

Retaining Ring Grooves on Both Ends

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

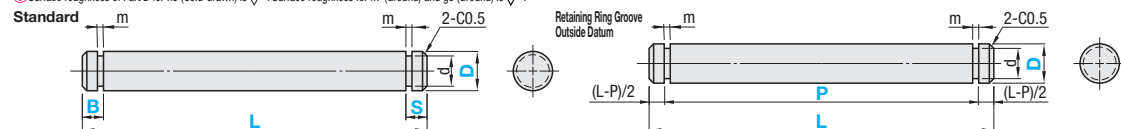


RoHS

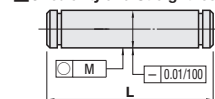
	Type			D Tolerance	M Material	S Surface Treatment
	Without Retaining Ring	Standard With Retaining Ring	Retaining Ring Center Outside Diameter With Retaining Ring			
(1)	SFMR	SFMRRA	-	h9 (Cold-drawn)	S45C Equivalent	Black Oxide Electroless Nickel Plating
	PSFMR	PSFMRRA	-		SUS304	-
	SFMR	SFMRRA	-		S45C	Black Oxide
(2)	SFHR	SFHRRA	-	h7 (Ground)	Equivalent	Electroless Nickel Plating
	PSFHR	PSFHRRA	-		SUS304	-
	SFHR	SFHRRA	-		S45C	Black Oxide
(3)	SFRR	SFRRRA	SFRRGA	g6 (Ground)	Equivalent	Electroless Nickel Plating
	PSFRR	PSFRRRA	PSFRRGA		SUS304	-
	SFRR	SFRRRA	SFRRGA		SCM435	Black Oxide
	-	HFRRA	-		H hardness: 30 ~ 55HRC	Electroless Nickel Plating
	-	PHFRRA	-		-	-

 For Retaining Ring Groove Dimensions P.844

Surface roughness of Part D for h9 (Cold-drawn) is $\frac{6.3}{\sqrt{}}$. Surface roughness for h7 (Ground) and g6 (Ground) is $\frac{1.6}{\sqrt{}}$.



■Circularity and Straightness



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

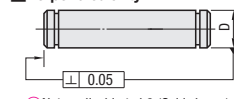
⚠ Not applicable to h9 (Cold-drawn).

■Circularity of Part D

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

⚠ Not applicable to h9 (Cold-drawn)

■ Perpendicularity



⚠ Not applicable to h9 (Cold-drawn).

■ Tolerances of L and Other Dimensions

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

400	1000	± 0.8
-----	------	-----------

(1)h9 (Cold-drawn)

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

(2)h7 (Ground)

Part Number		L		B, S		Retaining Ring No.	
Type		D	1mm Increment	0.1mm Increment	Accessory: Retaining Ring 2 pcs		
Standard					(Retaining Ring Type only)		
Without Retaining Ring	With Retaining Ring	6	15.0~400.0	2≤B, S<L/2	NETW55		
		8	15.0~500.0	3≤B, S<L/2	NETW57		
SFHRR	SFHRRR	10	15.0~600.0		4≤B, S<L/2	STWS10	
		12	15.0~700.0	STWS12			
		15	15.0~800.0	STWS15			
		17	30.0~900.0	STWS17			
		20	30.0~1000.0	STWS20			
PSFHRR	PSFHRRR	25	80.0~1000.0	5≤B, S<L/2	STWS25		
		30	80.0~1000.0		STWS30		
SSFHRR	SSFHRRR	35	80.0~1000.0		STWS35		
		40	80.0~1000.0		STWS40		
		50	100.0~1000.0		STWS50		

(3)g6 (Ground)

Part Number			L		B, S	P	m		d		Retaining Ring No.					
Type		Retaining Ring Groove Outside Datum	D	1mm Increment	0.1mm Increment	0.1mm Increment	Tolerance	Tolerance	Tolerance	Tolerance	Accessory: Retaining Ring 2 pcs (Retaining Ring Type only)					
Standard					Standard	Retaining Ring Groove										
Without Retaining Ring	With Retaining Ring	With Retaining Ring	2	15.0~50.0	2≤B, S<L/2	3≤P≤L-4	0.4	1.2	+0.05 0	+0.06 0	NETWS1_2					
			2.5	15.0~50.0			0.5	1.5			NETWS1_5					
			3	15.0~150.0							NETWS2					
			4	15.0~200.0							NETWS3					
			5	15.0~250.0							NETWS4					
SFRR	SFRRRA	SFRRGA	6	15.0~400.0	3≤B, S<L/2	5≤P≤L-5	0.7	4	+0.1 0	+0.075 0	0	NETWS5				
			8	15.0~500.0				0.9				5	NETWS7			
			10	15.0~600.0								7	STWS10			
			12	15.0~700.0								9.6	STWS12			
			13	15.0~700.0								0	STWS13			
			PSFRR	PSFRRRA			PSFRRGA		*15	15.0~800.0	4≤B, S<L/2	7≤P≤L-6	1.15	11.5	0	-0.11
								16	15.0~900.0	12.4				STWS16		
								17	30.0~900.0	14.3				STWS17		
								18	30.0~900.0	15.2				STWS18		
								20	30.0~1000.0	16.2				STWS20		
			SSFRR	SSFRRRA			(D13, D16, D18 or D22 is not available for SSFRR.)	22	70.0~1000.0	5≤B, S<L/2	10≤P≤L-8	1.35	17	+0.14 0	-0.21	STWS22
								*25	80.0~1000.0				19			STWS25
								*30	80.0~1000.0				21			STWS30
								35	80.0~1000.0				23.9			STWS35
								40	80.0~1000.0				28.6			STWS40
SFRR	SFRRRA	SFRRGA	50	100.0~1000.0			1.65	33	0		STWS50					
					1.9	37	-0.25									
					2.2	48										

For NETWS and STWS retaining rings details, see P.2-293. The material of retaining ring is SUS304.

4. For HFERRA, PHFERRA, the upper limit for L dim. is 800.

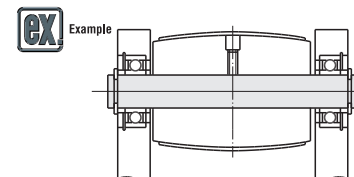
Ordering Example	Part Number	-	L	-	B	-	S	-	P
	SFMRR30	-	150	-	B6	-	S6	-	
	SFHRRA40	-	230	-	B10	-	S10	-	
	SFRRGA20	-	180	-		-		-	P150

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

(1)h9 (Cold-drawn)

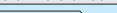
[illegible]

(2)h7 (Ground) (3)q6 (Ground)

[illegible][illegible]

Alterations  Part Number - L - B - S - (KC, WKC, FC...etc.)
SFRR30 - 250 - B10 - S20 - KC20-A10

	Keyway				Set Screw Flat			
	1	2	1 (for 4th keyway)	1	2	2 Set Screw Plats (Angle Specified)	2 Set Screw Plats at both ends	Chamfering Depth Configurable
For details, see Alteration Overview P843 Alterations								D WC 8 4.0 - 6.9 10 5.0 - 7.9 12 6.0 - 8.9 15 9.0 - 11.9 20 13.0 - 15.9 25 17.0 - 19.9 30 22.0 - 24.9 35 27.0 - 29.9 40 32.0 - 34.9 50 42.0 - 44.9
		Applicable only when combined with both KC and WKC.					For W dim., see P843 .	
Code	KC	WKC	KZ	FC	WFC	SFC	KWC	WC
Dimension Increment	KC, A = 0.1mm Increment	WKC, C, E, K = 0.1mm Increment	KZ, Z = 0.1mm Increment	FC, G = 1mm Increment	WFC, J, V, W = 1mm Increment	SFC, SG = 1mm Increment AG = 15° Increment	KWC = 1mm Increment	WC=0.1mm
Ordering Example	KC50-A10	WKC5-C20-K5-E10	KC5-A10-WKC20-C10-K60-E10-KZ100-Z10	FC10-G3	WFC10-J15-W10-V20	SFC10-SG3-AG120	KWC10	WC6.8
Conditions	Not applicable when Shaft Dia. ≤ Ø5. Key Length ≤ 100. *1, *2				Not applicable when Shaft Dia. = Ø2 or Ø2.5. G, J, V, SG ≤ 70. For H dim., see P843 .		Not applicable when Shaft Dia. ≤ Ø6, when D = 13, 16, 17, 18 or 22, or when L>680. Only when KWC is specified, WC is available.	

For details, see Alteration Overview  P843 Alterations	Slit Cam Groove 	L Dimension Tolerance 	Wrench Flats 	Changes Part D Chamfering  Chamfering (CD) Applicable (A, B) C2 Ø6-Ø50 C3 Ø8-Ø50 C4 Ø10-Ø50 C5 Ø12-Ø50
	Code UC	Code LKC	Code SC	Code CD
Dimension Increment	UC = 1mm Increment	-	SC = 1mm Increment	CD = Selectable
Ordering Example	UC10	LKC	SC10	CD2
Conditions	For d, d ₂ dim., see P843. Not applicable when D≥13.	Not applicable when L≥800.	For W dim., d ₂ dim., see P843. Not applicable when D≤5.	Only values provided on the Applicable Data Table are applicable.

For details about Alterations, see Alteration Overview (P843)

When combined with other alterations, ± 2 degree phase difference may occur. Provide 2mm or more clearance between this alteration and others.

When multiple keyways or set screw flats are specified, they are added in the same plane. When the distance of the alterations are over 500mm, ± 2 degree phase difference may occur.

*1. When multiple keyways are added with 2mm or less clearance between them, keyways will interfere.

*2. When the keyway position is less than 1mm away from the end face, R is not applied.