Shafts

Standard Type / Both Ends Threaded with O.D. Same as Shaft O.D.

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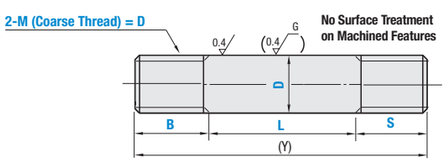
RoHS10

- Annealing caused by machining wrench flats and shaft end threading (effective thread length + approx. 10 mm) may lower hardness. **P.199**
- Circularity, Straightness, Perpendicularity Concentricity, Changes in Hardness **P.198**.
- Features of Low Temp. Black Chrome Plating **P.213**.
- For Both Ends Threaded Shafts with different diameters, please see **P.230**.

Type			Material	Hardness	Surface Treatment
Standard					
D Tol. g6	D Tol. h5	D Tol. f8			
SFAL	SFUL	—	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.	—
SSFAL	SSFUL	—	SUS440C (13Cr) Stainless Steel Equivalent		Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 5 μ or More
PSFAL	PSFUL	—	52100 Bearing Steel Equivalent		
PSSFAL	PSSFUL	—	SUS440C (13Cr) Stainless Steel Equivalent		
RSFAL	—	—	52100 Bearing Steel Equivalent		Low Temperature Black Chrome Plating
—	—	PSFGL	1045 Carbon Steel Equivalent	—	Hard Chrome Plating Plating Hardness: HV 750~ Plating Thickness: 10 μ or More
—	—	PSSFGL	304 Stainless Steel		



L does not include incomplete threads.

D Tolerance			
D	g6	h5	f8
3	-0.002 -0.008	0 -0.004	—
4	-0.004 -0.012	0 -0.005	
5			
6			-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
16			
20	-0.007 -0.020	0 -0.009	-0.020 -0.053
30			

Part Number		1 mm Increment		M	(Y) Max.
Type	D	L	B, S		
D Tolerance g6 SFAL SSFAL PSFAL PSSFAL RSFAL L≤500, Ymax≤800 D Tolerance f8 PSFGL PSSFGL	D Tolerance h5 SFUL SSFUL PSFUL PSSFUL	3	25–194	3–15	3	200
		4	25–292	4–20	4	300
		5	25–392	4–25	5	400
		6	25–890	5–30	6	900
		8	25–1086	7–40	8	1100
		10	25–1184	8–50	10	1200
		12	25–1382	9–60	12	1400
		16	25–1380	10–80	16	1400
		20	25–1374	13–100	20	1400
		30	25–1464	18–150	30	1500

Coarse Thread Dimensions	
M	Pitch
3	0.5
4	0.7
5	0.8
6	1.0
8	1.25
10	1.5
12	1.7
16	2.0
20	2.5
30	3.5

For One End Threaded with O.D. same as Shaft O.D., L dimensions have priority, thus the effective thread length of B (S) dimension will be B (S)-(Pitchx2).

Part Number Example

Part Number	-	L	-	B	-	S
SFAL20	-	300	-	B20	-	S15

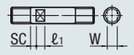
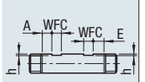
Shafts

Standard Type / Both Ends Threaded with O.D. Same as Shaft O.D., *continued*

Part Number Alterations

Part Number	-	L	-	B	-	S	- (SC...etc.)
SFAL30	-	300	-	B30	-	S30	- SC10

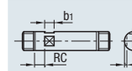
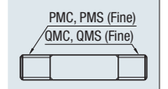
Alteration Details **P.200**

Alterations	Code	Spec.
	SC	Wrench Flats at One Location **Ordering Code:** SC5 **Application Notes:** Applicable to D=6 and over SC=1 mm Increment ! SC+ℓ1≤L ! SC=0 or SC≥1 ⊗ Not available in combination with WSC.
	WSC	Second Set of Wrench Flats **Ordering Code:** WSC15 WSC (X)=Specified in 1 mm increments ! WSC+X+ℓ1x2<L ! WSC (X)=0 or WSC (X)≥1 ⊗ Orientation between wrench flat features is random. ⊗ Cannot be used 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 Flats at Two Locations **Ordering Code:** WFC10-A8-E20 WFC, A, E = 1 mm increment ! WFC≤3xD ! When 1.5xD<WFC, 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
6	5	8
8	7	
10	8	
12	10	10
16	14	
20	17	
30	27	15

D	h
3–5	0.5
6–16	1
20–30	2

D	h
3–5	0.5
6–16	1
20–30	2

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.
	WRC	90° Set Screw Flats at Two Locations **Ordering Code:** WRC10-Y10 **Application Notes:** Applicable to D=10–30 ⊗ Not available in combination with RC. ⊗ Orientation between set screw features is random.
	PMC PMS QMC QMS	Change to Fine Thread **Ordering Code:** PMC10 PMS10 QMC10 QMS10

D	PMC,QMC	Pitch	PMS,QMS	Pitch
3	3	0.35		
4	4	0.5		
5	5			
6	6	0.75		
8	8	1.0		
10	10		10	1.25
12	12		12	1.5
16	—			
20	20	1.0		
30	30	1.5		

- ! 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**