


Rotary Shafts – D Tolerance h9 (Cold-Drawn) / h7 & g6 (Ground)

One End Tapped with Keyways

Number of keyways can be specified up to 3.

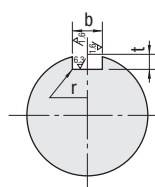


Rotary Shafts – One End Tapped with Keyways

RoHS10

Type	D Tolerance	Material	Surface Treatment
(1) NSFMKRT SFMKRT PSFMKRT SSFMKRT	h9 (Cold-Drawn)	1045 Carbon Steel or Equivalent	—
			Black Oxide
		304 Stainless Steel	Electroless Nickel Plating
(2) NSFHKRT SFHKRT PSFHKRT SSFHKRT	h7 (Ground)	1045 Carbon Steel or Equivalent	—
			Black Oxide
		304 Stainless Steel	Electroless Nickel Plating
(3) NSFGKRT SFGKRT PSFGKRT SSFGKRT	g6 (Ground)	1045 Carbon Steel or Equivalent	—
			Black Oxide
		304 Stainless Steel	Electroless Nickel Plating

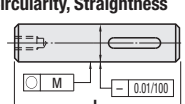
Detailed Keyway Dimensions



Shaft Diameter: D
 Reference Dimension: b
 Tolerance (N9): t
 Reference Dimension: r
 Tolerance: r

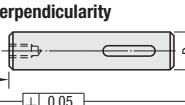
① Surface roughness of D part for h9 (Cold-Drawn) is $\sqrt{1.6}$
 Surface roughness for h7 (Ground) and g6 (Ground) is $\sqrt{0.25}$
 ② No. of keyways can be specified up to 3.

Circularity, Straightness



① Not applicable to h9 (Cold-Drawn).

Perpendicularity



① Not applicable to h9 (Cold-Drawn).

③ Thread depth of M (Coarse) is $M \times 2$.

(1) h9 (Cold-Drawn)

Type	Part Number	D ₉₈ Tolerance	L=0.1 mm Increment	M (Coarse) Selectable	Keyway (1)	Keyway (2)	Keyway (3)
					KA, A	KB, B	KC, C
NSFMKRT SFMKRT PSFMKRT SSFMKRT	6	0 -0.030	15.0-400.0	(2.6) (3) (4)	KA+A≤L KA≥0 b≤A≤100	KB+B≤L KB≥KA+A b≤B≤100	KC+C≤L KC≥KB+B b≤C≤100
	8	0	15.0-500.0	(2.6) (3) (4) (5) (6)			
	10	0 -0.036	15.0-600.0	3 4 (5) (6)			
	12	0	15.0-700.0	4 5 (6) (8)			
	15	0 -0.043	15.0-800.0	4 5 6 (8)			
	20	0	30.0-1000.0	4 5 6 8 10			
	25	0 -0.052	50.0-1000.0	4 5 6 8 10 12			
	30	0 -0.062	60.0-1000.0	6 8 10 12 16			
35	0	70.0-1000.0	6 8 10 12 16 20				

(2) h7 (Ground)

Type	Part Number	D ₉₈ Tolerance	L=0.1 mm Increment	M (Coarse) Selectable	Keyway (1)	Keyway (2)	Keyway (3)
					KA / A	KB / B	KC / C
NSFHKRT SFHKRT PSFHKRT SSFHKRT	6	0 -0.012	15.0-400.0	(2.6) (3) (4)	KA+A≤L KA≥0 b≤A≤100	KB+B≤L KB≥KA+A b≤B≤100	KC+C≤L KC≥KB+B b≤C≤100
	8	0	15.0-500.0	(2.6) (3) (4) (5) (6)			
	10	0 -0.015	15.0-600.0	3 4 (5) (6)			
	12	0	15.0-700.0	4 5 (6) (8)			
	15	0 -0.018	15.0-800.0	4 5 6 (8)			
	17	0	30.0-900.0	4 5 6 (8) (10) (12)			
	20	0	30.0-1000.0	4 5 6 (8) (10) (12) (16)			
	25	0 -0.021	50.0-1000.0	4 5 6 8 10 12 (16)			
	30	0	60.0-1000.0	6 8 10 12 16			
	35	0	70.0-1000.0	6 8 10 12 16 20			
	40	0 -0.025	80.0-1000.0	10 12 16 20 24			
50	0	100.0-1000.0	12 16 20 24 30				

(3) g6 (Ground)

Type	Part Number	D ₉₈ Tolerance	L=0.1 mm Increment	M (Coarse) Selectable	Keyway (1)	Keyway (2)	Keyway (3)
					KA, A	KB, B	KC, C
NSFGKRT SFGKRT PSFGKRT SSFGKRT	6	-0.004 -0.012	15.0-400.0	(2.6) (3) (4)	KA+A≤L KA≥0 b≤A≤100	KB+B≤L KB≥KA+A b≤B≤100	KC+C≤L KC≥KB+B b≤C≤100
	8	-0.005	15.0-500.0	(2.6) (3) (4) (5) (6)			
	10	-0.014	15.0-600.0	3 4 (5) (6)			
	12	-0.006	15.0-700.0	4 5 (6) (8)			
	13	-0.017	15.0-700.0	4 5 6 (8)			
	15	-0.006	15.0-800.0	4 5 6 (8)			
	16	-0.017	15.0-900.0	4 5 6 8 (10)			
	17	-0.017	30.0-900.0	4 5 6 8 (10) (12)			
	18	-0.017	30.0-900.0	4 5 6 8 (10) (12)			
	20	-0.007	30.0-1000.0	4 5 6 8 10 (12) (16)			
	22	-0.007	40.0-1000.0	4 5 6 8 10 12 (16)			
	25	-0.020	50.0-1000.0	4 5 6 8 10 12 (16)			
	30	-0.009	60.0-1000.0	6 8 10 12 16			
	35	-0.009	70.0-1000.0	6 8 10 12 16 20			
	40	-0.025	80.0-1000.0	10 12 16 20 24			
50	-0.025	100.0-1000.0	12 16 20 24 30				

Rotary Shafts – D Tolerance h9 (Cold-Drawn) / h7 & g6 (Ground)

One End Tapped with Keyways, continued

Available Types

(1) h9 (Cold-Drawn)

Type	NSFMKRT, SFMKRT, PSFMKRT										SSFMKRT										
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0			
6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

(2) h7 (Ground) (3) g6 (Ground)

Type	NSFHKRT, NSFGKRT, SFHKRT, SFGKRT, PSFHKRT, PSFGKRT										SSFHKRT, SSFGKRT										
	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	Min. L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	L1000.1	
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	1000.0			
6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
40	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*



Part Number Example

Part Number	L	M	Keyway (1)	Keyway (2)	Keyway (3)
Example	325	M4	KA - A	KB - B	KC - C
1 Keyway	SFMKRT10	- 325	- M4	- KA20 - A50	
2 Keyways	SFHKRT30	- 300	- M10 - KA20 - A50	- KB120 - B20	
3 Keyways	SFGKRT25	- 350	- M8 - KA10 - A60	- KB90 - B30	- KC210 - C30



Application Example

Number of keyways can be specified up to 3.



Part Number Alterations

Part Number	L	M	KA	A	KB	B	KC	C	(LKC, FC...etc.)
Example	300	M10	KA20	A50	KB120	B20			LKC

Alterations	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	Wrench Flats	L Dimension Tolerance	Retaining Ring Groove
	Code	FC / WFC	SFC	UC	SC	LKC
Spec.	<p>FC: Adds 1 set screw flat. Ordering Code: FC10-G3 WFC: Adds 2 set screw flats. Ordering Code: WFC10-J3-W10-V3 ① FC, G, WFC, J, W, V = 1 mm Increment ② G, J, V=50 ③ Set screw flat and keyway (s) are added to the same surface. ④ Keyways and set screw flats are added in the same plane. When the distance of the alterations are over 500 mm, ±2 degree phase differential may occur. ⑤ When keyway position is less than 1 mm away from the end face, R is not applied. Ex.</p>	<p>Adds a set screw flat at any designated angle besides the datum plane (0°). SFC, SG = 1 mm Increment AG = 15° Increment ① SG=50 Ordering Code: SFC10-SG3-AG120</p>	<p>Adds a slit cam groove. UC = 1 mm Increment Ordering Code: UC10 ① UC+ℓ₁≤L ② UC≥1 ③ Not applicable to D13 or more.</p>	<p>Adds a wrench flat. SC = 1 mm Increment Ordering Code: SC=0 or SC≥1 ① A wrench flat is added to the opposite surface of keyway alteration.</p>	<p>Changes L Dimension Tolerance. Ordering Code: LKC ① L<500 L±0.05 L≥500 L±0.1 ② Not applicable to L=800 or more.</p>	<p>Adds a retaining ring groove. (Applicable retaining rings are included.) TA, TB = 1 mm Increment Ordering Code: TA10-TB10 ① 2≤TA, TB≤150 ② For dimensions of the retaining ring groove, please refer to P.853.</p>

Alterations	Add Slit	C Chamfer Change on D	Tapped Depth										
	Code	MM	CD	MD									
Spec.	<p>Slit is added to the D dim side face. Ordering Code: MM ① Not Applicable when D≥35</p>	<p>CD= Selection from Table below. Ordering Code: CD2</p> <table border="1"> <tr><th>Chamfer (CD)</th><th>Applicable Dia.</th></tr> <tr><td>C2</td><td>ø6-ø51</td></tr> <tr><td>C3</td><td>ø8-ø51</td></tr> <tr><td>C4</td><td>ø10-ø51</td></tr> <tr><td>C5</td><td>ø12-ø51</td></tr> </table>	Chamfer (CD)	Applicable Dia.	C2	ø6-ø51	C3	ø8-ø51	C4	ø10-ø51	C5	ø12-ø51	<p>To specify, replace M with MD. Ordering Code: MD6 ① Not applicable when M= 2, 2.6, 24 or 30.</p>
Chamfer (CD)	Applicable Dia.												
C2	ø6-ø51												
C3	ø8-ø51												
C4	ø10-ø51												
C5	ø12-ø51												