


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

Both Ends Stepped and Tapped

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

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



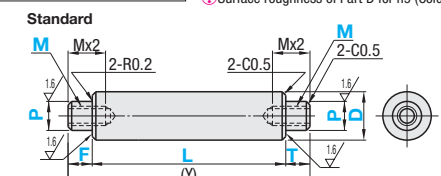
RoHS10

Type	Tolerance		Material	Surface Treatment
	Standard	Wrench Flats		
(1) SFRMHHS, PSFRMHHS, SSFRMHHS	h9 (Cold-drawn)	h7	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating
(2) SFRMGHS, PSFRMGHS, SSFRMGHS	h9 (Cold-drawn)	g6	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating
(3) SFRHHS, PSFRHHS, SSFRHHS	h7 (Ground)	h7	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating
(4) SFRHS, PSFRHS, SSFRHS	g6 (Ground)	g6	S45C Equivalent SUS304	Black Oxide Electroless Nickel Plating

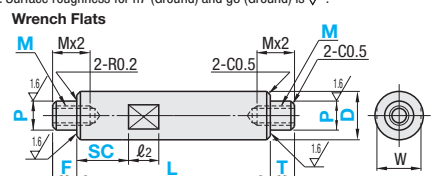
Tolerance Table			
D, P	h9 (Cold-drawn)	h7 (Ground)	g6 (Ground)
3.1~6	0 -0.030	0 -0.012	-0.004 -0.012
6.1~10	0 -0.036	0 -0.015	-0.005 -0.014
10.1~18	0 -0.043	0 -0.018	-0.006 -0.017
18.1~30	0 -0.052	0 -0.021	-0.007 -0.020
30.1~50	0 -0.062	0 -0.025	-0.009 -0.025

Surface roughness of Part D for h9 (Cold-drawn) is $R_a \leq 1.6$. Surface roughness for h7 (Ground) and g6 (Ground) is $R_a \leq 0.8$.

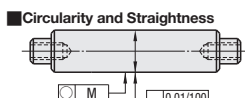
Standard



Wrench Flats



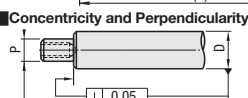
Circularity and Straightness



Circularity of Part D

over	or Less	Circularity M
5	13	0.004
13	20	0.005
20	40	0.006
40	50	0.007

Concentricity and Perpendicularity



Tolerances of L, Y 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

Part Number		0.1mm Increment		1mm Increment		1mm Increment		W	l ₂	(Y) max.
Standard	Type	D	L	F, T	P	M (Coarse) Selection	SC			
(1)D Tol. h9 / P Tol. h7	SFRMHHS, PSFRMHHS, SSFRMHHS	6, 8, 10, 12, 15, 17, 20, 25, 30, 35, 40, 50	15.0~398.0	2sF, TsPx5	5	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 16 6 8 10 12 16 20 6 8 10 12 16 20 24	SC+2sL SC=0 or SC=1 For SC=Mx3-F (T), W-M=2	5, 7, 8, 10, 13, 17, 22, 27, 30	400, 500, 600, 700, 800, 1000	

Part Number		0.1mm Increment		1mm Increment		1mm Increment		W	l ₂	(Y) max.
Standard	Type	D	L	F, T	P	M (Coarse) Selection	SC			
(3)h7 (Ground)	SFRHHS, PSFRHHS, SSFRHHS	6, 8, 10, 12, 15, 17, 20, 25, 30, 35, 40, 50	15.0~398.0	2sF, TsPx5	5	2.6 3 2.6 3 4 5 3 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 16 6 8 10 12 16 20 6 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30	SC+2sL SC=0 or SC=1 For SC=Mx3-F (T), W-M=2	5, 7, 8, 10, 13, 17, 22, 27, 30, 36, 41	400, 500, 600, 700, 800, 900, 1000	

Part Number		0.1mm Increment		1mm Increment		1mm Increment		W	l ₂	(Y) max.
Standard	Type	D	L	F, T	P	M (Coarse) Selection	SC			
(4)g6 (Ground)	SFRHS, PSFRHS, SSFRHS	6, 8, 10, 12, 15, 17, 20, 25, 30, 35, 40, 50	15.0~398.0	2sF, TsPx5	5	2.6 3 2.6 3 4 5 4 5 6 4 5 6 8 4 5 6 8 10 4 5 6 8 10 12 4 5 6 8 10 12 16 4 5 6 8 10 12 16 20 6 8 10 12 16 20 24 10 12 16 20 24 30 12 16 20 24 30	SC+2sL SC=0 or SC=1 For SC=Mx3-F (T), W-M=2	5, 7, 8, 10, 11, 13, 14, 15, 17, 19, 22, 27, 30, 36, 41	400, 500, 600, 700, 800, 900, 1000	

When D - P (Q) ≤ 2, chamfer C at the step is 0.2 or less. Mx4≤(Y) is required for (Y). When (Y) is less than the depth of tapped thread, the pilot hole might go through.

Ordering Example

Part Number	L	F	P	T	M	SC
(1)D part h9 / P part h7	SFRMHHS30	250	F30	P28	T30	M20
(3)h7 (Ground) with Wrench Flat	SSFRHHS20	200	F25	P18	T25	M10 - SC20

(1)D tolerance h9 (Cold-drawn) / P tolerance h7 (2)D tolerance h9 (Cold-drawn) / P tolerance g6

Type	SFRMHHS, SFRMGHS (S45C Equivalent, Black Oxide)								PSFRMHHS, PSFRMGHS (S45C Equivalent, Electroless Nickel Plating)								SSFRMHHS, SSFRMGHS (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
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0
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(3)h7 (Ground) (4)g6 (Ground)

Type	SFRHHS, SFRHS (S45C Equivalent, Black Oxide)								PSFRHHS, PSFRHS (S45C Equivalent, Electroless Nickel Plating)								SSFRHHS, SSFRHS (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
D	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0	50.0	100.0	150.0	200.0	300.0	400.0	600.0	800.0	998.0
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Alterations Part Number - L - F - P - T - M - SC - (KC, WKC, FC-etc.)
SSFRMGHS25 - 300 - F15 - P18 - T15 - M10 - SC30 - LKC

Alterations	Keyway						Retaining Ring Groove	
	1	2	1 (for 4th keyway)	Keyway on Step P (Position Zero from End Face)	Keyway on Step (Position Specified)	Multiple Keyways on Step	D dim.	Step
Code	KC	WKC	KZ	PKC, QKC	PP, QP	PV, QV	TL, TR	TF, TT
Dimension Increment	KC, A = 0.1mm Increment	WKC, C, E, K = 0.1mm Increment	KZ, Z = 0.1mm Increment	PKC, QKC = 0.1mm Increment	PP, PK = 0.1mm Increment QP, QK = 0.1mm Increment	PV, PV = 0.1mm Increment QV, QV = 0.1mm Increment	TL, TR = 0.1mm Increment	TF, TT = 0.1mm Increment
Ordering Example	KC50-A10	WKC5-C20-K5-E10	KC5-A10-WKC20-C10-K60-E10-KZ100-Z10	PKC10	PP5-PK10	PP5-PK10-PV5-PW10	TL10	TF10
Conditions	Key Length ≤ 100. *1, *2						Not applicable when P ≤ 5. Key Length ≤ 70. *1, *2	

Alterations	Set Screw Flat				Slit Cam Groove	L Dimension Tolerance	Concentricity	Tapped Depth
	1	2	2 Set Screw Flats (Angle Specified)	Set Screw Flat on Step				
Code	FC	WFC	SFC	PFC, QFC	UC	LKC	CKC	MD (Mx3)
Dimension Increment	FC, G = 1mm Increment	WFC, J, V, W = 1mm Increment	SFC, SG = 1mm Increment AG = 15° Increment	PFC, LC = 1mm Increment QFC, RC = 1mm Increment	UC = 1mm Increment	L < 500 → L ± 0.05 L ≥ 500 → L ± 0.1		MD (Mx3) to specify this alteration, replace M with MD.
Ordering Example	FC10-G3	WFC10-J15-W10-V20	SFC10-SG3-AG120	PFC10-LC5	UC10	LKC	CKC	MD6
Conditions	For H dim., see P843. G, J, V, L, RC, SG ≤ 70				Not applicable when D ≥ 13. Not applicable when L ≥ 800. Not applicable when D Tol. = h9. Not applicable when M = 2, 2.6, 24 or 30.			

For details about Alterations, see Alteration Overview (P843).

When combined with other alterations, ±2 degree phase difference may occur. Provide 2mm or more clearance between this alteration and others.

When multiple keyways or set screw flats are specified, they are added in the same plane. When the distance of the alterations are over 500mm, ±2 degree phase difference may occur.

*1. When multiple keyways are added with 2mm or less clearance between them, keyways will interfere.

*2. When the keyway position is less than 1mm away from the end face, R is not applied. For details, see Alteration Details on P843.

