

Shafts

Standard & Precision Type / One End Threaded with Undercut & Wrench Flats / One End Threaded with Undercut & Cross-Drilled Hole

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

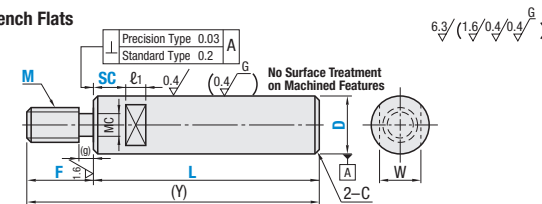


RoHS10

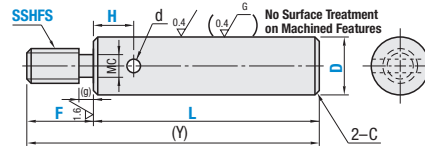
- ⓘ Annealing caused by machining wrench flats and shaft end threading (effective thread length + approx. 10 mm) may lower hardness. P.199
- ⓘ Cross-drilled hole areas may be out of O.D. tolerances due to annealing-induced deformation.
- ⓘ Circularity, Straightness, Perpendicularity Concentricity, Changes 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.224.

Precision Type	Type					Material	Hardness	Surface Treatment
	With Wrench Flats		With Cross-Drilled Holes					
	D Tol. g6	D Tol. h5	D Tol. f8	D Tol. g6	D Tol. f8			
VAFS	SAFS	SFSU	—	SFHS	—	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened P.199	—
VSAFS	SSAFS	SSFSU	—	SSHFS	—	SUS440C (13Cr) Stainless Steel Equivalent		
VPAFS	PSAFS	PSFSU	—	PSHFS	—	52100 Bearing Steel Equivalent	52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 5 μ or More
VPSAFS	PSSAFS	PSSFSU	—	PSSHFS	—	SUS440C (13Cr) Stainless Steel Equivalent		
VRFS	RSAFS	—	—	RSHFS	—	52100 Bearing Steel Equivalent	Low Temperature Black Chrome Plating	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 10 μ or More
—	—	—	PSAGS	—	PSHGS	1045 Carbon Steel Equivalent		
—	—	—	PSSAGS	—	—	304 Stainless Steel	—	—

With Wrench Flats

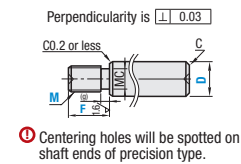


With Cross-Drilled Holes (D≤30, L≤500)



D	D Tolerance		
	g6	h5	f8
8	-0.005	0	-0.013
10	-0.014	-0.006	-0.035
12	—	—	—
13	-0.006	0	-0.016
15	-0.017	-0.008	-0.043
16	—	—	—
18	—	—	—
20	-0.007	0	-0.020
25	-0.020	-0.009	-0.053
30	—	—	—
35	-0.009	0	-0.025
40	-0.025	-0.011	-0.064
50	—	—	—

Features of Precision Shafts



Centering holes will be spotted on shaft ends of precision type.

Part Number Type	1 mm Increment			Selection M (Coarse Thread)	Wrench Flats Dimensions			(Y) Max.	C	Coarse Thread Dimensions			
	D	L	F		SC	W	ℓ ₁			M	Pitch	MC	(g)
Precision Type Shafts with Wrench Flats D Tolerance g6 VAFS VSAFS VPAFS VPSAFS VRFS	8	25-295	5≤F≤Mx3 ⓘ F-(g)≥Pitchx3	6	SC=1 mm Inc. ⓘ SC+ℓ ₁ ≤L ⓘ SC≥0 ⓘ Details of Wrench Flats P.199	7	8	300	0.5 or Less	6	1.0	4.4 (4.2)	2
	10	25-345		6		8	350	8		—	—	—	—
	12	25-345		6		8	350	10		—	—	—	—
	13	25-345		6		8	350	11		—	—	—	—
	15	25-345		6		8	350	13		—	—	—	—
	16	25-345		6		8	350	14		10	350	—	—
	18	25-345		6		8	350	16		—	—	—	—
	20	25-445		6		8	450	17		—	—	—	—
	25	25-445		8		10	450	22		—	—	—	—
	30	25-445		8		10	450	27		15	450	—	—

ⓘ Shaft ends may have centering holes.

MC dimensions in () are for Precision Type M6 (Coarse).

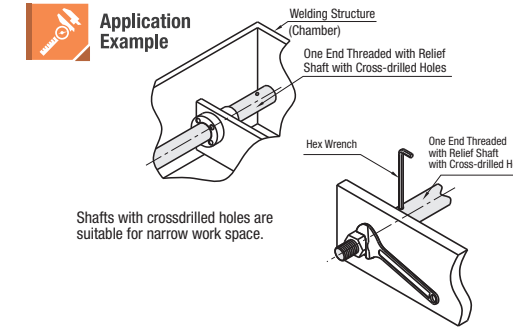
Part Number Type	1 mm Increment			Selection M (Coarse Thread)	Wrench Flats Dimensions			Cross-Drilled Hole Dimensions		(Y) Max.	C			
	D	L	F		SC	W	ℓ ₁	H	d					
Standard Type Shafts with Wrench Flats D Tol. g6 SAFS SSAFS PSAFS PSSAFS RSAFS D≤30, L≤500 D Tol. h5 SFHS SSFSU SSHFS PSHFS PSSHFS D≤30, L≤500 D Tol. f8 PSAGS PSSAGS	8	25-995	5≤F≤Mx3 ⓘ F-(g)≥Pitchx3	6	SC=1 mm Inc. ⓘ SC+ℓ ₁ ≤L ⓘ SC≥0 ⓘ Details of Wrench Flats P.199	7	8	800	H=Specified in 1 mm Inc. ⓘ L≤H+d/2+2 ⓘ H=d/2+2	3	0.5 or Less			
	10	25-995		6		8	800	—		—		—		
	12	25-1195		6		8	1000	10		—		—	—	
	13	25-1195		6		8	1000	11		—		—	—	
	15	25-1195		6		8	1000	13		—		—	—	
	16	25-1195		6		8	1000	14		10		1200	—	—
	18	25-1195		6		8	1000	16		—		—	—	—
	20	25-1195		6		8	1000	17		—		—	—	—
	25	25-1195		8		10	1200	22		—		—	—	—
	30	25-1495		8		10	1200	27		15		1500	—	—
	35	25-1495		10		12	1500	30		—		—	—	—
	40	25-1495		12		16	1500	36		—		—	—	—
	50	25-1495		16		20	1500	41		20		1500	—	—

Shafts

Standard & Precision Type / One End Threaded with Undercut & Wrench Flats / One End Threaded with Undercut & Cross-Drilled Hole, continued

Part Number Example

Part Number	L	F	M	SC	H
VAFS13	- 200	- F20	- M10	- SC10	-
SASF13	- 800	- F23	- M10	- SC10	-
SSHFS20	- 450	- F28	- M12	-	- H15



Shafts with crossdrilled holes are suitable for narrow work space.

Part Number Alterations

Part Number	L	F	M (MMC / MMS)	SC	H	(LKC..etc.)
SASF30	- 250	- F20	- M10	- SC20	-	- LKC

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 ⓘ Not applicable when D-M≤2
	FC	Set Screw Flat at One Location Ordering Code: FC10-E8 Application Notes: ⓧ Not applicable to precision type. 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
	WFC	Set Screw Flats at Two Locations Ordering Code: WFC8-A8-E4 Application Notes: ⓧ Not applicable to precision shafts. WFC, A, E = 1 mm increment ⓘ 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.
	SX	Second Set of Wrench Flats Ordering Code: SX15 Application Notes: Only applicable for Shafts with Wrench Flats. SX = 1 mm increment ⓘ SC+SX+ℓ ₁ x2<L ⓘ SX=0 or SX≥1 ⓧ Orientation between wrench flat features is random.

Alterations	Code	Spec.
	RC	90° Set Screw Flat at One Location Ordering Code: RC10 Application Notes: Only applicable for D=10-30 ⓧ Not applicable to precision shafts. ⓧ Not available in combination with WRC. ⓘ For details, see Shaft Alteration Overview P.200.
	WRC	90° Set Screw Flats at Two Locations Ordering Code: WRC10-Y10 Application Notes: Only applicable for D=10-30 ⓧ Not applicable to precision shafts. ⓧ Not available in combination with RC. ⓧ Orientation between set screw features is random. ⓘ For details, see Shaft Alteration Overview P.200.
	KC	Keyway is added at one location Ordering Code: KC10-G10 Application Notes: Only applicable only to D=12, 16, 20, 25 and 30. ⓧ Not applicable to precision shafts. ⓘ For details, see Shaft Alteration Overview P.200.
	MMC MMS	Change to Fine Threads Ordering Code: MMC14 (M is changed to MMC) MMS14 (M is changed to MMS) ⓘ For details, see Shaft Alteration Overview P.200.

- ⓘ 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
- ⓘ Alterations may lower hardness. P.199