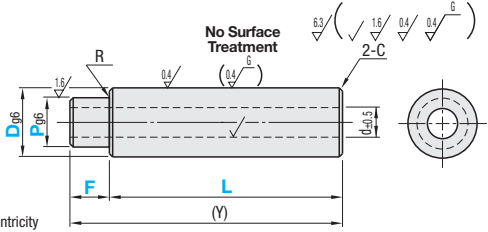


Shafts

One End Stepped Hollow



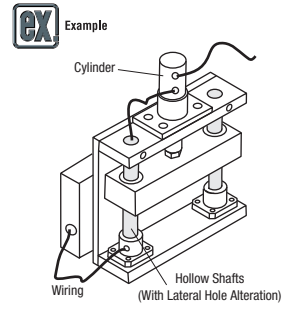
Type	Material	Hardness	Surface Treatment
SPJG		Effective Hardened Depth of Induction Hardening	
PSPJG	SUJ2 Equivalent	Effective Hardened Depth of Induction Hardening	Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5μ or More
RSPJG			Low Temp. Black Chrome Plating



- Features of Low Temp. Black Chrome Plating **P.128**
- L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P.111**
- Low temp. black chrome plating is not applied to the inside of hollow shafts, taps, bored holes and lateral holes, and may rust.
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). About Hollow Shaft Wall Thickness Deviations See **P.111**

RoHS 10

Part Number Type	Dg6		1mm Increment			(Y) Max.	d	R	C
	L	F	L	P					
SPJG	6	-0.004 -0.012	25~598	5≤P<D	2≤F≤P×3	600	2	0.5 or Less	
	8	-0.005	25~798	6≤P<D		800	3		
	10	-0.014	25~798	7≤P<D			4		
	12	-0.006	25~998	10≤P<D		1000	6		
PSPJG	13	-0.017	25~998	13≤P<D			7	0.3 or Less	
	16	-0.007	25~1198	16≤P<D		1200	10		
	20	-0.020	25~1198	20≤P<D			14		
RSPJG (D≤30, L≤500)	25	-0.007	25~1198	22≤P<D			16	1.0 or Less	
	30	-0.020	25~1498	24≤P<D		1500	17		
	35	-0.009	25~1498	25≤P<D			19		
	40	-0.025	25~1498	25≤P<D			20		
				32≤P<D			26		
							26		



Ordering Example: Part Number - L - F - P - Alterations
 SPJG20 - 400 - F25 - P16
 SPJG30 - 400 - F25 - P22 - VC

- When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm.
- Alterations may lower hardness. See **P.112**

Alterations	Reverse O.D. Tolerance (Precision Grade)	Alteration to L dimension tolerance	Wrench Flats	One End Bored	Lateral Hole on One Side																																																																																																					
DKC	LKC	SC	VC	RH																																																																																																						
Spec.	O.D. tolerance is altered to h5. (Ordering Code) DKC <table border="1"> <thead> <tr> <th>D</th> <th>h5 Tolerance</th> </tr> </thead> <tbody> <tr><td>6</td><td>-0.005</td></tr> <tr><td>8, 10</td><td>-0.006</td></tr> <tr><td>12-16</td><td>-0.008</td></tr> <tr><td>20-30</td><td>-0.009</td></tr> <tr><td>35-50</td><td>-0.011</td></tr> </tbody> </table> *Not applicable to Low Temp. Black Chrome Plated Shafts.	D	h5 Tolerance	6	-0.005	8, 10	-0.006	12-16	-0.008	20-30	-0.009	35-50	-0.011	Changes L tolerance. (Ordering Code) LKC *L<200→ L±0.03 200≤L<500 → L±0.05 L≥500→ L±0.1 *L dimensions can be specified in 0.1mm increment for LKC. *Not applicable when D-P≤2.	Adds wrench flats. (Ordering Code) SC5 *SC=1mm Increment *SC+φ1≤L SC<0 <table border="1"> <thead> <tr> <th>D</th> <th>W</th> <th>a</th> </tr> </thead> <tbody> <tr><td>6</td><td>5</td><td></td></tr> <tr><td>8</td><td>7</td><td></td></tr> <tr><td>10</td><td>8</td><td></td></tr> <tr><td>12</td><td>10</td><td></td></tr> <tr><td>13</td><td>11</td><td></td></tr> <tr><td>16</td><td>14</td><td></td></tr> <tr><td>20</td><td>17</td><td>10</td></tr> <tr><td>25</td><td>22</td><td></td></tr> <tr><td>30</td><td>27</td><td>15</td></tr> <tr><td>35</td><td>30</td><td></td></tr> <tr><td>40</td><td>36</td><td>20</td></tr> <tr><td>50</td><td>41</td><td></td></tr> </tbody> </table>	D	W	a	6	5		8	7		10	8		12	10		13	11		16	14		20	17	10	25	22		30	27	15	35	30		40	36	20	50	41		One end is bored. (Used as a pilot hole) Hole diameter Vh7 is shown in the table below. *K=1mm Increment *3<K≤Vx2 (Ordering Code) VC-K5 <table border="1"> <thead> <tr> <th>D</th> <th>Vh7</th> </tr> </thead> <tbody> <tr><td>6</td><td>-</td></tr> <tr><td>8</td><td>-</td></tr> <tr><td>10</td><td>8</td></tr> <tr><td>12</td><td>10</td></tr> <tr><td>13</td><td>11</td></tr> <tr><td>16</td><td>14</td></tr> <tr><td>20</td><td>17</td></tr> <tr><td>25</td><td>22</td></tr> <tr><td>30</td><td>27</td></tr> <tr><td>35</td><td>30</td></tr> <tr><td>40</td><td>36</td></tr> <tr><td>50</td><td>41</td></tr> </tbody> </table>	D	Vh7	6	-	8	-	10	8	12	10	13	11	16	14	20	17	25	22	30	27	35	30	40	36	50	41	Adds a lateral hole on one side. Lateral hole diameters are shown in the table below. RH=1mm Increment *d1+1<RH<Dx3 (Ordering Code) RH5 <table border="1"> <thead> <tr> <th>D</th> <th>d1</th> <th>D</th> <th>d1</th> </tr> </thead> <tbody> <tr><td>10</td><td>2</td><td>20</td><td>6</td></tr> <tr><td>12</td><td>3</td><td>25</td><td>8</td></tr> <tr><td>13</td><td>3</td><td>30</td><td>8</td></tr> <tr><td>16</td><td>5</td><td>40</td><td>8</td></tr> <tr><td>20</td><td>5</td><td>50</td><td>10</td></tr> </tbody> </table> *The hollow I.D. "d1" may vary due to the wall thickness deviations. *Not applicable to stepped sides. *Burs might remain inside after alteration. *Orientation in relation to other features will be random. *Not applicable if interferes with other alterations.	D	d1	D	d1	10	2	20	6	12	3	25	8	13	3	30	8	16	5	40	8	20	5	50	10
D	h5 Tolerance																																																																																																									
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12	3	25	8																																																																																																							
13	3	30	8																																																																																																							
16	5	40	8																																																																																																							
20	5	50	10																																																																																																							

Part Number Type	D	Unit Price											
		Min. L - 50	L51-100	L101-150	L151-200	L201-300	L301-400	L401-500	L501-600	L601-800	L801-1000	L1001-1200	L1201-1498
SPJG RSPJG Price on right + Price in the table below	6												
	8												
	10												
	12												
	13												
	16												
	20												
	25												
	35												
	40												
50													
PSPJG	6												
	8												
	10												
	12												
	13												
	16												
	20												
	25												
	30												
	35												
40													
50													

Low Temp. Black Chrome Plating Additional Charge	D	Additional Price						
		Min. L - 50	L51-100	L101-150	L151-200	L201-300	L301-400	L401-500
	6							
	8							
	10							
	12							
	13							
	16							
	20							
	25							
	30							
	35							
	40							
	50							

- For Low Temp. Chrome Plated Shafts, please add Low Temp. Black Chrome Plating Additional Charge on the left to the non-plated shaft Unit Price above.
- Features of Low Temp. Black Chrome Plating **P.128**