



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

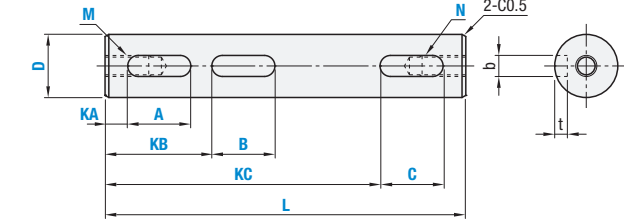
Both Ends Tapped with Keyways

Number of keyways can be specified up to 3.

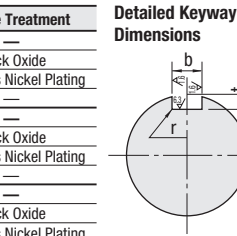
Rotary Shafts – Both Ends Tapped with Keyways



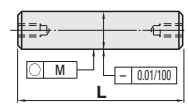
- Surface roughness of D part for h9 (Cold-Drawn) is $R_a \leq 3.2$. Surface roughness for h7 (Ground) and g6 (Ground) is $R_a \leq 1.6$.
- No. of keyways can be specified up to 3.



Thread depth of M (Coarse) and N (Coarse) is M x 2 and N x 2 respectively.

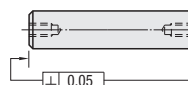


Circularity, Straightness



Not applicable to h9 (Cold-Drawn).

Perpendicularity



Not applicable to h9 (Cold-Drawn).

Shaft Diameter	b		t		r
	Reference Dimension	Tolerance (N9)	Reference Dimension	Tolerance	
6	2	-0.004	1.2	+0.1	0.08-0.16
8 10	3	-0.029	1.8		
12	4	0	2.5	0	0.16-0.25
13-17	5	-0.03	3.0		
18-22	6	-0.03	3.5	+0.2	0.25-0.4
25 30	8	0	4.0		
35	10	-0.036	5.0	0	0.25-0.4
40	12	0	5.0		
50	14	-0.043	5.5		

When KA=0, KA+A=L, KB+B=L, KC+C=L, keyway shape is as shown below.

Circularity of Part D

Over D	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 & Other Dimensions

Over	Dimension	or Less	Tolerance
6	30	±0.2	
30	120	±0.3	
120	400	±0.5	
400	800	±0.8	

(1) h9 (Cold-Drawn)

Type	Part Number	D _{h9}	Tolerance	L	M (Coarse) · N (Coarse) Selection	Keyway (1) KA, A	Keyway (2) KB, B	Keyway (3) KC, C
NSFMKRW	6	0	-0.030	15.0-500.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
	8	0	-0.036	15.0-500.0	2.6 (3) (4) (5) (6)			
	10	0	-0.036	15.0-800.0	3 4 (5) (6)			
	12	0	-0.043	15.0-900.0	3 4 5 (6) (8)			
	15	0	-0.043	15.0-1000.0	3 4 5 6 (8) (10)			
	20	0	-0.052	20.0-1000.0	4 5 6 8 10 (12) (16)			
SFMKRW	25	0	-0.052	20.0-1000.0	4 5 6 8 10 12 (16)	KA≥0	KB≥KA+A	KC≥KB+B
	30	0	-0.052	20.0-1000.0	5 6 8 10 12 16 20			
	35	0	-0.062	70.0-1000.0	6 8 10 12 16 20			
	40	0	-0.062	70.0-1000.0	6 8 10 12 16 20			

M, N Sizes in () can be selected when KA≥M x 2, L-KC-C≥Nx2. When L≤(Mx2+Depth of Pilot Hole)+(Nx2+Depth of Pilot Hole), tap pilot holes may go through and the effective thread length of the smaller tapping may be made shorter to prioritize the effective thread of the larger tapping (With MD or ND, L≤(MDx3+Depth of Pilot Hole)+(NDx3+Depth of Pilot Hole)).

(2) h7 (Ground)

Type	Part Number	D _{h7}	Tolerance	L	M (Coarse) · N (Coarse) Selection	Keyway (1) KA, A	Keyway (2) KB, B	Keyway (3) KC, C
NSFHKRW	6	0	-0.012	15.0-500.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
	8	0	-0.015	15.0-500.0	2.6 (3) (4) (5) (6)			
	10	0	-0.015	15.0-800.0	3 4 (5) (6)			
	12	0	-0.018	15.0-900.0	3 4 5 (6) (8)			
	15	0	-0.018	15.0-1000.0	3 4 5 6 (8) (10)			
	20	0	-0.021	20.0-1000.0	4 5 6 8 (10) (12) (16)			
SFHKRW	25	0	-0.021	20.0-1000.0	4 5 6 8 (10) (12) (16)	KA≥0	KB≥KA+A	KC≥KB+B
	30	0	-0.021	20.0-1000.0	5 6 8 10 12 16 20			
	35	0	-0.025	70.0-1000.0	6 8 10 12 16 20			
	40	0	-0.025	70.0-1000.0	6 8 10 12 16 20 24			

M, N Sizes in () can be selected when KA≥M x 2, L-KC-C≥Nx2. When L≤(Mx2+Depth of Pilot Hole)+(Nx2+Depth of Pilot Hole), tap pilot holes may go through and the effective thread length of the smaller tapping may be made shorter to prioritize the effective thread of the larger tapping (With MD or ND, L≤(MDx3+Depth of Pilot Hole)+(NDx3+Depth of Pilot Hole)).

(3) g6 (Ground)

Type	Part Number	D _{g6}	Tolerance	L	M (Coarse) · N (Coarse) Selection	Keyway (1) KA, A	Keyway (2) KB, B	Keyway (3) KC, C
NSFGKRW	6	0	-0.004	15.0-500.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
	8	0	-0.012	15.0-500.0	2.6 (3) (4) (5) (6)			
	10	0	-0.014	15.0-800.0	3 4 (5) (6)			
	12	0	-0.017	15.0-900.0	3 4 5 (6) (8)			
	15	0	-0.017	15.0-1000.0	3 4 5 6 (8) (10)			
	20	0	-0.020	20.0-1000.0	4 5 6 8 (10) (12) (16)			
SFGKRW	25	0	-0.020	20.0-1000.0	4 5 6 8 (10) (12) (16)	KA≥0	KB≥KA+A	KC≥KB+B
	30	0	-0.020	20.0-1000.0	5 6 8 10 12 16 20			
	35	0	-0.025	70.0-1000.0	6 8 10 12 16 20			
	40	0	-0.025	70.0-1000.0	6 8 10 12 16 20 24			

M, N Sizes in () can be selected when KA≥M x 2, L-KC-C≥Nx2. When L≤(Mx2+Depth of Pilot Hole)+(Nx2+Depth of Pilot Hole), tap pilot holes may go through and the effective thread length of the smaller tapping may be made shorter to prioritize the effective thread of the larger tapping (With MD or ND, L≤(MDx3+Depth of Pilot Hole)+(NDx3+Depth of Pilot Hole)).

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

Both Ends Tapped with Keyways, continued

Available Types

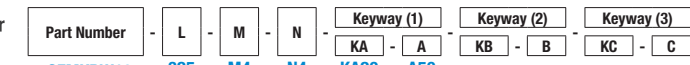
(1) h9 (Cold-Drawn)

Type	D	NSFMKRW, SFMKRW, PSFMKRW										SSFMKRW							
		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	L800.1 Max.	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	L800.1 Max.
6	6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15	15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20	20	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25	25	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30	30	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35	35	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

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

Type	D	NSFHKRW, NSFGKRW, SFHKRW, SFGKRW, PSFHKRW, PSFGKRW										SSFHKRW, SSFGKRW							
		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	L800.1 Max.	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	L800.1 Max.
6	6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8	8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10	10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12	12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13	13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15	15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16	16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17	17	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18	18	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20	20	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22	22	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
25	25	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
30	30	*(Min.20)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
35	35	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
40	40	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
50	50	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Part Number Example



- 1 Keyway SFMKRW10 - 325 - M4 - N4 - KA20 - A50
- 2 Keyways SFHKRW30 - 300 - M10 - N10 - KA20 - A50 - KB120 - B20
- 3 Keyways SFGKRW25 - 350 - M8 - N8 - KA10 - A60 - KB90 - B30 - KC210 - C30

Part Number Alterations

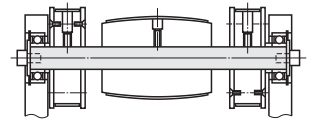


- SFHKRW30 - 300 - M10 - N10 - KA20 - A50 - KB120 - B20 - LKC



Application Example

Number of keyways can be specified up to 3.



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.	FC: Adds 1 set screw flat. Ordering Code: FC10-G3 WFC: Adds 2 set screw flats. Ordering Code: WFC10-J3-W10-V3 FC, G, WFC, J, W, V = 1 mm Increment G, J, V≤50 Set screw flat and keyway (s) are added to the same surface.	Adds a set screw flat at any designated angle besides the datum plane (0°). SFC, SG = 1 mm Increment AG = 15° Increment SG≤50 Ordering Code: SFC10-SG3-AG120	Adds a slit cam groove. UC = 1 mm Increment Ordering Code: UC10 UC+ℓ ₁ ≤L UC≥1 Not applicable to D13 or more.	Adds a wrench flat. SC = 1 mm Increment SC+ℓ ₂ ≤L SC=0 or SC≥1 A wrench flat is added to the opposite surface of keyway alteration.	Changes L Dimension Tolerance. Ordering Code: LKC L<500 L±0.05 L≥500 L±0.1 Not applicable to L=800 or more.	Adds a retaining ring groove. (Applicable retaining rings are included.) TA, TB = 1 mm Increment Ordering Code: TA10-TB10 2≤TA, TB≤150 For dimensions of the retaining ring groove, please refer to P.853.

Alterations	Tapped Depth	
	Code	MD, ND
Spec.	To specify, replace M with MD and N with ND. Ordering Code: MD6-ND6 Not applicable when M=2, 2.6, 24 or 30.	