

Lead Screws

Both Ends Stepped Type

Lead Screws – Both Ends Stepped Type

RoHS 10

Type						Material	Surface Treatment
Right-Hand Screw	Right-Hand Thread with Keyway	Fine Pitch Right-Hand Screw	Left-Hand Screw	Right and Left-Hand Screw	Precision Right and Left-Hand Screw		
MTSRW	MTSRV	MTXRW	MTSLW	MTSWW	MTSYW	1045 Carbon Steel Equivalent	—
MTSBRW	MTSBRV	MTXBRW	MTSBLW	MTSBWW	MTSBYW		Black Oxide
RMTSRW	RMTSRV	—	RMTSLW	RMTSWW	—		Low Temperature Black Chrome Plating
MTSTRW	—	—	MTSTLW	—	—	303 Stainless Steel	—

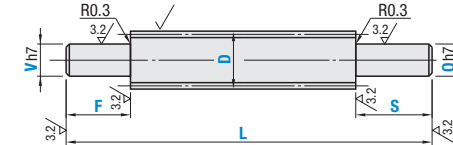
Single Pitch Error ± 0.02 mm Accumulated Pitch Error $\pm 0.15/300$ mm Keyway machining details conform to Shaft Keyway Dimensions shown on the right-hand page.

Incomplete Threaded Portion of Right and Left-Hand Thread Type

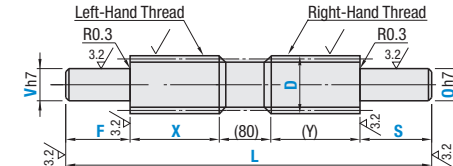


The center between the right-hand thread and the left-hand thread is an incomplete thread portion (approx. 80 mm resulting from rolling machining). This portion, including the shaft part enclosed with \odot , is not usable. When being required to use the center between the right-hand thread and the left-hand thread as the shaft, select the Precision Right and Left-Hand Thread Type.

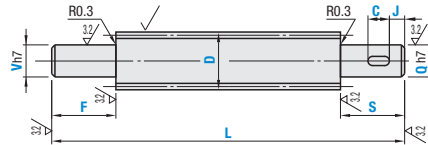
Right-Hand Screw / Left-Hand Screw / Fine Pitch Right-Hand Screw



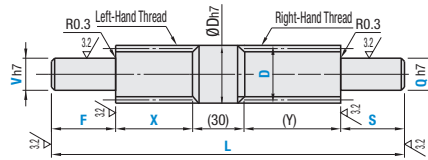
Right & Left-Hand Screw



Right-Hand Screw with Keyway



Precision Right & Left Hand Thread



Incomplete threaded portion near the center (80 mm) is not usable. \odot $\varnothing D_{h7}$ – 30 mm part includes incomplete-thread portion by about 1.5 pitches at both ends (in total about 3 pitches).

Part Number	Type	1 mm Increment		V / Q Selection	Right and Left-Hand Thread / Precision Right and Left-Hand Thread X 1 mm Increment	D	Pitch P
		D	L				
Right-Hand Thread MTSRW MTSBRW RMTSRW MTSTRW	D \leq 32, L \leq 1000 Stainless Steel	*8	50–500	6	When D=10–14 50 \leq X \leq 460<485>-F (Y)=L-80<30>-F-S-X (Y) \leq 500-S-40<15> When D=16–50 50 \leq X \leq 560<585>-F (Y)=L-80<30>-F-S-X (Y) \leq 600-S-40<15> \odot Dimensions in <> are for Precision Right and Left Hand Screw.	8	1.5
		10	80–1000	6 7		10	2
		12		6 7 8 9		12	3
		14		8 9 10		14	4
		16		9 10 12		16	5
Left-Hand Screw MTSLW MTSBLW RMTSLW MTSTLW	D \leq 32, L \leq 1000 Stainless Steel	16	100–1200	9 10 12	Shaft length availability varies according to diameter. \odot When V and Q are 6–9, 2 \leq F \leq Vx5 2 \leq S \leq Qx5 2 \leq F \leq Vx7 2 \leq S \leq Qx7	18	3
		18	150–1200	10 12 14 15		20	4
		20		10 12 14 15		22	5
		22		12 14 15 16 17		25	6
		25		14 15 16 17 20		28	8
Right & Left Hand Screw MTSWW MTSBWW RMTSWW	D \leq 32, L \leq 1000	25	200–1200	14 15 16 17 20 25		32	6
		28		17 20 25		36	8
		32		20 25 30		40	
		36		25 30 35 40		50	
		40					
Precision Right & Left Hand Screw MTSYW MTSBYW	D \leq 32, L \leq 1000	32	200–1200	25 30 35 40		40	
		40				50	

\odot D8 is applicable for MTSRW, MTSBRW, RMTSRW only

\odot For Precision Right and Left-Hand Screw, D dimension 14, 16, 20, 25, 28 and 32 are available. \odot When combined with position indicators, the standard Q diameters are 8–20. P.842–845

\odot D dimension 22, 36, 40 and 50 are not applicable to Stainless Steel. D dimension 25, 28 and 32 are applicable to Right-Hand Screw only.

Right-Hand Screw with Keyway

Part Number	Type	1 mm Increment		V / Q	1 mm Increment		D	Pitch P
		D	L		C	J		
MTSRV MTSBRV RMTSRV	D \leq 32, L \leq 1000	12	80–1000	7 8 9	C \leq 60 S-C-J \geq 2	J \geq 2 or J=0 \odot When J=0, keyway R will be eliminated on the shaft end side.	12	2
		14		8 9 10			14	3
		16		9 10 12			16	4
		18		9 10 12			18	5
		20	150–1200	10 12 14 15			20	6
		22		10 12 14 15			22	8
		25		12 14 15 16 17			25	10
		28		14 15 16 17 20			28	12
		32	200–1200	14 15 16 17 20 25			32	15
		36		17 20 25			36	18
40	20 25 30	40		20				
50	25 30 35 40	50		25				

\odot When combined with position indicators, the standard Q diameters are 8–20. P.842–845

Fine Pitch Right-Hand Screw

Part Number	Type	1 mm Increment		V / Q	D	Pitch P
		D	L			
MTXRW MTXBRW		16	100–1000	9 10 12	16	2
		20	150–1000	10 12 14 15	20	2

\odot When Q, V \leq 9, F, S are 5x or less of Q, V.

Lead Screws

Both Ends Stepped Type, continued

Part Number Example	Part Number	L	F	V	S	Q	C	J
MTSRW16	282	F16	V10	S14	Q10			
MTSRV16	282	F16	V10	S14	Q10	C10	J2	
Part Number	L	F	V	S	Q	X		
MTSWW20	583	F20	V15	S30	Q15	X100		

Right & Left-Hand Screw

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
MTSWW MTSBWW	10						
	12						
	14						

Right-Hand Screw & Left-Hand Screw

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
MTSRW MTSBRW MTSLW MTSBLW	8						
	10						
	12						
	14						

Right-Hand Screw & Left-Hand Screw Stainless Steel

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
MTSTRW MTSTLW	10						
	12						
	14						

Precision Right & Left-Hand Screw

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
MTSYW MTSBYW	14						

Right-Hand Screw with Keyway

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
MTSRV RMTSRV	12						
	14						

Part Number	Type	Available Types					
		D	Min. L-200	L201-400	L401-600	L601-800	L801-1000
Low Temperature Black Chrome Plated Products RMTSWW Right-Hand Screw Left-Hand Screw Stainless Steel RMTSRV RMTSLW	8						

Part Number Alterations	Part Number	L	F	V	S	Q	(AC, SC, MC...etc.)
MTSRW16	282	F16	V10	S14	Q10	AC13.3	

\odot Only AC, SC, MC, MQ and ZC are applicable to Right-Hand Thread with Keyway.

Alterations	Flat Machining	Retaining Ring Groove	Width Across Flats	Tapping	Threaded	Square Chamfering	Keyway																																																																																																																														
	FV (V Part) FQ (Q Part)	AC (V Part) AQ (Q Part)	SC (V Part) SQ (Q Part)	MC (V Part) MQ (Q Part)	BV (V Part) BC (Q Part)	ZC (V Part) ZQ (Q Part)	KV (V Part) KC (Q Part)																																																																																																																														
Code	FV (V Part) FQ (Q Part)	AC (V Part) AQ (Q Part)	SC (V Part) SQ (Q Part)	MC (V Part) MQ (Q Part)	BV (V Part) BC (Q Part)	ZC (V Part) ZQ (Q Part)	KV (V Part) KC (Q Part)																																																																																																																														
Spec.	FV, FQ, FW, FY = 0.5 mm Increment FV = Applied on V area FQ = Applied on Q area \odot Applicable to either V or Q Ordering Code: FV5-FW10-FY1 \odot FV (FQ)=0, or FV (FQ) \geq 2 \odot When V (Q) \leq 25, FY \leq 1.0 \odot When V(Q) \geq 26, FY \geq 2.0 \odot 3 \leq FW \leq 20	AC, AQ = 0.1 mm Increment AC, AQ \leq F(S)-m-n For the m, n value, see the table below. (For the M value, consider the tolerance.) Ordering Code: AC13.3 Applied on AC=V part and AQ=Q part.	SC, SQ, SW, SY = 1 mm Increment Applied on SC = V part Applied on SQ = Q part \odot Applicable to either V or Q Ordering Code: SC5-SW10-SY8 SC(SQ)=0, or SC(SQ) \geq 2 \odot When Q(V) \leq 15, SW \geq Q(V)-2 \odot When 15 \leq Q(V) \leq 25, SW \geq Q(V)-3 \odot When 30 \leq Q(V) \leq 25, SW \geq Q(V)-5 \odot 3 \leq SY \leq 20	MC = Applied on V MQ = Applied on Q Ordering Code: MC24 <table border="1"> <thead> <tr> <th>V, Q</th> <th>MC / MQ (Selection Range)</th> </tr> </thead> <tbody> <tr><td>6</td><td>3</td></tr> <tr><td>7</td><td>3, 4</td></tr> <tr><td>8</td><td>3, 4</td></tr> <tr><td>9, 10</td><td>3, 4, 5</td></tr> <tr><td>12</td><td>3, 4, 5, 6</td></tr> <tr><td>14</td><td>3, 4, 5, 6, 8</td></tr> <tr><td>16</td><td>3, 4, 5, 6, 8, 10</td></tr> <tr><td>20</td><td>3, 4, 5, 6, 8, 10, 12</td></tr> <tr><td>25</td><td>3, 4, 5, 6, 8, 10, 12, 16</td></tr> <tr><td>30</td><td>3, 4, 5, 6, 8, 10, 12, 16, 20</td></tr> <tr><td>35</td><td>3, 4, 5, 6, 8, 10, 12, 16, 20, 24</td></tr> <tr><td>40</td><td>3, 4, 5, 6, 8, 10, 12, 16, 20, 24</td></tr> </tbody> </table> \odot When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1 mm.	V, Q	MC / MQ (Selection Range)	6	3	7	3, 4	8	3, 4	9, 10	3, 4, 5	12	3, 4, 5, 6	14	3, 4, 5, 6, 8	16	3, 4, 5, 6, 8, 10	20	3, 4, 5, 6, 8, 10, 12	25	3, 4, 5, 6, 8, 10, 12, 16	30	3, 4, 5, 6, 8, 10, 12, 16, 20	35	3, 4, 5, 6, 8, 10, 12, 16, 20, 24	40	3, 4, 5, 6, 8, 10, 12, 16, 20, 24	\odot BV, BC \leq Mx3 \odot BV, BC \geq Pitchx3 \odot BV, BC \leq F \leq Pitchx3 Ordering Code: BC20 BV = Applied on V BC = Applied on Q <table border="1"> <thead> <tr> <th>V, Q</th> <th>M x Pitch</th> </tr> </thead> <tbody> <tr><td>6</td><td>M6 x 0.75</td></tr> <tr><td>8</td><td>M8 x 1.0</td></tr> <tr><td>10</td><td>M10 x 1.0</td></tr> <tr><td>12</td><td>M12 x 1.0</td></tr> <tr><td>14</td><td>M14 x 1.0</td></tr> <tr><td>15</td><td>M15 x 1.0</td></tr> <tr><td>17</td><td>M17 x 1.0</td></tr> <tr><td>20</td><td>M20 x 1.0</td></tr> <tr><td>25</td><td>M25 x 1.5</td></tr> <tr><td>30</td><td>M30 x 1.5</td></tr> <tr><td>35</td><td>M35 x 1.5</td></tr> <tr><td>40</td><td>M40 x 1.5</td></tr> </tbody> </table> \otimes Not applicable when V, Q = 7, 9, 16	V, Q	M x Pitch	6	M6 x 0.75	8	M8 x 1.0	10	M10 x 1.0	12	M12 x 1.0	14	M14 x 1.0	15	M15 x 1.0	17	M17 x 1.0	20	M20 x 1.0	25	M25 x 1.5	30	M30 x 1.5	35	M35 x 1.5	40	M40 x 1.5	W, A = 1 mm Increment ZC = Applied on V part ZQ = Applied on Q part \odot Applicable to either V or Q. Ordering Code: ZC10-W8-A8 \odot Can be combined with Tapped Hole machining only on a same shaft. (For machining conditions see P.819) \odot 5 \leq A \leq 20 \odot ZC = V ZQ = Q Specified	KC, KV, C = 1 mm Increment Ordering Code: KC8-C10 KV = Applied on V part KC = Applied on Q part \odot Applicable to either V or Q. \odot Specify the C dimension not to be below b ₁ . <table border="1"> <thead> <tr> <th rowspan="2">Applicable Shaft Dia. V, Q</th> <th colspan="4">Keyway Dimension</th> </tr> <tr> <th>b₁</th> <th>b₂</th> <th>t₁</th> <th>t₂</th> </tr> </thead> <tbody> <tr><td>6, 7</td><td>5</td><td></td><td></td><td></td></tr> <tr><td>8</td><td>6</td><td></td><td></td><td></td></tr> <tr><td>9</td><td>7</td><td></td><td></td><td></td></tr> <tr><td>10</td><td>8</td><td></td><td></td><td></td></tr> <tr><td>12</td><td>9</td><td></td><td></td><td></td></tr> <tr><td>14, 15</td><td>10</td><td>11</td><td>12</td><td></td></tr> <tr><td>16</td><td>11</td><td>12</td><td>13</td><td></td></tr> <tr><td>17</td><td>12</td><td>13</td><td>14</td><td></td></tr> <tr><td>20</td><td>14</td><td>15</td><td>16</td><td></td></tr> <tr><td>25</td><td>17</td><td>18</td><td>19</td><td></td></tr> <tr><td>30</td><td>20</td><td>21</td><td>22</td><td></td></tr> <tr><td>35</td><td>23</td><td>24</td><td>25</td><td></td></tr> <tr><td>40</td><td>26</td><td>27</td><td>28</td><td></td></tr> </tbody> </table> \odot C \leq 60 \odot S(F)-C-KC(KV) \geq 2 \odot KC(KV) \geq 2 \odot When KC, KV=0	Applicable Shaft Dia. V, Q	Keyway Dimension				b ₁	b ₂	t ₁	t ₂	6, 7	5				8	6				9	7				10	8				12	9				14, 15	10	11	12		16	11	12	13		17	12	13	14		20	14	15	16		25	17	18	19		30	20	21	22		35	23	24	25		40	26	27	28	
V, Q	MC / MQ (Selection Range)																																																																																																																																				
6	3																																																																																																																																				
7	3, 4																																																																																																																																				
8	3, 4																																																																																																																																				
9, 10	3, 4, 5																																																																																																																																				
12	3, 4, 5, 6																																																																																																																																				
14	3, 4, 5, 6, 8																																																																																																																																				
16	3, 4, 5, 6, 8, 10																																																																																																																																				
20	3, 4, 5, 6, 8, 10, 12																																																																																																																																				
25	3, 4, 5, 6, 8, 10, 12, 16																																																																																																																																				
30	3, 4, 5, 6, 8, 10, 12, 16, 20																																																																																																																																				
35	3, 4, 5, 6, 8, 10, 12, 16, 20, 24																																																																																																																																				
40	3, 4, 5, 6, 8, 10, 12, 16, 20, 24																																																																																																																																				
V, Q	M x Pitch																																																																																																																																				
6	M6 x 0.75																																																																																																																																				
8	M8 x 1.0																																																																																																																																				
10	M10 x 1.0																																																																																																																																				
12	M12 x 1.0																																																																																																																																				
14	M14 x 1.0																																																																																																																																				
15	M15 x 1.0																																																																																																																																				
17	M17 x 1.0																																																																																																																																				
20	M20 x 1.0																																																																																																																																				
25	M25 x 1.5																																																																																																																																				
30	M30 x 1.5																																																																																																																																				
35	M35 x 1.5																																																																																																																																				
40	M40 x 1.5																																																																																																																																				
Applicable Shaft Dia. V, Q	Keyway Dimension																																																																																																																																				
	b ₁	b ₂	t ₁	t ₂																																																																																																																																	
6, 7	5																																																																																																																																				
8	6																																																																																																																																				
9	7																																																																																																																																				
10	8																																																																																																																																				
12	9																																																																																																																																				
14, 15	10	11	12																																																																																																																																		
16	11	12	13																																																																																																																																		
17	12	13	14																																																																																																																																		
20	14	15	16																																																																																																																																		
25	17	18	19																																																																																																																																		
30	20	21	22																																																																																																																																		
35	23	24	25																																																																																																																																		
40	26	27	28																																																																																																																																		

\odot Specify an alteration to be 2 mm or more away from the stepped part. P.819

\odot Do not specify multiple alterations in such a way that they overlap with each other in the rotating direction on the same shaft. P.819

\odot When flat machining, wrench flats, square chamfering and keyway alterations are combined with each other, their orientations will be random. P.819

\odot When adding multiple alterations, there must be 2 mm or more clearance between each feature. P.819