


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

One End Stepped and Tapped

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

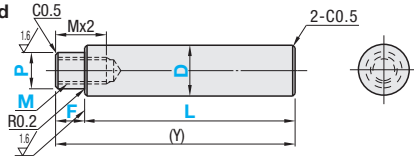
	Type		Tolerance		Material	Surface Treatment
	Standard	Wrench Flats	D	P		
(1)	SFRMHG	SFRMHGS	h9 (Cold-drawn)	h7	S45C Equivalent	Black Oxide
	PSFRMHG	PSFRMHGS			SUS304	Electroless Nickel Plating
	SSFRMHG	SSFRMHGS			SUS304	-
(2)	SFRMGG	SFRMGGGS	h9 (Cold-drawn)	g6	S45C Equivalent	Black Oxide
	PSFRMGG	PSFRMGGGS			SUS304	Electroless Nickel Plating
	SSFRMGG	SSFRMGGGS			SUS304	-
(3)	SFRHGG	SFRHGS	h7 (Ground)	h7	S45C Equivalent	Black Oxide
	PSFRHGG	PSFRHGS			SUS304	Electroless Nickel Plating
	SSFRHGG	SSFRHGS			SUS304	-
(4)	SFRG	SFRGS	g6 (Ground)	g6	S45C Equivalent	Black Oxide
	PSFRG	PSFRGS			SUS304	Electroless Nickel Plating
	SSFRG	SSFRGS			SUS304	-

Tolerance Table

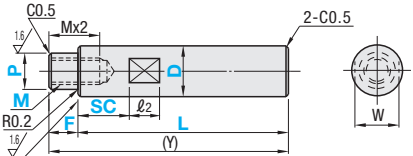
D, P	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
3.1-6	0 -0.030	0 -0.012	-0.004 -0.012
6.1-10	0 -0.036	0 -0.015	-0.005 -0.014
10.1-18	0 -0.043	0 -0.018	-0.006 -0.017
18.1-30	0 -0.052	0 -0.021	-0.007 -0.020
30.1-50	0 -0.062	0 -0.025	-0.009 -0.025

Surface roughness of Part D for h9 (Cold-drawn) is $\frac{E3}{\sqrt{}}$.
Surface roughness for h7 (Ground) and g6 (Ground) is $\frac{E5}{\sqrt{}}$.

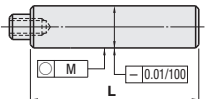
Standard



Wrench Flats



Circularity and Straightness



Not applicable to h9 (Cold-drawn).

Circularity of Part D

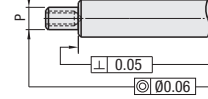
D	over	or Less	Circularity M
5	13		0.004
13	20		0.005
20	40		0.006
40	50		0.007

Not applicable to h9 (Cold-drawn).

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

Concentricity and Perpendicularity



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		0.1mm Increment			1mm Increment	M (Coarse) Selection	1mm Increment	W	l ₂	(Y) max.
Standard	Wrench Flats	D	L	F	P		SC Wrench Flats Type only			
(1)D Tol. h9 / P Tol. h7 SFRMHG PSFRMHG SSFRMHG (D6 is not available for SSFRMHG.) (2)D Tol. h9 / P Tol. g6 SFRMGG PSFRMGG SSFRMGG (D6 is not available for SSFRMGG.)	(1)D Tol. h9 / P Tol. h7 SFRMHGS PSFRMHGS SSFRMHGS (D6 is not available for SSFRMHGS.) (2)D Tol. h9 / P Tol. g6 SFRMGGGS PSFRMGGGS SSFRMGGGS (D6 is not available for SSFRMGGGS.)	6 8 10 12 15 20 25 30 35	15.0-398.0 15.0-498.0 15.0-598.0 15.0-698.0 15.0-798.0 30.0-998.0 30.0-998.0 30.0-998.0 40.0-998.0	25 ≤ F ≤ P × 5	5 For M3 - M8, M+2 ≤ P < D For M10 - 16, M+3 ≤ P < D For M20 or M24, M+4 ≤ P < D	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 16 6 8 10 12 16 20 6 8 10 12 16 20 24	SC+ l_2 ≤ L SC=0 or SC=1 For SC ≤ Mx3-F, W-M ≥ 2	5 7 8 8 10 13 17 22 27 30	8 8 10 10 15	400 500 600 700 800 1000

(3)h7 (Ground)

Part Number		0.1mm Increment			1mm Increment	M (Coarse) Selection	1mm Increment	W	l ₂	(Y) max.
Standard	Wrench Flats	D	L	F	P		SC Wrench Flats Type only			
SFRHGG PSFRHGG SSFRHGG	SFRHGS PSFRHGS SSFRHGS	6 8 10 12 15 20 25 30 35 40 50	15.0-398.0 15.0-498.0 15.0-598.0 15.0-698.0 15.0-798.0 30.0-998.0 30.0-998.0 30.0-998.0 40.0-998.0 40.0-998.0 40.0-998.0	25 ≤ F ≤ P × 5	5 For M3 - M8, M+2 ≤ P < D For M10 - 16, M+3 ≤ P < D For M20 or M24, M+4 ≤ P < D For M30, M+5 ≤ P < D	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 16 6 8 10 12 16 20 6 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30	SC+ l_2 ≤ L SC=0 or SC=1 For SC ≤ Mx3-F, W-M ≥ 2	5 7 8 8 10 13 17 22 27 30 36 41	8 8 10 10 15 15 20	400 500 600 700 800 900 1000

(4)g6 (Ground)

Part Number		0.1mm Increment			1mm Increment	M (Coarse) Selection	1mm Increment	W	l ₂	(Y) max.
Standard	Wrench Flats	D	L	F	P		SC Wrench Flats Type only			
SFRG PSFRG SSFRG (D13, D16, D18 or D22 is not available for SSFRG.)	SFRGS PSFRGS SSFRGS (D13, 16, 18 and 22 are not available for SSFRGS.)	6 8 10 12 13 15 16 17 18 20 22 25 30 35 40 50	15.0-398.0 15.0-498.0 15.0-598.0 15.0-698.0 15.0-798.0 15.0-898.0 30.0-998.0 30.0-998.0 30.0-998.0 30.0-998.0 30.0-998.0 30.0-998.0 40.0-998.0 40.0-998.0 40.0-998.0	25 ≤ F ≤ P × 5	5 For M3 - M8, M+2 ≤ P < D For M10 - 16, M+3 ≤ P < D For M20 or M24, M+4 ≤ P < D For M30, M+5 ≤ P < D	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 4 5 6 8 10 12 16 4 5 6 8 10 12 16 6 8 10 12 16 20 6 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30	SC+ l_2 ≤ L SC=0 or SC=1 For SC ≤ Mx3-F, W-M ≥ 2	5 7 8 8 10 11 13 17 17 19 22 27 30 36 41	8 8 10 10 15 15 20	400 500 600 700 800 900 1000

When D ≤ 2, chamfer C at the step is 0.2 or less. L-SC ≤ Nx3

Ordering Example: Part Number - L - F - P - M - SC

(1)D part h9 / P part h7: SFRMHG30 - 250 - F30 - P16 - M10

(3)h7 (Ground) with Wrench Flat: SFRHGS25 - 200 - F40 - P20 - M10 - SC30

(4)g6 (Ground): SFRG30 - 250 - F30 - P16 - M10 - SC30