

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

## Both Ends Stepped and Threaded

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

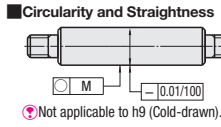
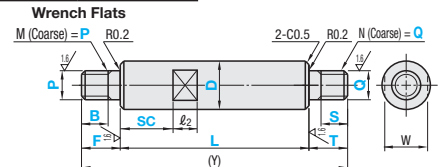
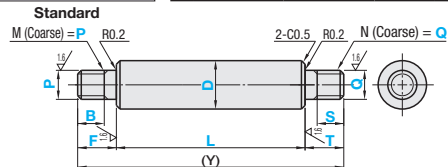


Type	Tolerance		Material	Surface Treatment
	Standard	Wrench Flats		
(1) SFRMHM PSFRMHM SSFRMHM	SFRMHMS	PSFRMHMS	S45C Equivalent	Black Oxide
	SFRMHMS	PSFRMHMS	SUS304	Electroless Nickel Plating
	SFRMHMS	PSFRMHMS	SUS304	-
(2) SFRMGGM PSFRMGGM SSFRMGGM	SFRMGMS	PSFRMGMS	S45C Equivalent	Black Oxide
	SFRMGMS	PSFRMGMS	SUS304	Electroless Nickel Plating
	SFRMGMS	PSFRMGMS	SUS304	-
(3) SFRHFM PSFRHFM SSFRHFM	SFRHMS	PSFRHMS	S45C Equivalent	Black Oxide
	SFRHMS	PSFRHMS	SUS304	Electroless Nickel Plating
	SFRHMS	PSFRHMS	SUS304	-
(4) SFRM PSFRM SSFRM	SFRMS	PSFRMS	S45C Equivalent	Black Oxide
	SFRMS	PSFRMS	SUS304	Electroless Nickel Plating
	SFRMS	PSFRMS	SUS304	-
HFRM	-	-	S45C Equivalent	Black Oxide

### Tolerance Table

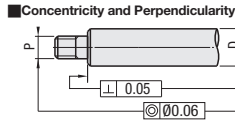
D, P	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
3	0 -0.025	0 -0.010	-0.002 -0.008
3.1~6	0 -0.030	0 -0.012	-0.004 -0.012
6.1~10	0 -0.036	0 -0.015	-0.005 -0.014
10.1~18	0 -0.043	0 -0.018	-0.006 -0.017
18.1~30	0 -0.052	0 -0.021	-0.007 -0.020
30.1~50	0 -0.062	0 -0.025	-0.009 -0.025

Surface roughness of Part D for h9 (Cold-drawn) is  $\sqrt{1.6}$ .  
Surface roughness for h7 (Ground) and g6 (Ground) is  $\sqrt{0.8}$ .



### 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



### 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

### (1)D Tolerance h9 (Cold-drawn) / P, Q Tolerance h7 (2)D Tolerance h9 (Cold-drawn) / P, Q Tolerance g6

Part Number		0.1mm Increment		1mm Increment		P, Q Selection		1mm Increment SC		W	ℓ <sub>2</sub>	(Y) max.	
Standard	Wrench Flats	D	L	F, T	B	S	P, Q Selection		Wrench Flats Type only				
(1)D Tol. h9 / P, Q Tol. h7	(1)D Tol. h9 / P, Q Tol. h7	6	15.0~390.0	5F≤Px7 5T≤Qx7	When P≤6 B≤Px3 & B≤F-2	When Q≤6 S≤Qx3 & S≤T-2	3 4 5 3 4 5 6 4 5 6 8	SC+ℓ <sub>2</sub> ≤L SC=0 or SC=1		5	8	400 500 600 700 800	
SFRMHM	SFRMHMS	8	15.0~490.0										
PSFRMHM	PSFRMHMS	10	15.0~590.0										
SSFRMHM	SSFRMHMS	12	15.0~690.0										
(2)D Tol. h9 / P, Q Tol. g6	(2)D Tol. h9 / P, Q Tol. g6	15	15.0~790.0										
SFRMGGM	SFRMGMS	20	30.0~990.0										
PSFRMGGM	PSFRMGMS	25	30.0~990.0										
SSFRMGGM	SSFRMGMS	30	30.0~990.0										
(6 is not available for SSFRMGGM)	(6 is not available for SSFRMGMS)	35	40.0~990.0										
						When P=8 or 10 B≤Px3 & B≤F-3	When Q=8 or 10 S≤Qx3 & S≤T-3						5 6 8 10 5 6 8 10 12 6 8 10 12 16
						When P≥12 B≤Px3 & B≤F-5	When Q≥12 S≤Qx3 & S≤T-5						8 10 12 16 20 8 10 12 16 20 24 10 12 16 20 24 30
													10 12 16 20 24 30

### (3)h7 (Ground)

Part Number		0.1mm Increment		1mm Increment		P, Q Selection		1mm Increment SC		W	ℓ <sub>2</sub>	(Y) max.
Standard	Wrench Flats	D	L	F	B	S	P, Q Selection		Wrench Flats Type only			
SFRHM	SFRHMS	6	15.0~390.0	5F≤Px7 5T≤Qx7	When P≤6 B≤Px3 & B≤F-2	When Q≤6 S≤Qx3 & S≤T-2	3 4 5 3 4 5 6 4 5 6 8	SC+ℓ <sub>2</sub> ≤L SC=0 or SC=1		5	8	400 500 600 700 800 900
		8	15.0~490.0									
		10	15.0~590.0									
		12	15.0~690.0									
		15	15.0~790.0									
PSFRHM	PSFRHMS	17	30.0~890.0									
		20	30.0~990.0									
		25	30.0~990.0									
		30	30.0~990.0									
		35	40.0~990.0									
SSFRHM	SSFRHMS	40	40.0~990.0									
		40	40.0~990.0									
		40	40.0~990.0									
		40	40.0~990.0									
		50	40.0~990.0									

### (4)g6 (Ground)

Part Number		0.1mm Increment		1mm Increment		P, Q Selection		1mm Increment SC		W	ℓ <sub>2</sub>	(Y) max.
Standard	Wrench Flats	D	L	F, T	B	S	P, Q Selection		Wrench Flats Type only			
SFRM	SFRMS	6	15.0~390.0	5F≤Px7 5T≤Qx7	When P≤6 B≤Px3 & B≤F-2	When Q≤6 S≤Qx3 & S≤T-2	3 4 5 3 4 5 6 4 5 6 8	SC+ℓ <sub>2</sub> ≤L SC=0 or SC=1		5	8	400 500 600 700 800 900
		8	15.0~490.0									
		10	15.0~590.0									
		12	15.0~690.0									
		13	15.0~690.0									
		*15	15.0~790.0									
		16	15.0~890.0									
		17	30.0~890.0									
		18	30.0~890.0									
		*20	30.0~990.0									
		22	30.0~990.0									
		*25	30.0~990.0									
		*30	30.0~990.0									
		*35	40.0~990.0									
		*40	40.0~990.0									
*50	40.0~990.0											

When D - P (Q) ≤ 2, chamfer C at the step is 0.2 or less. For HFRM, the upper limit for L dim. is 790.

Ordering Example: Part Number - L - F - B - P - T - S - Q - SC  
 (1)D Tol. h9 / P, Q Tol. h7 SFRMHM30 - 250 - F30 - B8 - P10 - T30 - S8 - Q10  
 (2)D Tol. h9 / P, Q Tol. g6 SFRHMS25 - 200 - F25 - B15 - P12 - T25 - S15 - Q12 - SC30  
 (4)g6 (Ground)