

# Shafts

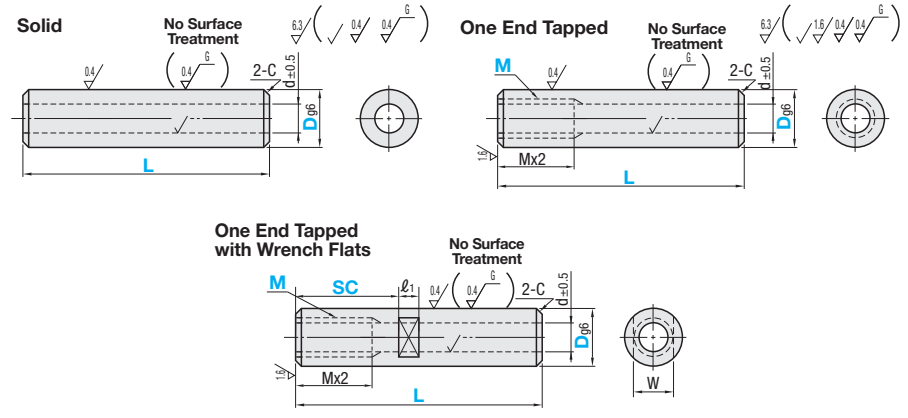
## Hollow / One End Tapped Hollow / One End Tapped Hollow with Wrench Flats



RoHS 10

- Features of Low Temp. Black Chrome Plating **P128**
- Low temp. black chrome plating is not applied to the inside of hollow shafts, taps, bored holes and lateral holes, and may rust.
- Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness **P111**
- Circularity and O.D. tolerance may not meet precision specification in areas approximately 10mm from wrench flats machined ends.
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm).

Type	Material	Hardness	Surface Treatment	D Tol.
SPJ, SPJT, SPTR	SUJ2 Equivalent			6
SSPJ, SSPJT, SSPTR	SUS440C or 13Cr stainless	Effective Hardened Depth of Induction Hardening <b>P112</b>		8, 10
PSPJ, PSPJT, PSPTR	SUJ2 Equivalent	SUJ2 Equivalent 58HRC~	Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5μ or More	12~16
RSPJ, RSPJT, RSPTR	SUJ2 Equivalent	SUS440C or 13Cr stainless 56HRC~	Low Temp. Black Chrome Plating	20~30
				35~50



About Hollow Shaft Wall Thickness Deviations See **P111**

Part Number	Type	D	L specified in 1mm Increment	M (Coarse) Selection	Wrench Flats Dimensions			d	C
					SC	W	ℓ1		
Hollow Shafts	SPJ	6	20-600	3	5	8	2	0.5 or Less	
	SSPJ (* marked sizes only)	*8	20-800(300)	4 *5	7	8	3(3)		
	PSPJ	*10	20-800(400)	5 *6	8	8	4(4)		
One End Tapped Hollow Shafts	RSPJ (D≤30, L≤500)	*12	20-1000(500)	*8 *T1 (RC1/8)	10	10	6(5)	1.0 or Less	
	SPJT	*13	25-1000(500)	*10 *T1 (RC1/8)	11	10	7(5)		
	SSPJT (* marked sizes only)	*16	30-1200(600)	*12 *T2 (RC1/4)	14	10	10(6)		
	PSPJT	*20	30-1200(800)	*16 *T3 (RC3/8)	17	10	14(8)	1.0 or Less	
	RSPJT (D≤30, L≤500)	*25	35-1200(1000)	*20	22	10	16(10)		
	SPTR	*30	35-1500(1000)	*20	27	10	17(12)		
One End Tapped Hollow Shafts with Wrench Flats	SSPJT (* marked sizes only)	35	35-1500	24	30	15	19	1.0 or Less	
	PSPTR	40	50-1500	24 30	36	20	20		
	RSPTR (D≤30, L≤500)	50	60-1500	30	41	20	26		

- When T1, T2 or T3 is selected as M, tapered thread machining is applied. (Ordering Code: MT1)
- When Mx2.5+4≥L, tap pilot holes may go through.
- Only \* marked D and M dimensions are applicable to Stainless Steel Shafts. L and d dimensions in ( ) are applicable.

**Ordering Example**

Part Number - L - M - SC

SPJ20 - 350  
 SPJT20 - 525 - MT3  
 SPTR30 - 730 - M20 - SC8

**Alterations**

Part Number - L - M - SC - (DKC---etc.)

SPJ30 - 250 - DKC  
 SPJT30 - 250 - M20 - WSC12-X8

When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. **P114**

Alterations may lower hardness. See **P112**

Alterations	Revise O.D. Tolerance (Precision Grade)	Alteration to L dimension tolerance	End Boring	Wrench Flats at Two Locations	Lateral Hole on One Side
	DKC	LKC	VC, WVC	WSC	RH, LH
<b>Code</b>	DKC	LKC	VC, WVC	WSC	RH, LH
<b>Spec.</b>	O.D. tolerance is altered to h5. Ordering Code: DKC 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 * Not applicable to Stainless Steel and Low Temp. Chrome Plated Shafts.	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.	One end or both ends are bored. (Used as pilot holes) Hole diameter Vh7 is shown in the table below. K=1mm increment * 3<K≤Vx2 Ordering Code: VC-K5 Both Ends: WVC-K10 D Vh7 10 6 12 8 13 10 16 12 20 16 25, 30 20 35, 40 24 50 30 * WVC is only applicable for Hollow Shafts.	Adds Wrench Flats at two locations. (Ordering Code) WSC12-X8 * WSC, X=1mm Increment * When D≤25 WSC=X+ℓ1x2<L WSC=Mx2, X<Mx2 * When D>30 WSC=X+ℓ1x2<L WSC=0 X≥0 * Orientation between two wrench flats is not coplanar. D W ℓ1 6 5 8 8 7 8 10 8 10 12 10 10 13 11 10 16 14 10 20 17 10 25 22 15 30 27 15 35 30 15 40 36 15 50 41 20 * Not applicable to One End Tapped Hollow Shafts.	Adds a lateral hole on one side. Lateral hole diameters are shown in the table below. RH, LH=1mm increment * d1+1<RH, LH≤Dx3 Ordering Code: One End RH5 Both Ends RH5-LH6 * Orientation between two cross-drilled holes is not coplanar. LH RH D d1 D d1 10 2 (2) 20 6 (4) 12 3 (2) 25, 30 6 (5) 13 3 (2) 35, 40 8 16 5 (3) 50 10 Values in ( ) are for Stainless Steel Shafts. * The hollow I.D. "d" may vary due to the wall thickness deviations. * Not applicable to tapped end of One End Tapped Type. * Burrs might remain inside after alteration. * Orientation in relation to other features will be random. * Not applicable if interferes with other alterations.

### Hollow Shafts

Part Number	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	L1201-1500	
SPJ RSPJ Price on right + Price in the table below	6													
	8													
	10													
	12													
	13													
	16													
	20													
	25													
	30													
	35													
SSPJ	8													
	10													
	12													
	13													
	16													
	20													
PSPJ	6													
	8													
	10													
	12													
	13													
	16													

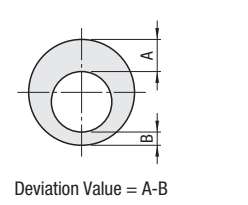
### One End Tapped Hollow Shafts

Part Number	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	L1201-1500	
SPJT SPTR RSPJT Price on right + Price in the table below RSPTR	6													
	8													
	10													
	12													
	13													
	16													
	20													
	25													
	30													
	35													
SSPJT SSPTR	8													
	10													
	12													
	13													
	16													
	20													
PSPJT PSPTR	6													
	8													
	10													
	12													
	13													
	16													

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
* Applicable to RSPJ RSPJT RSPTR	6						
	8						
	10						
	12						
	13						
	16						

### About Hollow Shaft Wall Thickness Deviations

O.D. (D)	SUJ2 Equivalent Wall Thickness Deviation Value	SUS440C or 13Cr stainless Wall Thickness Deviation Value
6	0.3 or Less	-
8		1.5 or Less
10		
12	0.4 or Less	
13		4.0 or Less
16		
20	0.6 or Less	
25		
30	1.0 or Less	
35		
40		
50	1.5 or Less	



- 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 **P128**

