

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

One End Tapped

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

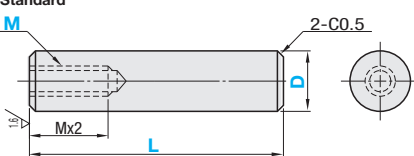


RoHS10

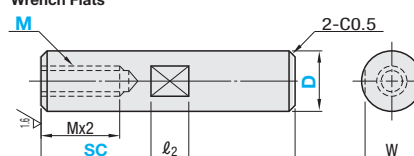
Type	Standard	Wrench Flats	D Tolerance	Material	Surface Treatment
①	SFMRT	SFMRTS	h9 (Cold-drawn)	EN 1.1191 Equiv.	Black Oxide
	PSFMRT	PSFMRTS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFMR	SSFMR			
②	SFHRT	SFHRTS	h7 (Ground)	EN 1.1191 Equiv.	Black Oxide
	PSFHRT	PSFHRTS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFHRT	SSFHRTS			
③	SFRT	SFRTS	g6 (Ground)	EN 1.1191 Equiv.	Black Oxide
	PSFRT	PSFRTS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFRT	SSFRTS			
	HFRT	-		EN 1.7220 Equiv.	Black Oxide
	PHFRT	-		EN 1.7220 Equiv.	Electroless Nickel Plating

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

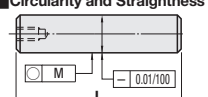
Standard



Wrench Flats



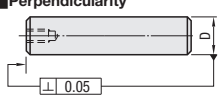
Circularity and Straightness



Circularity of Part D

D	over	or Less	Circularity M
3	13		0.004
13	20		0.005
20	40		0.006
40	50		0.007

Perpendicularity



Tolerances of L 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

Not applicable to h9 (Cold-drawn).

Part Number		D	L=0.1mm Increment	M (Coarse) Selection	SC 1mm Increment Wrench Flats Type only	W	ℓ2
Standard	Wrench Flats						
SFMRT	SFMRTS	4	15.0~200.0	2	-	-	-
		5	15.0~250.0	2.6 3	-	-	-
PSFMRT	PSFMRTS	6	20.0~300.0	3 4	-	-	-
		8	20.0~400.0	3 4 5 6	-	-	-
SSFMR	SSFMR	10	20.0~500.0	4 5 6	-	-	-
		12	30.0~600.0	5 6 8	-	-	-
		15	30.0~700.0	5 6 8 10	-	-	-
		20	40.0~800.0	5 6 8 10 12 16	-	-	-
		25	50.0~800.0	5 6 8 10 12 16	-	-	-
		30	60.0~800.0	8 10 12 16 20	-	-	-
		35	70.0~800.0	8 10 12 16 20 24	-	-	-

Part Number		D	L=0.1mm Increment	M (Coarse) Selection	SC 1mm Increment Wrench Flats Type only	W	ℓ2
Standard	Wrench Flats						
SFHRT	SFHRTS	4	15.0~200.0	2	-	-	-
		5	15.0~250.0	2.6 3	-	-	-
PSFHRT	PSFHRTS	6	20.0~300.0	3 4	-	-	-
		8	20.0~400.0	3 4 5 6	-	-	-
SSFHRT	SSFHRTS	10	20.0~500.0	4 5 6	-	-	-
		12	30.0~600.0	5 6 8	-	-	-
		15	30.0~700.0	5 6 8 10	-	-	-
		17	40.0~800.0	5 6 8 10 12	-	-	-
		20	40.0~800.0	5 6 8 10 12 16	-	-	-
		25	50.0~800.0	5 6 8 10 12 16	-	-	-
		30	60.0~800.0	8 10 12 16 20	-	-	-
		35	70.0~800.0	8 10 12 16 20 24	-	-	-
		40	80.0~800.0	12 16 20 24 30	-	-	-
		50	100.0~800.0	16 20 24 30	-	-	-

Part Number		D	L=0.1mm Increment	M (Coarse) Selection	SC 1mm Increment Wrench Flats Type only	W	ℓ2
Standard	Wrench Flats						
SFRT	SFRTS	4	15.0~200.0	2	-	-	-
		5	15.0~250.0	2.6 3	-	-	-
PSFRT	PSFRTS	6	20.0~300.0	3 4	-	-	-
		8	20.0~400.0	3 4 5 6	-	-	-
SSFRT	SSFRTS	10	20.0~500.0	4 5 6	-	-	-
		12	30.0~600.0	5 6 8	-	-	-
		13	30.0~600.0	5 6 8	-	-	-
		*15	30.0~700.0	5 6 8 10	-	-	-
		16	30.0~800.0	5 6 8 10	-	-	-
		17	40.0~800.0	5 6 8 10 12	-	-	-
		18	40.0~800.0	5 6 8 10 12	-	-	-
		*20	40.0~800.0	5 6 8 10 12 16	-	-	-
		22	40.0~800.0	5 6 8 10 12 16	-	-	-
		*25	50.0~800.0	5 6 8 10 12 16	-	-	-
		*30	60.0~800.0	8 10 12 16 20	-	-	-
		*35	70.0~800.0	8 10 12 16 20 24	-	-	-
		*40	80.0~800.0	12 16 20 24 30	-	-	-
		*50	100.0~800.0	16 20 24 30	-	-	-

Ordering Example: Part Number - L - M - SC
SFMRT30 - 250 - M12 - SC20
SSFHRTS25 - 200 - M8 - SC20

D	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
4~6	0 -0.030	0 -0.012	-0.004 -0.012
8, 10	0 -0.036	0 -0.015	-0.005 -0.014
12~18	0 -0.043	0 -0.018	-0.006 -0.017
20~30	0 -0.052	0 -0.021	-0.007 -0.020
35~50	0 -0.062	0 -0.025	-0.009 -0.025

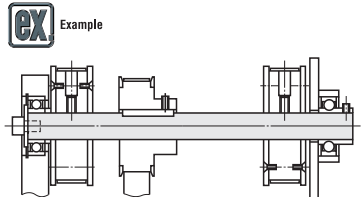
① h9 (Cold-drawn)

Type	SFMRT (EN 1.1191 Equiv., Black Oxide)								PSFMRT (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFMRRT (EN 1.4301 Equiv.)							
	SFMRTS								PSFMRTS								SSFMRRTS							
D	Min. L 50.0	L50.1 100.0	L100.1 150.0	L150.1 200.0	L200.1 300.0	L300.1 400.0	L400.1 600.0	L600.1 800.0	Min. L 50.0	L50.1 100.0	L100.1 150.0	L150.1 200.0	L200.1 300.0	L300.1 400.0	L400.1 600.0	L600.1 800.0	Min. L 50.0	L50.1 100.0	L100.1 150.0	L150.1 200.0	L200.1 300.0	L300.1 400.0	L400.1 600.0	L600.1 800.0
4					-	-	-						-	-	-	-	-	-	-	-	-	-	-	-
5					-	-	-											-	-	-	-	-	-	-
6					-	-	-											-	-	-	-	-	-	-
8						-	-											-	-	-	-	-	-	-
10							-																-	-
12							-																	-
15																								-
20																								
25																								
30	-								-								-							
35	-								-								-							

② h7 (Ground) ③ g6 (Ground)

Type	SFHRT, SFRT (EN 1.1191 Equiv., Black Oxide)								PSFHRT, PSFRT (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFHRT, SSFRT (EN 1.4301 Equiv.)							
	SFHRTS, SFRTS								PSFHRTS, PSFRTS								SSFHRTS, SSFRTS							
D	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
	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0
4					-	-	-	-					-	-	-	-					-	-	-	-
5														-	-	-						-	-	-
6															-	-						-	-	-
8																-						-	-	-
10																							-	-
12																								-
13																								-
15																	-	-		-	-			-
16																		-	-		-		-	-
17																		-	-		-		-	-
18																		-	-		-		-	-
20																			-	-		-		-
22																		-	-		-		-	-
25																								
30	-								-								-							
35	-								-								-							
40	-								-								-							
50	-								-								-							

Type	HFRT (EN 1.7220 Equiv. Hardness 30~35HRC, Black Oxide)								PHFRT (EN 1.7220 Equiv. Hardness 30~35HRC, Electroless Nickel Plating)							
D	Min.	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	Min.	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1
15	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0
20																
25																
30	-								-							
35	-								-							
40	-								-							
50	-								-							



Alterations: Part Number - L - M - SC - (KC, WKC, FC-etc.)
SFMRTS10 - 150 - M4 - SC30 - LKC

	Keyway	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	L Dimension Tolerance	Retaining Ring Groove																																					
Alterations	• 1 Keyway: KC • 2 Keyways: WKC	• 1 Set Screw Flat: FC • 2 Set Screw Flats: WFC																																									
Code	KC, WKC	FC, WFC	SFC	UC	LKC	TA, TB																																					
Spec.	KC: Adds a keyway. <u>Ordering Code</u> KC50-A10 WKC: Adds two keyways. <u>Ordering Code</u> WKC50-C8-K40-E10 ⚡ KC, A, WKC, C, K, E = 1mm Increment ⚡ A, C, E ≤ 100 ⚡ For Keyway Details, refer to P833. ⚡ If 3 keyways are required, use both KC and WKC. ⚡ When the keyway position is less than 1mm away from the end face, R is not applied. Ex.	FC: Adds 1 set screw flat. <u>Ordering Code</u> FC10-G3 WFC: Adds 2 set screw flats. <u>Ordering Code</u> WFC10-J3-W10-V3 ⚡ FC, G, WFC, J, W, V = 1mm Increment ⚡ G, J, V ≤ 50 <table><thead><tr><th>D</th><th>H</th></tr></thead><tbody><tr><td>4, 5</td><td>0.5</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></tbody></table>	D	H	4, 5	0.5	6-17	1	18-40	2	50	3	Adds a set screw flat at any desired angle besides the datum plane (0°). SFC, SG = 1mm Increment AG = 15° Increment ⚡ SG ≤ 50 <u>Ordering Code</u> SFC10-SG3-AG120 <table><thead><tr><th>D</th><th>H</th></tr></thead><tbody><tr><td>4, 5</td><td>0.5</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></tbody></table> ⚡ When combined with other alterations, ±2 degree phase differential may occur.	D	H	4, 5	0.5	6-17	1	18-40	2	50	3	Adds a slit cam groove. UC = 1mm Increment <u>Ordering Code</u> UC10 ⚡ UC + g1 ≤ L ⚡ UC ≤ 1 ⚡ Not applicable to D13 or more. <table><thead><tr><th>D</th><th>d</th><th>g1</th></tr></thead><tbody><tr><td>4</td><td>3</td><td rowspan="4">4</td></tr><tr><td>5</td><td>4</td></tr><tr><td>6</td><td>5</td></tr><tr><td>8</td><td>7</td></tr><tr><td>10</td><td>8</td><td rowspan="2">5</td></tr><tr><td>12</td><td>10</td></tr></tbody></table>	D	d	g1	4	3	4	5	4	6	5	8	7	10	8	5	12	10	Changes L dimension tolerance. <u>Ordering Code</u> LKC ⚡ L<500→ L±0.05 L≥500→ L±1	Adds a retaining ring groove. (Applicable retaining rings are included.) TA, TB = 1mm Increment <u>Ordering Code</u> TA10-TB10 ⚡ 4<TA, TB<L/2 ⚡ For dimensions of the retaining ring groove, see P820
D	H																																										
4, 5	0.5																																										
6-17	1																																										
18-40	2																																										
50	3																																										
D	H																																										
4, 5	0.5																																										
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D	d	g1																																									
4	3	4																																									
5	4																																										
6	5																																										
8	7																																										
10	8	5																																									
12	10																																										
	⚡ Keyway(s) and set screw flats are added in the same plane. When the distance of the alterations are over 500mm, ±2 degree phase differential may occur.																																										