

# Rotary Shafts

## MISUMI Round Bar Lineup

For shafts intended for rotary motion.

Product Name Rotary Shafts (Rotary Motion Applications)

App. Example:

Page: P819~

Shaft Dia. Tolerance: h7/g6/h9

Material/Hardness: S45C SUS304 SCM435

Related Components: Bearing, Pulley, Coupling

When shafts for linear motion are required

Product Name Shafts (Linear Motion Applications)

App. Example:

Shaft Dia. Tolerance: g6/f8/h5

Material/Hardness: SUJ2-59HRC S45C or SUS304 SUS440C Equivalent: 59HRC~

Related Components: Linear bearing, Shaft Support, Oil Free bearing

When posts are needed

Product Name Posts (Post Applications)

App. Example:

Shaft Dia. Tolerance: 0 -0.1

Material/Hardness: S45C SUS304

Related Components: Strut Clamp, Stand, Shaft Collar

When material are needed

Product Name Round Bar (Material)

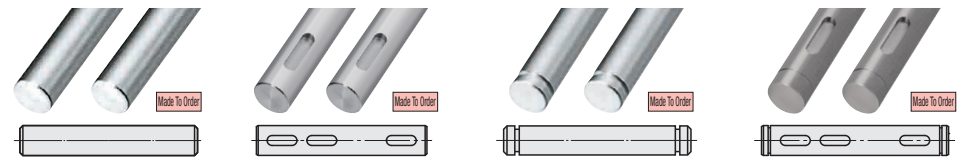
Product Photo:

Shaft Dia. Tolerance: 0 -0.1 0 -0.2 ±0.1-0.4

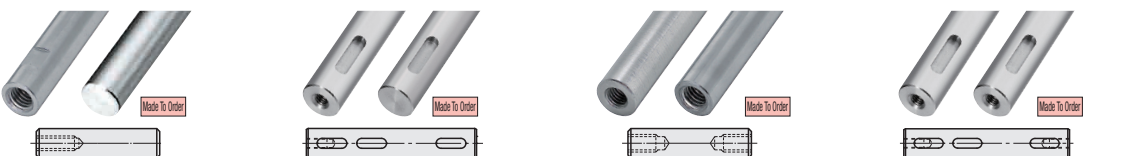
Material/Hardness: SUS, Aluminum, Carbon Steel, Chrome, Magnesium, Steel, Copper

Related Components: Unfinished material sales For your various application requirements.

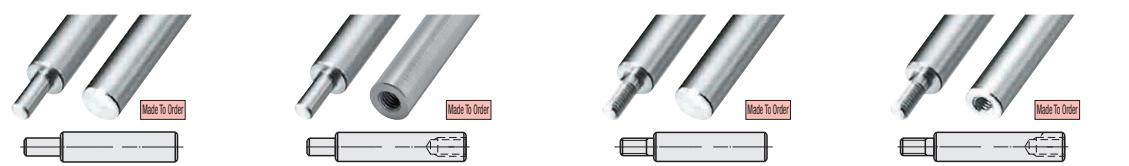
### Rotary Shafts



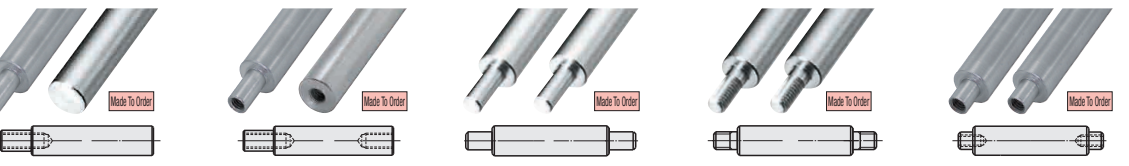
Product Name	Straight	Straight with Keyway	Retaining Ring Grooves on Both Ends	Retaining Ring Grooves on Both Ends with Keyway
Page	823	825	827	829



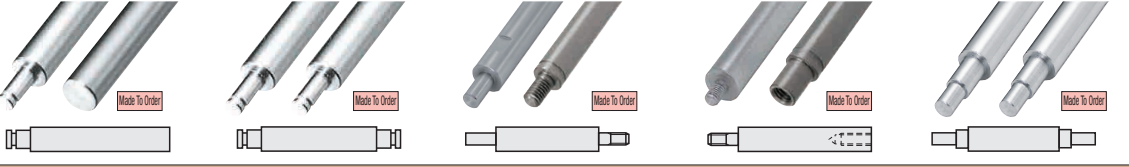
Product Name	One End Tapped	One End Tapped with Keyway	Both Ends Tapped	Both Ends Tapped with Keyways
Page	831	833	835	837



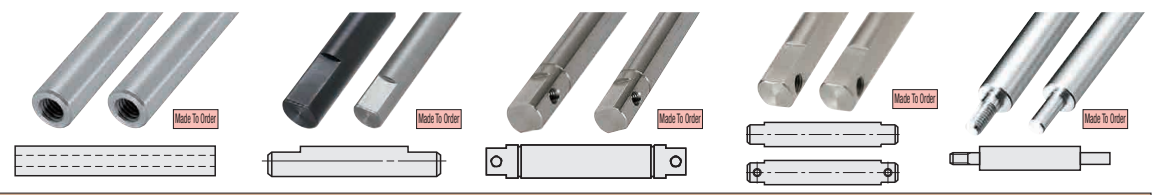
Product Name	One End Stepped	One End Stepped, One End Tapped	One End Stepped, One End Threaded	One End Stepped and Threaded, One End Tapped
Page	839	841	843	845



Product Name	One End Stepped and Tapped	One End Stepped, Both Ends Tapped	Both Ends Stepped	Both Ends Stepped and Threaded	Both Ends Stepped and Tapped
Page	847	849	851	853	855



Product Name	One End Stepped with Retaining Ring Groove	Both Ends Stepped with Retaining Ring Grooves	Both Ends Stepped, One End Threaded	Both Ends Stepped, One End Threaded, One End Tapped	Both Ends Double Stepped
Page	857	857	859	859	861



Product Name	Hollow Rotary Shafts - Lightweight, Straight	Rotary Shafts - D-Cut	Shafts for Tension - Pull, Retaining Ring Groove	Push / Pull	Rotary Shafts - End Shape Selectable
Page	862	863	864	865	867



Product Name	Driving Shafts - Straight	Driving Shafts - One End Stepped	Both Ends Stepped	One End Stepped One End Double Stepped	Shouldered	One End Stepped with Shoulder
Page	869	871	873	875	877	879

### D Tolerance h9 (Cold-drawn) / h7 (Ground)

Traditional Type (D Tolerance g6), Economy type h9 (Cold-drawn) or standard grade h7 (Ground) is selectable depending on intended use.  
Standard Model: SFMR  
Page: P823~P856

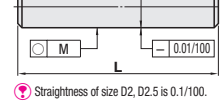
### Rotary Shafts with Keyways have been standardized.

Number of keyways can be specified up to 3.  
Standard Model: SFMKR  
Page: P825, P829, P833, P835

### Accuracy Standards of Rotary Shafts and Driving Shafts

Values in ( ) are for driving shafts.  
Not applicable to h9 (Cold-drawn).

#### Circularity and Straightness



#### Circularity of Part D

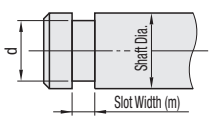
D over	D or Less	Circularity M
2	2.5	0.006(0.003)
3	13	0.004(0.003)
13	20	0.005(0.003)
20	40	0.006(0.005)
40	50	0.007(0.005)

Circularity of Driving Shafts Straight Type KZAN, KZAC and KZAP is the same as that of rotary shafts.

#### Tolerances of L, Y and Other Dimensions

Dimension over	Dimension or Less	Tolerance
2	6	±0.1(±0.1)
6	30	±0.2(±0.1)
30	120	±0.3(±0.1)
120	400	±0.5(±0.2)
400	800(500)	±0.8(±0.2)

### Detailed Retaining Ring Groove Dimensions for Rotary and Driving Shafts



Shaft Dia.	d Tolerance	Slot Width (m) Tolerance	Applicable Retaining Ring
2	1.2	0.4	JIS E Type 1.2
2.5	1.5	+0.06	JIS E Type 1.5
3	2	0.5	JIS E Type 2
4	3		JIS E Type 3
5	4	0.7	JIS E Type 4
6	5	+0.075	JIS E Type 5
7	6	0	JIS E Type 6
8	7	+0.09	JIS E Type 7
9	8	0	JIS E Type 8
10	9.6	0/-0.09	JIS C Type 10
11	10.5		JIS C Type 11
12	11.5		JIS C Type 12
13	12.4		JIS C Type 13
14	13.4		JIS C Type 14
15	14.3		JIS C Type 15
16	15.2	0 -0.11	JIS C Type 16
17	16.2		JIS C Type 17
18	17		JIS C Type 18
19	18		JIS C Type 19
20	19		JIS C Type 20
21	20		JIS C Type 21
22	21		JIS C Type 22
23	22		JIS C Type 23
24	23.9		JIS C Type 24
25	25.9		JIS C Type 25
26	24.9	0 -0.21	JIS C Type 26
28	26.6		JIS C Type 28
29	27.6		JIS C Type 29
30	28.6		JIS C Type 30
32	30.3		JIS C Type 32
35	33		JIS C Type 35
40	38	0 -0.25	JIS C Type 40
45	42.5	1.9	JIS C Type 45
50	47	2.2	JIS C Type 50

### Detailed Dimensions for Keyway and Threaded Relief of Rotary Shafts and Driving Shafts

#### Detailed Dimensions of Keyway for Shaft Dia. (D, P, Q)

Shaft Dia.	Reference Dimension	Tolerance (N9)	Reference Dimension	Tolerance	r
6-7	2	-0.004	1.2		0.08-0.16
8-10	3	-0.029	1.8		
11-12	4	0	2.5	+0.1	
13-17	5	-0.03	3.0		
18-22	6		3.5		
23-30	8	0	4.0		
31-38	10	-0.036	5.0	+0.2	
39-44	12	0	5.0	0	
45-50	14	-0.043	5.5		

The example below shows the keyway shape for the specs KC, WKC, K=0, KC+A>L and WKC+C+K+E>L.

#### Rotary Shafts Thread Undercut (PC, QC) Dimensions (Reference)

When thread undercut machining (PC, QC) is specified, PC, QC dimension is as shown in the table below. As for the PC and QC dimensions for the fine thread alteration (PMC, QMC), also refer to the tables below.

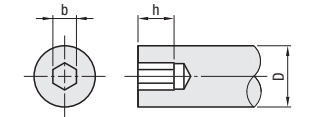
#### Coarse Thread

P(=M) Q(=N)	PC	QC
3	2.4	2.4
4	3.2	3.2
5	4.1	4.1
6	4.4	4.8
8	6.0	6.4
10	7.7	8.4
12	9.4	10.4
16	13.0	13.4
20	16.4	17.4
24	19.6	20.4
30	25.0	27.7

#### Combined with Fine Thread Alteration

PMC QMC	PC	QC
3	2.4	2.4
4	3.2	3.2
5	4.1	4.1
6	4.8	4.8
8	6.4	6.4
10	8.4	8.4
12	10.4	10.4
15	13.4	13.4
17	15.4	15.4
20	18.4	18.4
25	22.7	22.7
30	27.7	27.7

#### Detailed Hex Socket Dimensions for Rotary Shaft Dia. D



Shaft Dia.	b	h
6-7	2.5	4
8-9	3	5
10-11	4	6
12-15	5	8
16-19	6	9
20-24	8	12
25-30	10	15