

SPARE PARTS



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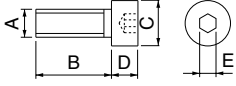
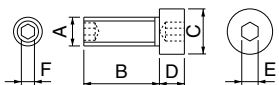
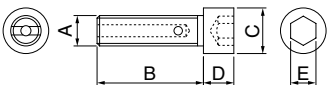
Screws / Bolts

Drawing	Part Number	Dimension (in)						Angle (°)		Torque (N • m)	Notes
		A	B	C	D	E	F	α	θ		
	HH 3/8-1.25H	3/8-24 UNF	1.250	0.550	0.375	0.312					
	1/2-1.25H	1/2-20 UNF		0.750	0.500	0.375					
	3/4-2.3H	3/4-16 UNF	1.500	1.120	0.750	0.625					
	HH 1/4-0.75	1/4-28 UNF	0.750	0.375	0.250	0.188					
	3/8-1.25	3/8-24 UNF	1.250	0.550	0.375	0.312					
	3/8-1.5	3/8-24 UNF	1.500								
	1/2-1.25	1/2-20 UNF	1.250	0.750	0.500	0.375					
	3/4-2.3	3/4-16 UNF	1.500	1.120	0.750	0.625					

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes
		A	B	C	D	E	F	α	θ		
	AJ -6X38	M6X1.0	38.0	6.0	10.0	3.0	3.0	-	-		
	-8X44-9.5	M8X1.25	44.0	9.5	6.0	4.0	4.0	-	-		
	-10X46	M10X1.5	46.0	11.5	8.0	5.0	5.0	-	-		
	BH 3X6	M3X0.5	6.0	-	1.7	2.0	-	-	-		
	3X12	M3X0.5	12.0	-	1.7	2.0	-	-	-		
	6X25	M6X1.0	25.0	-	3.3	4.0	-	-	-		
	8X30	M8X1.25	30.0	-	4.4	5.0	-	-	-		
	BH 6X10TR	M6X1.0	10.0	12.0	5.0	-	T25	-	-	6.5	
	CP 8X15TL	M8X1.25	15.0	15.0	-	-	T25	-	-	6.0	L Shows Left-hand Thread
8X23TL	23.0										
	CS -2D	M4X0.7	21.5	6.4	3.5	2.5	2.0	-	-	1.7	
	-3D	M5X0.8	22.0	8.0	4.0	3.0	2.5	-	-	3.9	
	-5D	M5X0.8	28.0	8.0	4.0	3.0	2.5	-	-	3.0	
	GS -50	M5X0.8	13.0	7.5	-	3.0	-	-	82°		
	-50S	M5X0.8	9.0	7.5	-	3.0	-	-	82°		
	GS -4090T%W	M4X0.7	9.0	5.8	-	2.0	2.0	-	82°	-	R Shows Right-hand Thread L Shows Left-hand Thread
	HF 16X40HA	M16X2.0	24.0	40.0	16.0	12.0	10.0	14.0			With Coolant Hole
20X53H	M20X2.5	35.0	43.0	18.0	14.0						
20X53HA		33.0	50.0	20.0							
24X60H	M24X3.0	40.5	65.0	19.5	17.0						
24X60HA		36.0		24.0							
	HH 3X6	M3X0.5	6.0	5.5	3.0	2.5	-	-	-		
	3X12		12.0								
	HH 4X16	M4X0.7	16.0	7.0	4.0	3.0	-	-	-		
	HH 5X15	M5X0.8	15.0	8.5	5.0	4.0	-	-	-		
	5X16		16.0								
	5X20		20.0								
	5X25		25.0								
	5X30		30.0								
	HH 6X12		M6X1.0								12.0
	6X16	16.0									
	6X16AA	16.0									
	6X18AA	18.0									
	6X20	20.0									
6X25	25.0										
6X30	30.0										

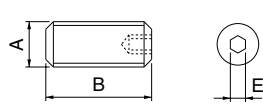
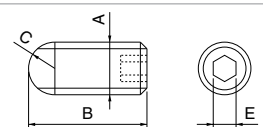
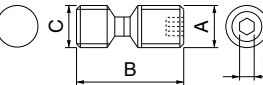
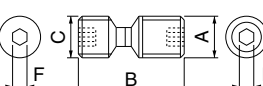

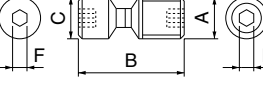
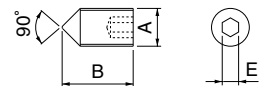
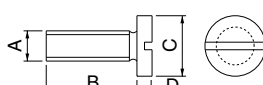
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SPARE PARTS

Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N•m)	Notes
		A	B	C	D	E	F	α	θ		
	HH 8X25	M8X1.25	25.0	13.0	8.0	6.0	-	-	-	-	
	8X35		35.0								
	8X40		40.0								
	8X50		50.0								
	8X55		55.0								
	8X65		65.0								
	8X70		70.0								
	8X80		80.0								
	8X85		85.0								
	8X100		100.0								
	8X110		110.0								
	HH 10X25	M10X1.5	25.0	16.0	10.0	8.0	-	-	-	-	
	10X30		30.0								
	10X30M		30.0								
	10X30S		30.0		6.0	7.0					
	10X35		35.0		10.0	8.0					
	10X40		40.0								
	HH 12X25	M12X1.75	25.0	18.0	12.0	10.0	-	-	-	-	
	12X35		35.0								
	12X35M		35.0								
	12X40		40.0								
	12X55		55.0								
	12X65		65.0								
	12X80		80.0								
	12X85		85.0								
	12X100		100.0								
	12X110		110.0								
	12X120		120.0								
	12X130		130.0								
	12X140		140.0								
	12X150		150.0								
	HH 16X35	M16X2.0	35.0	24.0	16.0	14.0	-	-	-	-	
	16X40		40.0								
	16X45		45.0								
	16X65		65.0								
	16X90		90.0								
	16X110		110.0								
	16X130		130.0								
	HH 20X40	M20X2.5	40.0	30.0	20.0	17.0	-	-	-	-	
	20X53		53.0								
	20X55		55.0								
	20X75		75.0								
20X90	90.0										
20X110	110.0										
20X120	120.0										
20X140	140.0										
20X150	150.0										
20X170	170.0										
HH 24X40	M24X3.0	40.0	36.0	24.0	19.0	-	-	-	-		
24X60		60.0									
24X75		75.0									
24X90		90.0									
24X110		110.0									
24X120		120.0									
24X140		140.0									
24X150		150.0									
24X170	170.0										
	HH 4X12	M4X0.7	10.0	7.0	4.0	3.0	2.0	-	-	-	
	HH 8X25H	M8X1.25	25.0	13.0	8.0	5.0	-	-	-	-	With Coolant Hole
10X30H	M10X1.5	30.0	16.0	10.0	6.0						
10X35HK	M10X1.5	35.0	18.0	12.0	8.0						
12X35H	M12X1.75	35.0									
12X35HK	M12X1.75	35.0									
16X52H	M16X2.0	36.0	24.0	16.0	12.0						

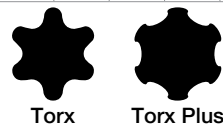
GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
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Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes	
		A	B	C	D	E	F	α	θ			
	HS 3X4P	M3X0.5	3.9	-	-	1.5	-	-	-	1.0	HS4X4P and HS6X4P Have a Flat Edge Clamp Screw Equivalent to JIS B-1177	
	3X4		4.0									
	3X8		8.0									
	3X12		12.0									
	3X16		16.0									
	HS 4X4P	M4X0.7	3.9	-	-	2.0	-	-	-			2.0
	4X4		4.0									
	5X5	M5X0.8	5.0			2.5						3.0
	HS 6X4P	M6X0.75	3.9	-	-	3.0	-	-	-			4.0
	6X6		6.0									
	6X8T	M6X1.0	8.0	-	-	3.0	-	-	-			4.0
	6X14		14.0									
	6X22		22.0									
	HS 8X10	M8X1.25	10.0	-	-	4.0	-	-	-			-
	8X12		12.0									
	HS 10X10	M10X1.5	10.0	-	-	5.0	-	-	-	-		
	10X16		16.0									
	HS 12X12	M12X1.75	12.0	-	-	6.0	-	-	-	-		
12X16	16.0											
12X18	18.0											
12X20	20.0											
12X25	25.0											
12X30	30.0											
12X35	35.0											
HS 16X12	M16X2.0	12.0	-	-	8.0	-	-	-	-			
16X18		18.0										
16X20		20.0										
	HSB 4X8%	M4X0.7	8.0	R2.0	-	2.0	-	-	-	2.0	R Shows Right-hand Thread L Shows Left-hand Thread	
	LS -03	M5X0.8	10.0	M5X0.8	-	2.0	-	-	-	2.0	N : Silver Coated	
	-03S		12.2			2.5				3.0		
	LS -03N	M5X0.8	9.7	M5X0.8	-	2.0	-	-	-	2.0		
	-03SN		12.0			2.5				3.0		
	LS -05	M5X0.8	15.5	M5X0.8	-	2.0	2.0	-	-	2.0		
	LS -1	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N : Silver Coated	
	-1N		14.2									
	-1S		21.0									
	-1SN		21.0									
	LS -2	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0		
	-2N		22.0									
	-3		24.0									
	-4		24.0									
LS -1P	M6X1.0	16.5	6.0	-	10IP	10IP	-	-	2.0	OOIP Shows Torx Plus		
-2P	M8X1.0	18.2	8.0	-	15IP	15IP	-	-	3.5			
-3P		21.8										
	LS -11	M6X1.0	9.5	-	-	3.0	-	-	-	-		
	-15		12.5									
	M 3X8	M3X0.5	8.0	5.5	2.0	-	-	-	-	-	Flat Fillister Head Screw Equivalent to JIS B-1101	
3X12	12.0											
4X10	M4X0.7		10.0									7.0

Reference

Torx and Torx Plus have different cross-sections.



Torx

Torx Plus

Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N•m)	Notes							
		A	B	C	D	E	F	α	θ									
	SB -1TR	M2X0.4	5.3	3.8			T6		0.5	R Shows Right-hand Thread								
	-2TR	M2.5X0.45	6.2	4.5			T8		1.2									
	-3TR	M3X0.5	7.2	4.8			T10	82°	2.0									
	-3STR		6.4	5.2														
	-3.5TR	M3.5X0.6	9.3	5.6			T15		3.5									
	-4TR	M4X0.7	7.7	5.8														
	-5TR	M5X0.8	20.0	8.7	-	-	T20		4.5									
	-2290TR	M2.2X0.45	9.2	2.8			T6		0.5									
	-25100TR	M2.5X0.45	10.0	3.5			T7		0.8									
	-40115TR	M4X0.7	11.5	5.5			T15		3.5									
	-5070TR	M5X0.8	7.0				T20	60°	4.5									
	-5090TR		9.0	6.8														
	-50120TR		12.0															
	<p>SB-40125TRN</p>	SB -1635TR	M1.6X0.35	3.3	2.6			T6			60°	R Shows Right-hand Thread						
SB -1STR		M2X0.4	5.0	3.1			T6		60°									
-1840TRP		M1.8X0.35	4.0	2.5			6IP		55°									
-2035TR		M2X0.4	3.7	3.0			T6	-	60°	0.5								
-2035TRG			3.5	2.7														
-2040TR			3.8	3.0														
-2040TRG			4.0															
-2042TRG			4.1	2.7														
-2045TR			4.3															
-2045TRN				2.8									37°					
-2050TR			4.8	3.0														
-2060TR			5.8	3.5							T8			60°	1.2			
-2080TR			8.3	2.8							T6			60°	0.5			
SB -2250TR		M2.2X0.45	5.1	3.1			T7	-	60°	0.8								
-2255TR			5.5	3.5														
-2260TR			5.8	3.1														
SB -2545TR		M2.5X0.45	4.6				T8	-	60°	1.2								
-2555TRG			5.4															
-2555TRP			5.5	3.5							8IP							
-2560TR			5.7								T8							
-2570TR			6.8															
SB -3060TR		M3X0.5	5.3	4.2			T10	-	60°	2.0								
-3060TRG			5.9															
-3065TRP			6.5	4.0							8IP							
-3070TRG			7.0								T10							
-3070TRP				4.2							10IP							
-3080TR			8.0								T10							
SB -3580TR		M3.5X0.6	8.0	5.3			T15	-	60°	3.5								
-3590TRP			9.0								15IP							
-3592TR			9.2	5.1							T10							
SB -4050TRN		M4X0.5	4.6	5.1			T10	-	57°	2.0								
-4060TR			5.9															
-4065TR			6.7	5.5														
-4070TRG			7.0															
-4070TRN			7.7	5.4														
-4070TRS			6.7								T10							
-4075TRP			7.5								15IP							
-4082TPR			8.2	5.5														
-4085TR			M4X0.7	8.5									T15	-	60°	3.5		
-4085TRP																		
-4090TRP				9.0	5.7												15IP	
-4090TRPN					5.5													
-40120TR	12.0			5.1							T15							
-40125TRN	12.5			5.2								50°						
-40140TR				5.5								60°						
-40140TRN	14.0			6.7								75°						
SB -45130TR	M4.5X0.75	13.0	6.6			20IP		55°	4.5									
SB -5085TR	M5X0.8	8.5	6.8			T20	-	50°	4.5									
-50120TRP		12.0	6.8							20IP								
-50120TRS			7.2							15IP								
-50137K		13.7	9.7							T20		70°	4.5					
-50140TR		14.0	7.3							T15		50°	3.5					
-50140TRP										20IP		60°	4.5					
SB -60120TR	M6X1.0	12.0	8.5			T25		60°	6.0									

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
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Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes
		A	B	C	D	E	F	α	θ		
	SB -4070TRW	M4X0.7	6.7	5.5	-	-	T8	-	60°	1.2	R Shows Right-hand Thread
	-4590TRWN	M4.5X0.75	9.3	5.6	-	-	T10	-	57°	2.0	
	SC -30067	M3X0.35	6.7	4.4	-	-	T8	-	60°	1.2	
	-35085	M3.5X0.35	8.5	5.7	-	-	T10	-		2.0	
	-40100	M4X0.5	10.0	6.0	-	-	T15	-		3.5	
	-50130	M5X0.5	13.0	6.6	-	-	T20	-	40°	4.5	
	-60160	M6X0.75	16.0	8.0	-	-	T25	-	6.0		
	-60210	M6X0.75	21.0	9.6	-	-	T30	-	8.0		
	SCR -01	M2.5X0.45	6.6	3.6	-	-	T7	-	60°	0.8	
	-03	M3X0.5	8.4	4.6	-	-	T9	-		1.6	
	-04	M2.5X0.45	4.6	3.6	-	-	T7	-		0.8	
	-05	M2.5X0.45	4.6	3.6	-	-	T7	-	0.8		
	-16	M3.5X0.6	6.9	5.0	-	-	T10	-	2.0		
	-30	M3.5X0.6	8.9	5.0	-	-	T10	-	2.0		
	SE -3070TRP	M3X0.5	7.0	4.3	-	-	9IP	-	43°	1.7	OOIP Shows Torx Plus
	-40050TRN	M3X0.5	5.0	4.3	-	-	9IP	-		1.7	
	-40055TR	M3X0.5	5.5	4.3	-	-	9IP	-	1.7		
	-40068TR	M4X0.7	6.8	5.0	-	-	T15	-	44°	3.5	
	-40080TR	M4X0.7	8.0	5.0	-	-	T15	-			
	-40090TR	M4X0.7	9.0	5.0	-	-	T15	-			
	-40100TR	M4X0.7	10.0	5.0	-	-	T15	-			
	SE -40120TR	M4X0.7	12.0	5.6	-	-	T15	-	60°	3.5	
	-50125TR	M5X0.8	12.5	6.8	-	-	T20	-		4.5	
	SH -50150TR	M5X0.8	15.1	7.3	3.1	-	T20	-	-	4.5	
	SP 3X4	M3X0.5	4.0	4.0	-	-	-	-	90°	-	With Additional Machining Below the Fillister Head
	3X6		6.0	4.0	-	-	-	-			
	3X8		8.0	6.0	-	-	-	-			
	3X10		10.0	6.0	-	-	-	-			
	SP 4X9	M4X0.7	9.0	5.6	-	2.0	-	-	90°	-	
	SP 8X35	M8X1.25	35.0	11.0	4.4	5.0	-	-	90°	-	
	SPW -6045	M6X0.75	9.0	7.5	M4.5X0.75	4.5	-	-	-	-	A Shows External D Shows Internal External and Internal Threads are Both Right-hand Threads
	-7050	M7X0.75	9.0	8.8	M5X0.8	5.0	-	-	-	-	
	SS -4N	M5.5X0.5	8.5	6.6	M4X0.7	4.0	-	-	-	-	
	SV -60136R	M6X1.0	13.6	6.3	-	4.0	-	-	6°	-	Hexagon Socket
	-60136TR	M6X1.0	13.6	6.3	-	-	T20	-		4.5	Torx
	TH 8X15	M8X1.25	20.0	8.5	-	4.0	-	-	-	-	
	W 6X17	M6X1.0	17.0	-	-	-	T20	-	-	4.5	
	6X18N		18.0	-	-	-	T15	-	-	3.5	
	8X16		M8X1.0	16.0	-	-	-	T25	-	-	
	W 6X18	M6X1.0	17.5	-	-	3.0	-	-	-	-	
	6X20	M6X1.0	20.5	-	-	3.0	-	-	-	-	
	8X18	M8X1.25	18.0	-	-	4.0	-	-	-	-	
	*8X21	M8X1.0	21.0	-	-	4.0	-	-	-	-	
	XNS 610	3/8-24UNF	1.250*	0.500*	-	0.188*	-	-	-	-	Differential Screw

* No Socket on Right-hand Thread Side

Pins

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	LL -03	7.8	6.3							
	-03N									
	-03S	11.1	8.9	-	-	-	-	-	-	
	-03SN									
	-03T	8.3	8.9							
	LL -05C	10.7	11.7					12°		
	-1C	13.0	13.3	-	-	-	-	14°		
	-1CN									
	-2C	18.8	17.6					14°		
	LL -1	10.3	12.0							
	-1K	10.0	12.0							
	-1N	10.3	12.0							
	-1D									
	-1DN	12.3	12.0							
	-2	13.5	13.0							
	-2K	13.3	13.2							
	-2N	13.5	13.0							
	-3	16.4	13.0							
	-3K	16.0	14.8							
	-3N	16.4	13.0							
	-4	16.4	14.7							
-5	17.1	16.7								
-5N	17.1	16.7								
	LP -2S	3.65	20.0							
	-6S	3.65	25.0							
	LPA -11		11.0							
	-13	2.8	13.0	4.2	-	-	-	-	60°	
	-17		17.0							
	LPF -11		11.0							
	-1113	2.5	13.0	3.5						60°
	-1117		17.0							
	-13	3.8	13.0	5.5						
-17		17.0								
	PP -4	4.6	14.0	5.5	-	3.0	-	-	-	
	TS -3S	M5X0.8	15.0	3.60	-	2.0	-	-	-	
	WP -1S	M5X0.8	18.0	3.65	-	-	-	-	-	
	5X15		15.0	5.0						
	WP 5X11	M5X0.8	10.5	5.0	-	2.0	-	-	-	
	LSP -1	5.0	5.3							
	-2	6.5	5.6							
	-3	8.25	7.9	-	-	-	-	-	-	
	LSP -2K	5.1	5.2							
	-3K	6.7	5.7							
	P -03	2.8	1.95							
	-03S	3.5	1.95							

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes	
		A	B	C	D	E	F	α	θ		
	DC -42	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR	
	-44	12.55	5.0	1.5			R0.8				
	DD -42	12.55	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR	
	-42-16			1.6							
	-43			3.4			1.3				R0.8
	-44			5.0			1.5				
	DS -42	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw: SB-4085TR	
	-44	12.55	5.0	1.5			R0.8				
	DT -32	8.63	3.2	0.95	5.0	3.4	R1.6	3°	-	Shim Screw: SB-3080TR	
	-42	12.46		1.2	6.0	4.4	R1.2	-		Shim Screw: SB-4085TR	
	DV -33	9.40	3.5	1.2	6.0	4.4	R1.0	-	-	Shim Screw: SB-4085TR	
	DW -42	11.5	3.2	1.2	6.0	4.4	R1.2	4°	-	Shim Screw: SB-4085TR	
	-44	12.65	5.0	1.5			R0.8	-			
	556 C $\frac{R}{L}$	34.0	10.0	12.7	5.6	5.0	R1.6	0°	55°	R Shows Right-hand Thread L Shows Left-hand Thread Shim Screw: HH5X16	
	KPS -42	11.5	3.2	2.0	7.2	3.2	C1.0	7°	-	Shim Screw: SP3X8	
	KPT -32	8.0	3.2	1.9	7.0	3.2	R0.4	11°	-	Shim Screw: SP3X8 SP3X10	
	-42	10.5	3.2	1.9	7.0	3.2	R0.8	11°	-		
	KVN -32	9.52	3.2	2.1	7.6	5.5	R0.8	-	-	Lock Pin: LP-6S LP-2S	

P
SPARE PARTS

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	LC -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LC -32N	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LC -4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin : LSP-3K
	LC -42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	LC -42N-20						R2.0			
	LC -53	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim Pin : LSP-3
	LC -42%	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R Shows Right-hand Thread L Shows Left-hand Thread Shim Pin : LSP-2
	LC -42N%									
	LC -42N% -20						R2.0			
	LD -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LD -32N	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LD -4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin : LSP-3K
	LD -4K43	11.7	4.8	3.0	8.3	6.60	R1.2	-	-	Shim Pin : LSP-3K
	LD -42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	LD -42-20						R2.0			
	LD -43	12.65	4.8	3.1	8.5	6.28	R0.8	-	-	Shim Pin : LSP-2
LD -43-20	R2.0									
	LR -80	9.47	3.2	1.3	6.25	4.75	-	-	-	Shim Pin : LSP-1
	LR -81	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim Pin : LSP-2
	LR -10C	8.5	3.2	6.3	6.3	4.7	-	-	-	Shim Pin : LSP-1
	LR -12C	10.0	3.2	6.3	6.3	4.7	-	-	-	Shim Pin : LSP-1
	LR -16C	13.6	3.2	7.9	8.01	6.28	-	-	-	Shim Pin : LSP-2
	LS -32	9.47	3.2	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LS -42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	LT -3K	8.53	2.7	1.0	6.1	5.13	R0.8	-	-	Shim Pin : LSP-2K
	LT -32	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LT -32N						R2.0			
	LT -32N-20	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	LT -42						R0.8			
	LT -42N						R2.0			
LT -42N-20	R2.0									
	LW -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LW -32N	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	LW -42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	LW -42N						R0.8			
	MFPN -45	17.07	3.5	1.95	9.8	7.18	R3.5	-	-	Shim Screw : SPW-7050
	MFWN -90	15.25	4.0	2.5	9.44	7.25	R3.0 R4.0	-	-	Shim Screw : SPW-7050
	LW -42%	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R Shows Right-hand Thread L Shows Left-hand Thread Shim Pin : LSP-2
	LW -42N%									
	MSD -42	10.7	3.2	1.85	7.0	3.3	-	20°	45°	Shim Screw : SP3X8
	MSE -4245S	10.3	3.2	2.0	6.0	5.0	-	20°	45°	Shim Screw : SP4X9

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
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Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	MSE -4215	10.53	3.2	1.5	6.4	3.4	-	25°	15°	Shim Screw : SP3X8
	-4245	10.53	3.2	1.5	6.4	3.4	-	25°	45°	Shim Screw : SP3X8
	MSO -4T245	10.0	2.0	4.7	6.4	4.8	-	27°	45°	Shim Screw : SP3X6
	MSO -5200	12.6	3.18	1.8	8.27	6.66	R0.8	15°	-	Shim Screw : SPW-6045
	MSP -42	11.3	3.2	1.85	7.0	3.3	-	15°	15°	Shim Screw : SP3X8
	MTE -42	9.8	3.2	-	6.4	3.4	-	25°	-	Shim Screw : SP3X8
	MVN -32	9.52	3.2	2.1	7.4	6.5	R0.8	-	-	Lock Pin : TS-3S
	PD -42	12.7	3.2	1.7	6.0	8.4	0.8	12°	-	Shim Screw : SB-2050TR
	SP -129	9.52	9.52	R0.8	R1.6	R1.2	R1.6	-	-	Shim Screw : HH3X12
	SP -141	12.7	4.0	2.4	6.2	3.3	R1.2	-	-	Shim Screw : M3X8
	-143	12.7	7.2	2.4	6.2	3.3	R1.2	-	-	Shim Screw : M3X12
	-162	15.8	6.0	3.4	8.0	4.4	R1.5	-	-	Shim Screw : M4X10
	SP -148	12.7	8.8	2.4	6.2	3.3	R1.2	-	-	Shim Screw : BH3X12
	SP -219	6.35	9.52	R0.8	R1.2	R1.6	-	-	-	Shim Screw : HH3X12
	SP -221	9.52	4.0	2.5	6.5	3.5	R1.2	-	-	Shim Screw : M3X8
	-223	9.52	7.2	2.5	6.5	3.5	R1.2	-	-	Shim Screw : M3X12
	SP -342	12.7	6.0	2.5	6.5	3.5	R1.2	-	75°	Shim Screw : M3X8
	-441	12.7	4.0	2.5	6.2	3.3	R0.8	-	80°	Shim Screw : M3X8
	-443	12.7	7.2	2.5	6.2	3.3	R0.8	-	80°	Shim Screw : M3X12
	-454	15.7	8.0	3.4	8.0	4.5	R1.6	-	80°	Shim Screw : M4X10

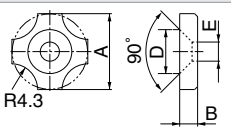
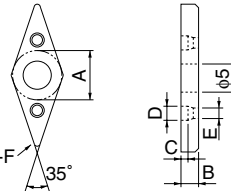
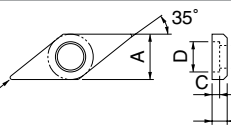
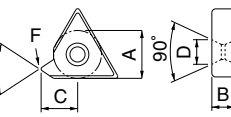
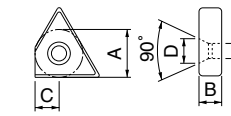
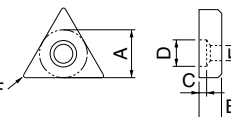
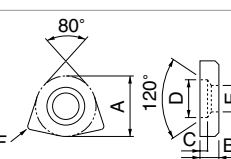
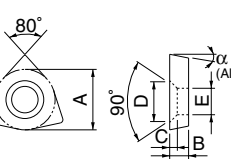
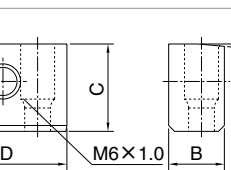
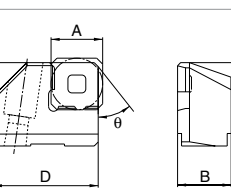
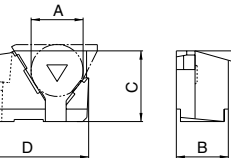
P
SPARE PARTS

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	SP -429	9.52	9.52	-	-	-	R1.2	-	-	Shim Screw : HH3X12
	SP -521	10.0	4.0	2.5	6.2	3.3	R1.0	-	-	Shim Screw : M3X8
	-523		7.2							Shim Screw : M3X12
	-541	12.7	4.0	2.5	6.2	3.3	R1.2	-	-	Shim Screw : M3X8
	-543		7.2							Shim Screw : M3X12
	SP -826	9.52	7.9	-	-	-	-	-	-	Shim Screw : HH3X12
	-829	9.52	9.52	-	-	-	-	-	-	
	SP -841	12.7	4.0	2.4	6.2	3.3	-	-	-	Shim Screw : M3X8
	-843	12.7	7.2	2.4	6.2	3.3	-	-	-	Shim Screw : M3X12
	-849	12.7	8.8	2.4	6.2	3.3	-	-	-	Shim Screw : BH3X12
	-861	15.8	6.0	3.4	8.0	4.4	-	-	-	Shim Screw : M4X10
	SP -130A	9.52	3.2	-	R0.4	R0.8	R1.2	8°	-	Shim Screw : BH3X12
	SP -210A	6.35	3.2	R0.4	R0.8	R1.2	-	8°	-	Shim Screw : BH3X6
	SP -420A	9.52	3.2	-	-	R0.8	R1.2	8°	-	Shim Screw : BH3X6
	SP -141P	12.7	4.0	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X8
	-143P	12.7	7.2	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X12
	SP -230P	8.3	3.2	2.0	7.2	3.2	R0.5	7°	-	Shim Screw : SP3X10
	SP -341P	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw : M3X8
	SP -441P	12.7	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
	-443P		7.2							Shim Screw : M3X12
	SP -521P	10.0	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
	-523P		7.2							Shim Screw : M3X12

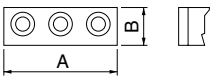
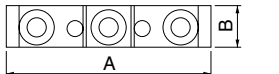
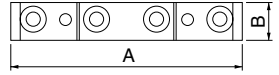
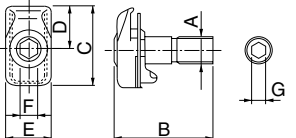
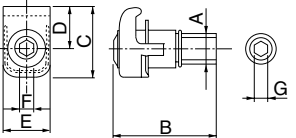
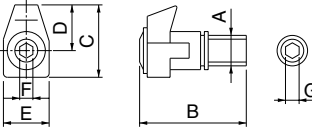
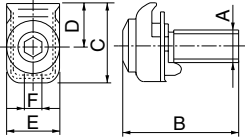
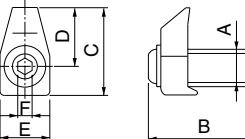
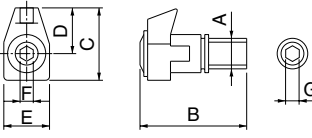
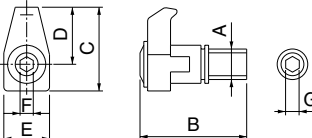
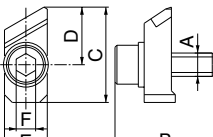
GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
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Shims / Cartridges

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	SP -RC	12.6	3.0	-	7.35	3.35	-	-	-	Shim Screw : SP3X8
	SVN -32	8.0	3.2	1.5	3.1	2.3	R0.4	-	-	Shim Screw : SB-2050TR
	SVN -32N	8.2	3.2	1.5	7.0	5.9	R0.6	-	-	Shim Screw : SS-4N
	TN -32	9.52	3.2	6.5	7.0	4.2	R0.4	-	-	Shim Screw : SP3X8
	-43	12.70	3.2	8.1	7.0	4.2	R0.5	-	-	
	TNW -32	9.52	3.2	4.8	7.0	4.2	-	-	-	Shim Screw : SP3X8
	WTN -33	9.52	4.76	2.5	7.0	5.3	R0.8	-	-	Shim Pin : WP-1S
	-33-20						R2.0			
	WWN -42	12.7	3.0	1.4	7.0	5.3	R1.2	-	-	Shim Pin : WP5X15
	WWP -42	12.7	3.0	1.5	8.3	5.3	R1.2	11°	-	Shim Pin : WP5X11
	-42-16						R1.6			
	MAP -2506	-	9.5	14.9	20	-	-	5°	-	Clamp Screw : SB-40140TR
	LSD -445R	12.7	13.0	20.0	26.5	-	-	20°	45°	Dimension A shows Insert I.D.
	LSE -445R	12.7	13.0	19.5	26.0	-	-	20°	45°	
	LSO -445R	13.494	12.0	21.3	23.5	-	-	27°	45°	
	LSP -415R	12.7	13.0	18.0	26.0	-	-	15°	15°	
	LTE -490R	12.7	12.0	17.0	30.0	-	-	15°	-	Dimension A shows Insert I.D.

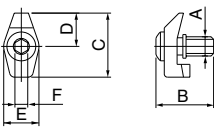
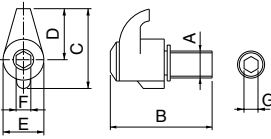
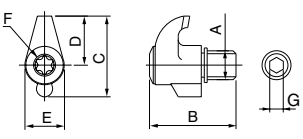
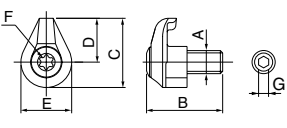
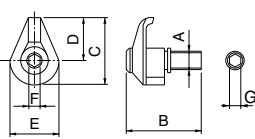
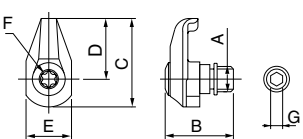
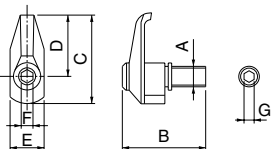
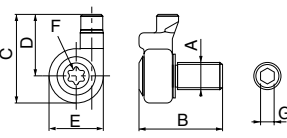
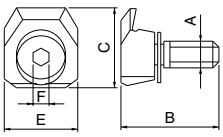
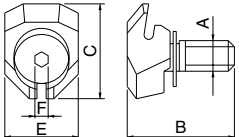
P
SPARE PARTS

Clamp Sets

Drawing	Part Number	Dimension (mm)							Notes
		A	B	C	D	E	F	G	
	BCS -1	64.0	13.0	-	-	-	-	-	
	-5	48.0	16.5	-	-	-	-	-	
	BCS -2	74.0	15.0	-	-	-	-	-	
	-3	88.0	16.0	-	-	-	-	-	
	BCS -4	98.0	16.0	-	-	-	-	-	
	CE -010	M8X1.25	28.0	24.0	12.8	13.0	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-220			27.0	15.8	15.0			
	CE -020	M8X1.25	30.0	17.0	10.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	CE -030	M8X1.25	30.0	19.0	12.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-040			22.5	16.0				
	CE -320	M6X1.0	24.5	18.2	9.7	12.7	4.0	-	
	CE -360S	M6X1.0	16.0	18.0	10.55	12.4	4.0	-	
	CE -030A	M8X1.25	30.0	20.0	13.7	12.7	4.0	-	G : Indicates hexagon hole two side widths of back side of bolts
	CE -410	M8X1.25	30.0	26.0	19.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-430			29.0	22.5				
	CP -RC%	M6X1.0	20.0	24.5	14.8	11.0	5.0	-	R Shows Right-hand Thread L Shows Left-hand Thread

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Clamp Sets

Drawing	Part Number	Dimension (mm)							Notes
		A	B	C	D	E	F	G	
	CPS -1	M3X0.5	9.0	10.0	5.2	5.5	2.0	-	
	CPS -2	M5X0.8	14.5	14.0	8.5	6.8	2.5	2.5	G : Indicates hexagon hole two side widths of back side of bolts
	-2P		18.0						
	-3	M6X1.0	19.0	16.5	10.0	8.8	3.0	3.0	
	CPS -2S	M5X0.8	13.5	14.0	8.5	6.8	T15	2.0	G : Indicates hexagon hole two side widths of back side of bolts
	-2TR		15.0						
	CPS -4V	M4X0.7	8.9	11.3	7.3	8.0	T10	-	G : Indicates hexagon hole two side widths of back side of bolts
	-5F	M5X0.8	11.3	12.7	7.5	10.3	T15	2.5	
	-5S		18.0	15.0	9.5	11.0		2.0	
	-5V		13.5	12.7	7.5	10.3		2.5	
	CPS -6F	M6X1.0	16.5	15.6	9.5	12.2	3.0	-	G : Indicates hexagon hole two side widths of back side of bolts
	-6M		18.5	17.5	11.0	13.0		3.0	
	-6S			18.0	12.0	12.0		3.0	
	-6V	M8X1.25	15.6	9.5	12.2	4.0	4.0		
	-8V		24.0	20.8	13.0	15.5	4.0	4.0	
	CPS -5E	M5X0.8	13.5	17.5	12.0	9.0	T15	2.5	G : Indicates hexagon hole two side widths of back side of bolts
	CPS -5%	M5X0.8	18.0	17.5	12.0	9.0	2.5	2.5	G : Indicates hexagon hole two side widths of back side of bolts R Shows Right-hand Thread L Shows Left-hand Thread
	LGBA -16%S	M5X0.8	15.0	16.1	11.2	9.85	T15	2.0	G : Indicates hexagon hole two side widths of back side of bolts R Shows Right-hand Thread L Shows Left-hand Thread
	-22%S			17.6	12.7				
	WCS -1N	M6X1.0	21.0	15.7	-	15.0	3.0	-	
	WCS -8	M6X1.0	21.0	19.4	-	15.0	3.0	-	

P
SPARE PARTS

Clamps

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	C 09N	6.0	9.0	9.8	5.3	M6X1.0 (L-hand Thread)	-	10°	-	Clamp Screw : W6X18N
	C 17R	12.2	20.0	14.3	8.5	M8X1.25 (L-hand Thread)	-	12°	-	Clamp Screw : W6X18N
	C 20R	15.1	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	CH -20R	13.1	15.5	14.8	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	C 25R	13.2	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	CE -111	35.0	25.0	10.0	8.0	3.0	10.0	-	-	Right-hand
	-121					-		-	Left-hand	
	-131					4.5		-	-	Right-hand
	-141					-		-	-	Left-hand
	CGA -3%	24.0	17.66	12.0	6.2	1.9	11.0	-	-	R Shows Right-hand L Shows Left-hand
	-4%	24.0	17.66	12.0	6.2	2.9	11.0	-	-	
	-5%	27.5	18.66	12.0	6.2	3.9	14.5	-	-	
	CGB %	19.0	14.0	8.2	6.35	9.5	-	-	-	R Shows Right-hand L Shows Left-hand
	CGH -1%	25.0	22.0	8.0	6.05	3.0	5.5	-	-	R Shows Right-hand L Shows Left-hand
	-2%	30.0	23.0	8.5		5.0				
	-3%	30.0	23.0	8.5		6.0				
	CGIA -3R	10.7	17.0	10.5	5.2	1.8	2.0	-	-	
	-4R	10.7		11.5		2.5				
	-5R	15.7		10.5		3.5				

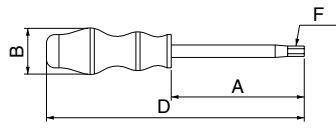
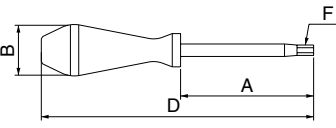
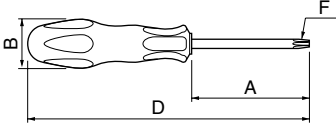
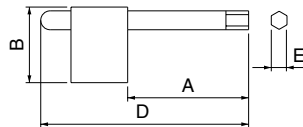
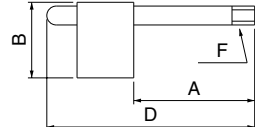
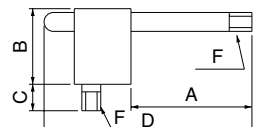
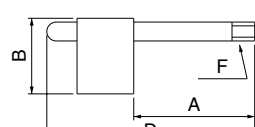
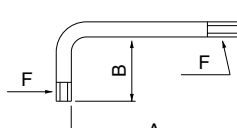
GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Clamps / Chipbreakers

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	CP -2D		10.0	21.6		10.4				
	-3D	-	12.0	27.6	-					
	-5D		13.0	32.0		14.0				
	CP -8TE	17.9	12.0	12.0	M8X1.25 (L-hand Thread)	10.0	-	15°	-	
	CP -8W	20.9	12.0	8.0	M8X1.25 (L-hand Thread)	13.0	-	3°	-	
	CB -11	11.5	12.7	3.5	-	-	-	-	-	
	-51	16.0	15.6	3.5	-	-	-	-	-	
	CB -12	14.0	12.7	3.5	-	-	-	-	-	Right-hand
	-13	14.0	12.7	3.5	-	-	-	-	-	Left-hand
	CB -14	18.51	12.7	3.5	-	-	-	-	-	Right-hand
	-15	18.51	12.7	3.5	-	-	-	-	-	Left-hand
	CB -16	18.0	12.7	3.5	-	-	-	-	-	
	-17	21.0	15.6	3.5	-	-	-	-	-	
	CB -S3220	7.94	7.94	1.0	2.0	-	-	-	-	
	-S4220	11.12	11.12	2.0	2.0	-	-	-	-	
	CB -T2212	7.48	-	1.5	1.2	-	-	-	-	
	-T3220	10.87	-	2.0	2.0	-	-	-	-	

P
SPARE PARTS

Wrenches

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	DT -7	44	16		114		T7			Torx
	-8	70	26		150		T8			
	DT -10	70	29		160		T10			Torx
	-15	70	32		170		T15			
	-20	90	32		190		T20			
	-25	82	36		190		T25			
	DTM -6	40	17		115		T6			Torx Top of Wrench is Magnetized
	-7	44	17		119		T7			
	-8	70	24		150		T8			
	-10	70	28		167		T10			
	-15	70	31		174		T15			
	DTP -9	61	30		174		9IP			OOIP Shows Torx Plus
	-15	81	33		186		15IP			
	-20	100			206		20IP			
	DTPM -8	70	24		150		8IP			OOIP Shows Torx Plus Top of Wrench is Magnetized
	-10	70	28		165		10IP			
-15	70	31		174		15IP				
	FH -2	40	20		71	2.0				Hexagon
	-2.5	45	20		76	2.5				
	FT -6	35	15		65		T6			Torx
	-7	34	15		62		T7			
	-8	40	20		74		T8			
	-10	40	20		74		T10			
	FT -15	45	25	10	80		T15			Torx
	FTP -5						5IP			OOIP Shows Torx Plus
	-6	34	15		62		6IP			
	-7						7IP			
	LTP -10	51	17				10IP			OOIP Shows Torx Plus
	-15	54	18				15IP			
	LTW -8SS	43	6					T8		Torx
	-10S	62	10					T10		
	-10SS	47	7					T10		
	-15S	62	10					T15		
	-20	58	19					T20		
-25	65	20					T25			

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Wrenches / Springs / Nuts / Punches / Other

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	LW -1.5	45	14			1.5				Hexagon
	-2	50	16			2.0				
	-2.5	56	18			2.5				
	-3	63	20			3.0				
	-4	70	25			4.0				
	-4.5	78	26			4.5				
	-5	80	28	-	-	5.0	-	-	-	
	-6	90	32			6.0				
	-8	109	36			8.0				
	-10	112	40			10.0				
	-14	140	56			14.0				
	-17	160	63			17.0				
	-19	180	70			19.0				
		TH -4	-	80	-	83	4.0	-	-	
	TT -15		70		118		T15			Torx
	-25	-	70	-	69	-	T25	-	-	
	-25L		80		145		T25			
	-30		80		110		T30			
	TTC -20	-	98	-	130	-	T20	-	-	
	-25						T25			
	TTP -20	-	70	-	138	-	20IP	-	-	
	LTK -5	70	30	-	-	-	-	-	-	
	SP -2D	8.5	5.6							Spring
	-3D	12.0	7.0							
	-5	12.0	6.7							
	-5D	12.0	7.2							
	-6	12.0	7.7							
	-8	11.0	9.7							
	W -6	11.5	1.6	6.4						Washer
	6-14	11.5	1.4	6.4	-	-	-	-	-	
	-8	15.5	1.6	8.4						
	WB -5	10.0	1.0	5.3						Washer (Brass)
	-6	11.5	1.6	6.4	-	-	-	-	-	
	-8	15.5	1.6	8.4						
	WSP -1	15.1	4.0	3.5	2.5	-	R1.25	-	-	Spacer

P
SPARE PARTS

■ Wrenches / Springs / Nuts / Punches / Other

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	DN 10	6.2	5.1	4.5	5.7	2.6	4.0	-	-	Nozzle
	20	10.1	7.7	7.0	9.6	M4X0.7	6.0	-	-	
	GP -1	PT1/8	7.0	-	-	5.0	-	-	-	Plug
	-2	PT1/4	9.0	-	-	6.0	-	-	-	
	WN -1	M5X8	10.0	7.0	-	3.0	-	-	-	Nut
	PC -1	60.0	8.5	-	-	-	-	-	-	Punch
	-2	62.2	10.0	-	-	-	-	-	-	
	CL 63-1	M18X1.0	36.5	12	-	6.0	-	-	-	Coolant Pipe
	100-1	M24X1.5	44.0	16.0	-	8.0	-	-	-	

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T



Pre-set Torque Wrench

Pre-set Torque Wrench Selector Guide

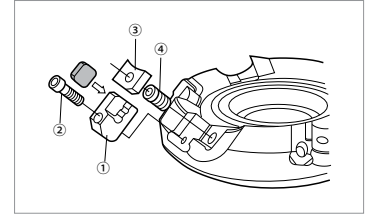
Image	Tooling Category	Milling Cutter Family	Milling Cutter Type	Applicable Pre-set Torque Wrench	
	Milling	MFH	MFH with 10mm Inserts	PST-IP15	IP15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
			MFH with 14mm Inserts	PST-IP20	IP20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
			MFH-Mini	PST-IP8	IP8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
		MEW	MEW with 10mm Inserts	PST-IP8	IP8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
			MEW with 15mm Inserts	PST-IP15	IP15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		MRX	MRX with 8mm Inserts	PST-IP9	IP9 Bit Size • Set at 1.4 Nm (12.4 In-lbs)
			MRX with 10mm Inserts	PST-IP10	IP10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)
			MRX with 12mm Inserts	PST-IP15	IP15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
			MRX with 16mm Inserts	PST-IP20	IP20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
		MRW	MRW with 12mm Inserts	PST-IP15	IP15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
			MRW with 16mm Inserts	PST-IP20	IP20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
		MFK	All Types	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		MEC	MEC with 11mm Inserts	PST-T8	T8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
			MEC with 17mm Inserts	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		MECH	MECH with 11mm Inserts	PST-T8	T8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
			MECH with 17mm Inserts	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		CM	CM with XPMT09 Inserts	PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)
			CM with XPMT15 Inserts	PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)
			CM with APET Inserts	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		EM	EM with XPMT09 Inserts	PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)
			EM with XPMT15 Inserts	PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)
		FM	FM	PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)
			FM-AL	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
		Drilling	DRZ	DRZ...-05G	PST-T6
	DRZ...-06G			PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)
	DRZ...-08G			PST-T8	T8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
	DRZ...-10G			PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
	DRZ...-12G			PST-T20	T20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
	DRX		DRZ...-15G	PST-T20	T20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
			DRX...-04	PST-T6	T6 Bit Size • Set at 0.5 Nm (4.4 In-lbs)
			DRX...-05	PST-T6	T6 Bit Size • Set at 0.5 Nm (4.4 In-lbs)
			DRX...-06	PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)
			DRX...-07	PST-T8	T8 Bit Size • Set at 1.2 Nm (10.6 In-lbs)
			DRX...-09	PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)
			DRX...-11	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
	DR		DRX...-14	PST-T20	T20 Bit Size • Set at 4.5 Nm (39.8 In-lbs)
DR with WCMX 04 Insert			PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)	
DR with WCMX 05 Insert			PST-T9	T9 Bit Size • Set at 1.4 Nm (12.4 In-lbs)	
DR with WCMX 06 Insert			PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)	
CD	CD with WCMX 05 Insert		PST-T9	T9 Bit Size • Set at 1.4 Nm (12.4 In-lbs)	
	CD with WCMX 06 Insert		PST-T10	T10 Bit Size • Set at 2.0 Nm (17.7 In-lbs)	
SDR	SDR with TCMT12 Insert		PST-T6	T6 Bit Size • Set at 0.5 Nm (4.4 In-lbs)	
	SDR with TCMT18 Insert		PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)	
API Ring Groover	API Ring Groover		API with DCMT32 Inserts	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)
			API with VCMT22 Inserts	PST-T7	T7 Bit Size • Set at 0.8 Nm (7.1 In-lbs)
			API with VCMT33 Inserts	PST-T15	T15 Bit Size • Set at 3.5 Nm (30.9 In-lbs)

P
SPARE PARTS

PREVIOUS SPARE PART LIST

MSD45 (Face Mills)

Part Number	Spare Parts				
	① Cartridge	② Clamp Screw	③ Clamp	④ Clamp Screw	Wrench
MSD 45...R	LSD-445R	HH4X16	C20R	TH8X15	TH-4

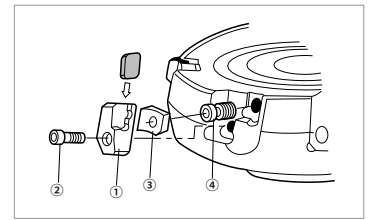


MSO45-09 (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 45...R-09	SB-3060TR	DT-10

MSP15 (Face Mills)

Part Number	Spare Parts				
	① Cartridge	② Clamp Screw	③ Clamp	④ Clamp Screw	Wrench
MSD 15...R	LSP-415R	HH4X16	C25R	TH8X15	TH-4



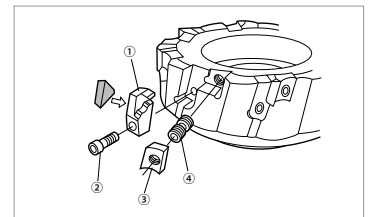
* Mounting bolt (HH12X35) is included with MSP1580R

MTE90-SF

Part Number	Spare Parts						
	Cartridge	Clamp	Clamp	Clamp Screw	Adjustment Screw	Wrench	Wrench
MTE 90...-SF	LTE-490SR	C91R (for Insert)	C92R (for Cartridge)	W8X16	SV-60136R	TTC-25	LW-4 (For Adjustment Screw)

MTE90 (Face Mills)

Part Number	Spare Parts				
	① Cartridge	② Clamp Screw	③ Clamp	④ Clamp Screw	Wrench
MTE 90...R	LTE-490R	HH4X16	C17R	W8X18	TH-4



MSO90-09 (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 90...R-09	SB-3060TR	DT-10

MEA / MEB

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEA .. -S..(-...)	SB-2560TR	DT-8
MEB .. -S..	SB-4085TR	DT-15

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PREVIOUS SPARE PART LIST

MRP (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MRP ...R -10-..T	SB-3080TR	DT-10
MRP 050R -12	SB-40115TR	DT-15
063R -12		
080R -12	SB-4085TR	
080R -12-7T		
MRP ...R -16(-..T)	SB-50120TR	DT-20
MRP ...R -20	SB-60120TR	DT-25

MHD (Helical End Mills)

Part Number	Spare Parts					
	Clamp Screw	Wrench	Arbor Bolt		Wrench	
			1 Front Piece	2 Front Piece		
MHD 32-S32 -SA	SB-2560TR	DT-8	-	HH8X50	LW-6	
40-S32 -SA	SB-3080TR	DT-10		HH8X65		
40-S42 -SA				HH12X65	LW-10	
50-S42 -SA						
MHD 40-S42 -SB	SB-3080TR	DT-10	HH8X40	-	LW-6	
50-S42 -SB			HH12X40		LW-10	
MHD 20S-S20 -C	SB-2560TR	DT-8	-	-	-	
25-S25 -C						
32-S32 -C						
40-S42 -C	SB-3080TR	DT-10				
50-S42 -C						
MHD 32-S32 -A	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
40-S32 -A	SB-3080TR	DT-10	HH8X40	HH8X65		
40-S42 -A			HH12X40	HH12X65		LW-10
50-S42 -A						
MHD 32-S32 -A-130	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
40-S32 -A-150	SB-3080TR	DT-10	HH8X40	HH8X65		
50-S42 -A-150			HH12X40	HH12X65		LW-10
MHD 40-S42 -B	SB-3080TR	DT-10	HH8X40	-	LW-6	
50-S42 -B			HH12X40		LW-10	
MHD 32 -F	SB-2560TR	DT-8	-	-	-	
40 -F	SB-3080TR	DT-10				
50 -F						

PREVIOUS SPARE PART LIST

MHD (Face Mills and Integral Arbor Type)

Part Number	Spare Parts			
	Clamp Screw	Wrench	Arbor Bolt	Wrench
MHD 63-FMA -SA	SB-3080TR	DT-10	HH16X90	LW-14
80-FMA -SA			HH20X110	LW-17
100-FMA -SA			HH24X110	LW-19
MHD 63-FMA -A			HH16X90	LW-14
80-FMA -A			HH20X110	LW-17
100-FMA -A			HH24X110	LW-19
MHD 63-BT50 -SA			HH16X65	LW-14
80-BT50 -SA			HH20X90	LW-17
100-BT50 -SA			HH24X90	LW-19
MHD 63-BT50 -A			HH16X65	LW-14
80-BT50 -A			HH20X90	LW-17
100-BT50 -A			HH24X90	LW-19
MHD 63 -F			-	-
80 -F			-	-
100 -F			-	-

MHD (Radius)

Part Number	Spare Parts						
	Clamp Screw		Wrench		Arbor Bolt		Wrench
	for Bottom Insert	for Middle Insert	for Bottom Insert	for Middle Insert	1 Front Piece	2 Front Piece	
MHD 32-S32 -4RSA	SB-2560TR	SB-2560TR	DT-8	DT-8	-	HH8X50	LW-6
40-S32 -5RSA	SB-3080TR	SB-3080TR	DT-10	DT-10		HH8X55	
40-S42 -5RSA			DT-15			HH12X55	
50-S42 -6RSA	SB-4085TR						
MHD 32-S32 -A	SB-2560TR		DT-8		-	HH8X50	LW-6
40-S32 -A	SB-3080TR		DT-10			HH8X65	
40-S42 -A						HH12X65	
50-S42 -A							
MHD 32 -F	SB-2560TR		DT-8		-	-	-
40 -F	SB-3080TR		DT-10				
50 -F							
MHD 32 -4RF	SB-2560TR	SB-2560TR	DT-8	DT-8	-	-	-
40 -5RF	SB-3080TR	SB-3080TR	DT-10	DT-10			
50 -6RF	SB-4085TR		DT-15				

MVG

Part Number	Spare Parts	
	Clamp Set	Wrench
MVG ...	CPS-6V	LW-3

Blank Tool

Part Number	Spare Parts
	Coolant Pipe
T63H- BL...-...	CL63-1

GRADES A
LINEUP / INSERTS B
45° / 70° LEAD C
75° LEAD D
90° LEAD E
HIGH FEED F
MULTI-FUNCTION G
SLOT MILLS H
RADIUS / BALL-NOSE J
OTHER APPLICATIONS K
TOOL HOLDING O
SPARE PARTS P
TECHNICAL R
INDEX T

