

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

One End Stepped, One End Tapped

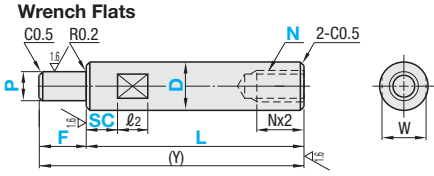
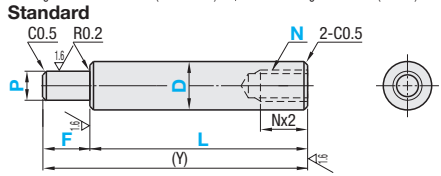
Select from h9 (Cold-drawn), h7 (Ground) and g6 (Ground) for your applications. Furthermore, h7 or g6 can be selected for P part tolerance of h9 (Cold-drawn).



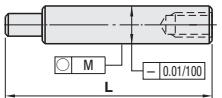
Type	Tolerance		Material	Surface Treatment
	Standard	Wrench Flats		
(1) SFRMHF SFRMHFS PSFRMHF PSFRMHFS SSFRMHF SSFRMHFS	h9 (Cold-drawn)	h7	S45C	Black Oxide
			Equivalent	Electroless Nickel Plating
			SUS304	-
(2) PSFRMGF PSFRMGFS SFRMGF SFRMGFS SSFRMGF SSFRMGFS	h9 (Cold-drawn)	g6	S45C	Black Oxide
			Equivalent	Electroless Nickel Plating
			SUS304	-
(3) SFRHF SFRHFS PSFRHF PSFRHFS SSFRHF SSFRHFS	h7 (Ground)	h7	S45C	Black Oxide
			Equivalent	Electroless Nickel Plating
			SUS304	-
(4) SFRF SFRFS PSFRF PSFRFS SSFRF SSFRFS PHFRF	g6 (Ground)	g6	S45C	Black Oxide
			Equivalent	Electroless Nickel Plating
			SUS304	-

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 $Ra \leq 0.4$.



Circularity and Straightness



Circularity of Part D

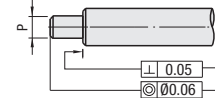
D	over	or Less	Circularity M
5	13		0.004
13	20		0.005
20	40		0.006
40	50		0.007

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	N (Coarse) Selection	1mm Increment SC Wrench Flats Type only	W	l ₂	(Y) max.				
Standard	Wrench Flats	D	L	F	P									
(1)D Tol. h9 / P Tol. h7 SFRMHF SFRMHFS PSFRMHF PSFRMHFS SSFRMHF SSFRMHFS (D6 is not available for SSFRMHF)	(1)D Tol. h9 / P Tol. h7 SFRMHF SFRMHFS PSFRMHF PSFRMHFS SSFRMHF SSFRMHFS (D6 is not available for SSFRMHF)	6	15.0-398.0	2.5F ≤ P ≤ X5	3 ≤ P < D	2.6 3 4	SC+ l_2 ≤ L SC=0 or SC≥1 For SC ≤ Mx3, W-M=2	5	8	400				
		8	15.0-498.0			2.6 3 4 5 6								
		10	15.0-598.0			3 4 5 6								
		12	15.0-698.0			4 5 6 8								
		15	15.0-798.0			4 5 6 8 10								
(2)D Tol. h9 / P Tol. g6 SFRMGF SFRMGFS PSFRMGF PSFRMGFS SSFRMGF SSFRMGFS (D6 is not available for SSFRMGF)	(2)D Tol. h9 / P Tol. g6 SFRMGF SFRMGFS PSFRMGF PSFRMGFS SSFRMGF SSFRMGFS (D6 is not available for SSFRMGF)	20	30.0-998.0	10 ≤ P < D	16 ≤ P < D	4 5 6 8 10 12 16					6 8 10 12 16 20	10	15	700
		25	50.0-998.0			4 5 6 8 10 12 16								
		30	60.0-998.0			6 8 10 12 16 20								
		35	70.0-998.0			6 8 10 12 16 20 24								
		40	80.0-998.0			12 16 20 24 30								

(3)h7 (Ground)

Part Number		0.1mm Increment			1mm Increment	N (Coarse) Selection	1mm Increment SC Wrench Flats Type only	W	l ₂	(Y) max.				
Standard	Wrench Flats	D	L	F	P									
SFRHF SFRHFS PSFRHF PSFRHFS SSFRHF SSFRHFS	SFRHF SFRHFS PSFRHF PSFRHFS SSFRHF SSFRHFS	6	15.0-398.0	2.5F ≤ P ≤ X5	3 ≤ P < D	2.6 3 4	SC+ l_2 ≤ L SC=0 or SC≥1 For SC ≤ Mx3, W-M=2	5	8	400				
		8	15.0-498.0			2.6 3 4 5 6								
		10	15.0-598.0			3 4 5 6								
		12	15.0-698.0			4 5 6 8								
		15	15.0-798.0			4 5 6 8 10								
SFRF SFRFS PSFRF PSFRFS SSFRF SSFRFS	SFRF SFRFS PSFRF PSFRFS SSFRF SSFRFS	17	30.0-898.0	10 ≤ P < D	16 ≤ P < D	4 5 6 8 10 12 16					6 8 10 12 16 20	10	15	700
		20	30.0-998.0			4 5 6 8 10 12 16								
		25	50.0-998.0			4 5 6 8 10 12 16								
		30	60.0-998.0			6 8 10 12 16 20								
		35	70.0-998.0			6 8 10 12 16 20 24								
PHFRF	PHFRF	40	80.0-998.0	16 ≤ P < D	16 ≤ P < D	10 12 16 20 24 30	12 16 20 24 30	15	20	900				
		50	100.0-998.0			12 16 20 24 30								

(4)g6 (Ground)

Part Number		0.1mm Increment			1mm Increment	N (Coarse) Selection	1mm Increment SC Wrench Flats Type only	W	l ₂	(Y) max.
Standard	Wrench Flats	D	L	F	P					
SFRF SFRFS PSFRF PSFRFS SSFRF SSFRFS (D13, D16, D18 or D22 is not available for SSFRF) * PHFRF (Only * marked sizes are available.)	SFRF SFRFS PSFRF PSFRFS SSFRF SSFRFS (D13, D16, D18 and D22 are not available for SSFRF)	6	15.0-398.0	2.5F ≤ P ≤ X5	3 ≤ P < D	2.6 3 4	SC+ l_2 ≤ L SC=0 or SC≥1 For SC ≤ Mx3, W-M=2	5	8	400
		8	15.0-498.0			2.6 3 4 5 6				
		10	15.0-598.0			3 4 5 6				
		12	15.0-698.0			4 5 6 8				
		13	15.0-698.0			4 5 6 8				
		* 15	15.0-798.0			4 5 6 8 10				
		16	15.0-898.0			4 5 6 8 10				
		* 17	30.0-898.0			4 5 6 8 10 12				
		* 18	30.0-898.0			4 5 6 8 10 12				
		* 20	30.0-998.0			4 5 6 8 10 12 16				
PHFRF	PHFRF	22	40.0-998.0	10 ≤ P < D	16 ≤ P < D	4 5 6 8 10 12 16	6 8 10 12 16 20	10	15	700
		* 25	50.0-998.0			4 5 6 8 10 12 16				
		* 30	60.0-998.0			4 5 6 8 10 12 16				
		* 35	70.0-998.0			6 8 10 12 16 20				
		* 40	80.0-998.0			6 8 10 12 16 20 24				
		* 50	100.0-998.0			10 12 16 20 24 30				
						12 16 20 24 30				

When D-P ≤ 2, chamfer C at the step is 0.2 or less. Overall length requires Nx3 ≤ L. For PHFRF, the upper limit for L dim. is 798.0.

Ordering Example: Part Number [L] - [F] - [P] - [N] - [SC]

(1)D part h9 / P part h7 PSFRMHF30 - 250 - F30 - P10 - N10
 (3)h7 (Ground) with Wrench Flat SFRHF25 - 200 - F25 - P15 - N12 - SC30
 (4)g6 (Ground)