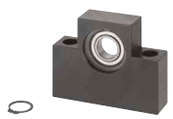
Lead Screws / Slide Screws

Lead Screws
Slide Screws

Easy Assembly Design

Easy Assembly Design

Easy Assembly Design



Product Name	For Lead Screw Support Units	Lead Screw Support Units Square - Fixed Side Radial Bearing	Support Units - Square, Support Side
Page	789	791	792

Easy Assembly Design

Easy Assembly Design

Easy Assembly Design

Lead Screw Support Units - Fixed Side Radial Bearing	Support Units - Round, Support Side	Nuts for Lead Screws - Flanged	Compact	Pilot / Tapped Holes / Slotted Holes
793	794	795	795	795

Nuts for Lead Screws - Compliant with RoHS - Flanged / Fine Pitc	Anti-Backlash	Nuts for Lead Screws - Lubrication-Free, Flanged	Straight	High Strength Flanged Plastic
796	796	797	797	798

Plastic Type	Block Nuts for Lead Screws - Tall Block	Wide Block	Brackets for Lead Screws	Spacer Plates for Wide Block Type
798	799	799	800	800

Lead Screws - Both Ends Stepped	One End Stepped / One End Double Stepped	One End Stepped	One End Double Stepped
801	803	805	805

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Lead Screws - Both Ends Stepped	Straight	Digital Position Indicators Large
807	808	811

Easy Assembly Design

Digital Position Indicators Compact	Clamp Plates for Large Position Indicator - Standard	Bearing with Housing
812	813	813

Clamp Plates for Compact Position Indicator - Standard	Miniature Lever	Bearing with Housing	Lead Screw Rotation Stopper Set - Flanged Lead Screw Rotation Stopper Set - Flanged Bearing Type	Round Flanged
814	814	814	815	815

Square - 2-Screw Mount Type	Square	Miniature Slide Screws - One End Stepped / Both Ends Stepped	Straight, Nuts
816	816	817	818

Guide to Easy Assembly Design use Details P.783

Components for Lead Screw Rotary Units as shown below can be selected easily.

Guide to Lead Screw Alterations

MISUMI Lead Screws are provided with various alterations.
We can provide Lead Screws for various applications by combining the Lead Screws with Alterations. Details P.785

Flat Machining	2 Flats Machining	Retaining Ring Groove	Coarse Tapping
Specify each dimension	Specify each dimension	Specify dimensions after A□	Select Tap Dia. after M□

Threaded for Bearing Nuts	Square Chamfering	Keyway
Specify Tap Length after B□	Specify W and A dimensions after Z□	Specify each dimension after K□

Specifications and technical calculations for Lead Screws and Nuts P.785
Position Indicator Specifications and "How to Use" P.809
Slide Screws Specifications P.818

Lead Screw

Easy Assembly Design - Overview

Lead Screw Support Unit can reduce the time of assembling by 50%.

Support Unit as Standard

Lead Screw Support Units are available as standard specification.
Designing Bearing Mechanism is no longer needed.

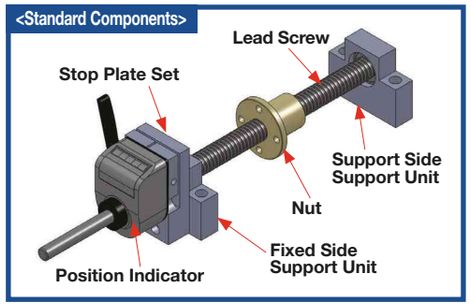
Lead screw shaft end configurations are available as standard specification.

Easy to combine with Support Units by specifying shaft dia., shaft length.
Designing Bearing Mechanism is no more required.

Design for combination with parts is no longer needed.

Easy to assemble by specifying each part dimension.
Design for combination with parts is no more required.

<Standard Components>



A complete lead screw unit can easily be designed by selecting standard components.

Easy Assembly Design Features of each Component

1. Lead Screw Support Units P.791~794

Features: Optimal Lead Screw Support Units use two preload-adjusted radial bearings.
Support Unit Sets combined Fixed Side Support Unit with Support Side Support Unit are available for lower prices since 2012.

Lineup : Square / Round

Fixed Side Square Support Unit	Stop Plate Set	Stop Plate Set for Position Indictor Mount	Support Side Square Support Unit
		 For Position Indicators, select from P.811	

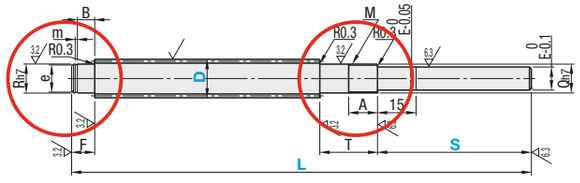
2. Lead Screws P.789

Features : Machined shaft ends based on Support Units dimensions.
Only specify **D**, **L**, and **S** dimensions.
Keyway machining and tapping etc. as an alteration are available. Mounting Handles etc. is also possible.

Lineup : Types of Threads [Right-Hand Thread / Left-Hand Thread] **Material** [EN 1.4301 Equiv. / EN 1.1191 Equiv.] **Surface Treatment [Black Oxide]**

Lead Screws for Support Units

Retaining Ring Groove (Support Side) Threaded (Fixed Side)



3. Nuts P.795

Features : Nuts are available in various materials and shapes. Applicable for various applications.
Lineup : See P.795~800.

Easy Assembly Design

[Selection Procedure 1] Select the optimal Lead Screw Support Unit Pattern for application.

Lead Screw Support Unit Patterns (Ex.)

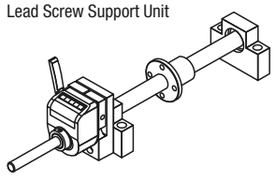
Standard Square Support Unit	Square Stop Plate Set	Stop Plate Set for Square Position Indicator Mount
		
Standard Round Support Unit	**Round Stop Plate Set**	**Stop Plate Set for Round Position Indicator Mount**
		

Without Support Side Support Unit is also selectable.

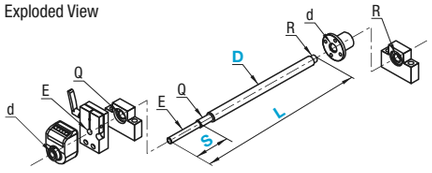
[Selection Procedure 2] Select components.

1. Specify shaft Dia. **D**, **L**, and **S** dimensions according to conditions of use.
2. Select components in the specification table based on shaft Dia. **D** specified in step 1.

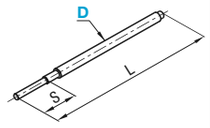
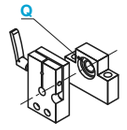
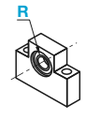
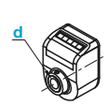
Lead Screw Support Unit



Exploded View



Lead Screw, Support Unit and Indicator Collar Size Chart

Lead Screw	Applicable Fixed Side Support Unit				Applicable Support Side Support Unit		Position Indicator Collar
							
Type	**Type**				**Type**		**Type**
MTWK		Main Body Only	Stop Plate Set	Stop Plate Set for Position Indictor Mount	Square	MTUZ	-CSE
	Square	MTWZ	MTWZ-S	MTWZ-CP-(LP)	Round	MRUZ	
	Round	MRWZ	MRWZ-S	MRWZ-CP-(LP)			
Lead Screw Shaft Dia.	**Bearing I.D.**				**Bearing I.D.**		**Collar I.D.**
D	**Q**				**R**		**d**
12	8				8		6
14	10				10		8
16	12				12		10
18	12				12		10
20	15				15		12
22	15				15		12
25	15				15		12

Position Indicator has a single I.D. size, and ordering a collar as an alteration is required. Please see Selection Chart on selecting alterations.
Select Nuts based on shaft Dia. Lead screws are available in various materials and types of threads. P.789
For Position Indicators, various types are available in terms of main body color and mounting direction. Select an appropriate type for the current application. P.811, 812

Part Number Selection Example

Components	Selection
Lead Screw	Non-plated EN 1.1191 Equiv. D16 L200 S20
Fixed Side Support Unit	Square Digital Position Indicators Compact Mount Set
Support Side Support Unit	Square
Position Indicator	Standard Spindle Compact

In conformance with ☐ on Size Application Table

Part Number
MTWK16-200-S20
MTWZ-CP12
MTUZ12
DPNR3-CSE10

A complete lead screw unit can be designed by ordering components with specified Part Number and assembling them.
How to Assemble P.792

When using Handles etc. please refer to P. 2 -1157

Feed Screw Comparison

Type	Slide Screw	Lead Screw	Rolled Ball Screw	Precision Ball Screw
Shape				
Features	Simple feed and adjust mechanisms, etc. Made of stainless steel shaft and plastic nut. No-grease operation is possible.	Optimal for the case where thrust loads and high loadings exist.	Can be applied at reasonable costs when precision ball screw accuracies are not required.	Optimal for the case where high positioning and velocity accuracy are required.
App. Example	Stoppers In/Out and Transfer pitch changeover	Transfer pitch changeover Jacks, Feed Screw for Lathes	Transfer Line	Measurement Instruments
Allowable Rotational Speed	Low Speed	Medium Speed	High Speed	High Speed
Accuracy	★★	★★	★★★★	★★★★★
Allowable Axial Load ( ) is for Reference.	△ (max540N)	◎ (max30000N)	○ (max9960N)	○ (max9960N)

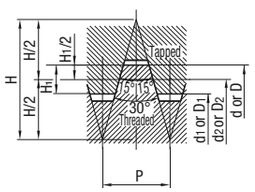
Lineup : Lead Screws

Lead Screw Type	Shape	Right-Hand Thread	Left-Hand Thread	Fine Pitch Right-Hand Thread	Right and Left-Hand Thread	Precision Right and Left-Hand Thread	Page
Both Ends Stepped		○	○	○	○	○	P.801
One End Stepped / One End Double Stepped		○	○	-	○	○	P.803
One End Stepped / One End Double Stepped		○	-	-	-	-	P.805
Both Ends Double Stepped		○	○	-	-	-	P.807
Straight		○	○	-	○	-	P.808

Lead Screw Accuracy Standards

Item	Content
Allowable Dimension and Tolerance	JISB0217 0218
Screw Accuracy	7e Grade
Nut Accuracy	7H Grade
Single Pitch Error	±0.02
Accumulated Pitch Error	±0.15/300mm
Shaft Maximum Runout	See table below
Length Tolerance	JIS B 0405 (Medium Class)

Lead Screw Thread Geometry Standards (JIS Tr)



H=1.866P H1=0.5P d2=d-0.5P
d1=d-P D=d D2=d2 D1=d1

Thread d: O.D . d1: Root Dia. d2: Effective Dia.
Tapped D: Root Dia. D1: I.D. d2: Effective Dia.
P: Pitch H1: Engage Height

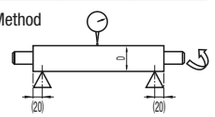
Pitch 3 of D Dimension 16, Pitch 5 of D Dimension 25 and Pitch 6 of D Dimension 40 conform to Tr Standard.

Lead Screw Specifications

Unit : mm

Shaft Dia.	Pitch	Screw Shaft Effective Dia.	Screw Shaft Minor Dia. (MIN.)	Screw Shaft Lead Angle	Screw Shaft Runout (Max.) Shaft Overall Length ~125	126~200	201~315	315~400	401~500	501~630	631~800	801~1000	1001~1250	1251~1600	1601~2000
8	1.5	7.25	(5.9)	3°46'	0.1	0.14	0.21	0.27	0.35	-	-	-	-	-	-
10	2	9	(7.2)	4°03'	0.09	0.12	0.16	0.21	0.27	0.35	0.46	0.58	-	-	-
12	2	11	(9.2)	3°19'											
14	3	12.5	(10.1)	4°22'									-	-	-
16	2	15	(13.18)	2°25'	0.09										
	3	14.5	(12.1)	3°46'		0.11	0.13	0.16	0.2	0.25	0.32	0.42	0.55	0.73	1
18	4	16	(13.1)	4°33'											
20	2	19	(17.18)	1°55'	-										
	4	18	(15.1)	4°03'											
22	5	19.5	(16.1)	4°40'											
25	5	22.5	(19)	4°03'	-	0.09	0.11	0.13	0.16	0.19	0.23	0.3	0.38	0.5	0.69
28	5	25.5	(22)	3°34'											
32	6	29	(24.5)	3°46'											
36	6	33	(28.5)	3°19'											
40	6	37	(32.5)	2°57'	-	0.11	0.11	0.11	0.13	0.15	0.17	0.22	0.27	0.34	0.46
50	8	46	(40.4)	3°10'											

• Runout Measurement Method



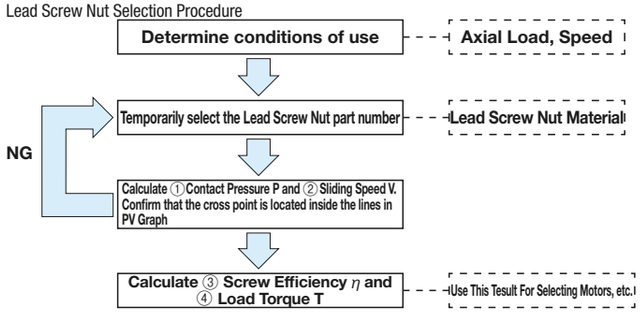
Nuts for Lead Screw Specifications

Shaft Dia.	Pitch	Part Number / Type MTS□□/ Standard	MTSP□□/ Compact	MTSJR/ Pilot	MTSQR/ Slotted Holes	MTRFR / RoHS Compliant	MTBLR/ Anti-Backlash	MTSM□□/ Lubrication-Free	MTSR□□/ High Strength Plastic	MTSF□□/ Plastic Type
										
		P.795	P.795	P.795	P.795	P.796	P.796	P.797	P.798	P.798
		Allowable Dynamic Thrust (N)								
8	1.5	1470	-	-	-	-	-	-	-	-
10	2	2550	2020	-	-	2550	2600	2550	278	255
12	2	3920	3140	-	-	3920	3390	3920	428	392
14	3	4900	3920	4900	4900	4900	-	4900	536	490
16	2	-	-	6670	6670	6670	-	-	-	-
	3	6670	5340	-	-	6670	6290	6670	686	628
18	4	8720	-	-	-	-	-	-	954	873
20	2	-	-	-	-	10100	-	-	-	-
	4	9810	7850	9810	9810	9810	9320	9810	1071	980
22	5	12360	9890	12360	12360	-	-	12360	-	-
25	5	14220	11380	14220	14220	14220	-	14220	-	1412
28	5	17950	14420	17950	17950	17950	-	17950	-	1765
32	6	21080	16940	21080	21080	21080	-	21080	-	2050
36	6	25780	-	-	-	-	-	25780	-	-
40	6	33830	-	-	-	-	-	33830	-	-
50	8	40310	-	-	-	-	-	-	-	-

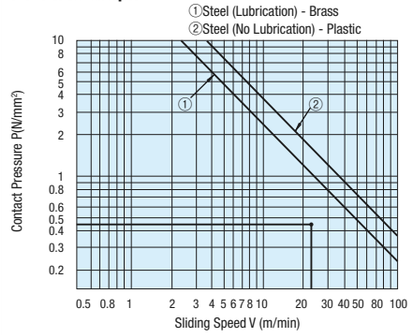
Lead Screw Technical Calculations

Calculate Contact Pressure P and Sliding Velocity V based on conditions of use to check that no abnormal wear will occur.
Calculate cross point based on the calculated P and V values in PV Graph.
When the cross point is located inside the line ① or ② in PV Value Graph, it can be stated that no abnormal wear will occur.

Lead Screw Nut Selection Procedure



PV Value Graph



①Contact Pressure P (N/mm²)

$$P=\frac{Fs}{Fo}x\alpha$$

Fs : Axial Load (N)
Fo : Allowable Dynamic Thrust (N) >> Nuts for Lead Screw Specifications
The thrust when the contact pressure acting on the screw shaft and nuts is 9.8 (0.98N)/mm²
α : 9.8 (Brass), 0.98 (Resin)

②Sliding Speed V (m/min)

$$V=\frac{\pi \cdot d_2 \cdot n}{\cos(d)}x10^{-3}$$

d2 : Screw Shaft Effective Dia. >> Nuts for Lead Screw Specifications
d : Screw Shaft Lead Angle (Degree) >> Nuts for Lead Screw Specifications
n : Screw Shaft Revolution Frequency per Minute (min^{-1})

③Screw Efficiency η

$$\eta=\frac{1-\mu\tan(d)}{1+\mu/\tan(d)}$$

μ : Dynamic Friction Coefficient
d : Screw Shaft Lead Angle (Degree)

Dynamic Friction Coefficient Reference Value

Thread Shaft	Nut	Dynamic Friction Coefficient μ
Steel (Lubrication)	Brass	0.21
Steel (Non Lubrication)	Polyacetal / PPS Resin with Sliding Property	0.13

④Load Torque T (N · cm)

$$T=\frac{FS \cdot R}{2\pi \cdot \eta}$$

Fs : Axial Load
η : Screw Efficiency
R : Lead (cm)

Calculation Example

In case of using MTSRW16 shaft, pitch 3 and MTSFR16 brass flanged nut when the axial load is 300N as rotational speed at 500min^{-1}.

①Contact Pressure P (N/mm²)

$$P=\frac{Fs}{Fo}x\alpha=\frac{300}{6670}x9.8=0.44(N/mm^2)$$

②Sliding Speed V (m/min)

$$V=\frac{\pi \cdot d2 \cdot n}{\cos(d)}x10^{-3}=\frac{\pi x14.5x500}{\cos(3°46')}x10^{-3}=22.8(m/min)$$

When the PV Graph is viewed based on the calculated P and V values, the cross point V=22.8(m/min) when P=0.44(N/mm²) is located inside the line ① on the PV Graph, thus it can be stated that no abnormal wear will occur.

Calculation Example

Required Torque when using MTSRW16 shaft , pitch 3, and MTSFR16 brass (flanged nut.)

③Screw Efficiency η

$$\eta=\frac{1-\mu\tan(d)}{1+\mu/\tan(d)}=\frac{1-0.21x\tan(3°46')}{1+0.21/\tan(3°46')}=0.24$$

Also, in a case of calculating for the Load Torque T (N · cm) when the axial load is 300N.

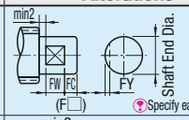
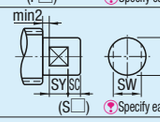
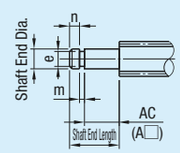
④Load Torque T (N · cm)

$$T=\frac{FS \cdot R}{2\pi \cdot \eta}=\frac{300x0.3}{2\pi x0.24}=59.7(N \cdot cm)$$

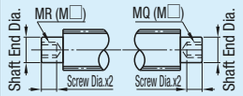
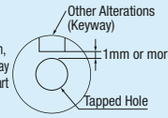
Lead Screw Shaft End Machining - Overview

Orders can be placed without drawings by adding the Alteration Specifications listed below to the standard lead screw product part numbers. Procurement is quick with short lead time.

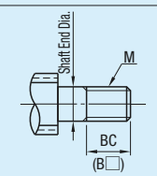
On the table below, the "□" portion of F□ and so on will contain the V, Q, R, E or C code which indicates which shaft part to add alterations to.

Alteration Items	Alterations	Code	Spec.
Flat Machining	 Specify each dimension	F□ FV FQ FR FE FC	Adds a flat on a shaft end. Usage: Used for a set screw flat when mounting a handle. Ordering Code: FC5-FW10-FY1 0.5mm Increment Only one end of the shaft is machined When shaft end diameter ≤25, FY≤1.0 When shaft end diameter ≥26, FY≤2.0 3≤FW≤20 F□=0, or F□≥2
2 Flats Machining	 Specify each dimension	S□ SC SQ SE SR SV	2 flats (wrench flats) are machined on one end of the shaft Usage: For wrench use Ordering Code: SC5-SW10-SY8 1mm Increment Only one end of the shaft is machined When shaft end O.D. <15, SW≥ end O.D. -2 When 15≤ shaft end O.D. ≤25, SW ≥ end O.D. -3 When 30≤ shaft end O.D., SW≥ end O.D. -5 3≤SY≤20 S□=0, or S□≥2
Retaining Ring Groove	 Specify dimensions after A□	A□ AC AQ AR AE	Adds a retaining ring groove on a shaft end. Usage: For bearing mounting, etc. Ordering Code: AC13.3 0.1mm increment AC (AQ, AR, AE) ≤ Shaft End Length-**m-n** For the m,n value, see the table on the right. (For the m value, consider the tolerance.)

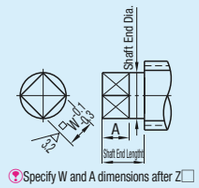
Shaft End Dia.	e Tolerance		m +0.14 0	n Machining Limit	Retaining Ring
6	4	+0.075 0	0.7	n≥1.2	E-Shaped Retaining Ring
7					
8	5				
9	6		0.9		
10	9.6	0 -0.09	1.15	n≥1.5	C-Shaped Retaining Ring
12	11.5				
14	13.4	0 -0.11			
15	14.3				
16	15.2				
17	16.2				
20	19	0 -0.21	1.35		
25	23.9				
30	28.6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

Coarse Tapping	 Select Tap Dia. after M□	M□ MC MQ MR ME MV	Adds a coarse threaded tapped hole on the shaft end. Usage: Used for mounting threaded item (knobs, etc.) Ordering Code: MC24 Select from table on the right. Not applicable to 4mm dia. shafts When combined with an other alteratuion, do not specify this alteration in such a way that the shaft thickness on the tapped part becomes less than 1mm. 

Shaft End Dia.	MC (M□): Tap Dia. Selection Range
5	3
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, 50	3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 30

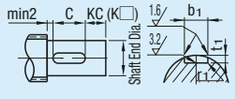
For Bearing Nut Threaded for Bearing Nuts	 Specify Tap Length after B□	B□ BV BC BQ BR	Cuts a thread on the shaft end. Usage: For locking bearing nuts Ordering Code: BC20 Select from table on the right. Nut Detail P.1036 Shaft end diameters applicable to 7, 9, 16 are not available. B□ (Tap Length) ≤ Shaft End Dia. x 3 B□ (Tap Length) ≥ Pitch x 3 B□ (Tap Length) ≤ Shaft End Length - Pitch x 3

Shaft End Dia.	MxPitch
6	M 6x0.75
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

Square Machining	 Specify W and A dimensions after Z□	Z□ ZC ZQ ZE ZR ZV	Adds square chamfering on a shaft end. Usage: For mounting handles, etc. Ordering Code: ZC12-W10-A8 Specify ZC (Z□) as same as the end diameter W=Select from the table on the right, or specify in 1mm increment A=1mm Increment 5≤A≤20 Only one end of the shaft is machined

Shaft End Dia.	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

Shaft End Dia.	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

Keyway	 Specify each dimension after K□	K□ KC KQ KV KE KR	Adds a keyway on a shaft end. Usage: For handle mounting keyway use Ordering Code: KC8-C10 KC (K□) and C: Specify in 1mm increment Only one end of the shaft is machined C≤60, C≥t1 KC (K□)≥2, or KC (K□)=0 When KC (K□)=0, keyway R will be eliminated on the end side. 

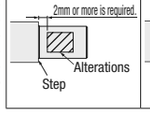
Applicable Shaft End Dia.	Keyway Dimension b1 Reference Dimension	b1 Tolerance (N9)	t1 Reference Dimension	t1 Tolerance	r1
6~7	2	-0.004 -0.029	1.2	+0.1 0	0.08 ~0.16
8~10	3		1.8		
11~12	4	0 -0.030	2.5		0.16 ~0.25
13~17	5		3		
18~22	6		3.5		
23~30	8	0 -0.036	4	+0.2 0	0.25 ~0.40
31~38	10		5		
39, 40	12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

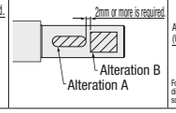
Notes on Selecting Alterations

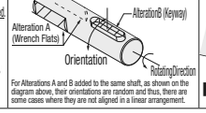
① Specify an alteration position to be 2mm or more away from the stepped part. (See Diagram Note ①.)
② When adding multiple alterations, there must be 2mm or more clearance between each feature. (See Diagram Note ②.)
③ When flat machining, wrench flats, square chamfering and keyway alterations are combined with each other, their orientations will be random. (See Diagram Note ③.)
④ When two or more features are specified on a shaft, some alterations may not be possible due to their correlations.
⑤ Do not specify multiple alterations in such a way that they overlap with each other in the rotating direction on the same shaft. (See Diagram Note ⑤.)

Conditions Applied to Lead Screws with Alterations for Combination of Square Chamfering and Tapping. Applied to Lead Screws on P.803~807.

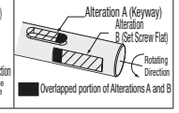
Square Chamfering		Coarse Tapping
Shaft End Dia.	Square Machining	Tap Dia.
6~10	5~8	3
11~14	8~10	3, 4
15~19	10~14	3, 4, 5
20~25	14~20	3, 4, 5, 6, 8
26~30	19~24	3, 4, 5, 6, 8, 10
31~35	22~28	3, 4, 5, 6, 8, 10, 12
36~40	26~30	3, 4, 5, 6, 8, 10, 12, 16

Note①
Specify an alteration portion to be 2mm or more away from the stepped part.


Note②
2mm or more is required for the clearance between multiple alterations.


Note③
When the multiple alterations are combined each other, their orientations are random and thus, are not always aligned in a linear arrangement. (One example of this is shown on the diagram below.)


For Alterations A and B added to the same shaft, as shown on the diagram above, their orientations are random and thus, there are some cases where they are not aligned in a linear arrangement.

Note⑤
Do not specify multiple alterations in such a way that they overlap with each other on the same shaft. (Any diagram as shown bellow is not acceptable.)


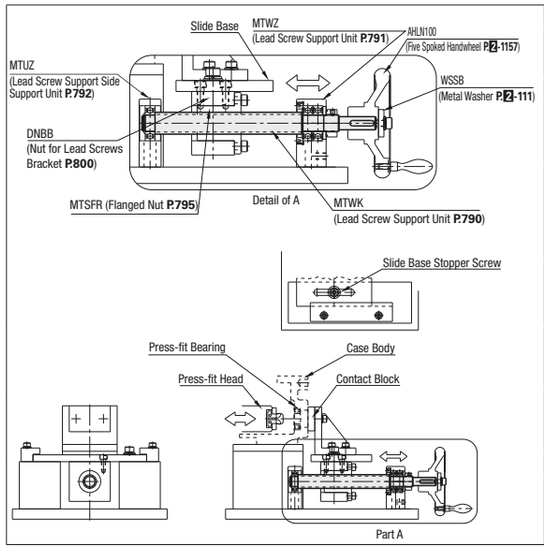
Overlapped portion of Alterations A and B

Lead Screw Application Examples

Lead Screw Application Examples

App. Example 1 Machine Name Slide Base Feed Mechanism for Reference Shoulder Adjusting

Configuration comprised of Shaft Support Unit for Lead Screws, Lead Screw Shaft, and a Position Indicator.



• Applications

Used for transfer feeding, locating stoppers, and guiding of various workpieces.
Adjustments are relatively small, but shock loads in axial direction are considered.
In addition, the lead screw scheme is chosen for its low price.

• Selection Criteria

Lead Screw Shaft
A lead screw shaft configured specifically for MISUMI Shaft Supports with a Keyway is selected.
The configuration supports each end of the shaft with a bearing.

Lead Screw Support Units
Lead Screw Support Unit is selected for the fixed side of the shaft.
Selected support unit has two radial bearings in preloaded arrangement.
Selected since thrust loads can be supported.

Lead Screw Support Units
A Shaft Support Unit for Lead Screws is selected for the shaft support side.
Comes with two radial bearings in the set, and used as is.

Nuts for Lead Screws
Commonly used Round Flanged Lead Screw Nut is selected.

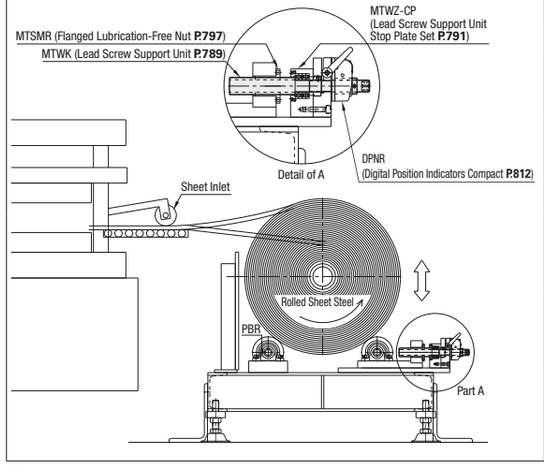
Nut Brackets
A Nut Bracket compatible with a lead screw nut is selected.

• Conditions of Use

①Applied Load	200N	Material Mass : 300N
②Setup Change-over Frequency	Once a day for rod changes, etc.	
③Positioning Accuracy	±0.5mm	
④Stroke	150mm	

App. Example 2 Machine Name Sheet Steel Roll Base with Adjustment Mechanism

Configuration comprised of Shaft Support Unit for Lead Screws, Stop Plate Set, Lead Screw Shaft, and a Position Indicator.



• Applications

Sheet steel roll's remaining O.D. is measured at set intervals, and the roll is raised accordingly with a lead screw.
The lead screw feed amount is measured by a position indicator, instead of using a conversion table.

• Selection Criteria

Lead Screw Shaft
A lead screw shaft configured specifically for MISUMI Shaft Supports with no R machining on the support side (Alteration RC) is selected.

Lead Screw Support Units
Lead Screw Support Unit is selected for the fixed side of the shaft.
Selected since thrust loads can be supported, and a Digital Position Indicators Compact can be directly mounted.

Nuts for Lead Screws
Round Flanged Lubrication-Free Lead Screw Nut is selected.
Selected because the lubrication maintenance can be reduced to only once a year.

Position Indicators
A Digital Position Indicators Compact is selected for lead screw feed distance measurements.

• Conditions of Use

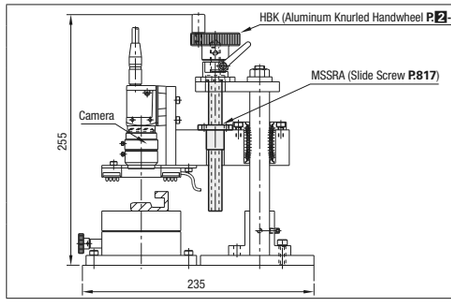
①Applied Load	20kN
②Maintenance	Once a year
③Positioning Accuracy	1~2mm
④Stroke	150mm

Slide Screw Application Example

With a stainless steel thread shaft and a plastic nut, slide screws can be used without grease and are suitable for use with the screw feed mechanism in clean environments.
Slide screws are low cost and offer smooth movements due to their excellent tribological properties.

App. Example 1 Machine Name Camera Inspection Unit

A slide screw is utilized as the Z axis.



• Applications

A slide screw is chosen for fine adjustability, and can be used without lubrication maintenance.

• Selection Criteria

Slide Screw Shaft
One End Stepped Type in EN 1.4301 Equiv. is selected.
Nut
Tribological resin nut is selected for zero grease requirement and good corrosion resistance.

• Conditions of Use

①Applied Load	50N	
②Setup Change-over Frequency	Once a day for rod changes, etc.	
③Positioning Accuracy	±0.5mm	
④Stroke	100mm	

Lead Screw

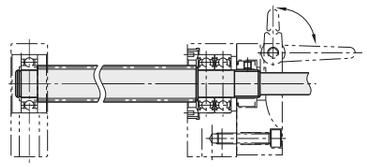
For Lead Screw Support Unit Type

Easy Assembly Design

A dedicated lead screw configured for bearings, stopper clamp, and a position indicator and a handle. Ordering can be completed only with specifying D, L, and S dimensions.

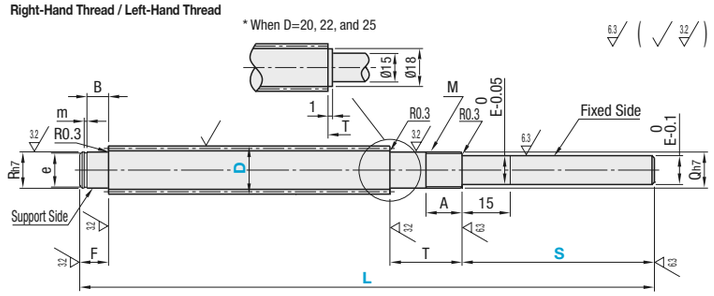
RoHS

Type		Material	Surface Treatment
Right-Hand Thread	Left-Hand Thread		
MTWK	MTWLK	EN 1.1191 Equiv.	-
MTWBK	MTWBLK		Black Oxide
RMTWK	RMTWLK		UBC Plating
MTSWK	MTSWLK	EN 1.4305 Equiv.	-



Right-Hand Thread / Left-Hand Thread

* When D=20, 22, and 25



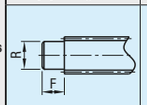
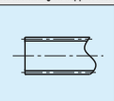
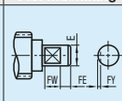
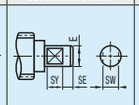
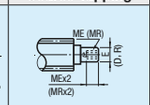
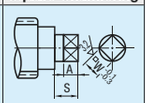
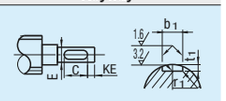
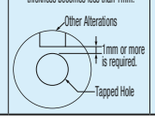
R	e	Tolerance	m+0.14 0
8	5	+0.075 0	0.7
10	9.6	0 -0.09	1.15
12	11.5	0 -0.11	
15	14.3		

Part Number		1mm Increment		F	R	B	T	Q	A	M x Pitch	E	D	Pitch P
Type	D	L	S										
(Right-Hand Thread) MTWK MTWBK RMTWK MTSWK	(Left-Hand Thread) MTWLK MTWBLK RMTWLK MTSWLK												
	12	80~1000	2≤S≤80	10	8	7	26	8	11	8x1.0	6	12	2
	14			12	10	8	29	10	12	10x1.0	8	14	3
	16	100~1200	2≤S≤95	12	12	8	29	12	12	12x1.0	10	16	3
	18	150~1200		12	12	8	29	12	12	12x1.0	10	18	4
	20		2≤S≤100	12	15	9	34	15	14	15x1.0	12	20	4
	22			12	15	9	34	15	14	15x1.0	12	22	5
	25			12	15	9	34	15	14	15x1.0	12	25	5

D dimension 22 is not available for MTSWK.
D dimensions 22 and 25 are not available for MTSWLK.
Low Temperature Black Chrome Plated Products: L≤1000

Ordering Example: Part Number - L - S → MTWK20 - 800 - S90

Alterations: Part Number - L - S - (NAR, RC, FE, SE, ME, MR, ZE, KE) → MTWK20 - 800 - S90 - KE0 - C30

Alterations	No Retaining Ring Groove on Support Side Shaft End	No Machining on Support Side	Flat Machining	Wrench Flats	Coarse Tapping	Square Chamfering	Keyway
							
Code	NAR (R part)	RC (R part)	FE (E part)	SE (E part)	ME (E part) MR (E Side)	ZE (E part)	KE (E part)
Spec.	No retaining ring machining performed on the R part for the support side end. Ordering Code NAR	No machining performed on the R part. Ordering Code RC ⊗Combination with other R part alteration is not available.	FE,FW,FY=0.5mm Increment FE=Applied on E Ordering Code FE5-FW10-FY1 FY≤1.0 FE=0, or FE≥2 3≤FW≤20	SE,SW,SY=1mm Increment SE=Applied on E part Ordering Code SE3-SW10-SY7 SW≥E-2 3≤SY≤20 SE=0, or FE≥2	ME=Applied on E part MR=Applied on R part and left end face Ordering Code ME6 E, R, D: ME, MR (Selection Range) 6: 3 8: 3, 4 10: 3, 4, 5 12: 3, 4, 5, 6 14・15: 3, 4, 5, 6, 8 16・18: 5, 6, 8, 10 20~25: 5, 6, 8, 10, 12 ⊗When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1mm. 	A=1mm Increment ZE=Applied on E part Ordering Code ZE12-W10-A8 Can be combined with Tapped Hole machining only on the same shaft. (See P.787 for machining conditions.) 5≤A≤20 ZE=E Specified ZE=E: W Selection 6: 5 8: 6 10: 8 12: 9, 10	KE, C=1mm increment C≤60 KE≥2 S-C-KE≥2 When KE=0, keyway R will be eliminated on the shaft end side.  KE=Applied on E part Ordering Code KE8-C10 Applicable to D dimension 16 or more When a new keyway is added, the O.D. tolerance for the E part is always (0 -0.05). Specify the C dimension not to be bellow b1. Applicable Shaft End Dia. E: Keyway Dimension b1: Reference Dimension: 3 / 4; Tolerance (N9): -0.004 -0.029 / 0 -0.030 t1: Reference Dimension: 1.8 / 2.5; Tolerance: +0.1 0 r1: 0.08 ~0.16

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.)

■No Surface Treatment

Part Number		Unit Price					
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTWK MTWLK	12						-
	14						-
	16						
	18						
	20						
	22						
	25						

■Black Oxide

Part Number		Unit Price					
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTWBK MTWBLK	12						-
	14						-
	16						
	18						
	20						
	22						
	25						

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

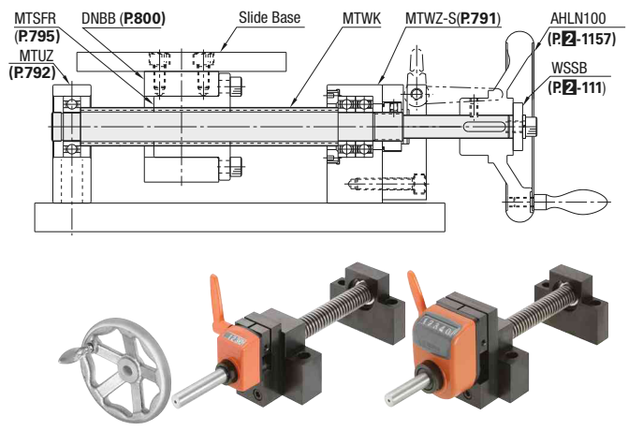
Part Number		Unit Price					
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSWK MTSWLK	12						-
	14						-
	16						
	18						
	20						
MTSWK	25						

■Low Temperature Black Chrome Plated Products

Part Number		Unit Price				
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000
RMTWK RMTWLK	12					
	14					
	16					
	18					
	20					
	22					
	25					

Example

■Slide Base Transfer Unit



■Recommended Configuration

This unit allows the slide base for workpiece/fixture loading to be position-adjusted by manually rotating its lead screws manually. A dedicated lead screw, bearing unit and stopper clamp are combined in a set. P.791~794
The unit can support radial and axial loads, and can be constructed more economically in a compact manner.
Also, position indicators can be easily mounted.

■Combined Parts Details

*MTUZ	Lead Screw Support Unit - Support Side
MTSFR	Lead Screw Nut - Flanged
DNBB	Nut Bracket for Lead Screw
MTWK	Lead Screw - For Support Units
MTWZ-S	Lead Screw Support Unit - Stop Plate Set
AHLN100	Five Spoked Handwheel
WSSB	Metal Washer

* For MTUZ, purchasing it in combination with MTWZ in set is more economical than when it is purchased as the separate unit. Details P. 791

Lead Screw Support Units Square Type

Fixed Side Radial Bearing Type

When using Fixed Side Support Units combined with Support Side Support Units

Support Unit Sets combined Fixed Side Support Unit with Support Side Support Unit are available for lower prices.
Add -SET to part number of Fixed Side Support Units to select Support Unit Sets.

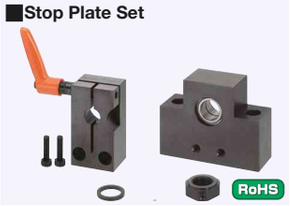
Easy Assembly Design

Listed Support Side Support Unit Sets are also available by adding -SET to part number of Fixed Side Support Units on **P.792**.

■Fixed Side Support Unit

RoHS

■Stop Plate Set



RoHS

■Stop Plate Set for Digital Position Indicators Compact Mount

RoHS

■Stop Plate Set for Large Position Indictor Mount

RoHS

■Support Side Support Unit (MTUZ)

Available as Set by adding -SET to a part number of Fixed Side Support Unit

RoHS

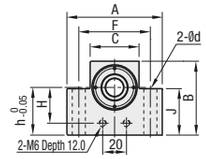
Fixed Side Support Unit	Accessory Dimensions				
Q	Bearing Nut		Collar Dimensions		
	M Fine	Applicable Wrench Size	I.D.	O.D.	Thickness
8	M8x1.0	14	8	11.5	3
10	M10x1.0	17	10	14	3
12	M12x1.0	19	12	15	3
15	M15x1.0	22	15	20	3

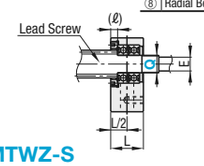
Type				
Support Unit Support Side Set	Support Unit Fixed Side	Stop Plate Set	Stop Plate Set for Digital Position Indicators Compact Mount	Stop Plate Set for Large Position Indictor Mount
Not included	MTWZ	MTWZ-S	MTWZ-CP	MTWZ-LP
Included	MTWZ-SET	MTWZ-S-SET	MTWZ-CP-SET	MTWZ-LP-SET

■Parts Details

Number	Part Name	MTWZ	-S/-CP/-LP	-SET	Material	Surface Treatment
		Quantity				
①	Fixed Side Support Unit	1	1	1	EN 1.1191 Equiv.	Black Oxide
②	Collar	1	1	1	EN 1.0038 Equiv.	
③	Bearing Nut (w/ Thread Protector)	1	1	1	EN 1.0038 Equiv.	
④	Stop Plate Set	-	1	(1)	EN 1.0038 Equiv.	
⑤	Hex Socket Head Cap Screw	-	2	(2)	EN 1.7220 Equiv.	
⑥	Support Side Support Unit	-	-	1	EN 1.1191 Equiv.	
⑦	Retaining Ring for Shaft	-	-	1	Spring Steel	* No treatement
⑧	Radial Bearing	-	-	1	EN 1.3505 Equiv.	No treatement

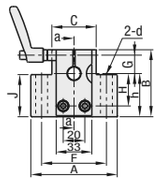
■Lead Screw Support Unit Main Body MTWZ

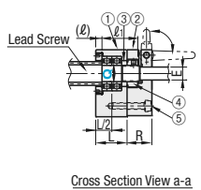




Two preload-adjusted bearings are integrated in a Fixed Side Support Unit.
As one of the specifications for Support Side Support Unit, any bearing is not integrated in the main body when the product is shipped.
Values in ( ) are applicable only when support units are purchased in set.
*⑦Only Q8 product are surface-treated with Trivalent Chromate.

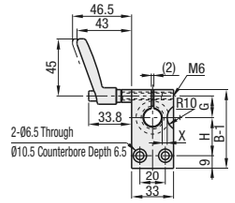
■ MTWZ-S



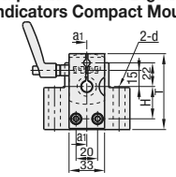


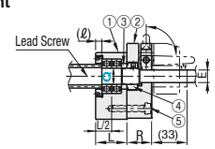
Cross Section View a-a

Drawing for MTWZ-S Stop Plate Set only



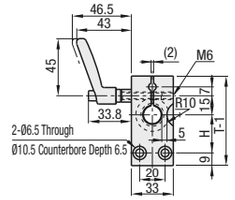
■Stop Plate Set for Digital Position Indicators Compact Mount MTWZ-CP



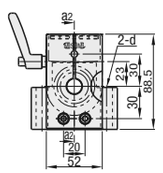


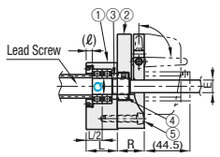
Cross Section View a1-a1

MTWZ-CP Drawing for Stop Plate Set only



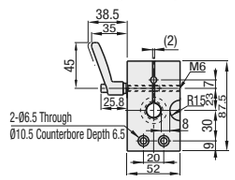
■Stop Plate Set for Large Position Indictor Mount MTWZ-LP (Q12, 15)





Cross Section View a2-a2

MTWZ-LP Drawing for Stop Plate Set only



Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.
The clamp lever cannot be mounted on the opposite side.
A collar for the clamp lever is not included with Q8. The clamp lever mounting dimensions will be the same as the Large Type.

Part Number		Support Unit Set Support Side Set	A	B	C	F	h	J	H	G	T	L	R	(ℓ)	X	d	E	(ℓ1)	Bearing Nut	Clamp Lever	Bearing	Allowable Axial Load (N)
Type	Q																					
MTWZ MTWZ-S MTWZ-CP MTWZ-LP	8	-SET (Only When Purchasing Support Units In Set)	52	48	25	38	30	35	20	13	60.5	22	22	4.8	4.5	6.6	6	24	BNR8	CLDM6-32-M	B608ZZ	1300
	10		70	53	36	52	35	34	25	13	65.5	24	23		4.5	9	8	27	BNR10	CLDM6-40-M	B6000ZZ	2300
	12		70	58	36	52	40	39	30	13	70.5	24	23		4.5		10	27	BNR12		B6001ZZ	2600
	15		80	62	41	60	40	39	30	17		27	25	5.8	5.5	11	12	31	BNR15		B6002ZZ	2900

Ordering Example

Part Number		
TYPE	Q	(-SET)
MTWZ	15	
MTWZ	12	-SET
MTWZ-S	12	
MTWZ-CP	15	-SET

Support Side Support Unit Sets are available at 5 percent reduced price compared to Without Support Side Support Units.

Part Number		Support Unit Set Support Side Set	MTWZ	MTWZ-SET	MTWZ-S	MTWZ-S-SET	MTWZ-CP	MTWZ-CP-SET	MTWZ-LP	MTWZ-LP-SET
Type	Q		Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price
MTWZ MTWZ-S MTWZ-CP MTWZ-LP	8	-SET (Only When Purchasing Support Units In Set)							-	-
	10								-	-
	12									
	15									

For Support Side Support Unit (MTUZ) details, **P. 792**.

Lead Screw Support Units Square Type

Support Side

Easy Assembly Design

Support Side Support Unit can be purchased as the separate unit. Instead of this, however, purchasing it in combination with Fixed Side Support Unit **(P.791)** as set is the more economical.

RoHS

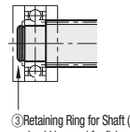
This is the same product as Support Side Set in **P.791**

Number	Part Name	Quantity
①	Housing	1
②	Radial Bearing	1
③	Retaining Ring for Shaft (Included)	1

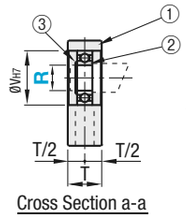
Contrary to image on the photo, Radial Bearing on ②, as well as Retaining Ring for Shaft, is already included with the support unit when the support unit is shipped.

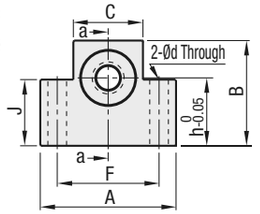
Type	Material	Surface Treatment
MTUZ	EN 1.1191 Equiv.	Black Oxide

How to use Retaining Ring for Shaft



③Retaining Ring for Shaft (Accessary) should be used for fixing the shaft part. Use Lead Screws for Support Units **(P.789)** in combination with this ring, or select a product with the retaining shaft groove added on the shaft part.





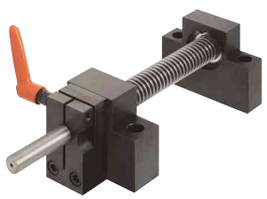
Part Number		A	B	C	F	h	J	V	T	d	Bearing Type	Retaining Ring for Shaft	MTUZ	
Type	R												Unit Price 1 ~ 4 pc(s).	Volume Discount Rate 5 ~ 10 pcs.
MTUZ	8	52	48	25	38	30	35	22	20	6.6	B608ZZ	NETW5		
	10	70	53	36	52	35	34	26		9	B6000ZZ	STWN10		
	12	70	58	36	52	40	39	28		9	B6001ZZ	STWN12		
	15	80	62	41	60	40	39	32		11	B6002ZZ	STWN15		

Ordering Example

Part Number
MTUZ15

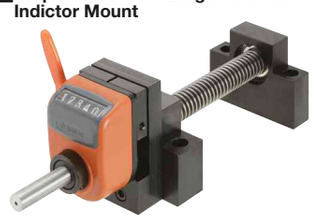
Example

■Stop Plate Set



■Stop Plate Set for Digital Position Indicators Compact Mount

■Stop Plate Set for Large Position Indictor Mount



Position Indicators are separately sold. **P. 811, 812**

■Easy Assembly Design Dimensions Table

Lead Screw			Lead Screw Support Units				Position Indicator		
			Fixed Side		Support Side		Compact / Large		
Type	Shaft Dia. D	Pitch P	Type	Bearing I.D. Q	Type	Bearing I.D. R	Type	Spindle Pitch	Alterations
MTW (L) K MTWB (L) K RMTW (L) K MTSW (L) K	12	2	MTWZ MTWZ-S MTWZ-CP MTWZ-LP	8	MTUZ	8	D□□□□-	2	-CSE6
	14	3		10		10		3	-CSE8
	16	3		12		12		3	-CSE10
	18	4						4	-CSE10
	20	4		15		15		4	-CSE12
	22	5						5	-CSE12
	25	5						5	-CSE12

By adding to (L) to a part number, the Reverse Screw Type is delivered. For position indicators, this Screw Type should be specified.
Precaution for Use:Use the position indicators within maximum rotational speed. **P. 811, 812**

*For Digital Position Indicators Large, Spindle Pitch 2 cannot be selected.

■Support Unit Mounting Procedure

①Insert the lead screw shaft into the fixed side support unit.
②After slipping a collar on, thread the included bearing nut on and temporarily tighten at 1/3 of the specified tightening torque. Mount the support side unit on the support end of the shaft and mount.
③While rotating the screw shaft, gradually tighten the bearing nut to obtain smooth motion from end to end.
④When smooth motion is obtained, tighten to full tightening torque to finish.

M	Nut Tightening Torque (N · cm)	Part Number
8	490	BNR8
10	930	BNR10
12	1370	BNR12
15	2350	BNR15

Value is for reference only.

Lead Screw Support Units - Round

Fixed Side Radial Bearing Type

When using Fixed Side Support Units combined with Support Side Support Units

Support Unit Sets combined Fixed Side Support Unit with Support Side Support Unit are available for lower prices.
Add -SET to part number of Fixed Side Support Units to select Support Unit Sets.

Easy Assembly Design Listed Support Side Support Unit Sets are also available by adding -SET to part number of Fixed Side Support Units on **P.794**.

Support Unit Main Body

RoHS

Stop Plate Set

RoHS

Stop Plate Set for Digital Position Indicators Compact Mount

RoHS

Stop Plate Set for Large Position Indictor Mount

RoHS

Support Side Support Unit (MRUZ)

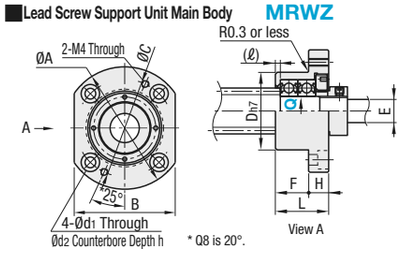
Available as Set by adding -SET to a part number of Fixed Side Support Unit

RoHS

Fixed Side Support Unit Accessory Dimensions					
Q	Bearing Nut		Collar Dimensions		
	M Fine	Applicable Wrench Size	I.D.	O.D.	Thickness
8	M8x1.0	14	8	11.5	5
10	M10x1.0	17	10	14	5
12	M12x1.0	19	12	15	6
15	M15x 1.0	22	15	20	6

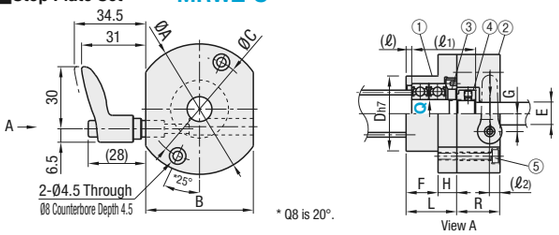
Type				
Support Unit Support Side Set	Support Unit Main Body	Stop Plate Set	Stop Plate Set for Digital Position Indicators Compact Mount	Stop Plate Set for Large Position Indicator Mount
Not included	MRWZ	MRWZ-S	MRWZ-CP	MRWZ-LP
Included	MRWZ-SET	MRWZ-S-SET	MRWZ-CP-SET	MRWZ-LP-SET

Lead Screw Support Unit Main Body MRWZ



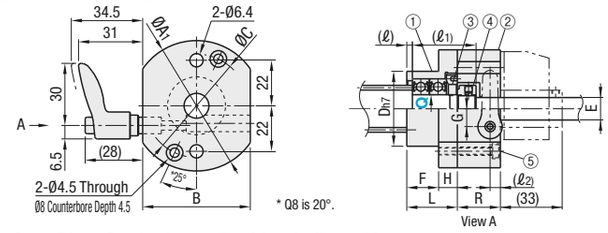
* Q8 is 20°.

Stop Plate Set MRWZ-S



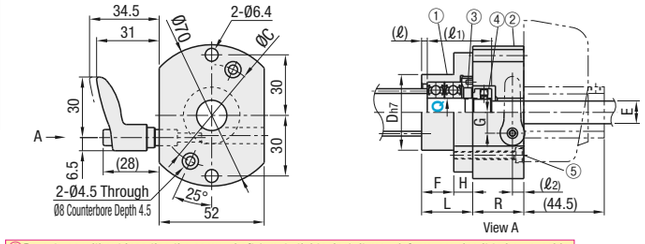
* Q8 is 20°.

Stop Plate Set for Digital Position Indicators Compact Mount MRWZ-CP



* Q8 is 20°.

Stop Plate Set for Large Position Indictor Mount MRWZ-LP



Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

A collar for the clamp lever is not included with Q8. The clamp lever mounting dimensions will be the same as the Large Type. The clamp lever cannot be mounted on the opposite side.

Parts Details

Number	Part Name	MRWZ	-S/-CP/-LP	-SET	M Material	S Surface Treatment
		Quantity				
①	Fixed Side Support Unit	1	1	1	EN 1.1191 Equiv.	Black Oxide
②	Collar	1	1	1	EN 1.0038 Equiv.	
③	Bearing Nut (w/ Thread Protector)	1	1	1	EN 1.0038 Equiv.	
④	Stop Plate Set	-	1	(1)	EN 1.0038 Equiv.	
⑤	Hex Socket Head Cap Screw	-	2	(2)	EN 1.7220 Equiv.	
⑥	Support Side Support Unit	-	-	1	EN 1.1191 Equiv.	
⑦	Retaining Ring for Shaft	-	-	1	Spring Steel	* No treatement
⑧	Radial Bearing	-	-	1	EN 1.3505 Equiv.	No treatement

Two preload-adjusted bearings are integrated in a Fixed Side Support Unit.
As one of the specifications for Support Side Support Unit, any bearing is not integrated in the main body when the product is shipped.
Values in ( ) are applicable only when support units are purchased in set.
*⑦Only Q8 product are surface-treated with Trivalent Chromate.

Part Number		Support Unit Support Side Set	L	H	F	D	A	A1	C	B	d1	d2	h	R	(ℓ)	(ℓ1)	(ℓ2)	G	E	Bearing Nut Nut	Clamp Lever	Bearing Type	Allowable Axial Load (N)
Type	Q																						
MRWZ	8	-SET (Only when purchasing support units in set)	22	8	14	28	45	53	35	35	3.4	7	4	17	2.3	26	5	6.5	6	BNR8	CLDFC4-7-M	B608ZZ	1300
MRWZ-S	10		24		16	34	52	54	42	42	4.5	8	5	18		29		7.5	8	BNR10		B6000ZZ	2300
MRWZ-CP	12					36	54		44	44								8.5	10	BNR12		B6001ZZ	2600
MRWZ-LP	15		27	10	17	40	63	63	50	52	5.5	10	16	20		34		9.5	12	BNR15		B6002ZZ	2900

Ordering Example

Part Number		
TYPE	Q	(-SET)
MRWZ	15	
MRWZ	12	-SET
MRWZ-S	12	
MRWZ-CP	15	-SET

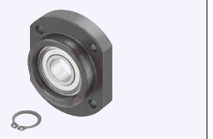
Support Side Support Unit Sets are available at 5 percent reduced price compared to Without Support Side Support Units.

Part Number		Support Unit Support Side Set	MRWZ	MRWZ-SET	MRWZ-S	MRWZ-S-SET	MRWZ-CP	MRWZ-CP-SET	MRWZ-LP	MRWZ-LP-SET
Type	Q		Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price
MRWZ	8	-SET (Only when purchasing support units in set)							-	-
MRWZ-S	10								-	-
MRWZ-CP	12									
MRWZ-LP	15									

Lead Screw Support Units - Round

Support Side

Easy Assembly Design Support Side Support Unit can be purchased as the separate unit. Instead of this, however, purchasing it in combination with Fixed Side Support Unit **(P.793)** as set is the more economical.



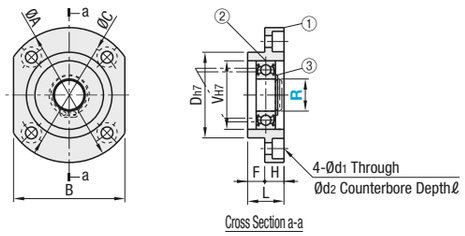
RoHS

This is the same product as Support Side Set in **P.793**

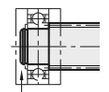
Number	Part Name	Quantity
①	Housing	1
②	Radial Bearing	1
③	Retaining Ring for Shaft (Included)	1

Contrary to image on the photo, Radial Bearing on ②, as well as Retaining Ring for Shaft, is already included with the support unit when the support unit is shipped.

Type	M Material	S Surface Treatment
MRUZ	EN 1.1191 Equiv.	Black Oxide



How to use Retaining Ring for Shaft



③Retaining Ring for Shaft (Accessary) should be used for fixing the shaft part. Use Lead Screws for Support Units **(P.789)** in combination with this ring, or select a product with the retaining shaft groove added on the shaft part.

Part Number		L	H	F	D	A	C	B	V	d1	d2	ℓ	Bearing Type	Retaining Ring for Shaft	MRUZ Unit Price	MRUZ Volume Discount Rate
Type	R														1 ~ 4 pc(s).	5 ~ 10 pcs.
MRUZ	8	13	7	6	28	45	35	35	22	3.4	6.5	4	B608ZZ	NETW5		
	10	14	7	7	34	52	42	42	26	4.5	8	4.5	B6000ZZ	STWN10		
	12	15	8	7	36	54	44	44	28	4.5	8	4.5	B6001ZZ	STWN12		
	15	17	9	8	40	63	50	52	32	5.5	9.5	5.5	B6002ZZ	STWN15		

Ordering Example

Part Number
MRUZ15

Example

Stop Plate Set

Stop Plate Set for Digital Position Indicators Compact Mount

The orientation of clamp lever can be toggled to the opposite side by trying to mount the stop plate set in a different manner.

Stop Plate Set for Large Position Indictor Mount

The mounting position of clamp lever can be changed from the right side to the left side and vice verse.

Position Indicators are sold separately. **P. 811, 812**

Features of Stop Plate Set, Wedge Mechanism

- The screw pulls the wedge up and fastens the shaft to require less torque force to tighten.
- High performance and optimal for the case where frequent adjustment is required. Brass wedges cause less damage to shafts.

Parts Details

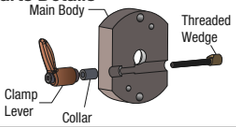
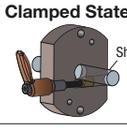


Image of Clamped State



Easy Assembly Design Dimensions Table

Lead Screw			Lead Screw Support Units				Position Indicator		
			Fixed Side		Support Side		Compact / Large		
Type	Shaft Dia.	Pitch	Type	Bearing I.D.	Type	Bearing I.D.	Type	Spindle Pitch	Alterations
	D	P		Q		R			
MTW(L)K MTWB(L)K RMTW(L)K MTSW(L)K	12	2	MRWZ MRWZ-S MRWZ-CP MRWZ-LP	8	MRUZ	8	D□□□□-	2	-CSE6
	14	3		10		10		3	-CSE8
	16	3		12		12		3	-CSE10
	18	4						4	-CSE10
	20	4		15		15		4	-CSE12
	22	5						5	-CSE12
	25	5						5	-CSE12

* For Digital Position Indicators Large, Spindle Pitch 2 cannot be selected.

By adding to (L) to a part number, the Reverse Screw Type is delivered. For position indicators, this Screw Type should be specified.
Precaution for Use: Use the position indicators within maximum rotational speed. **P. 811, 812**

Support Unit Mounting Procedure

①Insert the lead screw shaft into the fixed side support unit.
②After slipping a collar on, thread the included bearing nut on and temporarily tighten at 1/3 of the specified tightening torque. Mount the support side unit on the support end of the shaft and mount.
③While rotating the screw shaft, gradually tighten the bearing nut to obtain smooth motion from end to end.
④When smooth motion is obtained, tighten to full tightening torque to finish.

M	Nut Tightening Torque (N · cm)	Part Number
8	490	BNR8
10	930	BNR10
12	1370	BNR12
15	2350	BNR15

Value is for reference only.

Nuts for Lead Screws

Flanged / Compact, Flanged / Pilot / Tapped Holes / Slotted Holes

Easy Assembly Design

Selectable from Round Flanged, 2-Hole Compact Flanged, 4-Hole Compact Flanged, or Square Flanged Type.

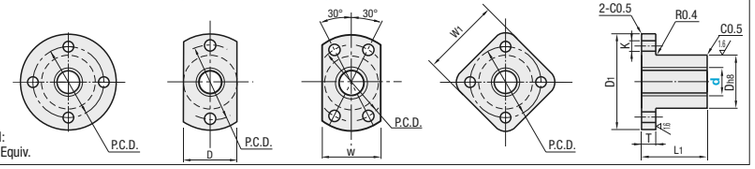
■Flanged

Round Flanged
MTSFR (Right-Hand Thread)
MTSFL (Left-Hand Thread)

Compact Flanged, 2-Hole
MTSNR (Right-Hand Thread)
MTSNL (Left-Hand Thread)

Compact Flanged, 4-Hole
MTSGR (Right-Hand Thread)
MTSGL (Left-Hand Thread)

Square Flanged
MTSCR (Right-Hand Thread)



Material: EN CC766S Equiv.

Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	W	W1	Allowable Dynamic Thrust (kN)	Mass (g) MTSFR MTSFL	MTSNR MTSNL	MTSGR MTSGL	MTSCR	Unit Price MTSFR MTSFL	MTSNR MTSNL	MTSGR MTSGL	MTSCR
Round Flanged	(8)	1.5	15	20	30	5	22	4.3	-	-	1.47	41	33	-	-			-	-
MTSFR MTSFL	10	2	20	24	36		26		22	-	2.55	80	66	67	-				-
Compact Flanged, 2-Hole	12		22	30	44		31	5.4	24	-	3.92	120	95	96	-				-
MTSNR MTSNL	*14	3								33	4.90	110	85	86	91				
Compact Flanged, 4-Hole	*16		28	35	51	6	38	6.6	30	38	6.67	200	169	172	169				
MTSGR MTSGL	18	4	32	40	56		42		34	-	8.72	260	219	220	-				-
Square Flanged	*20									42	9.81	260	219	220	224				
MTSCR	*22	5	36	50	61	7	47		40	47	12.36	410	357	364	366				
	*25										14.22	350	290	297	306				
	*28		44	56	76	8	58	9	48	58	17.95	630	538	546	548				
	*32										21.08	580	490	498	498				
	36	6	52	60	84		66		56	-	25.78	820	719	728	-				-
	40		58	70	98	10	76	11	62	-	33.83	1250	1034	1044	-				-
	50	8	68	80	109		85		72	-	40.31	1631	1350	1362	-				-

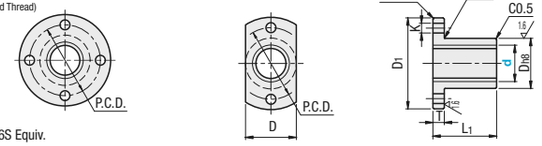
*Only * marked sizes are available for Square Flanged Type.*
d8 is applicable to MTSFR and MTSNR only.

Compact in both length and diameter. Short mounting hole pitch contributes to space savings.

■Compact, Flanged

Compact, Round Flanged
MTSPFR (Right-Hand Thread)
MTSPFL (Left-Hand Thread)

Compact, Compact Flanged, 2-Hole
MTSPNR (Right-Hand Thread)



Material: EN CC766S Equiv.

Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	Allowable Dynamic Thrust (kN) MTSPFR(L) MTSPNR	Mass (g) MTSPFR MTSPFL	MTSPNR	Unit Price MTSPFR MTSPFL	MTSPNR
Round Flanged	*10	2	16	19	32	4	24	3.3	2.02	39	-		-
MTSPFR MTSPFL	*12		18	24	36	5	27	4.3	3.14	59	-		-
Compact Flanged, 2-Hole	14	3	20		38		29		3.92	73	57		
MTSPNR	16		22	28	40		31		5.34	89	73		
	20	4	26	32	44		35		7.85	112	94		
	22	5	28	40	50	6	39	5.4	9.89	174	143		
	25		31		53		42		11.38	174	143		
	28		34	45	58	7	46	6.6	14.42	213	170		
	32	6	38		62		50		16.94	272	227		

** marked sizes are available for MTSPFR only.*

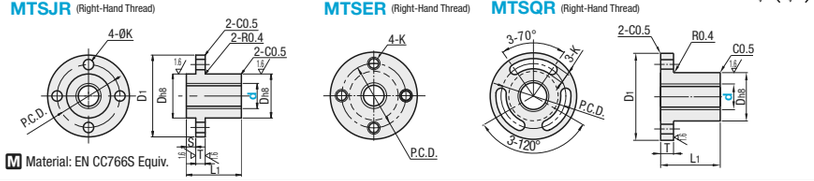
Pilot Type and Tapped Type are effective when used vertically on plates. The Slotted Hole Type can be used to perform fine adjustments during installation.

■Pilot / Tapped Holes / Slotted Holes

Round Flanged, Pilot
MTSJR (Right-Hand Thread)

Round Flanged, Tapped Holes
MTSER (Right-Hand Thread)

Round Flanged, Slotted Holes
MTSQR (Right-Hand Thread)



Material: EN CC766S Equiv.

Part Number Type	d	Pitch P	D	L1	D1 MTSJR	D1 MTSER MTSQR	T	S	P.C.D. MTSJR	P.C.D. MTSER MTSQR	K MTSJR MTSQR	K MTSER	Allowable Dynamic Thrust (kN)	Mass (g) MTSJR	MTSER	MTSQR	Unit Price MTSJR	MTSER	MTSQR
Pilot	*14	3	22	30	44	44	5	5	33	31	5.4	M4	4.90	110	112	98			
MTSJR	*16		28	35	52	51	6	6	40	38	6.6	M5	6.67	204	204	178			
(Only * marked sizes are available.)	*20	4	32	40	56	56			44	42			9.81	260	264	236			
Tapped Holes	*22	5	36	50	60	61	7		48	47			12.36	404	414	378			
MTSER	*25												14.22	344	354	318			
Slotted Holes	28		44	56	-	76	8	-	-	58	9	M6	17.95	-	645	570	-		
MTSQR	32	6											21.08	-	595	520	-		

Ordering Example — Part Number: MTSGR16, MTSPFL25

Nuts for Lead Screws - RoHS Compliant

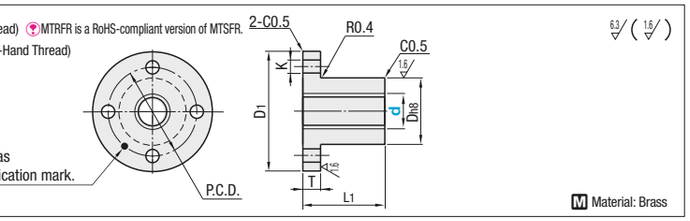
Flanged / Fine Pitch / Anti-Backlash

RoHS compliant Flanged Lead Screw Nut. Delivered in the shortest lead-time.

■Flanged

RoHS

MTRFR (Right-Hand Thread) MTRFR is a RoHS-compliant version of MTSFR.
MTXFR (Fine Pitch Right-Hand Thread)



Material: Brass

Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	Allowable Dynamic Thrust (kN)	Mass (g)	Unit Price 1 ~ 4 pc(s).
MTRFR	10	2	20	24	36	5	26	4.3	2.55	80	
	12		22	30	44		31	5.4	3.92	120	
	14	3							4.90	110	
	16		28	35	51	6	38	6.6	6.67	200	
	20	4	32	40	56		42		9.81	260	
	25	5	36	50	61	7	47		14.22	350	
	28		44	56	76	8	58	9	17.95	630	
	32	6							21.08	580	
MTXFR	16	2	28	35	51	6	38	6.6	6.78	190	
	20		32	40	56		42		10.1	250	

*For Fine Pitch Right-Hand Thread, p,lease see MTX□□ (**P.801, 805~808**).*

For orders larger than indicated quantity, please request a quotation.

Ordering Example — Part Number: MTRFR20

■Anti-Backlash

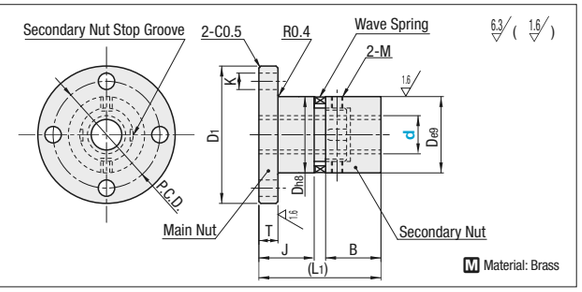
RoHS

MTBLR (Right-Hand Thread)

Main nut has 4 marks for confirmation of groove positioning.

■Components

Part Name	Material	Quantity
Main Nut	Brass	1
Secondary Nut	Brass	1
Wave Spring	JIS-SWRH72B	1
Set Screw	EN 1.7220 Equiv.	2



Material: Brass

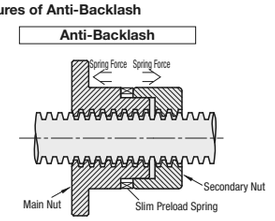
Part Number Type	d	Pitch P	D	D1	T	(L1)	J	B	P.C.D.	K	M	Allowable Dynamic Thrust (kN)	Mass (g)	Unit Price 1 ~ 4 pc(s).
Round Flanged MTBLR	10	2	20	36	5	34	13	15	26	4.3	3	2.60	100	
	12		22	44		36.5	16.5	16	31	5.4		3.39	130	
	16	3	28	51	6	45	21	20	38	6.6	4	6.29	230	
	20	4	32	56		52	24	25	42			9.32	310	

For orders larger than indicated quantity, please request a quotation.

Ordering Example — Part Number: MTBLR20

■Features of Anti-Backlash

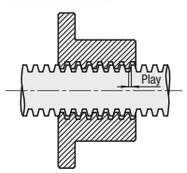
Anti-Backlash



Anti-Backlash can eliminate play between shaft and nut by spring force of slim preload spring installed between main nut and secondary nut. Even if there is abrasion, spring force controls backlash.

(Notes)The effects will vary depending on applied conditions (Load and Direction).

Regular Type



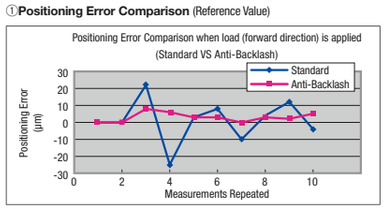
Regular Type has axial play of shaft and nut, and this causes backlash on reverse driving direction.

■Installation of Anti-Backlash

①Remove the tape that is temporarily holding the main and secondary nuts.
In this condition, the main and secondary nuts are fixed by 2 set screws.
②While the set screw is fixed, turn the shaft of lead screw as it is inserted.
③After insertion of secondary nut, set screw is rotated approximately 45° to 90° to loosen.
Clamping force between the main and secondary nuts is released and spring force works.

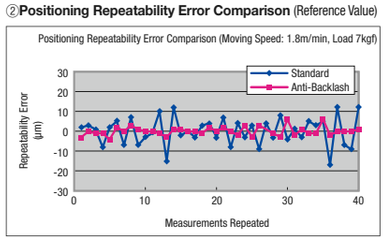
The mounted set screw must not protrude out from external diameter of secondary nut. In order to prevent dropout of set screw due to vibration and the like, insert to secondary nut part of housing.

①**Positioning Error Comparison** (Reference Value)



- Controls the deterioration in precision of positioning caused by Moment of Inertia during shut-down of motion and driving fluctuation effect.

②**Positioning Repeatability Error Comparison** (Reference Value)



- Anti-backlash design improves the system repeatability.

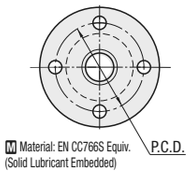
Test Conditions: Sample Nut: MTBLR16 Axis: MTSRG16-270 Travel Distance: 75mm

Nuts for Lead Screws
Lubrication-Free, Flanged / Straight

Lubrication-Free Type reduces the amount and number of times of grease to be applied in comparison to the Standard Type. Initial greasing is recommended for effective use.

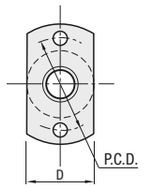
■Lubrication-Free, Flanged

Round Flanged
MTSMR (Right-Hand Thread)
MTSML (Left-Hand Thread)

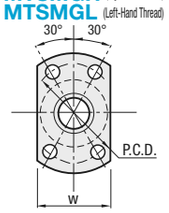


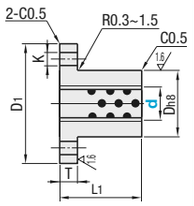
Material: EN CC766S Equiv. (Solid Lubricant Embedded)

Compact Flanged, 2-Hole
MTSMNR (Right-Hand Thread)
MTSMNL (Left-Hand Thread)



Compact Flanged, 4-Hole
MTSMGR (Right-Hand Thread)
MTSMGL (Left-Hand Thread)



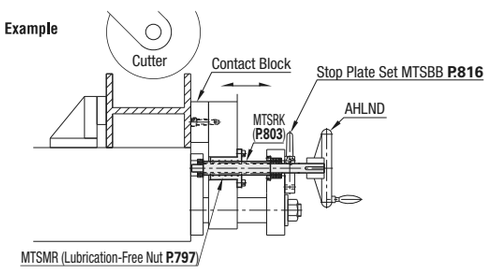


Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	W	Allowable Dynamic Thrust (kN)	Mass (g) MTSMR MTSML	Mass (g) MTSMNR MTSMNL	Mass (g) MTSMGR MTSMGL	Unit Price MTSMR MTSML	Unit Price MTSMNR MTSMNL	Unit Price MTSMGR MTSMGL
Round Flanged MTSMR (Right-Hand Thread) MTSML (Left-Hand Thread) Compact Flanged, 2-Hole MTSMNR (Right-Hand Thread) MTSMNL (Left-Hand Thread) Compact Flanged, 4-Hole MTSMGR (Right-Hand Thread) MTSMGL (Left-Hand Thread)	10	2	20	24	36	5	26	4.3	22	2.55	80	66	67			
	12		22	30	44		31	5.4	24	3.92	120	95	95			
	14	3								4.90	110	85	86			
	16		28	35	51	6	38	6.6	30	6.67	200	169	172			
	20	4	32	40	56		42		34	9.81	260	219	220			
	22	5	36	50	61	7	47		40	12.36	410	357	364			
	25									14.22	350	290	297			
	*28		44	56	76	8	58	9	-	17.95	630	-	-		-	-
	*32								-	21.08	580	-	-		-	-
	*36	6	52	60	84		66		-	25.78	820	-	-		-	-
	*40		58	70	98	10	76	11	-	33.83	1250	-	-		-	-

Features of Lubrication-Free Nut and Data about Abrasion Test P.799

Ordering Example — Part Number: MTSMNL16

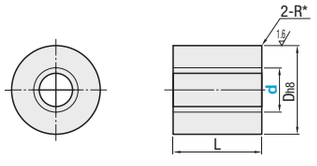
Example



Requires to be mounted to a nut, and a rotation preventing measure is needed.

■Straight

MTSSR (Right-Hand Thread)
MTSSL (Left-Hand Thread)



* d8:R0.5
d10~25:R1.0
d28~50:R1.5

Material: EN CC491K Equiv.

Part Number Type	d	Pitch P	D	L	Allowable Dynamic Thrust (kN)	Mass (g) MTSSR MTSSL	Unit Price MTSSR	Unit Price MTSSL
MTSSR MTSSL (d8 is for MTSSR only)	(8)	1.5	15	20	1.47	22		-
	10	2	20		2.06	40		
	12		22	22	2.84	50		
	14	3			3.63	50		
	16		28	26	4.90	100		
	18	4	32	31	6.86	160		
	20				7.65	150		
	22	5	36	40	9.90	240		
	25				11.38	210		
	28		44	45	14.42	390		
	32	6			17.06	320		
	36		52	49	21.18	530		
	40		58	57	27.46	720		
	50	8	68	67	40.11	1126		

Ordering Example — Part Number: MTSSR16

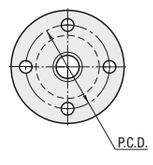
Nuts for Lead Screws
High Strength Plastic / Plastic

High Strength Flanged Plastic has good mechanical properties and chemical resistance and is available for reduced price compared with Standard Plastic Type.

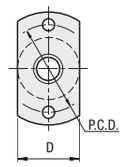
■High Strength Flanged Plastic

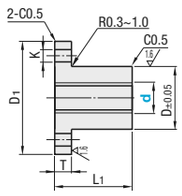
RoHS

Round Flanged
MTSRR (Right-Hand Thread)



Compact Flanged
MTSRN (Right-Hand Thread)





Material: Tribological PPS Resin (PTFE+GF30%)
Higher allowable thrust than the conventional plastic types.

Operating Temperature: -45°C~200°C

Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	Allowable Dynamic Thrust (N)	Mass (g) MTSRR	Mass (g) MTSRN	Unit Price MTSRR	Unit Price MTSRN
Round Flanged MTSRR (Right-Hand Thread)	10	2	20	24	36	5	26	4.3	278	19	16		
	12		22	30	44		31	5.4	428	30	24		
	14	3							536	27	21		
Compact Flanged MTSRN (Right-Hand Thread)	16		28	35	51	6	38	6.6	686	46	39		
	18	4	32	40	56		42		954	64	54		
	20								1071	61	51		

Ordering Example — Part Number: MTSRR20

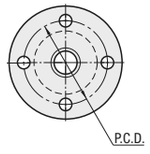
■Material Properties (Listed values are not guaranteed, but reference values.)

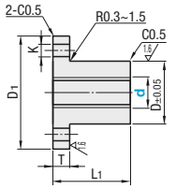
Material		Test Method (ASTM)	Unit	PPS Resin with Sliding Property (PTFE+GF30%)	Polyacetal
Characteristic				Value	
Specific Gravity		D792	-	1.68	1.41
Water Absorption Ratio (at 23°C in water x24h)		D570	%	0.02	0.22
Combustibility		UL94	-	V-0	HB
Mechanical Properties	Tensile Strength	D638	MPa	135	61
	Elongation	D638	%	2.9	40
	Bending Strength	D790	MPa	180	89
	Flexural Modulus	D790	GPa	10	2.59
	Shear Load Strength	D732	MPa	60	55
	Izot Impact Strength	D256	J/m	130	74
Chemical Resistance	Oil	-		◎	○
	Acid	-		◎	△~×
	Alkali	-		◎	○
	Organic Solvent	-		◎	○

■Plastic

RoHS

MTSFJR (Right-Hand Thread)
MTSFJL (Left-Hand Thread)





Material: Polyacetal

Part Number Type	d	Pitch P	D	L1	D1	T	P.C.D.	K	Allowable Dynamic Thrust (N) MTSFJR MTSFJL	Mass (g) MTSFJR MTSFJL	Unit Price MTSFJR MTSFJL
MTSFJR (Right-Hand Thread) MTSFJL (Left-Hand Thread) (* marked sizes are for MTSFJR only.)	10	2	20	24	36	5	26	4.3	255	16	
	12		22	30	44		31	5.4	392	25	
	14	3							490	23	
	16		28	35	51	6	38	6.6	628	39	
	18	4	31	40	56		42		873	54	
	20								980	51	
	*25	5	36	50	61	7	47	6.6	1412	69	
	*28		44	56	76	8	58	9	1765	124	
	*32	6							2050	112	

Ordering Example — Part Number: MTSFJR20

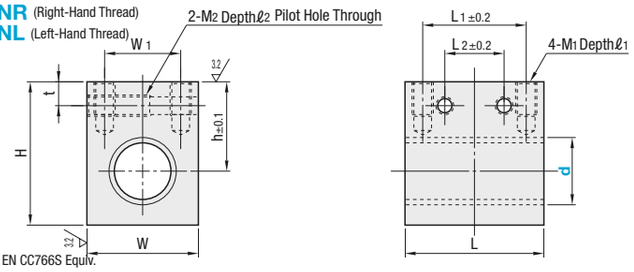
Block Nuts for Lead Screws

Tall Block / Wide Block / Lubrication-Free

Can be used without a nut bracket. Reduces the time of designing and assembling the nuts.

■Tall Block

MTSBNR (Right-Hand Thread)
MTSBNL (Left-Hand Thread)



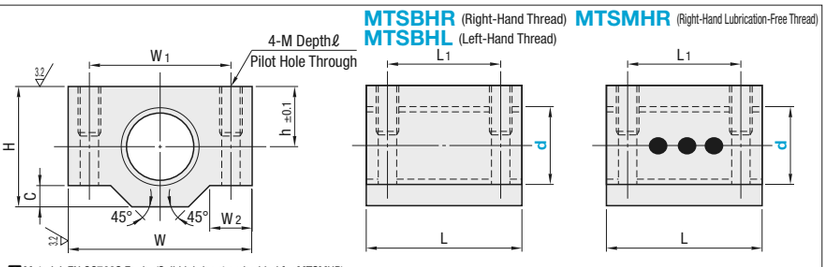
M Material: EN CC766S Equiv.

Part Number Type	d	Pitch P	h	W	H	L	L1	L2	W1	M1	ℓ1	M2	ℓ2	t	Allowable Dynamic Thrust (kN)	Mass (g)	Unit Price MTSBNR	Unit Price MTSBNL
MTSBNR (Right-Hand Thread) / MTSBNL (Left-Hand Thread)	10	2	20	20	30	24	16	-	12	M4	8	-	-	6	2.55	100		
	12		23	22	34	30	21	9	13	M5	10	M5	15		3.92	150		
	14	3													4.90	140		
	16		27	28	41	35	25	11	18	M6	12	M6	18	7	6.67	260		
	18	4	29	32	45	40	30	16	22						8.72	380		
	20														9.81	360		
	22	5	30	36	48	50	40	20	26						12.36	580		
	25														14.22	540		
	28		38	44	60	62	50	25	32	M8	16	M8	22	8	20.05	1050		
	32	6													22.81	970		

Ordering Example: Part Number **MTSBNR28**

■Wide Block ■Lubrication-Free

MTSBHR (Right-Hand Thread) **MTSMHR** (Right-Hand Lubrication-Free Thread)
MTSBHL (Left-Hand Thread)

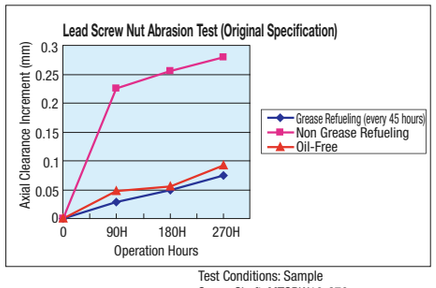


M Material: EN CC766S Equiv. (Solid lubricant embedded for MTSMHR)

Part Number Type	d	Pitch P	h	W	H	L	L1	W1	W2	C	M	ℓ	Allowable Dynamic Thrust (kN)	Mass (g)	Unit Price MTSBHR•MTSBHL	Unit Price MTSMHR
MTSBHR (Right-Hand Thread) / MTSBHL (Left-Hand Thread) / MTSMHR (Right-Hand Lubrication-Free Thread)	*10	2	10	30	20	24	16	20	8	4	M4	8	2.55	87		
	*12	2	11	38	22	30	20	26	10	5	M5	10	3.92	147		
	*14	3	11	38	22	30	20	26	10	5	M5	10	4.90	140		
	*16	3	14	44	28	35	24	32	10	5	M5	10	6.67	267		
	18	4	16	48	32	40	28	36	11	6	M6	12	8.72	375		-
	*20	4	16	48	32	40	28	36	11	6	M6	12	9.81	357		
	22	5	20	62	38	50	34	46	14	10	M8	16	12.36	670		-
	*25	5	20	62	38	50	34	46	14	10	M8	16	14.22	629		
	28	5	25	68	47	56	40	52	14	10	M8	16	17.95	1041		-
	*32	6	25	68	47	56	40	52	14	10	M8	16	21.08	970		

Only * marked sizes are available for MTSMHR.

Ordering Example: Part Number **MTSMHR20**



■Features of Lubrication-Free Nut for Lead Screws

As can be seen from the test result shown to the right, MISUMI Lubrication-Free nuts can achieve performance equivalent of once per 45hrs. lubrication cycles.
After initial greasing, this realizes Lubrication-Free operation. It provides high performance especially under low-speed operation.

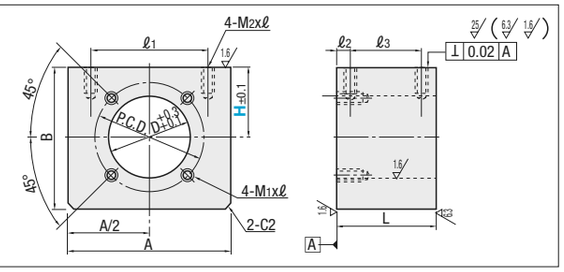
Test Conditions: Sample
Screw Shaft: MTSRW10-270
Nut: MTSFR10, MTSMR10 (Lubrication-Free)
Applied Load: 220N, Shaft Speed: 1500rpm

Brackets for Lead Screws / Spacers Plates for Wide Block

■Brackets for Lead Screws

RoHS

Type	M Material	S Surface Treatment
DNBB	EN 1.1191 Equiv.	Black Oxide
DNBM		Electroless Nickel Plating
DNBA	Aluminum Alloy 5000 series	Clear Anodize



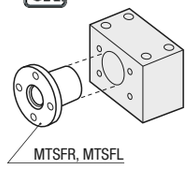
Part Number Type	No.	H	A	B	P.C.D.	M1xℓ	D	ℓ1	L	ℓ2	ℓ3	M2xℓ	Applicable Nut MTS□R,MTSFL	Unit Price DNBB	Unit Price DNBM	Unit Price DNBA
DNBB DNBM DNBA	264	20 25 30 40	40	H+20	26	M4x7	20	30	24	6	12	M4x8	10			
	315	23 25 30 40	50	H+23	31	M5x7	22	35	30	8	14	M5x10	12, 14			
	386	27 30 35 50	60	H+27	38	M6x10	28	45	34		18	M6x12	16			
	426	29 30 35 40 50	65	H+29	42		32	50	39		23		18, 20			
	476	32 35 40 50	70	H+32	47		36	50	46		30		22, 25			
	588	40 45 50 60	80	H+40	58	M8x12	44	60	48		32	M8x16	28, 32			
	668	43 45 50 60	86	H+43	66		52	65	52		36		36			
	7610	50 55 60 70	100	H+50	76	M10x14	58	75	60	10	40	M10x20	40			
	8510	58 60 70	116	H+58	85		68	85	70		50		50			

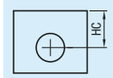
Please use Nut Bracket combined with Round Flanged Lead Screw Nut and Square Flanged Lead Screw Nut.

Ordering Example: Part Number **DNBB** - H **315** - **30**

Alterations: Part Number **DNBB264** - H **25** - (HC) **HC22.5**

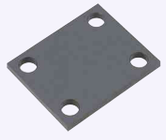
Example



Alteration	Code	Spec.
	HC	H Dimension 0.1mm increment Ordering Code HC22.5

No.	H
264	20.0~40.0
315	23.0~40.0
386	27.0~50.0
426	29.0~50.0
476	32.0~50.0
588	40.0~60.0
668	43.0~60.0
7610	50.0~70.0
8510	58.0~70.0

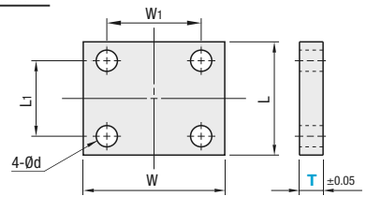
■Spacer Plates for Wide Block Type



RoHS

Type	M Material	S Surface Treatment
MTKL	EN 1.0038 Equiv.	Black Oxide

■Height-Adjusting Spacer for Wide Block Type.

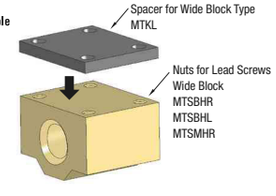


Thread Chamfering Square

Part Number Type	No.	T 0.1mm increment	Applicable Lead Screw Nut Type	Applicable Lead Screw Nut I.D. d	W	L	W1	L1	d	Unit Price T=2.5~2.9	Unit Price T=3.0~4.9	Unit Price T=5.0~6.9	Unit Price T=7.0~9.0
MTKL	1	2.5~9.0	MTSBHR MTSBHL MTSMHR	10	30	24	20	16	4.5				
	2			12, 14	38	30	26	20	5.5				
	3			16	44	35	32	24					
	4			18, 20	48	40	36	28	6.5				
	5			22, 25	62	50	46	34	9				
	6			28, 32	68	56	52	40					

Ordering Example: Part Number **MTKL2** - T **3.5**

Example



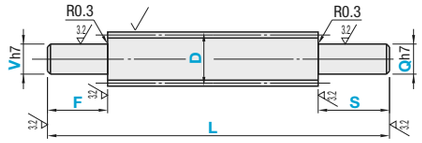
Lead Screw
Both Ends Stepped

Generally used product type.

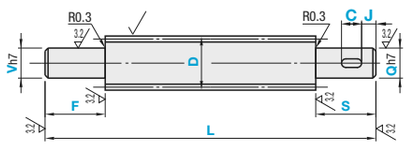
Type						Material	Surface Treatment
Right-Hand Thread	Right-Hand Thread with Keyway	Fine Pitch Right-Hand Thread	Left-Hand Thread	Right and Left-Hand Thread	Precision Right and Left-Hand Thread		
MTSRW	MTSRV	MTXRW	MTSLW	MTSWW	MTSYW	EN 1.1191 Equiv.	-
MTSBRW	MTSBRV	MTXBRW	MTSBLW	MTSBWW	MTSBYW		Black Oxide
RMTSRW	RMTSRV	-	RMTSLW	RMTSWW	-		LTBC Plating
MTSTRW	-	-	MTSTLW	-	-	EN 1.4305 Equiv.	-

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

Right-Hand Thread / Left-Hand Thread / Fine Pitch Right-Hand Thread

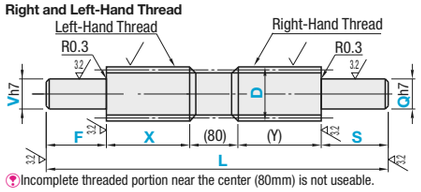


Right-Hand Thread with Keyway



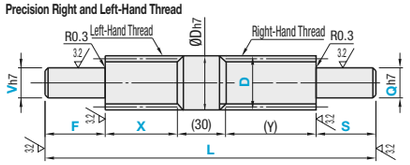
Keyway machining details conform to Shaft Keyway Dimensions shown on the right-hand page.

Right and Left-Hand Thread



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

Precision Right and Left-Hand Thread



ØDh7-30mm part includes incomplete thread portion by about 1.5 pitches at both ends (in total about 3 pitches).

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. 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 Thread / Left-Hand Thread / Right and Left-Hand Thread / Precision Right and Left-Hand Thread

Part Number Type	D	1mm Increment L	F, S	V / Q Selection	Right and Left-Hand Thread / Precision Right and Left-Hand Thread X 1mm Increment	D	Pitch P
(Right-Hand Thread) MTSRW MTSBRW RMTSRW D≤32,L≤1000 MTSTRW (Stainless Steel)	*8	50~500	2≤F≤Vx7 2≤S≤Qx7 When V and Q are 6 ~ 9, 2≤F≤Vx5 2≤S≤Qx5	6	When D=10 ~ 14 50≤X≤460<485>-F (Y)=L-80<30>-F-S-X (Y)≤500-S-40<15> When D=16 ~ 50 50≤X≤560<585>-F (Y)=L-80<30>-F-S-X (Y)≤600-S-40<15> Dimensions in < > are for Precision Right and Left-Hand Thread.	8	1.5
	10	80~1000		6 7		10	2
	12			6 7 8 9		12	
	14			8 9 10		14	3
(Left-Hand Thread) MTSLW MTSBLW RMTSLW D≤32,L≤1000 MTSTLW (Stainless Steel)	16	100~1200		9 10 12		16	
	18	150~1200		9 10 12		18	4
	20			10 12 14 15		20	
(Right and Left-Hand Thread) MTSWW MTSBWW RMTSWW D≤32,L≤1000	22			10 12 14 15		22	5
	25			12 14 15 16 17		25	
	28			14 15 16 17 20		28	
(Precision Right and Left-Hand Thread) MTSYW MTSBYW	32	200~1200		14 15 16 17 20 25		32	6
	36			17 20 25		36	
	40			20 25 30		40	
(*D8 is applicable to MTSRW, MTSBRW and RMTSRW only)	50			25 30 35 40		50	8

For Precision Right and Left-Hand Thread, D dimension 14, 16, 20, 25, 28 and 32 are available. 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. D dimension 25, 28 and 32 are applicable to Right-Hand Thread only.

■Right-Hand Thread with Keyway

Part Number Type	D	1mm Increment L	F, S	V / Q Selection	1mm Increment C	1mm Increment J	D	Pitch P
MTSRV MTSBRV RMTSRV D≤32,L≤1000	12	80~1000	2≤F≤Vx72≤S≤Qx7 When Q, V≤9, F, S are 5x or less of Q, V.	7 8 9	C≤60 S-C-J≥2	J≥2 or J=0 When J=0, keyway R will be eliminated on the shaft end side.	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

■Fine Pitch Right-Hand Thread

Fine Pitch Right-Hand Thread has a smaller pitch than the conventional standard products.

Part Number Type	D	1mm Increment L	F, S	V / Q Selection	D	Pitch P
MTXRW MTXBRW	16	100~1000	2≤F≤Vx7 2≤S≤Qx7 When Q, V≤9, F,S are 5x or less of Q, V.	9 10 12	16	2
	20	150~1000		10 12 14 15	20	2

Nuts for Fine Pitch Right-Hand Thread P.796

Ordering 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

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

■Right-Hand Thread / Left-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRW Price in the Table	8				-	-	-
	10						-
	12						-
	14						-
MTSBRW Price in the Table x1.1	16						
	18						
	20						
MTSLW Price in the Table x1.02	22						
	25						
	28						
MTSBLW Price in the Table x1.12	32						
	36						
	40						
	50						

■Right and Left-Hand Thread

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

■Precision Right and Left-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSYW Price in the Table	14						-
	16						
	20						
MTSBYW Price in the Table x1.1	25						
	28						
	32						

■Fine Pitch Right-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000
MTXRW	16					
	20					
MTXBRW	16					
	20					

■Right-Hand Thread with Keyway

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

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

Part Number Type	D	Unit Price Min. L ~ 200	L200~400	L401~600	L601~800	L801~1000	L1001~1200
MTSTRW MTSTLW	10						-
	12						-
	14						-
	16						
	18						
	20						
MTSTRW	25						
	28						
	32						

■Low Temperature Black Chrome Plated Products

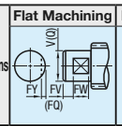
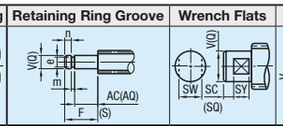
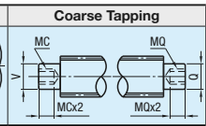
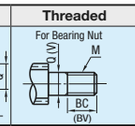
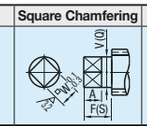
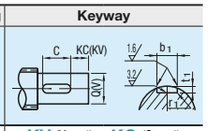
Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000
RMTSRW (Price of MTSRW + Price in the Table)	8				-	-
	10					
	12					
RMTSRV (Price of MTSRV + Price in the Table)	14					
	16					
RMTSLW (Price of MTSLW + Price in the Table)	18					
	20					
RMTSWW (Price of MTSWW + Price in the Table)	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	F	V	S	Q	(AC, SC, MC ··· etc)
MTSRW16	282	F16	V10	S14	Q10	AC13.3

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

Alterations	Flat Machining	Retaining Ring Groove	Wrench Flats	Coarse Tapping	Threaded	Square Chamfering	Keyway
							
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= 0.5mm Increment
FV=Applied on V part
FQ=Applied on Q part
Applicable to either V or Q.
Ordering Code FVS-FW10-FY1
FV(FQ)=0, or FV(FQ)≥2
When V (Q)≤25, FY≤1.0
When V (Q)≥26, FY≤2.0
3≤FW≤20

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

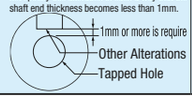
V, Q	e Tolerance	m +0.14 0	n Machining Limit
6 7	4 +0.075 0	0.7	n≥1.2
8 9	5 6	0.9	
10	9.6 0 -0.09		
12	11.5	1.15	n≥1.5
14	13.4		
15	14.3 0 -0.11		
16	15.2		
17	16.2		
20	19	1.35	
25	23.9 0 -0.21		
30	28.6	1.65	
35	33		
40	38 0 -0.25	1.9	n≥2

SC,SQ,SW,SY= 1mm Increment
Applied on SC=V part
Applied on SQ=Q part
Applicable to either V or Q.
Ordering Code SCS-SW10-SY8
SC(SQ)=0, or SC(SQ)≥2
When Q(V)<15, then SW≥Q(V)-2
When 15≤Q(V)≤25, SW≥Q(V)-3
When 30≤Q(V), SW≥Q(V)-5
3≤SY≤20

MC=Applied on V part
MQ=Applied on Q part
Ordering Code MC24

V・Q	MC, MQ (Selection Range)
6	3
7, 8	3, 4
9, 10	3, 4, 5
12	3, 4, 5, 6
14, 15	3, 4, 5, 6, 8
16, 17	3, 4, 5, 6, 8, 10
20	3, 4, 5, 6, 8, 10, 12
25, 30	3, 4, 5, 6, 8, 10, 12, 16
35	3, 4, 5, 6, 8, 10, 12, 16, 20
40	3, 4, 5, 6, 8, 10, 12, 16, 20, 24

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



BV,BC≤Mx3
BV,BC≥Pitchx3
BV,BC≤F,S-Pitchx3
Ordering Code BC20
BV=Applied on V part
BC=Applied on Q part

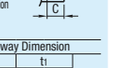
V, Q	MxPitch
6	M6x0.75
8	M8x1.0
10	M10x1.0
12	M12x1.0
14	M14x1.0
15	M15x1.0
17	M17x1.0
20	M20x1.0
25	M25x1.5
30	M30x1.5
35	M35x1.5
40	M40x1.5

Not applicable when V,Q=7, 9, 16

W,A=1mm Increment
ZC=Applied on V part
ZQ=Applied on Q part
Applicable to either V or Q.
Ordering Code ZC10-W8-A8
Can be combined with Tapped Hole machining only on the same shaft. (See P.787 for machining conditions.)
5≤A≤20
ZC=V, ZQ=Q Specified

ZC=V, ZQ=Q W 1mm Increment	A
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

KC,KV,C=1mm Increment
Ordering Code KC8-C10
KV=Applied on V part
KC=Applied on Q part
Applicable to either V or Q.
Specify the C dimension not to be bellow b1.
C≤60
S(F)-C-KC(KV)≥2
KC(KV)≥2
When KC,KV=0



Applicable Shaft End Dia. V, Q	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		
12	4	0 -0.030	2.5		0.16 ~0.25
14~17	5		3.0		
20	6		3.5		
25, 30	8	0 -0.036	4.0	+0.2 0	0.25 ~0.40
35	10		5.0		
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

One End Stepped / One End Double Stepped

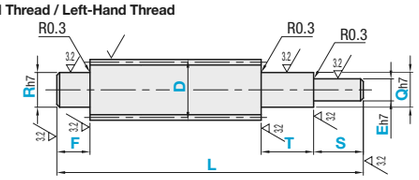
Lead screws that are easy to combine with MISUMI Support Units in **P.791~792**.

Type				M Material	S Surface Treatment
Right-Hand Thread	Left-Hand Thread	Right and Left-Hand Thread	Precision Right and Left-Hand Thread		
MTSRK	MTSLK	MTSWKA/B	MTSYKA/B	EN 1.1191 Equiv.	-
MTSBRK	MTSBLK	MTSBWKA/B	MTSBYKA/B		Black Oxide
RMTSRK	RMTSLK	RMTSWKA/B	-		LTBC Plating
MTSTRK	MTSTLK	-	-	EN 1.4305 Equiv.	-

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

Type A or B are available for Right and Left-Hand Thread and Precision Right and Left-Hand Thread.

Right-Hand Thread / Left-Hand Thread

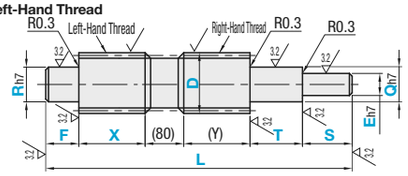


Incomplete Threaded Portion of Right and Left-Hand Thread Type

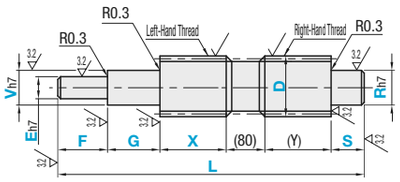
The Center between the right-hand thread and the left-hand thread is an incomplete thread portion (approx. 80mm) resulting from rolling machining.
This portion, including the shaft part enclosed with ◯, is not useable.
When being required to use the center between the right-hand thread and the left-hand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

Right and Left-Hand Thread

MTSWKA
MTSBWKA
RMTSWKA



MTSWKB
MTSBWKB
RMTSWKB



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

Precision Right and Left-Hand Thread

MTSYKA
MTSBYKA

MTSYKB
MTSBYKB

ØDh7-30mm part includes incomplete thread portion by about 1.5 pitches at both ends (in total about 3 pitches).

Part Number		1mm Increment		V / Q / R	E	Right and Left-Hand Thread / Precision Right and Left-Hand Thread	D	Pitch P
Type	D	L	F, G, T, S		1mm Increment	X 1mm Increment		
(Right-Hand Thread)	12	80~1000	2≤F≤E-Rx7 2≤G≤Vx7 2≤S≤E-Rx7 2≤T≤Qx7 When Q, V, R, and E≤9, F, G, T, S will be 5x or less of Q, V, R, E.	7 8 9	Q/2≤E≤Q-1 V/2≤E≤V-1	When D=12, 14 50≤X≤460<485>-F-G (Y)=L-80<30>-F-G-S-T-X (Y)≤500-S-T-40<15> When D=16 ~ 50 50≤X≤560<585>-F-G (Y)=L-80<30>-F-G-S-T-X (Y)≤600-S-T-40<15> Dimensions in < > are for Precision Right and Left-Hand Thread.	12	2
MTSRK	14			8 9 10			14	3
MTSBRK								
RMTSRK D≤32,L≤1000	16	100~1200		9 10 12			16	
MTSTRK (Stainless Steel)	18			9 10 12			18	4
(Left-Hand Thread)	20			10 12 14 15			20	
MTSLK								
MTSBLK	22	150~1200		10 12 14 15			22	5
RMTSLK D≤32,L≤1000								
MTSTLK (Stainless Steel)	25			12 14 15 16 17			25	
(Right and Left-Hand Thread)	28			14 15 16 17 20			28	
MTSWKA/B	32	200~1200		14 15 16 17 20 25			32	6
MTSBWKA/B								
RMTSWKA/B D≤32,L≤1000	36			17 20 25			36	
(Precision Right and Left-Hand Thread)	40			20 25 30			40	
MTSYKA/B								
MTSBYKA/B	50			25 30 35 40			50	8

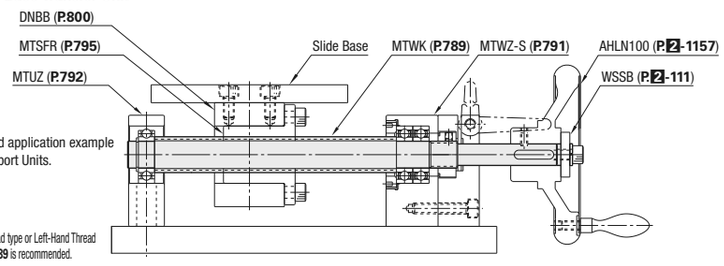
For Precision Right and Left-Hand Thread, D dimension 14, 16, 20, 25, 28 and 32 are available. When combined with the position indicators, Q and V standard dimensions will be 8 ~ 20. **P.811, 812**
D dimension 22, 36, 40 and 50 are not applicable to Stainless Steel. D dimension 25, 28 and 32 are applicable to Right-Hand Thread only.

Example

MTUZ	Lead Screw Support Unit - Support Side
MTSFR	Lead Screw Nut - Flanged
DNBB	Nut Bracket for Lead Screw
MTWK	Lead Screw - For Support Units
MTWZ-S	Lead Screw Support Units Stop Plate Set
AHLN100	Five Spoked Handwheel
WSSB	Metal Washer

When considering adopting support units in combination either with Right-Hand Thread type or Left-Hand Thread type lead screws, ordering of Lead Screws - For Lead Screw Support Unit Type in **P.789** is recommended.

Slide Base Transfer Unit



Combined application example with Support Units.

Ordering Example

Part Number	-	L	-	F	-	R	-	T	-	Q	-	S	-	E	-	X
MTSRK16	-	456	-	F37	-	R10	-	T20	-	Q12	-	S10	-	E9		
MTSWKA16	-	456	-	F37	-	R10	-	T20	-	Q12	-	S10	-	E9	-	X150

Part Number	-	L	-	F	-	E	-	G	-	V	-	S	-	R	-	X
MTSBWKB20	-	582	-	F10	-	E10	-	G15	-	V12	-	S25	-	R15	-	X200

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

Right-Hand Thread / Left-Hand Thread

Part Number		Unit Price					
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRK Price in the Table	12						-
	14						-
	16						
MTSBRK Price in the Table x1.1	18						
	20						
	22						
MTSLK Price in the Table x1.02	25						
	28						
	32						
MTSBLK Price in the Table x1.12	36						
	40						
	50						

Right and Left-Hand Thread

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

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

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

Low Temperature Black Chrome Plated Products - Right-Hand Thread / Left-Hand Thread

Part Number		Unit Price				
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000
RMTSRK (Price of MTSRK + Price in the Table)	12					
	14					
RMTSLK (Price of MTSLK + Price in the Table)	16					
	18					
RMTSWKA/B (Price of MTSWK + Price in the Table)	20					
	22					
	25					
	28					
	32					

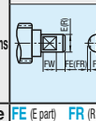
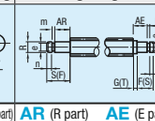
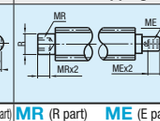
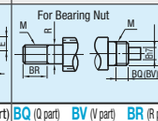
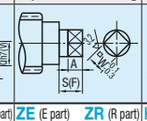
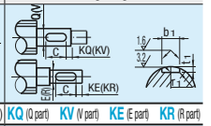
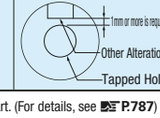
For low temperature black chrome plated products, add the price of low temperature black chrome plating shown above to the non-plated product prices.

Precision Right and Left-Hand Thread

Part Number		Unit Price					
Type	D	Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSYKA/B Price in the Table	14						-
	16						
	20						
MTSBYKA/B Price in the Table x1.1	25						
	28						
	32						

Alterations

Part Number	-	L	-	F	-	R	-	T	-	Q	-	S	-	E	- (AR·SE·MR··· etc.)
MTSTRK16	-	456	-	F37	-	R10	-	T20	-	Q12	-	S10	-	E9	- MR4

Alterations	Flat Machining	Retaining Ring Groove	Wrench Flats	Coarse Tapping	Threaded	Square Chamfering	Keyway
							
Code	FE (E part) FR (R part)	AR (R part) AE (E part)	SE (E part) SR (R part)	MR (R part) ME (E part)	BQ (Q part) BV (V part) BR (R part)	ZE (E part) ZR (R part)	KQ (Q part) KV (V part) KE (E part) KR (R part)
Spec.	FE,FR,FW,FY= 0.5mm Increment FE=Applied on E part FR=Applied on R part Ordering Code FR5-FW10-FY1 Applicable to either E or R When E (R)≤25, FY≤1.0 When E (R)≥26, FY≤2.0 3≤FW≤20 FE(FR)=0, or FE≥2	AR, AE=0.1mm Increment AR(AE)≤S(F)+T(G)-**m-n** For the m,n value, see the table bellow. (For the m value, consider the tolerance.) Ordering Code AE13.3 AR=Applied on R part AE=Applied on E part R·E: e Tolerance; m +0.14 0; n Machining Limit 7 4: +0.075 0; 0.7; n≥1.2 8 5: 0; 0.9 9 6: 0 -0.09; 1.15 10 9.6 12 11.5 14 13.4 15 14.3: 0 -0.11 16 15.2 17 16.2: n≥1.5 20 19 25 23.9: 0 -0.21; 1.35 30 28.6: 1.65 35 33 40 38: 0 -0.25; 1.9; n≥2	SE,SW,SY= 1mm Increment SE=Applied on E part SR=Applied on R part. Ordering Code SE3-SW10-SY7 When E(R)<15, SW≥E(R)-2 When 15≤E(R)≤25, SW≥E(R)-3 When 30≤E(R), SW≥E(R)-5 3≤SY≤20 SE(SR)=0, or SE(SR)≥2	MR=Applied on R part ME=Applied on E part Ordering Code MR24 R, E: ME, MR (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: 3, 4, 5, 6, 8, 10, 12, 16, 20, 24, 30 Not applicable when R, E=4. When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1mm.  1mm or more is required. Other Alterations Tapped Hole	Cannot be applied when Q, V, R = 7, 9, 16. BQ,BV,BR≤Mx3 BQ,BV,BR≥Pitchx3 BQ,BV,BR≤F,S,T,G-Pitchx3 Ordering Code BR20 BQ=Applied on Q part BV=Applied on V part BR=Applied on R part Q, V, R: 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	W,A= mm Increment ZE=Applied on E part ZR=Applied on R part Ordering Code ZE12-W10-A8 Applicable to only one of either E or R Can be combined with Tapped Hole machining only on the same shaft. (See P.787 for machining conditions.) 5≤A≤20 S(F)≥A-2 ZR=R Specified, ZR>W ZE=E Specified, ZE>W ZE=E, ZR=R: 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, R/2) √2≤W May not be manufacturable depending on E, R, and W relationships.	KQ,KV,KE,KR,C=0.1mm Increment C≤60 KQ=Applied on Q part T(G)-C-KQ(KV)≥2 KV=Applied on V part S(F)-C-KE(KR)≥2 KE=Applied on E part KQ(KV, KE, KR)≥2 KR=Applied on R part When KQ(KV, KE, KR)=0, keyway R will be eliminated on the shaft end side. Ordering Code KQ8-C10 Applicable to only one of Q, V, E, or R Specify the C dimension not to be bellow b_1. Applicable Shaft End Dia. Q, V, E, R: Keyway Dimension b_1 Reference Dimension; b_1 Tolerance (N9); t_1 Reference Dimension; t_1 Tolerance; r_1 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 18~22: 6: 3.5: 0.16~0.25 23~30: 8: 0 -0.036: 4.0 31~38: 10: 5.0: +0.2 0 39~40: 12: 0 -0.043: 5.0: 0.25~0.40

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

One End Stepped / One End Double Stepped

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

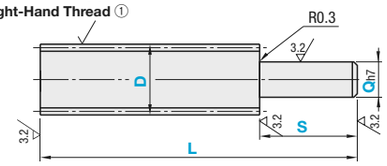
Type				M Material	S Surface Treatment
One End Stepped		One End Double Stepped			
① Right-Hand Thread	② Right-Hand Thread with Keyway	③ Right-Hand Thread	④ Right-Hand Thread with Keyway		
MTSRA	MTSRB	MTSRC	MTSRD		-
MTSBRA	MTSBRB	MTSBRC	MTSBRD	EN 1.1191 Equiv.	Black Oxide
RMTSRA	RMTSRB	RMTSRC	RMTSRD	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

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

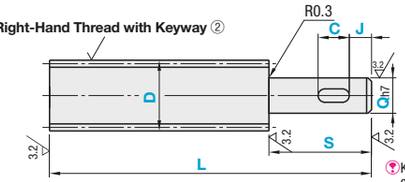
6.3 / (3.2)

One End Stepped

Right-Hand Thread ①



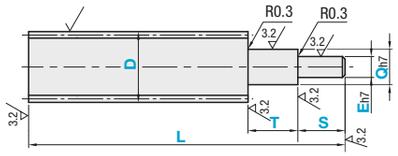
Right-Hand Thread with Keyway ②



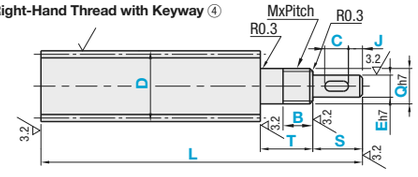
Keyway machining details conform to Shaft Keyway Dimensions shown on the right-hand page.

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
	*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	
① One End Stepped Right-Hand Thread	14			8 9 10		14	3
③ One End Double Stepped Right-Hand Thread	16	100~1200		9 10 12		16	
MTSRA	18	150~1200		9 10 12		18	4
MTSBRA	20			10 12 14 15		20	
RMTSRA	22			10 12 14 15		22	5
D≤32,L≤1000	25			12 14 15 16 17		25	
MTSTRA	28			14 15 16 17 20		28	
MTSRC	32	200~1200		14 15 16 17 20 25		32	6
MTSBRC	36			17 20 25		36	
RMTSRC	40			20 25 30		40	
MTSTRC (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	C	J	B	MxPitch	D	Pitch P
	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
② One End Stepped	16	100~1200		9 10 12						16	
MTSRB	18	150~1200		9 10 12						18	4
MTSBRB	20			10 12 14 15						20	
RMTSRB D≤32,L≤1000	22			10 12 14 15						22	5
④ One End Double Stepped	25			12 14 15 16 17						25	
MTSRD	28			14 15 16 17 20						28	
MTSBRD	32	200~1200		14 15 16 17 20 25						32	6
RMTSRD D≤32,L≤1000	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
	8				-	-	-
	10						-
	12						-
	14						-
MTSRA Price in the Table	16						
	18						
MTSBRA Price in the Table×1.12	20						
	22						
	25						
	28						
	32						
	36						
	40						
	50						
	10						-
	12						-
	14						-
(Stainless Steel) MTSTRA	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
	12						-
	14						-
	16						
	18						
MTSRB Price in the Table	20						
	22						
MTSBRB Price in the Table x1.1	25						
	28						
	32						
	36						
	40						
	50						

■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
	12						-
	14						-
	16						
	18						
MTSRC Price in the Table	20						
	22						
MTSBRC Price in the Table x1.1	25						
	28						
	32						
	36						
	40						
	50						
	12						-
	14						-
	16						
(Stainless Steel) MTSTRC	18						
	20						
	25						
	28						
	32						

■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
	12						-
	14						-
	16						
	18						
MTSRD Price in the Table	20						
	22						
MTSBRD Price in the Table x1.1	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
	8				-	-
	10					
RMTSRA/C (Price of MTSRA/C + Price in the Table)	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: 7, 8, 9, 10, 12, 15, 20, 25, 30, 40 e Tolerance: 4, 5, 6, 9.6, 11.5, 13.4, 14.3, 15.2, 16.2, 19, 23.9, 28.6, 33, 38 m +0.14 0: 0.7, 0.9, 1.15, 1.35, 1.65, 1.9 a Machining Limit: 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 Tapped 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 b_1. Applicable Shaft End Dia. Q, E: 6.7, 8~10, 11.12, 13~17, 18~22, 23~30, 31~38, 39.40 Keyway Dimension b_1 Reference Dimension: 2, 3, 4, 5, 6, 8, 10, 12 b_1 Tolerance (N9): -0.004, -0.029, 0, -0.030, 0, -0.036, 0, -0.043 t_1 Reference Dimension: 1.2, 1.8, 2.5, 3, 3.5, 4, 5, 5 t_1 Tolerance: +0.1 0, +0.2 0 r1: 0.08~0.16, 0.16~0.25, 0.25~0.40

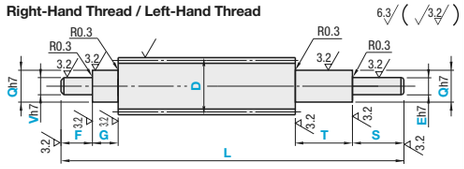
Specify an alteration position to be 2mm or more away from the stepped part. For details, see P.787
Do not specify multiple alterations in such a way that they overlap with each other in the rotating direction on the same shaft. For details, see P.787
When flat machining, wrench flats, square chamfering 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
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	1mm Increment L	F, G, T, S	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

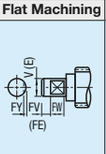
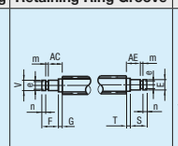
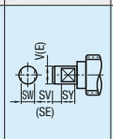
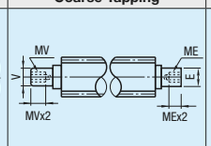
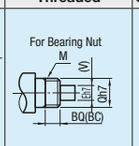
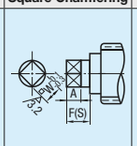
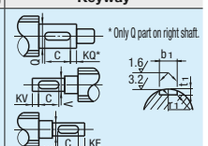
Ordering Example: Part Number - L - F - V - T - G - Q - S - E
MTSRX16 - 456 - F37 - V10 - T47 - G60 - Q12 - S49 - E8

■Right-Hand Thread / Left-Hand Thread

Part Number Type	D	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSRX Price in the Table	12						-
	14						-
	16						
MTSBRX Price in the Table x1.1	18						
	20						
MTSLX Price in the Table	22						
	25						
MTSBLX Price in the Table x1.1	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	Retaining Ring Groove	Wrench Flats	Coarse Tapping	Threaded	Square Chamfering	Keyway
Alterations							
Code	FV (V part) FE (E part)	AC (V part) AE (E part)	SV (V part) SE (E part)	MV (V part) ME (E part)	BC (V side) BQ (E side)	ZV (V part) ZE (E part)	KQ (Q part) KV (V part) KE (E part)

Spec.

Flat Machining
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
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

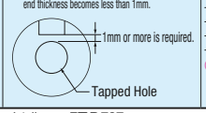
V, E	e	Tolerance	m	n
7	4	+0.075 0	0.7	n≥1.2
8	5		0.9	
9	6			
10	9.6	0 -0.09	1.15	n≥1.5
12	11.5			
14	13.4	0 -0.11		
15	14.3			
16	15.2			
17	16.2			
20	19	0 -0.21	1.35	
25	23.9			
30	28.6		1.65	
35	33			
40	38	0 -0.25	1.9	n≥2

Wrench Flats
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
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
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
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

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, t, specify a value equal to or more than b1.

Applicable Shaft End Dia. D, V, 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		0.16 ~0.25
13~17	5		3.0		
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		

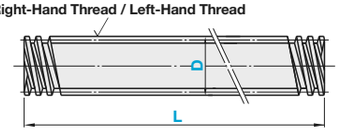
Specify an alteration position to be 2mm or more away from the stepped part. For details, see P.787.
Do not specify multiple alterations in such a way that they overlap with each other in the rotating direction on the same shaft. For details, see P.787.
When flat machining, wrench flats, square chamfering 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

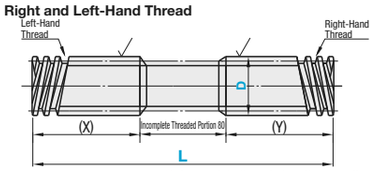
Type			Material	Surface Treatment
Right-Hand Thread	Left-Hand Thread	Right and Left-Hand Thread		
MTSR	MTSL	MTSW	EN 1.1191 Equiv.	-
MTSBR	MTSBL	MTSBW		Black Oxide
MTSRL (Long Size)	MTSLL (Long Size)	-		-
MTSTR	MTSTL	-	EN 1.4305 Equiv.	-

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)	*8	50~500	-	-	-	1.5
MTSR MTSBR MTSRL (Long Size) MTSTR (Stainless Steel)	10	80~1000	130~1000	-	When D=10 ~ 14 50≤(X)≤460	2
	12					
	14					3
	16	100~1200	130~1200	800~2000	When D=16 ~ 50 50≤(X)≤560	
(Left-Hand Thread) MTSL MTSBL MTSLL (Long Size) MTSTL (Stainless Steel)	18	150~1200	150~1200	800~2000	(X)=(Y) (X)=(L-80)/2 (Y)=(L-80)/2	4
	20					
	22					5
	25					
	28					
(Right and Left-Hand Thread) MTSW MTSBW	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	Unit Price Min. L ~ 200	L201~400	L401~600	L601~800	L801~1000	L1001~1200
MTSR Price in the Table	8				-	-	-
	10						-
	12						-
	14						-
MTSBR Price in the Table x1.1	16						
	18						
	20						
MTSL Price in the Table	22						
	25						
MTSBL Price in the Table x1.1	28						
	32						
	36						
	40						
	50						

■Right and Left-Hand Thread

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

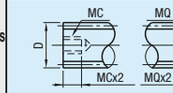
■Right-Hand Thread / Left-Hand Thread, Stainless Steel

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

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

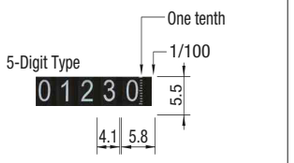
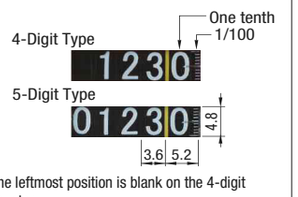
Alterations	Tapping
	
Code	MC (Left End) MQ (Right End)
Spec.	Not applicable to MTSRL and MTSLL Ordering Code: MC24 MC : machined on the left end, MQ : machined on the right end

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

Position Digital Indicators - Overview

■Features

- **Digital Display is easy to read.**
  Positioning and indexing with Feed Screw is easy.
  It prevents wrong setting caused by error in display indication when the screw mechanism is changed at the factory.
- **Various Lineup**
  MISUMI Digital Position Indicators are designed to use in combination with our Lead Screws. Two sizes of display, three mounting types, two body colors are available.
  4-Digit and 5-Digit indication and With Counter Reset are available.

Mounting Position	Standard Spindle	Front Spindle	Vertical Spindle	Counter Indication
	Suitable for mounting at lower than the operator's eye-level.	Suitable for mounting at operator's eye-level.	Suitable for mounting on vertically configured screw feed mechanisms.	
Large (with Counter Reset)				 ・On the counter initialized to the "all zeros" state, insert the wrench and rotate it counter-clockwise. The counter is switched to the "all 9s" state.
Compact (without Counter Reset)				 ・The leftmost position is blank on the 4-digit counter. ・On the counter initialized to the "all zeros" state, insert the wrench and rotate it counter-clockwise. The counter is switched to the "all 9s" state.

• Large

Color		Display Digits	Feed Screw Pitch (Display Number per Revolution)
Orange	Silver	5-Digit	3 4 5 6

・With Counter Reset
・Applicable to mounting shaft end dia.12, 14, 15, 16, 17 and 20.
* When used with a lead screw with the same pitch, display number and pitch number will be the same.

• Compact

Color		Display Digits		Feed Screw Pitch (Display Number per Revolution)
Orange	Silver	4-Digit	5-Digit	2 3 4 5 6

・4-Digit Type and 5-Digit Type are available for the same size.
・Applicable to mounting shaft end dia. 6, 8, 10, 12 and 14.
* When used with a lead screw with the same pitch, display number and pitch number will be the same.

• Color

Orange

Color used to make the counter more noticeable when installed.

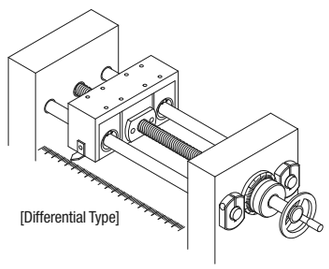
Silver

Color used to make the counter unnoticeable when installed.

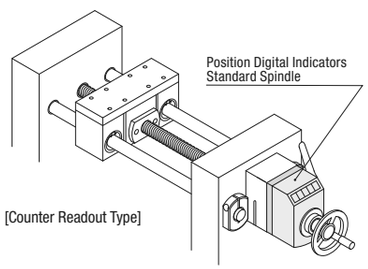
■Usage

Can be used to confirm the present setting position such as the transfer of table that utilizes screw feed mechanism and the slide adjustment.

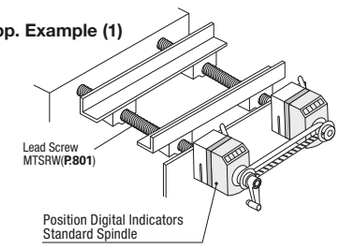
Conventional Method : Reading errors occur.



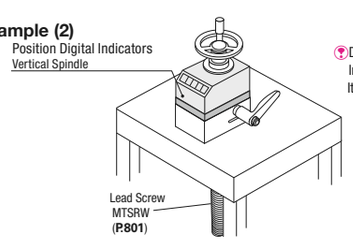
When Indicator is Used : Digital indication reduces the reading errors.



App. Example (1)



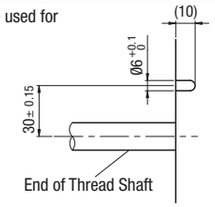
App. Example (2)



Do not apply load to Position Indicators.
It may cause the breakage.

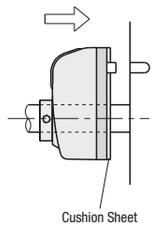
■How to Mount: Large

①Provide a hole used for locating.

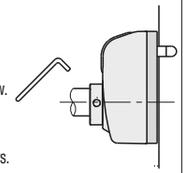


(Not necessary if a clamp plate is used.)

②Mount the included cushion sheet and pass it through the screw shaft.



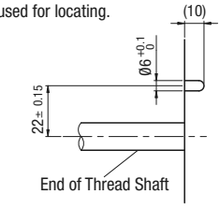
③Make sure that the screw shaft is in the correct position and that the indicator is set at 0, fix it with the included set screw.
* Large Position Indicators can be mounted same as Compact Position Indicators.



Caution
Do not move the position indicator with set screws installed on the shaft. Otherwise, the axial load is applied and thereby, may damage the indicator.

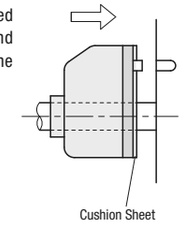
■How to Mount: Compact

①Provide a hole used for locating.

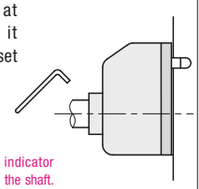


(Not necessary if a clamp plate is used.)

②Mount the included cushion sheet and pass it through the screw shaft.



③Set the indicator at "0" and then fix it with the attached set screws.

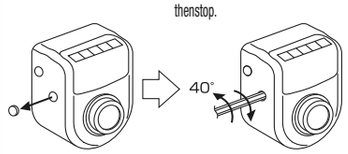


Caution
Do not move the position indicator with set screws installed on the shaft. Otherwise, the axial load is applied and thereby, may damage the indicator.

■Counter Reset Procedures (Only for Large Type)

■Standard Spindle

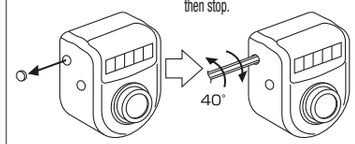
①Remove the cap. ②Insert a hex wrench (3.0mm Hex.) and turn until all zeros are indicated, thenstop.



③Turn the hex wrench to the original position.

■Front Spindle

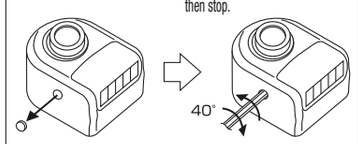
①Remove the cap. ②Insert a hex wrench (3.0mm Hex.) and turn until all zeros are indicated, then stop.



③Turn the hex wrench to the original position.

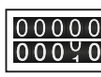
■Vertical Spindle

①Remove the cap. ②Insert a hex wrench (3.0mm Hex.) and turn until all zeros are indicated, then stop.



③Turn the hex wrench to the original position.

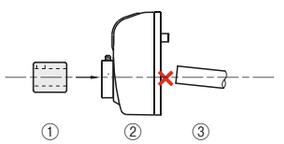
Caution
Turning the wrench more than necessary may cause damages on the unit. Turn the wrench slowly.
Please note that there should be space for hex wrench.
When all zeros are not indicated on the counter panel, even if counter reset is tried, retry counter reset, so the counter is initialized to the all zeros state.



Completed successfully, because the all zeros are indicated.
Failed, because all the zeros are not indicated. => Repeat Counter Reset until the counter is initialized to the all zeros state.

■Notes

- The count goes up depending on turning distance, as the screw shaft (lead screw, slide screw, etc.) is turned clockwise. The count goes down as the screw shaft is turned counterclockwise.
- The rotational speed at the start-up should not exceed 1/3 of maximum rotational speed (rpm).
- Must not be abruptly accelerated or decelerated.
- Do not use a electric screwdriver. It may cause damages.
- Do not use when shafts move to the thrust (shaft) direction. It may cause damages.
- Insert a screw shaft into the indicator in such a way that it is positioned quite vertically to the I.D. center of the indicator. Otherwise, malfunction may occur.

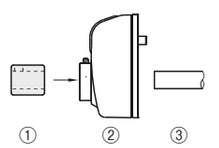


■Selection of Position Indicator Collar

Position Indicator ② has a fixed I.D.(Large Ø20, Compact Ø14)
Shafts ③ whose O.D. is less than 20mm (Large) / 14mm (Compact) are used with a collar ① attached.
Indicator Collar Details ☞**P.701**, **702**

■Indicator Collar Selection Chart

Indicator Shaft O.D.	Indicator Alteration Part Number
Ø6	-CSE6
Ø8	-CSE8
Ø10	-CSE10
Ø12	-CSE12
Ø14	-CSE14
Ø15	-CSE15
Ø16	-CSE16
Ø17	-CSE17



①Indicator Collar
②Digital Position Indicators (Large Ø20, Compact Ø14)
③Shaft O.D.

Digital Position Indicators Large

Standard / Front / Vertical with Counter Reset

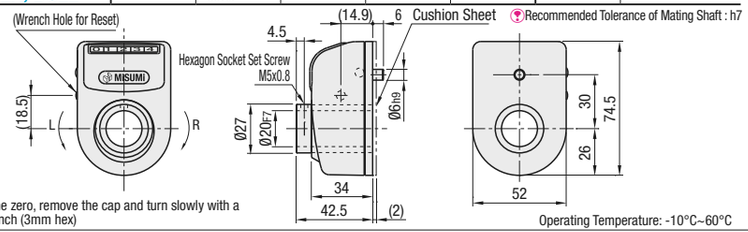
Easy Assembly Design

Large counters are easy to see, and the Zero Set function resets the zero instantly.

■Standard Spindle Large

· With Counter Reset RoHS

Type	Cover		Back Plate	Sleeve		Accessory	
5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPLR, DPLL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSLR, DSLL		Silver					



Recommended Tolerance of Mating Shaft : h7

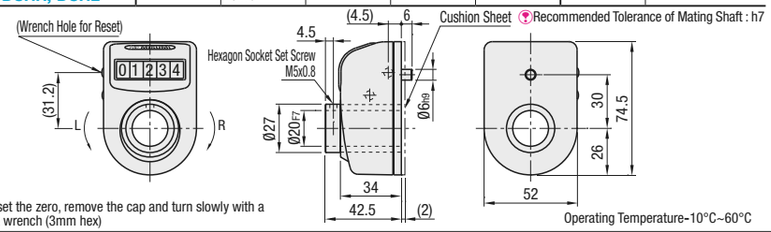
To set the zero, remove the cap and turn slowly with a hex wrench (3mm hex)

Operating Temperature: -10°C~60°C

■Front Spindle Large

· With Counter Reset RoHS

Type	Cover		Back Plate	Sleeve		Accessory	
5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPRR, DPRL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSRR, DSRL		Silver					



Recommended Tolerance of Mating Shaft : h7

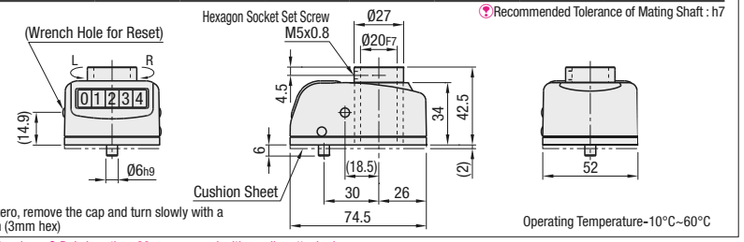
To set the zero, remove the cap and turn slowly with a hex wrench (3mm hex)

Operating Temperature-10°C~60°C

■Vertical Spindle Large

· With Counter Reset RoHS

Type	Cover		Back Plate	Sleeve		Accessory	
5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPZR, DPZL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSZR, DSZL		Silver					



Recommended Tolerance of Mating Shaft : h7

To set the zero, remove the cap and turn slowly with a hex wrench (3mm hex)

Operating Temperature-10°C~60°C

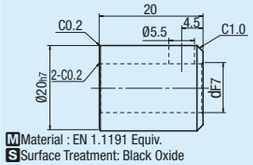
Digital Position Indicators Large has a fixed I.D. (20mm). Shafts whose O.D. is less than 20mm are used with a collar attached.

Part Number Type Color	Display Digit, Rotating Direction	Spindle Pitch	When Indicator Collar is added: Collar Code	Collar I.D. d Selection	Count Increment per Revolution: 5-Digit	Maximum Rotational Speed (rpm)	Main Body Mass (g)	Indicator only Unit Price	With Collar Unit Price
(Orange) (Silver)		3	(With Collar) -CSE (No Collar) Not Specified	(Only when Collar is added) 10, 12, 14 15, 16, 17	0003.0	100	100		
DPL DSL	R (5-Digit - Right Turn)	4			0004.0	75			
DPR DSR	L (5-Digit - Left Turn)	5			0005.0	60			
DPZ DSZ		6			0006.0	50			

When opting to add a collar, be sure to specify the appropriate collar I.D. as well as the collar code. For the spindle pitch, specify the same value as the current lead screw has.

Ordering Example: Part Number DPZR3 / Part Number - Collar Code, I.D. d: DPLR4 - CSE10, DSRL5 - CSE12

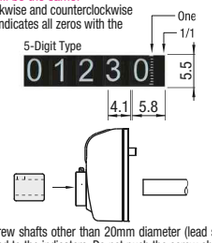
Alterations: Part Number - (CSE) DPLR5 - CSE15

Alteration	Code	Spec.
Includes an Indicator Collar in the set ■ Indicator Collar Details  M Material : EN 1.1191 Equiv. S Surface Treatment: Black Oxide d / Mass (g) 10 / 37 12 / 31 14 / 25 15 / 21 16 / 17 17 / 15	CSE	Shafts whose O.D. is less than 20mm are used with a collar attached. Please select a collar with an I.D. of required shaft diameter, and order as an alteration. Ordering Code DPLR3-CSE 14 Add the needed collar "d" after the Indicator model number. Collar Dimension 10 · · · · -CSE10 Collar Dimension 12 · · · · -CSE12 Collar Dimension 14 · · · · -CSE14 Collar Dimension 15 · · · · -CSE15 Collar Dimension 16 · · · · -CSE16 Collar Dimension 17 · · · · -CSE17

For counter reset procedures, see P.810.

■Features

Use with a lead screw with the same pitch. Display number and pitch number will be the same.
Counter Indication for both clockwise and counterclockwise rotation. The counter instantly indicates all zeros with the wrench hole for reset.



Example

Collar as an alteration enables screw shafts other than 20mm diameter (lead screws and slide screws, etc.) to be adapted to the indicators. Do not push the screw shaft into the indicator forcibly. Furthermore, insert the screw shaft vertically to the mounfing hole.

Digital Position Indicators Compact

Standard / Front / Vertical

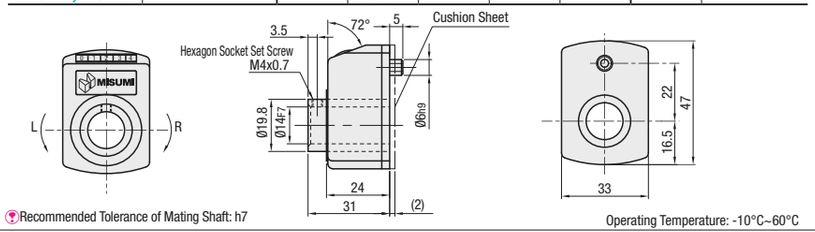
Easy Assembly Design

Compact units can be installed in small spaces. Four and five digit types are available.

■Standard Spindle Compact

· Without Counter Reset RoHS

Type		Cover		Back Plate	Sleeve		Accessory	
4-Digit Type	5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPNR, DPNL	DPNFR, DPNFL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSNR, DSNL	-		Silver					



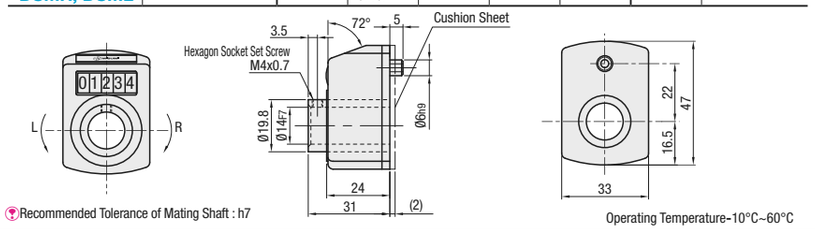
Recommended Tolerance of Mating Shaft: h7

Operating Temperature: -10°C~60°C

■Front Spindle Compact

· Without Counter Reset RoHS

Type		Cover		Back Plate	Sleeve		Accessory	
4-Digit Type	5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPMR, DPML	DPMFR, DPMFL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSMR, DSML	-		Silver					



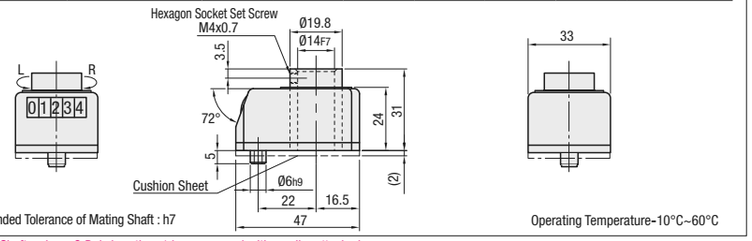
Recommended Tolerance of Mating Shaft : h7

Operating Temperature-10°C~60°C

■Vertical Spindle Compact

· Without Counter Reset RoHS

Type		Cover		Back Plate	Sleeve		Accessory	
4-Digit Type	5-Digit Type	M Material	Color	M Material	M Material	S Surface Treatment		
DPTR, DPTL	DPTFR, DPTFL	Nylon	Orange	Polyphenylene Ether	EN 1.0736 Equiv.	Black Oxide	Set Screw (Black) (EN 1.7220 Equiv.)	Cushion Sheets (Black) (Polyethylene Foam)
DSTR, DSTL	-		Silver					



Recommended Tolerance of Mating Shaft : h7

Operating Temperature-10°C~60°C

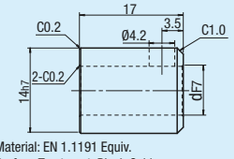
Digital Position Indicators Compact has a fixed I.D. (14mm). Shafts whose O.D. is less than 14mm are used with a collar attached.

Part Number Type Color	Display Digit, Rotating Direction	Spindle Pitch	When Indicator Collar is added: Collar Code	Collar I.D. d Selection	Count Increment per Revolution: 4-Digit	5-Digit	Maximum Rotational Speed (rpm)	Main Body Mass (g)	Indicator only Unit Price	With Collar Unit Price
(Orange) (Silver)		2	(With Collar) -CSE (No Collar) Not Specified	(Only when Collar is added) 6, 8 10, 12	002.0	0002.0	150	44		
DPN DSN	R (4-Digit - Right Turn) L (4-Digit - Left Turn)	3			003.0	0003.0	100			
DPM DSM	FR (5-Digit - Right Turn) FL (5-Digit - Left Turn)	4			004.0	0004.0	75			
DPT DST		5			005.0	0005.0	60			
		6			006.0	0006.0	50			

When opting to add a collar, be sure to specify the appropriate collar I.D. as well as the collar code. For the spindle pitch, specify the same value as the current lead screw has.

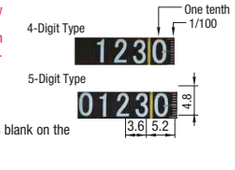
Ordering Example: Part Number DPTR2 / Part Number - Collar Code, I.D. d: DPML3 - CSE10, DPNFR4 - CSE12

Alterations: Part Number - (CSE) DPNR2 - CSE8

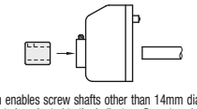
Alteration	Code	Spec.
Includes an Indicator Collar in the set ■ Indicator Collar Details  M Material: EN 1.1191 Equiv. S Surface Treatment: Black Oxide d / Mass (g) 6 / 16 8 / 14 10 / 9 12 / 5	CSE	Shafts whose O.D. is less than 14mm are used with a collar attached. Please select a collar with an I.D. of required shaft diameter, and order as an alteration. Ordering Code DPNR2-CSE 8 Add the needed collar "d" after the Indicator model number. Collar Dimension 6 · · · · -CSE6 Collar Dimension 8 · · · · -CSE8 Collar Dimension 10 · · · · -CSE10 Collar Dimension 12 · · · · -CSE12

■Features

Use with a lead screw with the same pitch. Display number and pitch number will be the same.
Counter Indication for both clockwise and counterclockwise rotation.
·The leftmost position is blank on the 4-digit counter.



Example



Collar as an alteration enables screw shafts other than 14mm diameter (lead screws and slide screws, etc.) to be adapted to the indicators. Do not push the screw shaft into the indicator forcibly. Furthermore, insert the screw shaft vertically to the mounfing hole.

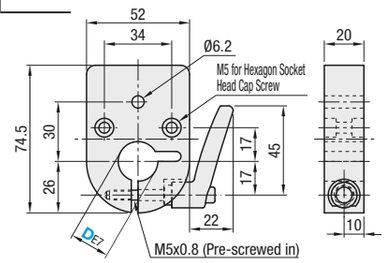
Clamp Plates for Large Position Indicator

Standard Lever / Bearing with Housing

■Standard Lever

Type	Main Body		Clamp Lever	
	M Material	S Surface Treatment	M Material	S Surface Treatment
DPQK	Aluminum Alloy	Black Anodize	Zinc Diecast	Baked Paint

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.



Clamp Lever : CLDF (Tapped Type) ☞ P.2-1139

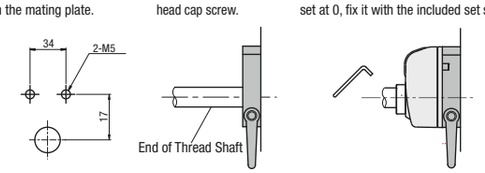
Part Number Type	D	Mass (g)	Unit Price
DPQK	12	202	
	14	200	
	15	198	
	16	197	
	17	196	
	20	191	

■How to Mount

①Drill a screw hole for mounting the clamp plate on the mating plate.

②Mount the clamp plate using the hex socket head cap screw.

③Make sure that the screw shaft is in the correct position and that the memory of the indicator is set at 0, fix it with the included set screw.



■Features

- Prevents rotations of the spindle due to machine vibrations.
- Screw Shaft (Lead Screw, Slide Screw, etc.) can be securely locked for a long period. Both mounting surfaces are counterbored to enable mounting from either side.

Ordering Example — Part Number: DPQK12

■Bearing with Housing

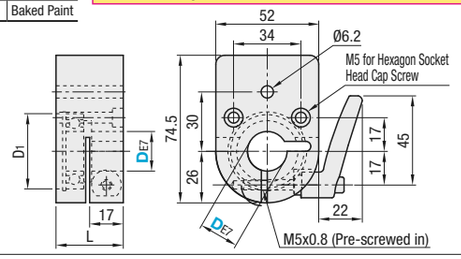
Type	Main Body		Clamp Lever	
	M Material	S Surface Treatment	M Material	S Surface Treatment
DPQKB	Aluminum Alloy	Black Anodize	Zinc Diecast	Baked Paint

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

Bearing Accuracy: JIS B 1514 Class 0

Clamp Lever : CLDF (Tapped Type) ☞ P.2-1139

Retaining Ring: RTWN ☞ P.2-266



Part Number Type	D	L	D1	Mass (g)	Bearing	Retaining Ring	Unit Price
DPQKB	12	31	28	308	6001ZZ	RTWN28	
	15	33	32	312	6002ZZ	RTWN32	
	17	34	35	318	6003ZZ	RTWN35	
	20	34	37	312	6904ZZ	RTWN37	

■Notes

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

Ordering Example — Part Number: DPQKB12

■Components Selection List for Digital Position Indicators Large

Digital Position Indicators Large (P.811) Type Color		Display Digit, Rotating Direction	Spindle Pitch	Clamp Plate Type	Clamp Plate D	Lead Screw (P.801~P.807) Type		D	Shaft End Dia. V, Q, R	Shaft End Dia. E (1mm Increment)	Screw Pitch
(Orange)	(Silver)		3	DPQK DPQKB	12	(Right-Hand Thread)	(Left-Hand Thread)	16	10, 12	Q/2≤E≤Q-1 V/2≤E≤V-1	3
DPL	DSL	R (5-Digit - Right Turn)	4		12	MTSR□	MTSL□	18	10, 12		4
DPR	DSR	L (5-Digit - Left Turn)			12, 14, 15	MTSBR□	MTSBL□	20	10, 12, 14, 15		
DPZ	DSZ		5		12, 14, 15	MTSTR□	MTSTL□	22	10, 12, 14, 15		5
					12, 14, 15, 16, 17			25	12, 14, 15, 16, 17		
			6		14, 15, 16, 17, 20	(Right and Left-Hand Thread)	(Precision Right and Left-Hand Thread)	28	14, 15, 16, 17, 20		6
					14, 15, 16, 17, 20	MTSW□	MTSY□	32	14, 15, 16, 17, 20		
					17, 20	MTSBW□	MTSBY□	36	17, 20		
					20			40	20		

For shaft end dia. 20 of Lead Screws, collar is not necessary. D dimension of DPQKB is 12, 15, 17 and 20 only.

Clamp Plates for Compact Position Indicator

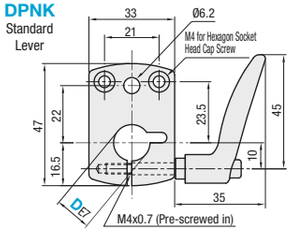
Standard / Miniature Lever / Bearing with Housing

■Standard Lever ■Miniature Lever

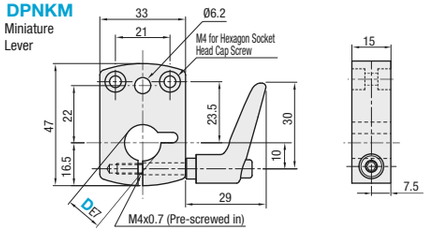
Type	Main Body		Clamp Lever	
	M Material	S Surface Treatment	M Material	S Surface Treatment
DPNK DPNKM	Aluminum Alloy	Black Anodize	Zinc Diecast	Baked Paint

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

DPNK Standard Lever



DPNKM Miniature Lever



Clamp Lever: CLDF (Tapped Type) ☞ P.2-1139

Miniature Clamp Levers: CLDFC (Tapped) ☞ P.2-1140

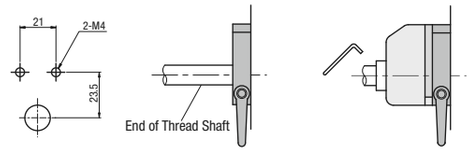
Part Number Type	D	Mass (g) Standard	Mass (g) Miniature	Unit Price
Standard Lever DPNK	8	86	77	
	10	85	76	
Miniature Lever DPNKM	12	83	74	
	14	81	72	

■How to Mount

①Drill a screw hole for mounting the clamp plate on the mating plate.

②Mount the clamp plate using the hex socket head cap screw.

③Make sure that the screw shaft is in the correct position and that the memory of the indicator is set at 0, fix it with the included set screw.



■Features

- Prevents rotations of the spindle due to machine vibrations.
- Screw Shaft (Lead Screw, Slide Screw, etc.) can be securely locked for a long period. Both mounting surfaces are counterbored to enable mounting from either side.

Ordering Example — Part Number: DPNK12, DPNKM10

■Bearing with Housing

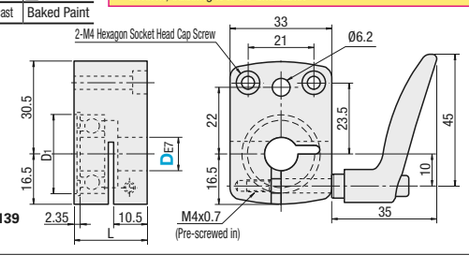
Type	Main Body		Clamp Lever	
	M Material	S Surface Treatment	M Material	S Surface Treatment
DPNKB	Aluminum Alloy	Black Anodize	Zinc Diecast	Baked Paint

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

Bearing Accuracy: JIS B 1514 Class 0

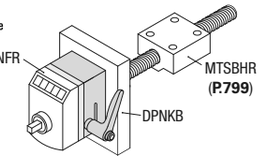
Clamp Lever: CLDF (Tapped Type) ☞ P.2-1139

Retaining Ring: RTWN ☞ P.2-266



Part Number Type	D	L	D1	Mass (g)	Bearing	Retaining Ring	Unit Price
DPNKB	8	23	22	130	608ZZ	RTWN22	
	10	24	26	133	6000ZZ	RTWN26	
	12		28	132	6001ZZ	RTWN28	

Example



■Features of Bearing with Housing

The combination of the stopper plate and bearing in one piece, providing superior space-saving design.

Ordering Example — Part Number: DPNKB12

■Components Selection List for Digital Position Indicators Compact

Digital Position Indicators Compact (P.812) Type Color		Display Digit, Rotating Direction	Spindle Pitch	Clamp Plate Type	Clamp Plate D	Lead Screw (P.801~P.807) Type		D	Shaft End Dia. V, Q, R	Shaft End Dia. E (1mm Increment)	Screw Pitch
(Orange)	(Silver)		2	DPNK DPNKM DPNKB	8	(Right-Hand Thread)	(Left-Hand Thread)	12	6, 8	Q/2≤E≤Q-1 V/2≤E≤V-1	2
DPN	DSN	R (4-Digit - Right Turn)	3		8, 10	MTSR□	MTSL□	14	8, 10		3
DPM	DSM	L (4-Digit - Left Turn)			10, 12	MTSBR□	MTSBL□	16	10, 12		
DPT	DST	FR (5-Digit - Right Turn)	4		10, 12	MTSTR□	MTSTL□	18	10, 12		4
		FL (5-Digit - Left Turn)			10, 12, 14			20	10, 12, 14		
			5		10, 12, 14	(Right and Left-Hand Thread)	(Right and Left-Hand Thread Machining)	22	10, 12, 14		5
					12, 14	MTSW□	MTSY□	25	12, 14		
			6		14	MTSBW□	MTSBY□	28	14		
					14			32	14		6

For shaft end dia. 14 of Lead Screws, collar is not necessary. D dimension of DPNKB is 8, 10 and 12 only.

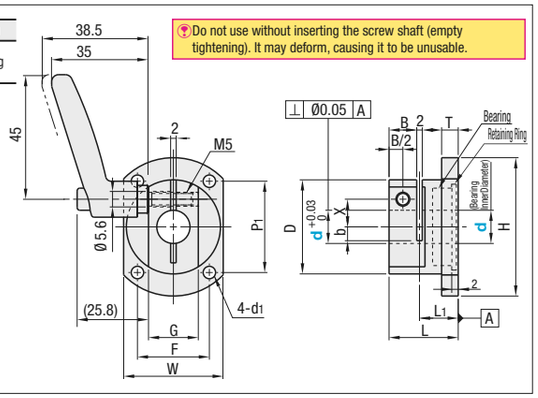
For shaft end dia. V/Q/R 6 of Lead Screws are applicable only to One End Stepped and Both Ends Stepped Type. E for shaft end dia. is applicable to only following types: One End Double Stepped / One End Stepped, One End Double Stepped / Both Ends Double Stepped.

Stop Plate Sets for Lead Screws
Bearing Type

■Stop Plate Sets - Flanged, Bearing

Type	M Material	S Surface Treatment	Bearing
MTQDB MTQDM	EN 1.0038 Equiv.	Black Oxide Electroless Nickel Plating	Radial Bearing

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.



■Features
- Rotation stopper clamp and a bearing are integrated for space saving designs.

Clamp Lever: CLDM5 P.2-1139
Radial Bearing: JIS B 15140 Class

RoHS

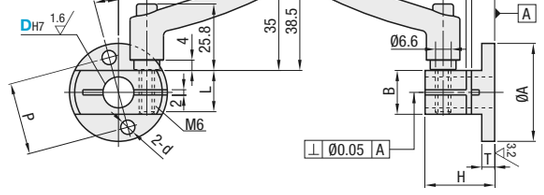
Part Number Type	d	L	L1	D	H	T	B	d1	X	b	W	P1	F	G	Clamp Lever	Bearing Bearing No.	Unit Price MTQDB	Unit Price MTQDM
MTQDB MTQDM	10	25	14	30	48	5	10	4.5	9	4	32	33	23	16	CLDM5-16-M	6900ZZ		
	12	25	14	32	50	6	10	4.5	10	5	34	35	25	18	CLDM5-16-M	6901ZZ		
	15	28	17	35	56	6	10	5.5	11.5	6	37	37	27	21	CLDM5-20-M	6902ZZ		
	20	28	17	40	64	8	10	6.6	14	8	42	43	30	27	CLDM5-25-M	6804ZZ		

■Stop Plate Set - Round Flanged

Type	M Material	S Surface Treatment	A Accessory
MTQAB MTQAM	EN 1.0038 Equiv.	Black Oxide Electroless Nickel Plating	Clamp Lever

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

6.3 (1.6 3.2 1.6)

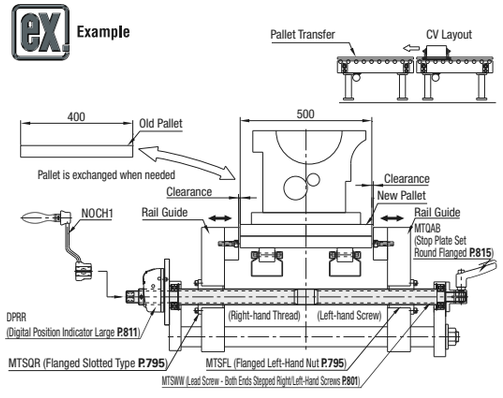


Part Number Type	DH7		A	B	C	H	h	P	d	T	L	K	Clamp Lever	Unit Price MTQAB	Unit Price MTQAM
MTQAB MTQAM	8	+0.015 0	32	13	9	24	18	23	4.5	4	12	9	CLDM6-12-M		
	10		36	15	10	25	18	26	4.5	4	16	9	CLDM6-16-M		
	12	+0.018 0	38	17	11	27	20	28	5.5	5	16	11	CLDM6-16-M		
	15		41	21	12	29	21	32	5.5	6	20	12	CLDM6-20-M		
	20	+0.021 0	50	26	15	34	25	39	6.6	8	25	16	CLDM6-25-M		

DH7 tolerance is measured before slit machining. For Clamp Lever P.2-1139

Ordering Example — Part Number: MTQDB12

Example



■Notes
Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

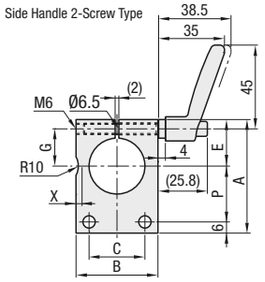
Stop Plate Sets for Lead Screws

■Stop Plate Set - 2-Screw Mount Type

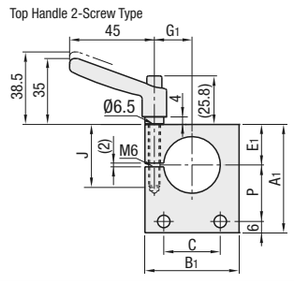
Type Side Handle 2-Screw Type	Type Top Handle 2-Screw Type	M Material	S Surface Treatment	A Accessory
MTSWB	MTTBB	EN 1.0038 Equiv.	Black Oxide Electroless Nickel Plating	Clamp Lever
MTSWM	MTTBM			

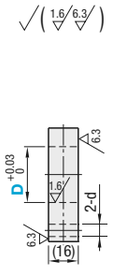
Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

Side Handle 2-Screw Type



Top Handle 2-Screw Type





Part Number Type	D		P	Side Handle 2-Screw Type A	B	C	E	G	X	Top Handle 2-Screw Type A1	B1	C	E1	G1	J	d	Side Handle 2-Screw Type Lever	Top Handle 2-Screw Type Lever	Unit Price MTSWB	MTSWM	MTTBB	MTTBM
Side Handle 2-Screw Type MTSWB MTSWM Top Handle 2-Screw Type MTTBB MTTBM	8	+0.03 0	20	43	25	14	17	12	5	33	32	14	7	11	16	5.5	CLDM6-25-M	CLDM6-16-M				
	10								4	34			8									
	12								3	35			9		20			CLDM6-20-M				
	15			44	32	20	18	13	4.7	37	38	20	11	13								
	20		30	56	38	26	20	15	4.6	50	44	26	14	15	25	6.5	CLDM6-32-M	CLDM6-25-M				
	25			59		28	23	18	1.3	54	50	28	18	18	32			CLDM6-32-M				
	30			61	44	30	25	20	1.2	57		30	21	20			CLDM6-40-M					

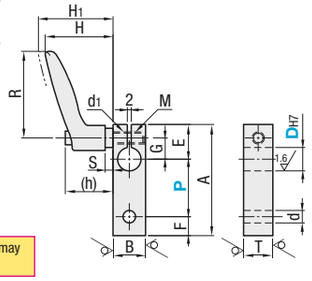
For Clamp Lever P.2-1139

■Stop Plate Set

Type	M Material	S Surface Treatment	A Accessory
MTSBB MTSBM	EN 1.0038 Equiv.	Black Oxide Electroless Nickel Plating	Clamp Lever

Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

6.3 (1.6)

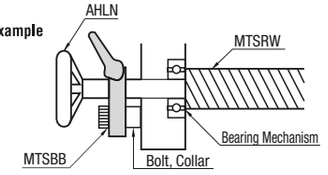


Part Number Type	DH7		P	A	B	d	E	F	G	T	d1	M	H	H1	R	(h)	S	Lever	Unit Price MTSBB	Unit Price MTSBM
Surface Contact MTSBB MTSBM	8	+0.015 0	20 30 40	P+26	12	6.5	16	10	9	16	6.5	M6	35	38.5	45	25.8	4	CLDM6-12-M		
	10			P+27	16		17		10									CLDM6-16-M		
	12	+0.018 0	30 40 50	P+28			18		11											
	15			P+29	22		19		12									CLDM6-20-M		
	17			P+30			20		13											
	20	+0.021 0		P+37	25	9.0	25	12	16	19	9.0	M8	45.5	49	63	32.3	7	CLDM8-25-M		
	25			P+39	32		27		18									CLDM8-32-M		
	30			P+42	38		30		21											
* marked sizes are for MTSBB only.	*35	+0.025 0		P+44	44		32		23											
	*40			P+47			35		26									CLDM8-40-M		-

DH7 tolerance is measured before slit machining. For Clamp Lever P.2-1139

Ordering Example — Part Number: MTSWB15 - 30, MTSBB8 - 30

Example



For Bearing Units, see P.791.
Available as standard specification and reduces the time of assembling the unit.

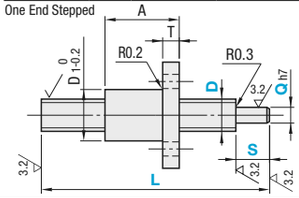
■Notes
Do not use without inserting the screw shaft (empty tightening). It may deform, causing it to be unusable.

Miniature Slide Screws
One End Stepped / Both Ends Stepped

Stainless steel screw shaft and tribological resin nut combination can be used without grease, and are corrosion resistant and quiet.

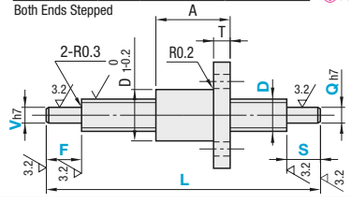
Type		Material: Shaft	Material: Nut
MSSRA	Right-Hand Thread	EN 1.4301 Equiv.	Special Resin

One End Stepped

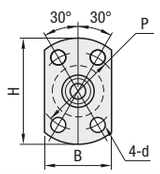


Type		Material: Shaft	Material: Nut
MSSRW	Right-Hand Thread	EN 1.4301 Equiv.	Special Resin

Both Ends Stepped



Set includes a shaft and a nut.



RoHS

Part Number: Type	D	Lead	1mm Increment: L	F, S	V / Q Selection	Number of Starts	Plastic Nut Dimension: D1	H	A	T	B	P	d	Allowable Axial Load N (Reference)	Allowable Rotational Speed rpm (Reference)	Tightening Torque N·mm
MSSRA MSSRW	4	01	30~150	2≤F≤Vx3 2≤S≤Qx3	2.5	1	10	23	11.5	3.5	15	15	2.9	50	2500	180
		02				2								60		
	6	01	30~250		3 4	1	12	26	14.5	3.5	17	18	3.4	120	2000	400
		02												60		
		09				4								90		
		18												110		
	8	01	40~250	*2≤F≤Vx4 2≤S≤Qx4	4 5	1	14	29	18	4	18	21	3.4	200	2000	400
		02												290		
		12	40~350		4 5 6	4								210		
		24				6								210		
	10	02	50~250	2≤F≤Vx5 2≤S≤Qx5	5 6 7	1	16	33	22	5	21	24	4.5	460	1500	500
		15	50~500			4								410		
		30				6								440		
	12	02	50~250		6 7 8 9	1	18	35	25	5	22	26	4.5	660	1000	500
		18	50~550			6								750		
		36												540		

There may be a centering hole on machined shaft end. * When V and Q=4, F and S will be less than 3x of V and Q.
The tightening toque applies to the screw for mounting the plastic nut. Note that positioning repeatability changes when nut is exchanged for maintenance.

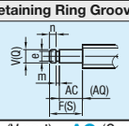
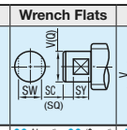
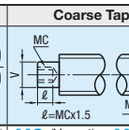
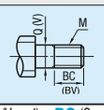
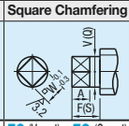
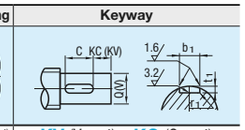
Ordering Example
Part Number - L - S - Q
MSSRA812 - 300 - S10 - Q5

Part Number - L - F - V - S - Q
MSSRW1202 - 250 - F20 - V6 - S8 - Q6

Part Number: Type	D	Lead	Unit Price: Min.L~100	L101~200	L201~300	L301~400	L401~550
MSSRA	4	01			-	-	-
		02			-	-	-
	6	01				-	-
		02				-	-
		09				-	-
		18				-	-
	8	01				-	-
		02				-	-
		12					-
		24					-
	10	02				-	-
		15					
		30					
	12	02				-	-
		18					
		36					

Part Number: Type	D	Lead	Unit Price: Min.L~100	L101~200	L201~300	L301~400	L401~550
MSSRW	4	01			-	-	-
		02			-	-	-
	6	01				-	-
		02				-	-
		09				-	-
		18				-	-
	8	01				-	-
		02				-	-
		12					-
		24					-
	10	02				-	-
		15					
		30					
	12	02				-	-
		18					
		36					

Alterations
Part Number - L - S - Q - (AC, SC ··· etc.)
MSSRA812 - 250 - S10 - Q5 - AQ13.3

Alterations	Retaining Ring Groove	Wrench Flats	Coarse Tapping	Threaded	Square Chamfering	Keyway
						
Code	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.	AC, AQ=0.1mm Increment AC, AQ≤F(S)-m-n For the m,n value, see the table bellow. (For the m value, consider the tolerance.) Ordering Code AC13.3 AC=Applied on V part AQ=Applied on Q part	SC,SQ,SW,SY=1mm Increment Applied on SC=V part Applied on SQ=Q part Applicable to either V or Q. Ordering Code SC5-SW5-SY5 SC(SQ)=0 or SC(SQ)≥2 Applicable when V(Q)≥6 SW≥Q(V)-2 3≤SY≤20	MC=Applied on V part MQ=Applied on Q part Ordering Code MC5 V, Q: MC, MQ (Selection Range) 6: 3 7, 8: 3, 4 9: 3, 4, 5 Applicable when V(Q)≥6 When combining with an other alteration, do not specify this alteration in such a way that the shaft end thickness becomes less than 1mm.	⊗V (Q)=9 is not applicable BC(BV)≤S(F)-(Screw Pitchx2) BV,BC≤Mx3 Ordering Code BC10 BV=Applied on V part BC=Applied on Q part V, Q: MxPitch 2.5: M2.5x0.45 3: M3 x0.5 4: M4 x0.5 5: M5 x0.5 6: M6 x0.75 8: M8 x1.0	A=1mm Increment ZC=Applied on V part ZQ=Applied on Q part Applicable to either V or Q. Ordering Code ZC6-W5-A8 Other alteration can not be combined on the same screw shaft. ZC(ZQ): W 6, 7: 5 8: 6 9: 7 Applicable when V, Q≥6 5≤A≤20 V(Q)=ZC(ZQ)	KC, KV, C= 1mm Increment Ordering Code KC8-C10 KV=Applied on V part KC=Applied on Q part Specify the C dimension not to be bellow b1. C≤S(F)/2 C+KC(KV)<S(F) KC(KV)≥2 When KC (KV)=0 F(S)-C-KC(KV)≥2 Applicable to either V or Q.

V, Q | e Tolerance | m +0.14 0 | n Machining Limit
2.5 | 2 | +0.06 0 | 0.5 | n≥1.2
3 | | | |
4 | 2.5 | | |
5 | 3 | | 0.7 |
6 | 4 | +0.075 0 | |
7 | | | |
8 | 5 | | |
9 | 6 | | 0.9 |

Keyway Dimension

Applicable Shaft End Dia. V, Q	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, 9	3		1.8		

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 adding multiple alterations, there must be 2mm or more clearance between each feature. Furthermore, orientations of those alterations will be random. For details, see P.787.

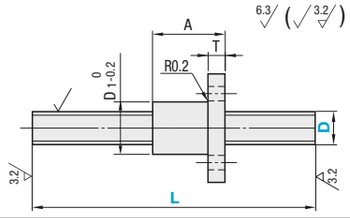
Miniature Slide Screws / Nuts
Straight

■ Miniature Slide Screws / Nuts

RoHS

Type		Material: Shaft	Material: Nut
MSSR	Right-Hand Thread	EN 1.4301 Equiv.	Special Resin
MSSRN	Nut only	-	

MSSR includes a shaft and a nut; MSSRN includes a nut only.



Part Number: Type	D	Lead	1mm Increment: L	Number of Starts	Plastic Nut Dimension: D1	H	A	T	B	P	d	Allowable Axial Load N (Reference)	Allowable Rotational Speed rpm (Reference)	Tightening Torque N·mm	Mass (Reference) g/100mm	Unit Price MSSR: Min.L~100	L101~200	L201~300	L301~400	L401~550
MSSR MSSRN (Nut)	4	01	30~150	1	10	23	11.5	3.5	15	15	2.9	50	2500	180	11(3)			-	-	-
		02		2								60			11(3)			-	-	-
	6	01	30~250	1	12	26	14.5	3.5	17	18	3.4	120	2000	400	23(3)				-	-
		02										60			25(3)				-	-
		09		4								90			25(3)				-	-
		18										110			25(3)				-	-
	8	01	40~250	1	14	29	18	4	18	21	3.4	200	2000	400	42(5)				-	-
		02										290			38(5)				-	-
		12	40~350	4								210			40(5)					-
		24		6								210			41(4)					-
	10	02	50~250	1	16	33	22	5	21	24	4.5	460	1500	500	59(6)				-	-
		15	50~500	4								410			58(6)					
		30		6								440			56(6)					
	12	02	50~250	1	18	35	25	5	22	26	4.5	660	1000	500	86(8)				-	-
		18	50~550	6								750			86(8)					
		36										540			87(7)					

The tightening toque applies to the screw for mounting the plastic nut. Note that positioning repeatability changes when nut is exchanged for maintenance. The dimension in ( ) of mass table is nut mass.

Ordering Example
Part Number - L
MSSR812 - 300
MSSRN1002 (Nut)

■Features

Slide screw's nut is made of special resin composed of PPS as base material and solid lubricant (fluorine, for example) filled to increase sliding properties.
The material is superior to polypropylene, nylon, and polyacetal in tribological properties, heat resistance and moisture absorbing characteristics. Quieter in comparison to ball screws, and lighter in motion with lower torque compared to lead screws.

■Material Properties of Nuts

Item	Testing Method	Unit	Value
Base Material	–	–	PPS
Specific Gravity	ASTM D792	–	1.53
Tensile Strength	ASTM D638	MPa	51
Hardness	–	Rockwell R	110
Elongation	ASTM D638	%	3
Water Absorption Ratio	ASTM D570	%	0.05
Critical Temperature	–	°C	140

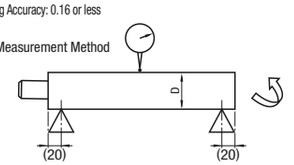
■Caution

①Positioning repeatability is changed by wear due to usage and exchange of parts during maintenance.
②Do not use molybdenum and silicone based greases due to its negative impact to the nuts.
Do not use it due to its negative impact to the nuts.
③Sliding properties are based on 25°C. It may vary depending on temperature.
④The nuts are made of PPS base material; they may be "cracked" or "deformed" due to shocks or excessive tightening.

■Screw Accuracy

- Initial Accumulative Lead Error ±0.21/300mm (Reference Temperature 25°C)
- Bending Accuracy: 0.16 or less

Bend Measurement Method



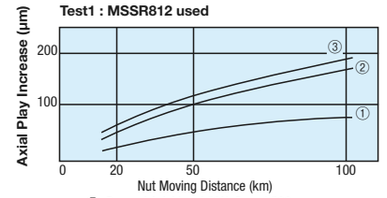
The screw shaft is supported on both ends with V-blocks and the measurements are taken with a dial indicator at arbitrary points while the shaft is rotated.

■Leads

Lead is the travel distance of one revolution.
Lead 01···Travel Distance/Rev. : 1mm
Lead 24···Travel Distance/Rev. : 24mm

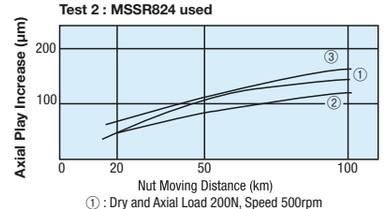
■Wear Data (Reference Values)

Test1 : MSSR812 used



①: Dry and Axial Load 50N, Speed 500rpm
②: Dry and Axial Load 100N, Speed 500rpm
③: Dry and Axial Load 200N, Speed 500rpm

Test 2 : MSSR824 used



① : Dry and Axial Load 200N, Speed 500rpm
② : Dry and Axial Load 200N, Speed 1000rpm
③ : Dry and Axial Load 200N, Speed 2000rpm