

High Precision Linear Shafts

Both Ends Threaded with Undercuts / Both Ends Threaded with Undercuts and Wrench Flats

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



RoHS10

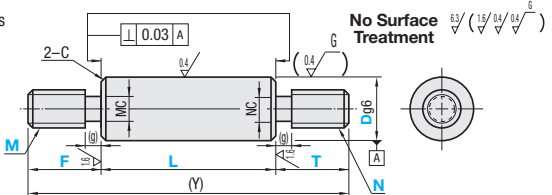
⚠ Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). **P.112**

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

⚠ Features of LTBC Plating **P.128**

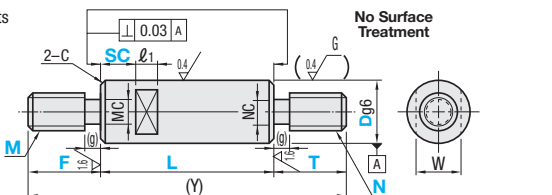
Type	D Tol.	Material	Hardness	Surface Treatment
W/o Wrench Flats				
With Wrench Flats				
VAFM	g6	EN 1.3505 Equiv.	Effective Hardened Depth of Induction Hardening P.112	-
VSAFM		EN 1.4037 Equiv.		
VPAFM		EN 1.3505 Equiv.		Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5µ or More
VPSAFM		EN 1.4037 Equiv.	EN 1.3505 Equiv. 58HRC~ EN 1.4037 Equiv. 56HRC~	
VRFM		EN 1.3505 Equiv.		LTBC Plating

W/o Wrench Flats



No Surface Treatment

With Wrench Flats



No Surface Treatment

D Tol.	
D	g6
8	-0.005
10	-0.014
12	
13	-0.006
15	-0.017
16	
18	
20	-0.007
25	-0.020
30	

Part Number		1mm Increment		Selection		Wrench Flats Dimensions		(Y) Max.	C
Type	D	L	F, T	M, N (Coarse)	SC	W	ℓ ₁		
(W/o Wrench Flats) (With Wrench Flats)	8	25~290	5≤F≤Mx3 5≤T≤Nx3	6	SC=1mm Increment SC+ℓ ₁ ≤L SC≥0 ⚠ Details of Wrench Flats P.112	7	8	300	0.5 or Less
	10	25~340		6 8		8		350	
	12	25~340		6 8 10		10		350	
	13	25~340		6 8 10		11		350	
	15	25~340		6 8 10 12		13		350	
	16	25~340		6 8 10 12		14	10	350	
	18	25~340		6 8 10 12 16		16		350	
	20	25~440		6 8 10 12 16		17		450	
	25	25~440		8 10 12 16 20		22		450	
	30	25~440		8 10 12 16 20 24		27	15	450	
			⚠ F-(g)≥Pitchx3 ⚠ T-(g)≥Pitchx3						1.0 or Less
Coarse Thread Undercut Dimension									
M		Pitch		MC NC		(g)			
6		1.0		4.2		2			
8		1.25		6.0		3			
10		1.5		7.7		4			
12		1.75		9.4		5			
16		2.0		13.0					
20		2.5		16.4					
24		3.0		19.6					
30		3.5		25.0					

⚠ Shaft ends may have centering holes.

**Ordering Example**

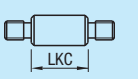
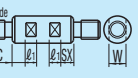
Part Number - L - F - M - T - N - SC

VAFU20 - 200 - F30 - M10 - T20 - N18 - SC8

**Alterations**

Part Number - L - F - M (MMC, MMS) - T - N (NMC, NMS) - SC - (LKC...etc.)

VAFU30 - 300 - F40 - M20 - T48 - N16 - SC20 LKC

Alterations	Code	Spec.	Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC ⚠ Not applicable when D-M(N)≤2. L dimensions can be specified in 0.1mm increment for LKC. ⚠ L≤200 → L±0.03		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.
	SX	Second Set of Wrench Flats Ordering Code SX15 Application Notes Applicable to Shafts with Wrench Flats only SX=1mm Increment ⚠ SC+SX+ℓ ₁ ×2<L ⚠ SX≥0 ⚠ 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)
	FC	Set Screw Flat at One Location Ordering Code FC10-E8 FC, A=1mm Increment ⚠ FC≤3xD ⚠ When 1.5xD<FC, FC≤L/2 ⚠ A=0 or A≥2 ⚠ Not available in combination with WFC.			

⚠ 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. **P.112**

Part Number		Unit Price				
Type	D	Min. L ~ 50	L51 ~ 100	L101~200	L201~300	L301~440
VAFM	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSAFM	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPAFM	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSAFM	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRFM	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	L301~440
VAFU	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSAFU	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPAFU	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSAFU	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRFU	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					