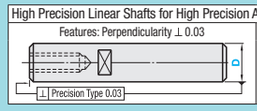
Shafts

One End Tapped with Wrench Flats / Cross-Drilled Hole

High Precision Linear Shafts for High Precision Assembly
Features: Perpendicularity ⊥ 0.03



P.223

For products uncovered by the e-Catalog Standards, see P.131.

For High Precision Linear Shafts with high perpendicular precision of the shaft end (⊥ 0.03), see P.223. For Shafts w/o Wrench Flats or Cross-Drilled Hole, see P.151.

RoHS10

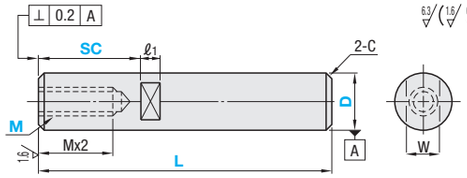
- Annealing may lower hardness at wrench flats, cross-drilled hole and shaft end machined areas (effective thread length + approx. 10mm). P.142
- Cross-drilled hole areas may be out of O.D. tolerances due to annealing-induced deformation.
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness P.141
- Features of Low Temp. Black Chrome Plating P.156

Type: With Wrench Flats D Tol. g6	With Wrench Flats D Tol. h5	With Wrench Flats D Tol. f8	With Cross-Drilled Hole D Tol. g6	With Cross-Drilled Hole D Tol. f8	Material	Hardness	Surface Treatment
SFJC	SFUC	-	SFHC	-	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening P.142 SUJ2 Equivalent 58HRC~ SUS440C or 13Cr stainless 56HRC~	-
SSFJC	SSFUC	-	SSFHC	-	SUS440C or 13Cr stainless		Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 5μ or More
PSFJC	PSFUC	-	PSFHC	-	SUJ2 Equivalent		Low Temp. Black Chrome Plating
PSSFJC	PSSFUC	-	PSSFHC	-	SUS440C or 13Cr stainless		
RSFJC	-	-	RSFHC	-	SUJ2 Equivalent		
-	-	PSFGC	-	PSGHC	S45C Equivalent	-	Hard Chrome Plating - Plating Hardness: HV750 ~, Plating Thickness: 10μ or More
-	-	PSSFGC	-	-	SUS304		

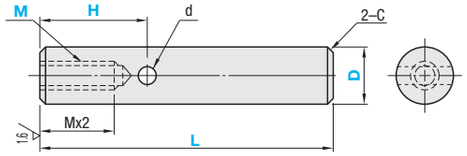
For plated products, the surface roughness of D part is 0.4/ and for unplated products, it is 0.4/6.

D	D Tol. g6	D Tol. h5	D Tol. f8
6	-0.004 -0.012	0 -0.005	-0.010 -0.028
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			

With Wrench Flats



With Cross-Drilled Hole
(8≤D≤30,L≤500)



Part Number Type	D	L specified in 1mm Increments	M (Coarse) Selection
(With Wrench Flats) (With Cross-Drilled Hole) 8≤D≤30,L≤500 (D Tol. g6) SFJC, SSFJC, PSFJC, PSSFJC, RSFJC (D≤30,L≤500) (D Tol. h5) SFUC, SSFUC, PSFUC, PSSFUC (D Tol. g6) SFHC, SSFHC, PSFHC, PSSFHC, RSFHC (D Tol. f8) PSFGC, PSSFGC (D Tol. f8) PSGHC 8≤D≤30 and L≤500 are applicable for Shafts with Cross-Drilled Hole.	6	20~ 800	3
	8	20~1000	3 4 5
	10	20~1000	3 4 5 6
	12	20~1200	4 5 6 8
	13	25~1200	4 5 6 8
	15	25~1200	4 5 6 8 10
	16	30~1200	4 5 6 8 10
	18	30~1200	4 5 6 8 10 12
	20	30~1200	4 5 6 8 10 12
	25	35~1200	4 5 6 8 10 12 16
	30	35~1500	6 8 10 12 16 20
	35	35~1500	8 10 12 16 20 24
	40	50~1500	10 12 16 20 24 30
	50	65~1500	12 16 20 24 30

Wrench Flats Dimensions SC	W	ℓ1	Cross-Drilled Hole Dimensions H	d	C
SC = 1mm Increment SC+ℓ1≤L SC≥0 For Details of Wrench Flats, see P.142.	5	8	-	-	0.5 or Less
	7		H=1mm Increment L≥H+d/2+2 H≥Mx2.5+d/2+6	3	
	8				
	10	10		4	
	11				
	13				
	14			6	
	16				
	17			7	1.0 or Less
	22				
	27	15			
	30		-	-	
	36	20			
	41				

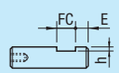
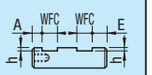
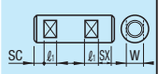
When Mx2.5+4≥L, tap pilot holes may go through.

Ordering Example

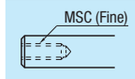
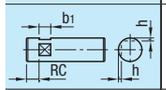
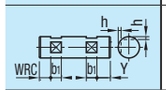
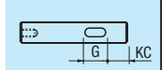
Part Number	-	L	-	M	-	SC	-	H
SFJC10	-	200	-	M5	-	SC6		
SFHC20	-	425	-	M8			-	H20

Alterations

Part Number	-	L	-	M(MSC, MD)	-	SC	-	H	-	(LKC···etc.)
SFJC30	-	250	-	M12	-	SC10			-	LKC

Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC L dimensions can be specified in 0.1mm increment for LKC. L<200 ···L±0.03 200≤L<500 ···L±0.05 L≥500 ···L±0.1
	FC	Set Screw Flat at One Location Ordering Code FC10-E8 FC, E=1mm Increment D≤30:FC≤5xD, D≥35:FC≥3xD E=0 or E≥2 Not available in combination with WFC. D: 6~18 h: 1; 20~40 h: 2; 50 h: 3
	WFC	Set Screw Flats at Two Locations Ordering Code WFC8-A8-E2 WFC, A, E=1mm Increment D≤30:WFC≤5xD, D≥35:WFC≥3xD 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; 20~40 h: 2; 50 h: 3
	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. D W ℓ1: 6 5; 8 7 8; 10 8; 12 10; 13 11 10; 15 13; 16 14 D W ℓ1: 18 16 10; 20 17; 25 22; 30 27 15; 35 30; 40 36 20; 50 41

Alteration Details P.143

Alterations	Code	Spec.
	MSC	Change to Fine Tapped Thread Ordering Code MSC14 (M is changed to MSC) Application Notes Applicable to D=12 or more
	RC	90-deg. Set Screw Flat at One Location Ordering Code RC10 Application Notes Only applicable to D=10 ~ 30. Not available in combination with WRC.
	WRC	90-deg. Set Screw Flats at Two Locations Ordering Code WRC10-Y10 Application Notes Only applicable to D=10 ~ 30. Not available in combination with RC. Orientation between two set screw flats is not coplanar.
	KC	Add keyway at one location. Ordering Code KC10-G10 Application Notes Only applicable to D=12, 16, 20, 25 and 30. This Alteration cannot be applied to any tapped thread (Mx2.5+4).
	MD	Change the effective length of tapped part to Mx3. Ordering Code MD6 (M is changed to MD) Application Notes Only applicable to D=10~30 and M=6~20 One End Tapped: MDx3.5+4≤L Not available in combination with KC.

For details, see Shaft Alteration Overview. P.143

Please see Shaft Alteration Overview for details if provided. P.143
When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm.
The distance between wrench flats and cross-drilled holes should be greater than 2mm for alterations.
Alterations may lower hardness. See P.142.

Part Number Type	D	Unit Price Min. L ~50	L51 ~100	L101 ~150	L151 ~200	L201 ~250	L251 ~300	L301 ~350	L351 ~400	L401 ~450	L451 ~500	L501 ~550	L551 ~600	L601 ~650	L651 ~700	L701 ~750	L751 ~800	L801 ~850	L851 ~900	L901 ~950	L951 ~1000	L1001 ~1100	L1101 ~1200	L1201 ~1300	L1301 ~1400	L1401 ~1500
SFJC, SFUC, SFHC	6																	-	-	-	-	-	-	-	-	-
	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
	15																							-	-	-
	16																							-	-	-
	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50	-																								
SSFJC, SSFUC, SSFHC	6																	-	-	-	-	-	-	-	-	-
	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
	13																							-	-	-
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	18																							-	-	-
	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50	-																								
PSFJC, PSFUC, PSFHC	6																	-	-	-	-	-	-	-	-	-
	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
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	20																							-	-	-
	25																							-	-	-
	30																									
	35																									
	40																									
	50	-																								
PSSFJC, PSSFUC, PSSFHC	6																	-	-	-	-	-	-	-	-	-
	8																					-	-	-	-	-
	10																					-	-	-	-	-
	12																							-	-	-
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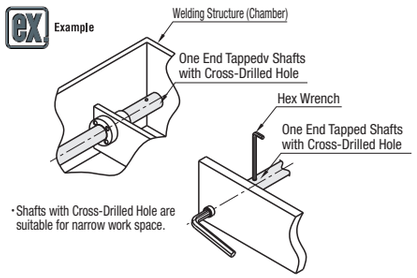
	30																									
	35																									
	40																									
	50	-																								

For D tolerance h5, add the relevant surcharge to the prices above. For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.

Part Number Type	D	Unit Price Min. L ~50	L51 ~100	L101 ~150	L151 ~200	L201 ~300	L301 ~400	L401 ~500
RSFJC, RSFHC	6							
	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
	30							

For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.

Example



・Shafts with Cross-Drilled Hole are suitable for narrow work space.

Part Number Type	D	Unit Price Min. L ~100	L101 ~200	L201 ~400	L401 ~600	L601 ~800	L801 ~1000	L1001 ~1200	L1201 ~1500
PSFGC, PSGHC	6					-	-	-	-
	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								

For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.

Part Number Type	D	Unit Price Min. L ~100	L101 ~200	L201 ~400	L401 ~600	L601 ~800	L801 ~1000	L1001 ~1200	L1201 ~1500
PSSFGC	6					-	-	-	-
	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16							-	-
	18, 20								-
	25								-
	30								
	35								
	40								
	50								