Shafts

Standard & Precision Type / One End Threaded with Undercut

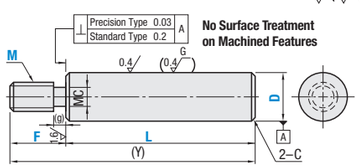
Shafts – Standard & Precision Type / One End Threaded with Undercut



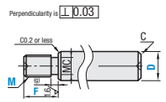
RoHS10

- Annealing may lower hardness at wrench flats, cross-drilled hole and shaft end machined areas (effective thread length + approx. 10 mm). **P.199**
- Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.198**.
- Features of Low Temp. Black Chrome Plating **P.213**.
- For Shafts with wrench flats, **P.226**.

Type				Material	Hardness	Surface Treatment
Precision Type	Standard					
D Tol. g6	D Tol. g6	D Tol. h5	D Tol. f8			
VAFN	SAFN	SFNU	—	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened **P.199** 52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	—
VSAFN	SSAFN	SSFNU	—	SUS440C (13Cr) Stainless Steel Equivalent		
VPAFN	PSAFN	PSFNU	—	52100 Bearing Steel Equivalent		Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 5 µ or More
VPSAFN	PSSAFN	PSSFNU	—	SUS440C (13Cr) Stainless Steel Equivalent		
VRFN	RSAFN	—	—	52100 Bearing Steel Equivalent		Low Temperature Black Chrome Plating
—	—	—	PSAGN	1045 Carbon Steel Equivalent	—	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 10 µ or More
—	—	—	PSSAGN	304 Stainless Steel		



Features of Precision Shafts



- Precision shafts have centering holes at the ends.

D Tolerance			
D	g6	h5	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			

Part Number		1 mm Increment		Selection	(Y) Max.	C
Type	D	L	F	M (Coarse Thread)		
Precision Type Shafts with Wrench Flats D Tolerance g6 VAFN VSAFN VPAFN VPSAFN VRFN	8	25–295	5≤F≤Mx3 ! F-(g)≥Pitchx3	6	300	0.5 or Less
	10	25–345		6 8	300	
	12	25–345		6 8 10	350	
	13	25–345		6 8 10	350	
	15	25–345		6 8 10 12	350	
	16	25–345		6 8 10 12	350	
	18	25–345		6 8 10 12 16	350	
	20	25–445		6 8 10 12 16	450	1.0 or Less
	25	25–445		8 10 12 16 20	450	
	30	25–445		8 10 12 16 20 24	450	

! Shaft ends may have centering holes.

Coarse Thread Undercut Dimensions			
M	Pitch	MC	(g)
6	1.0	4.4 (4.2)	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	

MC dimensions in ( ) are for Precision Type M6 (Coarse).

Part Number			1 mm Increment		Selection	(Y) Max.	C
Type		D	L	F	M (Coarse Thread)		
Standard Type D Tolerance g6 SAFN SSAFN PSAFN PSSAFN RSAFN D≤30, L≤500 D Tolerance f8 PSAGN PSSAGN	D Tolerance h5 SFNU SSFNU PSFNU PSSFNU	8	25–1095	5≤F≤Mx3 ! F-(g)≥Pitchx3	(5) 6	1100	0.5 or Less
		10	25–1195		(5) 6 8	1200	
		12	25–1395		(5) 6 8 10	1400	
		13	25–1395		(5) 6 8 10	1400	
		15	25–1395		(5) 6 8 10 12	1400	
		16	25–1395		(5) 6 8 10 12	1400	
		18	25–1395		(5) 6 8 10 12	1400	
		20	25–1395		(5) 6 8 10 12 16	1400	1.0 or Less
		25	25–1395		(5) (6) 8 10 12 16 20 24	1400	
		30	25–1495		(6) 8 10 12 16 20 24	1500	
		35	25–1495		10 12 16 20 24 30	1500	
		40	25–1495		12 16 20 24 30	1500	
		50	25–1495		16 20 24 30	1500	

! M( ) dimensions are applicable only for D diameter tolerance with g6.

Shafts

Standard & Precision Type / One End Threaded with Undercut, *continued*

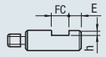
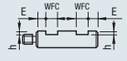
Part Number Example

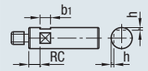
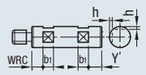
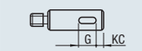
Part Number	-	L	-	F	-	M
VAFN13	-	200	-	F20	-	M10
SAFN13	-	800	-	F23	-	M10

Part Number Alterations

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

Alteration Details **P.200**

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance **Ordering Code:** LKC **Application Notes:** Applicable when L=200 or less to precision type. L dimensions can be specified in 0.1 increment for LKC. ! L<200 →L±0.03 200≤L<500 →L±0.05 L≥500 →L±0.1 ⊗ Not applicable when D-M≤2
	FC	Set Screw Flat at One Location **Ordering Code:** FC10-E8 **Application Notes:** ⊗ Not applicable to precision shafts. FC, E = 1 mm increment ! FC≤3xD ! When 1.5xD<FC, FC≤L/2 ! E=0 or E≥2 ⊗ Not available in combination with WFC D: 8–18 h: 1; 20–40: 2; 50: 3
	WFC	Set Screw Flats at Two Locations **Ordering Code:** WFC8-A8-E4 **Application Notes:** ⊗ Not applicable to precision shafts. WFC, A, E = 1 mm increment ! WFC≤3xD ! When 1.5xD<FC, 2WFC≤L/2 ! A (E)=0 or A (E)≥2 ⊗ Orientation between set screw flats is random. Not available in combination with FC. D: 8–18 h: 1; 20–40: 2; 50: 3

Alterations	Code	Spec.
	RC	90° Set Screw Flat at One Location **Ordering Code:** RC10 **Application Notes:** Applicable to D=10–30 ⊗ Not applicable to precision shafts. ⊗ Not available in combination with WRC ! For details, see Shaft Alteration Overview **P.200**.
	WRC	90° Set Screw Flats at Two Locations **Ordering Code:** WRC10-Y10 **Application Notes:** Applicable for D=10–30 ⊗ Not applicable to precision shafts. ⊗ Not available in combination with RC. ⊗ Orientation between set screw features is random. ! For details, see Shaft Alteration Overview **P.200**.
	MMC MMS	Change to Fine Thread **Ordering Code:** MMC14 (M is changed to MMC) MMS14 (M is changed to MSC) ! For details, see Shaft Alteration Overview **P.200**.
	KC	Add keyway at one location. **Ordering Code:** KC10-G10 **Application Notes:** Applicable only to D=12, 16, 20, 25 or 30. ⊗ Not applicable to precision shafts. ! For details, see Shaft Alteration Overview **P.200**.

! Please see Shaft Alteration Overview for details if provided. **P.200**
! When selecting multiple alteration additions, the distance between machined areas should be greater than 2 mm. **P.201**
! Alterations may lower hardness. **P.199**