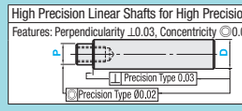
Shafts

One End Stepped and Tapped / One End Stepped

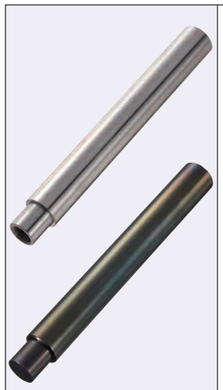
High Precision Linear Shafts for High Precision Assembly
Features: Perpendicularity ⊥0.03, Concentricity ◎0.02



P.229

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

■For High Precision Linear Shafts with high perpendicular precision of the shaft end (⊥ 0.03), see P.229. ■For Shafts with Wrench Flats, see P.167.



RoHS10

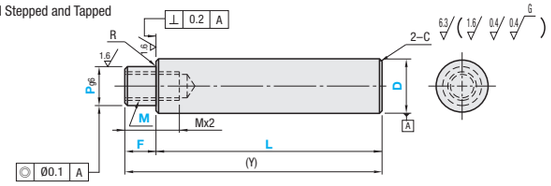
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). P.142
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.141
- Features of Low Temp. Black Chrome Plating P.156

Type: One End Stepped and Tapped D Tol. g6	One End Stepped and Tapped D Tol. h5	One End Stepped and Tapped D Tol. f8	One End Stepped D Tol. g6	One End Stepped D Tol. h5	One End Stepped D Tol. f8	M Material	H Hardness	S Surface Treatment
SFAG	SFUG	-	SFAC	SFCU	-	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening P.142	-
SSFAG	SSFUG	-	SSFAC	SSFCU	-	SUS440C or 13Cr stainless		
PSFAG	PSFUG	-	PSFAC	PSFCU	-	SUJ2 Equivalent		Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 5μ or More
PSSFAG	PSSFUG	-	PSSFAC	PSSFCU	-	SUJ2 Equivalent / SUS440C or 13Cr stainless	56HRC~ / 56HRC~	
RSFAG	-	-	RSFAC	-	-	SUJ2 Equivalent		Low Temp. Black Chrome Plating
-	-	PSFGG	-	-	PSCGC	S45C Equivalent	-	Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 10μ or More
-	-	PSSFGG	-	-	PSSCGC	SUS304		

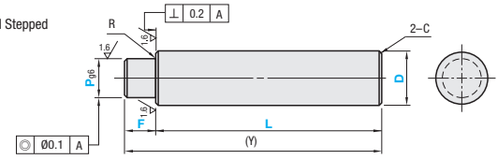
D	D Tol. g6	D Tol. h5	D Tol. f8
8	-0.005 -0.014	0 -0.006	-0.013 -0.035
10			
12	-0.006 -0.017	0 -0.008	-0.016 -0.043
13			
15			
16			
18			
20	-0.007 -0.020	0 -0.009	-0.020 -0.053
25			
30			
35	-0.009 -0.025	0 -0.011	-0.025 -0.064
40			
50			

For plated products, the surface roughness of D part is 0.4/; and for unplated products, it is 0.4/ G.

One End Stepped and Tapped



One End Stepped



Part Number Type: One End Stepped and Tapped (D Tol. g6)	(D Tol. h5)	One End Stepped (D Tol. g6)	(D Tol. h5)	D	1mm Increments L	F	P	M (Coarse) Selection	(Y) Max.	R	C
SFAG	SFUG	SFAC	SFCU	8	25~ 998	2≤F≤Px4	6	3	800	0.3 or Less	0.5 or Less
SSFAG	SSFUG	SSFAC	SSFCU	10	25~ 998		6~ 8	3 4 5	800		
PSFAG	PSFUG	PSFAC	PSFCU	12	25~1198		6~10	3 4 5 6	1000		
PSSFAG	PSSFUG	PSSFAC	PSSFCU	13	25~1198		6~11	3 4 5 6 8	1000		
RSFAG (D≤30, L≤500)		RSFAC (D≤30, L≤500)		15	25~1198		6~13	3 4 5 6 8 10	1000		
(D Tol. f8)		(D Tol. f8)		16	25~1198		6~14	3 4 5 6 8 10	1200		
PSFGG		PSCGC		18	25~1198		8~16	4 5 6 8 10 12	1200		
PSSFGG		PSSCGC		20	25~1198		8~17	4 5 6 8 10 12	1200		1.0 or Less
				25	25~1198		8~22	4 5 6 8 10 12 16	1200		
				30	25~1498		9~27	5 6 8 10 12 16 20 24	1500		
				35	25~1498		9~32	5 6 8 10 12 16 20 24	1500	0.5 or Less	
				40	25~1498		11~37	6 8 10 12 16 20 24 30	1500		
				50	25~1498		11~47	6 8 10 12 16 20 24 30	1500		

- One End Stepped and Tapped P dimensions require M+3≤P. When Mx2.5+4≥Y, tap pilot holes may go through.

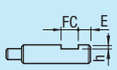
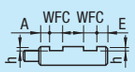
Ordering Example

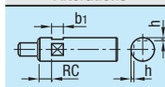
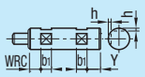
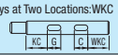
Part Number	L	F	P	M
SFAG20	400	F25	P16	M10
SFUG20	400	F25	P16	M10
SFAC20	500	F25	P16	

Alterations

Part Number	L	F	P	M(MD)	(LKC, FC ··· etc.)
SFAG30	400	F25	P16	M10	LKC

Alteration Details P.143

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC L dimensions can be specified in 0.1mm increment for LKC. L<200 ···L±0.03 200≤L<500···L±0.05 L≥500 ···L±0.1
	FC	Set Screw Flat at One Location Ordering Code FC10-E8 FC, E=1mm Increment D≤30:FC≤5xD, D≥35:FC≥3xD E=0 or E≥2 Not available in combination with WFC. D / h: 8~18 / 1; 20~40 / 2; 50 / 3
	WFC	Set Screw Flats at Two Locations Ordering Code WFC8-A8-E4 WFC, A, E=1mm Increment D≤30:WFC≤5xD, D≥35:WFC≥3xD A(E)=0 or A(E)≥2 Orientation between set screw flats is not coplanar. Not available in combination with FC. D / h: 8~18 / 1; 20~40 / 2; 50 / 3

Alterations	Code	Spec.
	RC	90-deg. Set Screw Flat at One Location Ordering Code RC10 Application Notes Only applicable to D=10 ~ 30. Not available in combination with WRC.
	WRC	90-deg. Set Screw Flats at Two Locations Ordering Code WRC10-Y10 Application Notes Only applicable to D=10 ~ 30. Not available in combination with RC. Orientation between two set screw flats is not coplanar. For details, see Shaft Alteration Overview. P.143
• Keyway at One Location:KC • Keyways at Two Locations:WKC 	KC WKC	Keyway Ordering Code KC10-G10 WKC10-C8-KC10-G10 Application Notes Only applicable to D=12, 16, 20, 25 and 30.
	MD	Change the effective length of tapped part to Mx3. Ordering Code MD6 (M is changed to MD) Application Notes Only applicable to D=10~30 and M=6~20 One End Tapped: MDx3.5+4≤L Not available in combination with KC, WSC.
	LFC	Set Screw Flat at Step Parts Ordering Code LFC10-A0 LFC+A≤F D-M≥1 P / H: 6~18 / 1; 20~40 / 2; 41~ / 2

- Please see Shaft Alteration Overview for details if provided. P.143
- When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm.
- Alterations may lower hardness. See P.142.

Part Number Type	D	Unit Price Min. L ~ 50	L51 ~ 100	L101 ~ 150	L151 ~ 200	L201 ~ 250	L251 ~ 300	L301 ~ 350	L351 ~ 400	L401 ~ 450	L451 ~ 500	L501 ~ 550	L551 ~ 600	L601 ~ 650	L651 ~ 700	L701 ~ 750	L751 ~ 800	L801 ~ 850	L851 ~ 900	L901 ~ 950	L951 ~ 1000	L1001 ~ 1100	L1101 ~ 1200	L1201 ~ 1300	L1301 ~ 1400	L1401 ~ 1498
SFAG SFUG SFAC SFCU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
SSFAG SSFUG SSFAC SSFCU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSFAG PSFUG PSFAC PSFCU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSSFAG PSSFUG PSSFAC PSSFCU	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									

- One End Stepped and Tapped
  For D tolerance h5, add the relevant surcharge to the prices above.
- One End Stepped
  For D tolerance h5, add the relevant surcharge to the prices above.
  For D tolerance g6, subtract the relevant charge from the prices above.

Part Number Type	D	Unit Price Min. L ~ 50	L51 ~ 100	L101 ~ 150	L151 ~ 200	L201 ~ 300	L301 ~ 400	L401 ~ 500
RSFAG RSFAC	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
	30							

For One End Stepped Shafts, subtract the relevant charge from the prices above.

Part Number Type	D	Unit Price Min. L ~ 100	L101 ~ 200	L201 ~ 400	L401 ~ 600	L601 ~ 800	L801 ~ 1000	L1001 ~ 1200	L1201 ~ 1498
PSFGG PSCGC	8, 10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								

For One End Stepped Shafts, subtract the relevant charge from the prices above.

Part Number Type	D	Unit Price Min. L ~ 100	L101 ~ 200	L201 ~ 400	L401 ~ 600	L601 ~ 800	L801 ~ 1000	L1001 ~ 1200	L1201 ~ 1498
PSSFGG PSSCGC	8, 10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								

For One End Stepped Shafts, subtract the relevant charge from the prices above.