Shafts

One End Stepped & Threaded / One End Tapped

Shafts – One End Stepped & Threaded / One End Tapped

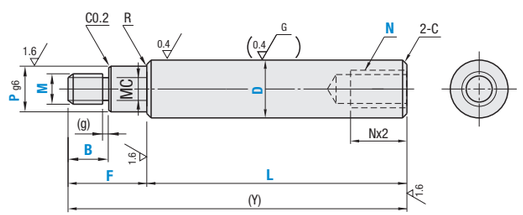
RoHS10

- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10 mm). **P.199**
- Circularity, Straightness, Perpendicularity, Concentricity, Changes in Hardness, Thread Undercut Dimensions **P.198**.
- Features of Low Temperature Black Chrome Plating **P.213**.
- Precision Type selections are available on **P.264**.

Type			Material	Hardness	Surface Treatment
D Tol. g6	D Tol. h5	D Tol. f8			
SFAY	SFUY	—	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.	—
SSFAY	SSFUY	—	SUS440C (13Cr) Stainless Steel Equivalent		
PSFAY	PSFUY	—	52100 Bearing Steel Equivalent		Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 5μ or More
PSSFAY	PSSFUY	—	SUS440C (13Cr) Stainless Steel Equivalent		
RSFAY	—	—	52100 Bearing Steel Equivalent		Low Temperature Black Chrome Plating
—	—	PSFGY	1045 Carbon Steel Equivalent	—	Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 10μ or More
—	—	PSSFGY	304 Stainless Steel		

D Tolerance			
D	g6	h5	f8
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			

No Surface Treatment on Machined Features



Part Number Type	D	1 mm Increment L	F	B	P	M (Coarse Thread)	N (Coarse Thread)	(Y) Max.	R	C
(D Tolerance g6) SFAY SSFAY PSFAY PSSFAY RSFAY (D≤30, L≤500) (D Tolerance h5) SFUY SSFUY PSFUY PSSFUY	8	25–990	10≤F≤Px5	Pitchx3+(g)≤B≤Mx3	M	6	3 4 5	800	0.3 or Less	0.5 or Less
	10	25–990				6 8	3 4 5 6	800		
	12	25–1190				6 8 10	4 5 6 8	1000		
	13	25–1190				6 8 10	4 5 6 8	1000		
	15	25–1190				6 8 10 12	4 5 6 8 10	1000		
	16	25–1190				6 8 10 12	4 5 6 8 10	1200		
	18	25–1190				6 8 10 12 16	4 5 6 8 10 12	1200		
	20	25–1190				6 8 10 12 16	4 5 6 8 10 12	1200		1.0 or Less
	25	25–1190				8 10 12 16 20	4 5 6 8 10 12 16	1200		
(D Tolerance f8) PSFGY PSSFGY	30	25–1490				8 10 12 16 20 24	6 8 10 12 16 20	1500		
	35	25–1480	20≤F≤Px5			10 12 16 20 24 30	8 10 12 16 20 24	1500	0.5 or Less	
	40	40–1480				12 16 20 24 30	10 12 16 20 24 30	1500		
	50	50–1480				16 20 24 30	12 16 20 24 30	1500		

Overall length L requires Nx3≤L. F-B≥2 is required

Shafts

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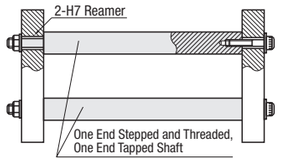
Part Number Example

Part Number	-	L	-	F	-	B	-	P	-	M	-	N
SFAY20	-	277	-	F25	-	B12	-	P10	-	M8	-	N12

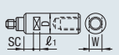
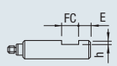
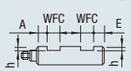
Application Example



Part Number Alterations

Part Number	-	L	-	F	-	B	-	P	-	M (MMC / MMS)	-	N (NSC)	-	(LKC, SC...etc.)
SFAY30	-	250	-	F40	-	B20	-	P10	-	M8	-	N10	-	LKC

Alteration Details **P.200**

Alterations	Code	Spec.
	LKC	Alteration to L Dimension Tolerance **Ordering Code:** LKC Not applicable when D-P≤2 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
	SC	Wrench Flats at One Location **Ordering Code:** SC5 SC=1 mm Increment SC+ℓ1≤L SC≥0 Not available in combination with WSC
	WSC	Wrench Flats at Two Locations **Ordering Code:** WSC12-X8 WSC, X = 1 mm Increment. WSC+X+ℓ1x2<L WSC (X)≥0 Orientation between wrench flat features is random. Not available in combination with SC
	FC	Set Screw Flat at One Location **Ordering Code:** FC10-E8 FC, E = 1 mm increments. FC≤3xD When 1.5xD<FC, FC≤L/2 E=0 or E≥2 Not available in combination with WFC
	WFC	Set Screw Flat at Two Locations **Ordering Code:** WFC10-A8-E20 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.

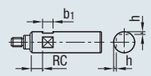
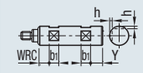
D	W	ℓ1
8	7	8
10	8	
12	10	10
13	11	
15	13	
16	14	
18	16	
20	17	
25	22	15
30	27	
35	30	20
40	36	
50	41	

D	h
8–18	1
20–40	2
50	3

D	h
8–18	1
20–40	2
50	3

Alteration Details **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 2mm. **P.201**
- Alterations may lower hardness. **P.199**

Alterations	Code	Spec.
	RC	90° Set Screw Flat at One Location **Ordering Code:** RC10 **Application Notes:** Applicable to D=10–30 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 to D=10–30 Not available in combination with RC. Orientation between set screw flats is random. For details, see Shaft Alteration Overview, **P.200**.
	MMC MMS	Change To Fine Thread **Ordering Code:** MMC14 (M is changed to MMC) MMS14 (M is changed to MMS) For details, see Shaft Alteration Overview, **P.200**.
	NSC	Change to Fine Tapped Thread **Ordering Code:** NSC14 (N is changed to NSC) **Application Notes:** Applicable to D=12 or more For details, see Shaft Alteration Overview, **P.200**.

Undercut Dimensions (Coarse Threads)			
M	Pitch	MC	(g)
6	1.0	4.4	2
8	1.25	6.0	3
10	1.5	7.7	
12	1.75	9.4	4
16	2.0	13.0	
20	2.5	16.4	5
24	3.0	19.6	
30	3.5	25.0	

Undercut Dimensions for Fine Threads (1)			
MMC	Pitch	MC	(g)
6	0.75	4.8	2
8	1.0	6.4	
10		8.4	
12		10.4	
15		13.4	
17		15.4	
20		18.4	
25	1.5	22.7	3
30		27.7	

Undercut Dimensions for Fine Threads (2)			
MMS	Pitch	MC	(g)
10	1.25	8	3
12	1.5	9.7	
14		11.7	
18		15.7	