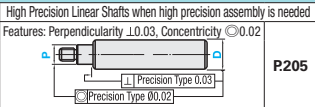


Shafts

One End Stepped and Threaded / Both Ends Stepped and Threaded



For High Precision Linear Shafts with high perpendicular precision of the shaft end ($\perp 0.03$), see P.205.

RoHS10

⚡ Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm).

⚡ P.112

⚡ L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.111

⚡ Features of LTBC Plating P.128

Type						Material	Hardness	Surface Treatment
One End Stepped and Threaded		Both Ends Stepped and Threaded		D Tol. f8				
D Tol. g6	D Tol. h5	D Tol. g6	D Tol. h5		D Tol. f8			
SFAF	SFUF	-	SFAF	SFUF	-	EN 1.3505 Equiv.	-	
SSFAF	SSFUF	-	SSFAF	SSFUF	-	EN 1.4037 Equiv.	-	
PSFAF	PSFUF	-	PSFAF	PSFUF	-	EN 1.3505 Equiv.	Effective Hardened	
PSSFAF	PSSFUF	-	PSSFAF	PSSFUF	-	EN 1.4037 Equiv.	Depth of Induction Hardening P.112	
RSFAF	-	-	RSFAF	-	-	EN 1.3505 Equiv.	Hard Chrome Plating Plating Hardness: H750 ~ Plating Thickness: 5μ or More ~ LTBC Plating	
-	-	PSFGF	-	-	PSFGX	EN 1.1191 Equiv.	-	
-	-	PSSFGF	-	-	PSSFGX	EN 1.4301 Equiv.	Hard Chrome Plating Plating Hardness: H750 ~ Plating Thickness: 10μ or More ~	

One End Stepped and Threaded

Both Ends Stepped and Threaded

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

Part Number	Type	D	L	F, T	B, S	P, Q	M (Coarse), N (Coarse) Selection	(Y) Max.	R	C
One End Stepped and Threaded	Both Ends Stepped and Threaded	8	25~790				6	800		
(D Tolerance g6) (D Tolerance h5)	(D Tolerance g6) (D Tolerance h5)	10	25~790				6 8	800		
SFAF	SFUF	12	25~990				6 8 10	1000		
SSFAF	SSFUF	13	25~990				6 8 10	1000		
PSFAF	PSFUF	15	25~990	10≤F≤Px5			6 8 10 12	1000		
PSSFAF	PSSFUF	16	25~1190	10≤T≤Qx5			6 8 10 12	1200		
RSFAF	-	18	25~1190		Pitchx3+(g)≤B≤Mx3	M<P<D	6 8 10 12 16	1200		
(D≤30, L≤500)	(D≤30, L≤500)	20	25~1190		Pitchx3+(g)≤S≤Nx3	N<Q<D	6 8 10 12 16	1200		
(D Tolerance f8)	(D Tolerance f8)	25	25~1190				8 10 12 16 20	1200		
PSFGF	PSFGX	30	25~1490				8 10 12 16 20 24	1500		
PSSFGF	PSSFGX	35	25~1480	20≤F≤Px5			10 12 16 20 24 30	1500		
* For RSFAF and RSFAX, L≤500 and Ymax≤800.		40	25~1480	20≤T≤Qx5			12 16 20 24 30	1500		
		50	25~1480				16 20 24 30	1500		

F-B(T-S)≥2 is required.

Ordering Example: SFAF20 - 400 - F30 - B20 - P10 - M8 - T20 - S15 - Q10 - N8

Alterations: SFAF30 - 300 - F40 - B30 - P20 - M16 - T50 - S30 - Q16 - N10 - LKC

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code: LKC ⚡ Not applicable when D-P(Q)≤2. 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
	SC	Wrench Flats at One Location Ordering Code: SC5 SC=1mm Increment ⚡ SC+ℓ1≤L SC≥0 ⚡ Not available in combination with WSC.
	WSC	Wrench Flats at Two Locations Ordering Code: WSC12-X8 WSC, X=1mm Increment ⚡ WSC(X)≥0 ⚡ WSC(X)≥0 ⚡ Orientation between wrench flats is not coplanar. ⚡ Not available in combination with SC. ⚡ Not applicable to One End Stepped and Threaded.
	FC	Set Screw Flat at One Location Ordering Code: FC10-E8 FC, E=1mm Increment ⚡ FC≤3xD ⚡ When 1.5xD<FC, FC≤L/2 ⚡ E=0 or E≥2 ⚡ Not available in combination with WFC. ⚡ Not applicable to Both Ends Stepped and Threaded.
	WFC	Set Screw Flats at Two Locations Ordering Code: WFC10-A8-E20 WFC, A, E=1mm Increment ⚡ WFC≤3xD ⚡ When 1.5xD<WFC, 2WFC≤L/2 ⚡ A(E)=0 or A(E)≥2 ⚡ Orientation between set screw flats is not coplanar. Not available in combination with FC. ⚡ Not applicable to Both Ends Stepped and Threaded.

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.
	MMC, MMS, NMC, NMS	Change to Fine Thread Ordering Code: MMC14 (M is changed to MMC) MMS14 (M is changed to MMS) NMC14 (N is changed to NMC) NMS14 (N is changed to NMS) Keyway is added at one location. Ordering Code: KC10-G10 Application Notes: Only applicable to D=12, 16, 20, 25 and 30. ⚡ Not applicable to Both Ends Stepped and Threaded.
	KC	

⚡ Please see Shaft Alteration Overview for details if provided. P.113

⚡ When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm.

⚡ Alterations may lower hardness. See P.112

Undercut Dimensions for Fine Threads ①				Undercut Dimensions for Fine Threads ②			
MMC	Pitch	MC	(g)	MMS	Pitch	MC	(g)
6	0.75	4.8		10	1.25	8	
8		6.4		12		9.7	
10		8.4		14	1.5	11.7	3
12	1.0	10.4		16		15.7	
15		13.4					
17		15.4					
20		18.4					
25	1.5	22.7					
30		27.7					

Part Number	Type	D	Min. L	L51	L101	L151	L201	L301	L401	L501	L601	L801	L1001	L1201
SFAF	SFUF	8	50	100	150	200	300	400	500	600	800	1000	1200	1480
		10												
		12												
		13												
		15												
		16												
		18												
		20												
		25												
		30												
		35												
		40												
		50												

Part Number	Type	D	Min. L	L51	L101	L151	L201	L301	L401	L501	L601	L801	L1001	L1201
SFAF	SFUF	8	50	100	150	200	300	400	500	600	800	1000	1200	1480
		10												
		12												
		13												
		15												
		16												
		18												
		20												
		25												
		30												
		35												
		40												
		50												

Part Number	Type	D	Min. L	L101	L201	L401	L601	L801	L1001	L1201
PSFGF	PSFGX	8	100	200	400	600	800	1000	1200	1490
		10								
		12								
		13								
		15, 16								
		18, 20								
		25								
		30								
		35								
		40								
		50								

Part Number	Type	D	Min. L	L51	L101	L151	L201	L301	L401	L501	L601	L801	L1001	L1201
PSFAF	PSFUF	8	50	100	150	200	300	400	500	600	800	1000	1200	1480
		10												
		12												
		13												
		15												
		16												
		18												
		20												
		25												
		30												
		35												
		40												
		50												

Part Number	Type	D	Min. L	L51	L101	L151	L201	L301	L401	L501	L601	L801	L1001	L1201
PSFAF	PSFUF	8	50	100	150	200	300	400	500	600	800	1000	1200	1480
		10												
		12												
		13												
		15												
		16												
		18												
		20												
		25												
		30												
		35												
		40												
		50												

Part Number	Type	D	Min. L	L101	L201	L401	L601	L801	L1001	L1201
PSFGF	PSFGX	8	100	200	400	600	800	1000	1200	1490
		10								
		12								
		13								
		15, 16								
		18, 20								
		25								
		30								
		35								
		40								
		50								

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

