

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



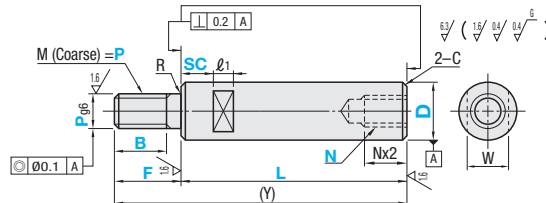
RoHS10

- ⚠️ Annealing may lower hardness at wrench flats, cross-drilled hole and shaft end machined areas (effective thread length + approx. 10mm). **☞ P142**
- ⚠️ Cross-drilled hole areas may be out of O.D. tolerances due to annealing-induced deformation.
- ⚠️ L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **☞ P141**
- ⚠️ Features of Low Temp. Black Chrome Plating **☞ P156**

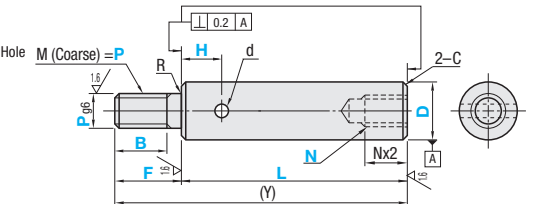
Type					Material	Hardness	Surface Treatment
D Tol. g6	D Tol. h5	D Tol. f8	D Tol. g6	D Tol. f8			
SFZA	SFZU	-	SFZH	-	SUJ2	Effective Hardening of Induction	-
SFFAZ	SFFZU	-	SFFZH	-	SUS440C Equivalent		
PSFAZ	PSFZU	-	PSFZH	-	SUJ2	Hardening of Induction P142	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 5µ or More
PSSFAZ	PSSFZU	-	PSSFZH	-	SUS440C Equivalent		
RFAZ	-	-	RFZH	-	SUJ2	58HRC - SUS440C Equivalent 56HRC	Low Temp. Black Chrome Plating
-	-	PSGGZ	-	PSGZH	S45C Equivalent	Hard Chrome Plating - Plating Hardness: HV750 - Plating Thickness: 10µ or More	
-	-	PSSGGZ	-	-	SUS304		

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

With Wrench Flats



With Cross-Drilled
($8 \leq D \leq 30, L \leq 500$)



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			

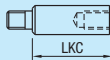
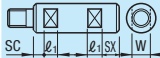
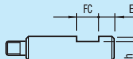
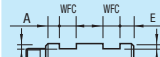
Part Number		1mm Increments				P (Coarse) Selection		N (Coarse) Selection		Wrench Flats Dimensions		Cross-Drilled Hole Dimensions		(Y)	R	Coarse Thread Dimensions	
Type		D	L	F	B					SC	W	ℓ	H	d	Max.	M	pitch
(With Wrench Flats)	(With Cross-Drilled Hole)	6	25- 798			3 4 5 6		3		SC = 1mm Increment	5				600	3	0.5
		8	25- 998		When P<6	3 4 5 6 8		3 4 5			7	8			800	3	0.8
		10	25- 998		B=F-2	4 5 6 8 10		3 4 5 6			8				800	5	0.7
		12	25-1198			5 6 8 10 12		4 5 6 8			10				1000	6	1.0
(D Tol. g6)	(D Tol. h5)	(D Tol. g6)			13	25-1198		When P=8, 10			11				1000	8	1.25
					B=F-3	5 6 8 10 12		4 5 6 8 10			13				1000	10	1.5
PSFAZ SFZU RSFZH		16	25-1198			5 6 8 10 12 16		4 5 6 8 10			14				1200	12	1.75
PSFAZ PSFZU PSFZH		18	25-1198		2sFpX5	5 6 8 10 12 16		4 5 6 8 10 12			16				1200	16	2.0
PSFAZ PSFZU PSFZH		20	25-1198			6 8 10 12 16 20		4 5 6 8 10 12			17				1200	20	2.5
RSFAZ		25	25-1198		(W/o Threads)	8 10 12 16 20 24		4 5 6 8 10 12 16			22				1500	24	3.0
(D≤30 L≤500)		30	25-1498		B=0	8 10 12 16 20 24 30		6 8 10 12 16 20		27				1500	30	3.5	
(D Tol. f8)	(D Tol. f8)	35	25-1498			10 12 16 20 24 30		8 10 12 16 20 24		30	15			1500			
PSGGZ	PSGZH	40	40-1498		When P=12	12 16 20 24 30		10 12 16 20 24 30		36				1500			
PSGGZ		50	50-1498		When P=12	16 20 24 30		12 16 20 24 30		41				1500			

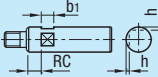
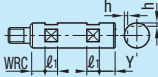
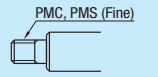
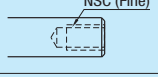
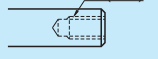
Full length L requires $N \times 2.5 + 4 \leq L$. When $D=P$, specify $F=B$ as B dimensions. However, L and F dimensions have manufacturing priority and B dimension of the product will be $F - (\text{Pitch} \times 2)$.

	Ordering	Part Number	-	L	-	F	-	B	-	P	-	N	-	SC	-	H
	Example	SFAZ20	-	277	-	F25	-	B12	-	P10	-	N12	-	SC10	-	
		SSFZH20	-	277	-	F25	-	B12	-	P10	-	N12	-		-	H10

Alterations  Part Number - L - F - B - P(PMC, PMS) - N(NSC) - SC - H - (LKC... etc.)
SFAZ30 - 250 - F40 - B30 - P10 - N10 - SC10 - LKC

Alteration Details P.143

Alterations	Code	Spec.																																																
	LKC	Alteration to L dimension tolerance <u>Ordering Code</u> LKC L dimensions can be specified in 0.1mm increment for LKC. ⚡ L<200 ⚡±0.03 200≤L<500 ⚡±0.05 L≥500 ⚡±0.1																																																
	SX	Second Set of Wrench Flats <u>Ordering Code</u> SX15 <u>Application Notes</u> 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>10</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></td><td>25</td><td>22</td><td></td></tr><tr><td>12</td><td>10</td><td></td><td>30</td><td>27</td><td></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></td><td>40</td><td>36</td><td></td></tr><tr><td>16</td><td>14</td><td></td><td>50</td><td>41</td><td>20</td></tr></table>	D	W	l1	D	W	l1	6	5	8	16	16	10	8	7	8	20	17	10	10	8		25	22		12	10		30	27		13	11	10	35	30	15	15	13		40	36		16	14		50	41	20
D	W	l1	D	W	l1																																													
6	5	8	16	16	10																																													
8	7	8	20	17	10																																													
10	8		25	22																																														
12	10		30	27																																														
13	11	10	35	30	15																																													
15	13		40	36																																														
16	14		50	41	20																																													
	FC	Set Screw Flat at One Location <u>Ordering Code</u> FC10-E8 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 <u>Ordering Code</u> WFC8-A8-E4 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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50	3																																																	

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.
	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)
	NSC	Change to Fine Tapped Thread <u>Ordering Code</u> NSC14 (N is changed to NSC) <u>Application Notes</u> Applicable to D=12 or more
	ND	Change the effective length of tapped part to Nx3. <u>Ordering Code</u> ND6 (N is changed to ND) <u>Application Notes</u> Only applicable to D=10~30 and N=6~20 ♡ One End Tapped: NDx3.5+7≤L

For details, see Shaft Alteration Overview.
☞ P.143

- ⚠ Please see Shaft Alteration Overview for details if provided. **P.143**
- ⚠ When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm.
- ⚠ 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 50	L51 100	L101 150	L151 200	L201 300	L301 400	L401 500
RSFAZ RSFZH	6							
	8							
	10							
	12							
	13							
	15							
	16							
	18							
	20							
	25							
	30							

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

ex. Example

Welding Structure (Chamber)

Hex Wrench

One End Threaded, One End Tapped Shafts with Cross-Drilled Hole



One End Threaded, One End Tapped
Shafts with Cross-Drilled Hole

- Shafts with Cross-Drilled Hole are suitable for narrow work space.

Part Number		Unit Price							
Type	D	Min. L 100	L101 200	L201 400	L401 600	L601 800	L801 1000	L1001 1200	L1201 1498
PSGGZ 📌PSGGZ	6					-	-	-	-
	8						-	-	-
	10						-	-	-
	12, 13							-	-
	15, 16								-
	18, 20								-
	25								-
	30								
	35								
	40								
50									
PSSGGZ	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.