High Precision Linear Shafts

Both Ends Tapped / Both Ends Tapped with Wrench Flats

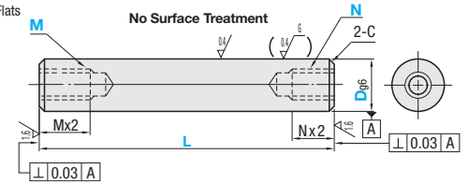
■Suitable for assemblies of parts requiring high precision and high perpendicular precision of the shaft end (⊥ 0.03).

RoHS10

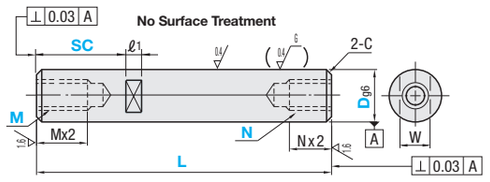
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). P.112
- Full Length Hardness Guaranteed Shafts P.127
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.111
- Features of LTBC Plating P.128

Type		D Tol.	M Material	H Hardness	S Surface Treatment
W/o Wrench Flats	With Wrench Flats				
VFJW	VFJZ	g6	EN 1.3505 Equiv.	Induction Hardened Effective Hardened Depth P.112	-
VSFJW	VSFJZ		EN 1.4037 Equiv.		
VPFJW	VPFJZ		EN 1.3505 Equiv.	EN 1.3505 Equiv. 58HRC~	Hard Chrome Plating Plating Hardness HV750 ~ Plating Thickness: 5μ or More
VPSFJW	VPSFJZ		EN 1.4037 Equiv.	EN 1.4037 Equiv. 56HRC~	
VRJW	VRJZ		EN 1.3505 Equiv.		LTBC Plating

W/o Wrench Flats



With Wrench Flats



D Tol.	
D	g6
4	-0.004 -0.012
5	
6	
8	-0.005 -0.014
10	
12	-0.006 -0.017
13	
15	
16	
18	
20	-0.007 -0.020
25	
30	

Part Number Type	D	L specified in 1mm Increment	M (Coarse), N (Coarse) Selection	Wrench Flats Dimensions SC	W	ℓ1	C
	4	25~200	2	-	-	-	0.2 or Less
	5	25~300	2.6 3				
	6	25~300	3		5	8	0.5 or Less
	8	25~300	3 4 5		7		
	10	25~350	3 4 5 6		8		
	12	25~350	4 5 6 8		10	10	
	13	25~350	4 5 6 8		11		
	15	25~350	4 5 6 8 10		13		
	16	25~350	4 5 6 8 10		14		
	18	25~350	4 5 6 8 10 12		16		
	20	30~450	4 5 6 8 10 12		17		1.0 or Less
	25	30~450	4 5 6 8 10 12 16		22		
	30	30~450	6 8 10 12 16 20		27	15	

(W/o Wrench Flats) (D4~D30): VFJW, VSFJW, VPFJW, VPSFJW, VRJW

(With Wrench Flats) (D6~30): VFJZ, VSFJZ, VPFJZ, VPSFJZ, VRJZ

SC=1mm Increment
- SC+ℓ1≤L
- SC≥0
- Details of Wrench Flats P.112

- L requires Mx2+Nx2≤L.
- When Mx2.5+4+Nx2.5+4≥L, tap pilot holes may go through.

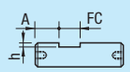
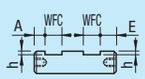
Ordering Example

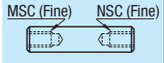
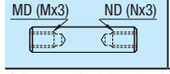
Part Number	-	L	-	M	-	N	-	SC
VFJW20	-	100	-	M8	-	N8		
VFJZ20	-	100	-	M8	-	N8	-	SC10

Alterations

Part Number	-	L	-	M (MSC, MD)	-	N (NSC, ND)	-	SC	-	(LKC···etc.)
VFJW20	-	100	-	M8	-	N8			-	LKC
VFJZ20	-	100	-	M8	-	N8	-	SC10	-	FC10-A8

Alteration Details P.113

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
	FC	Set Screw Flat at One Location Ordering Code FC10-A8 FC, A=1mm Increment FC≤3xD When 1.5xD<FC, FC≤L/2 E=0 or A≥2 Not available in combination with WFC. D: 6~18 → h: 1; 20~30 → h: 2
	WFC	Set Screw Flats at Two Locations Ordering Code WFC8-A8-E2 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. D: 6~18 → h: 1; 20~30 → h: 2

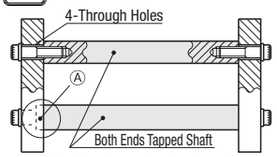
Alterations	Code	Spec.
	SX	Second Set of Wrench Flats Ordering Code SX15 Application Notes Applicable to D=6 or more SX=1mm Increment SC+SX+ℓ1x2<L SX≥0 Orientation between two set screw flats is not coplanar. D: 6~8 → W: 5, ℓ1: 8; 10~12 → W: 7, ℓ1: 10; 13~16 → W: 10, ℓ1: 10; 18~30 → W: 13, ℓ1: 10
	MSC NSC	Change to Fine Tapped Thread Ordering Code MSC14 (M is changed to MSC) NSC14 (N is changed to NSC) Application Notes Applicable to D=12 or more For details, see Shaft Alteration Guide. P.113
	MD ND	Change the effective tap depth to M(N)x3. Ordering Code MD6/ND6 (M is changed to MD, N is changed to ND) Application Notes Only applicable to D=10~30, M(N)=6~20 One End Tapped: MDx3.5+4≥L Both Ends Tapped: MDx3.5+4+NDx3.5+4≥L

- 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 Type	D	Unit Price Min. L 50	L51 100	L101 200	L201 300	L301 450
VFJW	4				-	-
	5					-
	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VSFJW	4				-	-
	5					-
	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VPFJW	4				-	-
	5					-
	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VPSFJW	4				-	-
	5					-
	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VRJW	4				-	-
	5					-
	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					

Part Number Type	D	Unit Price Min. L 50	L51 100	L101 200	L201 300	L301 450
VFJZ	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VSFJZ	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VPFJZ	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VPSFJZ	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					
VRJZ	6					-
	8					-
	10					
	12					
	13					
	15, 16					
	18					
	20					
	25					
	30					

Example



•Precision Type does not require stepped machining as Ⓐ, which enables effective assembly.