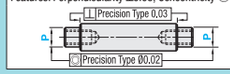
Shafts

Both Ends Stepped and Tapped / Both Ends Stepped

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



P.225

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.225. ■For Both Ends Stepped and Tapped with Wrench Flats, see P.159.

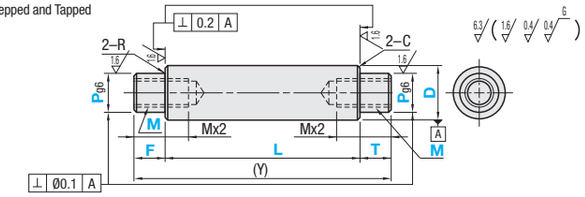
RoHS10

Type						M Material	H Hardness	S Surface Treatment
Both Ends Stepped and Tapped			Both Ends Stepped					
D Tol. g6	D Tol. h5	D Tol. f8	D Tol. g6	D Tol. h5	D Tol. f8			
SFAH	SFUH	-	SFAJ	SFUJ	-	SUJ2	Effective Hardened Depth of Induction Hardening P.142 SUJ2 58HRC~ SUS440C Equivalent 56HRC~	-
SSFAH	SSFUH	-	SSFAJ	SSFUJ	-	SUS440C Equivalent		Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 5μ or More
PSFAH	PSFUH	-	PSFAJ	PSFUJ	-	SUJ2		
PSSFAH	PSSFUH	-	PSSFAJ	PSSFUJ	-	SUS440C Equivalent		Low Temp. Black Chrome Plating
RSFAH	-	-	RSFAJ	-	-	SUJ2		
-	-	PSFGH	-	-	PSFGJ	S45C Equivalent	-	Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 10μ or More
-	-	PSSFGH	-	-	PSSFGJ	SUS304		

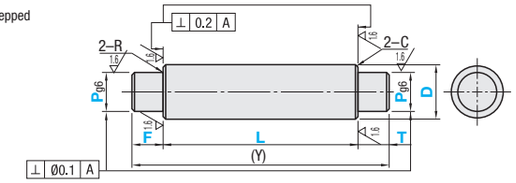
D	D Tol. g6	D Tol. h5	D Tol. f8
8	-0.005 -0.014	0 -0.006	-0.013 -0.035
10			
12	-0.006 -0.017	0 -0.008	-0.016 -0.043
13			
15			
16			
18			
20	-0.007 -0.020	0 -0.009	-0.020 -0.053
25			
30			
35	-0.009 -0.025	0 -0.011	-0.025 -0.064
40			
50			

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

Both Ends Stepped and Tapped



Both Ends Stepped



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

Part Number Type	D	1mm Increments L	F, T	P	M (Coarse) Selection	(Y) Max.	R	C
Both Ends Stepped and Tapped (D Tol. g6) SFAH SSFAH PSFAH PSSFAH RSFAH (D≤30, L≤500) (D Tol. f8) PSFGH PSSFGH; (D Tol. h5) SFUH SSFUH PSFUH PSSFUH; Both Ends Stepped (D Tol. g6) SFAJ SSFAJ PSFAJ PSSFAJ RSFAJ (D≤30, L≤500) (D Tol. f8) PSFGJ PSSFGJ; (D Tol. h5) SFUJ SSFUJ PSFUJ PSSFUJ	8	25~ 996	2≤F≤Px4 2≤T≤Px4	6	3	800	0.3 or Less	0.5 or Less
	10	25~ 996		6~ 8	3 4 5	800		
	12	25~1196		6~10	3 4 5 6	1000		
	13	25~1196		6~11	3 4 5 6 8	1000		
	15	25~1196		6~13	3 4 5 6 8 10	1000		
	16	25~1196		6~14	3 4 5 6 8 10	1200		
	18	25~1196		8~16	4 5 6 8 10 12	1200		
	20	25~1196		8~17	4 5 6 8 10 12	1200		1.0 or Less
	25	25~1196		8~22	4 5 6 8 10 12 16	1200		
	30	25~1496		9~27	5 6 8 10 12 16 20 24	1500		
	35	25~1496		9~32	5 6 8 10 12 16 20 24	1500	0.5 or Less	
	40	25~1496		11~37	6 8 10 12 16 20 24 30	1500		
	50	25~1496		11~47	6 8 10 12 16 20 24 30	1500		

• Both Ends Tapped P dimensions require M+3≤P. When (Mx2.5+4)x2≥(Y), tap pilot hole may go through and the effective length of the smaller tap part may be shortened.

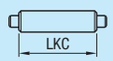
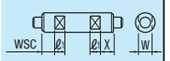
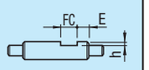
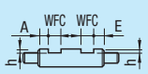
Ordering Example

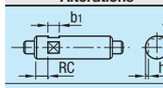
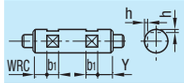
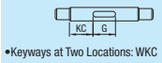
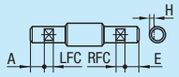
Part Number	L	F	P	M	T
SSFAH18	200	F20	P15	M8	T20
SFAH20	400	F25	P16	M10	T20
SFAJ20	400	F25	P16		T20

Alterations

Part Number	L	F	P	M	T	(LKC, WSC, MD, ND ··· etc.)
SFAH20	400	F25	P16	M10	T20	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
	WSC	Wrench Flats at Two Locations Ordering Code WSC12-X8 WSC, X=1mm Increment WSC+X+ℓ1x2<L WSC(X)≥0 Orientation between two set screw flats is not coplanar. D: 8, 10, 12, 13, 15, 16, 18; W: 7, 8, 10, 11, 13, 14, 16; ℓ1: 8, 10 D: 20, 25, 30, 35, 40, 50; W: 17, 22, 27, 30, 36, 41; ℓ1: 10, 15, 20
	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: 8~18 h: 1; 20~40 h: 2; 50 h: 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: 8~18 h: 1; 20~40 h: 2; 50 h: 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.
•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 ND	Change the effective tap depth to M(N)x3. Ordering Code MD6/ND6 (M is changed to MD, N is changed to ND) Application Notes Only applicable to D=12~30 and M (N) = 6~20 Both Ends Stepped and Tapped: MDx3.5+4+NDx3.5+4≤L Not available in combination with KC, WSC.
	LFC RFC	Set Screw Flat at Step Parts Ordering Code LFC10-A0 RFC10-E0 LFC(RFC)+A(E)≤F(T) D-M≥1 Orientation between two set screw flats is not coplanar. P: 6~18 H: 1; 20~40 H: 2; 41~ H: 2

For details, see Shaft Alteration Overview. P.143

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 ~1496
SFAH SFUH SFAJ SFUJ	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
SSFAH SSFUH SSFAJ SSFUJ	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSFAH PSFUH PSFAJ PSFUJ	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									
PSSFAH PSSFUH PSSFAJ PSSFUJ	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50																									

• Both Ends Stepped and Tapped
For D tolerance h5, add the relevant surcharge to the prices above.

• Both Ends 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
RSFAH RSFAJ	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
	30							

For Both Ends Stepped Type, 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 ~1500
PSFGH PSFGJ	8, 10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								

For Both Ends Stepped Type, 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 ~1500
PSSFGH PSSFGJ	8, 10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								

For Both Ends Stepped Type, subtract the relevant charge from the prices above.