Lead Screw

One End Stepped / One End Double Stepped

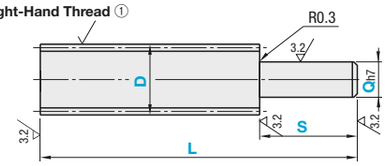
Can be used when Shaft Length (Stroke) is short.

Type				M Material	S Surface Treatment
One End Stepped		One End Double Stepped			
①	②	③	④		
Right-Hand Thread	Right-Hand Thread with Keyway	Right-Hand Thread	Right-Hand Thread with Keyway		
MTSRA	MTSRB	MTSRC	MTSRD	EN 1.1191 Equiv.	-
MTSBRA	MTSBRB	MTSBRC	MTSBRD		Black Oxide
RMTSRA	RMTSRB	RMTSRC	RMTSRD		LTBC Plating
MTSTRA	-	MTSTRC	-	EN 1.4305 Equiv.	-

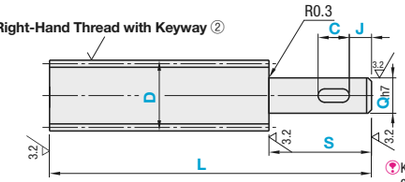
• Single Pitch Error···±0.02mm • Accumulated Pitch Error···±0.15/300mm

One End Stepped

Right-Hand Thread ①



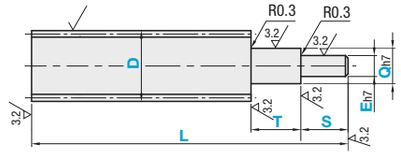
Right-Hand Thread with Keyway ②



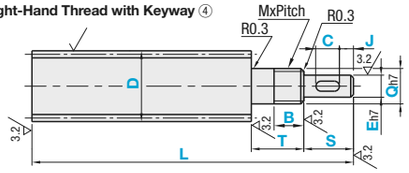
Keyway machining details conform to Shaft Keyway Dimensions shown on the right-hand page.

One End Double Stepped

Right-Hand Thread ③



Right-Hand Thread with Keyway ④



■Right-Hand Thread

Part Number Type	D	1mm Increment L	1mm Increment T, S	Q Selection	E 1mm Increment	D	Pitch P
① One End Stepped Right-Hand Thread **MTSRA** **MTSBRA** **RMTSRA** D≤32,L≤1000 **MTSTRA** ③ One End Double Stepped Right-Hand Thread **MTSRC** **MTSBRC** **RMTSRC** **MTSTRC**	*8	50~500	2≤S≤Q,Ex7 2≤T≤Qx7 When Q, E≤9, T, S are five or less times of Q, E.	6	-	8	1.5
	10	80~1000		6 7		10	2
	12			6 7 8 9	Q/2≤E≤Q-1	12	
	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	
(D8 is available for MTSRA, MTSBRA and RMTSRA only.)	50			25 30 35 40		50	8

For One End Double Stepped Type, Q dimension 6 cannot be selected when D dimension is 8. When combined with position indicators, the standard Q diameters are 8 ~ 20. P.811, 812

D dimension 22, 36, 40 and 50 are not applicable to Stainless Steel. For One End Double Stepped Type, applicable to D dimension 12 or more.

■Right-Hand Thread with Keyway

Part Number Type	D	1mm Increment L	1mm Increment T, S	Q Selection	1mm Increment E	1mm Increment C	1mm Increment J	1mm Increment B	MxPitch	D	Pitch P
② One End Stepped **MTSRB** **MTSBRB** **RMTSRB** D≤32,L≤1000 ④ One End Double Stepped **MTSRD** **MTSBRD** **RMTSRD** D≤32,L≤1000	12	80~1000	2≤S≤Q,Ex7 2≤T≤Qx7 When Q, E≤9, T, S are five or less times of Q, E.	7 8 9	E≥6 Q/2≤E≤Q-2	C≤60 S-C-J≥2	J≥2 or J=0 When J=0, keyway R will be eliminated on the shaft end side.	Only for One End Double Stepped Type, When Q≤20, 3≤B≤Qx3 B≤T-3 When Q≤25, 5≤B≤Qx3 B≤T-5 When any thread is added, B=0	Q=M M8x1.0 M10x1.0 M12x1.0 M14x1.0 M15x1.0 M17x1.0 M20x1.0 M25x1.5 M30x1.5 M35x1.5 M40x1.5 Not applicable to 7, 9, 16	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 are 8 ~ 20. P.811, 812

Ordering Example

Part Number - L - S - Q - C - J
MTSRA16 - 456 - S49 - Q10
MTSRB16 - 456 - S10 - Q12 - C5 - J0

Part Number - L - T - Q - S - E - C - J - B
MTSRC16 - 456 - T20 - Q12 - S10 - E9
MTSRD16 - 456 - T20 - Q12 - S10 - E8 - C5 - J0 - B10

Unit price for the product is price in the table multiplied by price multiplier.
Price in the table x Price Multiplier = Unit Price

■① One End Stepped Right-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRA Price in the Table **MTSBRA** Price in the Table×1.12	8				-	-	-
	10						-
	12						-
	14						-
	16						
	18						
	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						
(Stainless Steel) **MTSTRA**	10						-
	12						-
	14						-
	16						
	18						
	20						
	25						
	28						
	32						

■③ One End Double Stepped Right-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRC Price in the Table **MTSBRC** Price in the Table x1.1	12						-
	14						-
	16						
	18						
	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						
(Stainless Steel) **MTSTRC**	12						-
	14						-
	16						
	18						
	20						
	25						
	28						
	32						

■② One End Stepped with Keyway, Right-Hand Thread

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

■④ One End Double Stepped with Keyway Right-Hand Thread

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

■Low Temperature Black Chrome Plated Products

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000
RMTSRA/C (Price of MTSRA/C + Price in the Table)	8				-	-
	10					
	12					
	14					
	16					
RMTSRB/D (Price of MTSRB/D + Price in the Table)	18					
	20					
	22					
	25					
	28					
	32					

For low temperature black chrome plated products, add the price of low temperature black chrome plating shown above to the non-plated product prices.

Alterations Part Number - L - S - Q - C - J - (MC, MQ ··· etc.)
MTSRB16 - 456 - S10 - Q12 - C5 - J0 - MC8

Alterations	Flat Machining	Retaining Ring Groove	Wrench Flats	Coarse Tapping	Threaded For Bearing Nut	Square Chamfering	Keyway
Code	FC (Q part) FE (E part)	AE (E part)	SC (Q part) SE (E part)	MC (Left End) MQ (Q part) , ME (E part)	BQ (Q part)	ZQ (Q part) ZE (E part)	KQ (Q part) KE (E part)
Spec.	FC is not applicable to One End Double Stepped Type FC,FE,FW,FY= 0.5mm Increment FC=Applied on Q part FE=Applied on E part Ordering Code FC5-FW10-FY1 FC(FE)=0 or FC(FE)≥2 When Q (E)≤25, FY≤1.0 When Q(E)≥26, FY≤2.0 3≤FW≤20	Not applicable to One End Stepped Type (including with Right-Hand Thread type with Keyway). AE=0.1mm Increment AE≤S+T-m-n For the m,n value, see the table bellow. (For the m value, consider the tolerance.) Ordering Code AE13.3 AE=Applied on E part E / e Tolerance / m +0.14 0 / a Machining Limit 7 4 / 8 5 / 9 6 / 10 9.6 / 12 11.5 / 14 13.4 / 15 14.3 / 16 15.2 / 17 16.2 / 20 19 / 25 23.9 / 30 28.6 / 35 33 / 40 38 +0.075 0 / 0 -0.09 / 0 -0.11 / 0 -0.21 / 0 -0.25 0.7 / 0.9 / 1.15 / 1.35 / 1.65 / 1.9 n≥1.2 / n≥1.5 / n≥2	SC is not applicable to One End Double Stepped Type SC,SE,SW,SY= 1mm Increment SC=Applied on Q part SE=Applied on E part Ordering Code SC3-SW10-SY7 SC(SE)=0 or SC(SE)≥2 When Q, E<15V, SW≥Q, E-2 When 15≤Q and E≤25 SW≥Q,E-3 When 30≤Q and E SW≥Q,E-5 3≤SY≤20	E=3, 4 is not applicable. E=8 is not applicable to Right-Hand Thread with Keyway MC=Applied on the Left End MQ=Applied on Q part ME=Applied on E part Ordering Code MQ24 D, Q, E / MC, MQ, 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 16~24 / 3, 4, 5, 6, 8, 10 25~30 / 3, 4, 5, 6, 8, 10, 12, 16 31~39 / 3, 4, 5, 6, 8, 10, 12, 16, 20 40, 50 / 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 30 See below for Right-Hand Thread with Keyway (MQ) Q · E / MQ (Selection Range) 9 / 3 10, 11 / 3, 4 12, 13 / 3~5 14, 15 / 3~6 16~18 / 3~8 19, 20 / 3~10 21~25 / 3~12 26~31 / 3~16 32~40 / 3~20 When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1mm.	Not applicable when Q=7, 9, 16 BQ≤Mx3 BQ≥Pitchx3 BQ≤S,T-Pitchx3 Only for One End Double Stepped Type, when 25≤Q≤40, Q≥E+3. Ordering Code BQ20 BQ=Applied on Q part Q / MxPitch 6 / M6x0.75 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	Q20 is not applicable to One End Double Stepped Type. WA=1mm Increment ZQ=Applied on Q part ZE=Applied on E part Ordering Code ZQ15-W10-A10 Can be combined with Taper/Hole machining only on the same shaft. (See P.787 for machining conditions.) 5≤A≤20 S≥A-2 Specify ZQ=Q Specify ZE=E ZQ=Q / W 1mm Increment 6, 7 / 5 8 / 6 9 / 7 10 / 8 12 / 9 10 14, 15 / 10 11 12 16 / 11 12 13 17 / 12 13 14 20 / 14 15 16 25 / 17~20 30 / 21~24 35 / 25~28 40 / 29~30 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 (E/2)×2≤W: ZE>W May not be manufacturable depending onthe relation between E and W.	Not applicable to One End Stepped Type KQ,KE,C=1mm Increment KQ=Applied on Q part KE=Applied on E part C≤60 T-C-KQ≥2 KQ(KE)≥2 When KQ, KE=0, keyway R will be eliminated on the end. Ordering Code KQ8-C10 Specify the C dimension not to be bellow b1. Applicable Shaft End Dia. Q, E / Keyway Dimension: 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 18~22 / 6 / 3.5 / 0.16~0.25 23~30 / 8 / 0 -0.036 / 4 31~38 / 10 / 5 / +0.2 0 / 0.25~0.40 39, 40 / 12 / 0 -0.043 / 5

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