

High Precision Linear Shafts

One End Threaded with Undercut / Wrench Flats

■ Suitable for assemblies of parts requiring high precision and high perpendicular precision of the shaft end ($\perp 0.03$).

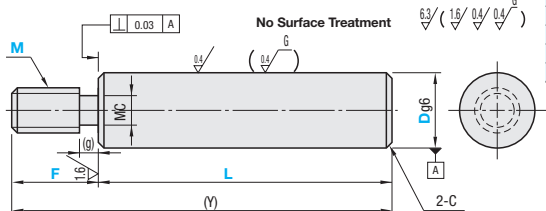


RoHS10

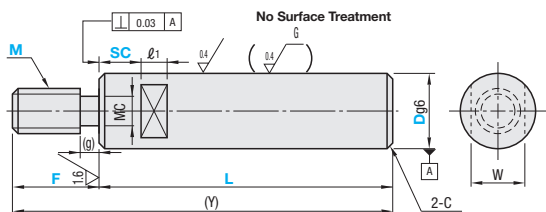
- ⚠ Annealing may lower hardness at wrench flats, cross-drilled hole and shaft end machined areas (effective thread length + approx. 10mm). **P.112**
- ⚠ Cross-drilled hole areas may be out of O.D. tolerances due to annealing-induced deformation.
- ⚠ L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.111**
- ⚠ Features of LTBC Plating **P.128**

Type		D Tol.	Material	Hardness	Surface Treatment	D Tol.	
W/o Wrench Flats	With Wrench Flats					D	g6
VAFN	VAFS	g6	EN 1.3505 Equiv.	Effective Hardened Depth of Induction Hardening $\approx$ P.112	Hard Chrome Plating Plating Hardness HV750 ~ Plating Thickness: 5µ or More LTBC Plating	8	-0.005
VSAFN	VSAFS		EN 1.4037 Equiv.			10	-0.014
VPAFN	VPAFS		EN 1.3505 Equiv.			12	
VPSAFN	VPSAFS		EN 1.4037 Equiv.			13	-0.006
VRFN	VRFS		EN 1.3505 Equiv.			15	-0.017
						16	
						18	
						20	-0.007
						25	-0.020
						30	

W/o Wrench Flats



With Wrench Flats



Part Number		1mm Increment		Selection	Wrench Flats Dimensions			(Y)	C	Coarse Thread Details			
Type	D	L	F	M (Coarse)	SC	W	ℓ ₁	Max.		M	Pitch	MC	Undercut (g)
(W/o Wrench Flats) (With Wrench Flats)	8	25~295	5≤F≤Mx3	6	SC=1mm Increment	7	8	300	0.5 or Less	6	1.0	4.2	2
	10	25~345		6 8		8		350		8	1.25	6.0	3
	12	25~345		6 8 10		10		350		10	1.5	7.7	
	13	25~345		6 8 10		11		350		12	1.75	9.4	4
VAFN VAFS	15	25~345		6 8 10 12		13		350		14	2.0	13.0	
VSAFN VSAFS	16	25~345	6 8 10 12	14	10 350	16	2.5	16.4					
VPAFN VPAFS	18	25~345	6 8 10 12 16	16	17	450	20	3.0		19.6			
VPSAFN VPSAFS	20	25~445	6 8 10 12 16	17	22	450	24						
VRFN VRFS	25	25~445	8 10 12 16 20	22	Details of Wrench Flats P.112	27	15	450					
	30	25~445	8 10 12 16 20 24	27		15	450						

⚠ Shaft ends may have centering holes.

Ordering Example
VAFS13 - 200 - F20 - M10 - SC10

Alterations
VAFS30 - 250 - F20 - M10 - SC20 - LKC

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance (Ordering Code) LKC (Application Notes) Applicable when L=200 or less. L dimensions can be specified in 0.1mm increment for LKC. ⚠ L<200 → L±0.03 ⚠ Not applicable when D-M≤2.
	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.
	WFC	Set Screw Flats at Two Locations (Ordering Code) WFC8-A8-E4 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.

Alterations	Code	Spec.
	SX	Second Set of Wrench Flats (Ordering Code) SX15 (Application Notes) Only applicable to Shafts with Wrench Flats. SX=1mm increment ⚠ SC+SX+ℓ1x2<L ⚠ SX≥0 ⚠ 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 MMS) P.113

- ⚠ 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. **P.114**
- ⚠ Alterations may lower hardness. See **P.112**

Part Number		Unit Price				
Type	D	Min. L ~ 50	L51~100	L101~200	L201~300	L301~445
VAFN	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSAFN	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPAFN	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSAFN	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRFN	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					

Part Number		Unit Price				
Type	D	Min. L ~ 50	L51~100	L101~200	L201~300	L301~445
VAFS	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSAFS	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPAFS	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSAFS	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRFS	8					-
	10					
	12					
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	18					
	20					
	25					
	30					