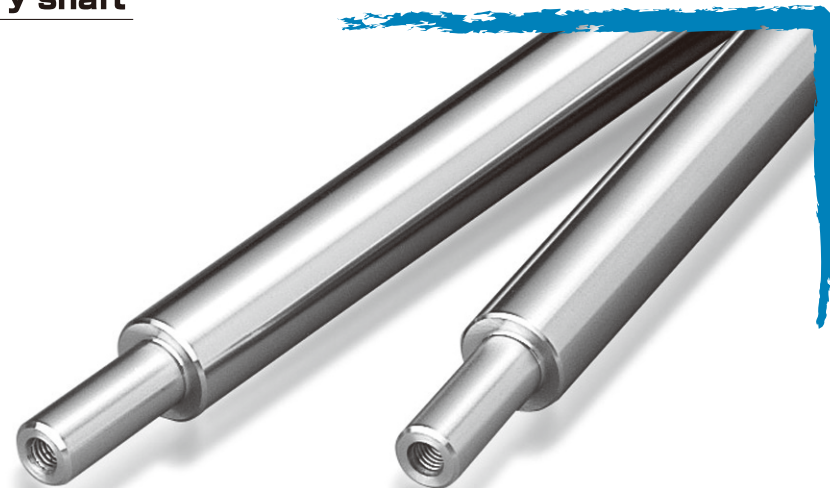


SUS304 Rotary Shaft

SUS304 rotary shafts are used for the central shaft of rotary motion. Antirust effect is provided in environments that are easy to cause rust by adopting SUS304, austenitic stainless. YSK SUS304 rotary shafts provide high-precision products for geometric tolerance such as circularity, straightness and concentricity. We highly recommend using our SUS304 rotary shafts which pride for their high precision.

SSY SUS304 rotary shaft



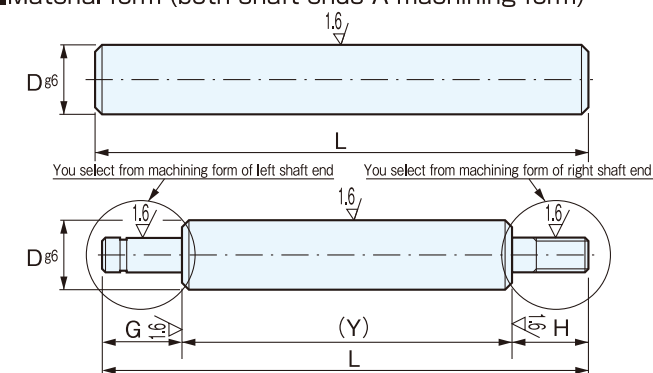
SUS304 ROTARY SHAFT

SSY SUS304 rotary shaft

	SSY
D tolerance	g6
Material	SUS304
Surface treatment	—



Material form (both shaft ends A machining form)



©In case you want to process on shaft end of one side only, please select A machining form on another side.

Form contents

Form	Machining form of left shaft end	Machining form of right shaft end	D	L	G · H	V · Z	J · K	P · Q	M · N	Y	C	R
			Designation by 1mm unit	Designation by 1mm unit		Designation by 1mm unit			Selection	Minimum		
SSY	A B C D E F G	A B C D E F G	6 8 12 13 16 20 25 30	20.0~1500.0 (L≤D×50)	2≤G≤P×5 2≤H≤Q×5	2≤V≤M×3 2≤Z≤N×3 & B≤G-2 Z≤H-2 (When M·N≤6) B≤G-3 Z≤H-3 (When M·N≤8·10) B≤G-5 Z≤H-5 (When M·N≤12)	2≤J·K (DWhen ·P·Q≤6) 3≤J·K (When 6<D·P·Q≤10) 4≤J·K (When 10<D·P·Q≤20) 6≤J·K (When 20<D·P·Q)	D/3≤P·Q≤D	3 4 5 6 8 10 12 16 20 24 30	D is Y≥20 at time of 6-16 D is Y≥25 at time of 20-25 D is Y≥30 at time of 30	0.5	0.2

Specified method of form

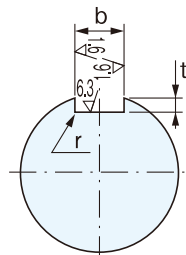
Form +	Machining form of left shaft end	+	Machining form of right shaft end	-	D	-	L	-	G	-	V	-	J	-	P	-	M	-	H	-	Z	-	K	-	Q	-	N
	SSYCE				20		650		G20		V16						M8		H20						Q14		N6

End form combination

Machining form of left shaft end	Machining form of right shaft end	Machining condition
A : With no machining		
B : Internal thread		◎When M3~8, M≤D-2 ◎When M10~16, M≤D-3 ◎When M20, M≤D-4
C : Stepped thread		P(Q)=M(N) P(N) specified dimension
D : Stepped		
E : Stepped internal thread		◎When M3~8, M(N)≤P(Q)-2 ◎When M10~16, M(N)≤P(Q)-3 ◎When M20, M(N)≤P(Q)-3
F : Peripheral snap ring groove		Refer to the detail dimension of snap ring groove
G : Stepped snap ring groove		Refer to the detail dimension of snap ring groove

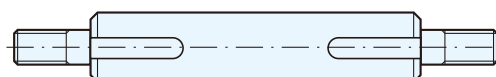
SSY SUS304 ROTARY SHAFT

Detail dimension of key groove



axis diameter	b		t		r
	Standard dimension	Tolerance (N9)	Standard dimension	Tolerance	
6~7	2	-0.004	1.2	+0.1 0	0.08~0.16
8~11	3	-0.029	1.8		
11~12	4	0	2.5		
13~17	5	-0.030	3.0		
18~22	6	0	3.5	+0.2 0	0.16~0.25
23~30	8	-0.036	4.0		

○In case KY-WKY-K=0 and KY+T≥L(Y), key way is the form as below drawing.



The detail dimension of snap ring groove for axis diameter (D·P·Q)

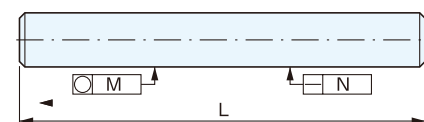
The diagram shows a cross-section of a shaft with a snap ring groove. The outer diameter of the shaft is labeled 'd'. The groove is defined by three dimensions: 'D' (outer diameter of the groove), 'P' (width of the groove), and 'Q' (depth of the groove). The width of the shaft at the groove is labeled 'W'.

D·P·Q	d Tolerance		W Tolerance	
3	2	+0.060	0.50	+0.05/0
4	3	0	0.70	+0.10 0
5	4	+0.075		
6	5	0		
7	6	+0.090		
8	7	0	0.90	+0.14 0
9	8	0/-0.09		
10	9.6	0 -0.110	1.15	
11	10.5			
12	11.5			
13	12.4			
14	13.4			
15	14.3			
16	15.2			
17	16.2			

D·P·Q	d Tolerance		W Tolerance	
18	17	0	1.35	+0.14 0
19	18	-0.11		
20	19	0 -0.21		
21	20			
22	21			
23	22			
24	22.9	1.65		
25	23.9			
26	24.9			
28	26.6			
29	27.6			
30	28.6			

The precision standard of SUS304 machining axis

●Circularity and straightness



●Circularity and straightness

D	Circularity M	
	Be over	And under
3	13	0.004
13	20	0.005
20	30	0.006

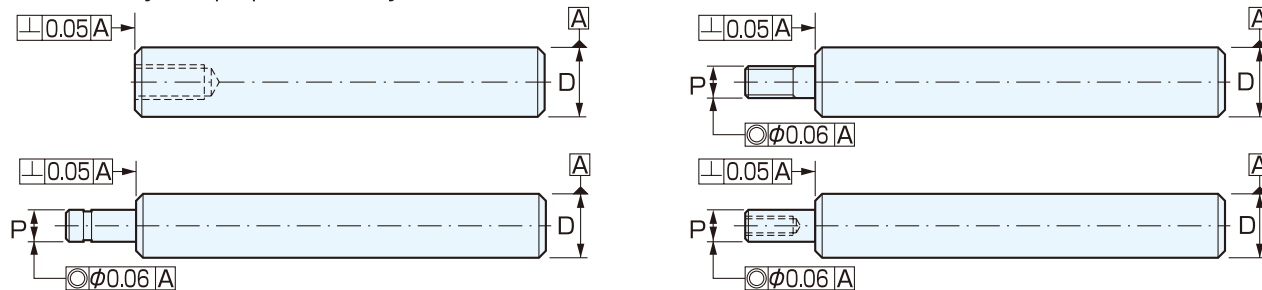
●Straightness

D	straightness N	
	Be over	And under
3	18	0.02/100
18	30	0.01/100

●Dimensional tolerance of L and Y

dimension	Dimensional tolerance	
	Be over	And under
3	6	±0.1
6	30	±0.2
30	120	±0.3
120	400	±0.5
400	800	±0.8

●Concentricity and perpendicularity



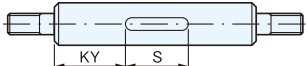
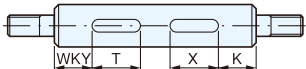
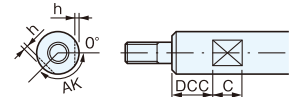
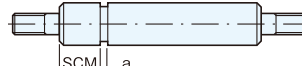
Standard stock products

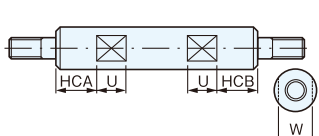
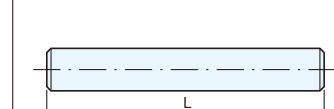
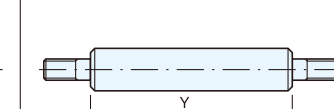
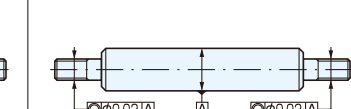
Model	Dg6		Length(mm)						Surface roughness
	Outer diameter tolerance		500	1000	1500	2000	2500	3000	
SSY- 3	3	-0.002/-0.008							3S and under
SSY- 4	4	-0.004							
SSY- 5	5	-0.012							
SSY- 6	6								
SSY- 8	8	-0.005							
SSY-10	10	-0.014							
SSY-12	12								
SSY-13	13	-0.006							
SSY-15	15	-0.017							
SSY-16	16								
SSY-20	20	-0.007							
SSY-25	25	-0.020							
SSY-30	30								

Additional machining

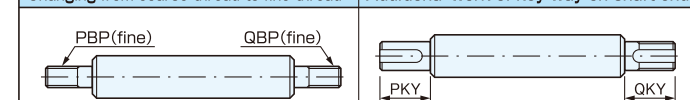
●Specified method of form (with additional machining)

Form + Machining form of left shaft end Machining form of right shaft end - D - L - G - V - J - P - M(PBP) - H - Z - K - Q - N(PBP) - (KY-WKY-DCA-DCB...etc.)
SSYCE - 20 - 650 - G20 - V16 - M8 - H20 - Q14 - N6 - KC20/S25

Additional key groove	Additional work of planning	Additional machining of planning on 2 faces with specified angle	Additional work of groove for slit cam																											
○One key way : KY  ○Two key ways : WKY 	 	 																												
KY-WKY	DCA-DCB	DCC	SCM																											
KY : Additional work of 1 key way [Specified method] KY30/S10 WKY : Additional work of 2key ways [Specified method] WKY50/T10-K30/X8 ○KY-S-WKY-T-K-X are designation of 1mm each ○S-T-X≤100 ○In case of 3 key ways, use together KY and WKY.	We make additionally planning on the part of outer diameter. DCA : The location from the left end of the shaft [Specified method] DCA10/A8 DCB : The location from the right end of the shaft [Specified method] DCB20/B15 ○DCA-A-DCB-B are designation of 1mm each ○A·B≤50 <table><tr><th>D</th><th>H</th></tr><tr><td>6~13</td><td>1</td></tr><tr><td>16~30</td><td>2</td></tr></table>	D	H	6~13	1	16~30	2	Additional work of planning on arbitrary angle location besides of standard face (0°) [Specified method] DCC10/C10/AK90 ○DCC-C are designation of 1mm each ○C≤50 ○AK are designation of 15 degrees each <table><tr><th>D</th><th>H</th></tr><tr><td>6~13</td><td>1</td></tr><tr><td>16~30</td><td>2</td></tr></table>	D	H	6~13	1	16~30	2	Additional work of groove for slit cam [Specified method] SCM10 ○SCM are designation of 1mm each ○SCM+a≤L(Y) ○SCM≥1 ○Application to D=6-8-10-12 <table><tr><th>D</th><th>d</th><th>a</th></tr><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>8</td><td>7</td><td>4</td></tr><tr><td>10</td><td>8</td><td>5</td></tr><tr><td>12</td><td>10</td><td>5</td></tr></table>	D	d	a	6	5	4	8	7	4	10	8	5	12	10	5
D	H																													
6~13	1																													
16~30	2																													
D	H																													
6~13	1																													
16~30	2																													
D	d	a																												
6	5	4																												
8	7	4																												
10	8	5																												
12	10	5																												

Additional work of flat for wrench	Changing of L tolerance	Changing of Y tolerance	Changing of concentricity																											
																														
HCA·HCB	LCK	YCK	JCK																											
We make additionally flat for wrench. HCA : The location from the left end of the shaft [Specified method] HCA10 HCB : The location from the right end of the shaft [Specified method] HCB15 ○HCA·HCB are designation of 1mm each ○HCA=0 or HCA≥1 HCB=0 or HCB≥1 <table><tr><th>D</th><th>W</th><th>U</th></tr><tr><td>6</td><td>5</td><td>8</td></tr><tr><td>8</td><td>7</td><td>8</td></tr><tr><td>10</td><td>8</td><td>10</td></tr><tr><td>12</td><td>10</td><td>10</td></tr><tr><td>16</td><td>13</td><td>10</td></tr><tr><td>20</td><td>17</td><td>15</td></tr><tr><td>25</td><td>22</td><td>15</td></tr><tr><td>30</td><td>27</td><td>15</td></tr></table>	D	W	U	6	5	8	8	7	8	10	8	10	12	10	10	16	13	10	20	17	15	25	22	15	30	27	15	L tolerance is changed. [Specified method] LCK ○L<500→L±0.05 L≥500→L±0.1 ○In case there is not step machining on both shaft ends, designation is possible.	Y tolerance is changed. [Specified method] YCK ○Y<500→Y±0.05 Y≥500→Y±0.1	The concentricity is changed to D 0.02 [Specified method] JCK
D	W	U																												
6	5	8																												
8	7	8																												
10	8	10																												
12	10	10																												
16	13	10																												
20	17	15																												
25	22	15																												
30	27	15																												

Changing from coarse thread to fine thread



Additional work of key way on shaft end

It changes external thread to fine thread in the table as below.
[Specified method] PBP12

D	PBP-QBP					
	3	4	5	6	8	10
6	3	4	5	6		
8	3	4	5	6	8	
10	4	5	6	8	10	
12	5	6	8	10	12	
13	5	6	8	10	12	
16	5	6	8	10	12	15
20		6	8	10	12	15
25			8	10	12	15
30				8	10	12
30	0.35	0.5	0.75	1.0	1.5	

○Change P dimension to PBP and specify.
Change Q dimension to QBP and specify.
○P dimension is same with PBP.
Q dimension is same with QBP.

PKY-QKY

Additional work of 1 key way on the part P(Q) of shaft end
[Specified method] PKY10(QKY10)
○PKY-QKY are designation of 1mm each
○PKY-QKY≤50
PKY(QKY)≤G-H
○Application to the form C and D of shaft end
○Under P(Q)5 is not applicable.



Both round key One side round key Both square key

I recommend our handling machine key.
(Reference page P37~38)