Rotary Shafts -D Tolerance h9 (Cold-drawn) / h7 (Ground) /g6 (Ground)-
-One End Stepped and Female Thread-

CAD Data

■h9 (Cold-drawn) and h7 (Ground) are newly added. h7 or g6 can be selected for P part tolerance of h9 (Cold-drawn).

RoHS

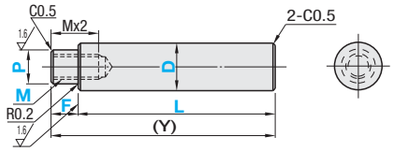
	Type Standard	Type Wrench Flats	Tolerance D	Tolerance P	M Material	S Surface Treatment
(1)	SFRMHG	SFRMHGS	h9 (Cold-drawn)	h7	1.1191/C45E	Black Oxide
	PSFRMHG	-				Electroless Nickel Plating
	SSFRMHG	-			1.4301/X5CrNi18-10	-
(2)	SFRMGG	SFRMGGS		g6	1.1191/C45E	Black Oxide
	PSFRMGG	-				Electroless Nickel Plating
	SSFRMGG	-			1.4301/X5CrNi18-10	-
(3)	SFRHG	SFRHGS	h7 (Ground)	h7	1.1191/C45E	Black Oxide
	PSFRHG	PSFRHGS				Electroless Nickel Plating
(4)	SFRG	SFRGS	g6 (Ground)	g6	1.1191/C45E	Black Oxide
	PSFRG	PSFRGS				Electroless Nickel Plating
	SSFRG	-			1.4301/X5CrNi18-10	-

■Tolerance Table

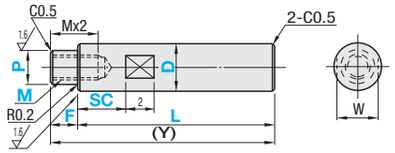
D / P	h9 (Cold-drawn)	h7 (Ground)	g6 Ground)
3.1~6	0 -0.030	0 -0.012	-0.004 -0.012
6.1~10	0 -0.036	0 -0.015	-0.005 -0.014
10.1~18	0 -0.043	0 -0.018	-0.006 -0.017
18.1~30	0 -0.052	0 -0.021	-0.007 -0.020
30.1~50	0 -0.062	0 -0.025	-0.009 -0.025

Surface roughness of D part for h9 (Cold-drawn) is Ra 6.3, for h7 (Ground) and g6 (Ground) is 1.6. (6.3 / 1.6)

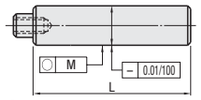
Standard



Wrench Flats



■Circularity, Straightness



Not applicable to h9 (Cold-drawn).

■Circularity of Part D

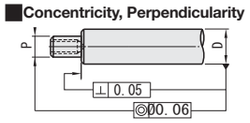
D Over	D To	Circularity M
5	13	0.004
13	20	0.005
20	40	0.006
40	50	0.007

Not applicable to h9 (Cold-drawn).

■Tolerances of L, Y and Other Dimensions

Dimension Over	Dimension To	Dimension Tolerance
2	6	±0.1
6	30	±0.2
30	120	±0.3
120	400	±0.5
400	800	±0.8

■Concentricity, Perpendicularity



Not applicable to h9 (Cold-drawn).

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

Part Number Type Standard	Wrench Flats	D	0.1mm Increment L	F	1mm Increment P	M (Coarse) Selectable	1mm Increment With Wrench Flats only	W	ℓ2	(Y) max.
(1) D part h9 / P part h7 SFRMHG PSFRMHG SSFRMHG (D6 is not available for SSFRMHG.) (2) D part h9 / P part g6 SFRMGG PSFRMGG SSFRMGG (D6 is not available for SSFRMGG.)	(1) D part h9 / P part h7 SFRMHGS (2) D part h9 / P part g6 SFRMGGS	6	20.0~298.0	2≤F≤Px5	5	3	SC+ℓ2≤L SC=0 or SC≥1 SC≤Mx3-F W-M≥2	5	8	300
		8	20.0~398.0		When M3~M8 M+2≤P<D	3 4 5		7		400
		10	20.0~498.0			4 5 6		8		500
		12	25.0~598.0			5 6 8		10	10	600
		15	25.0~698.0		When M10~16 M+3≤P<D	5 6 8 10		13		700
		20	30.0~798.0			5 6 8 10 12		17		800
		25	30.0~798.0		When M20 or M24 M+4≤P<D	5 6 8 10 12 16		22		
		30	30.0~798.0			8 10 12 16 20		27	15	
		35	40.0~798.0			8 10 12 16 20 24		30		

(3) h7 (Ground) Type

Part Number Type Standard	Wrench Flats	D	0.1mm Increment L	F	1mm Increment P	M (Coarse) Selectable	1mm Increment With Wrench Flats only	W	ℓ2	(Y) max.
SFRHG PSFRHG	SFRHGS PSFRHGS	6	20.0~298.0	2≤F≤Px5	5	3	SC+ℓ2≤L SC=0 or SC≥1 For SC≤Mx3-F W-M≥2	5	8	300
		8	20.0~398.0		When M3~M8 M+2≤P<D	3 4 5		7		400
		10	20.0~498.0			4 5 6		8		500
		12	25.0~598.0			5 6 8		10	10	600
		15	25.0~698.0		When M10~16 M+3≤P<D	5 6 8 10		13		700
		20	30.0~798.0			5 6 8 10 12		17		800
		25	30.0~798.0		When M20 or M24 M+4≤P<D	5 6 8 10 12 16		22		
		30	30.0~798.0			8 10 12 16 20		27	15	
		35	40.0~798.0		When M30 M+5≤P<D	8 10 12 16 20 24		30		
		40	40.0~798.0			12 16 20 24 30		36	20	
		50	40.0~798.0			16 20 24 30		41		

(4) g6 (Ground) Type

Part Number Type Standard	Wrench Flats	D	0.1mm Increment L	F	1mm Increment P	M (Coarse) Selectable	1mm Increment With Wrench Flats only	W	ℓ2	(Y) max.
SFRG PSFRG SSFRG	SFRGS PSFRGS	6	20.0~298.0	2≤F≤Px5	5	3	SC+ℓ2≤L SC=0 or SC≥1 For SC≤Mx3-F W-M≥2	5	8	300
		8	20.0~398.0		When M3~M8 M+2≤P<D	3 4 5		7		400
		10	20.0~498.0			4 5 6		8		500
		12	25.0~598.0			5 6 8		10	10	600
		13	25.0~598.0			5 6 8		11		
		15	25.0~698.0			5 6 8 10		13		700
		16	30.0~798.0		When M10~16 M+3≤P<D	5 6 8 10		14		800
		17	30.0~798.0			5 6 8 10 12		15		
		18	30.0~798.0		When M20 or M24 M+4≤P<D	5 6 8 10 12		15		
		20	30.0~798.0			5 6 8 10 12		17		
		22	30.0~798.0			5 6 8 10 12 16		19		
		25	30.0~798.0		When M30 M+5≤P<D	5 6 8 10 12 16		22		
		30	30.0~798.0			8 10 12 16 20		27	15	
		35	40.0~798.0			8 10 12 16 20 24		30		
		40	40.0~798.0			12 16 20 24 30		36	20	
		50	40.0~798.0			16 20 24 30		41		

When D-P≤2, chamfer C at the step is 0.2 or less.

Order Example
(1) D part h9 / P part h7
(3) h7 (Ground) with Wrench Flat
(4) g6 (Ground) Type

Part Number	L	F	P	M	
SFRMHG30	250	F30	P16	M10	
SFRHGS25	200	F40	P20	M10	SC30

Days to Ship: 8 Days / 5 Days

Express A 8,00 EUR / piece P.88
A Express Charge of 21,60 EUR for 3 or more identical pieces.

Price

■Volume Discount (Round down to one Cent.) P.87

Quantity	1~9	10~14	15~19	20~49
Rate	€ Unit Price	5%	10%	20%

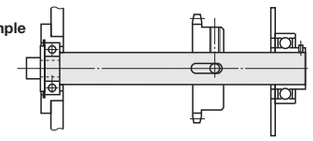
(1) D part tolerance h9 (Cold-drawn) / P part tolerance h7 (2) D part tolerance h9 (Cold-drawn) / P part tolerance g6

Type	€ SFRMHG / SFRMGG(1.1191/C45E, Black Oxide) SFRMHGS / SFRMGGS With wrench flats, add 4,00 EUR to the prices shown below.								€ PSFRMHG / PSFRMGG(1.1191/C45E, Electroless Nickel Plating)								€ SSFRMHG / SSFRMGG(1.4301/X5CrNi18-10)							
D	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 ~ 798.0	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 ~ 798.0	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 ~ 798.0
6																								
8																								
10																								
12																								
15																								
20																								
25																								
30																								
35																								

(3) h7 (Ground) (4) g6 (Ground)

Type	€ SFRHG / SFRG(1.1191/C45E, Black Oxide) SFRHGS / SFRGS With wrench flats, add 4,00 EUR to the prices shown below.								€ PSFRHG / PSFRG(1.1191/C45E, Electroless Nickel Plating) PSFRHGS / PSFRGS With wrench flats, add 4,00 EUR to the prices shown below.								€ SSFRG(1.4301/X5CrNi18-10)							
D	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 ~ 798.0	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 ~ 798.0	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 ~ 798.0
6																								
8																								
10																								
12																								
13																								
15																								
16																								
17																								
18																								
20																								
22																								
25																								
30																								
35																								
40																								
50																								

Example



Alterations

Part Number	L	F	P	M	SC	(KC, WKC, FC...etc.)
PSFRHGS8	150	F20	P7	M5	SC20	LKC

	Keyway	Set Screw Flat	2 Set Screw Flats (Angle Specified)	Slit Cam Groove	L Dimension Tolerance	Concentricity
Alterations	- One Keyway: KC - Two Keyways: WKC	- 1 Set Screw Flat: FC - 2 Set Screw Flats: WFC				
Code	KC · WKC	FC · WFC	KFC	UC	LKC	CKC
Spec.	KC:Adds a keyway. Ordering Code KC50-A10 WKC:Adds two keyways. Ordering Code WKC50-C8-K40-E10 KC, A, WKC, C, K, E = 1mm Increment A, E, C≤100 For keyway details, refer to P.737 If 3 keyways are required, use both KC and WKC.	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 = 1mm Increment G, J, V≤50 D / H: 6~17 / 1; 18~40 / 2; 50 / 3	Adds a set screw flat at any designated angle besides the datum plane (0°). KFC, G= 1mm Increment AG = 15° Increment G≤50 Ordering Code KFC10-G3-AG90 D / H: 6~17 / 1; 18~40 / 2; 50 / 3 When combined with other alterations, ±2 degree phase differential may occur.	Adds a slit cam groove. UC=1mm Increment Ordering Code UC10 UC+ℓ1≤L UC≥1 Not applicable to D13 or more. D / d / ℓ1: 6 / 5 / 4; 8 / 7; 10 / 8 / 5; 12 / 10	Changes L Dimension Tolerance. Ordering Code LKC L<500···L±0.05 L≥500···L±0.1	Changes the concentricity to Ø0.02. Ordering Code CKC Applicable within dimension L range in the table below. D / Lmax: 6~22 / 450; 25~50 / 600 Not applicable to D part of h9 (Cold-drawn).
	Keyways and set screw flats are added in the same plane. When the distance of the alterations are over 500mm, ±2 degree phase differential may occur.					
Price Adder	KC: 4,00 WKC: 8,00	FC: 2,00 WFC: 4,00	6,00	2,00	4,00	8,00