

High Precision Linear Shafts for High Precision Assembly
 Features: Perpendicularity $\perp 0.03$, Concentricity $\odot 0.02$

P.241

⚠ For products uncovered by the e-Catalog Standards, see P.131.

■ For High Precision Linear Shafts with high perpendicular precision of the shaft end ($\perp$ 0.03), see **P.241**. ■ For Shafts w/o Wrench Flats or Cross-Drilled Hole, see **P.191**.

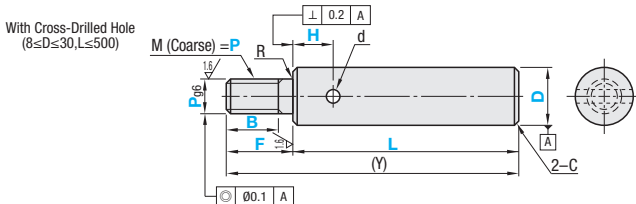
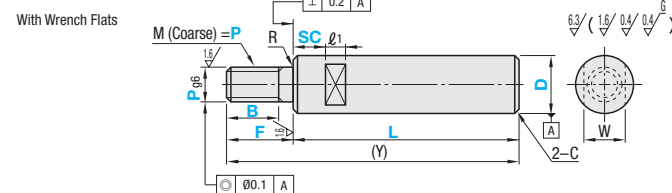


RoHS10

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 Annealing may lower hardness at wrench flats, cross-drilled hole and shaft end machined areas (effective thread length + approx. 10mm).
  **P.142**
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 Cross-drilled hole areas may be out of O.D. tolerances due to annealing-induced deformation.
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 L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness
  **P.141**
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 Features of Low Temp. Black Chrome Plating
  **P.156**

Type					Material	Hardness	Surface Treatment
With Wrench Flats			With Cross-Drilled Hole				
D Tol. g6	D Tol. h5	D Tol. f8	D Tol. g6	D Tol. f8			
SFAS	SFUS	-	SFHN	-	SUJ2	Effective Hardened Depth of Induction Hardening $\geq$ P142	-
SFAS	SFUS	-	SFHN	-	SUS40C Equivalent		SUJ2
PSFAS	PSFUS	-	PSFHN	-	SUS40C Equivalent		SUJ2
PSSFAS	PSSFUS	-	PSSFHN	-	SUJ2		SUJ2
RSFAS	-	-	RSFHN	-	S45C Equivalent	-	Hard Chrome Plating - Plating Hardness: H7/50 ~, Plating Thickness: 10 or More
-	-	PSFGS	-	PSGHN	SUS304	-	Low Temp. Black Chrome Plating
-	-	PSFGS	-	-	-	-	Hard Chrome Plating - Plating Hardness: H7/50 ~, Plating Thickness: 10 or More

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

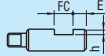
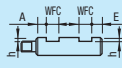


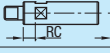
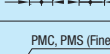
D Tol.			
D	g6	h5	f8
6	-0.004 -0.012	0 -0.005	-0.010 -0.028
8	-0.005 -0.014	0 -0.006	-0.013 -0.035
10			
13			
15	-0.006 -0.017	0 -0.008	-0.016 -0.043
16			
18			
20			
25	-0.007 -0.020	0 -0.009	-0.020 -0.053
30			
35			
40	-0.009 -0.025	0 -0.011	-0.025 -0.064
50			

Part Number		1mm Increments				P Selection	Wrench Flats Dimensions		Cross-Drilled Hole Dimensions		(Y)	R	Coarse Thread Dimensions			
Type		D	L	F	B		SC	W	g1	H	d	Max.	C	M	pitch	
(With Wrench Flats)	(With Cross-Drilled Hole)	6	25~ 798	2≤F≤Px5	(When P≤6) B≤F-2	3 4 5	SC = 1mm Increment ♡SC+g1≤L ♡SC=0 ♡For Details of Wrench Flats, see P.142.	5	7	H=1mm Increment ♡L≥H+d/2+2 ♡H≥d/2+2	4	600	0.3 or Less	0.5 or Less	3	0.5
		8	25~ 998			3 4 5 6		8	800			4			0.7	
		10	25~ 998			4 5 6 8		8	800			4			0.7	
(D Tol. g6)	(D Tol. h5)	(D Tol. g6)	12			25~1198		5 6 8 10	10			1000			5	0.8
SFAS	SFUS	SFHN	13			25~1198		5 6 8 10 12	11			1000			6	1.0
SSFAS	SSFUS	SSFHN	15			25~1198		5 6 8 10 12	13			1000			8	1.25
PSFAS	PSFUS	PSFHN	16			25~1198		5 6 8 10 12	14			1000			10	1.5
PSSFAS	PSSFUS	PSSFHN	18			25~1198		5 6 8 10 12 16	16			1200			12	1.75
RSFAS		RSFHN	20			25~1198		6 8 10 12 16	17			1200			16	2.0
(D≤30, L≤500)		(D Tol. f8)	25			25~1198		8 10 12 16 20 24	22			1200			20	2.5
			30	25~1498	8 10 12 16 20 24	27	1500	24	3.0							
			35	25~1498	♡B≥Pitchx3	30	1500	30	3.5							
			40	25~1498		36	1500									
♡ 8≤D≤30 and L≤500 are applicable for Shafts with Cross-Drilled Hole.			50	25~1498		41	1500									

Part Number	L	F	B	P	SC	H
SFAS12	200	F20	B15	P8	SC5	
SFHN18	450	F40	B25	P12		H10

 Alterations  Part Number - L - F - B - P(PMC, PMS) - SC - H - (LKC...etc.)
SFAS30 - 250 - F40 - B30 - P10 - SC10 - LKC

Alterations	Code	Spec.																																																
	LKC	Alteration to L dimension tolerance (Ordering Code) LKC L dimensions can be specified in 0.1mm increment for LKC. ⚡ L<200 →L=0.03 200≤L<500→L=0.05 L≥500 →L=0.1																																																
	FC	Set Screw Flat at One Location (Ordering Code) FC10-E8 (Application Notes) FC, E=1mm Increment D≤30:FC≤5xD,D≥35:FC≥3xD E=0 or E≥2 ⚡ Not available in combination with WFC. <table><tr><th>D</th><th>h</th></tr><tr><td>6-18</td><td>1</td></tr><tr><td>20-40</td><td>2</td></tr><tr><td>50</td><td>3</td></tr></table>	D	h	6-18	1	20-40	2	50	3																																								
D	h																																																	
6-18	1																																																	
20-40	2																																																	
50	3																																																	
	WFC	Set Screw Flats at Two Locations (Ordering Code) WFC8-A8-E4 (Application Notes) WFC, A, E=1mm Increment ⚡ 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. <table><tr><th>D</th><th>h</th></tr><tr><td>6-18</td><td>1</td></tr><tr><td>20-40</td><td>2</td></tr><tr><td>50</td><td>3</td></tr></table>	D	h	6-18	1	20-40	2	50	3																																								
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6-18	1																																																	
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	SX	Second Set of Wrench Flats (Ordering Code) SX15 (Application Notes) Only applicable to Shafts with Wrench Flats Sx=1mm Increment ⚡ SC+SX+ℓ1x2-L ⚡ SX≥0 ⚡ Orientation between two set screw flats is not coplanar. <table><tr><th>D</th><th>W</th><th>ℓ1</th><th>D</th><th>W</th><th>ℓ1</th></tr><tr><td>6</td><td>5</td><td>8</td><td>16</td><td>16</td><td>16</td></tr><tr><td>8</td><td>7</td><td>8</td><td>20</td><td>17</td><td>10</td></tr><tr><td>10</td><td>8</td><td>10</td><td>25</td><td>22</td><td>12</td></tr><tr><td>12</td><td>10</td><td>10</td><td>30</td><td>27</td><td>15</td></tr><tr><td>13</td><td>11</td><td>10</td><td>35</td><td>30</td><td>15</td></tr><tr><td>15</td><td>13</td><td>10</td><td>40</td><td>36</td><td>20</td></tr><tr><td>16</td><td>14</td><td>10</td><td>50</td><td>41</td><td>20</td></tr></table>	D	W	ℓ1	D	W	ℓ1	6	5	8	16	16	16	8	7	8	20	17	10	10	8	10	25	22	12	12	10	10	30	27	15	13	11	10	35	30	15	15	13	10	40	36	20	16	14	10	50	41	20
D	W	ℓ1	D	W	ℓ1																																													
6	5	8	16	16	16																																													
8	7	8	20	17	10																																													
10	8	10	25	22	12																																													
12	10	10	30	27	15																																													
13	11	10	35	30	15																																													
15	13	10	40	36	20																																													
16	14	10	50	41	20																																													

Alterations		Code	Spec.
	RC	90-deg. Set Screw Flat at One Location <u>Ordering Code</u> RC10 <u>Application Notes</u> Only applicable to D=10 ~ 30. ☒ Not available in combination with WRC.	For details, see Shaft Alteration Overview. P.143
	WRC	90-deg. Set Screw Flats at Two Locations <u>Ordering Code</u> WRC10-Y10 <u>Application Notes</u> Only applicable to D=10 ~ 30. ☒ Not available in combination with RC. ☒ Orientation between two set screw flats is not coplanar.	
	PMC PMS	Change to Fine Thread <u>Ordering Code</u> PMC14 (P is changed to PMC) PMS14 (P is changed to PMS)	
	KC	Keyway is added at one location. <u>Ordering Code</u> KC10-G10 <u>Application Notes</u> Only applicable to D=12, 16, 20, 25 and 30.	

- ⚠ Please see Alteration Overview for details.  **P.143**
- ⚠ When selecting multiple alteration additions, the distance between machined areas should be greater than **2mm**.
- ⚠ The distance between wrench flats and cross-drilled holes should be greater than **2mm** for alterations.
- ⚠ Alterations may lower hardness. See  **P.142**

[illegible]

📌 For D tolerance h5, add the relevant surcharge to the prices above. 📌 For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.

Part Number		Unit Price							
Type	D	Min. L 100	L101 200	L201 400	L401 600	L601 800	L801 1000	L1001 1200	L1201 1400
PSFGS	6					-	-	-	-
	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
PSGHN	25								-
	30								
	35								
	40								
	50								
PSSFGS	6					-	-	-	-
	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
50									

⚠ For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.

Part Number		Unit Price						
Type	D	Min. L 50	L51 100	L101 150	L151 200	L201 300	L301 400	L401 500
RSFAS	6							
	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
RSFHN	30							

📍 For Shafts with Cross-Drilled Hole, subtract the relevant charge from the prices above.