


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

## Both Ends Stepped and Tapped

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

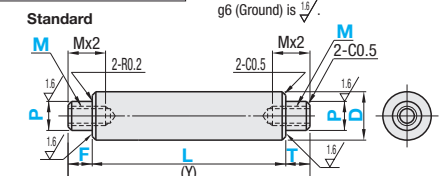


**RoHS10**

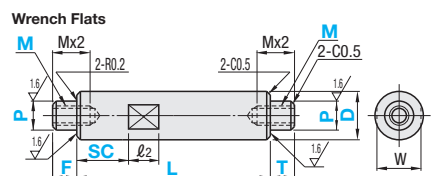
Type	Standard		Wrench Flats		Tolerance		Material	Surface Treatment
	D	P	D	P	D	P		
①	SFRMH	SFRMH	h9 (Cold-drawn)	h7	EN 1.1191 Equiv.	EN 1.4301 Equiv.	EN 1.1191 Equiv.	Black Oxide
	PSFRMH	PSFRMH						Electroless Nickel Plating
	SSFRMH	SSFRMH						-
②	SFRMG	SFRMG	h7 (Ground)	h7	EN 1.1191 Equiv.	EN 1.4301 Equiv.	EN 1.1191 Equiv.	Black Oxide
	PSFRMG	PSFRMG						Electroless Nickel Plating
	SSFRMG	SSFRMG						-
③	SFRH	SFRH	g6 (Ground)	g6	EN 1.1191 Equiv.	EN 1.4301 Equiv.	EN 1.1191 Equiv.	Black Oxide
	PSFRH	PSFRH						Electroless Nickel Plating
	SSFRH	SSFRH						-
④	SFRH	SFRH	g6 (Ground)	g6	EN 1.1191 Equiv.	EN 1.4301 Equiv.	EN 1.1191 Equiv.	Black Oxide
	PSFRH	PSFRH						Electroless Nickel Plating
	SSFRH	SSFRH						-

Surface roughness of D part for h9 (Cold-drawn) is  $R_a \leq 3.2$ . Surface roughness for h7 (Ground) and g6 (Ground) is  $R_a \leq 0.8$ .

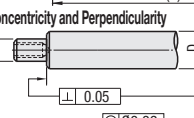
**Standard**



**Wrench Flats**



**Concentricity and Perpendicularity**



**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

**Circularity and Straightness**

Dimension	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).

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

Part Number	Type	D	L	F, T	P	M (Coarse) Selection	1mm Increment SC	W	L2	(Y) max.
① D part h9 / P part h7	SFRMH, PSFRMH, SSFRMH	6	20.0-298.0	2≤F, T≤P×5	5	3	SC+2≤L	5	8	300
		8	20.0-398.0							
		10	20.0-498.0							
		12	25.0-598.0							
		15	25.0-698.0							
② D part h9 / P part g6	SFRMG, PSFRMG, SSFRMG	20	30.0-798.0	2≤F, T≤P×5	5	3 4 5 6 8 10 12 16 20 24	SC=0 or SC≥1	10	15	700
		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							

③ h7 (Ground)

Part Number	Type	D	L	F, T	P	M (Coarse) Selection	1mm Increment SC	W	L2	(Y) max.
SFRHH, PSFRHH, SSFRHH	SFRHHS, PSFRHHS, SSFRHHS	6	20.0-298.0	2≤F, T≤P×5	5	3 4 5 6 8 10 12 16 20 24 30	SC+2≤L	5	8	300
		8	20.0-398.0							
		10	20.0-498.0							
		12	25.0-598.0							
		15	25.0-698.0							
		17	30.0-798.0							
		20	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									

④ g6 (Ground)

Part Number	Type	D	L	F, T	P	M (Coarse) Selection	1mm Increment SC	W	L2	(Y) max.
SFRH, PSFRH, SSFRH	SFRHS, PSFRHS, SSFRHS	6	20.0-298.0	2≤F, T≤P×5	5	3 4 5 6 8 10 12 16 20 24 30	SC+2≤L	5	8	300
		8	20.0-398.0							
		10	20.0-498.0							
		12	25.0-598.0							
		13	25.0-598.0							
		15	25.0-698.0							
		16	30.0-798.0							
		17	30.0-798.0							
		18	30.0-798.0							
		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									

When D-P (Q) ≤ 2, chamfer C at the step is 0.2 or less. Mx4<(Y) is required for (Y). When (Y) is less than the depth of tapped thread, the pilot hole might go through.

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

① D part h9 / P part h7: SFRMH30 - 250 - F30 - P28 - T30 - M20

③ h7 (Ground) with Wrench Flat: SSFRH30 - 200 - F25 - P18 - T25 - M10 - SC20

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

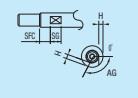
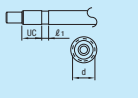
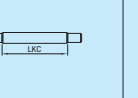
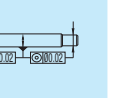

Type	SFRMH, SFRMG (EN 1.1191 Equiv., Black Oxide)							PSFRMH, PSFRMG (EN 1.1191 Equiv., Electroless Nickel Plating)							SSFRMH, SSFRMG (EN 1.4301 Equiv.)									
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
D	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
6																								
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③ h7 (Ground) ④ g6 (Ground)

Type	SFRHH, SFRH (EN 1.1191 Equiv., Black Oxide)							PSFRHH, PSFRH (EN 1.1191 Equiv., Electroless Nickel Plating)							SSFRHH, SSFRH (EN 1.4301 Equiv.)									
	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
D	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
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Alterations Part Number - L - F - P - T - M - SC - (KC, WKC, FC-etc.)

SSFRMGHS25 - 300 - F15 - P18 - T15 - M10 - SC30 - LKC

Alterations	Keyway	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	L Dimension Tolerance	Concentricity																																				
• 1 Keyway: KC • 2 Keyways: WKC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC																																									
Code	KC, WKC	FC, WFC	SFC	UC	LKC	CKC																																				
Spec.	<p>KC: Adds a keyway. WKC: Adds two keyways. WKC50-C8-K40-E10</p> <p>KC, A, WKC, C, K, E = 1mm Increment A, E, C: 100</p> <p>For Keyway Details, refer to P820.</p> <p>If 3 keyways are required, use both KC and WKC.</p> <p>When the keyway position is less than 1mm away from the end face, R is not applied. Ex. </p>	<p>FC: Adds 1 set screw flat. WFC: Adds 2 set screw flats. WFC10-J3-W10-V3</p> <p>FC, G, WFC, J, W, V = 1mm Increment G, J, V: 50</p> <table border="1"> <tr><td>D</td><td>H</td></tr> <tr><td>6-17</td><td>1</td></tr> <tr><td>18-40</td><td>2</td></tr> <tr><td>50</td><td>3</td></tr> </table>	D	H	6-17	1	18-40	2	50	3	<p>Adds a set screw flat at any desired angle besides the datum plane (0°). SFC, SG= 1mm Increment AG = 15° Increment SG=50</p> <p>FC: G, WFC, J, W, V = 1mm Increment G, J, V: 50</p> <table border="1"> <tr><td>D</td><td>H</td></tr> <tr><td>6-17</td><td>1</td></tr> <tr><td>18-40</td><td>2</td></tr> <tr><td>50</td><td>3</td></tr> </table> <p>When combined with other alterations, ±2 degree phase differential may occur.</p>	D	H	6-17	1	18-40	2	50	3	<p>Adds a slit cam groove. UC = 1mm Increment UC10 UC=1±L UC=1</p> <p>Not applicable to D13 or more.</p> <table border="1"> <tr><td>D</td><td>d</td><td>E1</td></tr> <tr><td>6</td><td>5</td><td>4</td></tr> <tr><td>8</td><td>7</td><td>4</td></tr> <tr><td>10</td><td>8</td><td>5</td></tr> <tr><td>12</td><td>10</td><td>5</td></tr> </table>	D	d	E1	6	5	4	8	7	4	10	8	5	12	10	5	<p>LKC: Changes L dimension tolerance. CKC: Changes the concentricity to 0.02.</p> <p>LKC: LKC L=500→±0.05 L=500→±0.1</p> <p>Not applicable to D part of h9 (Cold-drawn).</p> <table border="1"> <tr><td>D</td><td>Lmax</td></tr> <tr><td>6-22</td><td>450</td></tr> <tr><td>25-50</td><td>600</td></tr> </table>	D	Lmax	6-22	450	25-50	600
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