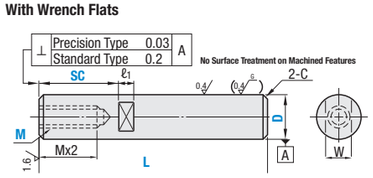
Shafts – Standard & Precision Type / One End Tapped with Wrench Flats / One End Tapped with Cross-Drilled Hole

RoHS 10

- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10 mm). **P.199**
- Full Length Hardness Guaranteed Shafts **P.212**.
- Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.198**.
- Features of Low Temp. Black Chrome Plating **P.213**.
- For Shafts without wrench flats or cross-drilled holes, please see **P.204**.

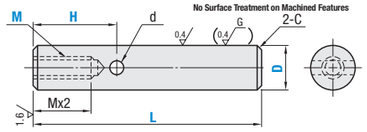
Type						Material	Hardness	Surface Treatment
With Wrench Flats				With Cross-Drilled Holes				
Precision Type	Standard							
D Tol. g6	D Tol. g6	D Tol. h5	D Tol. f8	D Tol. g6	D Tol. f8			
VFJC	SFJC	SFUC	—	SFHC	—	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened **P.199** 52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	—
VSFJC	SSFJC	SSFUC	—	SSFHC	—	SUS440C (13Cr) Stainless Steel Equivalent		
VPFJC	PSFJC	PSFUC	—	PSFHC	—	52100 Bearing Steel Equivalent		Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness 5 μ or More
VPSFJC	PSSFJC	PSSFUC	—	PSSFHC	—	SUS440C (13Cr) Stainless Steel Equivalent		
VRJC	RSFJC	—	—	RSFHC	—	52100 Bearing Steel Equivalent		Low Temperature Black Chrome Plating
—	—	—	PSFGC	—	PSGHC	1045 Carbon Steel Equivalent	—	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 10 μ or More
—	—	—	PSSFGC	—	—	304 Stainless Steel		

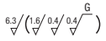
With Wrench Flats



With Cross-Drilled Holes

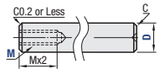
(8≤D≤30, L≤500)





Features of Precision Type

Perpendicularity is ⊥0.03 .



- Precision shafts have centering holes on end faces.

D	D Tolerance g6	D Tolerance h5	D Tolerance 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			

Part Number Type	D	L 1 mm Increment	Selection M (Coarse Thread)	Wrench Flats Dimensions SC	W	ℓ1	C
Precision Type Shafts with Wrench Flats D Tolerance g6 VFJC VSFJC VPFJC VPSFJC VRJC	6	20–350	3	SC=1 mm Inc. SC+ℓ1≤L SC≥0 Details of Wrench Flats **P.199**	5	8	0.5 or Less
	8	20–500	3 4 5		7		
	10	20–500	3 4 5 6		8		
	12	20–500	4 5 6 8		10	10	
	13	20–500	4 5 6 8		11		
	15	20–500	4 5 6 8 10		13		
	16	20–500	4 5 6 8 10		14		
	18	20–500	4 5 6 8 10 12		16		
	20	25–500	4 5 6 8 10 12		17		1.0 or Less
	25	25–500	4 5 6 8 10 12 16		22		
	30	25–500	6 8 10 12 16 20		27	15	

- Total length requires Mx2≤L.
- When Mx2.5≥L, tap pilot holes may go through.

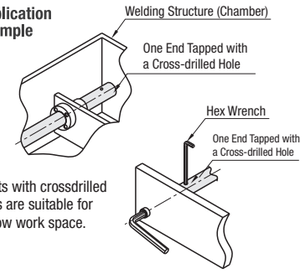
Part Number Type	D	L 1 mm Inc.	Selection M (Coarse Thread)	Wrench Flats Dimensions SC	W	ℓ1	Cross-Drilled Hole Dim. H	d	C
Standard Type Shafts with Wrench Flats D Tolerance g6 SFJC SSFJC PSFJC PSSFJC RSFJC D≤30, L≤500	6	20(15)–900	3	SC=1 mm Inc. SC+ℓ1≤L SC≥0 Details of Wrench Flats **P.199**	5	8	—	—	0.5 or Less
Shafts with Crossdrilled Holes 8≤D≤30, L≤500 D Tolerance g6 SFHC SSFHC PSFHC PSSFHC RSFHC	8	20(15)–1100	3 4 5		7				
	10	20(15)–1200	3 4 5 6		8			3	
	12	20(15)–1400	(3) 4 5 6 8		10	10			
	13	25(15)–1400	(3) 4 5 6 8		11				
	15	25(15)–1400	(3) 4 5 6 8 10		13		H=Specified in 1 mm Increments L≥H+d/2+2 H≥Mx2.5+d/2+6	4	
	16	30(15)–1400	4 5 6 8 10		14				
	18	30–1400	4 5 6 8 10 12		16			6	
	20	30–1400	4 5 6 8 10 12		17				1.0 or Less
	25	35–1400	4 5 6 8 10 12 16		22			7	
D Tolerance f8 PSFGC PSSFGC D Tolerance f8 PSGHC	30	35–1500	6 8 10 12 16 20		27	15			
	35	35–1500	8 10 12 16 20 24		30				
	40	50–1500	10 12 16 20 24 30		36	20	—	—	
	50	65–1500	12 16 20 24 30		41				

- L( ) and M( ) dimensions are applicable only for D diameter tolerance with g6.
- Total length requires Mx2≤L.
- When Mx2.5≥L, tap pilot holes may go through

Part Number Example

Part Number	-	L	-	M	-	SC	-	H
VFJC10	-	200	-	M5	-	SC6		
SFHC20	-	425	-	M8			-	H30

Application Example



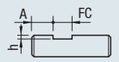
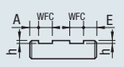
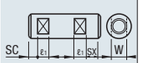
Shafts with crossdrilled holes are suitable for narrow work space.

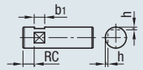
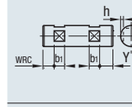
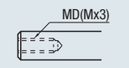
Part Number Alterations

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

- Keyway machining (KC) only.

Alteration Details **P.200**

Alterations	Code	Spec.
	LKC	Alteration to L Dimension Tolerance **Ordering Code:** LKC **Application Notes:** Applicable when L=200 or less for precision type. L dimensions can be specified in 0.1 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 **Application Notes:** Not applicable to precision shafts. FC, E = 1 mm increment FC≤3xD When 1.5xD<FC, FC≤L/2 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-E4 **Application Notes:** Not applicable to precision type. Specify WFC, A and E in 1 mm increments WFC≤3xD When 1.5xD<FC, 2WFC≤L/2 A (E)=0 or A (E)≥2 Orientation between set screw flats is random. 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 for Shafts with Wrench Flats SX = 1 mm increment SC+SX+ℓ1x2<L SX=0 or SX≥1 Orientation between set screw flats is random. D: 6 h: 5; 8 7; 10 8; 12 10; 13 11; 15 13; 16 14 — ℓ1: 8 D: 18 h: 16; 20 17; 25 22; 30 27; 35 30; 40 36; 50 41 — ℓ1: 10, 15, 20

Alterations	Code	Spec.
MSC (Fine Thread)	MSC	Change to Fine Tapped Thread **Ordering Code:** MSC14 (M is changed to MSC) **Application Notes:** Applicable for D=12 or more For details, see Shaft Alteration Overview **P.200**.
	RC	90° Set Screw Flat at One Location **Ordering Code:** RC10 **Application Notes:** Applicable for D=10 to 30 Not applicable to precision shafts Not available in combination with WRC For details, see Shaft Alteration Overview **P.200**.
	WRC	90° Set Screw Flat at Two Locations **Ordering Code:** WRC10-Y10 **Application Notes:** Applicable for D=10 to 30 Not applicable to precision shafts Not available in combination with RC. Orientation between set screw flats is random. For details, see Shaft Alteration Overview **P.200**.
	KC	Add keyway at one location. **Ordering Code:** KC10-G10 **Application Notes:** Applicable only to D=12, 16, 20, 25 or 30. Not applicable to precision shafts For details, see Shaft Alteration Overview **P.200**.
	MD	Change the effective length of tapped part to Mx3. **Ordering Code:** MD6 (M is changed to MD) **Application Notes:** Only applicable to D=6~30 and M=6~20 One End Tapped: MDx3.5+4≤L

- Please see Shaft Alteration Overview for details if provided. **P.200**
- When selecting multiple alteration additions, the distance between machined areas should be greater than 2 mm. **P.201**
- The distance between wrench flats and cross-drilled holes should be greater than 2 mm for alterations.
- Alterations may lower hardness. See **P.199**