TSUBAKI®

POWER-LOCK®

The solution for shaft locking devices

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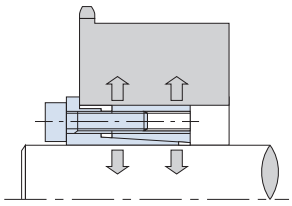
POWER-LOCK Selection Guide

AD Series

KE Series

1. Designed to suit a wide range of shaft tolerances.
2. Compact with only a small difference between the inner and outer diameters.
3. Self-centering.
4. Excellent for locking small shafts.

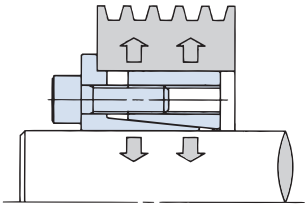


Wide Range of Tolerances

High Torque

AE Series

1. Self-centering.
2. Generally the same inner and outer diameters as an AS Series POWER-LOCK.



AS Series Multipurpose

Multipurpose Flange

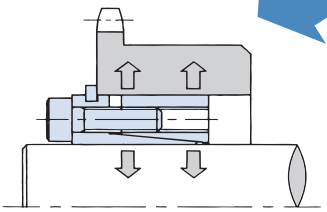
Environment Resistant

Flush Mounting

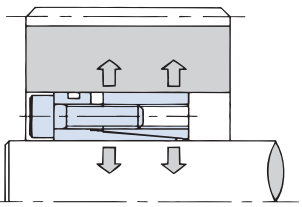
RE Series Stainless Steel

1. RE Series can be installed without snap ring.
2. Offers corrosion protection.

Flange Type



Straight Type



FL Series

AD Inch and Metric Series

DOUBLE TORQUE SERIES

Features & Applications

- **Over 2 Times Larger Transmissible Torque than that of AS Series**
- **Interchangeable with POWER-LOCK® AS Series**
  Has the same size inside and outside diameter as AS Series POWER-LOCK in most cases.
- **Self-Centering Function**
  Straight and narrow hubs can be used with AD Series POWER-LOCK
- **Easy and Precise Positioning**

Note:
AD series is referred to as ADN and AD-N in other parts of the world. All three describe an identical product.

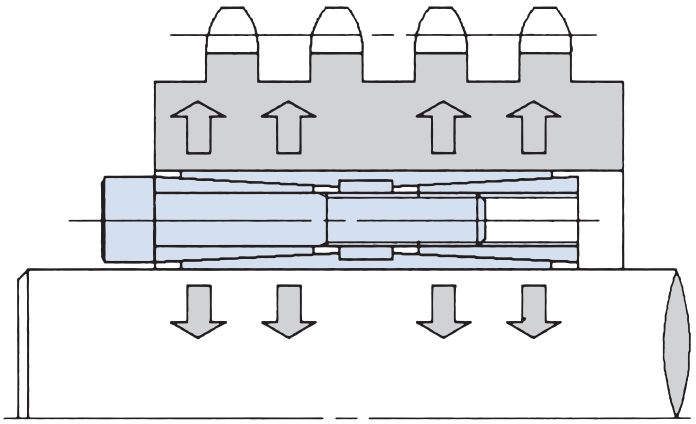
Model Number

Inch Series: PL 1 AD

- PL: POWER-LOCK®
- 1: Shaft Dia. (inch)
- AD: AD Series

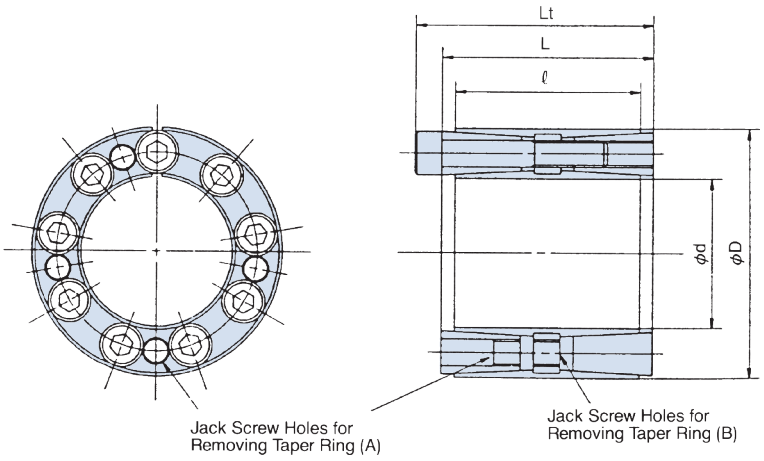
Metric Series: PL 045 X 075 AD

- PL: POWER-LOCK®
- 045: Shaft Dia. (mm)
- 075: Outer Dia. (mm)
- AD: Series



AD Inch Series

DOUBLE TORQUE SERIES



AD Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque	Transmissible Thrust	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	ℓ	L	Lt	ft.lbs.	lbs.	Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL3/4 AD	0.7500	-0.0013" +0	1.8500	+0.0015" -0	1.181	1.378	1.614	283	9,217	34229	13924	6	M6 X 28	12.5	0.8
PL7/8 AD	0.8750		1.8500		1.181	1.378	1.614	329	9,217	29298	13924	6	M6 X 28	12.5	0.7
PL1 AD	1.0000		1.9690		1.378	1.575	1.811	507	12,139	29298	14939	8	M6 X 30	12.5	0.9
PL1-1/8 AD	1.1250		2.1650	+0.0018" -0	1.378	1.575	1.811	569	12,139	25962	13489	8	M6 X 30	12.5	1.1
PL1-3/16 AD	1.1875		2.1590		1.378	1.575	1.811	581	12,139	24657	13489	8	M6 X 30	12.5	1.0
PL1-1/4 AD	1.2500	-0.0015" +0	2.3620		1.772	1.969	2.205	929	18,209	27558	14649	10	M6 X 35	12.5	1.6
PL1-3/8 AD	1.3750		2.3650		1.772	1.969	2.205	1,008	18,209	24802	14649	10	M6 X 35	12.5	1.5
PL1-7/16 AD	1.4375		2.5590		2.047	2.244	2.480	1,184	20,007	22771	12764	11	M6 X 40	12.5	2.0
PL1-1/2 AD	1.5000		2.5590		2.047	2.244	2.480	1,235	20,007	21901	12764	11	M6 X 40	12.5	1.9
PL1-5/8 AD	1.6250		2.9530		2.205	2.520	2.835	2,559	38,216	28283	15664	9	M8 X 50	12.5	3.0
PL1-11/16 AD	1.6875		2.9530		2.205	2.520	2.835	2,657	38,216	27268	15664	9	M8 X 50	12.5	2.9
PL1-3/4 AD	1.7500		2.9528		2.205	2.520	2.835	2,783	38,216	26252	15664	9	M8 X 50	30	2.8
PL1-7/8 AD	1.8750		3.1496		2.205	2.520	2.835	2,958	38,216	24657	14649	9	M8 X 50	30	3.2
PL1-15/16 AD	1.9375		3.1496		2.205	2.520	2.835	3,056	38,216	23932	14649	9	M8 X 50	30	3.1
PL2 AD	2.0000	-0.0018" +0	3.3465	+0.0021 -0	2.205	2.520	2.835	3,141	38,216	23061	13779	9	M8 X 50	30	3.6
PL2-1/8 AD	2.1250		3.3465		2.205	2.520	2.835	3,337	38,216	21756	13779	9	M8 X 50	30	3.4
PL2-3/16 AD	2.1875		3.5433		2.205	2.520	2.835	4,214	46,758	25817	15954	11	M8 X 50	30	3.9
PL2-1/4 AD	2.2500		3.5433		2.205	2.520	2.835	4,335	46,758	25092	15954	11	M8 X 50	30	3.7
PL2-3/8 AD	2.3750		3.5310		2.205	2.520	2.835	4,575	46,758	23787	15954	11	M8 X 50	30	3.5
PL2-7/16 AD	2.4375		3.7402		2.205	2.520	2.835	4,749	46,758	19725	12909	11	M8 X 50	30	4.0
PL2-1/2 AD	2.5000		3.7402		2.205	2.520	2.835	4,871	46,758	19290	12909	11	M8 X 50	30	3.9
PL2-9/16 AD	2.5625		3.7370		2.205	2.520	2.835	4,993	46,758	18855	12909	11	M8 X 50	30	3.7
PL2-5/8 AD	2.6250		4.3370		2.756	3.071	3.465	8,149	74,184	27268	16535	11	M10 X 70	60	7.4
PL2-11/16 AD	2.6875		4.3370		2.756	3.071	3.465	8,343	74,184	26687	16535	11	M10 X 70	60	7.2
PL2-3/4 AD	2.7500		4.3370		2.756	3.071	3.465	8,537	74,184	25962	16535	11	M10 X 70	60	7.0
PL2-7/8 AD	2.8750		4.5276		2.756	3.071	3.465	8,833	74,184	24947	15809	11	M10 X 70	60	7.7
PL2-15/16 AD	2.9375		4.5276		2.756	3.071	3.465	9,025	74,184	24367	15809	11	M10 X 70	60	7.4
PL3 AD	3.0000		4.7244		2.756	3.071	3.465	10,116	80,928	26107	16535	12	M10 X 70	60	8.3
PL3-3/8 AD	3.3750	-0.0021" +0	4.9213	+0.0025" -0	2.756	3.071	3.465	11,381	80,928	23206	15809	12	M10 X 70	60	8.0
PL3-7/16 AD	3.4375		5.1181		2.756	3.071	3.465	12,522	87,672	24657	16535	13	M10 X 70	60	9.0
PL3-1/2 AD	3.5000		5.1181		2.756	3.071	3.465	12,750	87,672	24222	16535	13	M10 X 70	60	8.7
PL3-3/4 AD	3.7500		5.3050		2.756	3.071	3.465	13,681	87,672	22626	15954	13	M10 X 70	60	8.9
PL3-15/16 AD	3.9375		5.7080		3.543	3.937	4.409	19,548	119,369	22771	15664	12	M12 X 90	105	13
PL4 AD	4.0000		5.8430		3.543	3.937	4.409	19,858	119,369	22481	15374	12	M12 X 90	105	14
PL4-7/16 AD	4.4375		6.4961		3.543	3.937	4.409	27,642	149,267	25382	17260	15	M12 X 90	105	18
PL4-1/2 AD	4.5000		6.4961		3.543	3.937	4.409	28,031	149,267	24947	17260	15	M12 X 90	105	17
PL4-15/16 AD	4.9375	-0.0025" +0	7.0866		4.094	4.567	5.118	36,075	175,119	23061	16099	13	M14 X 90	166	20
PL5 AD	5.0000		7.0866		4.094	4.567	5.118	36,531	175,119	22771	16099	13	M14 X 90	166	19
PL5-1/2 AD	5.5000		7.4920	+0.0028" -0	4.094	4.567	5.118	46,293	202,320	23787	17550	15	M14 X 90	166	19
PL6 AD	6.0000		8.2677		4.094	4.567	5.118	57,256	229,296	24802	17840	17	M14 X 90	166	25
PL6-1/2 AD	6.5000		8.8583		5.276	5.748	6.378	75,928	278,752	21756	15954	15	M16 X 120	257	42
PL7 AD	7.0000		9.2520		5.276	5.748	6.378	87,425	298,984	21611	16390	16	M16 X 120	257	42
PL7-1/2 AD	7.5000	-0.0028" +0	9.8230		5.276	5.748	6.378	99,093	316,968	21466	16390	17	M16 X 120	257	47
PL7-7/8 AD	7.8750		10.2350	+0.0032" -0	5.276	5.748	6.378	104,009	316,968	20306	15664	17	M16 X 120	257	50
PL8 AD	8.0000		10.5040		5.276	5.748	6.378	105,660	316,968	20016	14664	17	M16 X 120	257	51
PL8-1/2 AD	8.5000		11.2205		5.276	5.748	6.378	132,458	375,416	22191	17115	20	M16 X 120	257	62
PL9 AD	9.0000		11.6690		5.276	5.748	6.378	140,250	375,416	20886	16390	20	M16 X 120	257	69
PL9-1/2 AD	9.5000		12.1540		5.276	5.748	6.378	148,042	375,416	19871	15809	20	M16 X 120	257	71
PL10 AD	10.0000	-0.0032" +0	12.7953	+0.0035" -0	5.276	5.748	6.378	171,489	411,384	16970	13199	22	M16 X 120	257	73
PL10-1/2 AD	10.5000		13.3190		5.276	5.748	6.378	180,063	411,384	16099	13779	22	M16 X 120	257	79
PL11 AD	11.0000		14.0000		6.496	6.969	7.756	267,897	584,480	21756	17115	20	M20 X 150	499	104
PL11-13/16 AD	11.8125		14.7620		6.496	6.969	7.756	316,453	642,928	22336	17840	22	M20 X 150	499	109

AD Inch Series

DOUBLE TORQUE SERIES

Installing to hubs with a guide portion

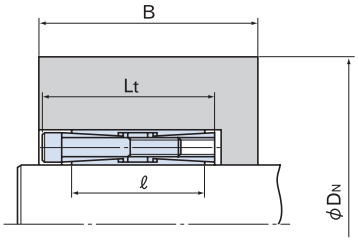
when Lt<B<2ℓ
(See Installation Example B)

Installing to hubs without a guide portion

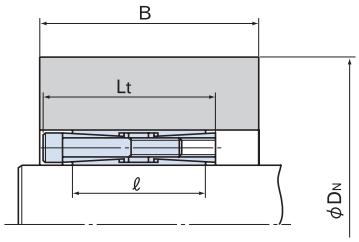
(See Installation Example C)

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

<EXAMPLE> Hub Material Yield Point = 35500 psi
PL2AD = 5.038" min. hub diameter



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

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa	176 Mpa	206 Mpa	225 Mpa	245 Mpa	274 Mpa	294 Mpa	343 Mpa	392 Mpa	441 Mpa
		21300 psi	25500 psi	29900 psi	32600 psi	35500 psi	39700 psi	42600 psi	49700 psi	56900 psi	64000 psi
				1010 304SS 316SS	1015 1118	1020	1030	1035 1040 1144	4140 1045	1055	
PL3/4 AD	13924	4.038	3.411	3.065	2.918	2.799	2.667	2.596	2.466	2.375	2.308
PL7/8 AD	13924	4.038	3.411	3.065	2.918	2.799	2.667	2.596	2.466	2.375	2.308
PL1 AD	14939	4.693	3.849	3.410	3.229	3.082	2.924	2.839	2.684	2.577	2.498
PL1-1/8 AD	13489	4.564	3.898	3.522	3.360	3.228	3.083	3.004	2.859	2.757	2.682
PL1-3/16 AD	13489	4.552	3.887	3.512	3.351	3.220	3.074	2.996	2.851	2.750	2.674
PL1-1/4 AD	14649	5.484	4.539	4.039	3.830	3.661	3.478	3.379	3.199	3.074	2.982
PL1-3/8 AD	14649	5.491	4.545	4.044	3.835	3.666	3.482	3.383	3.203	3.078	2.986
PL1-7/16 AD	12764	5.107	4.432	4.039	3.868	3.727	3.570	3.485	3.327	3.216	3.133
PL1-1/2 AD	12764	5.107	4.432	4.039	3.868	3.727	3.570	3.485	3.327	3.216	3.133
PL1-5/8 AD	15664	7.551	6.035	5.286	4.982	4.740	4.480	4.341	4.091	3.918	3.792
PL1-11/16 AD	15664	7.551	6.035	5.286	4.982	4.740	4.480	4.341	4.091	3.918	3.792
PL1-3/4 AD	15664	7.550	6.034	5.285	4.981	4.740	4.479	4.341	4.091	3.918	3.791
PL1-7/8 AD	14649	7.313	6.053	5.386	5.107	4.882	4.637	4.506	4.266	4.010	3.977
PL1-15/16 AD	14649	7.313	6.053	5.386	5.107	4.882	4.637	4.506	4.266	4.010	3.977
PL2 AD	13779	7.219	6.121	5.511	5.250	5.038	4.805	4.679	4.447	4.285	4.165
PL2-1/8 AD	13779	7.219	6.121	5.511	5.250	5.038	4.805	4.679	4.447	4.285	4.165
PL2-3/16 AD	15954	9.338	7.376	6.429	6.048	5.746	5.422	5.250	4.941	4.728	4.572
PL2-1/4 AD	15954	9.338	7.376	6.429	6.048	5.746	5.422	5.250	4.941	4.728	4.572
PL2-3/8 AD	15954	9.306	7.350	6.406	6.027	5.726	5.403	5.232	4.923	4.711	4.556
PL2-7/16 AD	12909	7.545	6.528	5.939	5.683	5.473	5.239	5.112	4.878	4.712	4.589
PL2-1/2 AD	12909	7.545	6.528	5.939	5.683	5.473	5.239	5.112	4.878	4.712	4.589
PL2-9/16 AD	12909	7.538	6.522	5.934	5.678	5.468	5.235	5.108	4.874	4.708	4.586
PL2-5/8 AD	16535	12.197	9.380	8.089	7.579	7.180	6.754	6.530	6.127	5.851	5.650
PL2-11/16 AD	16535	12.197	9.380	8.089	7.579	7.180	6.754	6.530	6.127	5.851	5.650
PL2-3/4 AD	16535	12.197	9.380	8.089	7.579	7.180	6.754	6.530	6.127	5.851	5.650
PL2-7/8 AD	15809	11.751	9.338	8.159	7.683	7.305	6.898	6.682	6.293	6.024	5.827
PL2-15/16 AD	15809	11.751	9.338	8.159	7.683	7.305	6.898	6.682	6.293	6.024	5.827
PL3 AD	16535	13.287	10.218	8.811	8.256	7.821	7.357	7.113	6.674	6.374	6.155
PL3-3/8 AD	15809	12.773	10.150	8.868	8.351	7.940	7.498	7.263	6.840	6.548	6.334
PL3-7/16 AD	16535	14.394	11.069	9.545	8.944	8.473	7.970	7.706	7.230	6.905	6.668
PL3-1/2 AD	16535	14.394	11.069	9.545	8.944	8.473	7.970	7.706	7.230	6.905	6.668
PL3-3/4 AD	15954	13.981	11.043	9.625	9.054	8.603	8.118	7.861	7.397	7.078	6.845
PL3-15/16 AD	15664	14.596	11.665	10.217	9.630	9.162	8.659	8.392	7.907	7.574	7.329
PL4 AD	15302	14.414	11.676	10.287	9.717	9.262	8.769	8.506	8.030	7.700	7.457
PL4-7/16 AD	17260	20.022	14.778	12.555	11.702	11.041	10.344	9.979	9.329	8.887	8.567
PL4-1/2 AD	17260	20.022	14.778	12.555	11.702	11.041	10.344	9.979	9.329	8.887	8.567
PL4-15/16 AD	16099	18.971	14.891	12.945	12.166	11.551	10.891	10.542	9.913	9.481	9.165
PL5 AD	16099	18.971	14.891	12.945	12.166	11.551	10.891	10.542	9.913	9.481	9.165
PL5-1/2 AD	17550	24.054	17.410	14.695	13.665	12.871	12.038	11.604	10.831	10.308	9.929
PL6 AD	17840	27.731	19.637	16.461	15.271	14.359	13.406	12.911	12.033	11.440	11.011
PL6-1/2 AD	15954	23.346	18.440	16.072	15.119	14.365	13.555	13.126	12.352	11.819	11.429
PL7 AD	16390	25.585	19.816	17.135	16.073	15.237	14.344	13.874	13.027	12.447	12.024
PL7-1/2 AD	16390	27.164	21.039	18.193	17.064	16.177	15.230	14.730	13.831	13.216	12.766
PL7-7/8 AD	15664	26.171	20.917	18.321	17.267	16.429	15.526	15.047	14.179	13.580	13.142
PL8 AD	14664	24.422	20.204	17.973	17.041	16.290	15.472	15.033	14.233	13.676	13.265
PL8-1/2 AD	17115	33.918	25.262	21.530	20.089	18.970	17.787	17.167	16.061	15.308	14.761
PL9 AD	16457	32.520	25.105	21.682	20.327	19.263	18.129	17.531	16.456	15.719	15.182
PL9-1/2 AD	15800	31.516	25.052	21.893	20.616	19.602	18.512	17.934	16.889	16.168	15.641
PL10 AD	13199	26.378	22.678	20.563	19.649	18.900	18.071	17.621	16.792	16.208	15.775
PL10-1/2 AD	13739	28.641	24.308	21.896	20.865	20.026	19.101	18.602	17.685	17.043	16.567
PL11 AD	17115	42.321	31.520	26.863	25.066	23.669	22.193	21.420	20.040	19.100	18.418
PL11-13/16 AD	17840	49.513	35.062	29.390	27.267	25.638	23.936	23.052	21.485	20.425	19.659