

Shafts

One End Threaded with Undercut

High Precision Linear Shafts for High Precision Assembly
Features: Perpendicularity \perp 0.03

P.243

For High Precision Linear Shafts with high perpendicular precision of the shaft end (\perp 0.03), see **P.243**. For Shafts With Wrench Flats, see **P.197**.

RoHS 10

- ⚠ 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			Material	Hardness	Surface Treatment	D Tol.			
D Tol. g6	D Tol. h5	D Tol. f8				g6	h5	f8	
SAFN	SFNU	-	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening P.142 SUJ2 Equivalent 58HRC- SUS440C or 13Cr stainless 56HRC-	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 5µ or More Low Temp. Black Chrome Plating	8	-0.005	0	-0.013
SSAFN	SSFNU	-	10			-0.014	-0.006	-0.035	
PSAFN	PSFNU	-	13			-0.006	0	-0.016	
PSSAFN	PSSFNU	-	15			-0.017	-0.008	-0.043	
RSAFN	-	-	SUJ2 Equivalent	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 10µ or More	16	-	-	-	
-	-	PSAGN	S45C Equivalent		20	-0.007	0	-0.020	
-	-	PSSAGN	SUS304		25	-0.020	-0.009	-0.053	
-	-	-	-		30	-	-	-	
-	-	-	-	35	-0.009	0	-0.025		
-	-	-	-	40	-0.025	-0.011	-0.064		
-	-	-	-	50	-	-	-		

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

$6.3 / (1.6 / 0.4 / 0.4 / 0.4 / 0.4)$

Part Number	1mm Increments			Selection		(Y) Max.	C
	Type	D	L	F	M (Coarse)		
(D Tol. g6) SAFN (D Tol. h5) SFNU	8	25~	995	5 ≤ F ≤ Mx3	6	800	0.5 or Less
	10	25~	995		6 8	800	
	12	25~	1195		6 8 10	1000	
	13	25~	1195		6 8 10 12	1000	
	15	25~	1195		6 8 10 12	1000	
	16	25~	1195		6 8 10 12	1200	
	18	25~	1195		6 8 10 12 16	1200	
	20	25~	1195		6 8 10 12 16	1200	
	25	25~	1195		8 10 12 16 20 24	1200	
	30	25~	1495		8 10 12 16 20 24	1500	
(D Tol. f8) PSAGN PSSAGN	35	25~	1495	10 12 16 20 24 30	1500	1.0 or Less	
	40	25~	1495	12 16 20 24 30	1500		
	50	25~	1495	16 20 24 30	1500		

Coarse Thread Undercut Dimensions

M	Pitch	MC	(g)
6	1.0	4.4	2
8	1.25	6.0	3
10	1.5	7.7	
12	1.75	9.4	4
16	2.0	13.0	
20	2.5	16.4	5
24	3.0	19.6	
30	3.5	25.0	

Ordering Example: Part Number - L - F - M
SAFN13 - 200 - F20 - M10
SAFN13 - 800 - F23 - M10

Alterations: Part Number - L - F - M(MMC, MMS) - (LKC-etc.)
SAFN30 - 250 - F20 - M10 - LKC

Alteration Details **P.143**

Alterations	Code	Spec.								
	LKC	Alteration to L dimension tolerance (Ordering Code) LKC (Application Notes) 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. <table border="1"> <tr><th>D</th><th>h</th></tr> <tr><td>8-18</td><td>1</td></tr> <tr><td>20-40</td><td>2</td></tr> <tr><td>50</td><td>3</td></tr> </table>	D	h	8-18	1	20-40	2	50	3
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. <table border="1"> <tr><th>D</th><th>h</th></tr> <tr><td>8-18</td><td>1</td></tr> <tr><td>20-40</td><td>2</td></tr> <tr><td>50</td><td>3</td></tr> </table>	D	h	8-18	1	20-40	2	50	3
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.
	MMC MMS	Change to Fine Thread (Ordering Code) MMC14 (M is changed to MMC) MMS14 (M is changed to MSC)
	KC	Add keyway at one location. (Ordering Code) KC10-G10 (Application Notes) Only applicable to D=12, 16, 20, 25 and 30.

⚠ 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**