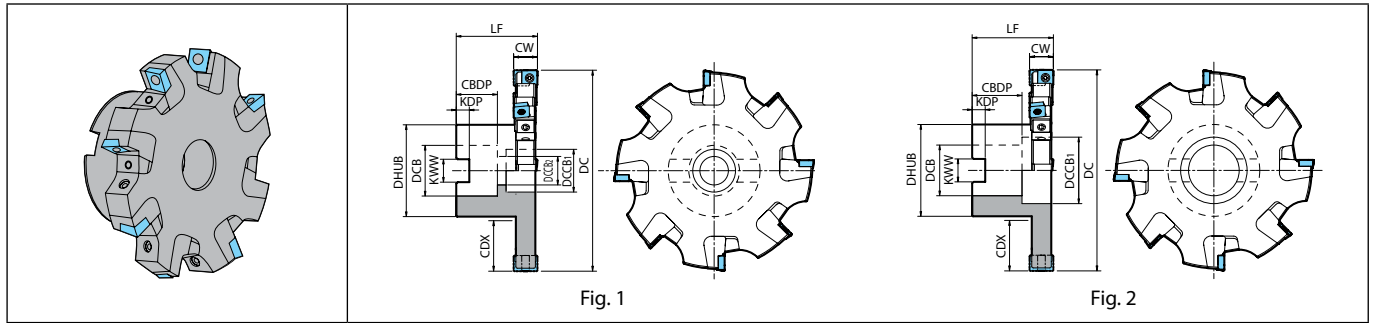


Fig. 1

Fig. 2

Toolholder dimensions (With Boss, Metric)

Description	Availability	N	Inserts	Edge line	Dimension (mm)												Coolant hole	Max. revolution (min ⁻¹)	Weight (kg)	Fig.	Applicable inserts M252 M253
					DC	DCB	DCB ₁	DCCB ₁	LF (min.)	CDBP	KDP	KWW	CDX	DHUB	CW min.	CW max.					
MSTC 100SN1416-10-3T	●	6	3	100	27	20	14			24	7	12.4	24.4	48			No	17250	1	1	SPCT10T3... SPET10T3...
125SN1416-10-4T	●	8	4	125	32	27	18		50.8	26	8	14.4	31.9	58	14	16	No	15450	1.6	1	
160SN1416-10-5T	●	10	5	160	40	56	-			30	9	16.4	43.4	70			No	13650	2	2	
MSTC 125SN1618-10-4T	●	8	4	125	32	27	18		50.8	26	8	14.4	31.9	58			No	15450	1.7	1	SPCT10T3... SPET10T3...
160SN1618-10-5T	●	10	5	160	40	56	-			30	9	16.4	43.4	70	16	18	No	13650	2.3	2	
MSTC 125SN1820-12-4T	●	8	4	125	32	27	18		51	26	8	14.4	31.9	58			No	10350	1.6	1	
160SN1820-12-5T	●	10	5	160	40	56	-			30	9	16.4	43.4	70	18	20.6	No	9150	2.3	2	SDCT1204... SDET1204...
MSTC 125SN2123-12-4T	●	8	4	125	32	27	18		51	26	8	14.4	31.9	58			No	10350	1.7	1	SDCT1204... SDET1204...
160SN2123-12-5T	●	10	5	160	40	56	-			30	9	16.4	43.4	70	20.6	23.3	No	9150	2.6	2	

LF (min.) dimension shows in case of minimum of edge width (CW).

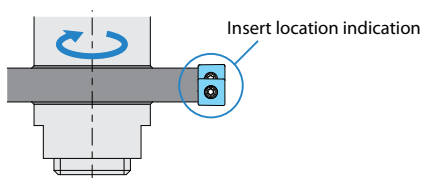
Spare parts M251

Slot width (Edge width) adjustment M255 - M257

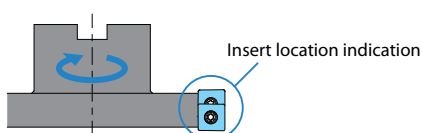
Applicable insert installation method

When installing handed inserts, it is necessary to equip same number of right-hand and left-hand inserts as shown in "No. of edge lines" respectively. Please Install as show in the figure below.

MSTC...AN... (Without boss)



MSTC...SN... (With boss)



Toolholder description	Insert location indication	Applicable inserts M252, M253	
		Handed	Neutral
MSTC...AN...10.. MSTC...SN...10..		SP..10T3... L ...	SP..10T3... N ...
		SP..10T3... R ...	
MSTC...AN...12.. MSTC...SN...12..		SD..1204... L ...	SD..1204... N ...
		SD..1204... R ...	

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

M250

Spare parts (MSTC) (common to Metric / Inch spec)

Description				Spare parts												
				Cartridge		Wedge	Wedge screw	Cam pin	Clamp screw	Wrench			Anti-seize compound	Mounting bolt		
				Right-hand	Left-hand					for wedge screw	for cam pin	for clamp screw				
																
Without boss	Metric	MSTC	100AN1416-10-3T	C90SP1416-10R	C90SP1416-10L	WC-14	W6X18	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-		
			125AN1416-10-4T				W6X20									
			160AN1416-10-5T				W6X20									
		MSTC	125AN1618-10-4T	C90SP1618-10R	C90SP1618-10L	WC-16	W6X20	AP-1820	SB-3590TRP		LW-3	DTP-15				
			160AN1618-10-5T				W6X20									
		MSTC	125AN1820-12-4T	C90SD1820-12R	C90SD1820-12L	WC-18	W6X20									
			160AN1820-12-5T				W6X20									
		MSTC	125AN2123-12-4T	C90SD2023-12R	C90SD2023-12L	WC-20	W6X20									
			160AN2123-12-5T				W6X20									
With boss	Metric	MSTC	100SN1416-10-3T	C90SP1416-10R	C90SP1416-10L	WC-14	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	HH12X35		
			125SN1416-10-4T				W6X20							HH16X35		
			160SN1416-10-5T				W6X20							-		
		MSTC	125SN1618-10-4T	C90SP1618-10R	C90SP1618-10L	WC-16	W6X20	AP-1820	SB-3590TRP		LW-3	DTP-15	P-37	HH16X35		
			160SN1618-10-5T				W6X20							-		
		MSTC	125SN1820-12-4T	C90SD1820-12R	C90SD1820-12L	WC-18	W6X20							HH16X35		
			160SN1820-12-5T				W6X20							-		
		MSTC	125SN2123-12-4T	C90SD2023-12R	C90SD2023-12L	WC-20	W6X20							HH16X35		
			160SN2123-12-5T				W6X20							-		
														-		
															-	



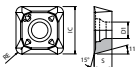
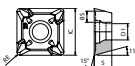
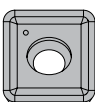
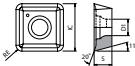
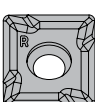
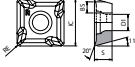
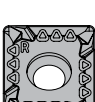
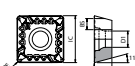
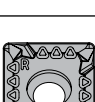
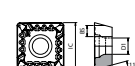
Coat anti-seize compound thinly on portion of taper and thread when insert is fixed.

Tightening torque

Wrench	TH-3L	DTP-9	DTP-15
			
Tightening torque (N·m)	5~6	1.5	4



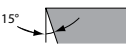
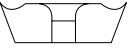
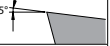
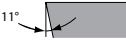
SPCT/SPET

Classification of usage ● : 1st Choice ○ : 2nd Choice		Carbon steel / Alloy steel					●	●	P			
		Mold and die steel										
		Stainless steel					○	●	M			
		Gray cast iron					○	●	K			
		Nodular cast iron					○	●				
		Non-ferrous metals						●	N			
		Heat-resistant alloy							●	S		
Titanium alloy						○	●					
Hard materials									H			
Insert		Description	No. of edges	Dimension (mm)					Carbide			Applicable toolholder ➡ M249, M250
				IC	S	D1	RE	BS	CVD CA0835	PVD PR0110 PR0725		
		SPCT 10T316EN-SD	4	10	3.97	3.4	1.6	-		●	MSTC...-10-..	
	 With wiper edge	SPCT 10T308ER-SD 10T308EL-SD 10T312ER-SD 10T312EL-SD	4	10	3.97	3.4	0.8 0.8 1.2 1.2	2.5 2.5 1.8 1.8		● ● ● ●	MSTC...-10-..	
	 Sharp edge	SPCT 10T316FN-SE	4	10	3.97	3.4	1.6	-		●	MSTC...-10-..	
	 Sharp edge / With wiper edge	SPCT 10T308FR-SE 10T308FL-SE 10T312FR-SE 10T312FL-SE	4	10	3.97	3.4	0.8 0.8 1.2 1.2	2.7 2.7 2.2 2.2		● ● ● ●	MSTC...-10-..	
	 With wiper edge	SPET 10T308ER-SB 10T308EL-SB	4	10	3.97	3.4	0.8	2.7	● ●	● ●	MSTC...-10-..	
	 Tough edge / With wiper edge	SPET 10T308SR-SB 10T308SL-SB	4	10	3.97	3.4	0.8	2.7	● ●	● ●	MSTC...-10-..	

Handed insert shows Right-hand

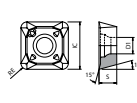
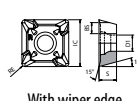
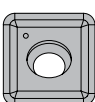
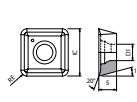
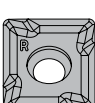
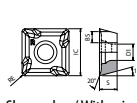
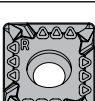
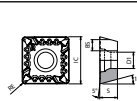
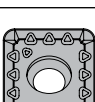
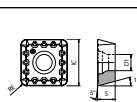
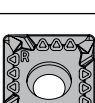
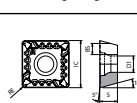
Recommended cutting conditions ➡ M254

Inserts identification system

Shape		Tolerance				Edge length		Corner-R (RE)		Hand of tool	
Symbol	Shape	Symbol	Corner height	Thickness	I.C Size			Symbol	Corner-R (RE)	Symbol	Hand of tool
S	Square	C	±0.013mm	±0.025mm	±0.025mm			16	1.6mm	N	Neutral
		E	±0.025mm			12	1.2mm	L	Left-hand		
								08	0.8mm	R	Right-hand
S	P	C	T	10	T3	08	E	R	-	SD	
Relief angle		Hole/Chipbreaker		Thickness		Edge Preparation		Chipbreaker symbol			
Symbol	Relief angle	Symbol	Shape	Symbol	Thickness	Symbol	Cutting edge spec.	Symbol	Rake angle		
D	15° 	T	 Single-sided chipbreaker, with hole	T3	3.97mm	E	Honed	SB	5° 		
P	11° 			04	4.76mm	F	Sharp edge	SD	15° 		
						S	Chamfered + R-honed	SE	20° 		

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

SDCT/SDET

Classification of usage ● : 1st Choice ○ : 2nd Choice			Carbon steel / Alloy steel		●	●	P					
			Mold and die steel		●	●						
			Stainless steel		○	●	M					
			Gray cast iron		○	●	K					
			Nodular cast iron		○	●						
			Non-ferrous metals		●	●	N					
			Heat-resistant alloy		●	●	S					
			Titanium alloy		○	●						
			Hard materials		●	●	H					
Insert		Description	No. of edges	Dimension (mm)					Carbide			Applicable toolholder ➡ M249, M250
				IC	S	D1	RE	BS	CVD			
									CA0835	PR0110	PR0725	
		SDCT 120416EN-SD	4	12.7	4.76	4.4	1.6	-	●	●	MSTC...-12-..	
	 With wiper edge	SDCT 120408ER-SD 120408EL-SD 120412ER-SD 120412EL-SD	4	12.7	4.76	4.4	0.8 0.8 1.2 1.2	2.5 2.5 1.8 1.8	● ● ● ●	● ● ● ●	MSTC...-12-..	
	 Sharp edge	SDCT 120416FN-SE	4	12.7	4.76	4.4	1.6	-	●	●	MSTC...-12-..	
	 Sharp edge / With wiper edge	SDCT 120408FR-SE 120408FL-SE 120412FR-SE 120412FL-SE	4	12.7	4.76	4.4	0.8 0.8 1.2 1.2	2.7 2.7 1.9 1.9	● ● ● ●	● ● ● ●	MSTC...-12-..	
	 With wiper edge	SDET 120408ER-SB 120408EL-SB 120412ER-SB 120412EL-SB	4	12.7	4.76	4.4	0.8 0.8 1.2 1.2	2.5 2.5 1.8 1.8	● ● ● ●	● ● ● ●	MSTC...-12-..	
	 Tough edge	SDET 120416SN-SB	4	12.7	4.76	4.4	1.6	-	●	●	MSTC...-12-..	
	 Tough edge / With wiper edge	SDET 120408SR-SB 120408SL-SB	4	12.7	4.76	4.4	0.8	2.5	● ●	● ●	MSTC...-12-..	

Handed insert shows Right-hand

Recommended cutting conditions ➡ M254

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

M



Milling

Recommended cutting conditions

Workpiece material		Hardness (HB)	Recommended insert grades (Vc: m/min)			fz (mm/t)				Remarks
			CVD Coated carbide	PVD Coated carbide		Chipbreaker				
				CA0835	PR0725	PR0110	EN-SD ER-SD EL-SD	ER-SB EL-SB	SN-SB SR-SB SL-SB	
Low carbon steel	C10 ~ C25	125	250~310	170~210	-	0.07~0.20	0.10~0.22	0.15~0.3	-	Dry
Carbon steel	C30 ~ C60 (Annealed)	190	160~190	100~140	-	0.07~0.20	0.10~0.22	0.15~0.3	-	
	C30 ~ C60 (Heat treated)	250	140~180	90~120	-	0.07~0.20	0.10~0.22	0.15~0.3	-	
Alloy steel	CrMo, Cr (Annealed)	180	140~180	90~120	-	0.07~0.20	0.10~0.22	0.15~0.3	-	
	CrMo, Cr (Heat treated)	275	120~160	80~110	-	0.05~0.18	0.08~0.20	0.12~0.25	-	
High carbon alloy	X153CrMoV12, X40CrMoV51, etc.	280	110~130	70~ 90	-	0.05~0.18	0.08~0.20	0.12~0.25	-	Coolant
Stainless steel	Austenitic related X5CrNi18 10, X5CrNiMo17 12 2, CrNi2520, etc.	220	160~200	110~140	-	0.05~0.18	0.08~0.20	0.12~0.25	-	
	Martensitic related X10Cr13, X6Cr17 etc.	300	150~180	100~120	-	0.05~0.18	0.08~0.20	0.12~0.25	-	
Heat-resistant alloys	Ni-base heat-resistant alloys	350	-	15~ 30	-	0.05~0.18	0.08~0.20	0.12~0.25	-	
Titanium alloys	Ti-6Al-4V, etc.	270	-	20~ 50	-	0.05~0.18	0.08~0.20	0.12~0.25	-	
Gray cast iron	GG25 ~ GG35	260	160~200	110~130	-	0.07~0.22	0.10~0.25	0.15~0.35	-	Dry
Nodular cast iron	GGG40 ~ GGG50	160	130~160	80~100	-	0.07~0.22	0.10~0.25	0.15~0.35	-	
	GGG60 ~ GGG80	250	110~140	70~ 90	-	0.07~0.22	0.10~0.25	0.15~0.35	-	
Non-ferrous metals	AlZnMgCu1.5 etc.	-	-	-	750~950	-	-	-	0.07~0.20	Coolant

M



Milling

Cutting edge angle
45°~70°Cutting edge angle
75°Cutting edge angle
88°/90°Cutter for
FinishingHigh Feed
CutterMulti-
Function

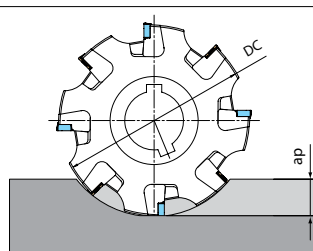
Slot Mill

Ball-nose
Radius

Others

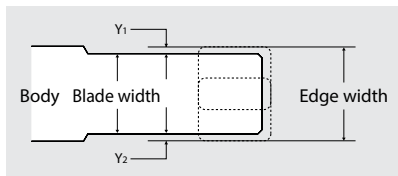
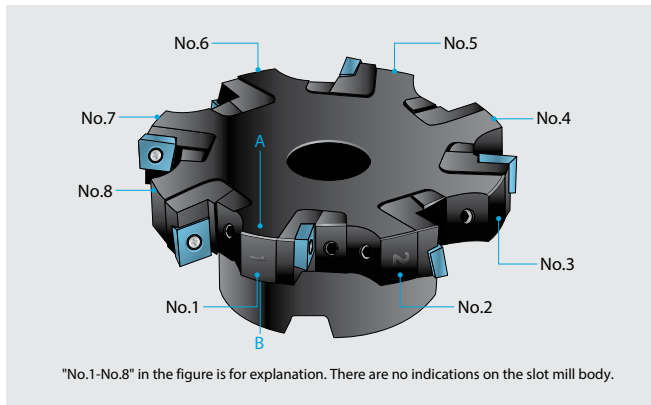
Note: 1. Use down-cut machining.

2. If ap is 1/10 or under of cutter dia.(DC), it is possible to increase feed per tooth (fz) by 40%.



Slot width (Edge width) adjustment of MSTC slot mill

Slot width (Edge width) measurement and adjustment



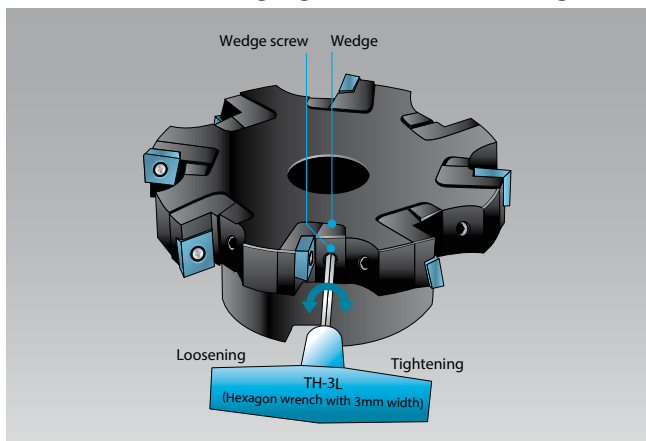
1. Set up the slot mill on length measuring equipment such as tool presettters.
2. Choose any one of the edges as a reference position. (No.1)
3. Measure the blade width of the slot mill body at position No.1. (between point A and B in the figure)
4. Move the length measuring equipment to the insert corner part and measure the step (Y_1) between the point A and the insert No.1.
5. Using the same procedure, measure (Y_2) dimension based on point B.

$$\text{Edge width} = \text{Blade width} + Y_1 + Y_2$$

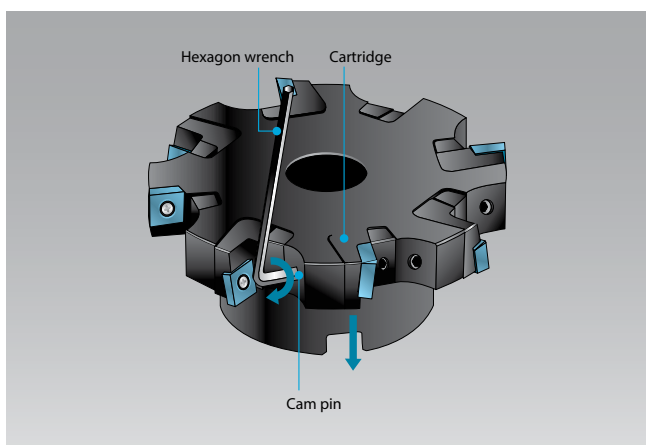
6. Place the point A of the slot mill body near the position No.1 to "0 (zero)" of the length measuring equipment.
7. Adjust the edge position of the inserts in odd numbered positions (No. 3, 5, 7) to "0 (zero)" with the length measuring equipment.
8. Adjust the edge position of the inserts in even numbered positions (No. 2, 4, 6, 8) to the required edge width.

For steps 7. and 8., see "In the case of changing the slot width (Edge width)" on next page.

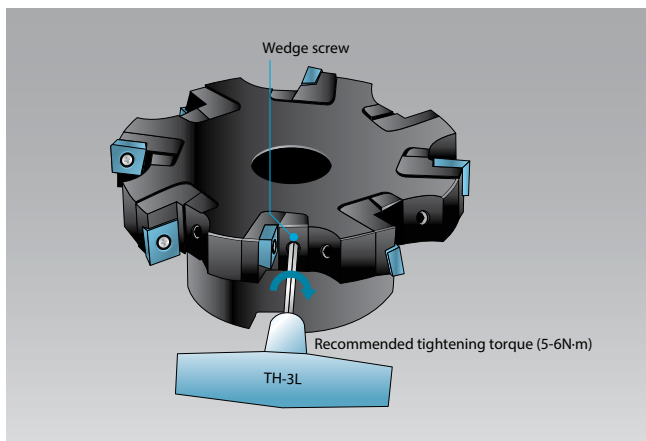
In the case of changing the slot width (Edge width)



1. Set up the slot mill on length measuring equipment such as tool presettters.
2. Insert a hexagon wrench with 3mm width (TH-3L) into the wedge screw.
3. Turn TH-3L counterclockwise to loosen the wedge.
4. Turn TH-3L clockwise by the torque of 1 N·m to tighten the wedge lightly and make the wedge contact the cartridge and the slot mill body. In doing so, some resistance occurs against the cartridge.

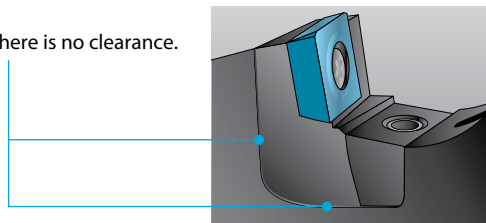


5. Insert a hexagon wrench (LW-2.5 OR LW-3) into the cam pin on the back of the cartridge.
6. Turn the wrench and adjust the position of the cartridge.
7. To secure the adjustment, back-turn the cam pin and make sure that it does not touch the groove surface of the back of the cartridge.
8. Remove the hexagon wrench from the cam pin.



9. Insert TH-3L into the wedge screw.
10. Tighten the wedge screw by the torque of 5-6N·m. (Use a torque wrench to get the correct torque.)
11. Make sure there is no clearance between the cartridge and the slot mill body.

Make sure there is no clearance.



M



Milling

Cutting edge angle
45°~70°Cutting edge angle
75°Cutting edge angle
88°/90°Cutter for
FinishingHigh Feed
CutterMulti-
Function

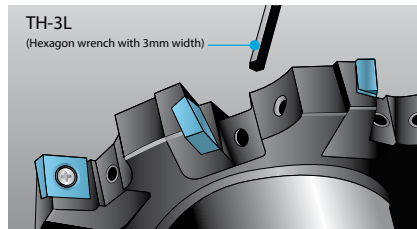
Slot Mill

Ball-nose
Radius

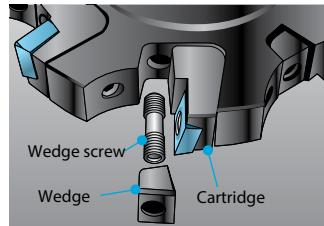
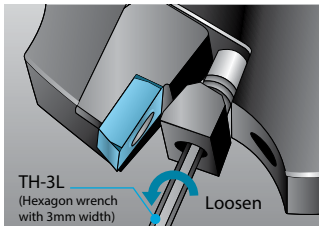
Others

Replacement of the cartridge

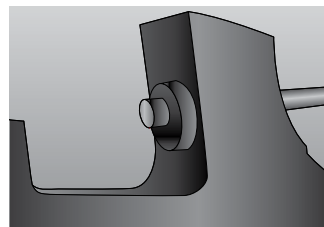
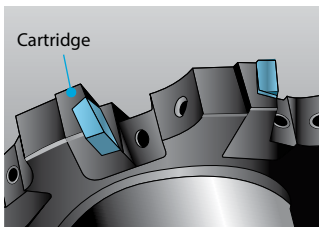
Follow the instruction below to replace the cartridge.



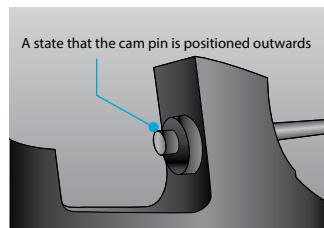
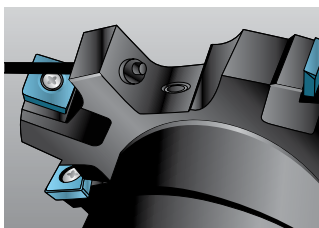
1. Insert hexagon wrench with 3mm width (TH-3L) into the wedge screw.



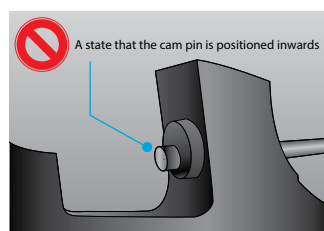
2. Loosen the wedge screw.
3. Remove the wedge screw and wedge.



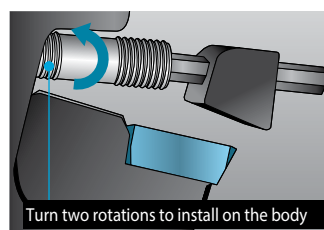
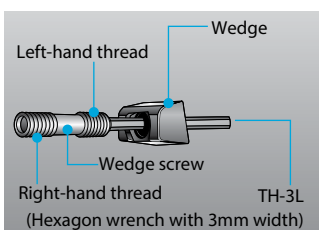
4. Remove the cartridge.



5. Before replacing the cartridge, make sure that the cam pin is positioned radially-outwards.



6. If the cam pin is in the position shown in the left diagram, assembling the cartridge is not possible.



7. Place the wedge so that its larger slant surface faces toward the cartridge.
8. Turn the wedge screw two rotations to install the wedge to the body.
9. When installing the wedge screw to the body, keep the wedge from rotating and screw it in.
10. Tighten the wedge screw by the torque of 5-6N·m. Keep the screw head and the wedge even (Prevent either of those from sticking out).

