

Rotary Shafts - D Tolerance h9 (Cold-drawn) / h7 (Ground) / g6 (Ground)

Retaining Ring Grooves on Both Ends

For products uncovered by the e-Catalog Standard, see P.131.

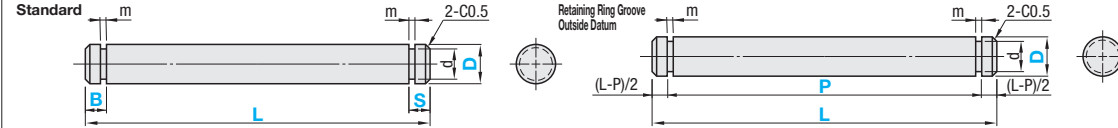
Select from h9 (Cold-drawn), h7 (Ground) and g6 (Ground) for your applications.

Type	Standard		D Tolerance	Material	Surface Treatment
	Without Retaining Ring	With Retaining Ring			
(1)	SFMRR	SFMRRRA	h9 (Cold-drawn)	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating
	PSFMRR	PSFMRRRA			
	SSFMRRA	SSFMRRA			
(2)	SFHRR	SFHRRRA	h7 (Ground)	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating
	PSFHRR	PSFHRRRA			
	SSFHRR	SSFHRRRA			
(3)	SFRR	SFRRRA	g6 (Ground)	S45C Equivalent SUS304 SCM435	Black Oxide Electroless Nickel Plating
	PSFRR	PSFRRRA			
	SSFRR	SSFRRRA			

Tolerance Table			
D	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
2, 2.5, 3	-	-	-0.002 -0.008
4-6	0 -0.030	0 -0.012	-0.004 -0.012
8, 10	0 -0.036	0 -0.015	-0.005 -0.014
12-18	0 -0.043	0 -0.018	-0.006 -0.017
20-30	0 -0.052	0 -0.021	-0.007 -0.020
35-50	0 -0.062	0 -0.025	-0.009 -0.025

For Retaining Ring Groove Dimensions see P.844

Surface roughness of Part D for h9 (Cold-drawn) is 1.6 μ m. Surface roughness for h7 (Ground) and g6 (Ground) is 0.8 μ m.

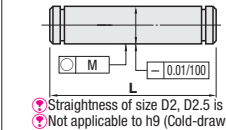


Circularity and Straightness

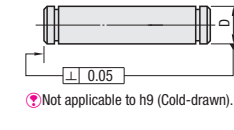
Circularity of Part D

Perpendicularity

Tolerances of L and Other Dimensions



Dimension over	Dimension or Less	Circularity M
1	2.5	0.006
3	13	0.004
13	20	0.005
20	40	0.006
40	50	0.007



Dimension over	Dimension or Less	Tolerance
2	6	±0.1
6	30	±0.2
30	120	±0.3
120	400	±0.5
400	1000	±0.8

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

Not applicable to h9 (Cold-drawn).

Not applicable to h9 (Cold-drawn).

Not applicable to h9 (Cold-drawn).

(1)h9 (Cold-drawn)

Type	Part Number		L 1mm Increment	B, S 0.1mm Increment	Retaining Ring No. Accessory: Retaining Ring 2 pcs. (Retaining Ring Type only)
	Without Retaining Ring	With Retaining Ring			
SFMRR PSFMRR SSFMRRA	SFMRRRA PSFMRRRA SSFMRRA	D 3	15.0-150.0	2.5B, S<L/2	NETWS2
		D 4	15.0-200.0		NETWS3
		D 5	15.0-250.0	3.5B, S<L/2	NETWS4
		D 6	15.0-400.0		NETWS5
		D 8	15.0-500.0		NETWS7
		D 10	15.0-600.0	4.5B, S<L/2	STWS10
		D 12	15.0-700.0		STWS12
		D 15	15.0-800.0		STWS15
		D 20	30.0-1000.0		STWS20
		D 25	50.0-1000.0	5.5B, S<L/2	STWS25
		D 30	60.0-1000.0		STWS30
		D 35	70.0-1000.0		STWS35
		D 40	80.0-1000.0		STWS40
		D 50	100.0-1000.0		STWS50

(2)h7 (Ground)

Type	Part Number		L 1mm Increment	B, S 0.1mm Increment	Retaining Ring No. Accessory: Retaining Ring 2 pcs. (Retaining Ring Type only)
	Without Retaining Ring	With Retaining Ring			
SFHRR PSFHRR SSFHRRRA	SFHRRRA PSFHRRRA SSFHRRRA	D 6	15.0-400.0	2.5B, S<L/2	NETWS5
		D 8	15.0-500.0		NETWS7
		D 10	15.0-600.0	3.5B, S<L/2	STWS10
		D 12	15.0-700.0		STWS12
		D 15	15.0-800.0		STWS15
		D 17	30.0-900.0	4.5B, S<L/2	STWS17
		D 20	30.0-1000.0		STWS20
		D 25	80.0-1000.0		STWS25
		D 30	80.0-1000.0		STWS30
		D 35	80.0-1000.0	5.5B, S<L/2	STWS35
		D 40	80.0-1000.0		STWS40
D 50	100.0-1000.0	STWS50			

(3)g6 (Ground)

Type	Part Number		L 1mm Increment	B, S 0.1mm Increment	P 0.1mm Increment	m Tolerance	d Tolerance	Retaining Ring No. Accessory: Retaining Ring 2 pcs. (Retaining Ring Type only)
	Without Retaining Ring	With Retaining Ring						
SFRR PSFRR SSFRRRA	SFRRRA PSFRRRA SSFRRRA	D 2	15.0-50.0	2.5B, S<L/2	3.5P≤L-4	0.4	1.2	NETWS1.2
		D 2.5	15.0-50.0					NETWS1.5
		D 3	15.0-150.0					NETWS2
		D 4	15.0-200.0					NETWS3
		D 5	15.0-250.0					NETWS4
		D 6	15.0-400.0					NETWS5
		D 8	15.0-500.0					NETWS7
		D 10	15.0-600.0					STWS10
		D 12	15.0-700.0					STWS12
		D 13	15.0-700.0					STWS13
		D *15	15.0-800.0					STWS15
		D 16	15.0-900.0					STWS16
		D 17	30.0-900.0					STWS17
		D 18	30.0-900.0					STWS18
		D *20	30.0-1000.0					STWS20
		D 22	70.0-1000.0					STWS22
		D *25	80.0-1000.0					STWS25
		D *30	80.0-1000.0					STWS30
		D 35	80.0-1000.0					STWS35
		D 40	80.0-1000.0					STWS40
		D 50	100.0-1000.0					STWS50

For NETWS and STWS retaining rings details, see P.293.

The material of retaining ring is SUS304.

For HFRRRA, PHFRRRA, the upper limit for L dim. is 800.

Ordering Example: SFMRR30 - 150 - B6 - S6 - P150
 SFHRR40 - 230 - B10 - S10 - P150
 SFRRGA20 - 180

(1)h9 (Cold-drawn)

Type	SFMRR (S45C Equivalent, Black Oxide)											PSFMRR (S45C Equivalent, Electroless Nickel Plating)								SSFMRRA (SUS304)																	
	For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.											For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.								For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.																	
	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1				
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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(2)h7 (Ground) (3)g6 (Ground)

Type	SFHRR, SFRR (S45C Equivalent, Black Oxide)											PSFHRR, PSFRR (S45C Equivalent, Electroless Nickel Plating)								SSFHRR, SSFRR (SUS304)																	
	For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.											For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.								For "With Retaining Ring" Type, add relevant surcharge to the prices shown below.																	
	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1				
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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