

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

One End Stepped

■ Select from h9 (Cold-drawn), h7 (Ground) and g6 (Ground) for your applications. Furthermore, h7 or g6 can be selected for P part tolerance of h9 (Cold-drawn).

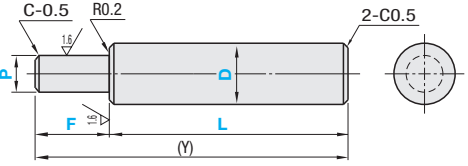


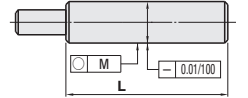
RoHS 10

Type	Tolerance	D	P	Material	Surface treatment
① SFRMHP	h9 (Cold-drawn)	h7	g6	EN 1.1191 Equiv.	Black Oxide
PSFRMHP				EN 1.4301 Equiv.	Electroless Nickel Plating
SSFRMHP				-	-
SFRMGP				EN 1.1191 Equiv.	Black Oxide
PSFRMGP	h7 (Ground)	h7	g6	EN 1.4301 Equiv.	Electroless Nickel Plating
SSFRMGP				-	-
SFRHP				EN 1.1191 Equiv.	Black Oxide
PSFRHP				EN 1.4301 Equiv.	Electroless Nickel Plating
SSFRHP	g6 (Ground)	g6	g6	EN 1.1191 Equiv.	Black Oxide
SFRP				EN 1.4301 Equiv.	Electroless Nickel Plating
PSFRP				-	-
SSFRP				EN 1.7220 Equiv. Hardness 30~35HRC	Black Oxide
HFRP					

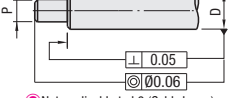
① Surface roughness of D part for h9 (Cold-drawn) is $\frac{1.6}{\sqrt{R}}$. Surface roughness for h7 (Ground) and g6 (Ground) is $\frac{1.6}{\sqrt{R}}$.

② For Retaining Ring Groove Type, refer to P.857.





③ Not applicable to h9 (Cold-drawn).



④ Not applicable to h9 (Cold-drawn).

■ Circularity and Straightness

D	over	or Less	Circularity M
5	13		0.004
13	20		0.005
20	40		0.006
40	50		0.007

⑤ Not applicable to h9 (Cold-drawn).

■ Circularity of Part D

D	over	or Less	Circularity M
2	6		±0.1
6	30		±0.2
30	120		±0.3
120	400		±0.5
400	800		±0.8

⑥ Not applicable to h9 (Cold-drawn).

■ Perpendicularity

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

⑦ Not applicable to h9 (Cold-drawn).

■ Tolerances of L, Y and Other Dimensions

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

⑧ Not applicable to h9 (Cold-drawn).

① D tolerance h9 (Cold-drawn) / P tolerance h7 ② D tolerance h9 (Cold-drawn) / P tolerance g6

Part Number	D	L	0.1mm Increment	F	1mm Increment	P	(Y) max.
Type	D	L	F	P			
① D part h9 / P part h7	6	20.0~298.0			3 4 5		300
SFRMHP	8	20.0~398.0			3≤P<D		400
PSFRMHP	10	20.0~498.0					500
SSFRMHP	12	25.0~598.0					600
② D part h9 / P part g6	15	25.0~698.0			5≤P<D		700
SFRMGP	20	30.0~798.0					800
PSFRMGP	25	30.0~798.0			10≤P<D		
SSFRMGP	30	30.0~798.0			16≤P<D		
(D6 is not available for SSFRMHP and SSFRMGP)	35	40.0~798.0					

③ h7 (Ground)

Part Number	D	L	0.1mm Increment	F	1mm Increment	P	(Y) max.
Type	D	L	F	P			
SFRHP	6	20.0~298.0			3 4 5		300
PSFRHP	8	20.0~398.0			3≤P<D		400
SSFRHP	10	20.0~498.0					500
	12	25.0~598.0					600
	15	25.0~698.0			5≤P<D		700
	17	30.0~798.0					800
	20	30.0~798.0			10≤P<D		
	25	30.0~798.0			16≤P<D		
	30	30.0~798.0					
	35	40.0~798.0					
	40	40.0~798.0					
	50	40.0~798.0					

④ g6 (Ground)

Part Number	D	L	0.1mm Increment	F	1mm Increment	P	(Y) max.
Type	D	L	F	P			
SFRP	6	20.0~298.0			3 4 5		300
PSFRP	8	20.0~398.0			3≤P<D		400
SSFRP	10	20.0~498.0					500
	12	25.0~598.0					600
	13	25.0~598.0					700
	* 15	25.0~698.0			5≤P<D		
	16	25.0~798.0					800
	17	30.0~798.0			10≤P<D		
	* 18	30.0~798.0			16≤P<D		
	* 20	30.0~798.0					
	22	30.0~798.0					
	* 25	30.0~798.0					
	* 30	30.0~798.0					
	* 35	40.0~798.0					
	* 40	40.0~798.0					
	* 50	40.0~798.0					

⑨ When D-P<2, chamfer C at the step is 0.2 or less.



Ordering Example

① D part h9 / P part h7

③ h7 (Ground)

Part Number

SFRMHP30

SFRHP25

- 250 -

- 200 -

- F30 -

- F25 -

- P10

- P15

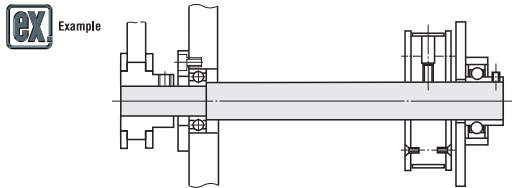
① D tolerance h9 (Cold-drawn) / P tolerance h7 ② D tolerance h9 (Cold-drawn) / P tolerance g6

Type	SFRMHP, SFRMGP (EN 1.1191 Equiv., Black Oxide)								PSFRMHP, PSFRMGP (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFRMHP, SSFRMGP (EN 1.4301 Equiv.)							
D	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
6	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0
8						-	-	-						-	-	-	-	-	-	-	-	-	-	-
10							-	-							-	-							-	-
12							-	-								-							-	-
15																								
20																								
25																								
30																								
35																								

③ h7 (Ground) ④ g6 (Ground)

Type	SFRHP, SFRP (EN 1.1191 Equiv., Black Oxide)								PSFRHP, PSFRP (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFRHP, SSFRP (EN 1.4301 Equiv.)							
D	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
6	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0
8						-	-	-						-	-	-						-	-	-
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Type	HFRP (EN 1.7220 Equiv. Hardness 30~35HRC, Black Oxide)							
D	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
15	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0
20								
25								
30								
35								
40								
50								





Alterations

Part Number

SFRMGP10

- L -

- F10 -

- P5 -

- SFC10-SG10-AG90

Alterations	Keyway	Keyway on Shaft End	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	Wrench Flats	L Dimension Tolerance / Concentricity
	• 1 Keyway: KC • 2 Keyways: WKC	PKC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC	UC	SC	LKC, CKC
Code	KC, WKC	PKC	FC, WFC	SFC	UC	SC	LKC, CKC
Spec.	KC: Adds a keyway. Ordering Code KC50-A10 WKC: Adds two keyways. Ordering Code WKC50-CS-K40-E10 * KC, A, WKC, C, K, E = 1mm Increment * A, E, C: 100 * For Keyway Details, refer to P.820 * If 3 keyways are required, use both KC and WKC. * When the keyway position is less than 1mm away from the end face, R is not applied. Ex.	Adds a keyway on the shaft end P. Ordering Code PKC10 * PKC = 1mm Increment * PKC: 50 * PKC: F(T) * Keyway Details P.820 * Not applicable to P5 or less.	FC: Adds 1 set screw flat. Ordering Code FC10-G3 WFC: Adds 2 set screw flats. Ordering Code WFC10-J3-W10-V3 * FC, G, WFC, J, W, V = 1mm Increment * G, J, V: 50	Adds a set screw flat at any desired angle besides the datum plane (0°). SFC, SG = 1mm Increment AG = 15° Increment * SG: 50 Ordering Code SFC10-SG3-AG90	Adds a slit cam groove. UC = 1mm Increment Ordering Code UC10 * UC + L1 ≤ L * UC: 1 * Not applicable to D13 or more.	Adds a wrench flat. SC = 1mm Increment * SC + L2 ≤ L * SC: 0 or SC: 1 D W L2 6 5 8 8 7 8 12 13 10 15 16 13 17 18 14 10 20 22 17 25 22 30 27 15 35 30 40 36 20 50 41 * When combined with other alterations, ±2 degree phase differential may occur.	LKC: Changes L dimension tolerance. Ordering Code LKC * L<500 → L±0.05 L: 500 → L±0.1 CKC: Changes the concentricity to 0.02. Ordering Code CKC * Applicable within dimension L range in the table below. * Not applicable to D part of h9 (Cold-drawn). D Lmax 6~22 450 25~50 600