LIMA

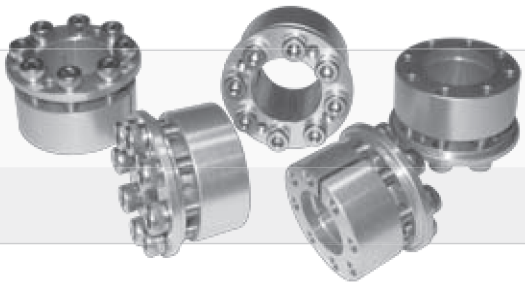
Power Lock





Power Lock SAPA Series

LIMA Aluminium Power Lock



Features

1. Aluminum Material

It is important to reduce the moment of inertia for high speed servo motor controlled positioning. It is possible by using the suitable aluminum power lock to realize low moment of inertia with high speed.

2. High Torque Transmission

It is possible to use this type in aluminum pulley and also steel pulley because it is made by aluminum alloy and it is possible to transfer high torque.

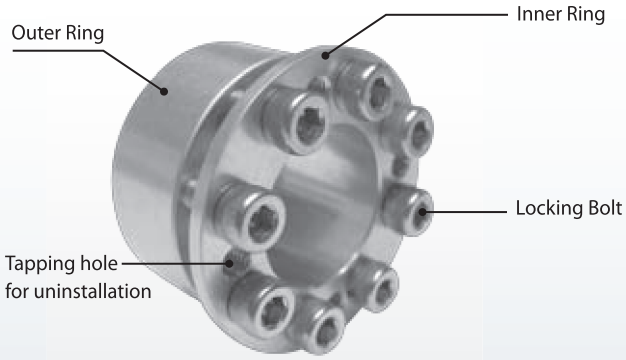
3. The optimum in clean Room

SAPA is made by aluminum alloy and nickel coating bolt so is optimum in clean room

※ Be careful for deciding the hub outer diameter with aluminum alloy strength, which may modulus of direct elasticity be low

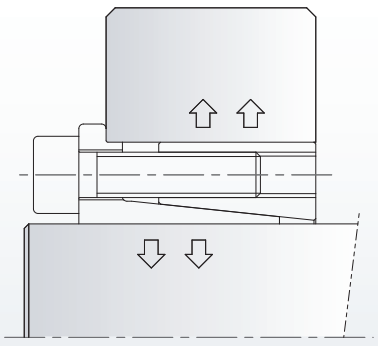
※ Contact us for the combination of aluminimum alloy and steel shaft installation with over 80 ° circumstances. It may cause of torque reduction at high temperature

Structure & Material



	Locking Bolt	Surface Treatment
Inner Ring	Aluminum Alloy	Alumite
Outer Ring	Aluminum Alloy	Alumite
Locking Bolt	SCM 435	Electroless Nickel Coating

Attachment Principle



How to Order

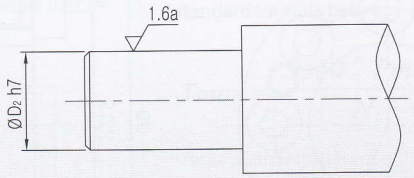
SAPA - 5 - 16

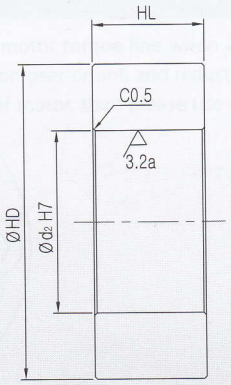
- SAPA: Product No
- 5: Inner Dia
- 16: Out Dia

SAPA

ecification







Shaft and Hub Dimension

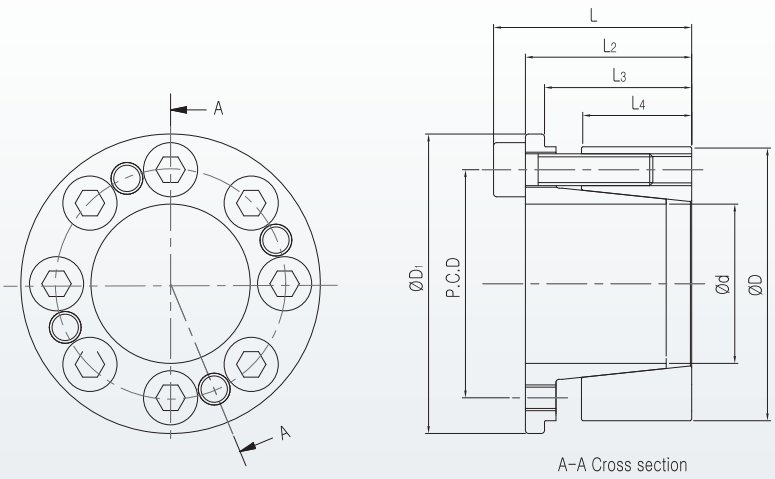
odel No.	Max Allowance Torque (N.m)	Allowance Trust Load (kN)	Surface pressure		Moment of Inertia	Shaft and Hub Dimension				
						Dimension			Hub Minium OD (HD)	
			Shaft(N/mm²)	Hub(N/mm²)	(kg/m²)	D_2	d_2	HL	Aluminum	S45C
PH-5-16	6	2.24	197	64	2.63×10^{-7}	5	16	13	28	22
PH-6-19	11	3.74	285	92	6.13×10^{-7}	6	17	14	35	27
PH-8-21	18	4.48	214	96	8.74×10^{-7}	7	19	15	39	30
PH-10-23	20	4.48	167	86	1.23×10^{-6}	10	21	16	41	32
PH-11-24	24	4.48	153	83	1.44×10^{-6}	11	22	16	42	33
PH-12-26	40	6.73	209	103	2.38×10^{-6}	12	24	17	50	38
PH-14-28	52	7.57	202	108	3.08×10^{-6}	14	26	17	56	42
PH-15-29	56	7.57	167	95	3.66×10^{-6}	15	28	18	53	41
PH-16-30	60	7.57	149	88	4.28×10^{-6}	16	29	18	54	42
PH-17-31	88	10.08	177	109	5.13×10^{-6}	17	30	19	61	46
PH-18-32	92	10.08	167	106	5.71×10^{-6}	18	31	19	62	47
PH-19-33	96	10.08	159	102	7.20×10^{-6}	19	32	19	63	48
PH-20-36	176	17.28	186	111	1.55×10^{-5}	20	37	23	82	60
PH-22-40	232	20.80	204	126	1.84×10^{-5}	22	39	23	96	68
PH-24-42	256	20.80	173	113	2.23×10^{-5}	24	41	24	92	67
PH-25-43	280	21.76	172	109	2.49×10^{-5}	25	42	25	91	67
PH-28-46	304	21.60	153	101	3.36×10^{-5}	28	45	25	92	69
PH-30-48	328	21.60	142	97	3.86×10^{-5}	30	50	25	94	71
PH-32-50	352	21.60	124	88	4.60×10^{-5}	32	53	26	92	71
PH-35-57	576	32.88	195	132	8.46×10^{-5}	35	56	28	121	89

diameter with aluminum alloy strength, which may modulus of direct elasticity is low so sometimes it is impossible to secure enough hub diameter with aluminum alloy strength.
reduce 15-20% about keyway type because of reduction of contact surface

SAPA Series

LIMA Aluminium Power Lock

Dimension

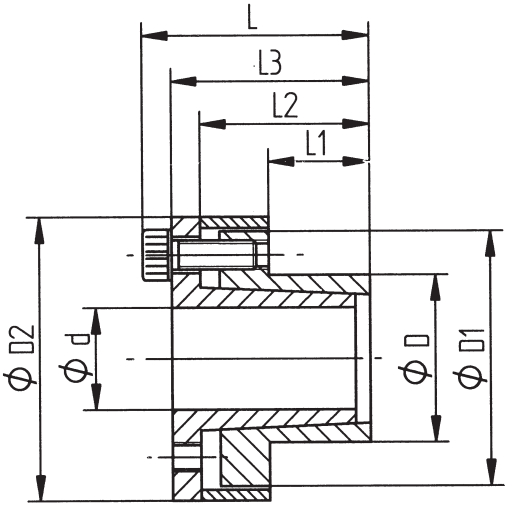


Model No.	Dimension (mm)						Attachment Bolt			Mess (g)
	L	L_2	L_3	L_4	D_1	P.C.D	Size	Quantity	Attachment Torque (N.m)	
SAPA-5-16	16	13	11.2	8	18.5	11.7	M3	4	1.9	7
SAPA-6-19	18.3	14.3	12.3	9	21.5	14	M4	4	3.9	10
SAPA-8-21	18.6	14.6	12.6	9.3	23.5	15.4	M4	4	3.9	13
SAPA-10-23	18.8	14.8	12.8	9.5	25.5	17.5	M4	4	3.9	15
SAPA-11-24	19.8	15.8	13.8	10.5	26.5	18.4	M4	4	3.9	17
SAPA-12-26	22	18	15.5	10.5	28.5	20.2	M4	6	3.9	20
SAPA-14-28	22	18	15.5	10.5	30.5	22.2	M4	6	3.9	23
SAPA-15-29	23	19	16.5	11.5	31.5	23.2	M4	6	3.9	25
SAPA-16-30	23.6	19.6	17.1	12	33	24.2	M4	6	3.9	28
SAPA-17-31	24.1	20.1	17.6	12.5	33.5	25.4	M4	8	3.9	28
SAPA-18-32	24.1	20.1	17.6	12.5	34.5	26.4	M4	8	3.9	30
SAPA-19-33	24.1	20.1	17.6	12.5	35.5	27.4	M4	8	3.9	31
SAPA-20-38	29.1	24.1	21.1	15.3	42	30.8	M5	8	8.8	53
SAPA-22-40	29.1	24.1	21.1	15.3	44	32.8	M5	8	8.8	60
SAPA-24-42	30.1	25.1	22.1	16.3	46	34.8	M5	8	8.8	65
SAPA-25-43	31.1	26.1	23.1	17.3	47	35.8	M5	8	8.8	68
SAPA-28-46	31.6	26.6	23.1	17.3	50	38.8	M5	10	8.8	71
SAPA-30-48	31.6	26.6	23.1	17.3	52	40.8	M5	10	8.8	76
SAPA-32-50	32.6	27.6	24.1	18.3	54	42.8	M5	10	8.8	80
SAPA-35-57	36	30	26	19.5	62	48.4	M6	8	15.7	117

KBS 80

Spannsatz
Locking Device

Die empfohlenen Bearbeitungstoleranzen für die Druckflächen sind:
Welle h 8 Nabe H 8
Recommended machining tolerances:
Shaft h 8 Hub H 8



BESTELLBEISPIEL:
ORDER CODE:

Bei einer Welle mit ø 95 mm und Drehmoment 11000 Nm
For a shaft with d=95 mm and a transmissible torque value lower than or equal to 11000 Nm

KBS 80 - 95 x 120

Innen/ Außen Ø Inner/ outer Ø	Dreh-moment Torque	Abmessungen Dimensions				Flansch Flange	Flansch Flange	Flächenpressung an Surface pressure on		Spannschrauben Screws			Gewicht Mass
	T	L	L 1	L 2	L 3	Außenkegel outer	Innenkegel inner	Welle Shaft Pw	Nabe Hub Pn	n	Size	TA	
d x D	Nm	mm	mm	mm	mm	D1	D2	N/mm²	N/mm²	St.	DIN 912	Nm	kg
6 x 14	12	25.5	10	18.5	22.5	23	25	190	80	3	M3x10	2.2	0.02
8 x 15	29	29.5	12	21.5	25.5	24	27	205	110	3	M4x12	5	0.06
9 x 16	31	31.5	14	23.5	27.5	25	28	150	85	3	M4x12	5	0.065
10 x 16	35	31.5	14	23.5	27.5	25	28	140	85	3	M4x12	5	0.08
11.x 18	52	31.5	14	23.5	27.5	28	32	170	105	4	M4x12	5	0.09
12 x 18	58	31.5	14	23.5	27.5	28	32	150	100	4	M4x12	5	0.09
14 x 23	69	31.5	14	23.5	27.5	35	39	140	80	4	M4x12	5	0.11
15 x 24	170	42.5	16	29.5	36.5	40	45	158	98	4	M6x18	17	0.21
16 x 24	180	42.5	16	29.5	36.5	40	45	148	98	4	M6x18	17	0.22
18 x 26	200	45.5	19	32.5	39.5	42	47	180	125	4	M6x18	17	0.22
19 x 27	210	45.5	19	32.5	39.5	43	49	170	120	4	M6x18	17	0.25
20 x 28	220	45.5	19	21.5	39.5	44	50	160	115	4	M6x18	17	0.25
22 x 32	250	52.5	26	39.5	46.5	48	54	115	80	4	M6x18	17	0.30
24 x 34	395	52.5	26	39.5	46.5	50	56	146	102	6	M6x18	17	0.35
25 x 34	410	52.5	26	39.5	46.5	50	56	140	102	6	M6x18	17	0.35
28 x 39	465	52.5	25.5	39.5	46.5	55	61	135	98	6	M6x18	17	0.45
30 x 41	510	52.5	25.5	39.5	46.5	57	62	127	90	6	M6x18	17	0.45
32 x 43	705	52.5	25.5	39.5	46.5	59	65	146	108	8	M6x18	17	0.45
35 x 47	790	58.5	31.5	45.5	52.5	62	69	105	80	8	M6x18	17	0.55
38 x 50	860	58.5	31.5	45.5	52.5	66	72	100	76	8	M6x18	17	0.60
40 x 53	900	58.5	31.5	45.5	52.5	69	75	96	72	8	M6x18	17	0.65
42 x 55	940	58.5	31.5	45.5	52.5	71	78	90	70	8	M6x18	17	0.90
45 x 59	1840	79	45	62.5	71	80	86	110	85	8	M8x22	41	1.10
48 x 62	2000	79	45	62.5	71	81	87	105	80	8	M8x22	41	1.10
50 x 65	2100	79	45	62.5	71	86	92	100	75	8	M8x22	41	1.25
55 x 71	2580	89	55	72.5	81	92	98	85	65	9	M8x22	41	1.50
60 x 77	2800	89	55	72.5	81	98	104	75	60	9	M8x22	41	1.60
65 x 84	3050	89	55	72.5	81	105	111	70	55	9	M8x22	41	1.90
70 x 90	5250	106.5	65	86.5	96.5	113	119	90	70	9	M10x25	83	2.85
75 x 95	5600	106.5	65	86.5	96.5	119	126	80	65	9	M10x25	83	2.95
80 x 100	8000	106.5	65	86.5	96.5	125	131	100	80	12	M10x25	83	3.30
85 x 106	8500	106.5	65	86.5	96.5	131	137	85	75	12	M10x25	83	3.60
90 x 112	9000	106.5	65	86.5	96.5	137	144	80	75	12	M10x25	83	3.90
95 x 120	11000	106.5	65	86.5	96.5	142	149	100	80	14	M10x25	83	4.30
100 x 125	15000	106.5	65	86.5	96.5	147	154	120	95	18	M10x25	83	4.65
110 x 140	16000	140	90	114	128	172	180	80	65	12	M12x35	154	8.20
120 x 155	17500	140	90	114	128	187	198	70	55	12	M12x35	154	10.50

PSL-K

Single bolt tightening | Center ring | No axial direction displacement *1 | Basic antirust | Stain less | LIMA

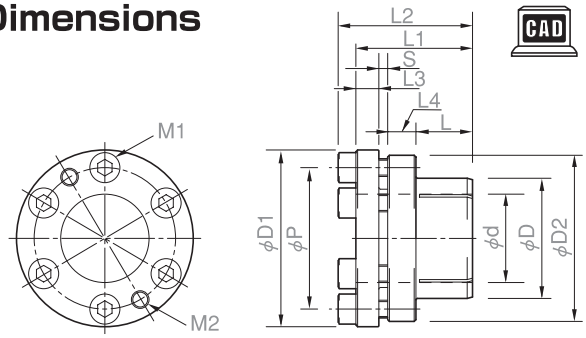
* *1: See Mounting and Dismounting (P53).

Specification

Model	Max. permissible torque [N·m]	Max. permissible thrust power [N]	Shaft-side surface pressure [N/mm²]	Hub-side surface pressure [N/mm²]	Bolt tightening torque [N·m]	Moment of inertia [kg·m²]	Mass [kg]	Price
PSL-K-6	5.9	1950	160	80	2	2.5×10^{-6}	0.037	—
PSL-K-6.35	6.2	1950	150	80	2	2.5×10^{-6}	0.036	—
PSL-K-7	6.8	1950	130	80	2	2.5×10^{-6}	0.035	—
PSL-K-8	23	5900	290	160	4	5.0×10^{-6}	0.056	—
PSL-K-9	26	5900	260	160	4	5.0×10^{-6}	0.053	—
PSL-K-9.525	28	5900	250	130	4	7.8×10^{-6}	0.069	—
PSL-K-10	29	5900	230	130	4	7.7×10^{-6}	0.068	—
PSL-K-11	32	5900	210	130	4	7.6×10^{-6}	0.065	—
PSL-K-12	47	7800	260	160	4	10×10^{-6}	0.076	—
PSL-K-12.7	50	7800	250	140	4	10×10^{-6}	0.073	—
PSL-K-14	55	7800	220	140	4	13×10^{-6}	0.083	—
PSL-K-15	95	12700	290	190	8	24×10^{-6}	0.125	—
PSL-K-16	100	12700	270	180	8	27×10^{-6}	0.130	—
PSL-K-17	110	12700	260	170	8	33×10^{-6}	0.145	—
PSL-K-18	110	12700	240	170	8	32×10^{-6}	0.140	—
PSL-K-19	120	12700	230	160	8	40×10^{-6}	0.155	—
PSL-K-20	130	12700	220	160	8	39×10^{-6}	0.150	—
PSL-K-22	210	19000	250	170	8	65×10^{-6}	0.210	—
PSL-K-24	230	19000	230	160	8	76×10^{-6}	0.220	—
PSL-K-25	240	19000	220	160	8	75×10^{-6}	0.210	—
PSL-K-28	380	27000	220	160	14	203×10^{-6}	0.390	—
PSL-K-30	400	27000	210	150	14	230×10^{-6}	0.400	—
PSL-K-32	430	27000	190	140	14	260×10^{-6}	0.425	—
PSL-K-35	630	36000	210	150	14	366×10^{-6}	0.525	—
PSL-K-40	720	36000	160	120	14	511×10^{-6}	0.599	—

* The maximum permissible torque is the value when the thrust power is zero, and the maximum permissible thrust power is the value when the torque is zero.

Dimensions



CAD

Ordering Information

PSL - K - □

Size

Former model ETP - K - □

Unit [mm]

Model	d	D	D1	D2	P	L	L1	L2	L3	L4	S	M1	M2	CAD file No.
PSL-K-6	6	12	25	23	17	10	20	24	3.5	5	1.5	2-M4×8	2-M4	PSL-K01
PSL-K-6.35	6.35	12	25	23	17	10	20	24	3.5	5	1.5	2-M4×8	2-M4	PSL-K02
PSL-K-7	7	12	25	23	17	10	20	24	3.5	5	1.5	2-M4×8	2-M4	PSL-K03
PSL-K-8	8	15	28	26	20	12	24	28	5	5	2	3-M4×10	3-M4	PSL-K04
PSL-K-9	9	15	28	26	20	12	24	28	5	5	2	3-M4×10	3-M4	PSL-K05
PSL-K-9.525	9.525	18	31	29	23	12	24	28	5	5	2	3-M4×10	3-M4	PSL-K06
PSL-K-10	10	18	31	29	23	12	24	28	5	5	2	3-M4×10	3-M4	PSL-K07
PSL-K-11	11	18	31	29	23	12	24	28	5	5	2	3-M4×10	3-M4	PSL-K08
PSL-K-12	12	20	33	31	25	12	24	28	5	5	2	4-M4×10	2-M4	PSL-K09
PSL-K-12.7	12.7	20	33	31	25	12	24	28	5	5	2	4-M4×10	2-M4	PSL-K10
PSL-K-14	14	22	35	33	27	12	24	28	5	5	2	4-M4×10	2-M4	PSL-K11
PSL-K-15	15	23	39	36	29	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K12
PSL-K-16	16	24	40	37	30	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K13
PSL-K-17	17	26	42	39	32	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K14
PSL-K-18	18	26	42	39	32	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K15
PSL-K-19	19	28	44	41	34	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K16
PSL-K-20	20	28	44	41	34	14	29	34	6	7	2	4-M5×12	2-M5	PSL-K17
PSL-K-22	22	32	48	45	38	16	33	38	6.5	8	2.5	6-M5×14	2-M5	PSL-K18
PSL-K-24	24	34	50	47	40	16	33	38	6.5	8	2.5	6-M5×14	2-M5	PSL-K19
PSL-K-25	25	34	50	47	40	16	33	38	6.5	8	2.5	6-M5×14	2-M5	PSL-K20
PSL-K-28	28	39	62	59	47	20	39	45	7.5	9	2.5	6-M6×16	2-M6	PSL-K21
PSL-K-30	30	41	64	61	49	20	39	45	7.5	9	2.5	6-M6×16	2-M6	PSL-K22
PSL-K-32	32	43	66	63	51	20	39	45	7.5	9	2.5	6-M6×16	2-M6	PSL-K23
PSL-K-35	35	47	70	67	55	22	43	49	8	10	3	8-M6×18	2-M6	PSL-K24
PSL-K-40	40	53	76	73	61	22	43	49	8	10	3	8-M6×18	2-M6	PSL-K25

* L1, L2 and S are the measurements before the POSI LOCK is fixed.