

Shafts

One End Stepped / One End Tapped Hollow Shafts

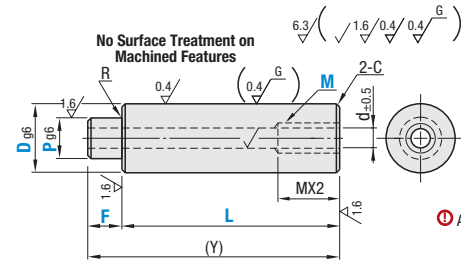
Shafts – One End Stepped / One End Tapped Hollow Shafts



RoHS 10

Type	Material	Hardness	Surface Treatment
SPJA	52100 Bearing Steel Equivalent	Induction Hardening Effective Hardened Depth P.199 58 HRC min.	—
PSPJA			Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 5µ or More
RSPJA			Low Temperature Black Chrome Plating

- ① Features of Low Temperature Black Chrome Plating P.213.
- ① Circularity, Straightness, Perpendicularity and Changes in Hardness P.198.
- ① Low temperature black chrome plating is not applied to the inside of hollow shafts, taps, bored holes and lateral holes, and may rust.
- ① Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10 mm). P.199



① About Hollow Shaft Wall Thickness Deviations. P.198

Type	Part Number		1 mm Increments			M (Coarse Threads)	(Y) Max.	d	R	C
	Dg6	L	F	P	M (Coarse Threads)					
SPJA	6	-0.004 -0.012	25-598	2 ≤ F ≤ Px3	5 ≤ P < D	3	600	2	0.3 or Less	0.5 or Less
	8	-0.005 -0.014	25-798		6 ≤ P < D	4 5	800	3		
	10	-0.006 -0.017	25-998		7 ≤ P < D	5 6	800	4		
	12	-0.006 -0.017	25-998		10 ≤ P < D	8 T1 (RC1/8)	1000	6		
PSPJA	13	-0.006 -0.017	25-998	2 ≤ F ≤ Px3	10 ≤ P < D	10 T1 (RC1/8)	1000	7	0.3 or Less	0.5 or Less
	16	-0.007 -0.020	25-1198		13 ≤ P < D	12 T2 (RC1/4)	1200	10		
RSPJA (D ≤ 30, L ≤ 500)	20	-0.007 -0.020	25-1198	2 ≤ F ≤ Px3	16 ≤ P < D	16 T3 (RC3/8)	1200	14	0.5 or Less	1.0 or Less
	25	-0.009 -0.025	25-1498		20 ≤ P < D	20	1200	16		
	30	-0.009 -0.025	25-1498		22 ≤ P < D	20	1500	17		
	35	-0.009 -0.025	25-1498		24 ≤ P < D	24	1500	19		
	40	-0.009 -0.025	25-1498		25 ≤ P < D	24 30	1500	20		
	50	-0.009 -0.025	25-1498		32 ≤ P < D	30	1500	26		

- ① When T1, T2 or T3 is selected as M, tapered thread machining is applied.
- ① Overall length L requires Mx3=L

Part Number Example
 Part Number - L - F - P - M
 SPJA20 - 277 - F25 - P16 - M16

Part Number Alterations
 Part Number - L - F - P - M - (DKC / LKC / C / SC)
 SPJA20 - 277 - F25 - P16 - M16 - LKC

Alterations	Revise O.D. Tolerance (Precision Grade)	Alteration to L Dimension Tolerance	Wrench Flats																																																			
Code	DKC	LKC	SC																																																			
Spec.	Outer diameter tolerance is altered to h5. Ordering Code: DKC ⊗ Not applicable to Low Temperature Black Chrome Plated Shafts.	Changes L Tolerance. Ordering Code: LKC ① L < 200 → L ± 0.03 200 ≤ L < 500 → L ± 0.05 L ≥ 500 → L ± 0.1 ① L dimensions can be specified in 0.1 mm increment for LKC. ⊗ Not applicable when D-P ≤ 2	Adds wrench flats. Ordering Code: SC5 ① SC = 1 mm Increment ① SC + ℓ₁ ≤ L-Mx2 SC = 0																																																			
	<table border="1"> <thead> <tr> <th>D</th> <th>h5 Tolerance</th> </tr> </thead> <tbody> <tr><td>6</td><td>0 -0.005</td></tr> <tr><td>8-10</td><td>0 -0.006</td></tr> <tr><td>12-16</td><td>0 -0.008</td></tr> <tr><td>20-30</td><td>0 -0.009</td></tr> <tr><td>35-50</td><td>0 -0.011</td></tr> </tbody> </table>	D	h5 Tolerance	6	0 -0.005	8-10	0 -0.006	12-16	0 -0.008	20-30	0 -0.009	35-50	0 -0.011		<table border="1"> <thead> <tr> <th>D</th> <th>W</th> <th>ℓ₁</th> </tr> </thead> <tbody> <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> <tr><td>12</td><td>10</td><td>10</td></tr> <tr><td>13</td><td>11</td><td>10</td></tr> <tr><td>16</td><td>14</td><td>10</td></tr> <tr><td>20</td><td>17</td><td>10</td></tr> <tr><td>25</td><td>22</td><td>15</td></tr> <tr><td>30</td><td>27</td><td>15</td></tr> <tr><td>35</td><td>30</td><td>15</td></tr> <tr><td>40</td><td>36</td><td>20</td></tr> <tr><td>50</td><td>41</td><td>20</td></tr> </tbody> </table>	D	W	ℓ₁	6	5	8	8	7	8	10	8	8	12	10	10	13	11	10	16	14	10	20	17	10	25	22	15	30	27	15	35	30	15	40	36	20	50	41	20
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① Alterations may lower hardness. P.199

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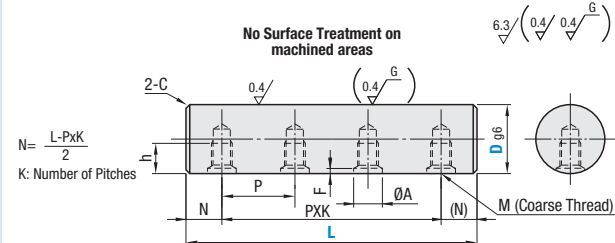
Continuous Support / Pre-Drilled & Tapped

Shafts – Continuous Support / Pre-Drilled & Tapped



RoHS 10

Type	Material	Hardness	Surface Treatment
SFAE	52100 Bearing Steel Equivalent	Induction Hardening Effective Hardened Depth P.199 52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	—
SSFAE	SUS440C (13Cr) Stainless Steel Equivalent		
PSFAE	52100 Bearing Steel Equivalent		Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness 5µ or more
PSSFAE	SUS440C (13Cr) Stainless Steel Equivalent		



① Changes in circularity, straightness, perpendicularity and hardness P.198.

Type	Part Number		L 1 mm Increments	M (Coarse Thread)	P	h	C	A	F
	Dg6	L							
SFAE PSFAE	10	-0.005 -0.014	200-800	M4	100	4.5	0.5 or Less	4.3	2.0
	12	-0.006 -0.017	200-1000						
	13	-0.006 -0.017	200-1000						
SFAE SSFAE PSFAE PSSFAE	16	-0.007 -0.020	200-1200	M5	150	M x 2	1.0 or Less	5.5	2.5
	20	-0.007 -0.020	200-1200						
	25	-0.009 -0.025	300-1200	M6	200	M x 2	1.0 or Less	6.8	3.0
	30	-0.009 -0.025	300-1500						
	35	-0.009 -0.025	300-1500	M8	300	M x 2	1.0 or Less	9	3.5
	40	-0.009 -0.025	400-1500						
	50	-0.009 -0.025	400-1500						

Correlation Between L Dimension and Number of Taps

Pitch	P=100	P=150	P=200	P=300	Number of Taps	K (Number of Pitches)	N
L	200-219	200-319	300-419	400-619	2	1	N = $\frac{L-PxK}{2}$
	220-319	320-469	420-619	620-919	3	2	
	320-419	470-619	620-819	920-1219	4	3	
	420-519	620-769	820-1019	1220-	5	4	
	520-619	770-919	1020-1219	—	6	5	
	620-719	920-1069	1220-1419	—	7	6	
	720-819	1070-	1420-	—	8	7	
	820-919	—	—	—	9	8	
	920-	—	—	—	10	9	

Part Number Example
 Part Number - L
 SFAE10 - 300