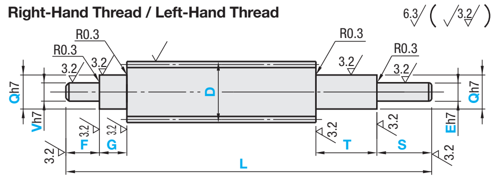
Lead Screw
Both Ends Double Stepped

Type		Material	Surface Treatment
Right-Hand Thread	Left-Hand Thread		
MTSRX	MTSLX	EN 1.1191 Equiv.	-
MTSBRX	MTSBLX		Black Oxide

• Single Pitch Error • • • ±0.02mm
• Accumulated Pitch Error • • • ±0.15/300mm

Right-Hand Thread / Left-Hand Thread



Part Number Type	D	L (1mm Increment)	F, G, T, S (1mm Increment)	V / Q Selection	E 1mm Increment	D	Pitch P
(Right-Hand Thread) MTSRX MTSBRX (Left-Hand Thread) MTSLX MTSBLX	12	80~1000	2≤F≤Vx7 2≤G≤Qx7 2≤S≤Ex7 2≤T≤Qx7 When Q, V, E≤9, F, G, T, and S will be 5x or less of Q, V, and E.	7 8 9	Q/2≤E≤Q-1	12	2
	14			8 9 10		14	3
	16	100~1200		9 10 12		16	
	18	150~1200		9 10 12		18	4
	20			10 12 14 15		20	
	22			10 12 14 15		22	5
	25			12 14 15 16 17		25	
	28			14 15 16 17 20		28	
	32	200~1200		14 15 16 17 20 25		32	6
	36			17 20 25		36	
	40			20 25 30		40	
	50			25 30 35 40		50	8

When combined with position indicators, the standard Q diameters are 8 ~ 20. P.811, 812

Ordering Example

Part Number	-	L	-	F	-	V	-	T	-	G	-	Q	-	S	-	E
MTSRX16	-	456	-	F37	-	V10	-	T47	-	G60	-	Q12	-	S49	-	E8

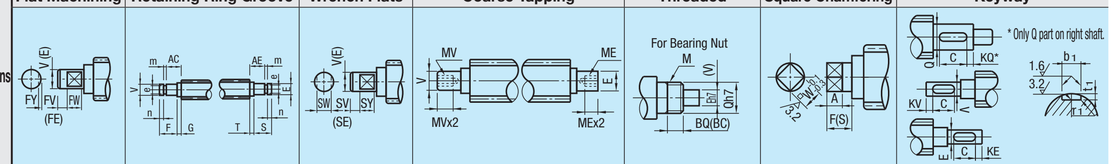
■Right-Hand Thread / Left-Hand Thread

Part Number Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRX Price in the Table / MTSBRX Price in the Table x1.1 / MTSLX Price in the Table / MTSBLX Price in the Table x1.1	12						-
	14						-
	16						
	18						
	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						

Unit price for the product is price in the table multiplied by price multiplier.

Alterations

Part Number	-	L	-	F	-	V	-	T	-	G	-	Q	-	S	-	E	- (AC, SV, MV ••• etc.)
MTSBRX20	-	583	-	F48	-	V12	-	T58	-	G70	-	Q15	-	S63	-	E10	- AC12.0



Flat Machining — Code: FV (V part) FE (E part)

FV, FE, FW, FY= 0.5mm Increment
FV=Applied on V part
FE=Applied on E part
Applicable to either V or E.
Ordering Code FV5-FW10-FY1
FV(FE)=0 or FV(FE)≥2
When V(E)≤25, FY≤1.0
When V(E)≥26, FY≤2.0
3≤FW≤20

Retaining Ring Groove — Code: AC (V part) AE (E part)

AC(AE)=0.1mm Increment
AC(AE)≤F(S)+G(T)**-m-n**
For the m,n value, see the table bellow. (For the m value, consider the tolerance.)
AC=Applied on V part
AE=Applied on E part
Ordering Code AC13.3

V, E	e	Tolerance	m +0.14/0	n Machining Limit
7	4	+0.075 / 0	0.7	n≥1.2
8	5			
9	6		0.9	
10	9.6	0 / -0.09	1.15	n≥1.5
12	11.5	0 / -0.11		
14	13.4			
15	14.3			
16	15.2			
17	16.2			
20	19	0 / -0.21	1.35	
25	23.9			
30	28.6		1.65	
35	33			
40	38	0 / -0.25	1.9	n≥2

Wrench Flats — Code: SV (V part) SE (E part)

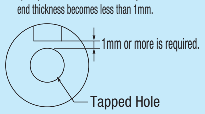
SV, SE, SW, SY= 1mm Increment
SV=Applied on V part
SE=Applied on E part
Applicable to either V or E.
Ordering Code SV3-SW10-SY7
SV(SE)=0 or SV(SE)≥2
When V(E)<15, SW≥V(E)-2
When 15≤V(E)≤25, SW≥V(E)-3
When 30≤V(E), SW≥V(E)-5
3≤SY≤20

Coarse Tapping — Code: MV (V part) ME (E part)

E=4 is not applicable
MV=Applied on V part ME=Applied on E part
Ordering Code MV24

V, E	MV, ME (Selection Range)
5, 6	3
7, 8	3, 4
9, 10	3, 4, 5
11, 12	3, 4, 5, 6
13~15	3, 4, 5, 6, 8
16~18	3, 4, 5, 6, 8, 10
19~24	3, 4, 5, 6, 8, 10, 12
25~30	3, 4, 5, 6, 8, 10, 12, 16
31~39	3, 4, 5, 6, 8, 10, 12, 16, 20
40	3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 30

When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1mm.



Threaded — Code: BC (V side) BQ (E side)

Not applicable when Q=7, 9, 16
BC,BQ≤Mx3
BC,BQ≥Pitchx3
BC,BQ≤G,T-Pitchx3
Ordering Code BQ20
BC=Applied on Q part of V side
BQ=Applied on Q part of E side

Q	MxPitch
8	M8x1.0
10	M10x1.0
12	M12x1.0
14	M14x1.0
15	M15x1.0
17	M17x1.0
20	M20x1.0
25	M25x1.5
30	M30x1.5
35	M35x1.5
40	M40x1.5

Only for the BQ ordering code, when 25≤Q≤40, Q≥E+3

Square Chamfering — Code: ZV (V part) ZE (E part)

W,A=1mm Increment
ZV=Applied on V part
ZE=Applied on E part
Applicable to either V or E.
Ordering Code ZV12-W10-A8
Can be combined with Tapped Hole machining only on the same shaft. (See P.787 for machining conditions.)
5≤A≤20 ZV, ZE>W
ZV=V, ZE=E Specified

ZV=V, ZE=E	W 1mm Increment
6~10	5~8
11~14	8~10
15~19	10~14
20~25	14~20
26~30	19~24
31~35	22~28
36~40	26~30

(V(E)/2) √2≤W
May not be manufacturable depending on V (E), and W relationship.

Keyway — Code: KQ (Q part) KV (V part) KE (E part)

KQ,KV,KE,C=1mm Increment
KQ=Applied on Q part
KV=Applied on V part
KE=Applied on E part
Ordering Code KQ8-C10
Applicable to one of Q, V, or E.
C≤60
T-C-KQ≥2
S(F)-C-KE(KV)≥2
KQ(KE, KV)≥2
When KQ, KE, KV=0, keyway R will be eliminated on the shaft end side.
For c, specify a value equal to or more than b1.

Applicable Shaft End Dia. Q, V, E	b1 Reference Dimension	b1 Tolerance (N9)	t1 Reference Dimension	t1 Tolerance	r1
6, 7	2	-0.004 / -0.029	1.2	+0.1 / 0	0.08 ~0.16
8~10	3		1.8		
11, 12	4	0 / -0.030	2.5		
13~17	5		3.0		0.16 ~0.25
18~22	6		3.5		
23~30	8	0 / -0.036	4.0	+0.2 / 0	0.25 ~0.40
31~38	10		5.0		
39, 40	12	0 / -0.043	5.0		

Specify an alteration position to be 2mm or more away from the stepped part. For details, see P.787.
Do not specify multiple alterations in such a way that they overlap with each other in the rotating direction on the same shaft. For details, see P.787.
When flat machining, wrench flats, square chamfering and keyway alterations are combined with each other, their orientations will be random. For details, see P.787.
When adding multiple alterations, there must be 2mm or more clearance between each feature. For details, see P.787.

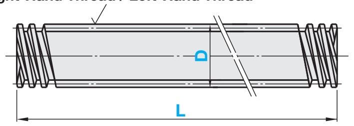
Lead Screw
Straight

Type			Material	Surface Treatment
Right-Hand Thread	Left-Hand Thread	Right and Left-Hand Thread		
MTSR	MTSL	MTSW	EN 1.1191 Equiv.	-
MTSBR	MTSBL	MTSBW		Black Oxide
MTSRL (Long Size)	MTSLL (Long Size)	-		-
MTSTR	MTSTL	-	EN 1.4305 Equiv.	-

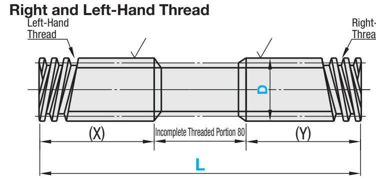
L Dimension Tolerance of MTSRL and MTSLL: 0 ~ +5
6.3 (3.2)

X=Y for Right and Left-Hand Thread Type.

Right-Hand Thread / Left-Hand Thread



Right and Left-Hand Thread



Incomplete Threaded Portion of Right and Left-Hand Thread Type

The Center between the right-hand thread and the left-hand thread is an incomplete thread portion (approx. 80mm) resulting from rolling machining. This portion, including the shaft part enclosed with ◯, is not useable.

Incomplete threaded portion near the center (80mm) is not useable.

■ Right-Hand Thread / Left-Hand Thread / Right and Left-Hand Thread

Part Number Type	D	MTS□, MTST□, MTSB□ L 1mm Increment	MTSW, MTSBW L 1mm Increment	MTSRL, MTSLL L 100mm Increment	(X)(Y)	Pitch P
(Right-Hand Thread) MTSR MTSBR MTSRL (Long Size) MTSTR (Stainless Steel) (Left-Hand Thread) MTSL MTSBL MTSLL (Long Size) MTSTL (Stainless Steel) (Right and Left-Hand Thread) MTSW MTSBW	*8	50~500	-	-	-	1.5
	10	80~1000	130~1000	-	When D=10 ~ 14 50≤(X)≤460 When D=16 ~ 50 50≤(X)≤560 (X)=(Y) (X)=(L-80)/2 (Y)=(L-80)/2	2
	12					
	14					3
	16	100~1200	130~1200	800~2000		
	18	150~1200	150~1200	800~2000		4
	20					
	22					5
	25					
	28					
	32	200~1200	200~1200	800~2000		6
	36					
	40					
	50			-		8

D dimension 22, 36, 40 and 50 are not applicable to Stainless Steel. D dimension 25, 28 and 32 are applicable to Right-Hand Thread only.
The both ends of MTSRL and MTSLL have not been processed. Additional machining (chamfering, processing of the shaft ends, etc.) is required for use.
D8 is available for MTSR and MTSBR only.

Ordering Example

Part Number	-	L
MTSL25	-	480
MTSRL32	-	1800

Unit price for the product is price in the table multiplied by price multiplier.

■Right-Hand Thread / Left-Hand Thread

Part Number Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSR Price in the Table / MTSBR Price in the Table x1.1 / MTSL Price in the Table / MTSBL Price in the Table x1.1	8				-	-	-
	10						-
	12						-
	14						-
	16						
	18						
	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						

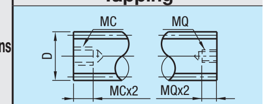
■Right and Left-Hand Thread

Part Number Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSW Price in the Table / MTSBW Price in the Table x1.1	10						-
	12						-
	14						-
	16						
	18						
	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						

Alterations

Part Number	-	L	-	(MC, MQ)
MTSR20	-	456	-	MC8

Tapping — Code: MC (Left End) MQ (Right End)



Not applicable to MTSRL and MTSLL
Ordering Code MC24
MC : machined on the left end, MQ : machined on the right end

D	MC, MQ (Selection Range)
8	3, 4
10	3, 4, 5
12, 14	3, 4, 5, 6
16	3, 4, 5, 6, 8
18	3, 4, 5, 6, 8, 10
20, 22	3, 4, 5, 6, 8, 10, 12
25, 28	3, 4, 5, 6, 8, 10, 12, 16
32	3, 4, 5, 6, 8, 10, 12, 16, 20
36, 40, 50	3, 4, 5, 6, 8, 10, 12, 16, 20, 24

■Right-Hand Thread / Left-Hand Thread, Stainless Steel

Part Number Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSTR MTSTL	10						-
	12						-
	14						-
	16						
	18						
	20						
MTSTR	25						
	28						
	32						

■Right-Hand Thread / Left-Hand Thread, Long

Part Number Type	D	L800 · 900	L1000 · 1100	L1200 · 1300	L1400 · 1500	L1600 · 1700	L1800 · 1900	L2000
MTSRL MTSLL	16							
	18							
	20							
	22							
	25							
	28							
	32							
	36							
	40							