Shafts

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

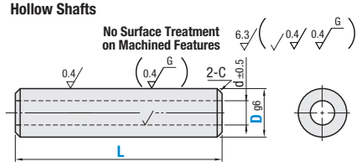
Shafts – Hollow / One End Tapped Hollow Shafts / One End Tapped Hollow Shafts with Wrench Flats

RoHS 10

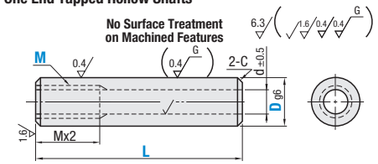
Type			Material	Hardness	Surface Treatment
SPJ	SPJT	SPTR	52100 Bearing Steel Equivalent	Effective Hardened Depth of Induction Hardened **P.199** 52100 Bearing Steel Equivalent 58 HRC min. SUS440C (13Cr) Stainless Steel Equivalent 56 HRC min.	—
SSPJ	SSPJT	SSPTR	SUS440C (13Cr) Stainless Steel Equivalent		
PSPJ	PSPJT	PSPTR	52100 Bearing Steel Equivalent		Hard Chrome Plating Plating Hardness: 750 HV min. Plating Thickness: 5μ or More
RSPJ	RSPJT	RSPTR	52100 Bearing Steel Equivalent		Low Temperature Black Chrome Plating

D Tolerance	
6	-0.004 -0.012
8 / 10	-0.005 -0.014
12–16	-0.006 -0.017
20–30	-0.007 -0.020
35–50	-0.009 -0.025

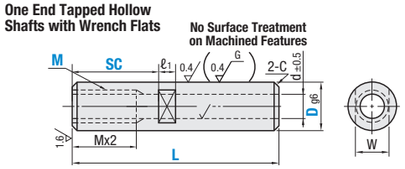
Hollow Shafts



One End Tapped Hollow Shafts



One End Tapped Hollow Shafts with Wrench Flats



- Features of Low Temperature Black Chrome Plating **P.213**.
- Low temp. black chrome plating is not applied to the inside of hollow shafts, taps, bored holes and lateral holes, and may rust.
- Circularity, Straightness, Perpendicularity and Changes in Hardness **P.198**.
- Circularity and O.D. tolerance may not meet precision specification in areas approximately 10 mm from wrench flats machined ends.
- Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10 mm). **P.199**

Part Number Type	D	L 1 mm Increments	M (Coarse Threads)	Wrench Flats Dimensions SC	W	ℓ1	d	C
Hollow Shafts SPJ	6	20–600	3	SC=1 mm Increment ⓘ When D≤25 SC+ℓ1≤LSC≥Mx2 ⓘ When D≥30 SC+ℓ1≤L SC≥0 ⓘ Details of Wrench Flats **P.199**	5	8	2	0.5 or Less
SSPJ (*marked sizes only)	*8	20–800 (300)	4 *5		7		3 (3)	
PSPJ	*10	20–800 (400)	5 *6		8		4 (4)	
RSPJ (D≤30, L≤500)	*12	20–1000 (500)	*8 *T1 (RC1/8)		10	10	6 (5)	
One End Tapped Hollow Shafts SPJT	*13	25–1000 (500)	*10 *T1 (RC1/8)		11		7 (5)	
SSPJT (*marked sizes only)	*16	30–1200 (600)	*12 *T2 (RC1/4)		14		10 (6)	
PSPJT	*20	30–1200 (800)	*16 *T3 (RC3/8)		17		14 (8)	1.0 or Less
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		27	15	17 (12)	
SSPTR (*marked sizes only)	35	35–1500	24		30		19	
PSPTR	40	50–1500	24 30		36	20	20	
RSPTR (D≤30, L≤500)	50	60–1500	30		41		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.

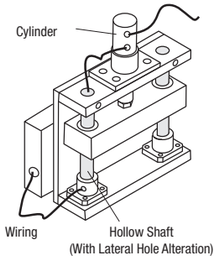
Shafts

Hollow / One End Tapped Hollow Shafts / One End Tapped Hollow Shafts with Wrench Flats, *continued*

Part Number Example

Part Number	-	L	-	M	-	SC
SPJ20	-	350				
SPJT20	-	525	-	MT3		
SPTR30	-	730	-	M20	-	SC8

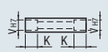
Application Example



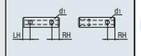
Part Number Alterations

Part Number	-	L	-	M	-	SC	-	(KKC...etc.)
SPJ30	-	250			-	DKC		
SPJT30	-	250	-	M20	-	WSC12-X8		

Alteration Details **P.200**

Alterations		Code	Spec.
Revise O.D. Tolerance (Precision Grade)		DKC	Outer diameter tolerance is altered to h5. **Ordering Code:** DKC D: 6 → h5 Tolerance 0 -0.005 D: 8–10 → 0 -0.006 D: 12–16 → 0 -0.008 D: 20–30 → 0 -0.009 D: 35–50 → 0 -0.011 ⊗ Not applicable to Stainless Steel and Low Temperature Chrome Plated Shafts.
Alteration to L Dimension Tolerance		LKC	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 0.1 mm increment for LKC.
End Boring		VC / WVC	One end or both ends are bored. (Used as pilot holes) Hole diameter V_{H7} is shown in the table below. K=1 mm Increment ⓘ 3<K≤V×2 **Ordering Code:** One End: VC-K5 / Both Ends: WVC-K10 D: 10 → V_{H7} 6; 12 → 8; 13 → 10; 16 → 12; 20 → 16; 25, 30 → 20; 35, 40 → 24; 50 → 30 ⓘ WVC is only applicable for Hollow Shafts.

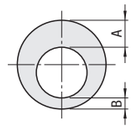
ⓘ When selecting multiple alteration additions, the distance between machined areas should be greater than 2 mm. **P.201**
ⓘ Alterations may lower hardness. **P.199**

Alterations		Code	Spec.
Wrench Flats at Two Locations		WSC	Adds wrench flats at two locations. **Ordering Code:** WSC12-X8 ⓘ Specify WSC/X=1 mm 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 random. D: 6 W: 5 ℓ1: 8; 8 W: 7 ℓ1: 8; 10 W: 8 ℓ1: 10; 12 W: 10 ℓ1: 10; 13 W: 11 ℓ1: 10; 16 W: 14 ℓ1: 10; 20 W: 17 ℓ1: 10; 25 W: 22 ℓ1: 10; 30 W: 27 ℓ1: 15; 35 W: 30 ℓ1: 15; 40 W: 36 ℓ1: 20; 50 W: 41 ℓ1: 20 ⊗ Not applicable to One End Tapped Hollow Shafts
Lateral Hole on One Side		RH / LH	Adds a lateral hole on one side. Lateral hole diameters are shown in the table below. RH, LH = 1 mm Increment ⓘ d_1+1<RH, LH≤Dx3 **Ordering Code:** One End RH5, Both Ends RH5-LH6 ⓘ Orientation between two cross-drilled holes is random. D: 10 d_1: 2 (2); 12 3 (2); 13 3 (2); 16 5 (3); 20 6 (4); 25, 30 6 (5); 35, 40 8; 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.

About Hollow Shaft Wall Thickness Deviations

Unit: mm

Outer Diameter (D)	52100 Bearing Steel Equivalent Wall Thickness Deviation Value	SUS440C (13Cr) Stainless Steel Equivalent Wall Thickness Deviation Value
6	0.3 or Less	—
8	0.4 or Less	1.5 or Less
10		4.0 or Less
12		
13		
16		
20		
25	0.6 or Less	
30	1.0 or Less	
35		—
40	1.5 or Less	
50		



Deviation Value=A-B

ⓘ About Hollow Shaft Wall Thickness Deviations, please see **P.198**.