

Shafts

Both Ends Threaded with O.D. same as Shaft O.D.

For One End Threaded Shafts with different diameters, see **P.181**.



RoHS 10

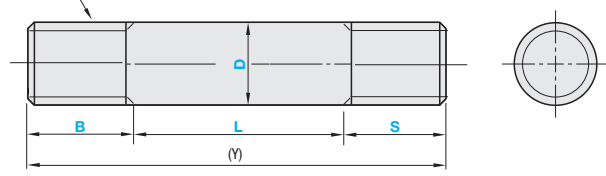
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm).
- P.142**
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.141**
- Features of Low Temp. Black Chrome Plating **P.156**

Type			Material	Hardness	Surface Treatment
D Tol. g6	D Tol. h5	D Tol. f8			
SFAL	SFUL	-	SUJ2 Equivalent	Effective Hardened Depth of Induction	-
SSFAL	SSFUL	-	SUS440C or 13Cr stainless		
PSFAL	PSFUL	-	SUJ2 Equivalent	Hardening P.142 58HRC- SUJ2 Equivalent SUS440C or 13Cr stainless 56HRC-	Hard Chrome Plating - Plating Hardness: HW750 ~, Plating Thickness: 5μ or More
PSSFAL	PSSFUL	-	SUS440C or 13Cr stainless		
RSFAL	-	-	SUJ2 Equivalent	-	Low Temp. Black Chrome Plating
-	-	PSFGL	S45C Equivalent		
-	-	PSSFGL	SUS304	-	Hard Chrome Plating - Plating Hardness: HW750 ~, Plating Thickness: 10μ or More

D	D Tol.		
	g6	h5	f8
3	-0.002 -0.008	0 -0.004	-
4	-	-	-
5	-0.004 -0.012	0 -0.005	-0.010 -0.028
6	-	-	-
8	-0.005 -0.014	0 -0.006	-0.013 -0.035
10	-0.006 -0.017	0 -0.008	-0.016 -0.043
12	-0.007 -0.020	0 -0.009	-0.020 -0.053
16	-	-	-
20	-	-	-
30	-	-	-

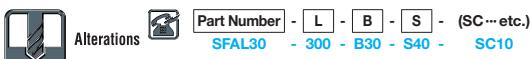
For plated products, the surface roughness of D part is $\sqrt{0.4}$; and for unplated products, it is $\sqrt{0.4^G}$.

2-M (Coarse) = D



Part Number	1mm Increments			M	(Y) Max.	Coarse Thread Dimensions	
	Type	D	L, B, S			M	Pitch
(D Tol. g6) (D Tol. h5)	3	25~ 194	3~ 15	3	200	3	0.5
SFAL SFUL	4	25~ 292	4~ 20	4	300	4	0.7
SSFAL SSFUL	5	25~ 392	4~ 25	5	400	5	0.8
PSFAL PSFUL	6	25~ 790	5~ 30	6	600	6	1.0
PSSFAL PSSFUL	8	25~ 986	7~ 40	8	800	8	1.25
RSFAL (L≤500, Ymax≤800)	10	25~ 986	8~ 50	10	800	10	1.5
	12	25~1182	9~ 60	12	1000	12	1.75
(D Tol. f8) (D≥6)	16	25~1180	10~ 80	16	1200	16	2.0
PSFGL PSSFGL	20	25~1174	13~100	20	1200	20	2.5
(D≤6)	30	25~1464	18~150	30	1500	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)-(Pitch)x2.
L does not include incomplete threads.



Alterations	Code	Spec.															
	SC	Wrench Flats at One Location (Ordering Code) SC5 (Application Notes) Applicable to D=6 or more SC=1mm Increment <table border="1"> <tr><th>D</th><th>W</th><th>ℓ1</th></tr> <tr><td>6</td><td>5</td><td>8</td></tr> <tr><td>8</td><td>7</td><td>8</td></tr> <tr><td>10</td><td>8</td><td>8</td></tr> </table> <ul style="list-style-type: none"> SC+ℓ1≤L SC≥0 Not available in combination with WSC. 	D	W	ℓ1	6	5	8	8	7	8	10	8	8			
D	W	ℓ1															
6	5	8															
8	7	8															
10	8	8															
	WSC	Second Set of Wrench Flats (Ordering Code) WSC15 (Application Notes) WSC(X)=1mm Increment <table border="1"> <tr><th>D</th><th>W</th><th>ℓ1</th></tr> <tr><td>12</td><td>10</td><td>10</td></tr> <tr><td>16</td><td>14</td><td>10</td></tr> <tr><td>20</td><td>17</td><td>15</td></tr> <tr><td>30</td><td>27</td><td>15</td></tr> </table> <ul style="list-style-type: none"> WSC+X+ℓ1x2<L WSC(X)≥0 Orientation between two set screw flats is not coplanar. Not available in combination with SC. 	D	W	ℓ1	12	10	10	16	14	10	20	17	15	30	27	15
D	W	ℓ1															
12	10	10															
16	14	10															
20	17	15															
30	27	15															
	FC	Set Screw Flat at One Location (Ordering Code) FC10-E8 FC, E=1mm Increment <table border="1"> <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> <ul style="list-style-type: none"> D≤30: FC≤5xD D≥35: FC≤3xD E=0 or E≥2 Not available in combination with WFC. 	D	h	3~ 5	0.5	6~16	1	20~30	2							
D	h																
3~ 5	0.5																
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20~30	2																
	WFC	Set Screw Flats at Two Locations (Ordering Code) WFC10-A8-E20 WFC, A, E=1mm Increment <table border="1"> <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> <ul style="list-style-type: none"> D≤30: WFC≤5xD D≥35: WFC≤3xD A(E)=0 or A(E)≥2 Orientation between set screw flats is not coplanar. Not available in combination with FC. 	D	h	3~ 5	0.5	6~16	1	20~30	2							
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Alteration Details **P.143**

Alterations	Code	Spec.																																																							
	RC	90-deg. Set Screw Flat at One Location (Ordering Code) RC10 (Application Notes) Only applicable to D=10-30. Not available in combination with WRC.																																																							
	WRC	90-deg. 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 two set screw flats is not coplanar.																																																							
	PMC PMS QMC QMS	Change to Fine Thread (Ordering Code) PMC10 PMS10 QMC10 QMS10 <table border="1"> <tr><th>D</th><th>PMC,QMC</th><th>Pitch</th><th>PMS,QMS</th><th>Pitch</th></tr> <tr><td>3</td><td>3</td><td>0.35</td><td></td><td></td></tr> <tr><td>4</td><td>4</td><td>0.5</td><td></td><td></td></tr> <tr><td>5</td><td>5</td><td>0.5</td><td></td><td></td></tr> <tr><td>6</td><td>6</td><td>0.75</td><td></td><td></td></tr> <tr><td>8</td><td>8</td><td></td><td></td><td></td></tr> <tr><td>10</td><td>10</td><td>1.0</td><td>10</td><td>1.25</td></tr> <tr><td>12</td><td>12</td><td></td><td>12</td><td>1.5</td></tr> <tr><td>16</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>20</td><td>20</td><td>1.0</td><td></td><td></td></tr> <tr><td>30</td><td>30</td><td>1.5</td><td></td><td></td></tr> </table>	D	PMC,QMC	Pitch	PMS,QMS	Pitch	3	3	0.35			4	4	0.5			5	5	0.5			6	6	0.75			8	8				10	10	1.0	10	1.25	12	12		12	1.5	16	-	-	-	-	20	20	1.0			30	30	1.5		
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10	10	1.0	10	1.25																																																					
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- Please see Alteration Overview for details. **P.143**
- When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. **P.144**
- Alterations may lower hardness. See **P.142**.