

High Precision Linear Shafts

One End Stepped and Tapped / One End Stepped and Tapped with Wrench Flats

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

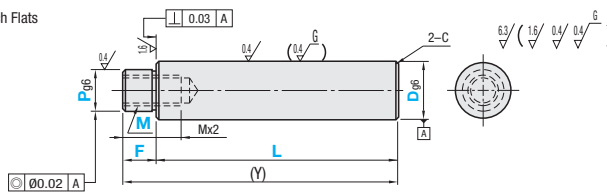


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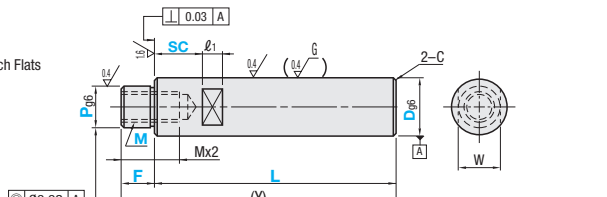
- ❗ Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). **P.112**
- ❗ Full Length Hardness Guaranteed Shafts **P.127**
- ❗ L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.111**
- ❗ Features of Low Temp. Black Chrome Plating **P.128**

Type		D Tol.	Material	Hardness	Surface Treatment
W/o Wrench Flats	With Wrench Flats				
VFAG	VFPF	g6	SUJ2	Induction Hardened Effective Hardened Depth P.112	Hard Chrome Plating Plating Hardness HV750 ~ Plating Thickness: 5μ or More
VSFAG	VSFPF				
VPFAG	VPFPF				
VPSFAG	VPSFPF				
VRAG	VRPF				
VSRAG	VSRPF				
			SUS440C Equivalent	58HRC~56HRC~	Low Temp. Black Chrome Plating

W/o Wrench Flats



With Wrench Flats



Part Number		1mm Increment				M (Coarse) Selection		Wrench Flats Dimensions			(Y) Max.	C
Type	D	L	F	P				SC	W	ℓ ₁		
(W/o Wrench Flats) (With Wrench Flats)	8	25~298		6	3				7	8	300	0.5 or Less
VFAG	10	25~348		6~8	3 4 5				8		350	
VFPF	12	25~348		6~10	3 4 5 6				10		350	
VSFAG	13	25~348		6~11	3 4 5 6 8				11		350	
VPFAG	15	25~348		6~13	3 4 5 6 8 10				13		350	
VPSFAG	16	25~348	2≤F≤Px4	6~14	3 4 5 6 8 10				14	10	350	
VRAG	18	25~348		8~16	4 5 6 8 10 12				16		350	1.0 or Less
VRPF	20	25~448		8~17	4 5 6 8 10 12				17		450	
VSRAG	25	25~448		8~22	4 5 6 8 10 12 16				22		450	
	30	25~448		9~27	5 6 8 10 12 16 20 24				27	15	450	

❗ P dimensions require M+3≤P. ❗ (Y) dimensions require Mx4≤(Y). ❗ When Mx2.5+4≥Y, tap pilot holes may go through. ❗ Shafts may have centering holes at end faces.

Ordering Example

Part Number - L - F - P - M - SC

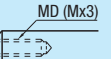
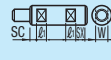
VFAG20 - 100 - F20 - P10 - M8 - SC20

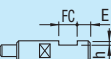
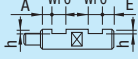
VFPF20 - 100 - F20 - P10 - M8 - SC20

Alterations

Part Number - L - F - P - M (MD) - SC (LKC--etc.)

VFAG20 - 100 - F20 - P10 - M8 - LKC

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC Application Notes Applicable when L=200 or less. ❗ Not applicable when D-P≤2. L dimensions can be specified in 0.1mm increment for LKC. ❗ L≤200 → L±0.03
	MD	Change the effective length of tapped part to Mx3. Ordering Code MD6 (M is changed to MD) Application Notes Only applicable to D=12~30, M=6~20 ❗ One End Tapped: MDx3.5+4≥L
	SX	Second Set of Wrench Flats Ordering Code SX15 Application Notes Only applicable to Shafts with Wrench Flats. SX=1mm Increment ❗ SC+SX+ℓ ₁ x2<L ❗ SX≥0 ❗ Orientation between two set screw flats is not coplanar.

Alterations	Code	Spec.
	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.

❗ 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**

Part Number		Unit Price				
Type	D	Min. L 50	L51 100	L101 200	L201 300	L301 448
VFAG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSFAG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPFAG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSFAG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRAG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSRAG	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 448
VFPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSFPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPFPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VPSFPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VRPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					
VSRPG	8					-
	10					
	12					
	13					
	15					
	16					
	18					
	20					
	25					
	30					

