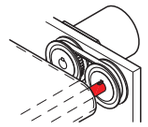
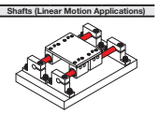
Rotary Shafts

MISUMI Round Bar Lineup

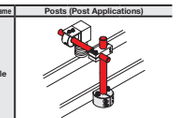
For shafts intended for rotary motion.

Product Name	Rotary Shafts (Rotary Motion Applications)		
App. Example			
Page	P.819~		
Shaft Dia. Tolerance	h7/g6/h9		
Material/Hardness	EN 1.1191 Equiv. EN 1.4301 Equiv. EN 1.7220 Equiv.		
Related Components			
	Bearing	Pulley	Coupling

When shafts for linear motion are required — P.107~

Product Name	Shafts (Linear Motion Applications)		
App. Example			
Shaft Dia. Tolerance	g6/f8/h5		
Material/Hardness	EN 1.3505 Equiv.: 58HRC~ EN 1.1191 Equiv. or EN 1.4301 Equiv. EN 1.4125 Equiv.: 58HRC~		
Related Components			
	Linear Bushing	Shaft Support	Oil Free Bushing

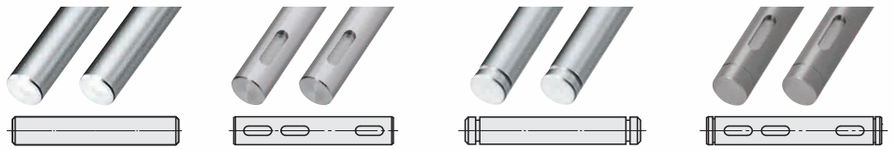
When posts are needed — P.2111~

Product Name	Posts (Post Applications)		
App. Example			
Shaft Dia. Tolerance	0 −0.1		
Material/Hardness	EN 1.0038 Equiv. EN 1.4301 Equiv.		
Related Components			
	Strut Clamp	Stand	Shaft Collar

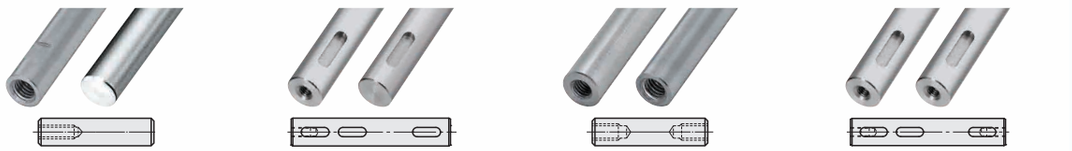
When material are needed — P.2-301~

Product Name	Round Bar (Material)		
Product Photo			
Shaft Dia. Tolerance	0 −0.1	0 −0.2	±0.1~0.4
Material/Hardness	Stainless Steel, Aluminum, Carbon Steel, Chrome Molybdenum Steel, Copper		
Related Components	Unfinished material sales For your various application requirements.		

Rotary Shafts

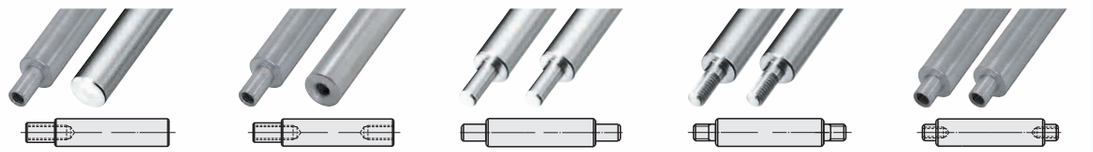


Product Name	Straight	Straight with Keyway	Retaining Ring Grooves on Both Ends	Retaining Ring Grooves on Both Ends with Keyway
Page	823	825	827	829

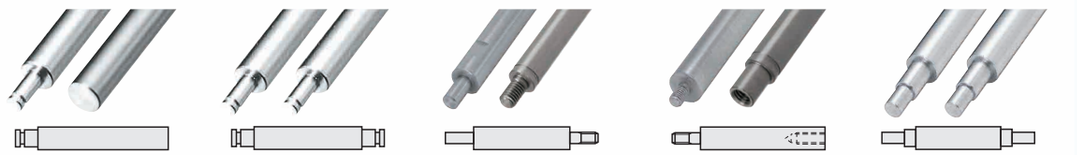


One End Tapped	One End Tapped with Keyway	Both Ends Tapped	Both Ends Tapped with Keyways
831	833	835	837

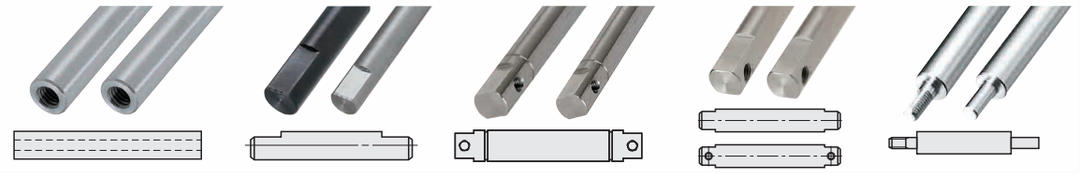
One End Stepped	One End Stepped, One End Tapped	One End Stepped, One End Threaded	One End Stepped and Threaded, One End Tapped
839	841	843	845



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



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
857	857	859	859	861



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

Driving Shafts - Straight	Driving Shafts - One End Stepped	Both Ends Stepped	One End Stepped One End Double Stepped	Shouldered	One End Stepped with Shoulder
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: **P.823~P.856**

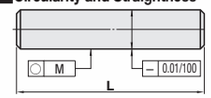
■Rotary Shafts with Keyways have been standardized.

Number of keyways can be specified up to 3.
Standard Model: SFMKR
Page: **P.825**, **P.829**, **P.833**, **P.835**

■Accuracy Standards of Rotary Shafts and Driving Shafts

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

■Circularity and Straightness



Straightness of size D2, D2.5 is 0.1/100.

■Circularity of Part D

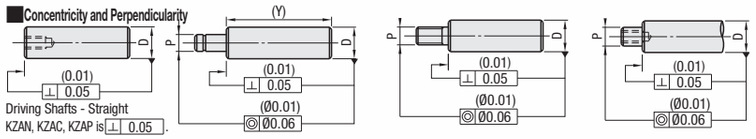
D over	D or Less	Circularity M
2	2.5	0.006(0.003)
3	13	0.004(0.003)
13	20	0.005(0.003)
20	40	0.006(0.005)
40	50	0.007(0.005)

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)

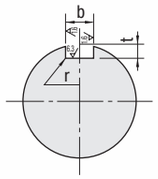
■Concentricity and Perpendicularity



Driving Shafts - Straight
KZAN, KZAC, KZAP is ⊥ 0.05.

■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.	b Reference Dimension	b Tolerance (N9)	t Reference Dimension	t Tolerance	r
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 -0.03	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~ 0.4
31~38	10		5.0		
39~44	12	0 -0.043	5.0		
45~50	14		5.5		

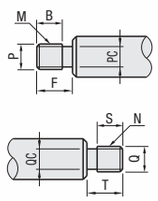
The example below shows the keyway shape for the specs KC, WKC, K=0, KC+A≥L and WKC+C+K+E>L.

Ex.)

■Rotary ShaftsThread 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

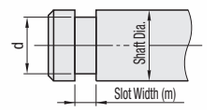


P(=M) Q(=N)	PC QC
3	2.4
4	3.2
5	4.1
6	4.4
8	6.0
10	7.7
12	9.4
16	13.0
20	16.4
24	19.6
30	25.0

• Combined with Fine Thread Alteration

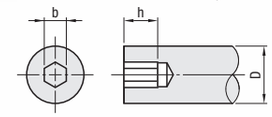
PMC QMC	PC QC
3	2.4
4	3.2
5	4.1
6	4.8
8	6.4
10	8.4
12	10.4
15	13.4
17	15.4
20	18.4
25	22.7
30	27.7

■Detailed Retaining Ring Groove Dimensions for Rotary and Driving Shafts



Shaft Dia.	d Tolerance		Slot Width (m)	Tolerance	Applicable Retaining Ring
2	1.2	+0.06 0	0.4	+0.05 0	JIS E Type 1.2
2.5	1.5		0.5		JIS E Type 1.5
3	2				JIS E Type 2
4	3		0.7	+0.1 0	JIS E Type 3
5	4	+0.075 0			JIS E Type 4
6	5				JIS E Type 5
7	6		0.9		JIS E Type 6
8	7	+0.09 0			JIS E Type 7
9	8				JIS E Type 8
10	9.6	0/-0.09	1.15	+0.14 0	JIS C Type 10
11	10.5	0 -0.11			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				JIS C Type 16
17	16.2				JIS C Type 17
18	17		1.35		JIS C Type 18
19	18				JIS C Type 19
20	19	0 -0.21	1.35		JIS C Type 20
21	20				JIS C Type 21
22	21				JIS C Type 22
23	22				JIS C Type 23
24	22.9				JIS C Type 24
25	23.9				JIS C Type 25
26	24.9				JIS C Type 26
28	26.6		1.65		JIS C Type 28
29	27.6				JIS C Type 29
30	28.6				JIS C Type 30
32	30.3	0 -0.25			JIS C Type 32
35	33				JIS C Type 35
40	38		1.9		JIS C Type 40
45	42.5				JIS C Type 45
50	47		2.2		JIS C Type 50

■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