

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

## Both Ends Tapped with Keyways

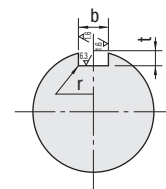
For products uncovered by the e-Catalog Standard, see P.131.

Number of keyways can be specified up to 3.



Type	D Tolerance	Material	Surface Treatment
SFMKRW	h9 (Cold-drawn)	S45C	Black Oxide
PSFMKRW		Equivalent	Electroless Nickel Plating
SSFMKRW		SUS304	-
SFHKRW	h7 (Ground)	S45C	Black Oxide
PSFHKRW		Equivalent	Electroless Nickel Plating
SSFHKRW		SUS304	-
SFGKRW	g6 (Ground)	S45C	Black Oxide
PSFGKRW		Equivalent	Electroless Nickel Plating
SSFGKRW		SUS304	-

### Detailed Keyway Dimensions

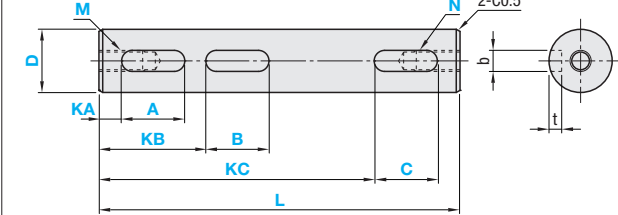


Shaft Dia.	b		t		r
	Reference Dimension	Tolerance (N9)	Reference Dimension	Tolerance	
6	2	-0.004	1.2		0.08-0.16
8, 10	3	-0.029	1.8		
12	4	0	2.5	+0.1	
13-17	5	-0.03	3.0		0.16-0.25
18-22	6	0	3.5		
25, 30	8	0	4.0		
35	10	-0.036	5.0		0.25-0.4
40	12	0	5.0	+0.2	
50	14	-0.043	5.5		

When KA<1, KA+A=L, KB+B=L and L-KC<C-1, keyway is shaped as shown below.

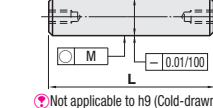


Surface roughness of Part D for h9 (Cold-drawn) is  $\sqrt{3.2}$ . Surface roughness for h7 (Ground) and g6 (Ground) is  $\sqrt{1.6}$ .  
 The number of keyways can be specified within the range between 1 and 3.  
 When the clearance between keyways is less than 2mm, these keyways will interfere.



Thread depths of M (Coarse) and N (Coarse) are Mx2 and Nx2, respectively.

### Circularity and Straightness



Not applicable to h9 (Cold-drawn).

### Circularity of Part D

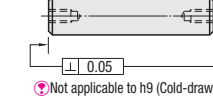
D	Circularity M
over	
5	13
13	20
20	40
40	50

Not applicable to h9 (Cold-drawn).

### 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	1000	±0.8

### Perpendicularity



Not applicable to h9 (Cold-drawn).

### (1)h9 (Cold-drawn)

Part Number	Type	Dh9 Tolerance	L 0.1mm Increment	M (Coarse) / N (Coarse) Selection	Keyway (1)	Keyway (2)	Keyway (3)
					KA, A	KB, B	KC, C
6	SFMKRW	-0.030	15.0-400.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
8	PSFMKRW	0	15.0-500.0	2.6 (3) (4) (5) (6)			
10	SSFMKRW	-0.036	15.0-600.0	3 4 (5) (6)			
12	SFMKRW	0	15.0-700.0	4 5 (6) (8)	KA=0	KB≥KA+A	KC≥KB+B
15		-0.043	15.0-800.0	4 5 6 (8)			
20	SFMKRW	0	30.0-1000.0	4 5 6 8 10	b≤A≤100	b≤B≤100	b≤C≤100
25		-0.052	50.0-1000.0	4 5 6 8 10 12			
30	SFMKRW	0	60.0-1000.0	6 8 10 12 16	b≤A≤100	b≤B≤100	b≤C≤100
35		-0.062	70.0-1000.0	6 8 10 12 16 20			

### (2)h7 (Ground)

Part Number	Type	Dh7 Tolerance	L 0.1mm Increment	M (Coarse) / N (Coarse) Selection	Keyway (1)	Keyway (2)	Keyway (3)
					KA, A	KB, B	KC, C
6	SFHKRW	-0.012	15.0-400.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
8	PSFHKRW	0	15.0-500.0	2.6 (3) (4) (5) (6)			
10	SSFHKRW	-0.015	15.0-600.0	3 4 (5) (6)			
12	SFHKRW	0	15.0-700.0	4 5 (6) (8)	KA=0	KB≥KA+A	KC≥KB+B
15		-0.018	15.0-800.0	4 5 6 (8)			
20	SFHKRW	0	30.0-900.0	4 5 6 8 (10) (12)	b≤A≤100	b≤B≤100	b≤C≤100
25		-0.021	30.0-1000.0	4 5 6 8 (10) (12) (16)			
30	SFHKRW	0	50.0-1000.0	5 6 8 10 12 16	b≤A≤100	b≤B≤100	b≤C≤100
35		-0.025	60.0-1000.0	6 8 10 12 16 20			
40	SFHKRW	0	80.0-1000.0	10 12 16 20 24	b≤A≤100	b≤B≤100	b≤C≤100
50		-0.025	100.0-1000.0	12 16 20 24 30			

### (3)g6 (Ground)

Part Number	Type	Dg6 Tolerance	L 0.1mm Increment	M (Coarse) / N (Coarse) Selection	Keyway (1)	Keyway (2)	Keyway (3)
					KA, A	KB, B	KC, C
6	SFGKRW	-0.004	15.0-400.0	2.6 (3) (4)	KA+A≤L	KB+B≤L	KC+C≤L
8	PSFGKRW	-0.005	15.0-500.0	2.6 (3) (4) (5) (6)			
10	SSFGKRW	-0.014	15.0-600.0	3 4 (5) (6)			
12	SFGKRW	0	15.0-700.0	4 5 (6) (8)	KA=0	KB≥KA+A	KC≥KB+B
13		-0.006	15.0-700.0	4 5 6 (8)			
15	SFGKRW	0	15.0-800.0	4 5 6 (8)	b≤A≤100	b≤B≤100	b≤C≤100
16		-0.017	15.0-900.0	4 5 6 8 (10)			
20	SFGKRW	0	30.0-900.0	4 5 6 8 (10) (12)	b≤A≤100	b≤B≤100	b≤C≤100
17		-0.017	30.0-900.0	4 5 6 8 (10) (12)			
18	SFGKRW	0	30.0-900.0	4 5 6 8 (10) (12)	b≤A≤100	b≤B≤100	b≤C≤100
20		-0.007	30.0-1000.0	4 5 6 8 10 (12) (16)			
22	SFGKRW	-0.007	40.0-1000.0	4 5 6 8 10 12 (16)	b≤A≤100	b≤B≤100	b≤C≤100
25		-0.020	50.0-1000.0	4 5 6 8 10 12 (16)			
30	SFGKRW	0	60.0-1000.0	6 8 10 12 16	b≤A≤100	b≤B≤100	b≤C≤100
35		-0.009	70.0-1000.0	6 8 10 12 16 20			
40	SFGKRW	-0.009	80.0-1000.0	10 12 16 20 24	b≤A≤100	b≤B≤100	b≤C≤100
50		-0.025	100.0-1000.0	12 16 20 24 30			

Ordering Example	Part Number	L	M	N	Keyway (1)	Keyway (2)	Keyway (3)
1 Keyway	SFMKRW10 - 325 - M4 - N4 - KA20 - A50				KA	A	
2 Keyways	SFHKRW30 - 300 - M10 - N10 - KA20 - A50 - KB120 - B20				KA	A	KB B
3 Keyways	SFGKRW25 - 350 - M8 - N8 - KA10 - A60 - KB90 - B30 - KC210 - C30				KA	A	KB B KC C

### (1)h9 (Cold-drawn)

Type	SFMKRW (S45C Equivalent, Black Oxide)								PSFMKRW (S45C Equivalent, Electroless Nickel Plating)								SSFMKRW (SUS304)																						
	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1									
6	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	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			
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### (2)h7 (Ground) (3)g6 (Ground)

Type	SFHKRW, SFGKRW (S45C Equivalent, Black Oxide)								PSFHKRW, PSFGKRW (S45C Equivalent, Electroless Nickel Plating)								SSFHKRW, SSFGKRW (SUS304)																					
	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1	Min.	L	L50.1	L100.1	L150.1	L200.1	L300.1	L400.1	L600.1	L800.1								
6	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	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		
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