

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

Both Ends Tapped

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



RoHS10

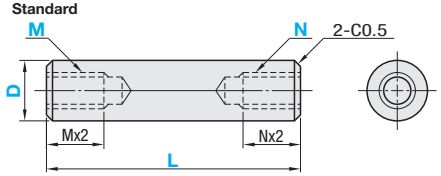
①	Type		D Tolerance	Material	Surface Treatment
	Standard	Wrench Flats			
①	SFMRW	SFMRWS	h9 (Cold-drawn)	EN 1.1191 Equiv.	Black Oxide
	PSFMRW	PSFMRWS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFMRW	SSFMRWS		-	-
②	SFHRW	SFHRWS	h7 (Ground)	EN 1.1191 Equiv.	Black Oxide
	PSFHRW	PSFHRWS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFHRW	SSFHRWS		-	-
③	SFRW	SFRWS	g6 (Ground)	EN 1.1191 Equiv.	Black Oxide
	PSFRW	PSFRWS		EN 1.4301 Equiv.	Electroless Nickel Plating
	SSFRW	SSFRWS		EN 1.7220 Equiv.	Black Oxide
	HFRW	HFRWS		EN 1.7220 Equiv.	Electroless Nickel Plating
	PHFRW	-		-	-

■ Tolerance Table

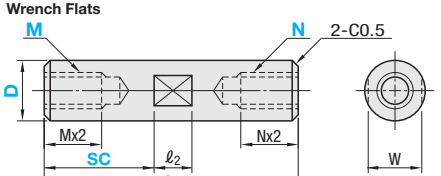
D	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
4-6	0	0	-0.004
	-0.030	-0.012	-0.012
8, 10	0	0	-0.005
	-0.036	-0.015	-0.014
12-18	0	0	-0.006
	-0.043	-0.018	-0.017
20-30	0	0	-0.007
	-0.052	-0.021	-0.020
35-50	0	0	-0.009
	-0.062	-0.025	-0.025

⚙ Surface roughness of D part for h9 (Cold-drawn) is $\sqrt{3.2}$. Surface roughness for h7 (Ground) and g6 (Ground) is $\sqrt{1.6}$.

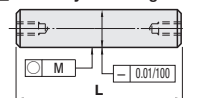
Standard



Wrench Flats



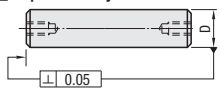
■ Circularity and Straightness



■ 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). ⚙ Not applicable to h9 (Cold-drawn). ⚙ Not applicable to h9 (Cold-drawn).

① h9 (Cold-drawn)

Part Number		D	L=0.1mm Increment	M (Coarse) / N (Coarse) Selection	SC 1mm Increment Wrench Flats Type only	W	ℓ ₂		
Standard	Type								
SFMRW PSFMRW SSFMRW (D4, D5 and D6 are not available for SSFMRW.)	Wrench Flats PSFMRWS SSFMRWS (D4, D5 and D6 are not available for SSFMRWS.) (Wrench flats are not available for D4 and D5.)	4	15.0-200.0	2	- SC+ℓ ₂ ≤L SC=0 or SC≥1 🔩 For SC≤Mx3 W-M≥2	-	-		
		5	15.0-250.0	2.6 3		5	-		
		6	20.0-300.0	3 4		7	8		
		8	20.0-400.0	3 4 5 6		8	-		
		10	20.0-500.0	4 5 6		10	-		
		12	30.0-600.0	5 6 8		10	-		
		15	30.0-700.0	5 6 8 10		13	10		
		20	40.0-800.0	5 6 8 10 12 16		17	-		
		25	50.0-800.0	5 6 8 10 12 16		22	-		
		30	60.0-800.0	8 10 12 16 20		27	15		
		35	70.0-800.0	8 10 12 16 20 24		30	-		
		40	80.0-800.0	12 16 20 24 30		36	20		
		50	100.0-800.0	16 20 24 30		41	-		

② h7 (Ground)

Part Number Type		D	L=0.1mm Increment	M (Coarse) / N (Coarse) Selection	SC 1mm Increment Wrench Flats Type only	W	l2
Standard	Wrench Flats						
SFHRW	SFHRWS	4	15.0-200.0	2	SC+ l2 ≤ L SC=0 or SC ≥ 1 ⚙ For SC ≤ Mx3 W-M ≥ 2	-	-
		5	15.0-250.0	2.6 3		5	-
		6	20.0-300.0	3 4		7	8
PSFHRW	PSFHRWS	8	20.0-400.0	3 4 5 6		8	-
		10	20.0-500.0	4 5 6		10	-
		12	30.0-600.0	5 6 8		13	10
SSFHRW	SSFHRWS (Wrench flats are not available for D4 and D5.)	15	30.0-700.0	5 6 8 10		17	-
		17	40.0-800.0	5 6 8 10 12		22	-
		20	40.0-800.0	5 6 8 10 12 16		27	15
		25	50.0-800.0	5 6 8 10 12 16		30	-
		30	60.0-800.0	8 10 12 16 20		36	20
		35	70.0-800.0	8 10 12 16 20 24		41	-
		40	80.0-800.0	12 16 20 24 30		-	-
		50	100.0-800.0	16 20 24 30		-	-

③ g6 (Ground)

Part Number		D	L=0.1mm Increment	M (Coarse) / N (Coarse) Selection		SC 1mm Increment Wrench Flats Type only	W	ℓ2
Type								
Standard	Wrench Flats							
SFRW	SFRWS	4	15.0-200.0	2		SC+ℓ2≤L SC=0 or SC≥1 🌀 For SC≤Mx3 W-M≥2	-	-
		5	15.0-250.0	2.6 3			5	
		6	20.0-300.0	3 4	5 6		7	8
PSFRW	PSFRWS	8	20.0-400.0	3 4	5 6		8	
		10	20.0-500.0	4	5 6		8	
		12	30.0-600.0	5 6	8		10	
SSFRW (D13, 16, 18 and 22 are not available for SSFRW.)	SSFRWS (D13, 16, 18 and 22 are not available for SSFRWS.)	13	30.0-600.0	5 6	8		10	
		*15	30.0-700.0	5 6	8 10		13	
		16	30.0-800.0	5 6	8 10		14	
		17	40.0-800.0	5 6	8 10 12		15	10
		*18	40.0-800.0	5 6	8 10 12		16	
		*20	40.0-800.0	5 6	8 10 12 16		17	
		22	40.0-800.0	5 6	8 10 12 16		19	
		*25	50.0-800.0	5 6	8 10 12 16		22	
		*30	60.0-800.0	8 10	12 16 20		27	
		*35	70.0-800.0	8 10	12 16 20 24		30	15
*HFRW (Only * marked sizes are available.)	*HFRWS (Only * marked sizes are available.)	*40	80.0-800.0	12 16 20 24 30	36			
		*50	100.0-800.0	16 20 24 30	41		20	
		(Wrench flats are not available for D4 and D5.)						

⚙ For overall length L, Mx2+Nx2 ≤ L is required. ⚙ When L dimension is less than the pilot hole depth of tapped hole, the pilot hole might go through.

Ordering Example

Part Number	-	L	-	M	-	N	-	SC
SFMRW30	-	250	-	M12	-	N10	-	
SFHRWS25	-	200	-	M8	-	N12	-	SC20

① h9 (Cold-drawn)

Type	SFMRW (EN 1.1191 Equiv., Black Oxide)								PSFMRW (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFMRW (EN 1.4301 Equiv.)							
	SFMRWS								PSFMRWS								SSFMRWS							
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																								
15								-								-								-
20																								
25																								
30	-								-								-							
35	-								-								-							
40	-								-								-							
50	-								-								-							

② h7 (Ground) ③ g6 (Ground)

Type	SFHRW, SFRW (EN 1.1191 Equiv., Black Oxide)								PSFHRW, PSFRW (EN 1.1191 Equiv., Electroless Nickel Plating)								SSFHRW, SSFRW (EN 1.4301 Equiv.)							
D	SFHRWS, SFRWS								PSFHRWS, PSFRWS								SSFHRWS, SSFRWS							
	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					-	-	-	-					-	-	-	-				-	-	-	-	
6																								
8																								
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25																								
30	-								-								-							
35	-								-								-							
40	-								-								-							
50	-								-								-							

Type	HFRW (EN 1.7220 Equiv. Hardness 30~35HRC, Black Oxide)								PHFRW (EN 1.7220 Equiv. Hardness 30~35HRC, Electroless Nickel Plating)							
	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	800.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0
15																
20																
30	-								-							
35																
40																
50	-								-							