Shafts

Both Ends Tapped Hollow / Both Ends Tapped Hollow with Wrench Flats / One End Threaded Hollow / One End Threaded Hollow with Wrench Flats

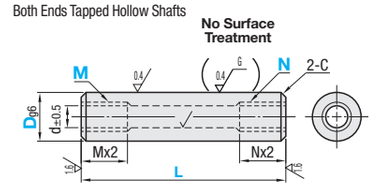
RoHS10

- Features of Low Temp. Black Chrome Plating P.128
- Circularity and O.D. tolerance may not meet precision specification in areas approximately 15mm from wrench flats machined ends.
- 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 required for wrench flats machining and shaft end threading (effective thread length + approx. 10mm) may lower hardness. P.112

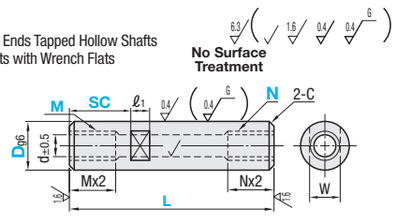
Type				M Material	H Hardness	S Surface Treatment
Both Ends Tapped	Both Ends Tapped with Wrench Flats	One End Threaded	One End Threaded with Wrench Flats			
SPJW	SPWR	SPJN	SPNR	SUJ2	Effective Hardened Depth of Induction Hardening P.112 SUJ2 58HRC~ SUS440C Equivalent 56HRC~	-
SSPJW	SSPWR	-	-	SUS440C Equivalent		Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5μ or More
PSPJW	PSPWR	PSPJN	PSPNR	SUJ2		
RSPJW	RSPWR	RSPJN	RSPNR	SUJ2		Low Temp. Black Chrome Plating

D Tol.	
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

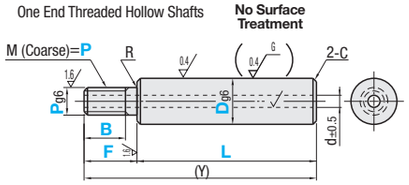
Both Ends Tapped Hollow Shafts



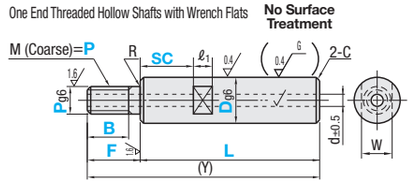
Both Ends Tapped Hollow Shafts with Wrench Flats



One End Threaded Hollow Shafts



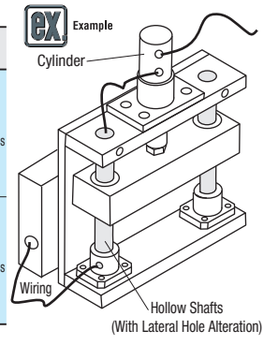
One End Threaded Hollow Shafts with Wrench Flats



- About Hollow Shaft Wall Thickness Deviations See P.111

Both Ends Tapped Hollow Shafts

Part Number Type	D	L specified in 1mm Increment	M (Coarse), N (Coarse) Selection	Wrench Flats Dimensions SC	W	ℓ1	d	C
Not applicable to Both Ends Tapped Hollow Shafts	6	20~600	3	SC=1mm Increment When D≤25, SC+ℓ1≤L-Nx2 SC≥Mx2 When D≥30, SC+ℓ1≤L SC≥0 Details of Wrench Flats P.112	5	8	2	0.5 or Less
SPJW	*8	20~800(300)	4 *5		7		3(3)	
SSPJW (* marked sizes only)	*10	20~800(400)	5 *6		8		4(4)	
PSPJW	*12	32~1000(500)	*8 *T1 (RC1/8)		10	10	6(5)	
RSPJW (D≤30,L≤500)	*13	40~1000(500)	*10 *T1 (RC1/8)		11		7(5)	
	*16	48~1200(600)	*12 *T2 (RC1/4)		14		10(6)	
Both Ends Tapped Hollow with Wrench Flats	*20	64~1200(800)	*16 *T3 (RC3/8)		17		14(8)	1.0 or Less
SPWR	*25	80~1200(1000)	*20		22		16(10)	
SSPWR (* marked sizes only)	*30	80~1500(1000)	*20		27	15	17(12)	
PSPWR	35	96~1500	24		30		19	
RSPWR (D≤30,L≤500)	40	96~1500	24 30		36	20	20	
	50	120~1500	30		41		26	



- When T1, T2 or T3 is selected as M or N, tapered thread machining is applied. (Ordering Code: MT1, NT1)
- L requires Mx2+Nx2≤L.
- When Mx25+4+Nx2.5+4≤L, tap pilot holes may go through.
- When L≤Mx2+Nx2, effective depth of larger diameter tap has priority.
- Only * marked D, M and N dimensions are applicable to Stainless Steel Shafts. L and d dimensions in ( ) are applicable.

One End Threaded Hollow Shafts

Part Number Type	D	1mm Increment L	F	B	P Selection	Wrench Flats Dimensions SC	W	ℓ1	d	(Y) Max.	R	C
	6	25~598	2≤F≤Px5	B≤F-2 (When P=6)	6	SC=1mm Increment SC+ℓ1≤L SC≥0 Details of Wrench Flats P.112	5	8	2	600	0.3 or Less	0.5 or Less
One End Threaded Hollow Shafts	8	25~798			8		7		3	800		
SPJN	10	25~798		B≤F-3 (When P=8, 10)	8 10		8		4			
PSPJN	12	25~998			10 12		10	10	6	1000		
RSPJN (D≤30,L≤500)	13	25~998			12		11		7			
One End Threaded Hollow Shafts with Wrench Flats	16	25~1198		B≤F-5 (When P≥12)	16		14		10	1200		
	20	25~1198			20		17		14			
SPNR	25	25~1198		B=0 (W/o Threads)	24		22		16			1.0 or Less
PSPNR	30	25~1498			24 30		27	15	17	1500	0.5 or Less	
RSPNR (D≤30,L≤500)	35	25~1498		B≥Pitchx3	30		30		19			
	40	25~1498			30		36	20	20			

- When D=P, specify F=B as B dimensions. However, L and F dimensions have manufacturing priority and B dimension of the product will be F -(Pitchx2).
- Thread machining will not be applied when B=0 is specified.

Ordering Example

• Both Ends Tapped Hollow Shafts

Part Number - L - M - N - SC

SPJW20 - 500 - M16 - N16
SPWR30 - 680 - M20 - N20 - SC10

• One End Threaded Hollow Shafts

Part Number - L - F - B - P - SC

SPJN 20 - 1051 - F30 - B30 - P20
SPNR 30 - 1270 - F60 - B28 - P24 - SC5

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
SPJW SPWR	6									-	-	-	-
	8										-	-	-
	10										-	-	-
	12											-	-
	13											-	-
	16												-
RSPJW	20	-											-
	25	-											-
RSPWR	30	-											
	35	-											
	40	-											
	50	-	-										
SSPJW SSPWR	8						-	-	-	-	-	-	-
	10							-	-	-	-	-	-
	12								-	-	-	-	-
	13								-	-	-	-	-
	16									-	-	-	-
	20	-									-	-	-
	25	-										-	-
	30	-										-	-
PSPJW PSPWR	6									-	-	-	-
	8										-	-	-
	10										-	-	-
	12											-	-
	13											-	-
	16												-
	20	-											-
	25	-											-
	30	-											
	35	-											
	40	-											
	50	-	-										
SPJN SPNR	6									-	-	-	-
	8										-	-	-
	10										-	-	-
	12											-	-
	13											-	-
RSPJN Price on right + Price in Table 2 below	16												-
	20												-
RSPNR	25												-
	30												
	35												
	40												
PSPJN PSPNR	6									-	-	-	-
	8										-	-	-
	10										-	-	-
	12											-	-
	13											-	-
	16												-
	20												-
	25												-
	30												
	35												
	40												

(Table 1) 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
Suitable for RSPJW RSPWR	6							
	8							
	10							
	12							
	13							
	16							
	20							
	25							
	30							

(Table 2) 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
Suitable for RSPJN RSPNR	6							
	8							
	10							
	12							
	13							
	16							
	20							
	25							
	30							

- For Low Temp. Black Chrome Plated Shafts, add Low Temp. Black Chrome Plating Additional Charge in (Table 1) and (Table 2) to the non-plated shaft Unit Price above.

Alterations

• Both Ends Tapped Hollow Shafts

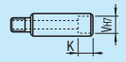
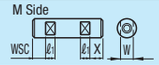
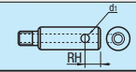
Part Number - L - M - N - SC - (DKC etc.)

SPJW30 - 500 - M20 - N20 - WSC12-X8

• One End Threaded Hollow Shafts

Part Number - L - F - B - P - SC - (DKC etc.)

SPJN30 - 250 - F40 - B30 - P24 - DKC

Alterations	Revise O.D. Tolerance (Precision Grade)	Alteration to L dimension tolerance	One End Bored	Wrench Flats at Two Locations	Lateral Hole on One Side
					
Code	DKC	LKC	VC	WSC	RH
Spec.	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. Not applicable to One End Threaded Type when D-P≤2.	Boring added to right end. (Use as pilots.) Hole diameter VH7 is shown in the table below. K=1mm Increment 3<K≤Vx2 Ordering Code VC-K5 D / VH7: 10 6; 12 8; 13 10; 16 12; 20 16; 25 20; 30 20; 35 24; 40 24 For Both Ends Tapped 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 8; 12 10 8; 13 11 10; 16 14 10; 20 17 10; 25 22 10; 30 27 15; 35 30 15; 40 36 20; 50 41 20 Applicable to Both Ends Tapped Hollow Shafts only.	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 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 threaded side of One End Threaded Shafts. Burrs might remain inside after alteration. Orientation in relation to other features will be random. Not applicable to Both Ends Tapped Shafts. Not applicable if interferes with other alterations.

- When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. P.114
- Alterations may lower hardness. See P.112