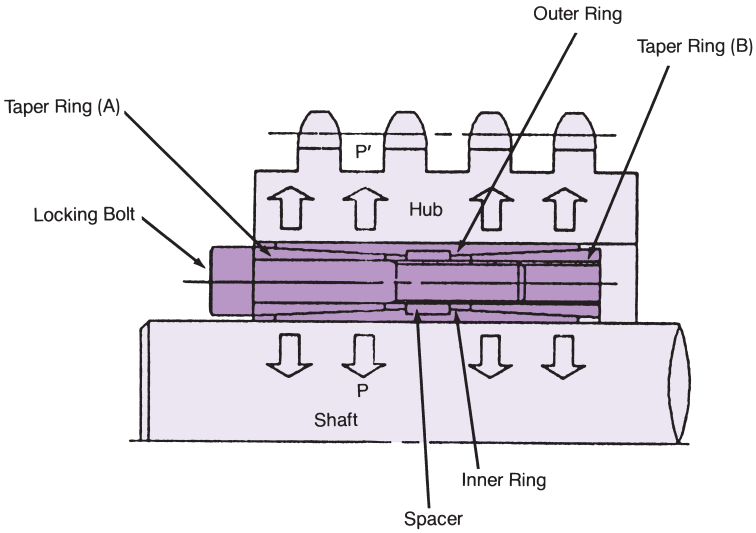
DOUBLE TORQUE SERIES

AD Inch/Metric 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**

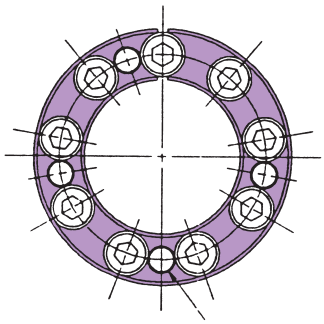


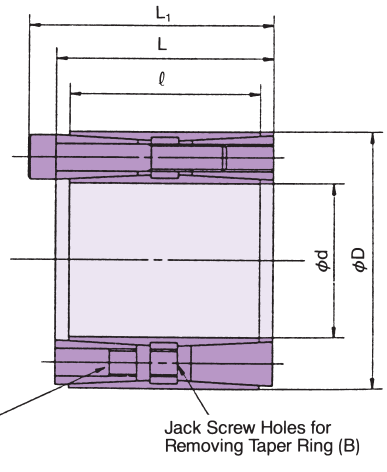
AD Inch Series

Model Number

PL 1 ¾ AD

- AD Series
- Shaft Size (inches)
- POWER-LOCK®





Jack Screw Holes for Removing Taper Ring (A)

Jack Screw Holes for Removing Taper Ring (B)

AD Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions (inch)			Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	L_1			Shaft P	Hub P'	Qty.	Size	Tightening Torque Ma ft./lbs.	
PL1 3/4 AD	1.750	-0.0015" +0	2.953	+0.0015" -0	2.520	2.205	2.835	2,965	8,301	26,283	15,670	9	M8X50	29.7	2.835
PL1 7/8 AD	1.875		3.150		2.520	2.205	2.835	2,965	8,822	24,668	14,650	9	M8X50	29.7	3.212
PL1 15/16 AD	1.938		3.150		2.520	2.205	2.835	2,965	9,116	23,872	14,650	9	M8X50	29.7	3.096
PL2 AD	2.000	-0.0018" +0	3.346	+0.0018" -0	2.520	2.205	2.835	2,965	9,368	23,083	13,780	9	M8X50	29.7	3.612
PL2 1/8 AD	2.125		3.346		2.520	2.205	2.835	2,965	9,953	21,725	13,780	9	M8X50	29.7	3.361
PL2 3/16 AD	2.188		3.543		2.520	2.205	2.835	2,965	12,570	25,843	15,960	11	M8X50	29.7	3.883
PL2 1/4 AD	2.250		3.543		2.520	2.205	2.835	2,965	12,929	25,125	15,960	11	M8X50	29.7	3.748
PL2 3/8 AD	2.375		3.531		2.520	2.205	2.835	2,965	13,648	23,802	15,960	11	M8X50	29.7	3.467
PL2 7/16 AD	2.438		3.740		2.520	2.205	2.835	2,965	14,166	19,795	12,910	11	M8X50	29.7	4.048
PL2 1/2 AD	2.500		3.740		2.520	2.205	2.835	2,965	14,529	19,300	12,910	11	M8X50	29.7	3.898
PL2 9/16 AD	2.563		3.737		2.520	2.205	2.835	2,965	14,892	18,830	12,910	11	M8X50	29.7	3.744
PL2 5/8 AD	2.625		4.337		3.071	2.756	3.465	5,997	24,308	27,256	16,540	11	M10X70	60.0	7.418
PL2 11/16 AD	2.688		4.337		3.071	2.756	3.465	5,997	24,887	26,623	16,540	11	M10X70	60.0	7.216
PL2 3/4 AD	2.750		4.337		3.071	2.756	3.465	5,997	25,465	26,018	16,540	11	M10X70	60.0	7.009
PL2 7/8 AD	2.875		4.528		3.071	2.756	3.465	5,997	26,347	24,876	15,810	11	M10X70	60.0	7.657
PL2 15/16 AD	2.938		4.528		3.071	2.756	3.465	5,997	26,920	24,347	15,810	11	M10X70	60.0	7.436
PL3 AD	3.000		4.724		3.071	2.756	3.465	5,997	30,175	26,038	16,540	12	M10X70	60.0	8.300
PL3 3/8 AD	3.375	-0.0021" +0	4.921	+0.0021" -0	3.071	2.756	3.465	5,997	33,947	23,154	15,810	12	M10X70	60.0	8.016
PL3 7/16 AD	3.438		5.118		3.071	2.756	3.465	5,997	37,350	24,668	16,540	13	M10X70	60.0	8.991
PL3 1/2 AD	3.500		5.118		3.071	2.756	3.465	5,997	38,029	24,227	16,540	13	M10X70	60.0	8.727
PL3 3/4 AD	3.750		5.305		3.071	2.756	3.465	5,997	40,807	22,567	15,960	13	M10X70	60.0	8.888
PL3 15/16 AD	3.938		5.708		3.937	3.543	4.409	10,474	58,307	22,768	15,670	12	M12X90	104.8	13.473
PL4 AD	4.000		5.843		3.937	3.543	4.409	10,474	59,233	22,412	15,310	12	M12X90	104.8	14.036
PL4 7/16 AD	4.438		6.496		3.937	3.543	4.409	10,474	82,449	25,324	17,260	15	M12X90	104.8	17.750
PL4 1/2 AD	4.500		6.496		3.937	3.543	4.409	10,474	83,610	24,972	17,260	15	M12X90	104.8	17.313
PL4 15/16 AD	4.938	-0.0025" +0	7.087	+0.0025" -0	4.567	4.094	5.118	16,596	107,604	23,003	16,100	13	M14X90	166.1	19.936
PL5 AD	5.000		7.087		4.567	4.094	5.118	16,596	108,966	22,715	16,100	13	M14X90	166.1	19.374
PL5 1/2 AD	5.500		7.492		4.567	4.094	5.118	16,596	138,083	23,837	17,550	15	M14X90	166.1	19.198
PL6 AD	6.000		8.268		4.567	4.094	5.118	16,596	170,783	24,820	17,840	17	M14X90	166.1	24.651
PL6 1/2 AD	6.500		8.858		5.748	5.276	6.378	25,668	226,478	21,804	15,960	15	M16X120	256.8	41.804
PL7 AD	7.000		9.252		5.748	5.276	6.378	25,668	260,773	21,584	16,390	16	M16X120	256.8	42.072
PL7 1/2 AD	7.500	-0.0028" +0	9.823	+0.0028" -0	5.748	5.276	6.378	25,668	295,576	21,409	16,390	17	M16X120	256.8	46.844
PL7 7/8 AD	7.875		10.235		5.748	5.276	6.378	25,668	310,239	20,303	15,670	17	M16X120	256.8	49.401
PL8 AD	8.000		10.504		5.748	5.276	6.378	25,668	315,163	19,986	14,670	17	M16X120	256.8	51.040
PL8 1/2 AD	8.500		11.220		5.748	5.276	6.378	25,668	395,097	22,169	17,120	20	M16X120	256.8	61.815
PL9 AD	9.000		11.669		5.748	5.276	6.378	25,668	418,338	20,937	16,460	20	M16X120	256.8	69.300
PL9 1/2 AD	9.500		12.154		5.748	5.276	6.378	25,668	441,579	19,835	15,800	20	M16X120	256.8	71.280
PL10 AD	10.000		12.795		5.748	5.276	6.378	25,668	511,517	16,925	13,200	22	M16X120	256.8	73.577
PL10 1/2 AD	10.500	-0.0032" +0	13.319	+0.0032" -0	5.748	5.276	6.378	25,668	537,093	16,119	13,740	22	M16X120	256.8	78.760
PL11 AD	11.000		14.000		6.969	6.496	7.756	49,862	799,084	21,802	17,120	20	M20X150	498.9	103.674
PL11 13/16 AD	11.813		14.762		6.969	6.496	7.756	49,862	943,918	22,333	17,840	22	M20X150	498.9	109.211

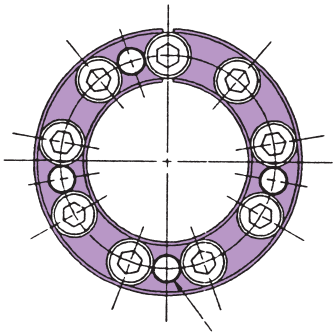
Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 0.6. Refer to page D-29.

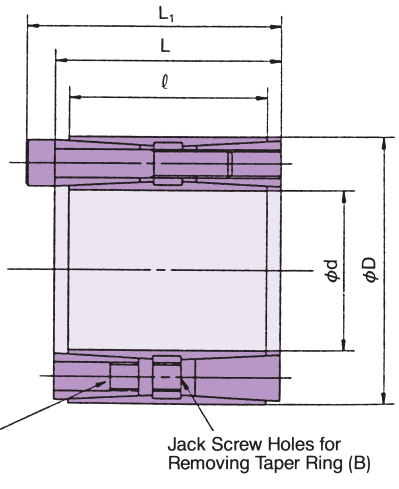
AD Metric Series

Model Number

PL 045 x 075 AD

- PL — POWER-LOCK®
- 045 — Shaft Size (mm)
- 075 — Outside Dia. (mm)
- AD — AD Series





AD Metric Series POWER-LOCK® Specifications

Model Number Inside Dia. X Outside Dia. (d X D)	Tolerance		Dimensions inch			Transmissible Torque Mt	Transmissible Thrust Pax	Locking Bolts			Contact Pressure		Weight
	Shaft O.D. t_1	Hub I.D. t_2	ℓ	L	L_1	ft./lbs.	lbs.	Qty.	Size	Tightening Torque Ma ft./lbs.	Shaft P psi	Hub P′ psi	lbs.
PL045X075 AD	-0.0015″ +0	+0.0015″ -0	2.2047	2.5197	2.8346	2,819	38,180	9	M8X50	29.7	25,970	15,670	2.759
PL048X080 AD			2.2047	2.5197	2.8346	3,004	38,180	9	M8X50	29.7	24,380	14,660	3.113
PL050X080 AD			2.2047	2.5197	2.8346	3,107	38,180	9	M8X50	29.7	23,510	14,660	2.980
PL055X085 AD	-0.0018″ +0	+0.0018″ -0	2.2047	2.5197	2.8346	3,402	38,180	9	M8X50	29.7	21,330	13,780	3.201
PL060X090 AD			2.2047	2.5197	2.8346	4,553	46,790	11	M8X50	29.7	23,940	15,960	3.422
PL065X095 AD			2.2047	2.5197	2.8346	4,989	46,790	11	M8X50	29.7	18,860	12,910	4.238
PL070X110 AD			2.7560	3.0709	3.4646	8,561	74,390	11	M10X70	60.0	25,970	16,540	6.865
PL075X115 AD			2.7560	3.0709	3.4646	9,077	74,390	11	M10X70	60.0	24,230	15,820	7.241
PL080X120 AD			2.7560	3.0709	3.4646	10,630	81,010	12	M10X70	60.0	24,810	16,540	7.616
PL085X125 AD	-0.0021″ +0	+0.0021″ -0	2.7560	3.0709	3.4646	11,290	81,010	12	M10X70	60.0	23,360	15,820	8.013
PL090X130 AD			2.7560	3.0709	3.4646	12,920	87,850	13	M10X70	60.0	23,940	16,540	8.389
PL095X135 AD			2.7560	3.0709	3.4646	13,650	87,850	13	M10X70	60.0	22,640	15,960	8.764
PL100X145 AD			3.5433	3.9370	4.4094	19,560	119,600	12	M12X90	104.8	22,780	15,670	13.510
PL110X155 AD			3.5433	3.9370	4.4094	23,390	129,800	13	M12X90	104.8	22,490	15,961	14.614
PL120X165 AD			3.5433	3.9370	4.4094	29,450	149,700	15	M12X90	104.8	23,800	17,270	15.717
PL130X180 AD	-0.0025″ +0	+0.0025″ -0	4.0945	4.5670	5.1181	37,420	175,500	13	M14X90	166.1	22,200	16,110	21.943
PL140X190 AD			4.0945	4.5670	5.1181	46,420	202,600	15	M14X90	166.1	23,800	17,560	23.400
PL150X200 AD			4.0945	4.5670	5.1181	53,060	216,100	16	M14X90	166.1	23,800	17,850	24.724
PL160X210 AD			4.0945	4.5670	5.1181	60,150	229,600	17	M14X90	166.1	23,650	17,850	26.270
PL170X225 AD			5.2756	5.7480	6.3780	78,230	280,400	15	M16X120	256.8	21,180	15,960	39.514
PL180X235 AD			5.2756	5.7480	6.3780	88,560	300,200	16	M16X120	256.8	21,330	16,400	41.722
PL190X250 AD	-0.0028″ +0	+0.0028″ -0	5.2756	5.7480	6.3780	98,890	317,900	17	M16X120	256.8	21,470	16,400	48.124
PL200X260 AD			5.2756	5.7480	6.3780	104,100	317,900	17	M16X120	256.8	20,310	15,670	50.331
PL220X285 AD			5.2756	5.7480	6.3780	135,100	375,300	20	M16X120	256.8	21,770	17,120	54.746
PL240X305 AD			5.2756	5.7480	6.3780	162,400	412,800	22	M16X120	256.8	21,910	17,410	64.680
PL260X325 AD	-0.0032″ +0	+0.0032″ -0	5.2756	5.7480	6.3780	175,600	412,800	22	M16X120	256.8	16,540	13,200	85.430
PL280X355 AD			6.4960	6.9685	7.7560	268,600	585,000	20	M20X150	498.9	21,770	17,120	107.064
PL300X375 AD			6.4960	6.9685	7.7560	316,600	644,600	22	M20X150	498.9	22,350	17,850	113.687

AD Inch/Metric Series POWER-LOCK® Minimum Hub Diameter (D_N) When Using Hub with Guide

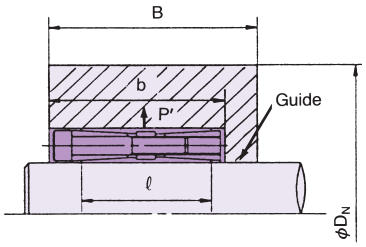
Or When Using Hub without Guide

Based on: $b < B < 2\ell$

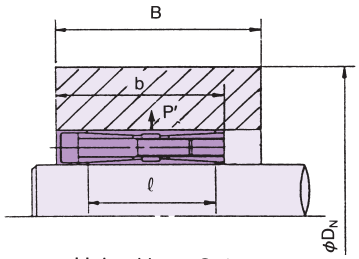
This table shows minimum hub D_N, which can tolerate surface pressure P′.

<EXAMPLE> Hub Material Yield Point = 50,000 psi

PL060X090AD



Hub with Guide



Hub without Guide

} Min. D_N = 4.960″

<Conversion>

1 psi = 0.0007 kgf/mm² = 0.0069 MPa

Min. Hub Dia. (D_N in inches)

Model Number			Contact Pressure in the Hub Bore P′ (psi)	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
				32,000	35,000	40,000	45,000	50,000	56,000
				Class No. 40 Grade No. 60-30	1015 Class No. 50 Grade No. 65-35	1018, 1020 1117 Class No. 60 Grade No. 40010	1118 Grade No. 45006	1030 Class No. 50005 Grade No. 80-65	1040, 1045 1137, 1141 1144 Grade No. 60004
PL045X075AD	PL1	3/4 AD	15,670	5.08	4.80	4.49	4.25	4.09	3.94
PL048X080AD	PL1	7/8 AD	14,650	5.20	4.92	4.65	4.45	4.29	4.13
PL050X080AD	PL1	15/16 AD	14,650	5.20	4.92	4.65	4.45	4.29	4.13
PL055X085AD	PL2	AD	13,780	5.31	5.08	4.80	4.61	4.45	4.33
	PL2	1/8 AD	13,780	5.31	5.08	4.80	4.61	4.45	4.33
PL060X090AD	PL2	3/16 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
	PL2	1/4 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
	PL2	3/8 AD	15,960	6.14	5.83	5.43	5.16	4.96	4.76
PL065X095AD	PL2	7/16 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
	PL2	1/2 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
	PL2	9/16 AD	12,910	5.75	5.51	5.24	5.04	4.88	4.76
PL070X110AD	PL2	5/8 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
	PL2	11/16 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
	PL2	3/4 AD	16,540	7.68	7.24	6.73	6.38	6.14	5.91
PL075X115AD	PL2	7/8 AD	15,810	7.80	7.40	6.89	6.54	6.30	6.06
	PL2	15/16 AD	15,810	7.80	7.40	6.89	6.54	6.30	6.06
PL080X120AD	PL3	AD	16,540	8.39	7.91	7.36	6.97	6.69	6.42
PL085X125AD	PL3	3/8 AD	15,820	8.46	8.03	7.48	7.13	6.85	6.61
PL090X130AD	PL3	7/16 AD	16,540	9.09	8.58	7.95	7.56	7.24	6.97
	PL3	1/2 AD	16,540	9.09	8.58	7.95	7.56	7.24	6.97
PL095X135AD	PL3	3/4 AD	15,960	9.21	8.70	8.11	7.72	7.40	7.13
PL100X145AD	PL3	15/16 AD	15,670	9.76	9.25	8.66	8.23	7.91	7.64
	PL4	AD	15,310	9.84	9.34	8.75	8.33	8.02	7.74
PL110X155AD			15,960	10.55	10.00	9.33	8.86	8.50	8.19
PL120X165AD	PL4	7/16 AD	17,270	11.89	11.18	10.31	9.76	9.33	8.94
	PL4	1/2 AD	17,270	11.89	11.18	10.31	9.76	9.33	8.94
PL130X180AD	PL4	15/16 AD	16,110	12.36	11.65	10.87	10.31	9.92	9.53
	PL5	AD	16,110	12.36	11.65	10.87	10.31	9.92	9.53
PL140X190AD	PL5	1/2 AD	17,560	13.86	12.99	12.01	11.30	10.83	10.35
PL150X200AD	PL6	AD	17,850	14.80	13.82	12.76	12.01	11.46	10.98
PL160X210AD			17,850	15.55	14.53	13.39	12.60	12.01	11.54
PL170X225AD	PL6	1/2 AD	15,960	15.31	14.53	13.54	12.83	12.36	11.89
PL180X235AD	PL7	AD	16,400	16.30	15.39	14.33	13.58	13.03	12.52
PL190X250AD	PL7	1/2 AD	16,400	17.36	16.38	15.24	14.45	13.86	13.31
PL200X260AD	PL7	7/8 AD	15,670	17.52	16.57	15.51	10.79	14.17	13.66
	PL8	AD	14,670	17.24	16.42	15.43	14.73	14.21	13.74
PL220X285AD	PL8	1/2 AD	17,120	20.39	19.16	17.73	16.45	16.03	15.39
	PL9	AD	16,460	20.61	19.44	18.07	17.12	16.43	15.80
PL240X305AD			17,410	22.13	20.75	19.17	18.07	17.28	16.57
	PL9	1/2 AD	15,800	20.88	19.77	18.46	17.54	16.86	16.24
PL260X325AD	PL10	AD	13,200	19.84	19.06	18.03	17.32	16.77	16.30
	PL10	1/2 AD	13,740	21.08	20.17	19.05	18.26	17.66	17.11
PL280X355AD	PL11	AD	17,120	25.39	23.90	22.09	20.87	20.00	19.17
PL300X375AD	PL11	13/16 AD	17,850	27.72	25.94	23.86	22.48	21.46	20.55

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 1.0. Refer to page D-29.