

# Power-Lock® AE Series

Sizes :  $\phi$  19 ~  $\phi$  150  
 Shaft tolerance : h8  
 Hub bore tolerance : H8  
 Surface roughness : Below 12S



RoHS compliant.

## Features

- 1 Self-Centering**  
 These units provide accurate shaft-hub alignment and concentricity, allowing straight bore mounting.
- 2 Same Inner and Outer Diameters as the AS Series**  
 Designed with the same inner and outer diameters as an AS Series Power-Lock.
- 3 Simple Construction**  
 Simply constructed with only an inner and an outer ring and a few locking bolts.

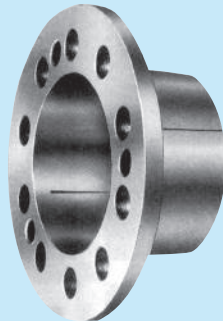
AE

## Parts

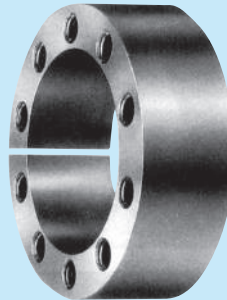
Locking Bolts



Inner Ring



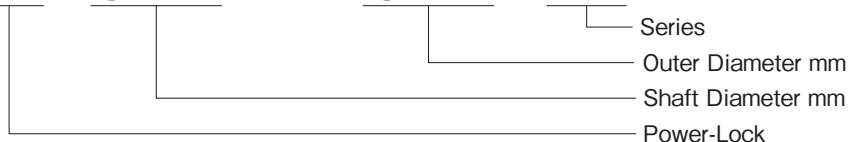
Outer Ring



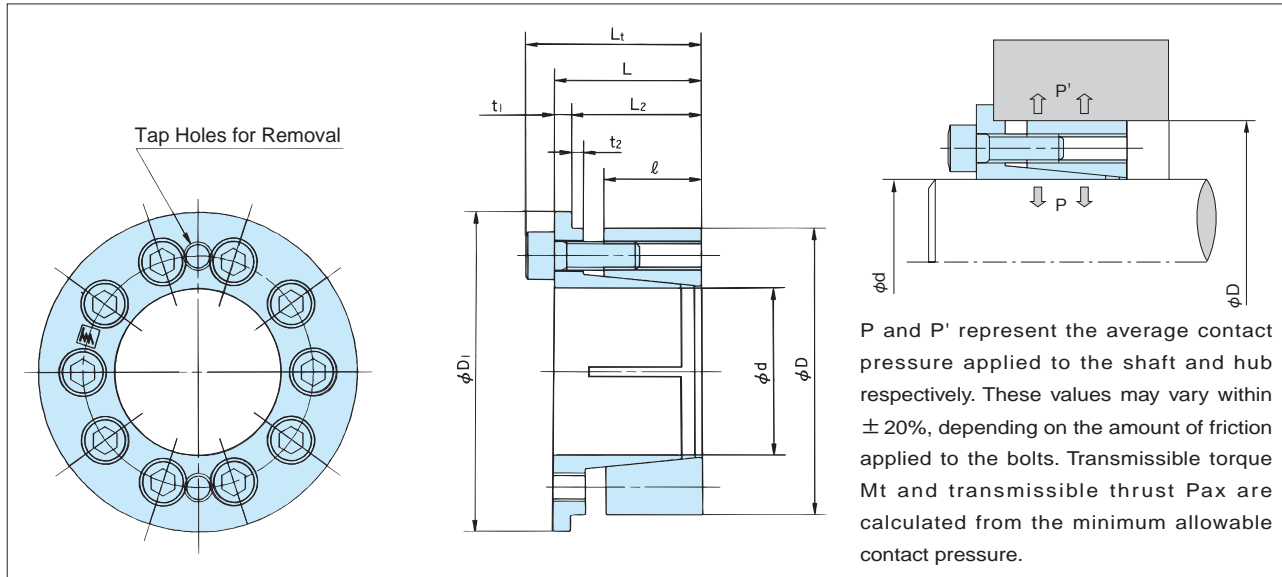
"Power-Lock" AE Series shaft-hub locking devices are simply constructed of the following three parts: inner and outer rings and a few locking bolts. Simply tighten these bolts to achieve a completely secure connection.

## Reference Number System

**PL 019 X 047 AE**



# Model Numbers and Specifications



P and P' represent the average contact pressure applied to the shaft and hub respectively. These values may vary within  $\pm 20\%$ , depending on the amount of friction applied to the bolts. Transmissible torque Mt and transmissible thrust Pax are calculated from the minimum allowable contact pressure.

\* Note) 3

Model No. d X D Shaft Diameter X Outer Diameter mm	Dimensions mm							Transmissible Torque		Transmissible Thrust		Contact Pressure				Locking Bolts			Mass kg	
	l	L2	L	Lt	t1	t2	D1	Mt		Pax		Shaft P		Hub P'		Quantity	Size	Tightening Torque MA		
								N · m	(kgf · m)	kN	(kgf)	MPa	(kgf/mm <sup>2</sup> )	MPa	(kgf/mm <sup>2</sup> )			N · m		(kgf · m)
<b>PL 019 X 047 AE</b>	19	24.8	27.3	33.3	2.5	3	53	265	27	28.1	2870	287	29.3	93	9.5	6	M6 × 18	16.7	1.7	0.28
<b>PL 020 X 047 AE</b>	19	24.8	27.3	33.3	2.5	3	53	274	28	28.1	2870	272	27.8	93	9.5	6	M6 × 18	16.7	1.7	0.27
<b>PL 022 X 047 AE</b>	19	24.8	27.3	33.3	2.5	3	53	304	31	28.1	2870	248	25.3	93	9.5	6	M6 × 18	16.7	1.7	0.26
<b>PL 024 X 050 AE</b>	19	25.3	27.8	33.8	2.5	3	57	392	40	32.8	3350	274	28.0	102	10.4	7	M6 × 18	16.7	1.7	0.29
<b>PL 025 X 050 AE</b>	19	25.3	27.8	33.8	2.5	3	57	412	42	32.8	3350	282	28.8	102	10.4	7	M6 × 18	16.7	1.7	0.29
<b>PL 028 X 055 AE</b>	19	25.3	28.6	34.6	3.3	3	62	519	53	37.5	3830	269	27.4	106	10.8	8	M6 × 18	16.7	1.7	0.35
<b>PL 030 X 055 AE</b>	19	25.3	28.6	34.6	3.3	3	62	559	57	37.5	3830	251	25.6	106	10.8	8	M6 × 18	16.7	1.7	0.34
<b>PL 032 X 060 AE</b>	20.5	27.3	30.9	36.9	3.6	3	67	745	76	46.9	4790	267	27.2	113	11.5	10	M6 × 18	16.7	1.7	0.44
<b>PL 035 X 060 AE</b>	20.5	27.3	30.9	36.9	3.6	3	67	823	84	46.9	4790	244	24.9	113	11.5	10	M6 × 18	16.7	1.7	0.41
<b>PL 038 X 065 AE</b>	20.5	27.5	31.1	37.1	3.6	3	73	892	91	46.9	4790	228	23.3	104	10.6	10	M6 × 18	16.7	1.7	0.48
<b>PL 040 X 065 AE</b>	20.5	27.5	31.1	37.1	3.6	3	73	931	95	46.9	4790	217	22.1	104	10.6	10	M6 × 18	16.7	1.7	0.45
<b>PL 042 X 075 AE</b>	23.5	30.8	34.8	42.8	4	3	83	1640	167	78.1	7970	285	29.1	130	13.3	9	M8 × 22	40.2	4.1	0.76
<b>PL 045 X 075 AE</b>	23.5	30.8	34.8	42.8	4	3	83	1750	179	78.1	7970	266	27.1	130	13.3	9	M8 × 22	40.2	4.1	0.71
<b>PL 048 X 080 AE</b>	23.5	31.0	35	43	4	3	88	2060	210	86.8	8860	280	28.6	136	13.9	10	M8 × 22	40.2	4.1	0.81
<b>PL 050 X 080 AE</b>	23.5	31.0	35	43	4	3	88	2160	220	86.8	8860	270	27.5	136	13.9	10	M8 × 22	40.2	4.1	0.77
<b>PL 055 X 085 AE</b>	23.5	30.8	34.8	42.8	4	3	94	2350	240	86.8	8860	242	24.7	128	13.1	10	M8 × 22	40.2	4.1	0.84
<b>PL 060 X 090 AE</b>	23.5	30.8	34.8	42.8	4	3	99	2550	260	86.8	8860	219	22.3	122	12.4	10	M8 × 22	40.2	4.1	0.90
<b>PL 065 X 095 AE</b>	23.5	30.8	34.8	42.8	4	3	104	3330	340	104	10600	246	25.1	137	14.0	12	M8 × 22	40.2	4.1	0.96
<b>PL 070 X 110 AE</b>	28	36.5	41	51	4.5	4	120	4800	490	137	14000	247	25.2	132	13.5	10	M10 × 25	81.3	8.3	1.70
<b>PL 075 X 115 AE</b>	28	36.5	41	51	4.5	4	125	5100	520	137	14000	230	23.5	126	12.9	10	M10 × 25	81.3	8.3	1.79
<b>PL 080 X 120 AE</b>	28	36.5	41	51	4.5	4	130	6570	670	165	16800	260	26.5	145	14.8	12	M10 × 25	81.3	8.3	1.89
<b>PL 085 X 125 AE</b>	28	36.5	41	51	4.5	4	135	6960	710	165	16800	244	24.9	139	14.2	12	M10 × 25	81.3	8.3	1.98
<b>PL 090 X 130 AE</b>	28	37.5	43	53	5.5	4	140	7450	760	165	16800	241	24.6	134	13.7	12	M10 × 25	81.3	8.3	2.15
<b>PL 095 X 135 AE</b>	28	37.5	43	53	5.5	4	145	9110	930	193	19700	267	27.2	151	15.4	14	M10 × 25	81.3	8.3	2.24
<b>PL 100 X 145 AE</b>	34	44.0	50	60	6	4	155	10300	1050	207	21100	218	22.2	123	12.6	15	M10 × 25	81.3	8.3	3.07
<b>PL 110 X 155 AE</b>	34	44.0	50	60	6	4	167	11400	1160	207	21100	198	20.2	116	11.8	15	M10 × 25	81.3	8.3	3.35
<b>PL 120 X 165 AE</b>	34	44.0	50	60	6	4	177	14900	1520	248	25300	218	22.2	130	13.3	18	M10 × 25	81.3	8.3	3.59
<b>PL 130 X 180 AE</b>	38	50.0	57	69	7	6	195	19600	2000	301	30700	214	21.8	129	13.2	15	M12 × 35	142	14.5	5.04
<b>PL 140 X 190 AE</b>	38	50.0	57	69	7	6	205	21100	2150	301	30700	198	20.2	123	12.6	15	M12 × 35	142	14.5	5.38
<b>PL 150 X 200 AE</b>	38	50.0	58	70	8	6	215	27000	2760	361	36800	221	22.6	140	14.3	18	M12 × 35	142	14.5	5.81

Notes) 1. Stocked models are in bold.

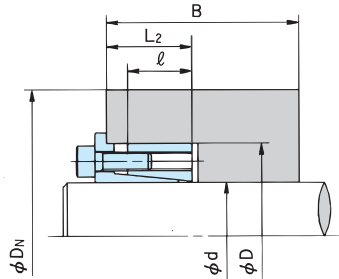
2. Mt indicates torque at 0 transmissible thrust, while Pax indicates transmissible thrust at 0 torque. If transmissible torque and thrust apply simultaneously calculate and compare the combined value with the transmissible torque provided in the table.

3. Dimensions when this product is attached to the shaft and hub.

# Hub Diameters (1)

(1) Installing to hubs with a guide portion  
 when  $B \geq 2 \ell$   
 (See Installation Example A)

$\phi D_N$  is the minimum hub diameter required to tolerate  $P'$   
 or the pressure exerted from within the hub.



Installation Example(A)  
 When installing to hubs  
 with a guide portion,  
 the hub configuration coefficient  
 is as follows:  $K_3 = 0.8$

## Hub Configuration Coefficient $K_3 = 0.8$

Minimum hub diameter  $\phi D_N$ (mm)

Model No. d X D Shaft Diameter X Outer Diameter  mm	Hub Contact Pressure $P'$  MPa (kgf/mm <sup>2</sup> )		Yield Point of Hub Material $\sigma_{0.2}$								Hub boring depth b (mm)
			206	225	245	274	294	345	392	441	
			21	23	25	28	30	35	40	45	
			FC350 SS400 SC410 S10C FCMB360	SC450 S15C SF440	FCD400 SS490 SC480 S20C SF490	S30C SF540	S35C SF590	S45C	S55C	FCD450 FCD500 FCD600 FCD700	
PL 019 X 047 AE	93	9.5	69	67	65	63	61	59	57	56	27
PL 020 X 047 AE	93	9.5	69	67	65	63	61	59	57	56	27
PL 022 X 047 AE	93	9.5	69	67	65	63	61	59	57	56	27
PL 024 X 050 AE	102	10.4	77	74	71	68	67	64	62	61	27
PL 025 X 050 AE	102	10.4	77	74	71	68	67	64	62	61	27
PL 028 X 055 AE	106	10.8	86	82	79	76	74	71	69	67	27
PL 030 X 055 AE	106	10.8	86	82	79	76	74	71	69	67	27
PL 032 X 060 AE	113	11.5	96	92	89	85	83	79	76	74	29
PL 035 X 060 AE	113	11.5	96	92	89	85	83	79	76	74	29
PL 038 X 065 AE	104	10.6	100	96	93	89	87	84	81	79	30
PL 040 X 065 AE	104	10.6	100	96	93	89	87	84	81	79	30
PL 042 X 075 AE	130	13.3	132	124	119	112	109	103	99	96	33
PL 045 X 075 AE	130	13.3	132	124	119	112	109	103	99	96	33
PL 048 X 080 AE	136	13.9	145	136	130	122	119	112	107	103	33
PL 050 X 080 AE	136	13.9	145	136	130	122	119	112	107	103	33
PL 055 X 085 AE	128	13.1	148	139	133	126	123	116	112	108	33
PL 060 X 090 AE	122	12.4	151	143	137	131	127	121	116	113	33
PL 065 X 095 AE	137	14.0	173	162	154	146	141	133	127	123	33
PL 070 X 110 AE	132	13.5	195	184	175	166	161	152	146	141	39
PL 075 X 115 AE	126	12.9	197	187	179	170	165	156	150	146	39
PL 080 X 120 AE	145	14.8	228	213	201	189	183	171	163	158	39
PL 085 X 125 AE	139	14.2	230	215	205	193	187	176	168	162	39
PL 090 X 130 AE	134	13.7	232	219	209	197	191	180	173	167	40
PL 095 X 135 AE	151	15.4	265	246	232	217	209	195	186	179	40
PL 100 X 145 AE	123	12.6	245	233	223	212	206	196	188	183	46
PL 110 X 155 AE	116	11.8	252	240	231	221	215	205	198	192	46
PL 120 X 165 AE	130	13.3	289	273	260	247	240	226	217	210	46
PL 130 X 180 AE	129	13.2	313	296	283	268	260	246	236	229	52
PL 140 X 190 AE	123	12.6	321	305	292	277	270	256	246	239	52
PL 150 X 200 AE	140	14.3	369	346	328	309	299	281	269	260	52

Notes) 1. The above figures do not take safety rates into account. Consider them prior to operation.  
 2. Calculate hub diameters using the formula  $K_3=0.8$  as discussed in Selection Procedure.

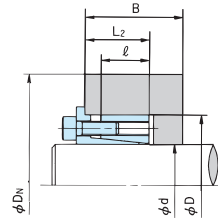


# Hub Diameters (2)

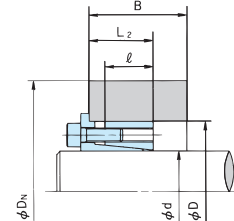
(2) Installing to hubs with a guide portion  
when  $L_2 < B < 2\ell$   
(See Installation Example B)

(3) Installing to hubs without a guide portion  
(See Installation Example C)

$D_N$  is the minimum hub diameter required to tolerate  $P'$  or the pressure exerted from within the hub.



Installation Example(B)  
When installing to hubs with a guide portion, the hub configuration coefficient is as follows:  $K_3 = 1.0$



Installation Example(C)  
When installing to hubs without a guide portion, the hub configuration coefficient is as follows:  $K_3 = 1.0$

## Hub Configuration Coefficient $K_3 = 1.0$

Minimum hub diameter  $\phi D_N$ (mm)

Model No. d X D Shaft Diameter X Outer Diameter  mm	Yield Point of Hub Material $\sigma_{0.2}$										Hub boring depth b (mm)
	Hub Contact Pressure $P'$	MPa / kgf/mm <sup>2</sup>									
		206	225	245	274	294	345	392	441		
		21	23	25	28	30	35	40	45		
		FC350 SS400 SC410 S10C FCMB360	SC450 S15C SF440	FCD400 SS490 SC480 S20C SF490	S30C SF540	FCD450 S35C SF590	FCD500	FCD600	FCD700		
PL 019 X 047 AE	93	9.5	77	73	71	67	66	63	60	59	27
PL 020 X 047 AE	93	9.5	77	73	71	67	66	63	60	59	27
PL 022 X 047 AE	93	9.5	77	73	71	67	66	63	60	59	27
PL 024 X 050 AE	102	10.4	87	82	78	74	72	68	66	64	27
PL 025 X 050 AE	102	10.4	87	82	78	74	72	68	66	64	27
PL 028 X 055 AE	106	10.8	98	92	88	83	81	76	73	71	27
PL 030 X 055 AE	106	10.8	98	92	88	83	81	76	73	71	27
PL 032 X 060 AE	113	11.5	111	104	99	93	90	85	81	78	29
PL 035 X 060 AE	113	11.5	111	104	99	93	90	85	81	78	29
PL 038 X 065 AE	104	10.6	114	107	103	97	95	89	86	83	30
PL 040 X 065 AE	104	10.6	114	107	103	97	95	89	86	83	30
PL 042 X 075 AE	130	13.3	159	146	136	126	121	112	106	102	33
PL 045 X 075 AE	130	13.3	159	146	136	126	121	112	106	102	33
PL 048 X 080 AE	136	13.9	178	162	150	138	133	122	115	111	33
PL 050 X 080 AE	136	13.9	178	162	150	138	133	122	115	111	33
PL 055 X 085 AE	128	13.1	177	163	153	142	136	126	120	115	33
PL 060 X 090 AE	122	12.4	178	165	156	145	140	131	125	120	33
PL 065 X 095 AE	137	14.0	213	193	179	165	158	146	137	132	33
PL 070 X 110 AE	132	13.5	236	216	202	187	179	166	157	150	39
PL 075 X 115 AE	126	12.9	236	217	204	190	183	170	161	155	39
PL 080 X 120 AE	145	14.8	289	258	238	217	207	189	177	169	39
PL 085 X 125 AE	139	14.2	285	258	239	219	210	193	182	174	39
PL 090 X 130 AE	134	13.7	284	259	241	222	213	197	186	179	40
PL 095 X 135 AE	151	15.4	345	304	277	251	239	217	203	193	40
PL 100 X 145 AE	123	12.6	290	269	253	236	227	212	201	194	46
PL 110 X 155 AE	116	11.8	293	274	259	243	235	221	211	203	46
PL 120 X 165 AE	130	13.3	349	320	299	277	266	247	234	224	46
PL 130 X 180 AE	129	13.2	377	346	324	301	289	268	254	244	52
PL 140 X 190 AE	123	12.6	380	352	331	309	298	277	264	254	52
PL 150 X 200 AE	140	14.3	460	415	384	352	336	309	291	278	52

Notes) 1. The above figures do not take safety rates into account. Consider them prior to operation.  
2. Calculate hub diameters using the formula  $K_3=1.0$  as discussed in Selection Procedure.