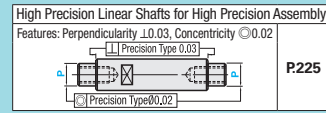


Shafts

Both Ends Stepped and Tapped with Wrench Flats



For High Precision Linear Shafts with high perpendicular precision of the shaft end ($\perp 0.03$), see **P.225**. For Shafts w/o Wrench Flats, see **P.157**.

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

Type		Material	Hardness	Surface Treatment
SFPFH	SFHU	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening	-
SSFPFH	SSFHU	SUS440C or 13Cr stainless	P142	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 5µ or More
PSFPFH	PSFHU	SUJ2 Equivalent	58HRC	Low Temp. Black Chrome Plating
PSSFPFH	PSSFHU	SUS440C or 13Cr stainless	56HRC	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 10µ or More
RSFPFH	RSFHU	SUJ2 Equivalent	-	-
-	-	PFPFGH	S45C Equivalent	-
-	-	PSFPGH	SUS304	-

For plated products, the surface roughness of D part is $\sqrt{0.4}$; and for unplated products, it is $\sqrt{0.6}$.

RoHS10

Annealing required for wrench flats machining and shaft end threading (thread effective length + approx. 10mm) may lower hardness. **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	1mm Increments				M (Coarse) Selection				Wrench Flats Dimensions		R	C
	D	L	F, T	P	W	Y	SC	Max.				
(D Tol. g6)	8	25-996		6	3	7	8	800	0.3 or Less	0.5 or Less		
(D Tol. h5)	10	25-996		6-8	3 4 5	8	8	800				
SFPFH	12	25-1196		6-10	3 4 5 6	10	10	1000				
SSFPFH	13	25-1196		6-11	3 4 5 6 8	11	11	1000				
PSFPFH	15	25-1196		6-13	3 4 5 6 8 10	13	13	1000				
PSSFPFH	16	25-1196		6-14	3 4 5 6 8 10	14	10	1200				
RSFPFH (D≤30, L≤500)	18	25-1196		8-16	4 5 6 8 10 12	16	16	1200				
(D Tol. f8)	20	25-1196		8-17	4 5 6 8 10 12	17	17	1200				
PFPFGH	25	25-1196		8-22	4 5 6 8 10 12 16	22	22	1200				
PSFPGH	30	25-1496		9-27	5 6 8 10 12 16 20 24	27	27	1500				
	35	25-1496		9-32	5 6 8 10 12 16 20 24	32	30	1500				
	40	25-1496		11-37	6 8 10 12 16 20 24 30	37	36	1500				
	50	25-1496		11-47	6 8 10 12 16 20 24 30	47	41	1500				

P dimensions require $M+3 \leq P$. (Y) dimensions require $Mx4 \leq Y$. Tap pilot holes may go through and the effective length of the smaller tap part may be shortened.

Ordering Example: Part Number - L - F - P - M - T - SC
 SFPFH20 - 300 - F25 - P16 - M10 - T20 - SC10
 SFHU20 - 400 - F25 - P16 - M10 - T20 - SC10

Alterations: Part Number - L - F - P - M - T - SC - (LKC, MD, ND...etc.)
 SFPFH20 - 400 - F25 - P16 - M10 - T20 - SC10 - 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
	SX	Second Set of Wrench Flats Ordering Code: SX15 SX = 1mm Increment SC + SX + L1 × 2 < L SX ≥ 0 Orientation between two set screw flats is not coplanar.
	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.
	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.

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.
	KC	Keyway Ordering Code: KC10-G10 WKC10-C8-KC10-G10 Application Notes: Only applicable to D = 12, 16, 20, 25 and 30.
	WKC	Keyways at Two Locations: WKC Application Notes: Only applicable to D = 12, 16, 20, 25 and 30.
	MD	Change the effective tap depth to M(N)x3. Ordering Code: MD6 (M is changed to MD, N is changed to ND) Application Notes: Only applicable to D = 12 ~ 30 and M (N) = 6 ~ 20
	ND	Both Ends Stepped and Tapped: MDx3.5 + 4 + NDx3.5 + 4 < L
	LFC	Set Screw Flat at Step Parts Ordering Code: LFC10-A0 RFC10-E0 Application Notes: Only applicable to D = 12 ~ 30 and M (N) = 6 ~ 20
	RFC	Set Screw Flats at Step Parts Ordering Code: RFC10-E0 Application Notes: Only applicable to D = 12 ~ 30 and M (N) = 6 ~ 20

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	L51	L101	L151	L201	L251	L301	L351	L401	L451	L501	L551	L601	L651	L701	L751	L801	L851	L901	L951	L1001	L1101	L1201	L1301	L1401	
SFPFH	8																										
	10																										
	12																										
	13																										
	15																										
	16																										
	18																										
	20																										
	25																										
	30																										
SSFPFH	8																										
	10																										
	12																										
	13																										
	15																										
	16																										
	18																										
	20																										
	25																										
	30																										
PSFPFH	8																										
	10																										
	12																										
	13																										
	15																										
	16																										
	18																										
	20																										
	25																										
	30																										
PSSFPFH	8																										
	10																										
	12																										
	13																										
	15																										
	16																										
	18																										
	20																										
	25																										
	30																										

For D tolerance h5, add the relevant surcharge to the prices above.

Part Number Type	D	Unit Price						
		Min. L	L51	L101	L151	L201	L301	L401
RSFPFH	8							
	10							
	12							
	13							
	15							
	16							
PFPFGH	25							
	30							
	35							
	40							
	50							

Part Number Type	D	Unit Price						
		Min. L	L101	L201	L401	L601	L801	L1001
PSFPGH	8, 10							
	12, 13							
	15, 16							
	18, 20							
	25							