

Shafts

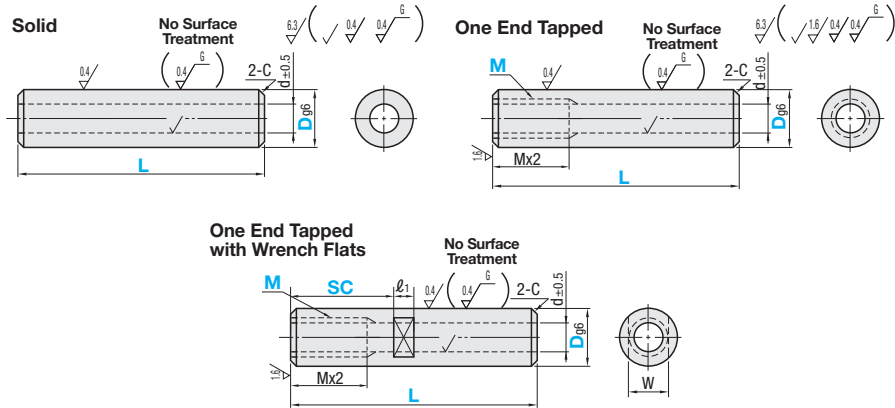
Hollow / One End Tapped Hollow / One End Tapped Hollow with Wrench Flats



RoHS 10

- Features of LTBC Plating **P128**
- LTBC Plating is not applied to the inside of hollow shafts, taps, bored holes and lateral holes, and may rust.
- L 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	EN 1.3505 Equiv.	Effective Hardened Depth of Induction Hardening P112 EN 1.3505 Equiv. EN 1.4125 Equiv. 58HRC~56HRC	Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5μ or More	6	-0.004 -0.012
SSPJ	SSPJT	SSPTR	EN 1.4125 Equiv.			8, 10	-0.005 -0.014
PSPJ	PSPJT	PSPTR	EN 1.3505 Equiv.			12~16	-0.006 -0.017
RSPJ	RSPJT	RSPTR	EN 1.3505 Equiv.		LTBC Plating	20~30	-0.007 -0.020
						35~50	-0.009 -0.025



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	SC=1mm Increment	5	8	2	0.5 or Less	
	SSPJ (* marked sizes only)	*8	20~800(300)	4		7		3(3)		
	SSPJ	*10	20~800(400)	5		8		4(4)		
	RSPJ (D≤30, L≤500)	*12	20~1000(500)	*8		10		6(5)		
One End Tapped Hollow Shafts	SPJT	*13	25~1000(500)	*10	When D≥25 SC+ℓ1≤L SC≥Mx2 When D≥30 SC+ℓ1≤L SC≥0	11		7(5)		
	SSPJT (* marked sizes only)	*16	30~1200(600)	*12		14	10	10(6)		
	PSPJT	*20	30~1200(800)	*16		17		14(8)		
	RSPJT (D≤30, L≤500)	*25	35~1200(1000)	*20		22		16(10)		
One End Tapped Hollow Shafts with Wrench Flats	SPTR	*30	35~1500(1000)	*20	Details of Wrench Flats P112	27		17(12)	1.0 or Less	
	SSPTR (* marked sizes only)	35	35~1500	24		30	15	19		
	PSPTR	40	50~1500	24 30		36		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. **P112**

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, VWC	WSC	RH, LH
Code	DKC	LKC	VC, VWC	WSC	RH, LH
	O.D. tolerance is altered to h5. (Ordering Code) DKC	Changes L tolerance. (Ordering Code) LKC	One end or both ends are bored. (Used as pilot holes) Hole diameter V _{H7} is shown in the table below. K=1mm Increment 3<K≤Vx2 (Ordering Code)	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.	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.
Spec.	D h5 Tolerance	L h5 Tolerance	D V _{H7}	D W ℓ1	D d1
	6 0 -0.005	200≤L<500 L≤0.05 L500→L±0.1	10 6	6 5	10 2 (2) 20 6 (4)
	8, 10 0 -0.006		12 8	8 7	12 3 (2) 25, 30 6 (5)
	12~16 0 -0.008		13 10	10 8	13 3 (2) 35, 40 8
	20~30 0 -0.009		16 12	12 10	16 5 (3) 50 10
	35~50 0 -0.011		20 16	13 11	
			25, 30 20	16 14	
			35, 40 24	20 17	
			50 30	25 22	
				30 27	
				35 30	
				40 36	
				50 41	
			WVC is only applicable for Hollow Shafts.	Not applicable to One End Tapped Hollow Shafts.	

Hollow Shafts

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 L1201~1500
SPJ RSPJ	Price on right + Price in the table below	6											
		8											
		10											
		12											
		13											
		16											
		20											
		25											
		30											
		35											
SSPJ		40											
		50											
		8											
		10											
		12											
		13											
		16											
		20											
		25											
		30											
PSPJ		6											
		8											
		10											
		12											
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		16											
		20											
		25											
		30											
		35											
		40											
		50											

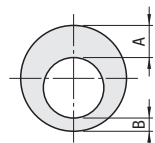
One End Tapped Hollow Shafts

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 L1201~1500
SPJT SPTR	Price on right + Price in the table below	6											
		8											
		10											
		12											
		13											
		16											
		20											
		25											
		30											
		35											
SSPJT SSPTR		40											
		50											
		8											
		10											
		12											
		13											
		16											
		20											
		25											
		30											
PSPJT PSPTR		6											
		8											
		10											
		12											
		13											
		16											
		20											
		25											
		30											
		35											
		40											
		50											

LTBC 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						
	20						
	25						
	30						
	35						

About Hollow Shaft Wall Thickness Deviations

O.D. (D)	EN 1.3505 Equiv. Wall Thickness Deviation Value	EN 1.4125 Equiv. 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		
25	0.6 or Less	
30	1.0 or Less	
35		
40		
50	1.5 or Less	



Deviation Value = A-B

For Low Temp. Chrome Plated Shafts, please add LTBC Plating Additional Charge on the left to the non-plated shaft Unit Price above.

Features of LTBC Plating **P128**



Example

