

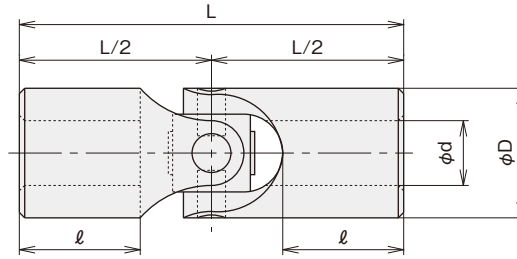
Strong Type B

High Torque, Conventional Use Material S45C

● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Product with shaft	Boot
up to 30°	possible	refer to page 29, 32 and 34	refer to page 24

Shaft-hole shape	Type A	Type B	Type T	Type F	Type Q
	finished round hole	hole with key way	hole with key way and tap	solid	can be disassembled



■ Type B Dimension Table

Attachment ● spring-pin 2 pieces

Symbol Size	φd ^{H7}	φD	L	ℓ	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min ⁻¹	Max. transmission torque capacity N·m
					a ^{JIS9}	b	a ^{JIS9}	b						
B- 6	6	12	50	18	2	1.0	2	1.0	M 3	2 × 12	0.10	0.03	1700	8
B- 8	8	16	56	19	3	1.4	3	1.5	M 3	2.5 × 16	0.10	0.06	1500	18
B-10	10	20	68	23	3	1.4	4	1.5	M 4	3 × 20	0.14	0.11	1300	31
B-12	12	24	84	29	4	1.8	4	1.5	M 4	4 × 25	0.14	0.20	1100	55
B-14	14	28	94	31.5	5	2.3	5	2.0	M 5	5 × 28	0.14	0.31	950	88
B-16	16	32	104	34.5	5	2.3	5	2.0	M 5	5 × 32	0.14	0.45	830	127
B-18	18	36	120	40	6	2.8	5	2.0	M 6	6 × 35	0.20	0.65	750	186
B-20	20	40	124	40	6	2.8	5	2.0	M 6	6 × 40	0.20	0.82	670	245
B-22	22	44	130	41	6	2.8	7	3.0	M 8	6 × 45	0.20	1.06	600	333
B-25	25	50	140	43	8	3.3	7	3.0	M 8	8 × 50	0.20	1.44	530	490
B-30	30	60	178	56	8	3.3	7	3.0	M 8	10 × 60	0.25	2.74	440	736
B-35	35	70	200	62	10	3.3	10	3.5	M10	10 × 70	0.25	4.26	380	1177
B-40	40	80	228	70	12	3.3	10	3.5	M10	10 × 80	0.25	6.20	330	1765
B-45	45	90	250	76	14	3.8	12	3.5	M10	12 × 90	0.25	8.61	300	2550
B-50	50	100	270	80	14	3.8	12	3.5	M12	12 × 100	0.25	11.45	260	3334
B-60	60	120	300	84	18	4.4	15	5.0	M12	13 × 120	0.25	18.24	220	5688

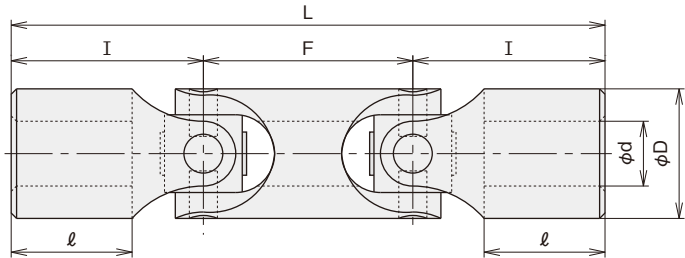
Strong Type BD

High Torque, Conventional Use Material S45C

● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Boot
up to 60°	possible	refer to page 25

Shaft-hole shape	Type A	Type B	Type T	Type F	Type Q
	finished round hole	hole with key way	hole with key way and tap	solid	can be disassembled



■ Type BD Dimension Table

Attachment ● spring-pin 2 pieces

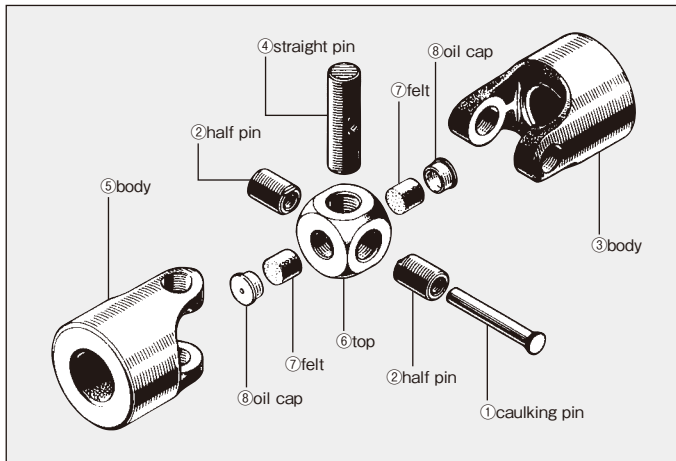
Symbol Size	φd ^{H7}	φD	L	ℓ	I	F	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min ⁻¹	Max. transmission torque capacity N·m
							a ^{JIS9}	b	a ^{JIS9}	b						
BD- 6	6	12	75	18	25	25	2	1.0	2	1.0	M 3	2 × 12	0.10	0.05	1300	6
BD- 8	8	16	86	19	28	30	3	1.4	3	1.5	M 3	2.5 × 16	0.10	0.09	1100	14
BD-10	10	20	102	23	34	34	3	1.4	4	1.5	M 4	3 × 20	0.14	0.17	950	26
BD-12	12	24	125	29	42	41	4	1.8	4	1.5	M 4	4 × 25	0.14	0.30	780	44
BD-14	14	28	143	31.5	47	49	5	2.3	5	2.0	M 5	5 × 28	0.14	0.45	680	70
BD-16	16	32	158	34.5	52	54	5	2.3	5	2.0	M 5	5 × 32	0.14	0.66	600	98
BD-18	18	36	180	40	60	60	6	2.8	5	2.0	M 6	6 × 35	0.20	0.93	530	147
BD-20	20	40	188	40	62	64	6	2.8	5	2.0	M 6	6 × 40	0.20	1.23	480	196
BD-22	22	44	200	41	65	70	6	2.8	7	3.0	M 8	6 × 45	0.20	1.57	430	265
BD-25	25	50	220	43	70	80	8	3.3	7	3.0	M 8	8 × 50	0.20	2.22	390	392
BD-30	30	60	275	56	89	97	8	3.3	7	3.0	M 8	10 × 60	0.25	4.15	310	588
BD-35	35	70	310	62	100	110	10	3.3	10	3.5	M10	10 × 70	0.25	6.45	270	941
BD-40	40	80	350	70	114	122	12	3.3	10	3.5	M10	10 × 80	0.25	9.41	230	1422
BD-45	45	90	390	76	125	140	14	3.8	12	3.5	M10	12 × 90	0.25	13.32	210	2010
BD-50	50	100	426	80	135	156	14	3.8	12	3.5	M12	12 × 100	0.25	17.90	190	2648
BD-60	60	120	485	84	150	185	18	4.4	15	5.0	M12	13 × 120	0.25	29.28	160	4511

Points to Note

1. It is not possible to disassemble type S, D, K, KD, M, MS and MM. When it is machined, be careful not to give a shock to parts.
2. Make sure not to hit or give a shock to parts unless assembling procedure requires it.
3. Lubricate moving parts sufficiently after completion of assembly.
4. When disassembled parts are needed, place an order of type Q that designates the specification of “can be disassembled”.
5. After completion of machining a shaft-hole etc. you can send these parts back to Miyoshi for assembling. Necessary expenses are to be billed.

For type B, BD, H, HS, HSD, HSS and BR of size range from 6 to 25

Follow the following procedure for disassembling and assembling.



(Parts structure varies depending on joint type and size.)

Disassembling procedure

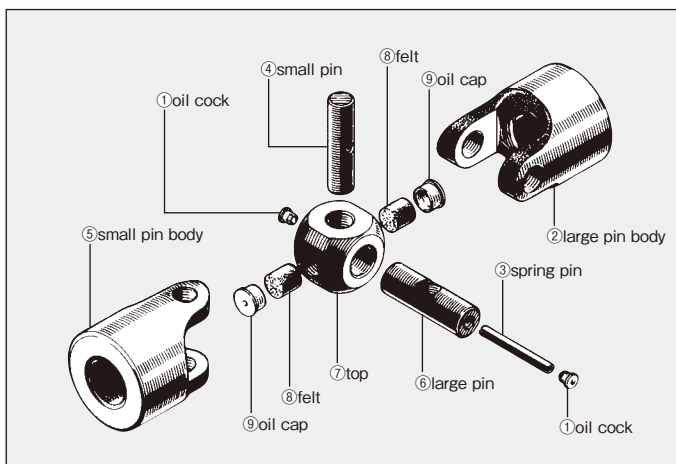
1. Pull out a caulking pin①. (Remove caulked area around the center of a caulking pin by drilling. The caulking pin cannot be reused.)
2. Pull out a half pin②. (If it is hard to do so due to tight fit between a pin and a pin hole, hit around the pin hole lightly with a copper hammer so that the pin may come out.)
3. A body③ can be removed. (In case that some machining is carried out on the body③, you can skip the following procedure.)
4. Pull out a straight pin④.
5. A body⑤ can be removed.
6. Be careful for a felt piece not to drop from a top⑥ and be lost.

Assembling procedure

1. Insert the top⑥ in the body⑤.
2. Assemble the straight pin④. (Make sure that the top moves smoothly and the position of the half pin follows the illustration.)
3. Assemble the body③.
4. Assemble the half pin②. (Make sure that the cutout of the half pin, which is prepared to prevent turning, fits to the seat of the straight pin as shown in the illustration.)
5. Assemble the caulking pin①.
6. Confirm that the assembly moves rightly.
7. Caulk the caulking pin. (While caulking, watch the position of the half pin and confirm that the assembly moves rightly.)

For type B, BD, BS and BSD of size range from 30 to 60

Follow the following procedure for disassembling and assembling.



(Parts structure varies depending on joint type and size.)

Disassembling procedure

1. Remove an oil cock①.
2. Grip a body② in a vise or a V-block and hammer a spring pin③ out.
3. Pull out a small pin④.
4. A body⑤ can be removed. (In case that some machining is carried out only on the body⑤, you can skip the following procedure.)
5. Pull out a large pin⑥
6. The body② can be removed.

Assembling procedure

1. Insert the top⑦ in the large pin body②.
2. Assemble the large pin⑥. (Make sure that the top moves smoothly and the hole position of the small pin follows the illustration.)
3. Assemble the small pin body⑤ and the small pin④.
4. Confirm if the spring pin③ can be inserted using a thin stick, then hammer it in. (If the holes of the large pin and the small pin are not aligned rightly, you cannot insert the spring pin.)
5. Hammer the oil cock① in.

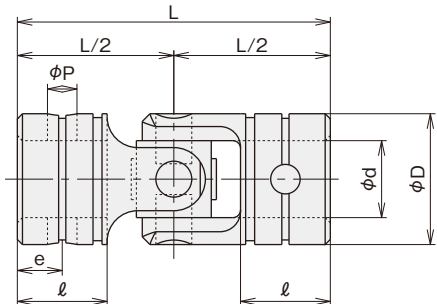
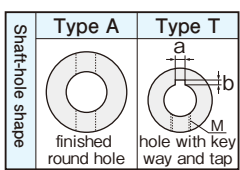
Anti-wear Type HJ

JIS-B1454typeC Material SCM415 Entirely Quenched, Anti-wear Use

● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Product with shaft	Boot
up to 30°	not possible	refer to page 29 and 32	refer to page 25

- In order to increase the fatigue strength, parts are entirely quenched.
- Parts cannot be machined because they are entirely quenched.
- Use a boot and oil pack to extend the life of joint.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is T.
- A strong-pin or a shear-pin is not attached for a joint with a key way.



- Attachment ● strong-pin 1 piece
 ● shear-pin 1 piece
 ● check ring 2 pieces

■ Type HJ Dimension Table

Symbol Size	ϕd^{H7}	ϕD	L	l	e	$\phi P_{H8/m6}$	New JIS key		Old JIS key		TAP M	Swing of the center	Mass kg	Max. revolution min ⁻¹	Max. transmission torque capacity N·m
							a ^{E9}	b	a ^{E9}	b					
HJ- 6	6	12	31	9	4.5	3	—	—	—	—	—	0.10	0.02	1800	8
HJ- 8	8	15	36	10	5	3.5	3	1.4	3	1.5	M3	0.10	0.03	1700	13
HJ-10	10	19	42	12	6	4.5	3	1.4	4	1.5	M4	0.10	0.06	1400	30
HJ-12	12	23	52	15	7.5	5	4	1.8	4	1.5	M4	0.10	0.11	1100	39
HJ-14	14	26	59	16	8.5	5.8	5	2.3	5	2.0	M5	0.10	0.16	1000	58
HJ-16	16	30	74	20	11	6.5	5	2.3	5	2.0	M5	0.10	0.27	850	91
HJ-18	18	33	81	23.5	11.7	7	6	2.8	5	2.0	M6	0.10	0.34	800	137
HJ-20	20	36	87	25	12.5	8	6	2.8	5	2.0	M6	0.10	0.43	700	177
HJ-22	22	40	94	27	13.5	9	6	2.8	7	3.0	M8	0.15	0.57	650	235
HJ-25	25	44	105	30	15	10	8	3.3	7	3.0	M8	0.15	0.75	600	324
HJ-30	30	51	122	35	17.5	11.5	8	3.3	7	3.0	M8	0.15	1.17	500	481

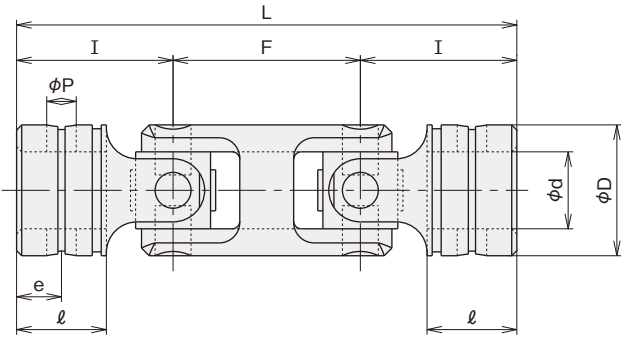
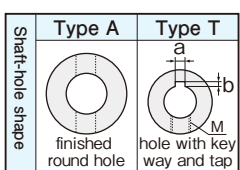
Anti-wear Type HJD

JIS-B1454typeCC Material SCM415 Entirely Quenched, Anti-wear Use

● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining
up to 60°	not possible

- In order to increase the fatigue strength, parts are entirely quenched.
- Parts cannot be machined because they are entirely quenched.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is T.
- A strong-pin or a shear-pin is not attached for a joint with a key way.



- Attachment ● strong-pin 1 piece
 ● shear-pin 1 piece
 ● check ring 2 pieces

■ Type HJD Dimension Table

Symbol Size	ϕd^{H7}	ϕD	L	l	I	F	e	$\phi P_{H8/m6}$	New JIS key		Old JIS key		TAP M	Swing of the center	Mass kg	Max. revolution min ⁻¹	Max. transmission torque capacity N·m
									a ^{E9}	b	a ^{E9}	b					
HJD- 6	6	12	49.5	9	15.5	18.5	4.5	3	—	—	—	—	0.10	0.03	1400	6	
HJD- 8	8	15	58	10	18	22	5	3.5	3	1.4	3	1.5	M3	0.10	0.05	1250	10
HJD-10	10	19	67.5	12	21	25.5	6	4.5	3	1.4	4	1.5	M4	0.10	0.09	1000	24
HJD-12	12	23	83	15	26	31	7.5	5	4	1.8	4	1.5	M4	0.10	0.17	830	31
HJD-14	14	26	94.5	16	29.5	35.5	8.5	5.8	5	2.3	5	2.0	M5	0.10	0.24	730	46
HJD-16	16	30	117.5	20	37	43.5	11	6.5	5	2.3	5	2.0	M5	0.10	0.40	630	73
HJD-18	18	33	129	23.5	40.5	48	11.7	7	6	2.8	5	2.0	M6	0.10	0.51	570	110
HJD-20	20	36	139	25	43.5	52	12.5	8	6	2.8	5	2.0	M6	0.10	0.63	530	137
HJD-22	22	40	150	27	47	56	13.5	9	6	2.8	7	3.0	M8	0.15	0.88	470	186
HJD-25	25	44	168	30	52.5	63	15	10	8	3.3	7	3.0	M8	0.15	1.16	430	255
HJD-30	30	51	195	35	61	73	17.5	11.5	8	3.3	7	3.0	M8	0.15	1.80	380	382

Bearing Type K

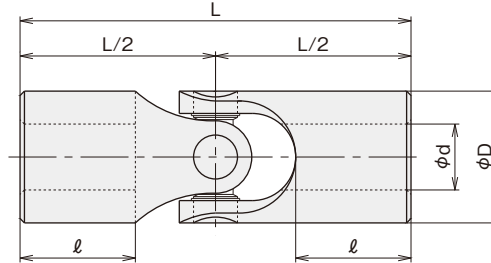
● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Product with shaft	Boot
up to 30°	possible	refer to page 30 and 33	refer to page 24

Shaft-hole shape	Type A	Type B	Type T	Type F
	finished round hole	hole with key way	hole with key way and tap	solid

High Revolution Use Material S45C

- This type is good for high revolution use, because needle bearings with grease sealed are used.
- A hole for a spring-pin attached should be machined together with a shaft at a location of $l/2$.
- Types of K-20 and larger come with grease nipple.
- Select type B or H, when you use a boot.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is B or T.
- A spring-pin is not attached for a joint with a key way.



■ Type K Dimension Table

Attachment ● spring-pin 2 pieces

Symbol Size	ϕd^{H7}	ϕD	L	l	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min^{-1}	Max. transmission torque capacity N·m
					a^{JS9}	b	a^{JS9}	b						
K-10	10	20	62	19	3	1.4	4	1.5	M4	3×20	0.07	0.10	2500	8
K-12	12	25	74	23.5	4	1.8	4	1.5	M4	4×25	0.07	0.19	2000	16
K-16	16	32	104	34.5	5	2.3	5	2.0	M5	5×32	0.07	0.42	1700	30
K-20	20	42	124	37.5	6	2.8	5	2.0	M6	6×40	0.10	0.87	1300	54
K-25	25	50	140	39.5	8	3.3	7	3.0	M8	8×50	0.10	1.35	1100	78
K-30	30	60	178	52.5	8	3.3	7	3.0	M8	10×60	0.12	2.41	950	137

Bearing Type KD

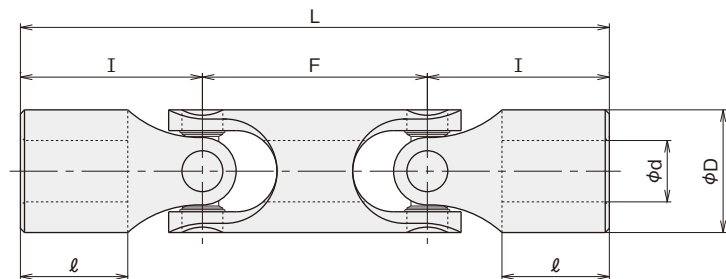
● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Boot
up to 60°	possible	refer to page 25

Shaft-hole shape	Type A	Type B	Type T	Type F
	finished round hole	hole with key way	hole with key way and tap	solid

High Revolution Use Material S45C

- This type is good for high revolution use, because needle bearings with grease sealed are used.
- A hole for a spring-pin attached should be machined together with a shaft at a location of $l/2$.
- Types of KD-20 and larger come with grease nipple.
- Select type BD, when you use a boot.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is B or T.
- A spring-pin is not attached for a joint with a key way.



■ Type KD Dimension Table

Attachment ● spring-pin 2 pieces

Symbol Size	ϕd^{H7}	ϕD	L	l	I	F	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min^{-1}	Max. transmission torque capacity N·m
							a^{JS9}	b	a^{JS9}	b						
KD-10	10	20	96	19	31	34	3	1.4	4	1.5	M4	3×20	0.07	0.14	2200	6
KD-12	12	25	115	23.5	37	41	4	1.8	4	1.5	M4	4×25	0.07	0.28	1700	12
KD-16	16	32	158	34.5	52	54	5	2.3	5	2.0	M5	5×32	0.07	0.61	1300	24
KD-20	20	42	188	37.5	62	64	6	2.8	5	2.0	M6	6×40	0.10	1.26	1000	44
KD-25	25	50	220	39.5	70	80	8	3.3	7	3.0	M8	8×50	0.10	2.02	880	61
KD-30	30	60	275	52.5	89	97	8	3.3	7	3.0	M8	10×60	0.12	3.49	730	108

Anti-corrosive Type HS, BS, HSS

Stainless Steel
SUS304, SUS316

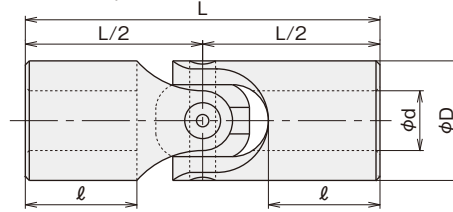
● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining	Product with shaft
up to 30°	possible	refer to page 33

Shaft-hole shape	Type A	Type B	Type T	Type F	Type Q
	finished round hole	hole with key way	hole with key way and tap	solid	can be disassembled

- Dry lubrication treatment is carried out in order to increase the anti-wear characteristics. (over HS-16)
- A hole for a spring-pin and a taper-pin attached should be machined together with a shaft at a location of $l/2$.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is B or T.
- A spring-pin is not attached for a joint with a key way.

- ① in water or in water and air alternately ② in acidic liquid
③ in alkaline liquid ④ for anti-corrosive and heat-resistant use



Attachment ● spring-pin 2 pieces (SUS420J2)

● taper-pin 2 pieces for sizes larger than BS-40 (SUS303)

■ Type HS, BS, HSS Dimension Table

Size	Symbol	ϕd^{H7}	ϕD	L	l	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min^{-1}	Max. transmission torque capacity $\text{N}\cdot\text{m}$
						a^{js9}	b	a^{js9}	b						
HS- 6	HSS- 6	6	12.5	40	13	2	1.0	2	1.0	M 3	2 × 12	0.10	0.03	800	3
HS- 8	HSS- 8	8	16	50	16.5	3	1.4	3	1.5	M 3	2.5 × 16	0.10	0.05	720	9
HS-10	HSS-10	10	20	56	17	3	1.4	4	1.5	M 4	3 × 20	0.10	0.09	580	15
HS-12	HSS-12	12	25	71	22	4	1.8	4	1.5	M 4	4 × 25	0.10	0.19	480	26
HS-14		14	25	71	22	5	2.3	5	2.0	M 5	4 × 25	0.10	0.17	480	26
HS-16		16	32	80	23	5	2.3	5	2.0	M 5	5 × 32	0.10	0.35	360	62
HS-20		20	40	100	28	6	2.8	5	2.0	M 6	6 × 40	0.10	0.69	290	118
HS-25		25	50	126	36	8	3.3	7	3.0	M 8	8 × 50	0.10	1.37	230	226
BS-30		30	60	178	56	8	3.3	7	3.0	M 8	10 × 60	0.25	2.82	190	353
BS-40		40	80	228	70	12	3.3	10	3.5	M10	10 × 80	0.25	6.50	140	843
BS-50		50	100	270	80	14	3.8	12	3.5	M12	12 × 100	0.25	11.70	110	1667
BS-60		60	120	300	84	18	4.4	15	5.0	M12	13 × 120	0.25	19.10	90	2844

Anti-corrosive Type HSD, BSD

Stainless Steel
SUS304

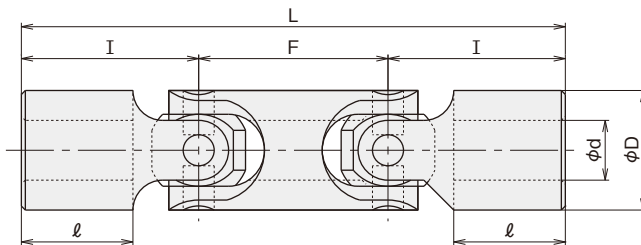
● Please read "request and advice for order" in page 6 before placing an order.

Max. joint angle	Additional machining
up to 60°	possible

Shaft-hole shape	Type A	Type B	Type T	Type F	Type Q
	finished round hole	hole with key way	hole with key way and tap	solid	can be disassembled

- Dry lubrication treatment is carried out to improve the anti-wear characteristics. (over HSD-16)
- A hole for a spring-pin and a taper-pin attached should be machined together with a shaft at a location of $l/2$.
- Designate new JIS or old JIS for key, when the type of shaft-hole shape is B or T.
- A spring-pin is not attached for a joint with a key way.

- ① in water or in water and air alternately ② in acidic liquid
③ in alkaline liquid ④ for anti-corrosive and heat-resistant use



■ Type HSD, BSD Dimension Table

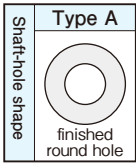
Attachment ● spring-pin 2 pieces (SUS420J2)

Size	Symbol	ϕd^{H7}	ϕD	L	l	I	F	New JIS key		Old JIS key		TAP M	Dimension of spring-pin for fixing	Swing of the center	Mass kg	Max. revolution min^{-1}	Max. transmission torque capacity $\text{N}\cdot\text{m}$
								a^{js9}	b	a^{js9}	b						
HSD- 6		6	12.5	65	13	20	25	2	1.0	2	1.0	M3	2 × 12	0.10	0.04	640	2
HSD- 8		8	16	80	16.5	25	30	3	1.4	3	1.5	M3	2.5 × 16	0.10	0.08	570	7
HSD-10		10	20	90	17	28	34	3	1.4	4	1.5	M4	3 × 20	0.14	0.15	460	12
HSD-12		12	25	112	22	35.5	41	4	1.8	4	1.5	M4	4 × 25	0.14	0.31	380	20
HSD-14		14	25	112	22	35.5	41	5	2.3	5	2.0	M5	4 × 25	0.14	0.29	380	20
HSD-16		16	32	134	23	40	54	5	2.3	5	2.0	M5	5 × 32	0.14	0.58	280	49
HSD-20		20	40	164	28	50	64	6	2.8	5	2.0	M6	6 × 40	0.20	1.11	230	93
HSD-25		25	50	206	36	63	80	8	3.3	7	3.0	M8	8 × 50	0.20	2.20	180	180
BSD-30		30	60	275	56	89	97	8	3.3	7	3.0	M8	10 × 60	0.25	4.12	150	282

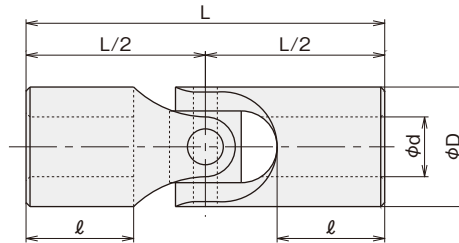
Anti-corrosive Type MS, MSS

Stainless Steel
SUS304, SUS316

Max. joint angle	Additional machining	Product with shaft
up to 30°	possible	refer to page 35



- ① in water or in water and air alternately
- ② in acidic liquid
- ③ in alkaline liquid
- ④ for anti-corrosive and heat-resistant use



■ Type MS, MSS Dimension Table

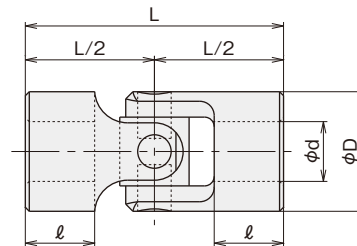
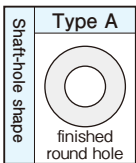
Size		Symbol	ϕd^{H7}	ϕD	L	l	Swing of the center	Mass g	Max. revolution min^{-1}	Max. transmission torque capacity N·m
SUS304	SUS316									
MS-2.0	MSS-2.0		2	6	15	4	0.10	2.5	600	0.3
MS-2.5	MSS-2.5		2.5	6	15	4	0.10	2.5	600	0.3
MS-3.0	MSS-3.0		3	6	18	5.5	0.10	2.5	600	0.3
MS-3.5	MSS-3.5		3.5	6	18	5.5	0.10	2.5	600	0.3
MS-4.0	MSS-4.0		4	8	24	7.2	0.15	6.5	400	0.7
MS-4.5	MSS-4.5		4.5	8	24	7.2	0.15	5.5	400	0.7
MS-5.0	MSS-5.0		5	10	30	9	0.15	12.5	300	1.6
MS-5.5	MSS-5.5		5.5	10	30	9	0.15	11.5	300	1.6

Non-magnetic, Anti-corrosive Type BR

Bronze BC6

Max. joint angle	Additional machining
up to 30°	possible

- It has excellent non-magnetic and anti-corrosive characteristics.



■ Type BR Dimension Table

Symbol	ϕd^{H7}	ϕD	L	l	Swing of the center	Mass kg	Max. transmission torque capacity N·m
Size							
BR- 6	6	16	40	11	0.10	0.05	4
BR- 8	8	16	40	11	0.10	0.05	4
BR-10	10	25	50	13	0.14	0.16	15
BR-12	12	25	50	13	0.14	0.15	15
BR-14	14	32	65	18	0.14	0.34	29
BR-16	16	32	65	18	0.14	0.32	29
BR-20	20	40	82	23	0.20	0.63	59
BR-22	22	50	108	29	0.25	1.34	108
BR-25	25	50	108	29	0.25	1.30	108

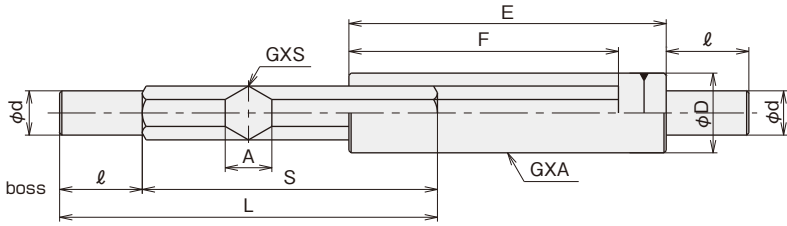
Join Slide GX Series

- A hexagon sleeve and a shaft can be cut at any position.
- This type cannot be used for the application where sliding movement occurs while rotating.
- When it is used in sliding application, also refer to the page of NX slide unit (page 41).
- Regarding the combination of joints, refer to page 28, 29 and 30.

GXSA Unit

Material S-45C
GXS (hexagon ground shaft)

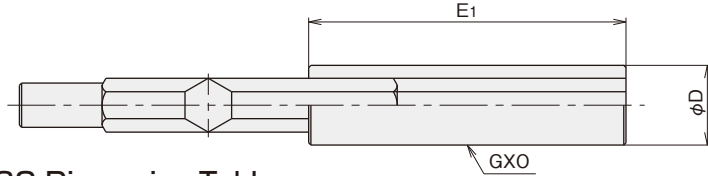
Material STKM-13
GXA (sleeve with hexagon hole) with boss



GXSO Unit

Material S-45C
GXS (hexagon ground shaft)

Material STKM-13
GXO (sleeve with hexagon hole)



■ Type GXSA, GXSO Dimension Table

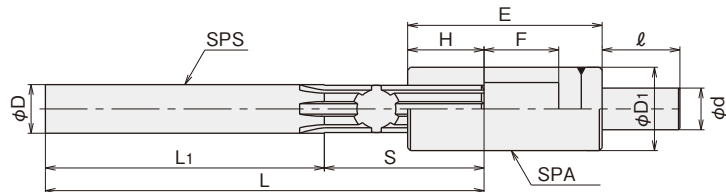
Size	Type Symbol	Hexagon dimension A	Type GXS				Type GXA					Type GXO	
			ϕd^{H7}	L	S	l	ϕd^{H7}	ϕD	l	E	F	ϕD	E_1
Each type- 6	6	6.7	6	118	100	18	6	11	18	85	75	11	80
Each type- 8	8	7.7	8	119	100	19	8	13	19	85	75	13	80
Each type-10	10	9.8	10	123	100	23	10	16	23	105	95	16	100
Each type-12	12	11.7	12	129	100	29	12	20	29	108	95	20	100
Each type-14	14	13.7	14	181.5	150	31.5	14	23	31.5	128	110	23	120
Each type-16	16	16.7	16	184.5	150	34.5	16	28	34.5	128	110	28	120
Each type-18	18	18.7	18	190	150	40	18	32	40	150	130	32	140
Each type-20	20	20.7	20	190	150	40	20	35	40	170	150	35	160
Each type-22	22	22.6	22	241	200	41	22	38	41	190	170	38	180
Each type-25	25	25.6	25	243	200	43	25	44	43	215	190	44	200
Each type-30	30	31.6	30	256	200	56	30	54	56	215	190	54	200

Join Slide SPS Series

- The spline effective length should be carefully considered when you cut a sleeve and a shaft.
- This type can be used for the application where sliding movement occurs while rotating.
- Regarding the combination of joints, refer to page 31, 32 and 33.

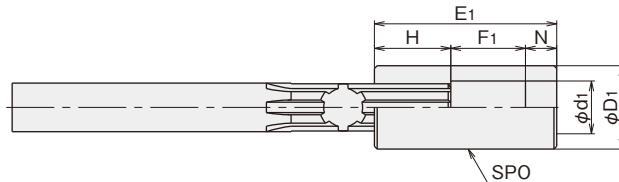
SPSA Unit

Material S-45C
SPS (spline shaft)
SPA (spline sleeve) with boss



SPSO Unit

Material S-45C
SPS (spline shaft)
SPA (spline sleeve)



■ Type SPSA, SPSO Dimension Table

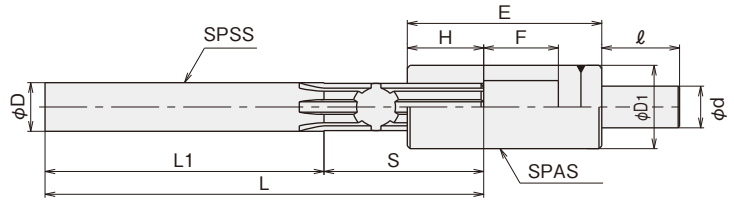
Size	Type Symbol	Spline dimension	Type SPS				Type SPA					Type SPO						
			ϕD^{H7}	L	S	L_1	ϕd^{H7}	ϕD_1	l	E	H	F	ϕD_1	ϕd_1^{H7}	E_1	H	F_1	N
Each type- 5	5	Large diameter 5 m=0.5 z= 8	5	150	50	100	5	10	18	42.5	7.5	25	10	5.9	42.5	7.5	25	10
Each type- 6	6	Large diameter 6 m=0.5 z=10	6	150	60	90	6	12	18	43.5	8.5	25	12	8.4	43.5	8.5	25	10
Each type- 8	8	Large diameter 8 m=0.5 z=14	8	300	70	230	8	16	19	50.5	10.5	25	16	9.9	50.5	10.5	25	15
Each type-10	10	Large diameter 10 m=0.5 z=18	10	300	80	220	10	20	23	65	20	30	20	12	65	20	30	15
Each type-12	12	Large diameter 12 m=0.75 z=14	12	400	80	320	12	24	29	85	25	35	24	15	70	25	35	10
Each type-14	14	11×14×3.0×6	14	400	65	335	14	28	31.5	90	25	40	28	17	75	25	40	10
Each type-16	16	13×16×3.5×6	16	400	75	325	16	32	34.5	95	30	40	32	20	80	30	40	10
Each type-18	18	16×20×4.0×6	20	600	85	515	18	36	40	105	35	45	36	23	90	35	45	10
Each type-20	20	18×22×5.0×6	22	600	90	510	20	40	40	110	40	45	40	25	95	40	45	10
Each type-22	22	21×25×5.0×6	25	800	95	705	22	44	41	115	40	50	44	27	100	40	50	10
Each type-25	25	23×28×6.0×6	30	800	100	700	25	50	43	125	40	60	50	31	110	40	60	10
Each type-30	30	28×34×7.0×6	35	800	115	685	30	60	56	140	55	60	60	38	125	55	60	10

Stainless Steel SUS304

- The spline effective length should be carefully considered when you cut a sleeve and a shaft.
- This type can be used for the application where sliding movement occurs while rotating.
- Regarding the combination of joints, refer to page 33.

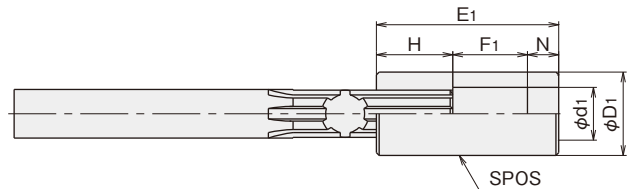
SPSAS Unit

Material SUS304
SPSS (spline shaft)
SPAS (spline sleeve) with boss



SPSOS Unit

Material SUS304
SPSS (spline shaft)
SPOS (spline sleeve)



■ Type SPSAS, SPSOS Dimension Table

Type Symbol	Spline dimension	Type SPSS			Type SPAS				Type SPOS								
		ϕD^{h7}	L	S	L ₁	ϕd^{h7}	ϕD_1	l	E	H	F	ϕD_1	ϕd_1^{h7}	E ₁	H	F ₁	N
Each type-6	Large diameter 6 m=0.5 z=10	6	150	60	90	6	12.5	13	43.5	8.5	25	12.5	8	38.5	8.5	25	5
Each type-8	Large diameter 8 m=0.5 z=14	8	300	70	230	8	16	16.5	50.5	10.5	30	16	10	45.5	10.5	30	5
Each type-10	Large diameter 10 m=0.5 z=18	10	300	80	220	10	20	17	65	20	35	20	12	60	20	35	5
Each type-12	Large diameter 12 m=0.75 z=14	12	400	80	320	12	24	22	80	25	35	24	14	70	25	35	10
Each type-16	13×16×3.5×6	16	400	75	325	16	32	23	95	30	40	32	20	80	30	40	10
Each type-20	18×22×5.0×6	22	600	90	510	20	40	28	110	40	45	40	25	95	40	45	10

Join Slide Combination Table

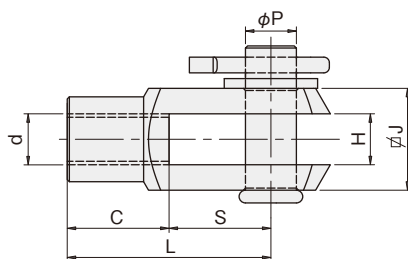
Standard joint of type S, B, H, K and HJ and join slides of SPS series and GX series can be combined freely. Regarding the combined dimension, referred to joint series with shaft in page 27.

Standard Joint	Join Slide	Standard Joint
<p>• Type S</p>	<p>SPSA Unit</p> <p>• Spline shaft (P)</p>	<p>• Type S</p>
<p>• Type B</p>	<p>GXSA Unit</p> <p>• Hexagon shaft (GX)</p>	<p>• Type B</p>
<p>• Type H</p>		<p>• Type H</p>
<p>• Type K</p>		<p>• Type K</p>
<p>• Type HJ</p>		<p>• Type HJ</p>

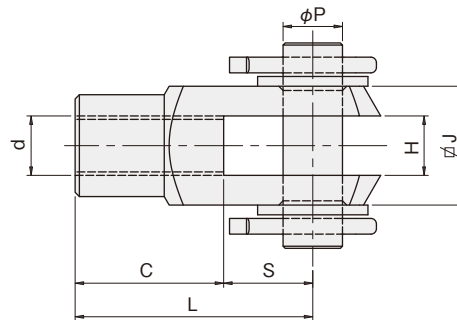
Rod-end

- This part can be used for push-and-pull power transmission mechanism in horizontal and vertical direction.
- Finished with unichrome plating.
- Type Y product is assembled with pin and washer.

Type Y



(Y4~12)



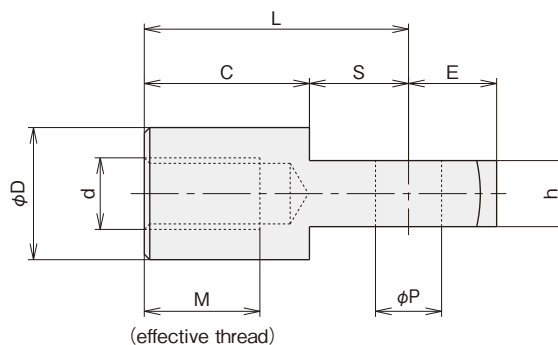
(Y14~24)

■Type Y Dimension Table

Symbol Size	d	L	φP	C	S	H	φJ	Max. tensile load N
Y- 4	M 4×0.7	16	4	8	8	4	8	700
Y- 5	M 5×0.8	20	5	10	10	5	10	980
Y- 6	M 6×1	24	6	12	12	6	12	1370
Y- 8	M 8×1.25	32	8	16	16	8	16	1860
Y-10	M10×1.5	40	10	20	20	10	20	2940
Y-12	M12×1.5	48	12	24	24	12	24	4200
Y-14	M14×1.5	56	14	28	28	14	27	5780
Y-16	M16×1.5	64	16	32	32	16	32	7540
Y-18	M18×1.5	72	18	36	36	18	36	10780
Y-20	M20×1.5	80	20	40	40	20	40	12740
Y-24	M24×1.5	100	25	50	50	25	50	18620

Type T

- Finished with unichrome plating.



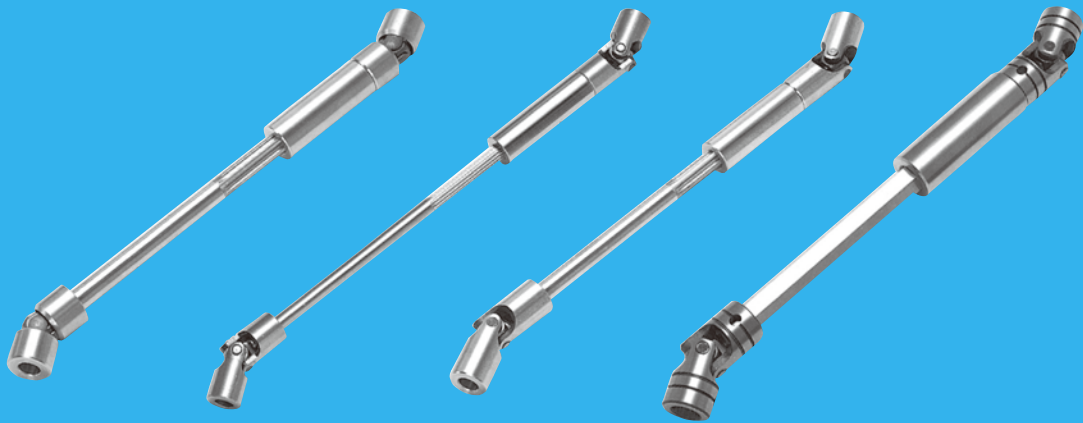
■Type T Dimension Table

Symbol Size	d	M	φD	L	φP	C	S	E	h	Max. tensile load N
T- 4	M 4×0.7	6	8	16	4	10	6	5	4	700
T- 5	M 5×0.8	7.5	10	20	5	12.5	7.5	6	5	980
T- 6	M 6×1	9	12	24	6	15	9	7	6	1370
T- 8	M 8×1.25	14	16	32	8	20	12	10	8	2740
T-10	M10×1.5	17.5	20	40	10	25	15	12	10	3920
T-12	M12×1.5	21	24	48	12	30	18	14	12	5580
T-14	M14×1.5	24.5	28	56	14	35	21	16	14	7350
T-16	M16×1.5	28	32	64	16	40	24	19	16	10290
T-18	M18×1.5	31.5	36	72	18	45	27	21	18	12740
T-20	M20×1.5	35	40	80	20	50	30	25	20	17640
T-24	M24×1.5	42	48	96	25	60	36	30	25	25480

Quick Delivery

J o i n t

S e r i e s



Joint with Hexagon Shaft

Type GX

Intermediate shaft can be cut at any position. Larger expansion and contraction range allows more installation flexibility.

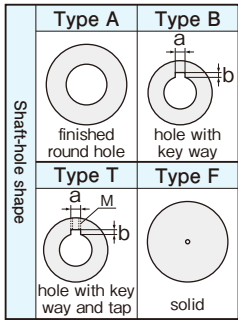
Joint with Spline Shaft

Type P and Type SP

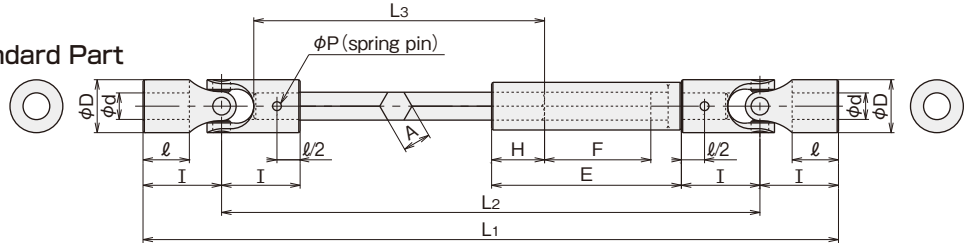
Revolution and sliding can be transmitted simultaneously.

Bearing Type K-GX

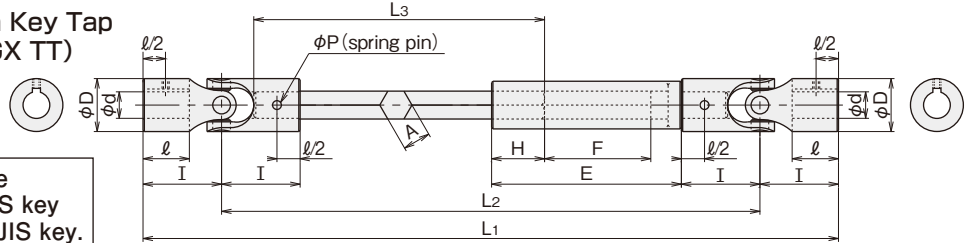
- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.



Standard Part



With Key Tap (K-GX TT)



Choose new JIS key or old JIS key.

Dimension L1 can be changed as a special order.

Type K-GX Dimension Table

standard part's attachment ● spring-pin 2 pieces

Symbol Size	ϕd^{H7}	ϕD	I	l	E	H	F Slide distance	A	Dimension of spring-pin for fixing	New JIS key		Old JIS key		TAP M	MAX			MIN
										a ^{JIS9}	b	a ^{JIS9}	b		L1 ⁰ _F	L2	L3	L1 ⁰
K-10GX	10	20	31	19	105	20	75	9.8	3×20	3	1.4	4	1.5	M4	309	247	119	194
K-12GX	12	25	37	23.5	108	25	70	11.7	4×25	4	1.8	4	1.5	M4	331	257	123.5	233
K-16GX	16	32	52	34.5	128	35	75	16.7	5×32	5	2.3	5	2.0	M5	451	347	184.5	330
K-20GX	20	42	62	37.5	170	40	110	20.7	6×40	6	2.8	5	2.0	M6	528	404	187.5	383
K-25GX	25	50	70	39.5	215	50	140	25.6	8×50	8	3.3	7	3.0	M8	645	505	239.5	434
K-30GX	30	60	89	52.5	215	60	130	31.6	10×60	8	3.3	7	3.0	M8	711	533	252.5	546

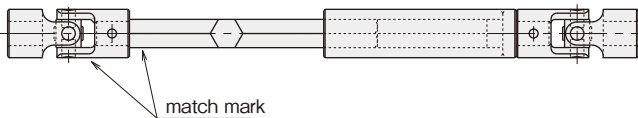
● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke l are kept.

Instruction of GX Series Dimension

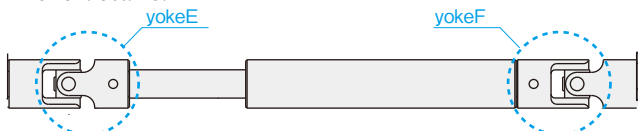
L1 can be changed as a special order.

Products of GX Series are semi-order-made ones that can meet the requirement of prompt delivery.

- A product consists of two standard joints and a joint slide (GXS, GXA). A joint and a joint slide are connected by a spring pin.
- When machining around a shaft-hole is carried out, such as a key way or a tap hole, first draw a match mark, then pull out a spring pin, and disassemble a joint and a joint slide. After completion of machining, reassemble precisely as they were so as to mate a match mark. (Products of type HJ-GX use a shear pin instead of a spring pin.)



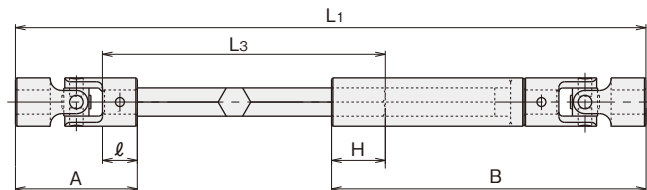
- When it is set up, yoke E of left joint and yoke F of right joint should be located symmetrically. The following drawing shows the wrong setup, in which yoke E and yoke F are set in 90° phase difference. Please note that if it is set up in a wrong way, the output shaft cannot maintain the constant revolution velocity. Refer to instruction notes in page 2 for more details.



Example of wrong setup

In case of total length change

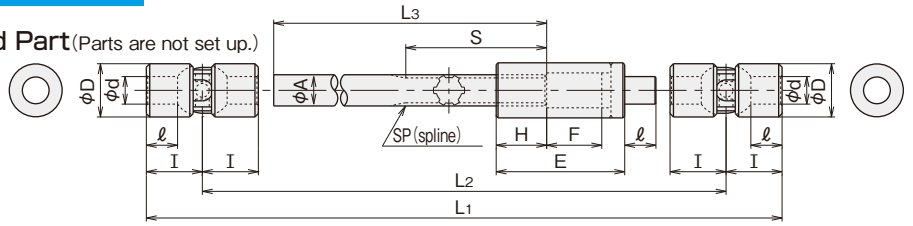
- ① Determine the use length (maximum length L1).
- ② Calculate the length of intermediate shaft. Calculate dimensions A and B with figures in dimension table of this catalogue, and find L3 using the following formula: $L_3 = L_1 - (A + B) + (l + H)$. Then, cut the shaft. If you need to make the total length even shorter, cut the sleeve. However you should maintain the engaged distance H between a shaft and a sleeve.



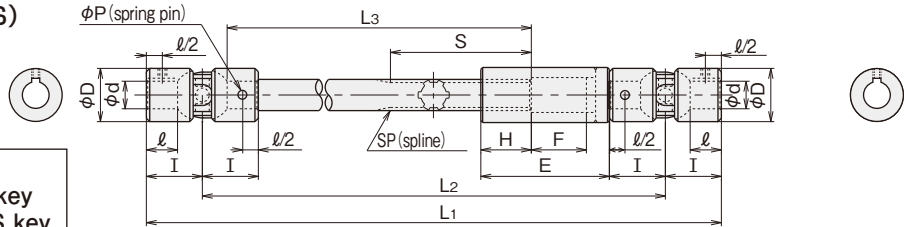
Precision Type S-P

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

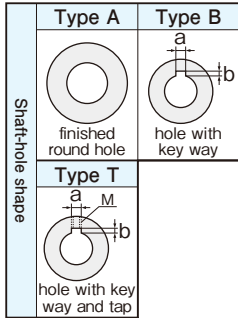
Standard Part (Parts are not set up.)



Parts Setup with Key Way and Tap (Designate dimension L1) (S-P TTS)



Choose new JIS key or old JIS key.



Type S-P Dimension Table

standard part's attachment ● spring-pin 4 pieces

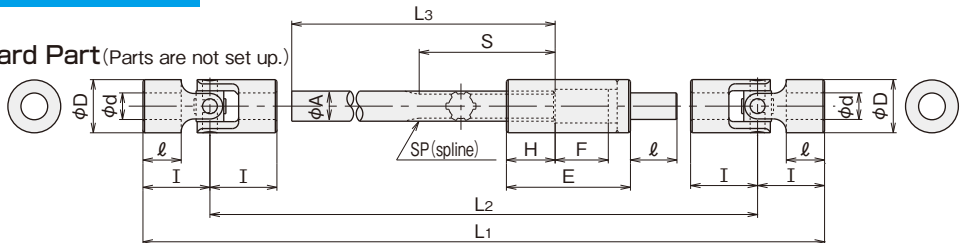
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	New JIS key		Old JIS key		TAP M	MAX			MIN
												a ^{JS9}	b	a ^{JS9}	b		L1 ⁰	L2	L3	
S- 6P	6	16	17	9	43.5	8.5	25	6	60	Large diameter 6 m=0.5 z=10	2 ×16	2	1.0	2	1.0	M3	244	210	150	136.5
S- 8P	8	18	20	11	50.5	10.5	25	8	70	Large diameter 8 m=0.5 z=14	2.5×16	3	1.4	3	1.5	M3	409	369	300	155.5
S-10P	10	22	22.5	12	65	20	30	10	80	Large diameter 10 m=0.5 z=18	3 ×20	3	1.4	4	1.5	M4	423	378	300	185
S-12P	12	26	25	13	85	25	35	12	80	Large diameter 12 m=0.75 z=14	4 ×25	4	1.8	4	1.5	M4	547	497	400	220
S-14P	14	29	28	16	90	25	40	14	65	11×14×3 ×6	5 ×28	5	2.3	5	2.0	M5	561	505	400	242
S-16P	16	32	32.5	18	95	30	40	16	75	13×16×3.5×6	5 ×32	5	2.3	5	2.0	M5	577	512	400	265
S-18P	18	37	36	20	105	35	45	20	85	16×20×4 ×6	6 ×35	6	2.8	5	2.0	M6	794	722	600	294
S-20P	20	42	41	23	110	40	45	22	90	18×22×5 ×6	6 ×40	6	2.8	5	2.0	M6	811	729	600	319
S-22P	22	47	47.5	25	115	40	50	25	95	21×25×5 ×6	6 ×45	6	2.8	7	3.0	M8	1040	945	800	355
S-25P	25	52	54	29	125	40	60	30	100	23×28×6 ×6	8 ×50	8	3.3	7	3.0	M8	1072	964	800	401
S-30P	30	58	61	34	140	55	60	35	115	28×34×7 ×6	10 ×60	8	3.3	7	3.0	M8	1095	973	800	444

●MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ●MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

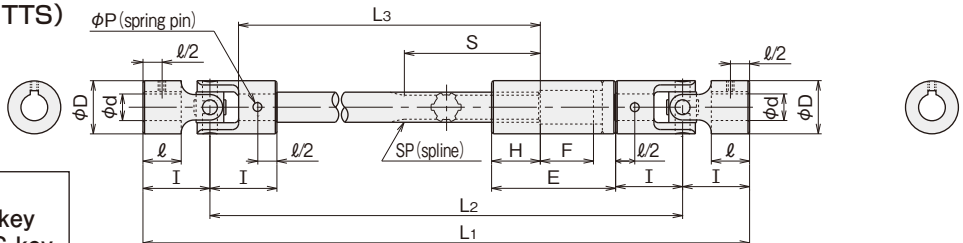
Precision Type H-P

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

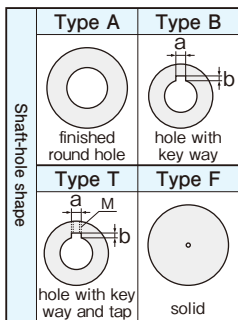
Standard Part (Parts are not set up.)



Parts Setup with Key Way and Tap (Designate dimension L1) (H-P TTS)



Choose new JIS key or old JIS key.



Type H-P Dimension Table

standard part's attachment ● spring-pin 4 pieces

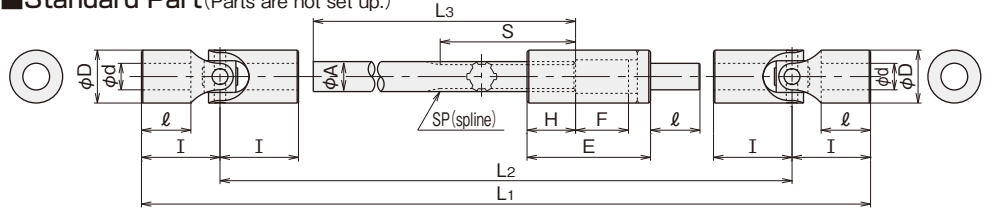
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	New JIS key		Old JIS key		TAP M	MAX			MIN
												a ^{JS9}	b	a ^{JS9}	b		L1 ⁰	L2	L3	
H- 6P	6	12.5	20	13	43.5	8.5	25	6	60	Large diameter 6 m=0.5 z=10	2 ×12	2	1.0	2	1.0	M3	252	212	150	148.5
H- 8P	8	16	25	16.5	50.5	10.5	25	8	70	Large diameter 8 m=0.5 z=14	2.5×16	3	1.4	3	1.5	M3	423.5	373.5	300	175.5
H-10P	10	20	28	17	65	20	30	10	80	Large diameter 10 m=0.5 z=18	3 ×20	3	1.4	4	1.5	M4	440	384	300	207
H-12P	12	25	35.5	22	85	25	35	12	80	Large diameter 12 m=0.75 z=14	4 ×25	4	1.8	4	1.5	M4	580	509	400	262
H-16P	16	32	40	23	95	30	40	16	75	13×16×3.5×6	5 ×32	5	2.3	5	2.0	M5	602	522	400	295
H-20P	20	40	50	28	110	40	45	22	90	18×22×5 ×6	6 ×40	6	2.8	5	2.0	M6	842	742	600	355
H-25P	25	50	63	36	125	40	60	30	100	23×28×6 ×6	8 ×50	8	3.3	7	3.0	M8	1101	975	800	437
H-30P	30	57	82.5	51	140	55	60	35	115	28×34×7 ×6	10 ×60	8	3.3	7	3.0	M8	1164	999	800	530

●MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ●MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

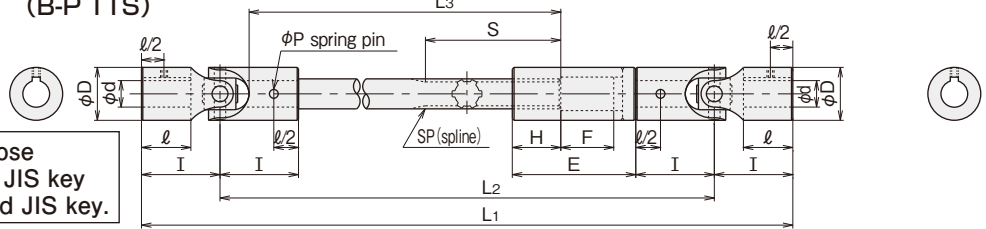
Strong Type B-P

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

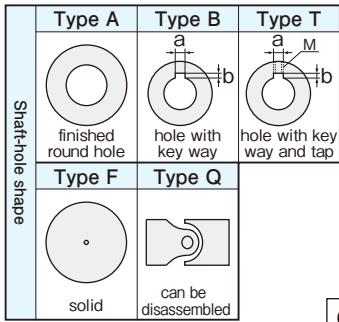
■ Standard Part (Parts are not set up.)



■ Parts Setup with Key Way and Tap (Designate dimension L1) (B-P TTS)



Choose new JIS key or old JIS key.



Type B-P Dimension Table

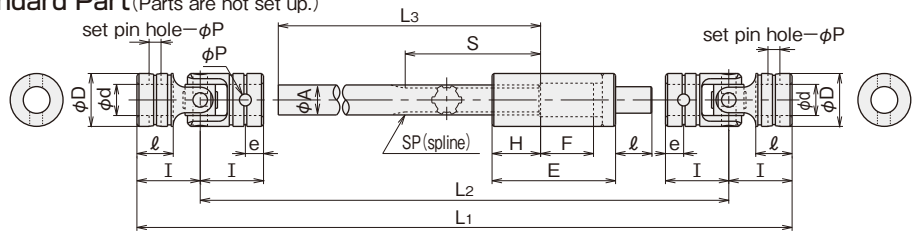
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	standard part's attachment				● spring-pin 4 pieces				
												New JIS key		Old JIS key		TAP M	MAX			MIN
												a ^{JIS}	b	a ^{JS}	b		L1-F	L2	L3	L1-F
B- 6P	6	12	25	18	43.5	8.5	25	6	60	Large diameter 6 m=0.5 z=10	2 × 12	2	1.0	2	1.0	M3	266.5	216.5	150	168.5
B- 8P	8	16	28	19	50.5	10.5	25	8	70	Large diameter 8 m=0.5 z=14	2.5 × 16	3	1.4	3	1.5	M3	433	377	300	187.5
B-10P	10	20	34	23	65	20	30	10	80	Large diameter 10 m=0.5 z=18	3 × 20	3	1.4	4	1.5	M4	458	390	300	231
B-12P	12	24	42	29	85	25	35	12	80	Large diameter 12 m=0.75 z=14	4 × 25	4	1.8	4	1.5	M4	599	515	400	288
B-14P	14	28	47	31.5	90	25	40	14	65	11 × 14 × 3 × 6	5 × 28	5	2.3	5	2.0	M5	621.5	527.5	400	318
B-16P	16	32	52	34.5	95	30	40	16	75	13 × 16 × 3.5 × 6	5 × 32	5	2.3	5	2.0	M5	638.5	534.5	400	343
B-18P	18	36	60	40	105	35	45	20	85	16 × 20 × 4 × 6	6 × 35	6	2.8	5	2.0	M6	870	750	600	390
B-20P	20	40	62	40	110	40	45	22	90	18 × 22 × 5 × 6	6 × 40	6	2.8	5	2.0	M6	878	754	600	403
B-22P	22	44	65	41	115	40	50	25	95	21 × 25 × 5 × 6	6 × 45	6	2.8	7	3.0	M8	1094	964	800	425
B-25P	25	50	70	43	125	40	60	30	100	23 × 28 × 6 × 6	8 × 50	8	3.3	7	3.0	M8	1122	982	800	465
B-30P	30	60	89	56	140	55	60	35	115	28 × 34 × 7 × 6	10 × 60	8	3.3	7	3.0	M8	1185	1007	800	556

● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

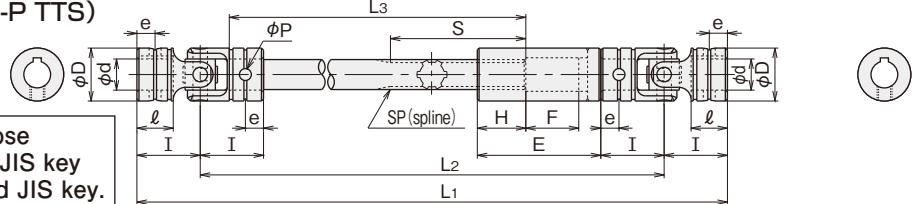
Anti-wear Type HJ-P

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

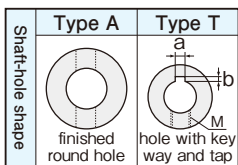
■ Standard Part (Parts are not set up.)



■ Parts Setup with Key Way and Tap (Designate dimension L1) (HJ-P TTS)



Choose new JIS key or old JIS key.



Type HJ-P Dimension Table

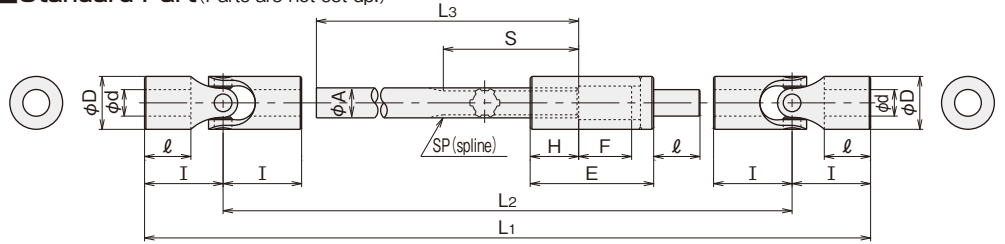
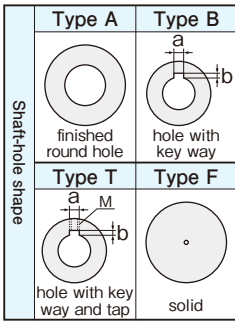
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	e	φP ^{H8/m6}	standard part's attachment				● strong-pin 2 piece ● shear-pin 2 piece ● check ring 4 pieces				
													New JIS key		Old JIS key		TAP M	MAX			MIN
													a ^{EJ}	b	a ^{EJ}	b		L1-F	L2	L3	L1-F
HJ- 6P	6	12	15.5	9	43.5	8.5	25	6	60	Large diameter 6 m=0.5 z=10	4.5	3	—	—	—	—	238	207	150	130.5	
HJ- 8P	8	15	18	10	50.5	10.5	25	8	70	Large diameter 8 m=0.5 z=14	5	3.5	3	1.4	3	1.5	M3	402	366	300	147.5
HJ-10P	10	19	21	12	65	20	30	10	80	Large diameter 10 m=0.5 z=18	6	4.5	3	1.4	4	1.5	M4	418	376	300	179
HJ-12P	12	23	26	15	85	25	35	12	80	Large diameter 12 m=0.75 z=14	7.5	5	4	1.8	4	1.5	M4	551	499	400	224
HJ-14P	14	26	29.5	16	90	25	40	14	65	11 × 14 × 3 × 6	8.5	5.8	5	2.3	5	2.0	M5	567	508	400	248
HJ-16P	16	30	37	20	95	30	40	16	75	13 × 16 × 3.5 × 6	11	6.5	5	2.3	5	2.0	M5	593	519	400	283
HJ-18P	18	33	40.5	23.5	105	35	45	20	85	16 × 20 × 4 × 6	11.7	7	6	2.8	5	2.0	M6	808.5	727.5	600	312
HJ-20P	20	36	43.5	25	110	40	45	22	90	18 × 22 × 5 × 6	12.5	8	6	2.8	5	2.0	M6	819	732	600	329
HJ-22P	22	40	47	27	115	40	50	25	95	21 × 25 × 5 × 6	13.5	9	6	2.8	7	3.0	M8	1036	942	800	353
HJ-25P	25	44	52.5	30	125	40	60	30	100	23 × 28 × 6 × 6	15	10	8	3.3	7	3.0	M8	1065	960	800	395
HJ-30P	30	51	61	35	140	55	60	35	115	28 × 34 × 7 × 6	17.5	11.5	8	3.3	7	3.0	M8	1094	972	800	444

● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

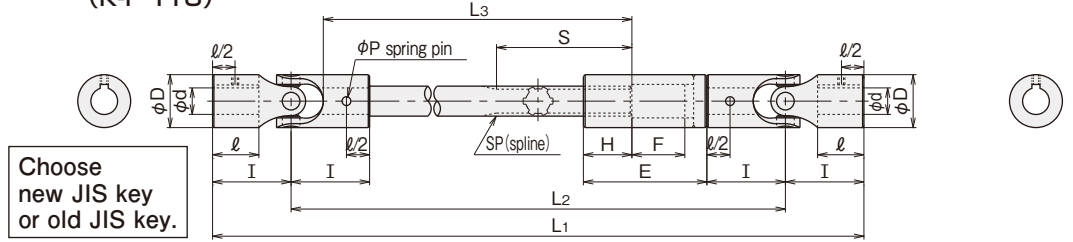
Bearing Type **K-P**

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

Standard Part (Parts are not set up.)



Parts Setup with Key Way and Tap (Designate dimension L1) (K-P TTS)



Type K-P Dimension Table

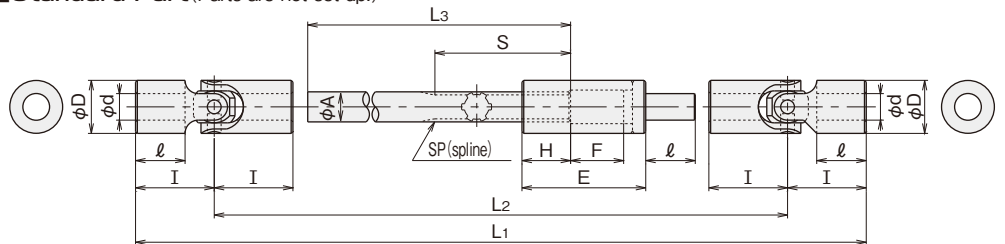
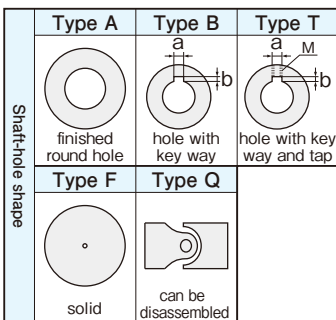
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	standard part's attachment				● spring-pin 4 pieces				
												New JIS key		Old JIS key		TAP M	MAX			MIN
												a ^{JIS9}	b	a ^{JIS9}	b		L1 ^φ	L2	L3	L1 ^φ
K-10P	10	20	31	19	65	20	30	10	80	Large diameter 10 m=0.5 z=18	3×20	3	1.4	4	1.5	M4	450	388	300	219
K-12P	12	25	37	23.5	85	25	35	12	80	Large diameter 12 m=0.75 z=14	4×25	4	1.8	4	1.5	M4	584.5	510.5	400	268
K-16P	16	32	52	34.5	95	30	40	16	75	13×16×3.5×6	5×32	5	2.3	5	2.0	M5	638.5	534.5	400	343
K-20P	20	42	62	37.5	110	40	45	22	90	18×22×5×6	6×40	6	2.8	5	2.0	M6	880.5	756.5	600	403
K-25P	25	50	70	39.5	125	40	60	30	100	23×28×6×6	8×50	8	3.3	7	3.0	M8	1125.5	985.5	800	465
K-30P	30	60	89	52.5	140	55	60	35	115	28×34×7×6	10×60	8	3.3	7	3.0	M8	1188.5	1010.5	800	556

● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

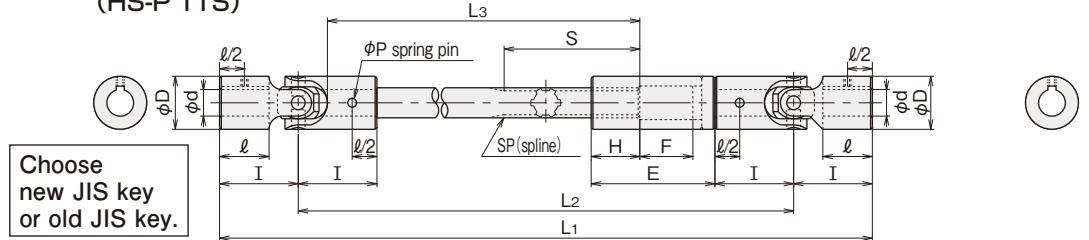
Stainless Steel Type **HS-P** SUS304

- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.

Standard Part (Parts are not set up.)



Parts Setup with Key Way and Tap (Designate dimension L1) (HS-P TTS)



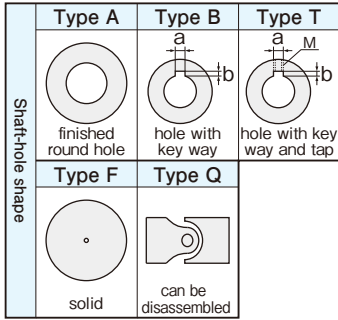
Type HS-P Dimension Table

Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	standard part's attachment				● spring-pin 4 pieces(SUS420J2)				
												New JIS key		Old JIS key		TAP M	MAX			MIN
												a ^{JIS9}	b	a ^{JIS9}	b		L1 ^φ	L2	L3	L1 ^φ
HS- 6P	6	12.5	20	13	43.5	8.5	25	6	60	Large diameter 6m=0.5 z=10	2 ×12	2	1.0	2	1.0	M3	252	212	150	148.5
HS- 8P	8	16	25	16.5	50.5	10.5	30	8	70	Large diameter 8m=0.5 z=14	2.5×16	3	1.4	3	1.5	M3	423.5	373.5	300	180.5
HS-10P	10	20	28	17	65	20	35	10	80	Large diameter 10m=0.5 z=18	3 ×20	3	1.4	4	1.5	M4	440	384	300	212
HS-12P	12	25	35.5	22	80	25	35	12	80	Large diameter 12m=0.75z=14	4 ×25	4	1.8	4	1.5	M4	575	504	400	257
HS-16P	16	32	40	23	95	30	40	16	75	13×16×3.5×6	5 ×32	5	2.3	5	2.0	M5	602	522	400	295
HS-20P	20	40	50	28	110	40	45	22	90	18×22×5.0×6	6 ×40	6	2.8	5	2.0	M6	842	742	600	335

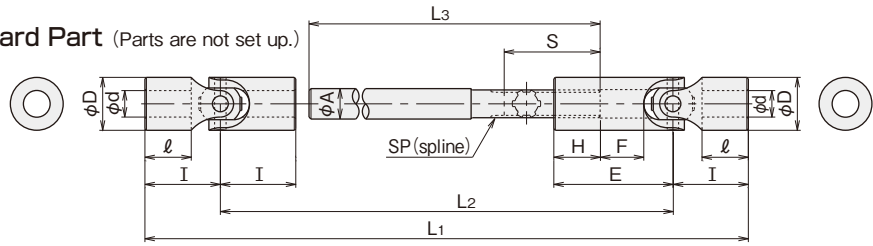
● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

Strong Type B-PS

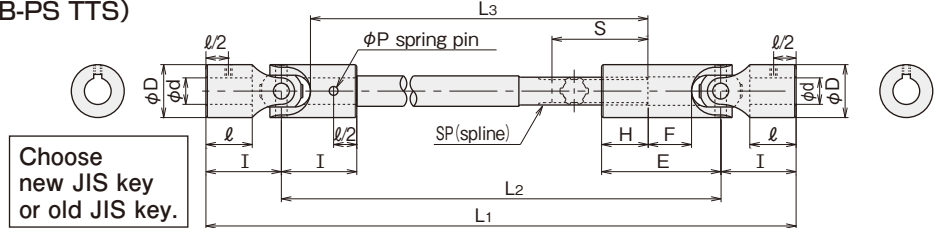
- Please read "request and advice for order" in page 6 before placing an order.
- Please refer to "joint boot" in page 24 and 25.



Standard Part (Parts are not set up.)



Parts Setup with Key Way and Tap (Designate dimension L1) (B-PS TTS)



Choose new JIS key or old JIS key.

Type B-PS Dimension Table

standard part's attachment ● spring-pin 3 pieces

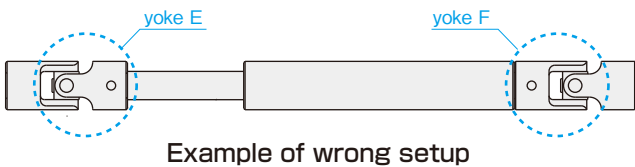
Symbol Size	φd ^{H7}	φD	I	ℓ	E	H	F Slide distance	φA	S	SP	Dimension of spring-pin for fixing	New JIS key		Old JIS key		TAP M	MAX				MIN
												a ^{JIS9}	b	a ^{JIS9}	b		L1-F	L2	L3	L1-F	
B-20PS	20	40	62	40	100	40	38	22	90	18×22× 5×6	6× 40	6	2.8	5	2.0	M 6	806	682	600	324	
B-22PS	22	44	65	41	105	41	40	25	95	21×25× 5×6	6× 45	6	2.8	7	3.0	M 8	1018	888	800	340	
B-25PS	25	50	70	43	110	43	40	30	100	23×28× 6×6	8× 50	8	3.3	7	3.0	M 8	1034	894	800	360	
B-30PS	30	60	89	56	140	56	51	35	115	28×34× 7×6	10× 60	8	3.3	7	3.0	M 8	1095	917	800	458	
B-35PS	35	70	100	62	160	62	60	42	130	32×38× 6×8	10× 70	10	3.3	10	3.5	M10	1136	936	800	520	
B-40PS	40	80	114	70	180	70	66	46	145	36×42× 7×8	10× 80	12	3.3	10	3.5	M10	1182	954	800	588	
B-45PS	45	90	125	76	200	76	75	53	160	42×48× 8×8	12× 90	14	3.8	12	3.5	M10	1223	973	800	650	
B-50PS	50	100	135	80	210	80	75	53	170	42×48× 8×8	12×100	14	3.8	12	3.5	M12	1255	985	800	690	
B-60PS	60	120	150	84	230	84	80	63	185	52×60×10×8	13×120	18	4.4	15	5.0	M12	1312	1012	800	760	

● MAX L1=Maximum length in which the sliding stroke F of standard part is kept. ● MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

Instruction of P Series

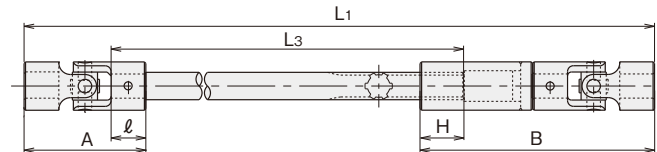
Products of P Series are semi-order-made ones that can meet the requirement of short delivery.

- A product consists of two standard joints and a joint slide (SPS, SPA).
In case of standard parts, a joint and a joint slide are not set up at the time of delivery. So when it is used, set it up using an attached spring pin after deciding the total length. (For HJ-P, a shear pin is used instead of a spring pin.)
- When it is set up, yoke E of left joint and yoke F of right joint should be located symmetrically. The following drawing shows the wrong setup, in which yoke E and yoke F are set in 90° phase difference. Please note that if it is set up in a wrong way, the output shaft cannot maintain the constant revolution velocity. Refer to instruction notes in page 2 for more details.

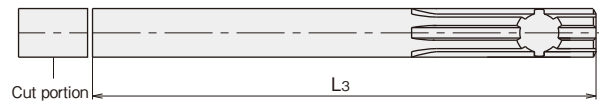


In case of total length change

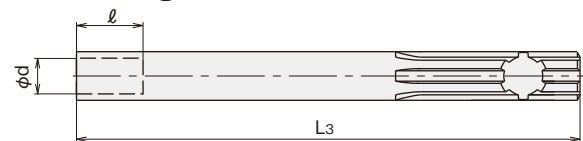
- ① Determine the use length (maximum length L1).



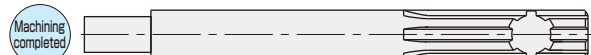
- ② Calculate the length of intermediate shaft.
Calculate dimensions A and B with figures in dimension table of this catalogue, and find L3 using the following formula: $L_3 = L_1 - (A+B) + (\ell + H)$. Then, cut the shaft. However the area of spline should not be cut.



- Cut to the length of L3



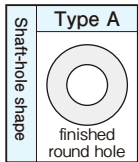
- Machine the shaft end to the dimension of φ×ℓ so that it can be inserted to a joint.



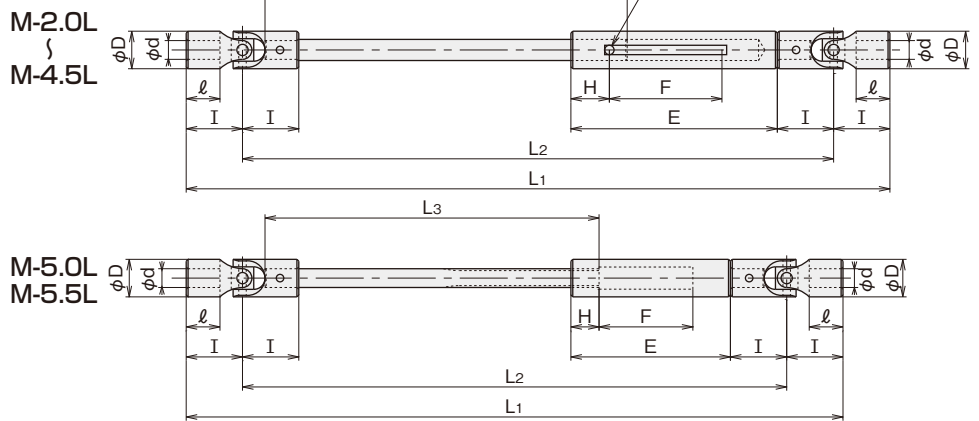
- ③ Fitting a spring pin

Drill a pin hole in the center of dimension ℓ and hammer down a spring pin into a hole.

Miniature Type M-L



Designate dimension L1.



■Type M-L Dimension Table

Symbol Size	ϕd^{H7}	ϕD	I	l	E	H	F Slide distance	ϕP	MAX			MIN
									$L1_{-F}^0$	L2	L3	$L1_{-F}^0$
M-2.0L	2.0	6	7.5	4	35	5.75	18	1.5	95	80	42.3	83
M-2.5L	2.5											
M-3.0L	3.0											
M-3.5L	3.5	8	12	7.2	44	8	24	2.0	150	126	77.2	116
M-4.0L	4.0											
M-4.5L	4.5											

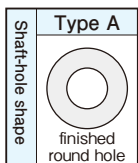
Spline dimension (large diameter 5 m=0.5 z=8) Refer to join slide SPS series in page 22

M-5.0L	5.0	10	15	9	42.5	7.5	25	-	200	170	114	127.5
M-5.5L	5.5											

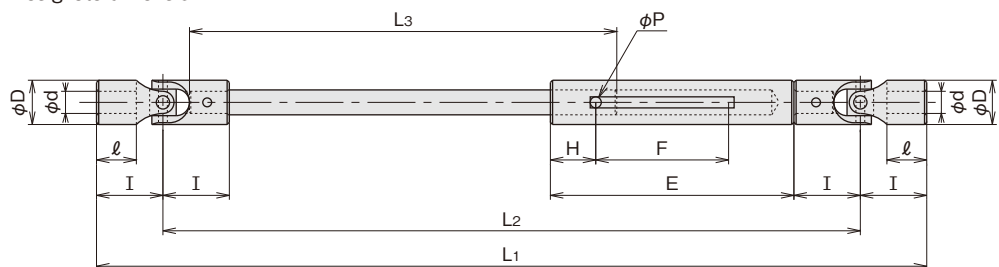
- MAX L1=Maximum length in which the sliding stroke F of standard part is kept.
- MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

Anti-corrosive Type MS-L

Stainless Steel SUS304



Designate dimension L1.



■Type MS-L Dimension Table

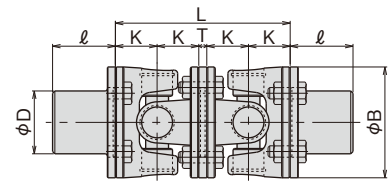
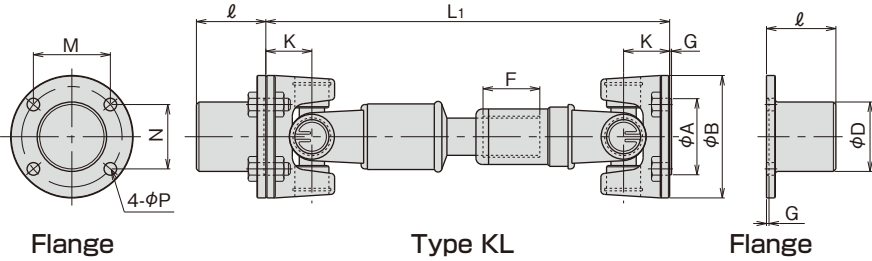
Symbol Size	ϕd^{H7}	ϕD	I	l	E	H	F Slide distance	ϕP	MAX			MIN
									$L1_{-F}^0$	L2	L3	$L1_{-F}^0$
MS-2.0L	2.0	6	7.5	4	35	5.75	18	1.5	95	80	42.3	83
MS-2.5L	2.5											
MS-3.0L	3.0											
MS-3.5L	3.5	8	12	7.2	44	8	24	2.0	150	126	77.2	116
MS-4.0L	4.0											
MS-4.5L	4.5											
MS-5.0L	5.0	10	15	9	55	10.25	30	2.5	190	160	99	145
MS-5.5L	5.5											

- MAX L1=Maximum length in which the sliding stroke F of standard part is kept.
- MIN L1=Minimum length in which a shaft and a sleeve are cut and the engaged distance H and sliding stroke F are kept.

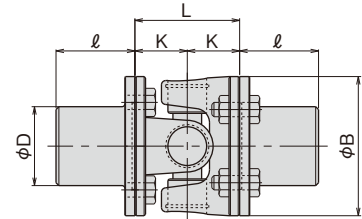
Bearing Type KL, KF, KFD

Light Torque and High Revolution Use

- Order a fitting flange separately.
- A shaft hole of a fitting flange is not machined.
- Designate dimension L1 for type KL.



Type KFD



Type KF

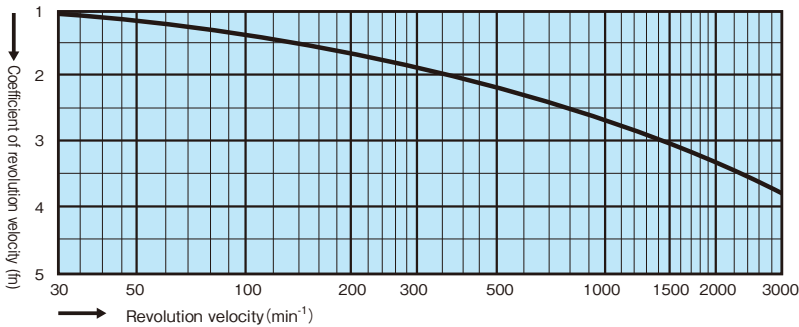
■Type KL, KF, KFD Dimension Table

Type Symbol	Type KL			Type KF	Type KFD	Common for each type												
	MIN L1 ⁺⁶	MAX L1 ⁺⁶	F Slide distance	L	L	Revolution diameter φB	K	φA	G	M	N	4-φP ^{+0.5} / _{+0.3}	PCD	φD	l	T	Max. joint angle	Max. transmission torque capacity N·m
Each type-7	270	1000	35	72	149	65	36	35	-3	37	37	6	52.3	40	40	5	15	69
Each type-20	390	2000	50	76	158	72	38	34	3	50	25	8	55.9	36	40	6	15	196
Each type-30	330	2000	50	80	167	89	40	57	2	54	45	8	70.3	47	50	7	15	294
Each type-45	320	2000	45	73	153	97	36.5	60.2	2	61	51	10	79.5	55	55	7	15	441
Each type-70	420	2000	60	92	192	134	46	85	3	87	73	12	113.6	78	80	8	15	686
Each type-110	520	2000	60	120	248	143	60	62	4	85	80	12	116.7	78	80	8	15	1079
Each type-150	590	2000	120	144	298	171	72	90	5	118	75	14	139.8	98	100	10	15	1471
Each type-300	670	2000	160	156	326	196	78	100	5	131	92	16	160.0	118	120	14	15	2942

Please contact us about any other dimensions. ※Rotational balancing can be done to the length of L1=1500.

Method to choose type in KL

■Graph of coefficient of revolution velocity (fn)



■Table of coefficient of prime mover

Type of prime mover	Coefficient fp
Motor	1.2
Gasoline engine	1.2~2.0
Diesel engine	1.5~2.5

(Calculate transmission torque capacity using following formulas.)

$$T = 60000 \times \frac{H(KW)}{2\pi N}$$

T = Transmission torque N·m
 H = Prime mover capacity KW
 N = Revolution min⁻¹

To = Joint capacity can be calculated by multiplying transmission torque by each coefficient.

$$To = T \times fn \times fp \times fa \times fh$$

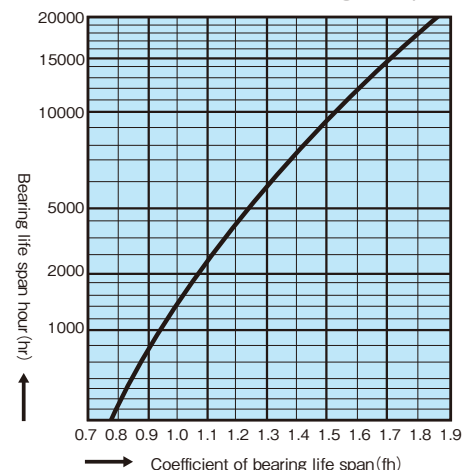
To = Joint capacity

fn = Coefficient of revolution velocity
 fp = Coefficient of prime mover
 fa = Coefficient of joint angle
 fh = Coefficient of bearing life span

■Table of coefficient of joint angle fa

Angle	Coefficient
2°	1.0
5°	1.1
10°	1.2
12°	1.4
13°	1.45
14°	1.5
15°	1.6

■Table of coefficient of bearing life span



J•O•I•N•T

Related Product

NXO Slide

Zero-coup

Miyoshi Block

Pin Bushing Couplings PARAFLEX



High stiffness



High flexibility



High damping



Easy to mount and remove



RoHS

Max. nominal torque [N·m]	25
Bore ranges [mm]	φ 3 ~ 22
Operating temperature [°C]	- 30 ~ 100
Backlash	Extremely small size
Driver	Servo motor, stepper motor, induction motor
Application	Chip mounters, electric discharge machines, automated teller machines, winders

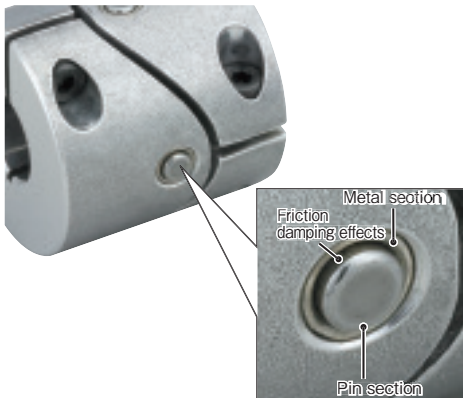
Pin bushing Couplings That Keep Shaft Reaction Force from Mounting Misalignment Extremely Low



Pin/bushing style couplings that use aluminum alloy as their primary material. This system makes shaft reaction force due to mounting misalignment extremely small. There is also a damping effect from sliding at the friction surface between the pin and dry metal.

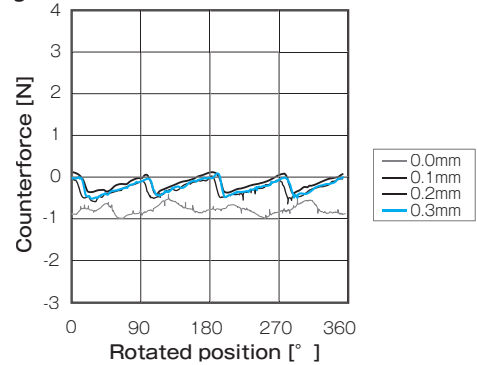
Main Features

Friction Damping Effect of Pin and Metal Bushing



Counterforce from Parallel Misalignment and Angular Deflection is Extremely Small

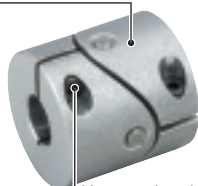
■ CPU-36-A: Counterforce due to parallel misalignment



Structure and Materials

■ CPE

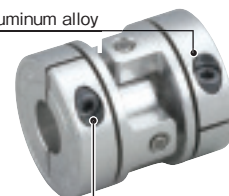
Hub material: Aluminum alloy



Hexagon head bolt material:
Alloy steel for machine structural use
Surface finishing: Black coating

■ CPU

Hub material: Aluminum alloy



Clamping bolt material:
Alloy steel for machine structural use
Surface finishing: Solid film lubricant coating

CPE Models

COUPLINGS

ETP BUSHINGS

ELECTROMAGNETIC CLUTCHES & BRAKES

SPEED CHANGERS & REDUCERS

INVERTERS

LINEAR SHAFT DRIVES

TORQUE LIMITERS

ROSTA

SERIES

- Metal Disc Couplings **SERVOFLEX**
- High-rigidity Couplings **SERVORIGID**
- Metal Slit Couplings **HELI-CAL**
- Metal Coil Spring Couplings **BAUMANNFLEX**
- Pin Bushing Couplings **PARAFLEX**
- Link Couplings **SCHMIDT**
- Dual Rubber Couplings **STEPFLEX**
- Jaw Couplings **MIKI PULLEY STARFLEX**
- Jaw Couplings **SPRFLEX**
- Plastic Bellows Couplings **BELLOWFLEX**
- Rubber and Plastic Couplings **CENTAFLEX**

MODELS

CPE

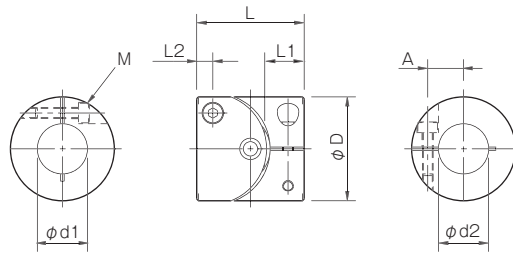
CPU

Specifications

Model	Torque		Misalignment		Max. rotation speed [min ⁻¹]	Torsional stiffness [N-m/rad]	Moment of inertia [kg-m ²]	Mass [kg]
	Nominal [N-m]	Max. [N-m]	Parallel [mm]	Angular [°]				
CPE-19	0.7	1.4	0.2	1	6000	500	0.69×10^{-6}	0.015
CPE-29	2	4	0.2	1	6000	700	5.80×10^{-6}	0.050
CPE-39	5	10	0.2	1	6000	1900	18.50×10^{-6}	0.080

* Torques for CPE-19 are values when the bore diameter is at least equal to 4 mm.
 * Max. rotation speed does not take into account dynamic balance.
 * The moment of inertia and mass are measured for the maximum bore diameter.

Dimensions



Model	d1 · d2		D	L	L1	L2	M	A	Unit [mm]
	Min.	Max.							
CPE-19	3	8	19	19.4	6	3	M2.5	6	
CPE-29	6	14	29	30	9.5	4.5	M3	10	
CPE-39	8	20	39	40	12.5	6	M4	14	

* Insert the shaft to at least the dimension L1. (Note that the shaft cannot go all the way through.)
 * The recommended processing tolerance for paired mounting shafts is the h7 class.

Standard Bore Diameter

Model	Standard bore diameter d1, d2 [mm]																
	3	4	5	6	6.35	7	8	9.525	10	11	12	14	15	16	18	19	20
CPE-19	○	●	●	●	●	●	●										
CPE-29				●	●	●	●	●	●	●	●	●	●	●	●	●	●
CPE-39							●	●	●	●	●	●	●	●	●	●	●

* Torque on the CPE-19 with a bore diameter of 3 mm is limited by holding force in the shaft coupling component, so nominal torque is 0.4 N-m and maximum torque is 0.8 N-m.
 * Bore diameters between the minimum and maximums shown in the dimensions table are compatible, but bore diameters other than those shown in the above table require a separate bore drilling charge.

How to Place an Order

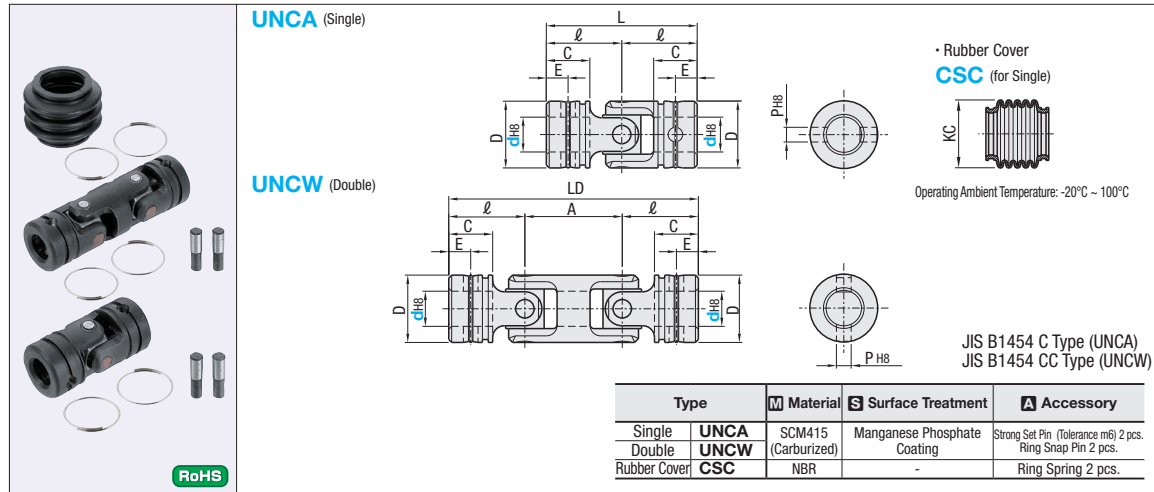
CPE-19-6B-6B

Size Bore diameter: d1 (Small diameter) - d2 (Large diameter)
 B: Clamping hub

Universal Joints

Set Pin

■ **Features:** A coupling in which connecting angle can be changed in any manner.



UNCA (Single)
UNCW (Double)

• Rubber Cover
CSC (for Single)

Operating Ambient Temperature: -20°C ~ 100°C

JIS B1454 C Type (UNCA)
 JIS B1454 CC Type (UNCW)

Type	M Material	S Surface Treatment	A Accessory
Single	UNCA	SCM415	Strong Set Pin (Tolerance m6) 2 pcs.
Double	UNCW	(Carburized)	Ring Snap Pin 2 pcs.
Rubber Cover	CSC	NBR	Ring Spring 2 pcs.

Universal Joints

Part Number	Type	d	D	Single		Double		ℓ	C	E	P	Unit Price	
				L	LD	A	UNCA					UNCW	
UNCA (Single)	6	12	31	-	-	15.5	9	4.5	3	-	-	-	-
	8	15	36	-	-	18	10	5	3.5	-	-	-	-
	10	20	42	67.5	25.5	21	12	6	4.5	-	-	-	-
	12	23	52	83	31	26	15	7.5	5	-	-	-	-
UNCW (Double)	14	26	59	94.5	35.5	29.5	17	8.5	5.8	-	-	-	-
	16	30	74	117.5	43.5	37	22	11	6.5	-	-	-	-
	18	33	81	-	-	40.5	23.5	11.75	7	-	-	-	-
	20	36	87	139	52	43.5	25	12.5	8	-	-	-	-
	25	44	105	-	-	52.5	30	15	10	-	-	-	-
	30	51	122	-	-	61	35	17.5	11.5	-	-	-	-

Rubber Cover

Part Number	Type	d	KC	Unit Price	
					CSC (Single)
		10	32	-	-
		12	35	-	-
		14	40	-	-
		16	46	-	-
		18	52	-	-
		20	58	-	-
		25	68	-	-
		30	82	-	-

* No rubber covers are available for d=6.

Part Number	Type	UNCA, UNCW Common				UNCA				UNCW			
		Condition Variable	Allowable Rotational Speed (r/min)	Allowable Operating Angle (°)	Static Tensile Failure Load (N)	Allowable Torque (N·m)	Static Failure Torque (N·m)	GD ² (kg·cm ²)	Mass (g)	Allowable Torque (N·m)	Static Failure Torque (N·m)	GD ² (kg·cm ²)	Mass (g)
UNCA (Single)	6	28000	1800	30(*)	5300	5.3	16	0.015	15	-	-	-	-
	8	42000	1500		7840	11.6	35	0.044	30	-	-	-	-
	10	70000	1300		13000	27.4	83	0.13	55	20.1	61	0.21	95
	12	106000	1100		23000	46	140	0.35	110	33	100	0.55	180
UNCW (Double)	14	133000	1000		26000	66	200	0.67	155	46	140	1	250
	16	175000	900		39000	102	310	1.5	260	76	230	2.3	410
	18	203000	800		44000	132	400	2.3	345	-	-	-	-
	20	239000	700		52000	175	530	3.6	465	129	390	5.7	690
	25	356000	600		81000	330	1000	9.7	790	-	-	-	-
	30	465000	550		100000	495	1500	20	1160	-	-	-	-

* For Double Type, Allowable Operating Angle (°) on one end

Ordering Example

Part Number
UNCA16
CSC16

How to Select

① **Conditional Variables (Formula)**

$$\text{Calculation Condition Variable} = \frac{\text{Rotational Speed (r/min)}}{\text{Angle}(\text{°})} \times \text{Torque (N} \cdot \text{m)}$$

Calculation Condition Variable < Allowable Condition Variable

② Rotational Speed (r/min)

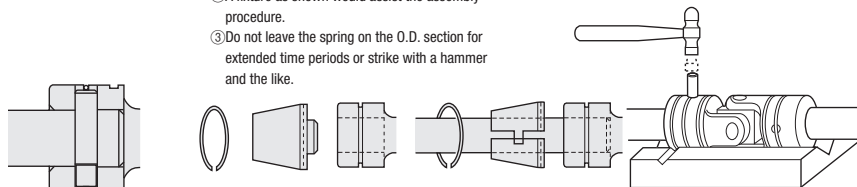
Rotational Speed x Angle Factor < Allowable Speed

=Angle Factor Table=

Angle	5° or Less	10°	15°	20°	25°	30°
Angle Coefficient	1.00	1.05	1.18	1.43	1.82	2.50

How to Handle Ring Spring

- Spring may lose its tension if reused.
- A fixture as shown would assist the assembly procedure.
- Do not leave the spring on the O.D. section for extended time periods or strike with a hammer and the like.



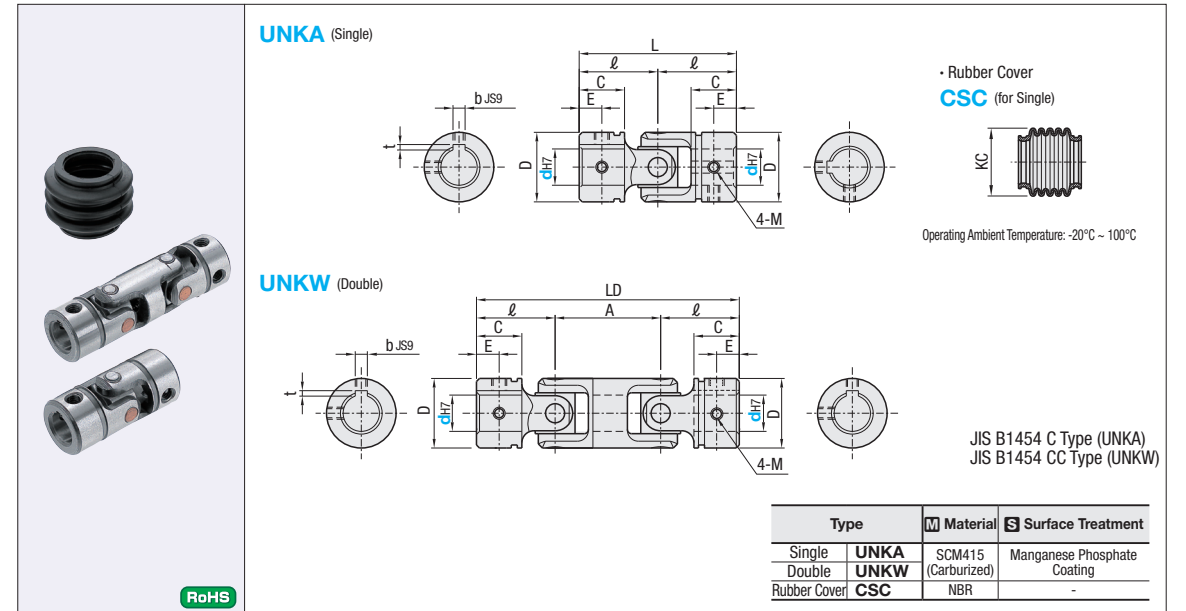
High Strength Dowel Pins

- Material SCM415 is carburized and ground to an m6 tolerance.
- Effective section is shouldered as shown and tightly engaged only on one side.
- Small misalignment is allowed on the mating side hole, but should be finished to an H8 tolerance.

Universal Joints

Keyway / Tapped

■ **Features:** Shaft does not require pin hole machining, and keyway alone can tighten it.



UNKA (Single)
UNKW (Double)

• Rubber Cover
CSC (for Single)

Operating Ambient Temperature: -20°C ~ 100°C

JIS B1454 C Type (UNKA)
 JIS B1454 CC Type (UNKW)

Type	M Material	S Surface Treatment
Single	UNKA	SCM415
Double	UNKW	(Carburized)
Rubber Cover	CSC	NBR

Universal Joints

Part Number	Type	d	D	Single		Double		ℓ	C	E	b	t	M (Coarse)	Unit Price	
				L	LD	A	UNKA							UNKW	
UNKA (Single)	10	19	42	67.5	25.5	21	12	6	3	1.4	M5	-	-		
	12	23	52	83	31	26	15	7.5	4	1.8	M5	-	-		
	14	26	59	94.5	35.5	29.5	17	8.5	5	2.3	M6	-	-		
UNKW (Double)	16	30	74	117.5	43.5	37	22	11	5	2.3	M6	-	-		
	20	36	87	139	52	43.5	25	12.5	6	2.8	M6	-	-		

Part Number	Type	d	UNKA, UNKW Common				UNKA				UNKW			
			Condition Variable	Allowable Rotational Speed (r/min)	Allowable Operating Angle (°)	Static Tensile Failure Load (N)	Allowable Torque (N·m)	Static Failure Torque (N·m)	GD ² (kg·cm ²)	Mass (g)	Allowable Torque (N·m)	Static Failure Torque (N·m)	GD ² (kg·cm ²)	Mass (g)
UNKA (Single)	10	80000	2000	30(*)	13000	27.4	83	0.13	55	20.1	61	0.21	95	
	12	121000	1800		23000	46	140	0.35	110	33	100	0.55	180	
	14	151000	1600		26000	66	200	0.67	155	46	140	1	250	
UNKW (Double)	16	200000	1400		39000	102	310	1.5	260	76	230	2.3	410	
	20	273000	1000		52000	175	530	3.6	465	129	390	5.7	690	

* For Double Type, Allowable Operating Angle (°) on one end

Rubber Cover

Part Number	Type	d	KC	Unit Price	
					CSC (Single)
		12	35	-	-
		14	40	-	-
		16	46	-	-
		20	58	-	-

Ordering Example

Part Number
UNKA16
CSC12

How to Select

① Conditional Variables (Formula)

$$\text{Calculation Condition Variable} = \frac{\text{Rotational Speed (r/min)}}{\text{Angle}(\text{°})} \times \text{Torque (N} \cdot \text{m)}$$

Calculation Condition Variable < Allowable Condition Variable

② Rotational Speed (r/min)

Rotational Speed x Angle Factor < Allowable Speed

=Angle Factor Table=

Angle	5° or Less	10°	15°	20°	25°	30°
Angle Coefficient	1.00	1.05	1.18	1.43	1.82	2.50