

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

One End Stepped

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

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).



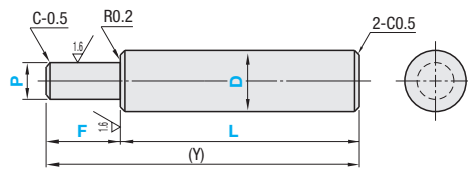
RoHS 10

Type	Tolerance		Material	Surface Treatment
	D	P		
(1) SFRMHP PSFRMHP SSFRMHP	h9 (Cold-drawn)	h7	S45C Equivalent	Black Oxide
SUS304			-	
S45C Equivalent			Black Oxide	
(2) SFRMGP PSFRMGP SSFRMGP	g6	g6	S45C Equivalent	Electroless Nickel Plating
SUS304			-	
S45C Equivalent			Black Oxide	
(3) SFRHP PSFRHP SSFRHP	h7 (Ground)	h7	S45C Equivalent	Black Oxide
SUS304			-	
S45C Equivalent			Electroless Nickel Plating	
(4) SFRP PSFRP SSFRP HFRP	g6 (Ground)	g6	S45C Equivalent	Black Oxide
SUS304			-	
SCM435			Electroless Nickel Plating	
SCM435 Hardness: 30-35HRC			Black Oxide	

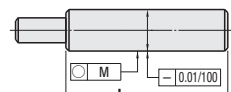
Tolerance Table

D, P	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
3	0 -0.025	0 -0.010	-0.002 -0.008
3.1-6	0 -0.030	0 -0.012	-0.004 -0.012
6.1-10	0 -0.036	0 -0.015	-0.005 -0.014
10.1-18	0 -0.043	0 -0.018	-0.006 -0.017
18.1-30	0 -0.052	0 -0.021	-0.007 -0.020
30.1-50	0 -0.062	0 -0.025	-0.009 -0.025

Surface roughness of Part D for h9 (Cold-drawn) is $Ra \leq 1.6$. Surface roughness for h7 (Ground) and g6 (Ground) is $Ra \leq 0.8$.
For Retaining Ring Groove Type, see P.879.



Circularity and Straightness



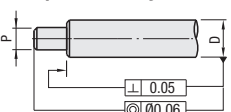
Not applicable to h9 (Cold-drawn).

Circularity of Part D

D	over	or Less	Circularity M
5	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, 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	1000		± 0.8

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	0.1mm Increment		1mm Increment	(Y)max.
		L	F		
(1)D Tol. h9 / P Tol. h7 SFRMHP PSFRMHP SSFRMHP	6	15.0-398.0		3 4 5	400
	8	15.0-498.0		3 \leq P<D	500
	10	15.0-598.0		3 \leq P<D	600
	12	15.0-698.0		3 \leq P<D	700
(2)D Tol. h9 / P Tol. g6 SFRMGP PSFRMGP SSFRMGP	15	15.0-798.0	2 \leq F \leq Px5	5 \leq P<D	800
	20	30.0-998.0		5 \leq P<D	900
	25	30.0-998.0		10 \leq P<D	1000
	30	30.0-998.0		10 \leq P<D	1000
(D6 is not available for SSFRMHP or SSFRMGP.)	35	40.0-998.0		16 \leq P<D	1000

(3)h7 (Ground)

Part Number	D	0.1mm Increment		1mm Increment	(Y)max.
		L	F		
SFRHP PSFRHP SSFRHP	6	15.0-398.0		3 4 5	400
	8	15.0-498.0		3 4 5	500
	10	15.0-598.0		3 \leq P<D	600
	12	15.0-698.0		3 \leq P<D	700
	15	15.0-798.0		3 \leq P<D	800
	17	30.0-898.0	2 \leq F \leq Px5	5 \leq P<D	900
	20	30.0-998.0		5 \leq P<D	900
	25	30.0-998.0		10 \leq P<D	1000
	30	30.0-998.0		10 \leq P<D	1000
	35	40.0-998.0		16 \leq P<D	1000

(4)g6 (Ground)

Part Number	D	0.1mm Increment		1mm Increment	(Y)max.
		L	F		
SFRP PSFRP SSFRP	6	15.0-398.0		3 4 5	400
	8	15.0-498.0		3 4 5	500
	10	15.0-598.0		3 \leq P<D	600
	12	15.0-698.0		3 \leq P<D	700
	13	15.0-698.0		3 \leq P<D	700
	*15	15.0-798.0		3 \leq P<D	800
	*16	15.0-898.0		5 \leq P<D	800
	*17	30.0-898.0	2 \leq F \leq Px5	5 \leq P<D	900
	*18	30.0-898.0		5 \leq P<D	900
	*20	30.0-998.0		5 \leq P<D	900
*22	30.0-998.0		10 \leq P<D	1000	
*25	30.0-998.0		10 \leq P<D	1000	
*30	30.0-998.0		16 \leq P<D	1000	
*35	40.0-998.0		16 \leq P<D	1000	
*40	40.0-998.0		16 \leq P<D	1000	
*50	40.0-998.0		16 \leq P<D	1000	

When D-P \geq 2, chamfer C at the step is 0.2 or less. For HFRP, the upper limit for L dim. is 798.0.

Ordering Example	Part Number	L	F	P
(1)D part h9 / P part h7	SFRMHP30	250	F30	P10
(3)h7 (Ground)	SFRHP25	200	F25	P15
(4)g6 (Ground)				

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

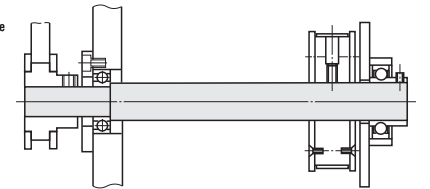
Type	SFRMHP, SFRMGP (S45C Equivalent, Black Oxide)								PSFRMHP, PSFRMGP (S45C Equivalent, Electroless Nickel Plating)								SSFRMHP, SSFRMGP (SUS304)											
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	
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(3)h7 (Ground) (4)g6 (Ground)

Type	SFRHP, SFRP (S45C Equivalent, Black Oxide)								PSFRHP, PSFRP (S45C Equivalent, Electroless Nickel Plating)								SSFRHP, SSFRP (SUS304)										
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0
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Type	HFRP (SCM435 Hardness 30'35HRC, Black Oxide)							
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	798.0
15								
20								
25								
30								
35								
40								
50								

EX Example



Alterations Part Number - L - F - P - (KC, WKC, FC, etc.)
SSFRMGP10 - 200 - F10 - P5 - KFC10-G10-AG90

Alterations	Keyway					
	1	2	1 (for 4th keyway)	Keyway on Step P (Position Zero from End Face)	Keyway on Step P (Position Specified)	Multiple Keyways on Step P
Code	KC	WKC	KZ	PKC	PP	PV
Dimension Increment	KC, A = 0.1mm Increment	WKC, C, E, K = 0.1mm Increment	KZ, Z = 0.1mm Increment	PKC = 0.1mm Increment	PP, PK = 0.1mm Increment	PV, PW = 0.1mm Increment
Ordering Example	KC50-A10	WKC5-C20-K5-E10	KC5-A10-WKC20-C10-K60-E10-KZ100-Z10	PKC10	PP5-PK10	PP5-PK10-PV5-PW10
Conditions	Key Length \leq 100. *1, *2			Not applicable when P \leq 5. Key Length \leq 70. *1, *2		

Alterations	Set Screw Flat			Retaining Ring Groove	
	1	2	2 Set Screw Flats (Angle Specified)	D dim.	Step
Code	FC	WFC	SFC	TL, TR	TF