


Shafts

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

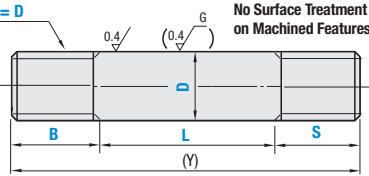
Shafts – Standard Type / Both Ends Threaded with O.D. Same as Shaft O.D.



RoHS10

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		
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		
—	—	PSSFGL	304 Stainless Steel		


2-M (Coarse Thread) = D



No Surface Treatment on Machined Features

L does not include incomplete threads.

$6.3 / (1.6 / 0.4 / \sqrt[6]{G})$



D Tolerance			
D	g6	h5	f8
3	-0.002 -0.008	0 -0.004	—
4	-0.004 -0.012	0 -0.005	
5			
6			
8	-0.005	0	-0.013
10	-0.014	-0.006	-0.035
12	-0.006	0	-0.016
16	-0.017	-0.008	-0.043
20	-0.007	0	-0.020
30	-0.020	-0.009	-0.053

- 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**.

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	3	25–194	3–15	3	200
	4	25–292	4–20	4	300
	5	25–392	4–25	5	400
	6	25–790	5–30	6	600
	8	25–986	7–40	8	800
	10	25–984	8–50	10	800
	12	25–1182	9–60	12	1000
D Tolerance f8 PSFGL PSSFGL	16	25–1180	10–80	16	1200
	20	25–1174	13–100	20	1200
	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

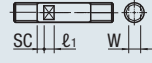
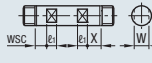
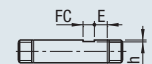
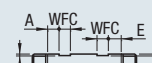
Shafts

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

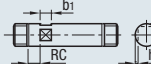



Part Number Alterations

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

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+ℓ ₁ ≤L Ⓢ SC=0 or SC≥1 Ⓢ Not available in combination with WSC. <table><tr><th>D</th><th>W</th><th>ℓ₁</th></tr><tr><td>6</td><td>5</td><td rowspan="5">8</td></tr><tr><td>8</td><td>7</td></tr><tr><td>10</td><td>8</td></tr><tr><td>12</td><td>10</td></tr><tr><td>16</td><td>14</td></tr><tr><td>20</td><td>17</td><td rowspan="2">10</td></tr><tr><td>30</td><td>27</td></tr></table>	D	W	ℓ ₁	6	5	8	8	7	10	8	12	10	16	14	20	17	10	30	27
D	W	ℓ ₁																			
6	5	8																			
8	7																				
10	8																				
12	10																				
16	14																				
20	17	10																			
30	27																				
	WSC	Second Set of Wrench Flats Ordering Code: WSC15 WSC (X)=Specified in 1 mm increments Ⓢ WSC+X+ℓ ₁ x2<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. <table><tr><th>D</th><th>h</th></tr><tr><td>3–5</td><td>0.5</td></tr><tr><td>6–16</td><td>1</td></tr><tr><td>20–30</td><td>2</td></tr></table>	D	h	3–5	0.5	6–16	1	20–30	2											
D	h																				
3–5	0.5																				
6–16	1																				
20–30	2																				
	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. <table><tr><th>D</th><th>h</th></tr><tr><td>3–5</td><td>0.5</td></tr><tr><td>6–16</td><td>1</td></tr><tr><td>20–30</td><td>2</td></tr></table>	D	h	3–5	0.5	6–16	1	20–30	2											
D	h																				
3–5	0.5																				
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Alteration Details **P.200**

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.

- 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**