

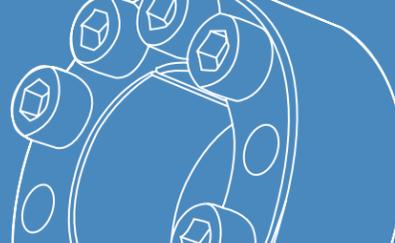
TSUBAKI[®]

POWER-LOCK[®]

The solution for shaft locking devices



www.ustsubaki.com



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U.S. Tsubaki POWER-LOCK®

ENTER THE “KEYLESS” SOCIETY

Our POWER-LOCK® solves your problems.

Eliminate backlash damage to keyways from heavy loads... the U.S. Tsubaki POWER-LOCK fits tightly around the shaft/hub and is not affected by load reversals.

End your high machining expenses for long shaft keyways, splined shafts, threads, grooves and steps... the U.S. Tsubaki POWER-LOCK offers exacting, slip-free location.

Erase the headaches of shrink and press fits. The U.S. Tsubaki POWER-LOCK simplifies installation and removal.

This easy-to-install unit slides into position and offers a keyless shaft-hub lock that will simultaneously handle both high torque and thrust while increasing your shaft strength.

The POWER-LOCK is easy to assemble... you only need one tool. It is ideal for locking in large or small sprockets, gears, pulleys, timing cams and rollers. Best of all, the POWER-LOCK is in stock for immediate shipment.

Features & Applications

- High Durability Against Reversing or Impacting Loads**
 The POWER-LOCK connection is not affected by torsional load reversal or impact, which damages the key and keyway connection. U.S. Tsubaki POWER-LOCK fits tightly around the shaft/hub and is free of backlash.
- Easy and Precise Positioning**
 The POWER-LOCK offers 360-degree angular adjustment and is excellent for indexing tables, cam mechanisms, gear drives and double-strand conveyor sprockets.
- Thrust Capability**
 The U.S. Tsubaki POWER-LOCK can hold axial forces, too. Typical applications with these forces include indexing tables and bevel gears.
- Easy Assembly and Disassembly**
 The POWER-LOCK can be assembled and disassembled frequently, so maintenance or replacement of worn parts is simple and easy as compared to other methods (key and keyway, spline, shrink or press fits and welding).
- Increased Shaft Strength**
 By using the POWER-LOCK, no metal needs to be removed from the shaft (such as the cutting of a keyway). The strength of the shaft can be kept at its original diameter. This savings can be especially noted on hollow-shaft applications.
- Eliminates Costly Machining**
 There is no need for time-consuming machining of keyways. The POWER-LOCK offers substantial savings on long, heavy shafts.



U.S. Tsubaki POWER-LOCK® Offers a Whole New Approach to Replacing Keyways

POWER-LOCK Selection Guide

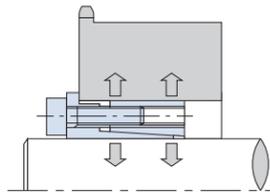
POWER-LOCK Selection Guide



KE Series



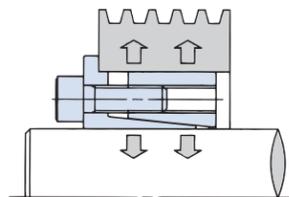
1. Designed to suit a wide range of shaft tolerances.
2. Compact with only a small difference between the inner and outer diameters.
3. Self-centering.
4. Excellent for locking small shafts.



AE Series



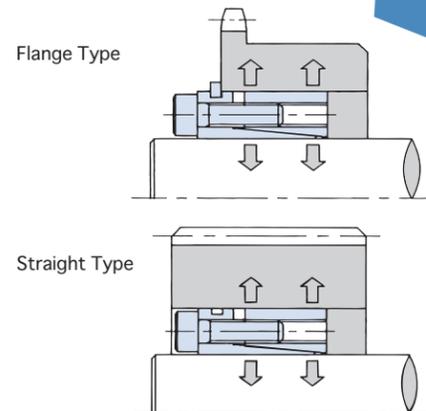
1. Self-centering.
2. Generally the same inner and outer diameters as an AS Series POWER-LOCK.



RE Series Stainless Steel



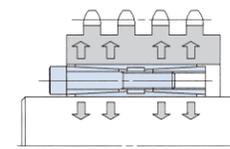
1. RE Series can be installed without snap ring.
2. Offers corrosion protection.



AD Series



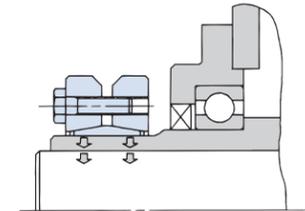
1. Offers 1.5 to 3 times the rated torque capacity of the AS Series.
2. Self-centering.
3. Designed with the same inner and outer diameters as an AS Series POWER-LOCK.



SL Series



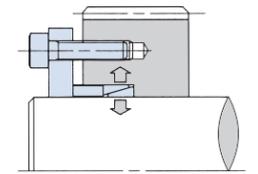
1. Installs over outer hub diameters.
2. Excellent for locking hollow shafts.
3. Low profile for applications with space restrictions.



EL Series



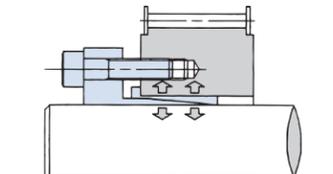
1. Offers flexible design configurations.
2. Designed for applications requiring space restrictions.
3. Excellent cost performance.



EF Series



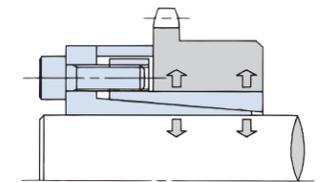
1. Pressure flange type locking elements.
2. Offers 2 to 3 times the rated torque capacity of the EL Series.
3. Self-centering.



TF Series



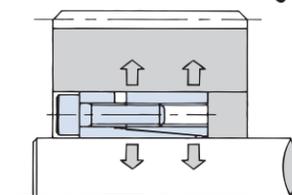
1. Excellent for locking small hubs.
2. Minimum number of bolts used.
3. Self-centering.



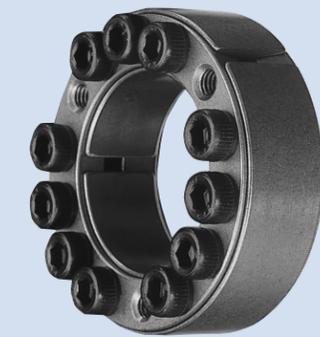
FL Series



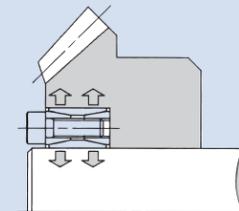
1. **Self-Centering Function**
Straight and narrow hubs can be used with FL Series POWER-LOCK®.
2. Same size inside diameter and outside diameter as AS Series POWER-LOCK in most cases.
3. **Simple Construction**



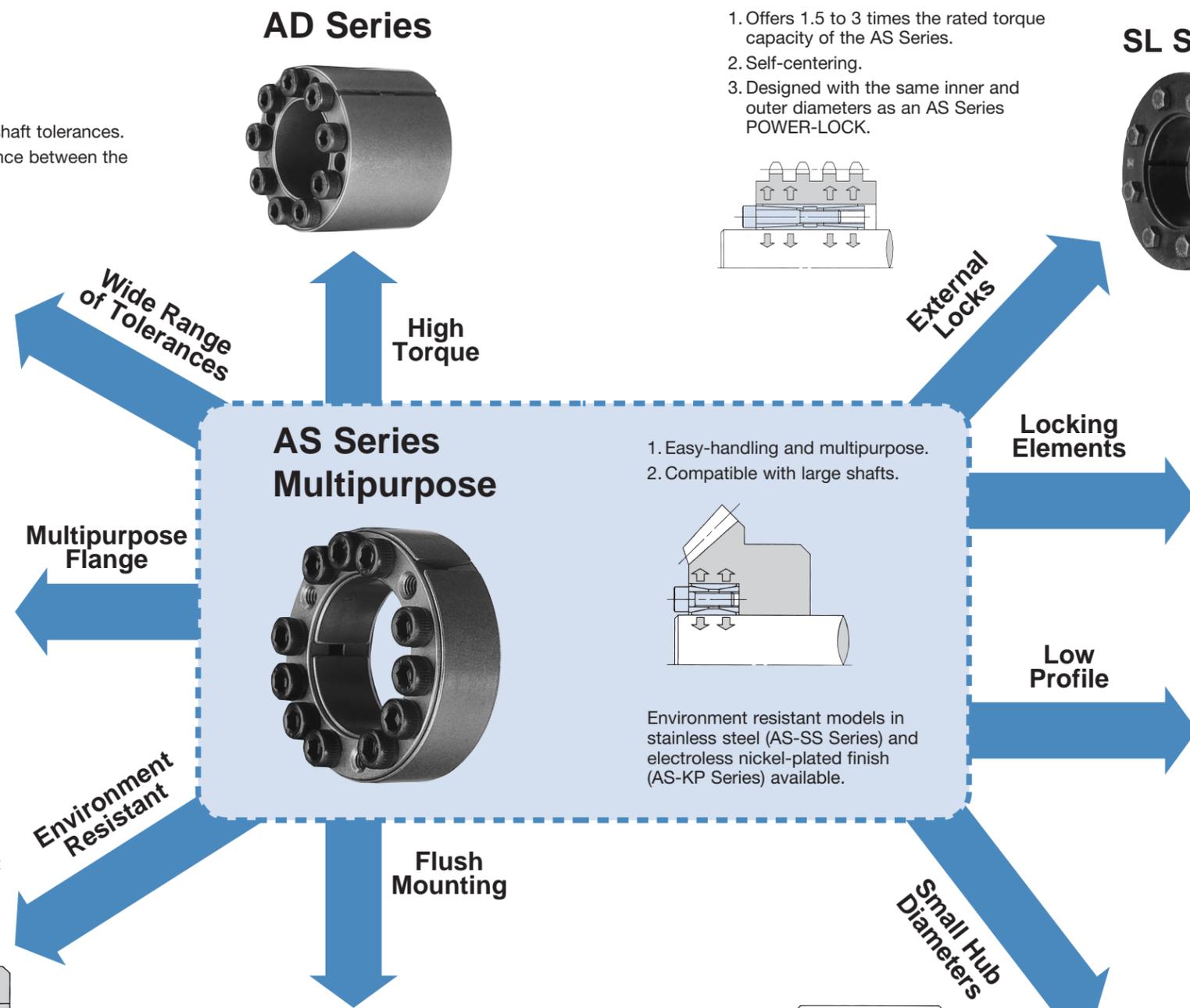
AS Series Multipurpose



1. Easy-handling and multipurpose.
2. Compatible with large shafts.



Environment resistant models in stainless steel (AS-SS Series) and electroless nickel-plated finish (AS-KP Series) available.

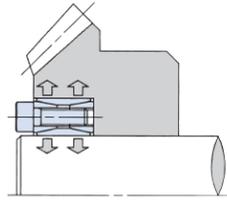
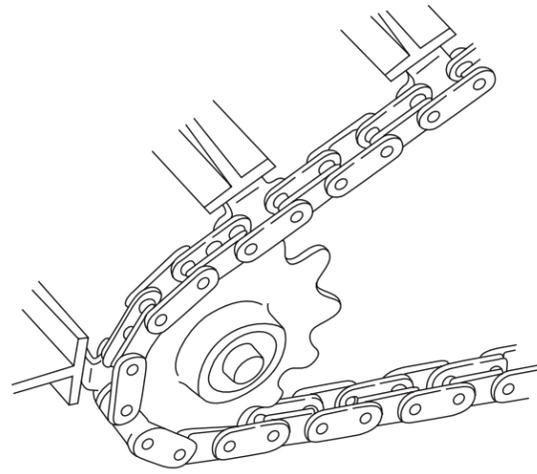


Application Examples

Application Examples

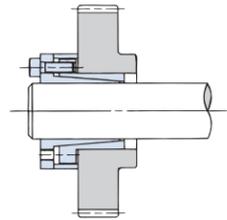


Standard Installation



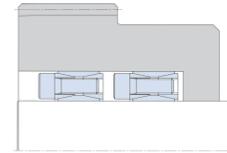
Single AS Series example

Generally, a single unit can transmit high torque and axial load.



Single TF Series example

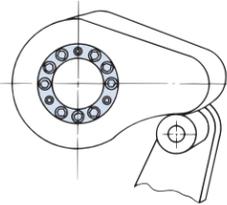
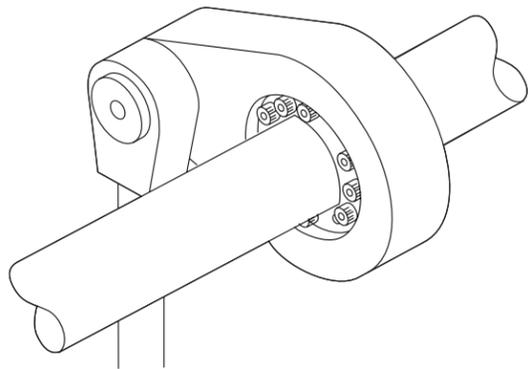
This is the most standard installation form.



Two AS Series in a Row

Torque transmission M_t and thrust load are doubled.

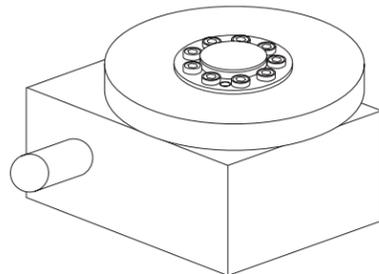
Phase Adjustments



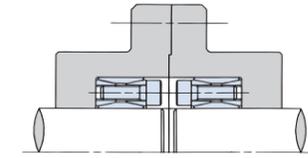
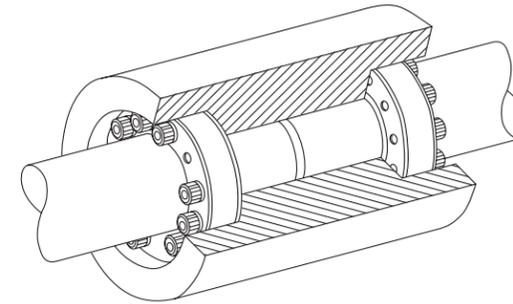
Cam Phase Adjustments

Restriction-free, fine phase adjustments can boost system performances.

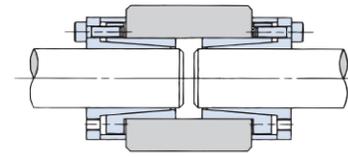
Not locked into a fixed keyway.



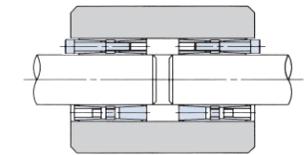
Couplings



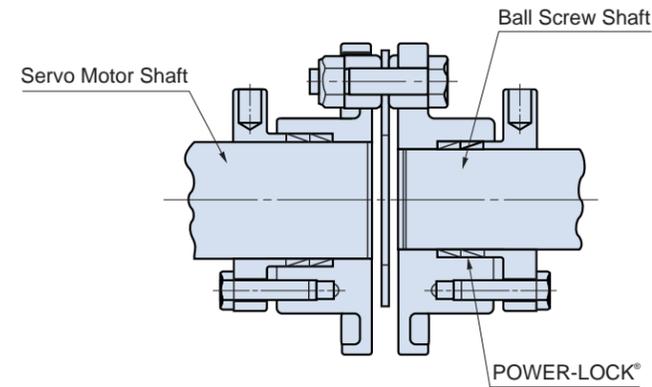
Coupling Installation using AS Series



Coupling Installation using TF Series



Coupling Installation using AD Series



Backlash free and highly accurate disc couplings are excellent with POWER-LOCKS. (Below shows an example using an EL Series unit.)

POWER-LOCK style disc couplings are also available. Contact U.S. Tsubaki.

Application Examples

AS Inch and Metric Series

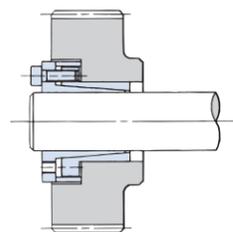
MOST POPULAR STYLE



Compact Designs

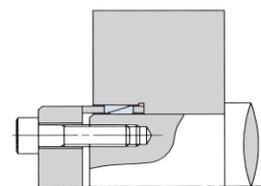
Space Saving Installation for TF Series

Suitable for applications requiring minimum installation space.



Pressure Flange-Shaft Installation for EL Series

Below illustrates an example where the bolt heads and pressure flange are mounted into the hub bore.



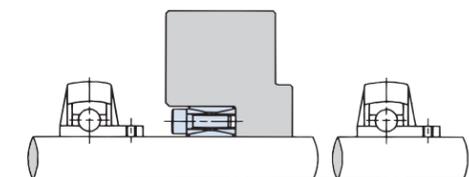
Features & Application

- Multipurpose**
 Ideally structured and highly reliable locking device
- Low Maching Costs**
 Keyway, splines, presses and thermal fittings are not required. Optimum performance is achieved with low shaft and hub tolerances minimizing the total machining costs.
- Easy to Install**
 Install or removes just by tightening or loosening of bolts. No need to hassle with adjusting keyways and thermal fittings.
- Options to Fit Every Application**
 Stainless Steel and electroless nickle plating options are offered for standard models. Both are highly durable in corrosive or clean room environments.

Special Shaft Installations

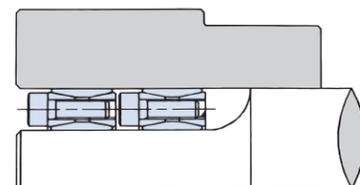
Midway Long Shaft Installation for AS Series

Eliminates the hassle of machining keyways.



Step Shaft Installation with AS Series

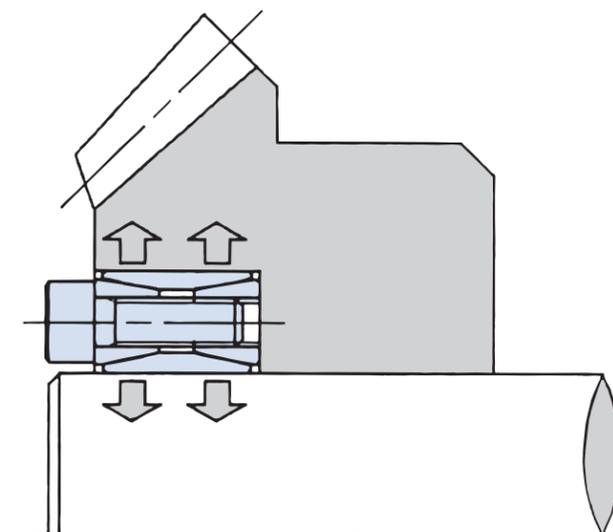
Suitable for applications requiring limited hub space and straight bores.



Model Number

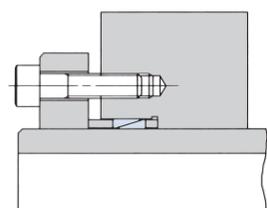
Inch Series: **PL** **2** **AS**
POWER-LOCK® Shaft Dia. (inch) AS Series

Metric Series: **PL** **020 X 047** **AS**
POWER-LOCK® Shaft Dia. (mm) Outer Dia. (mm) Series
AS: Standard
 AS-SS: Stainless Steel
 AS-KP: Electroless Nickel-Plated

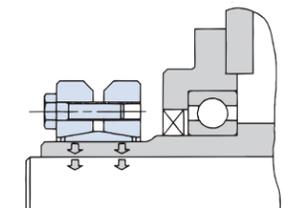


Hollow Shaft Installation

EL Series



SL Series

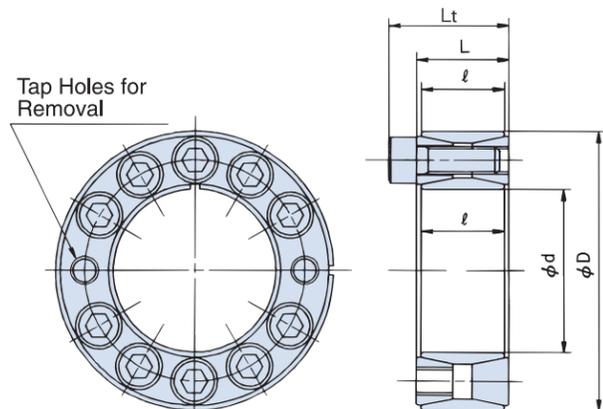


AS Inch Series

MOST POPULAR STYLE

AS Inch Series

MOST POPULAR STYLE

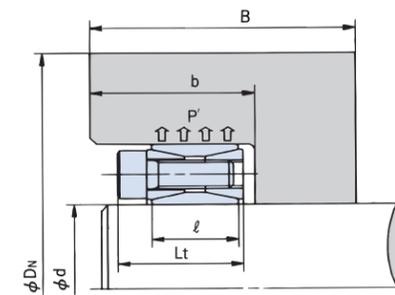


Hub Diameters for Single Unit Installation

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

$$B \geq 2l$$

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL2AS = 4.658" min. hub diameter



Hub Configuration Coefficient $K_3=0.6$

AS 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 AS	0.7500		1.8500	+0.0015"	0.787	0.709	1.024	188	5,940	30290	12370	6	M6 X 18	12.5	0.5
PL7/8 AS	0.8750	-0.0013"	1.8500	-0	0.787	0.709	1.024	217	5,940	26020	12370	6	M6 X 18	12.5	0.4
PL1 AS	1.0000	+0	1.9690		0.787	0.709	1.024	318	7,480	29010	14650	8	M6 X 18	12.5	0.5
PL1-1/8 AS	1.1250		2.1650		0.787	0.709	1.024	354	7,480	25450	13370	8	M6 X 18	12.5	0.6
PL1-3/16 AS	1.8750		2.1590		0.819	0.709	1.055	376	7,480	24320	13370	8	M6 X 18	12.5	0.5
PL1-1/4 AS	1.2500		2.3620		0.787	0.709	1.024	499	9,460	29010	15360	10	M6 X 18	12.5	0.7
PL1-3/8 AS	1.3750		2.3650		0.773	0.709	1.009	550	9,460	26310	15360	10	M6 X 18	12.5	0.6
PL1-7/16 AS	1.4375		2.5590		0.787	0.709	1.024	637	10,560	27730	15500	11	M6 X 18	12.5	0.7
PL1-1/2 AS	1.5000		2.5590		0.787	0.709	1.024	658	10,560	26590	15500	11	M6 X 18	12.5	0.7
PL1-5/8 AS	1.6250	-0.0015"	2.9530	-0	0.945	0.827	1.260	1,085	15,840	31570	17490	9	M8 X 22	30	1.2
PL1-11/16 AS	1.6875	+0	2.9530		0.945	0.827	1.260	1,122	15,840	30480	17490	9	M8 X 22	30	1.2
PL1-3/4 AS	1.7500		2.9528		0.945	0.827	1.260	1,164	15,840	29940	17490	9	M8 X 22	30	1.2
PL1-7/8 AS	1.8750		3.1496		0.945	0.827	1.260	1,244	15,840	27440	16350	9	M8 X 22	30	1.3
PL1-15/16 AS	1.9375		3.1496		0.945	0.827	1.260	1,287	15,840	26590	16350	9	M8 X 22	30	1.2
PL2 AS	2.0000		3.3465		0.945	0.827	1.260	1,627	19,360	31570	18910	11	M8 X 22	30	1.5
PL2-1/8 AS	2.1250		3.3465		0.945	0.827	1.260	1,729	19,360	29720	18910	11	M8 X 22	30	1.4
PL2-3/16 AS	2.1875		3.5433		0.945	0.827	1.260	1,779	19,360	28870	17780	11	M8 X 22	30	1.6
PL2-1/4 AS	2.2500		3.5433		0.945	0.827	1.260	1,827	19,360	28070	17780	11	M8 X 22	30	1.5
PL2-3/8 AS	2.3750		3.5310		0.945	0.827	1.260	1,931	19,360	26590	17780	11	M8 X 22	30	1.4
PL2-7/16 AS	2.4375		3.7402		0.945	0.827	1.260	2,170	21,120	28010	18340	12	M8 X 22	30	1.7
PL2-1/2 AS	2.5000	-0.0018"	3.7402	+0.0021"	0.945	0.827	1.260	2,228	21,120	27300	18340	12	M8 X 22	30	1.6
PL2-9/16 AS	2.5625	+0	3.7370	-0	0.962	0.984	1.277	2,278	21,120	26730	18340	12	M8 X 22	30	1.5
PL2-5/8 AS	2.6250		4.3370		1.073	0.984	1.467	3,400	31,020	31940	19340	11	M10 X 25	60	2.9
PL2-11/16 AS	2.6875		4.3370		1.073	0.984	1.467	3,480	31,020	31200	19340	11	M10 X 25	60	2.8
PL2-3/4 AS	2.7500		4.3370		1.073	0.984	1.467	3,537	31,020	30430	19340	11	M10 X 25	60	2.7
PL2-7/8 AS	2.8750		4.5276		1.102	0.984	1.496	3,732	31,020	29150	18490	11	M10 X 25	60	2.9
PL2-15/16 AS	2.9375		4.5276		1.102	0.984	1.496	3,812	31,020	28580	18490	11	M10 X 25	60	2.8
PL3 AS	3.0000		4.7244		1.102	0.984	1.496	3,855	31,020	28010	17780	11	M10 X 25	60	3.2
PL3-3/8 AS	3.3750		4.9213		1.102	0.984	1.496	4,745	33,660	27160	18630	12	M10 X 25	60	3.1
PL3-7/16 AS	3.4375		5.1181		1.102	0.984	1.496	4,846	33,660	26730	17920	12	M10 X 25	60	3.4
PL3-1/2 AS	3.5000		5.1181		1.102	0.984	1.496	4,933	33,660	26160	17920	12	M10 X 25	60	3.3
PL3-3/4 AS	3.7500	-0.0021"	5.3050	-0	1.151	0.984	1.544	5,729	36,520	26590	18770	13	M10 X 25	60	3.3
PL3-15/16 AS	3.9375	+0	5.7080	+0.0025"	1.302	1.142	1.774	7,378	45,100	26730	18490	11	M12 X 30	105	4.6
PL4 AS	4.0000		5.8430	-0	1.299	1.142	1.772	7,522	45,100	26310	18060	11	M12 X 30	105	4.8
PL4-7/16 AS	4.4375		6.4961		1.299	1.142	1.772	9,114	49,280	25880	17780	12	M12 X 30	105	6.2
PL4-1/2 AS	4.5000		6.4961		1.299	1.142	1.772	9,258	49,280	25600	17780	12	M12 X 30	105	6.0
PL4-15/16 AS	4.9375		7.0866		1.496	1.339	1.969	12,730	61,600	24890	17350	15	M12 X 35	105	8.1
PL5 AS	5.0000		7.0866		1.496	1.339	1.969	12,870	61,600	24600	17350	15	M12 X 35	105	7.9
PL5-1/2 AS	5.5000	-0.0025"	7.4920	-0.0028"	1.438	1.339	1.910	15,120	65,560	23750	17490	16	M12 X 35	105	7.9
PL6 AS	6.0000	+0	8.2677		1.496	1.339	1.969	19,530	77,880	25880	18770	19	M12 X 35	105	10
PL6-1/2 AS	6.5000		8.8583		1.732	1.575	2.283	24,450	90,200	23460	17210	16	M14 X 40	167	13
PL7 AS	7.0000		9.2520		1.732	1.575	2.283	27,990	95,700	23180	17490	17	M14 X 40	167	13
PL7-1/2 AS	7.5000		9.8230		2.144	1.890	2.695	35,220	112,640	21330	16210	20	M14 X 45	167	17
PL7-7/8 AS	7.8750		10.2350		2.052	1.890	2.603	38,910	118,360	21190	16350	21	M14 X 45	167	18
PL8 AS	8.0000		10.5040		2.047	1.890	2.598	39,560	118,360	20900	15930	21	M14 X 45	167	19
PL8-1/2 AS	8.5000	-0.0028"	11.2205	+0.0032"	2.205	2.008	2.835	50,050	141,020	22040	16640	18	M16 X 50	257	25
PL9 AS	9.0000	+0	11.6690	-0	2.205	2.008	2.835	53,020	141,020	20760	15930	18	M16 X 50	257	26
PL9-1/2 AS	9.5000		12.1540		2.205	2.008	2.835	62,200	156,640	21900	17210	20	M16 X 50	257	27
PL10 AS	10.0000		12.7953		2.205	2.008	2.835	75,220	180,180	23890	18770	23	M16 X 50	257	30
PL10-1/2 AS	10.5000	-0.0032"	13.3190	+0.0035"	2.205	2.008	2.835	78,840	180,180	22750	18060	23	M16 X 50	257	31
PL11 AS	11.0000	+0	14.0000	-0	2.482	2.402	3.191	95,480	207,240	20900	16500	22	M18 X 60	351	41
PL11-13/16 AS	11.8125		14.7620		2.606	2.402	3.314	111,400	224,400	21330	17060	24	M18 X 60	351	44

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi 1010 304SS 316SS	225 Mpa 32600 psi 1015 1118	245 Mpa 35500 psi 1020	274 Mpa 39700 psi 1030	294 Mpa 42600 psi 1035 1040 1144	343 Mpa 49700 psi 1045	392 Mpa 56900 psi 1055	441 Mpa 64000 psi
PL3/4 AS	12370	2.660	2.496	2.384	2.332	2.287	2.235	2.206	2.150	2.110	2.079
PL7/8 AS	12370	2.660	2.496	2.384	2.332	2.287	2.235	2.206	2.150	2.110	2.079
PL1 AS	14650	3.052	2.819	2.666	2.595	2.535	2.466	2.427	2.354	2.301	2.261
PL1-1/8 AS	13370	3.216	2.997	2.619	2.783	2.724	2.657	2.619	2.547	2.495	2.456
PL1-3/16 AS	13370	3.207	2.989	2.843	2.775	2.717	2.649	2.612	2.540	2.489	2.449
PL1-1/4 AS	15360	3.752	3.447	3.249	3.158	3.080	2.991	2.942	2.849	2.782	2.731
PL1-3/8 AS	15360	3.756	3.452	3.253	3.162	3.084	2.995	2.946	2.852	2.785	2.734
PL1-7/16 AS	15500	4.084	3.749	3.531	3.431	3.345	3.248	3.194	3.092	3.018	2.963
PL1-1/2 AS	15500	4.084	3.749	3.531	3.431	3.345	3.248	3.194	3.092	3.018	2.963
PL1-5/8 AS	17490	5.062	4.571	4.262	4.121	4.004	3.870	3.796	3.658	3.559	3.485
PL1-11/16 AS	17490	5.062	4.571	4.262	4.121	4.004	3.870	3.796	3.658	3.559	3.485
PL1-3/4 AS	17490	5.062	4.571	4.262	4.121	4.004	3.870	3.796	3.658	3.559	3.485
PL1-7/8 AS	16350	5.180	4.723	4.430	4.296	4.182	4.053	3.981	3.847	3.750	3.677
PL1-15/16 AS	16350	5.180	4.723	4.430	4.296	4.182	4.053	3.981	3.847	3.750	3.677

AS Inch Series

MOST POPULAR STYLE

AS Inch Series

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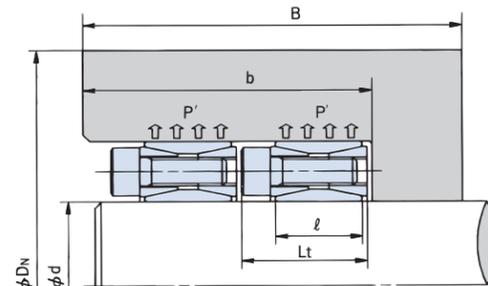
Hub Diameters for Multiple Unit Installation

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

$$B \geq Z \times (2 \times Lt)$$

Z : Number of units ($2 \leq Z \leq 4$)

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL2AS = 5.272" min. hub diameter

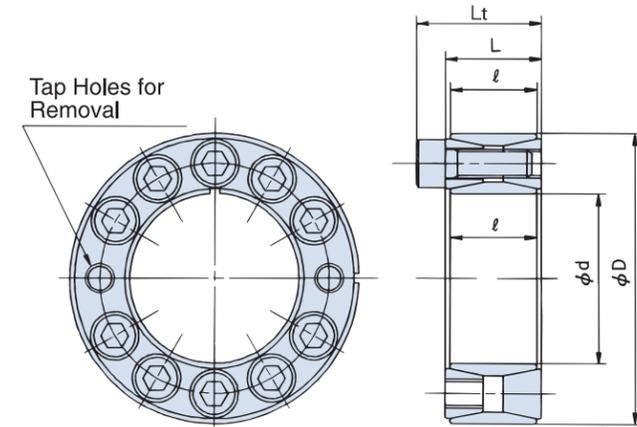


Hub Configuration Coefficient $K_s=0.8$

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL3/4 AS	12,370	3.058	2.785	2.610	2.530	2.463	2.386	2.343	2.263	2.206	2.162
PL7/8 AS	12,370	3.058	2.785	2.610	2.530	2.463	2.386	2.343	2.263	2.206	2.162
PL1 AS	14,650	3.653	3.234	2.980	2.867	2.774	2.668	2.611	2.503	2.427	2.370
PL1-1/8 AS	13,370	3.758	3.383	3.149	3.043	2.954	2.853	2.797	2.693	2.619	2.563
PL1-3/16 AS	13,370	3.748	3.374	3.140	3.034	2.945	2.845	2.790	2.686	2.612	2.556
PL1-1/4 AS	15,360	4.556	3.992	3.657	3.510	3.388	3.252	3.177	3.040	2.942	2.869
PL1-3/8 AS	15,360	4.562	3.997	3.662	3.514	3.392	3.256	3.181	3.043	2.946	2.873
PL1-7/16 AS	15,500	4.975	4.350	3.980	3.818	3.684	3.534	3.452	3.301	3.194	3.114
PL1-1/2 AS	15,500	4.975	4.350	3.980	3.818	3.684	3.534	3.452	3.301	3.194	3.114
PL1-5/8 AS	17,490	6.482	5.466	4.907	4.670	4.477	4.266	4.152	3.943	3.796	3.688
PL1-11/16 AS	17,490	6.482	5.466	4.907	4.670	4.477	4.266	4.152	3.943	3.796	3.688
PL1-3/4 AS	17,490	6.482	5.466	4.907	4.670	4.477	4.266	4.152	3.943	3.796	3.688
PL1-7/8 AS	16,350	6.436	5.548	5.037	4.816	4.635	4.434	4.325	3.981	3.876	3.876
PL1-15/16 AS	16,350	6.436	5.548	5.037	4.816	4.635	4.434	4.325	3.981	3.876	3.876
PL2 AS	18,910	8.117	6.616	5.845	5.527	5.272	4.996	4.848	4.580	4.395	4.258
PL2-1/8 AS	18,910	8.117	6.616	5.845	5.527	5.272	4.996	4.848	4.580	4.395	4.258
PL2-3/16 AS	17,780	7.929	6.644	5.947	5.652	5.414	5.152	5.012	4.754	4.575	4.442
PL2-1/4 AS	17,780	7.929	6.644	5.947	5.652	5.414	5.152	5.012	4.754	4.575	4.442
PL2-3/8 AS	17,780	7.902	6.622	5.927	5.633	5.396	5.135	4.995	4.738	4.559	4.427
PL2-7/16 AS	18,340	8.702	7.197	6.402	6.069	5.802	5.510	5.354	5.068	4.870	4.724
PL2-1/2 AS	18,340	8.702	7.197	6.402	6.069	5.802	5.510	5.354	5.068	4.870	4.724
PL2-9/16 AS	18,340	8.695	7.191	6.396	6.065	5.797	5.506	5.349	5.064	4.866	4.720
PL2-5/8 AS	19,340	10.878	8.758	7.695	7.261	6.915	6.542	6.343	5.982	5.734	5.551
PL2-11/16 AS	19,340	10.878	8.758	7.695	7.261	6.915	6.542	6.343	5.982	5.734	5.551
PL2-3/4 AS	19,340	10.878	8.758	7.695	7.261	6.915	6.542	6.343	5.982	5.734	5.551
PL2-7/8 AS	18,490	10.649	8.775	7.792	7.382	7.053	6.694	6.502	6.153	5.910	5.730
PL2-15/16 AS	18,490	10.649	8.775	7.792	7.382	7.053	6.694	6.502	6.153	5.910	5.730
PL3 AS	17,780	10.572	8.859	7.929	7.537	7.218	6.870	6.683	6.339	6.010	5.923
PL3-3/8 AS	18,630	11.692	9.600	8.510	8.058	7.694	7.299	7.088	6.703	6.436	6.239
PL3-7/16 AS	17,920	11.564	9.659	8.632	8.200	7.850	7.467	7.261	6.885	6.622	6.429
PL3-1/2 AS	17,920	11.564	9.659	8.632	8.200	7.850	7.467	7.261	6.885	6.622	6.429
PL3-3/4 AS	18,770	12.736	10.419	9.220	8.724	8.327	7.895	7.664	7.244	6.953	6.739
PL3-15/16 AS	18,490	13.424	11.062	9.822	9.306	8.891	8.439	8.197	7.756	7.450	7.224
PL4 AS	18,060	13.330	11.099	9.903	9.401	8.996	8.552	8.315	7.880	7.577	7.353
PL4-7/16 AS	17,780	14.538	12.182	10.903	10.364	9.926	9.477	9.189	8.717	8.388	8.145
PL4-1/2 AS	17,780	14.538	12.182	10.903	10.364	9.926	9.477	9.189	8.717	8.388	8.145
PL4-15/16 AS	17,350	15.414	13.036	11.721	11.161	10.706	10.205	9.935	9.439	9.092	8.835
PL5 AS	17,350	15.414	13.036	11.721	11.161	10.706	10.205	9.935	9.439	9.092	8.835
PL5-1/2 AS	17,490	16.445	13.867	12.450	11.849	11.360	10.823	10.534	9.932	9.358	9.358
PL6 AS	18,770	19.849	16.238	14.370	13.597	12.907	12.304	11.945	11.086	10.503	10.503
PL6-1/2 AS	17,210	19.093	16.193	14.580	13.892	13.331	12.714	12.381	11.769	11.341	11.023
PL7 AS	17,490	20.309	17.125	15.375	14.632	14.028	13.365	13.008	12.353	11.895	11.556
PL7-1/2 AS	16,210	19.902	17.198	15.636	14.958	14.401	13.783	13.447	12.827	12.390	12.065
PL7-7/8 AS	16,350	20.912	18.026	16.367	15.649	15.060	14.406	14.052	13.397	12.937	12.594
PL8 AS	15,930	20.934	18.175	16.567	15.866	15.288	14.646	14.297	13.650	13.194	12.855
PL8-1/2 AS	16,640	23.332	20.007	18.116	17.302	16.635	15.897	15.497	14.761	14.243	13.859
PL9 AS	15,930	23.255	20.191	18.404	17.625	16.984	16.270	15.882	15.164	14.658	14.280
PL9-1/2 AS	17,210	26.197	22.218	20.005	19.061	18.292	17.445	16.988	16.148	15.560	15.125
PL10 AS	18,770	30.717	25.129	22.238	21.042	20.083	19.041	18.485	17.472	16.770	16.253
PL10-1/2 AS	18,060	30.385	25.300	22.574	21.430	20.506	19.495	18.953	17.961	17.271	16.761
PL11 AS	16,500	28.865	24.815	22.500	21.500	20.680	19.773	19.281	18.373	17.735	17.261
PL11-13/16 AS	17,060	31.514	26.808	24.175	23.048	22.129	21.116	20.569	19.562	18.857	18.334

Stainless Steel



AS Stainless Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D. d	Hub Counter I.D. D	Dimensions inch			Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.		
			Tolerance t_1	Tolerance t_2	L			ℓ	Lt	Shaft P	Hub Bore P'	Qty.		Size	Tightening Torque ft.lbs.
PL3/4 AS-SS	0.7500	1.8504	-0.0013"	+0.0015"	0.787	0.709	1.024	151	4,856	25382	10443	6	M6 X 18	10	0.5
PL7/8 AS-SS	0.8750	1.8504	-0.0013"	+0.0015"	0.787	0.709	1.024	173	4,856	21901	10443	6	M6 X 18	10	0.4
PL1 AS-SS	1.0000	1.9685	+0	-0	0.787	0.709	1.024	267	6,384	25382	12909	8	M6 X 18	10	0.5
PL1-1/8 AS-SS	1.1250	2.1654	+0	-0	0.787	0.709	1.024	303	6,384	22626	11748	8	M6 X 18	10	0.6
PL1-3/16 AS-SS	1.8750	2.1589	+0	-0	0.819	0.709	1.055	318	6,384	21466	11748	8	M6 X 18	10	0.5
PL1-1/4 AS-SS	1.2500	2.3622	+0	-0	0.787	0.709	1.024	419	7,935	25382	13489	10	M6 X 18	10	0.7
PL1-3/8 AS-SS	1.3750	2.3652	+0	-0	0.772	0.709	1.008	463	7,935	23206	13489	10	M6 X 18	10	0.6
PL1-7/16 AS-SS	1.4375	2.5591	-0.0015"	+0.0018"	0.787	0.709	1.024	535	8,812	24512	13779	11	M6 X 18	10	0.7
PL1-1/2 AS-SS	1.5000	2.5591	-0.0015"	+0.0018"	0.787	0.709	1.024	556	8,812	23351	13779	11	M6 X 18	10	0.7
PL1-5/8 AS-SS	1.6250	2.9528	+0	-0	0.945	0.827	1.260	900	13,218	27558	15229	9	M8 X 22	25	1.2
PL1-11/16 AS-SS	1.6875	2.9528	+0	-0	0.945	0.827	1.260	937	13,218	26542	15229	9	M8 X 22	25	1.2
PL1-3/4 AS-SS	1.7500	2.9528	+0	-0	0.945	0.827	1.260	974	13,218	25527	15229	9	M8 X 22	25	1.2
PL1-7/8 AS-SS	1.8750	3.1496	+0	-0	0.945	0.827	1.260	1,040	13,218	23932	14214	9	M8 X 22	25	1.3
PL1-15/16 AS-SS	1.9375	3.1496	+0	-0	0.945	0.827	1.260	1,077	13,218	23206	14214	9	M8 X 22	25	1.2
PL2 AS-SS	2.0000	3.3465	+0	-0	0.945	0.827	1.260	1,357	16,073	27268	16390	11	M8 X 22	25	1.5
PL2-1/8 AS-SS	2.1250	3.3465	+0	-0	0.945	0.827	1.260	1,446	16,073	25672	16390	11	M8 X 22	25	1.4
PL2-3/16 AS-SS	2.1875	3.5433	+0	-0	0.945	0.827	1.260	1,483	16,073	24947	15519	11	M8 X 22	25	1.6
PL2-1/4 AS-SS	2.2500	3.5433	+0	-0	0.945	0.827	1.260	1,527	16,073	24367	15519	11	M8 X 22	25	1.5
PL2-3/8 AS-SS	2.3750	3.5310	+0	-0	0.945	0.827	1.260	1,601	16,073	23206	15519	11	M8 X 22	25	1.4
PL2-7/16 AS-SS	2.4375	3.7402	+0	-0											

AS Inch Series

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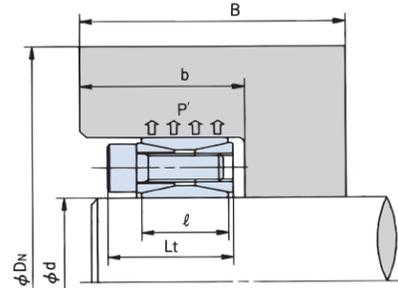
Stainless Steel

Hub Diameters for Single Unit Installation

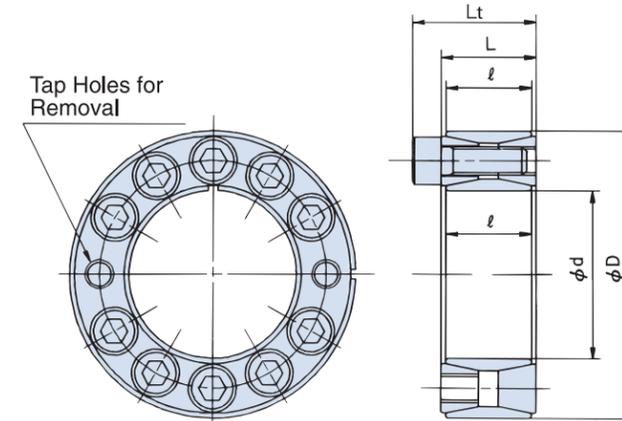
D_M is the minimum hub diameter required to tolerate P' or the pressure exerted from within the hub.

$$B \geq 2\ell$$

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL2AS-SS = 4.437" min. hub diameter



Hub Configuration Coefficient $K_3=0.6$



Min. Hub Dia. (D_M 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	1045	1055		
PL3/4	AS-SS	10,443	2,504	2,377	2,289	2,247	2,211	2,169	2,145	2,010	2,066	2,041
PL7/8	AS-SS	10,443	2,504	2,377	2,289	2,247	2,211	2,169	2,145	2,010	2,066	2,041
PL1	AS-SS	12,909	2,881	2,693	2,567	2,508	2,457	2,399	2,366	2,304	2,258	2,224
PL1-1/8	AS-SS	11,748	3,052	2,875	2,753	2,696	2,647	2,590	2,558	2,497	2,452	2,418
PL1-3/16	AS-SS	11,748	3,044	2,867	2,746	2,689	2,640	2,583	2,551	2,490	2,446	2,412
PL1-1/4	AS-SS	13,489	3,522	3,280	3,118	3,043	2,978	2,904	2,862	2,783	2,726	2,682
PL1-3/8	AS-SS	13,489	3,527	3,284	3,122	3,047	2,982	2,908	2,866	2,787	2,729	2,686
PL1-7/16	AS-SS	13,779	3,853	3,581	3,400	3,315	3,243	3,160	3,114	3,026	2,963	2,914
PL1-1/2	AS-SS	13,779	3,853	3,581	3,400	3,315	3,243	3,160	3,114	3,026	2,963	2,914
PL1-5/8	AS-SS	15,229	4,669	4,295	4,050	3,937	3,842	3,732	3,671	3,556	3,473	3,410
PL1-11/16	AS-SS	15,229	4,669	4,295	4,050	3,937	3,842	3,732	3,671	3,556	3,473	3,410
PL1-3/4	AS-SS	15,229	4,669	4,295	4,050	3,937	3,842	3,732	3,671	3,556	3,473	3,410
PL1-7/8	AS-SS	14,214	4,812	4,459	4,225	4,116	4,024	3,917	3,858	3,745	3,664	3,602
PL1-15/16	AS-SS	14,214	4,812	4,459	4,225	4,116	4,024	3,917	3,858	3,745	3,664	3,602
PL2	AS-SS	16,390	5,510	5,023	4,710	4,567	4,446	4,308	4,232	4,088	3,985	3,907
PL2-1/8	AS-SS	16,390	5,510	5,023	4,710	4,567	4,446	4,308	4,232	4,088	3,985	3,907
PL2-3/16	AS-SS	15,519	5,659	5,193	4,891	4,751	4,633	4,498	4,423	4,282	4,180	4,102
PL2-1/4	AS-SS	15,519	5,659	5,193	4,891	4,751	4,633	4,498	4,423	4,282	4,180	4,102
PL2-3/8	AS-SS	15,519	5,639	5,176	4,874	4,735	4,618	4,483	4,408	4,267	4,166	4,089
PL2-7/16	AS-SS	15,954	6,065	5,547	5,213	5,060	4,930	4,782	4,700	4,545	4,433	4,349
PL2-1/2	AS-SS	15,954	6,065	5,547	5,213	5,060	4,930	4,782	4,700	4,545	4,433	4,349
PL2-9/16	AS-SS	15,954	6,060	5,543	5,209	5,056	4,926	4,778	4,696	4,541	4,429	4,345
PL2-5/8	AS-SS	17,260	7,371	6,670	6,226	6,025	5,855	5,663	5,557	5,214	5,107	
PL2-11/16	AS-SS	17,260	7,371	6,670	6,226	6,025	5,855	5,663	5,557	5,214	5,107	
PL2-3/4	AS-SS	17,260	7,371	6,670	6,226	6,025	5,855	5,663	5,557	5,214	5,107	
PL2-7/8	AS-SS	16,390	7,457	6,797	6,373	6,180	6,016	5,830	5,727	5,532	5,392	5,287
PL2-15/16	AS-SS	16,390	7,457	6,797	6,373	6,180	6,016	5,830	5,727	5,532	5,392	5,287
PL3	AS-SS	15,809	7,622	6,979	6,563	6,372	6,210	6,026	5,923	5,730	5,590	5,485
PL3-3/8	AS-SS	16,535	8,146	7,416	6,949	6,736	6,556	6,351	6,237	6,023	5,870	5,754
PL3-7/16	AS-SS	15,809	8,257	7,561	7,111	6,904	6,728	6,528	6,417	6,208	6,057	5,943
PL3-1/2	AS-SS	15,809	8,257	7,561	7,111	6,904	6,728	6,528	6,417	6,208	6,057	5,943
PL3-3/4	AS-SS	16,535	8,782	7,995	7,491	7,261	7,067	6,846	6,724	6,493	6,328	6,203
PL3-15/16	AS-SS	16,390	9,400	8,568	8,034	7,790	7,584	7,349	7,219	6,974	6,798	6,665
PL4	AS-SS	15,954	9,475	8,667	8,144	7,905	7,702	7,470	7,342	7,100	6,926	6,794

AS Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	Lt			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
	PL019X047 AS	0.7480		1.8500		0.787	0.709	1.024	181	5940	30458	12328	6	M6 X 18	12.5
PL020X047 AS	0.7870	-0.0013" +0	1.8500	+0.0015" -0	0.787	0.709	1.024	196	5,940	28863	12328	6	M6 X 18	12.5	0.4
PL022X047 AS	0.8660		1.8500		0.787	0.709	1.024	217	5,940	26252	12328	6	M6 X 18	12.5	0.4
PL024X050 AS	0.9450		1.9690		0.787	0.709	1.024	297	7,480	30603	14649	8	M6 X 18	12.5	0.5
PL025X050 AS	0.9840		1.9690		0.787	0.709	1.024	311	7,480	29443	14649	8	M6 X 18	12.5	0.5
PL028X055 AS	1.1020	-0.0015" +0	2.1650	+0.0018" -0	0.787	0.709	1.024	347	7,480	26107	13344	8	M6 X 18	12.5	0.6
PL030X055 AS	1.1810		2.1650		0.787	0.709	1.024	376	7,480	24512	13344	8	M6 X 18	12.5	0.5
PL032X060 AS	1.2600		2.3620		0.787	0.709	1.024	499	9,460	28718	15374	10	M6 X 18	12.5	0.6
PL035X060 AS	1.3780		2.3620		0.787	0.709	1.024	550	9,460	26252	15374	10	M6 X 18	12.5	0.6
PL038X065 AS	1.4960		2.5590		0.787	0.709	1.024	658	10,560	26542	15519	11	M6 X 18	12.5	0.7
PL040X065 AS	1.5750		2.5590		0.787	0.709	1.024	694	10,560	25237	15519	11	M6 X 18	12.5	0.7
PL042X075 AS	1.6540		2.9530		0.945	0.827	1.260	1,099	15,840	31039	17550	9	M8 X 22	30	1.1
PL045X075 AS	1.7720		2.9530		0.945	0.827	1.260	1,180	15,840	29008	17550	9	M8 X 22	30	1.1
PL048X080 AS	1.8900		3.1500		0.945	0.827	1.260	1,254	15,840	27268	16390	9	M8 X 22	30	1.2
PL050X080 AS	1.9690		3.1500		0.945	0.827	1.260	1,306	15,840	26107	16390	9	M8 X 22	30	1.2
PL055X085 AS	2.1650		3.3460		0.945	0.827	1.260	1,763	19,360	29153	18855	11	M8 X 22	30	1.3
PL060X090 AS	2.3620		3.5430		0.945	0.827	1.260	1,925	19,360	26687	17840	11	M8 X 22	30	1.4
PL065X095 AS	2.5590	3.7400	0.945	0.827	1.260	2,279	21,120	26687	18275	12	M8 X 22	30	1.5		
PL070X110 AS	2.7560	4.3310	1.102	0.984	1.496	3,540	31,020	30458	19290	11	M10 X 25	60	2.7		
PL075X115 AS	2.9530	4.5280	1.102	0.984	1.496	3,828	31,020	28428	18420	11	M10 X 25	60	2.8		
PL080X120 AS	3.1500	4.7240	1.102	0.984	1.496	4,049	31,020	26687	17840	11	M10 X 25	60	2.9		
PL085X125 AS	3.3460	4.9210	1.102	0.984	1.496	4,698	33,660	27413	18565	12	M10 X 25	60	3.1		
PL090X130 AS	3.5430	5.1180	1.102	0.984	1.496	4,986	33,660	25817	17840	12	M10 X 25	60	3.2		
PL095X135 AS	3.7400	5.3150	1.102	0.984	1.496	5,709	36,520	26542	18710	13	M10 X 25	60	3.4		
PL100X145 AS	3.9370	5.7090	1.299	1.142	1.772	7,376	45,100	26687	18420	11	M12 X 30	105	4.6		
PL110X155 AS	4.3310	6.1020	1.299	1.142	1.772	8,187	45,100	24367	17405	11	M12 X 30	105	5.0		
PL120X165 AS	4.7240	6.4960	1.299	1.142	1.772	9,662	49,280	24367	17840	12	M12 X 30	105	5.3		
PL130X180 AS	5.1180	7.0870	1.496	1.339	1.969	13,129	61,600	24077	17405	15	M12 X 35	105	7.4		
PL140X190 AS	5.5120	7.4800	1.496	1.339	1.969	15,120	65,560	23787	17550	16	M12 X 35	105	7.9		
PL150X200 AS	5.9060	7.8740	1.496	1.339	1.969	18,218	73,920	24947	18710	18	M12 X 35	105	8.4		
PL160X210 AS	6.2990	8.2680	1.496	1.339	1.969	20,430	77,880	24657	18710	19	M12 X 35	105	8.9		
PL170X225 AS	6.6930	8.8580	1.732	1.575	2.283	25,151	90,200	22771	17260	16	M14 X 40	166	12		
PL180X235 AS	7.0870	9.2520	1.732	1.575	2.283	28,322	95,700	22916	17550	17	M14 X 40	166	13		
PL190X250 AS	7.4800	9.8430	2.047	1.890	2.598	35,108	112,640	21321	16245	20	M14 X 45	166	17		
PL200X260 AS	7.8740	10.2360	2.047												

AS Metric Series

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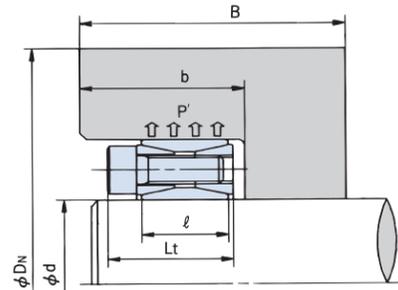


Hub Diameters for Single Unit Installation

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

$$B \geq 2\ell$$

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL030X055AS = 2.723" min. hub diameter



Hub Configuration Coefficient $K_3=0.6$

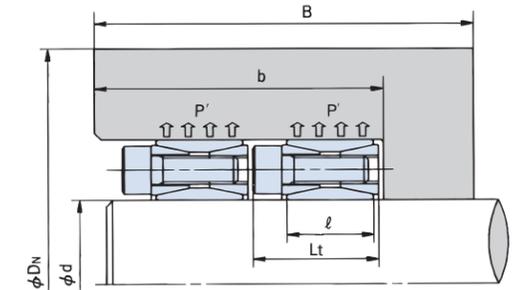
Hub Diameters for Multiple Unit Installation

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

$$B \geq Z \times (2 \times Lt)$$

Z : Number of units ($2 \leq Z \leq 4$)

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL030X055AS = 2.952" min. hub diameter



Hub Configuration Coefficient $K_3=0.8$

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
PL019X047 AS	12,328	2,657	2,494	2,383	2,330	2,286	2,234	2,205	2,149	2,109	2,078
PL020X047 AS	12,328	2,657	2,494	2,383	2,330	2,286	2,234	2,205	2,149	2,109	2,078
PL022X047 AS	12,328	2,657	2,494	2,383	2,330	2,286	2,234	2,205	2,149	2,109	2,078
PL024X050 AS	14,649	3,051	2,819	2,666	2,595	2,534	2,465	2,426	2,353	2,300	2,260
PL025X050 AS	14,649	3,051	2,819	2,666	2,595	2,534	2,465	2,426	2,353	2,300	2,260
PL028X055 AS	13,344	3,214	2,996	2,850	2,782	2,723	2,656	2,618	2,547	2,495	2,456
PL030X055 AS	13,344	3,214	2,996	2,850	2,782	2,723	2,656	2,618	2,547	2,495	2,456
PL032X060 AS	15,374	3,754	3,449	3,250	3,159	3,081	2,992	2,943	2,850	2,782	2,731
PL035X060 AS	15,374	3,754	3,449	3,250	3,159	3,081	2,992	2,943	2,850	2,782	2,731
PL038X065 AS	15,519	4,087	3,751	3,533	3,432	3,347	3,249	3,195	3,093	3,019	2,963
PL040X065 AS	15,519	4,087	3,751	3,533	3,432	3,347	3,249	3,195	3,093	3,019	2,963
PL042X075 AS	17,550	5,073	4,578	4,267	4,126	4,008	3,874	3,800	3,661	3,561	3,486
PL045X075 AS	17,550	5,073	4,578	4,267	4,126	4,008	3,874	3,800	3,661	3,561	3,486
PL048X080 AS	16,390	5,187	4,728	4,433	4,298	4,185	4,055	3,983	3,848	3,751	3,678
PL050X080 AS	16,390	5,187	4,728	4,433	4,298	4,185	4,055	3,983	3,848	3,751	3,678
PL055X085 AS	18,855	6,043	5,388	4,985	4,804	4,654	4,485	4,392	4,218	4,094	4,001
PL060X090 AS	17,840	6,154	5,540	5,155	4,981	4,835	4,670	4,579	4,409	4,287	4,195
PL065X095 AS	18,275	6,604	5,921	5,496	5,305	5,145	4,965	4,866	4,680	4,547	4,447
PL070X110 AS	19,290	7,956	7,062	6,517	6,275	6,072	5,845	5,721	5,489	5,324	5,200
PL075X115 AS	18,420	8,039	7,197	6,676	6,442	6,245	6,024	5,903	5,675	5,513	5,391
PL080X120 AS	17,840	8,205	7,386	6,873	6,641	6,447	6,227	6,106	5,879	5,716	5,594
PL085X125 AS	18,565	8,787	7,856	7,281	7,023	6,807	6,564	6,430	6,180	6,002	5,868
PL090X130 AS	17,840	8,889	8,002	7,446	7,195	6,984	6,746	6,615	6,368	6,192	6,060
PL095X135 AS	18,710	9,543	8,520	7,890	7,608	7,372	7,106	6,960	6,687	6,492	6,346
PL100X145 AS	18,420	10,136	9,075	8,417	8,122	7,875	7,596	7,443	7,156	6,951	6,797
PL110X155 AS	17,405	10,428	9,423	8,790	8,502	8,260	7,987	7,835	7,552	7,348	7,195
PL120X165 AS	17,840	11,282	10,156	9,451	9,132	8,865	8,562	8,396	8,083	7,860	7,692
PL130X180 AS	17,405	12,110	10,943	10,207	9,874	9,593	9,275	9,099	8,770	8,533	8,356
PL140X190 AS	17,550	12,851	11,599	10,810	10,453	10,153	9,813	9,626	9,274	9,022	8,832
PL150X200 AS	18,710	14,138	12,623	11,689	11,271	10,921	10,527	10,311	9,906	9,618	9,402
PL160X210 AS	18,710	14,845	13,254	12,273	11,834	11,467	11,053	10,826	10,402	10,099	9,872
PL170X225 AS	17,260	15,056	13,623	12,717	12,305	11,959	11,566	11,349	10,942	10,650	10,430
PL180X235 AS	17,550	15,895	14,346	13,370	12,929	12,558	12,137	11,905	11,470	11,159	10,924
PL190X250 AS	16,245	16,126	14,715	13,809	13,393	13,042	12,643	12,421	12,003	11,703	11,476
PL200X260 AS	16,390	16,858	15,365	14,408	13,970	13,600	13,179	12,946	12,506	12,190	11,952
PL220X285 AS	16,680	18,672	16,979	15,897	15,404	14,987	14,514	14,252	13,759	13,405	13,138
PL240X305 AS	17,405	20,519	18,543	17,296	16,730	16,254	15,716	15,418	14,860	14,459	14,158
PL260X325 AS	18,710	22,975	20,512	18,995	18,315	17,746	17,106	16,755	16,098	15,629	15,278
PL280X355 AS	16,535	23,137	21,064	19,737	19,131	18,619	18,036	17,714	17,107	16,671	16,342
PL300X375 AS	17,115	24,960	22,613	21,125	20,448	19,878	19,232	18,875	18,203	17,722	17,359

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
PL019X047 AS	12,328	3,053	2,781	2,607	2,528	2,461	2,384	2,342	2,262	2,205	2,162
PL020X047 AS	12,328	3,053	2,781	2,607	2,528	2,461	2,384	2,342	2,262	2,205	2,162
PL022X047 AS	12,328	3,053	2,781	2,607	2,528	2,461	2,384	2,342	2,262	2,205	2,162
PL024X050 AS	14,649	3,652	3,233	2,979	2,867	2,773	2,668	2,610	2,503	2,426	2,369
PL025X050 AS	14,649	3,652	3,233	2,979	2,867	2,773	2,668	2,610	2,503	2,426	2,369
PL028X055 AS	13,344	3,754	3,381	3,147	3,041	2,952	2,852	2,796	2,693	2,618	2,563
PL030X055 AS	13,344	3,754	3,381	3,147	3,041	2,952	2,852	2,796	2,693	2,618	2,563
PL032X060 AS	15,374	4,560	3,995	3,659	3,511	3,389	3,253	3,179	3,041	2,943	2,870
PL035X060 AS	15,374	4,560	3,995	3,659	3,511	3,389	3,253	3,179	3,041	2,943	2,870
PL038X065 AS	15,519	4,981	4,353	3,983	3,820	3,685	3,535	3,454	3,302	3,195	3,115
PL040X065 AS	15,519	4,981	4,353	3,983	3,820	3,685	3,535	3,454	3,302	3,195	3,115
PL042X075 AS	17,550	6,507	5,480	4,917	4,678	4,484	4,271	4,157	3,946	3,800	3,691
PL045X075 AS	17,550	6,507	5,480	4,917	4,678	4,484	4,271	4,157	3,946	3,800	3,691
PL048X080 AS	16,390	6,450	5,556	5,043	4,821	4,639	4,437	4,328	4,126	3,983	3,878
PL050X080 AS	16,390	6,450	5,556	5,043	4,821	4,639	4,437	4,328	4,126	3,983	3,878
PL055X085 AS	18,855	8,085	6,599	5,834	5,518	5,265	4,990	4,843	4,577	4,392	4,256
PL060X090 AS	17,840	7,962	6,663	5,960	5,663	5,423	5,160	5,019	4,760	4,579	4,446
PL065X095 AS	18,275	8,662	7,176	6,387	6,058	5,792	5,502	5,347	5,063	4,866	4,720
PL070X110 AS	19,290	10,819	8,723	7,670	7,239	6,896	6,524	6,327	5,969	5,721	5,539
PL075X115 AS	18,420	10,595	8,746	7,772	7,366	7,039	6,683	6,492	6,144	5,903	5,725
PL080X120 AS	17,840	10,616	8,884	7,946	7,551	7,231	6,880	6,692	6,347	6,106	5,928
PL085X125 AS	18,565	11,637	9,571	8,491	8,042	7,681	7,289	7,079	6,696	6,430	6,234
PL090X130 AS	17,840	11,501	9,624	8,608	8,180	7,833	7,453	7,249	6,875	6,615	6,422
PL095X135 AS	18,710	12,703	10,409	9,218	8,725	8,329	7,898	7,669	7,250	6,960	6,746
PL100X145 AS	18,420	13,358	11,027	9,799	9,287	8,875	8,426	8,186	7,747	7,443	7,218
PL110X155 AS	17,405	13,320	11,252	10,111	9,626	9,232	8,798	8,564	8,135	7,835	7,613
PL120X165 AS	17,840	14,597	12,216	10,926	10,383	9,942	9,460	9,201	8,726	8,396	8,151
PL130X180 AS	17,405	15,469	13,067	11,742	11,179	10,721	10,217	9,946	9,448	9,099	8,841
PL140X190 AS	17,550	16,485	13,883	12,456	11,851	11,360	10,821	10,530	9,998	9,626	9,350
PL150X200 AS	18,710	18,819	15,420	13,656	12,925	12,339	11,701	11,361	10,741	10,311	9,994
PL160X210 AS	18,710	19,760	16,191	14,339	13,572	12,956	12,286	11,929	11,278	10,826	10,494
PL170X225 AS	17,260	19,155	16,229	14,605	13,913	13,349	12,956	12,729			

AS Metric Series

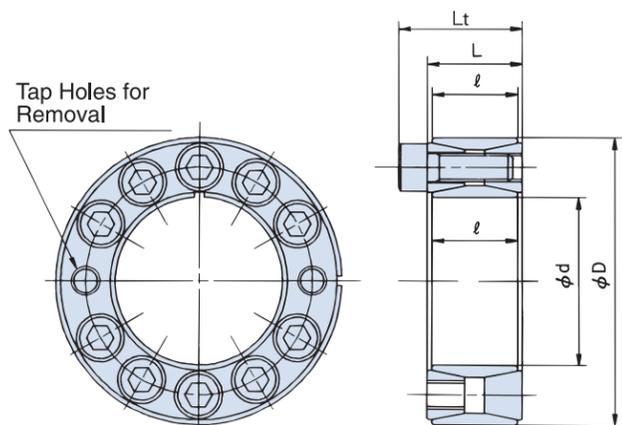
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AS Metric Series

MOST POPULAR STYLE



Stainless Steel



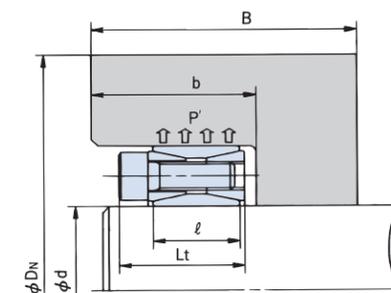
Stainless Steel

Hub Diameters for Single Unit Installation

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

$$B \geq 2l$$

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL030X055AS = 2.648" min. hub diameter



Hub Configuration Coefficient $K_3=0.6$

AS Stainless Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	L	l	Lt			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL019X047 AS-SS	0.7480	-0.0013" +0	1.8500	+0.0015" -0	0.787	0.709	1.024	145	4,840	25382	10443	6	M6 X 18	10	0.4
PL020X047 AS-SS	0.7870		1.8500		0.787	0.709	1.024	159	4,840	24222	10443	6	M6 X 18	10	0.4
PL022X047 AS-SS	0.8660		1.8500		0.787	0.709	1.024	173	4,840	22046	10443	6	M6 X 18	10	0.4
PL024X050 AS-SS	0.9450		1.9690		0.787	0.709	1.024	253	6,380	26977	12909	8	M6 X 18	10	0.5
PL025X050 AS-SS	0.9840	-0.0018" +0	1.9690	+0.0018" -0	0.787	0.709	1.024	260	6,380	25817	12909	8	M6 X 18	10	0.5
PL028X055 AS-SS	1.1020		2.1650		0.787	0.709	1.024	297	6,380	23206	11748	8	M6 X 18	10	0.6
PL030X055 AS-SS	1.1810	-0.0015" +0	2.1650	+0.0018" -0	0.787	0.709	1.024	318	6,380	21611	11748	8	M6 X 18	10	0.5
PL032X060 AS-SS	1.2600		2.3620		0.787	0.709	1.024	419	7,920	25237	13489	10	M6 X 18	10	0.6
PL035X060 AS-SS	1.3780		2.3620		0.787	0.709	1.024	463	7,920	23206	13489	10	M6 X 18	10	0.6
PL038X065 AS-SS	1.4960		2.5590		0.787	0.709	1.024	550	8,800	22771	13779	11	M6 X 18	10	0.7
PL040X065 AS-SS	1.5750	-0.0018" +0	2.5590	+0.0021" -0	0.787	0.709	1.024	586	8,800	21611	13779	11	M6 X 18	10	0.7
PL042X075 AS-SS	1.6540		2.9530		0.945	0.827	1.260	907	13,200	27123	15229	9	M8 X 22	24.5	1.1
PL045X075 AS-SS	1.7720		2.9530		0.945	0.827	1.260	981	13,200	25237	15229	9	M8 X 22	24.5	1.1
PL048X080 AS-SS	1.8900		3.1500		0.945	0.827	1.260	1,040	13,200	23787	14214	9	M8 X 22	24.5	1.2
PL050X080 AS-SS	1.9690	-0.0018" +0	3.1500	+0.0021" -0	0.945	0.827	1.260	1,092	13,200	22771	14214	9	M8 X 22	24.5	1.2
PL055X085 AS-SS	2.1650		3.3460		0.945	0.827	1.260	1,468	16,060	25237	16390	11	M8 X 22	24.5	1.3
PL060X090 AS-SS	2.3620		3.5430		0.945	0.827	1.260	1,601	16,060	23206	15519	11	M8 X 22	24.5	1.4
PL065X095 AS-SS	2.5590		3.7400		0.945	0.827	1.260	1,888	17,600	23351	15954	12	M8 X 22	24.5	1.5
PL070X110 AS-SS	2.7560	-0.0021" +0	4.3310	+0.0025" -0	1.102	0.984	1.496	2,965	26,180	26832	17260	11	M10 X 25	50	2.7
PL075X115 AS-SS	2.9530		4.5280		1.102	0.984	1.496	3,179	26,180	25092	16390	11	M10 X 25	50	2.8
PL080X120 AS-SS	3.1500		4.7240		1.102	0.984	1.496	3,400	26,180	23642	15809	11	M10 X 25	50	2.9
PL085X125 AS-SS	3.3460		4.9210		1.102	0.984	1.496	3,975	28,600	24222	16535	12	M10 X 25	50	3.1
PL090X130 AS-SS	3.5430	-0.0025" +0	5.1180	+0.0028" -0	1.102	0.984	1.496	4,189	28,600	22916	15809	12	M10 X 25	50	3.2
PL095X135 AS-SS	3.7400		5.3150		1.102	0.984	1.496	4,772	31,020	23497	16535	13	M10 X 25	50	3.4
PL100X145 AS-SS	3.9370		5.7090		1.299	1.142	1.772	6,196	38,060	23497	16390	11	M12 X 30	87	4.6
PL110X155 AS-SS	4.3310		6.1020		1.299	1.142	1.772	6,859	38,060	21466	15229	11	M12 X 30	87	5.0
PL120X165 AS-SS	4.7240	-0.0025" +0	6.2990	+0.0028" -0	1.299	1.142	1.772	8,187	41,580	21466	15664	12	M12 X 30	87	5.3
PL130X180 AS-SS	5.1180		7.0870		1.496	1.339	1.969	11,063	51,920	21176	15374	15	M12 X 35	87	7.4
PL140X190 AS-SS	5.5120		7.4800		1.496	1.339	1.969	12,686	55,440	20886	15519	16	M12 X 35	87	7.9
PL150X200 AS-SS	5.9060		7.8740		1.496	1.339	1.969	15,415	62,480	22046	16535	18	M12 X 35	87	8.4

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 AS-SS	10443	2.505	2.377	2.289	2.247	2.211	2.169	2.146	2.100	2.067	2.041
PL020X047 AS-SS	10443	2.505	2.377	2.289	2.247	2.211	2.169	2.146	2.100	2.067	2.041
PL022X047 AS-SS	10443	2.505	2.377	2.289	2.247	2.211	2.169	2.146	2.100	2.067	2.041
PL024X050 AS-SS	12909	2.880	2.693	2.567	2.507	2.457	2.398	2.365	2.303	2.258	2.223
PL025X050 AS-SS	12909	2.880	2.693	2.567	2.507	2.457	2.398	2.365	2.303	2.258	2.223
PL028X055 AS-SS	11748	3.053	2.875	2.754	2.697	2.648	2.591	2.558	2.497	2.453	2.419
PL030X055 AS-SS	11748	3.053	2.875	2.754	2.697	2.648	2.591	2.558	2.497	2.453	2.419
PL032X060 AS-SS	13489	3.523	3.280	3.119	3.043	2.978	2.904	2.863	2.784	2.726	2.683
PL035X060 AS-SS	13489	3.523	3.280	3.119	3.043	2.978	2.904	2.863	2.784	2.726	2.683
PL038X065 AS-SS	13779	3.853	3.581	3.400	3.316	3.243	3.161	3.114	3.026	2.963	2.914
PL040X065 AS-SS	13779	3.853	3.581	3.400	3.316	3.243	3.161	3.114	3.026	2.963	2.914
PL042X075 AS-SS	15229	4.669	4.294	4.050	3.937	3.841	3.732	3.671	3.556	3.472	3.410
PL045X075 AS-SS	15229	4.669	4.294	4.050	3.937	3.841	3.732	3.671	3.556	3.472	3.410
PL048X080 AS-SS	14214	4.811	4.458	4.224	4.116	4.023	3.917	3.857	3.745	3.663	3.602
PL050X080 AS-SS	14214	4.811	4.458	4.224	4.116	4.023	3.917	3.857	3.745	3.663	3.602
PL055X085 AS-SS	16390	5.511	5.023	4.710	4.567	4.446	4.309	4.232	4.089	3.985	3.907
PL060X090 AS-SS	15519	5.659	5.194	4.891	4.752	4.634	4.499	4.424	4.282	4.180	4.103
PL065X095 AS-SS	15954	6.065	5.548	5.213	5.060	4.930	4.782	4.700	4.545	4.433	4.349
PL070X110 AS-SS	17260	7.361	6.660	6.217	6.016	5.847	5.655	5.549	5.349	5.207	5.099
PL075X115 AS-SS	16390	7.456	6.796	6.373	6.179	6.015	5.829	5.726	5.532	5.392	5.286
PL080X120 AS-SS	15809	7.622	6.980	6.564	6.373	6.211	6.026	5.924	5.730	5.591	5.486
PL085X125 AS-SS	16535	8.147	7.417	6.950	6.736	6.556	6.351	6.237	6.024	5.870	5.754
PL090X130 AS-SS	15809	8.257	7.561	7.111	6.904	6.728	6.528	6.417	6.208	6.057	5.943
PL095X135 AS-SS	16535	8.799	8.010	7.506	7.275	7.080	6.859	6.736	6.506	6.340	6.215
PL100X145 AS-SS	16390	9.401	8.569	8.035	7.791	7.585	7.350	7.220	6.975	6.798	6.666
PL110X155 AS-SS	15229	9.649	8.875	8.370	8.136	7.938	7.712	7.586	7.348	7.176	7.046
PL120X165 AS-SS	15664	10.113	9.271	8.725	8.473	8.260	8.017	7.882	7.628	7.444	7.305
PL130X180 AS-SS	15374	11.261	10.347	9.751	9.476	9.243	8.977	8.829	8.549	8.347	8.194
PL140X190 AS-SS	15519	11.947	10.964	10.326	10.032	9.782	9.497	9.339	9.040	8.825	8.662
PL150X200 AS-SS	16535	13.035	11.867	11.119	10.778	10.489	10.161	9.980	9.638	9.392	9.207

AD Inch Series

DOUBLE TORQUE SERIES

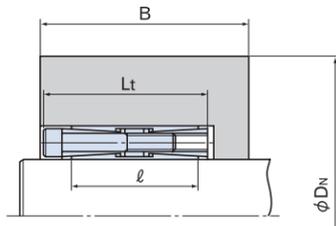
AD Metric Series

DOUBLE TORQUE SERIES



Installing to hubs with a guide portion

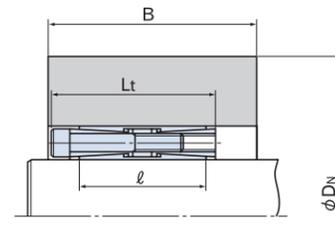
when $L_t < B < 2\ell$
(See Installation Example B)



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

Installing to hubs without a guide portion

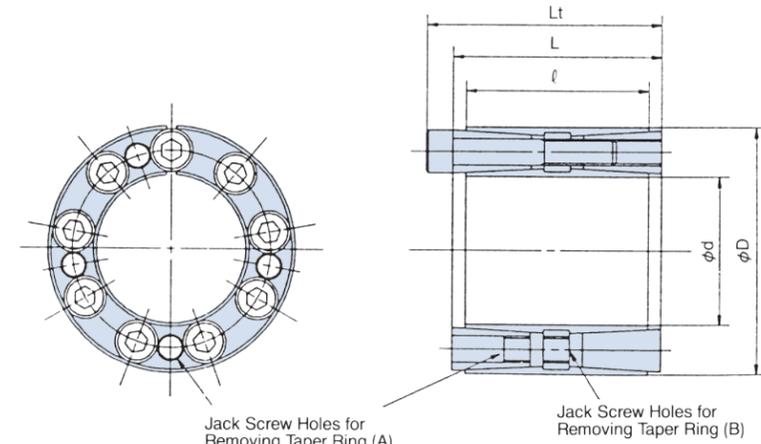
(See Installation Example C)



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

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



Jack Screw Holes for Removing Taper Ring (A)

Jack Screw Holes for Removing Taper Ring (B)

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
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	4.679	4.447	4.285	4.165	4.165
PL2-1/8	AD 13779	7.219	6.121	5.511	5.250	5.038	4.679	4.447	4.285	4.165	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	8.089	7.683	7.305	6.898	6.682	6.293	6.024	5.827
PL2-15/16	AD 15809	11.751	9.338	8.089	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	11.604	10.831	10.308	9.929	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	19.970	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

AD Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			
	d	Tolerance t_1	D	Tolerance t_2	L	ℓ	L_t			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	Wt. lbs.
PL019X047	AD 0.7480		1.8504		1.181	1.378	1.614	282	9,127	34375	13924	6	M6 X 28	12.5	0.8
PL020X047	AD 0.7874		1.8504		1.181	1.378	1.614	297	9,127	32634	13924	6	M6 X 28	12.5	0.8
PL022X047	AD 0.8661		1.8504		1.181	1.378	1.614	325	9,127	29588	13924	6	M6 X 28	12.5	0.7
PL024X050	AD 0.9449		1.9685		1.378	1.575	1.811	477	12,184	31039	14939	8	M6 X 30	12.5	0.9
PL025X050	AD 0.9843		1.9685		1.378	1.575	1.811	499	12,184	29733	14939	8	M6 X 30	12.5	0.9
PL028X055	AD 1.1024		2.1654		1.378	1.575	1.811	557	12,184	26542	13489	8	M6 X 30	12.5	1.1
PL030X055	AD 1.1811		2.1654		1.378	1.575	1.811	578	12,184	24802	13489	8	M6 X 30	12.5	1.0
PL032X060	AD 1.2598		2.3622		1.772	1.969	2.205	937	18,209	27413	14649	10	M6 X 35	12.5	1.6
PL035X060	AD 1.3780		2.3622		1.772	1.969	2.205	1,011	18,209	24947	14649	10	M6 X 35	12.5	1.5
PL038X065	AD 1.4961		2.5591		2.047	2.244	2.480	1,232	20,007	21901	12764	11	M6 X 40	12.5	1.9
PL040X065	AD 1.5748		2.5591		2.047	2.244	2.480	1,298	20,007	20886	12764	11	M6 X 40	12.5	1.8
PL042X075	AD 1.6535		2.9528		2.205	2.520	2.835	2,604	38,216	27848	15664	9	M8 X 50	30	3.0
PL045X075	AD 1.7717		2.9528		2.205	2.520	2.835	2,818	38,216	25962	15664	9	M8 X 50	30	2.8
PL048X080	AD 1.8898		3.1496		2.205	2.520	2.835	3,002	38,216	24367	14649	9	M8 X 50	30	3.1
PL050X080	AD 1.9685		3.1496		2.205	2.520	2.835	3,105	38,216	23497	14649	9	M8 X 50	30	3.0
PL055X085	AD 2.1654		3.3465		2.205	2.520	2.835	3,400	38,216	21321	13779	9	M8 X 50	30	3.3
PL060X090	AD 2.3622		3.5433		2.205	2.520	2.835	4,551	46,758	23932	15954	11	M8 X 50	30	3.5
PL065X095	AD 2.5591		3.7402		2.205	2.520	2.835	4,986	46,758	18855	12909	11	M8 X 50		

AD Metric Series

DOUBLE TORQUE SERIES

AE Inch and Metric Series

SELF CENTERING SERIES



Installing to hubs with a guide portion

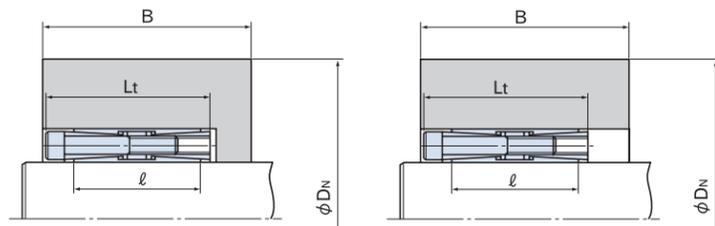
when $L_t < B < 2\ell$
(See Installation Example B)

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
PL030X055AD = 3.229" 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 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 AD	13924	4.039	3.412	3.066	2.919	2.799	2.668	2.597	2.467	2.376	2.309
PL020X047 AD	13924	4.039	3.412	3.066	2.919	2.799	2.668	2.597	2.467	2.376	2.309
PL022X047 AD	13924	4.039	3.412	3.066	2.919	2.799	2.668	2.597	2.467	2.376	2.309
PL024X050 AD	14939	4.692	3.848	3.410	3.228	3.082	2.923	2.838	2.683	2.576	2.497
PL025X050 AD	14939	4.692	3.848	3.410	3.228	3.082	2.923	2.838	2.683	2.576	2.497
PL028X055 AD	13489	4.565	3.898	3.522	3.361	3.229	3.083	3.005	2.860	2.758	2.682
PL030X055 AD	13489	4.565	3.898	3.522	3.361	3.229	3.083	3.005	2.860	2.758	2.682
PL032X060 AD	14649	5.485	4.540	4.039	3.830	3.662	3.478	3.379	3.200	3.075	2.982
PL035X060 AD	14649	5.485	4.540	4.039	3.830	3.662	3.478	3.379	3.200	3.075	2.982
PL038X065 AD	12764	5.107	4.432	4.039	3.868	3.727	3.570	3.485	3.327	3.216	3.133
PL040X065 AD	12764	5.107	4.432	4.039	3.868	3.727	3.570	3.485	3.327	3.216	3.133
PL042X075 AD	15664	7.550	6.034	5.285	4.981	4.740	4.479	4.341	4.091	3.918	3.791
PL045X075 AD	15664	7.550	6.034	5.285	4.981	4.740	4.479	4.341	4.091	3.918	3.791
PL048X080 AD	14649	7.313	6.053	5.386	5.107	4.882	4.637	4.506	4.266	4.010	3.977
PL050X080 AD	14649	7.313	6.053	5.386	5.107	4.882	4.637	4.506	4.266	4.010	3.977
PL055X085 AD	13779	7.219	6.121	5.511	5.250	5.038	4.805	4.679	4.447	4.285	4.165
PL060X090 AD	15954	9.338	7.376	6.429	6.048	5.746	5.422	5.250	4.941	4.728	4.572
PL065X095 AD	12909	7.545	6.528	5.939	5.683	5.473	5.239	5.112	4.878	4.712	4.589
PL070X110 AD	16535	12.179	9.366	8.077	7.568	7.169	6.744	6.520	6.118	5.843	5.642
PL075X115 AD	15809	11.751	9.338	8.159	7.683	7.305	6.898	6.682	6.293	6.024	5.827
PL080X120 AD	16535	13.287	10.218	8.811	8.256	7.821	7.357	7.113	6.674	6.374	6.155
PL085X125 AD	15809	12.773	10.150	8.868	8.351	7.940	7.498	7.263	6.840	6.548	6.334
PL090X130 AD	16535	14.394	11.069	9.545	8.944	8.473	7.970	7.706	7.230	6.905	6.668
PL095X135 AD	15954	14.008	11.064	9.643	9.071	8.619	8.133	7.876	7.411	7.091	6.857
PL100X145 AD	15664	14.597	11.666	10.218	9.631	9.163	8.660	8.392	7.908	7.575	7.330
PL110X155 AD	15954	16.083	12.703	11.071	10.415	9.896	9.338	9.042	8.509	8.142	7.873
PL120X165 AD	17260	20.022	14.778	12.555	11.702	11.041	10.344	9.979	9.329	8.887	8.567
PL130X180 AD	16099	18.971	14.891	12.945	12.166	11.551	10.891	10.542	9.913	9.481	9.165
PL140X190 AD	17550	24.016	17.383	14.672	13.644	12.851	12.019	11.586	10.814	10.292	9.913
PL150X200 AD	17840	26.410	18.702	15.677	14.544	13.675	12.767	12.296	11.460	10.895	10.486
PL160X210 AD	17840	27.731	19.637	16.461	15.271	14.359	13.406	12.911	12.033	11.440	11.011
PL170X225 AD	15954	23.346	18.440	16.072	15.119	14.365	13.555	13.126	12.352	11.819	11.429
PL180X235 AD	16390	25.585	19.816	17.135	16.073	15.237	14.344	13.874	13.027	12.447	12.024
PL190X250 AD	16390	27.218	21.081	18.229	17.098	16.209	15.260	14.759	13.859	13.242	12.792
PL200X260 AD	15664	26.174	20.919	18.323	17.269	16.431	15.528	15.049	14.181	13.582	13.143
PL220X285 AD	17115	33.918	25.262	21.530	20.089	18.970	17.787	17.167	16.061	15.308	14.761
PL240X305 AD	17405	37.761	27.607	23.379	21.766	20.519	19.207	18.522	17.302	16.475	15.874
PL260X325 AD	13199	26.378	22.678	20.563	19.649	18.900	18.071	17.621	16.792	16.208	15.775
PL280X355 AD	17115	42.249	31.467	26.818	25.024	23.629	22.155	21.384	20.006	19.068	18.387
PL300X375 AD	17840	49.519	35.067	29.394	27.270	25.641	23.939	23.055	21.487	20.428	19.662



Features & Applications

- **Self-Centering Function**
Straight and narrow hubs can be used with AE Series POWER-LOCK®.
- **Interchangeable POWER-LOCK AS Metric Series to AE Metric Series**
Same size inside diameter and outside diameter as AS Series POWER-LOCK in most cases.
- **Easy and Precise Positioning**
- **Simple Construction**



Locking Bolts

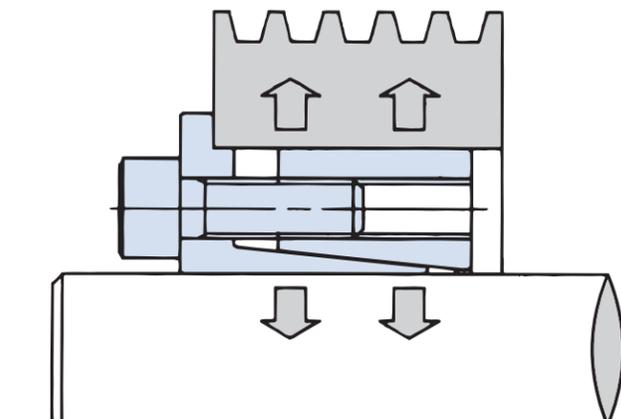
Inner Ring

Outer Ring

Model Number

Inch Series: PL 2 AE
AE Series
Shaft Dia. (inch)
 POWER-LOCK®

Metric Series: PL 019 X 047 AE
Series
Outer Dia. (mm)
Shaft Dia. (mm)
 POWER-LOCK®

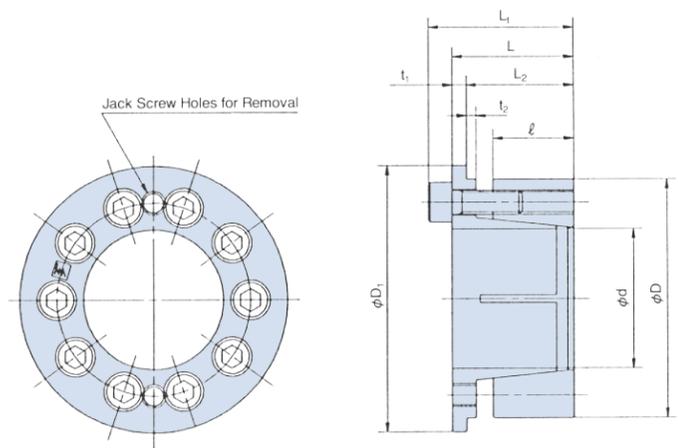


AE Inch Series

SELF CENTERING SERIES

AE Inch Series

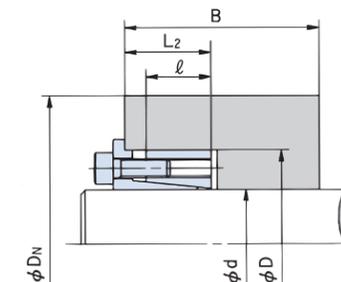
SELF CENTERING SERIES



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

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
 PL2AE = 5.061" min. hub diameter



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

AE 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_2	L	L_t	t_1	t_2	D_N	ft.lbs.	lbs.	Shaft P	Hub Bore P'	Qty.	Size		Tightening Torque ft.lbs.
PL3/4	AE	0.7500	1.8504	+0.0013"	0.748	0.976	1.075	1.311	0.098	0.118	2.087	195	6,270	41363	13503	6	M6 X 18	12.5	0.6
PL7/8	AE	0.8750	1.8504	+0.0013"	0.748	0.976	1.075	1.311	0.098	0.118	2.087	224	6,270	35535	13503	6	M6 X 18	12.5	0.6
PL1	AE	1.0000	1.9685	+0	0.748	0.996	1.094	1.331	0.098	0.118	2.244	303	7,326	37525	14783	7	M6 X 18	12.5	0.6
PL1-1/8	AE	1.1250	2.1654	+0.0015"	0.748	0.996	1.126	1.362	0.130	0.118	2.441	390	8,360	38093	15351	8	M6 X 18	12.5	0.8
PL1-3/16	AE	1.1875	2.1654	+0.0015"	0.748	0.996	1.126	1.362	0.130	0.118	2.441	412	8,360	36103	15351	8	M6 X 18	12.5	0.7
PL1-1/4	AE	1.2500	2.3622	+0	0.807	1.075	1.217	1.453	0.142	0.118	2.638	542	10,450	38804	16346	10	M6 X 18	12.5	0.9
PL1-3/8	AE	1.3750	2.3622	+0	0.807	1.075	1.217	1.453	0.142	0.118	2.638	600	10,450	35251	16346	10	M6 X 18	12.5	0.9
PL1-7/16	AE	1.4370	2.5591	+0.0018"	0.807	1.083	1.224	1.461	0.142	0.118	2.874	621	10,450	34256	15067	10	M6 X 18	12.5	1.1
PL1-1/2	AE	1.5000	2.5591	+0.0018"	0.807	1.083	1.224	1.461	0.142	0.118	2.874	651	10,450	32834	15067	10	M6 X 18	12.5	1.1
PL1-5/8	AE	1.6250	2.9528	+0	0.925	1.213	1.370	1.685	0.157	0.118	3.268	1,178	17,402	41931	18905	9	M8 X 22	30	1.7
PL1-11/16	AE	1.6875	2.9528	+0	0.925	1.213	1.370	1.685	0.157	0.118	3.268	1,221	17,402	40368	18905	9	M8 X 22	30	1.7
PL1-3/4	AE	1.7500	2.9528	+0	0.925	1.213	1.370	1.685	0.157	0.118	3.268	1,265	17,402	38946	18905	9	M8 X 22	30	1.5
PL1-7/8	AE	1.8750	3.1496	+0.0018"	0.925	1.220	1.378	1.693	0.157	0.118	3.465	1,511	19,338	40794	19615	10	M8 X 22	30	1.8
PL1-15/16	AE	1.9375	3.1496	+0.0018"	0.925	1.220	1.378	1.693	0.157	0.118	3.465	1,561	19,338	39515	19615	10	M8 X 22	30	1.8
PL2	AE	2.0000	3.1496	+0.0021"	0.925	1.220	1.378	1.693	0.157	0.118	3.465	1,612	19,338	38235	19615	10	M8 X 22	30	1.7
PL1-1/8	AE	2.1250	3.3465	+0.0021"	0.925	1.213	1.370	1.685	0.157	0.118	3.701	1,713	19,338	35677	18478	10	M8 X 22	30	1.8
PL1-3/16	AE	2.1875	3.3465	+0.0021"	0.925	1.213	1.370	1.685	0.157	0.118	3.701	1,764	19,338	34540	18478	10	M8 X 22	30	2.0
PL2-1/4	AE	2.2500	3.5433	+0	0.925	1.213	1.370	1.685	0.157	0.118	3.898	1,814	19,140	33687	17483	10	M8 X 22	30	2.0
PL2-3/8	AE	2.3750	3.5433	+0	0.925	1.213	1.370	1.685	0.157	0.118	3.898	1,915	19,140	31839	17483	10	M8 X 22	30	2.0
PL2-7/16	AE	2.4375	3.7402	+0.0018"	0.925	1.213	1.370	1.685	0.157	0.118	4.094	2,356	23,100	37241	19900	12	M8 X 22	30	2.1
PL2-1/2	AE	2.5000	3.7402	+0.0018"	0.925	1.213	1.370	1.685	0.157	0.118	4.094	2,421	23,100	36388	19900	12	M8 X 22	30	2.1
PL2-9/16	AE	2.5625	3.7402	+0	0.925	1.213	1.370	1.685	0.157	0.118	4.094	2,479	23,100	35393	19900	12	M8 X 22	30	2.1
PL2-11/16	AE	2.6250	4.3307	+0.0021"	1.102	1.437	1.614	2.008	0.177	0.157	4.724	3,440	30,580	36530	19047	10	M10 X 25	60	3.7
PL2-3/4	AE	2.6875	4.3307	+0.0021"	1.102	1.437	1.614	2.008	0.177	0.157	4.724	3,520	30,580	35677	19047	10	M10 X 25	60	3.7
PL2-7/8	AE	2.7500	4.5276	+0	1.102	1.437	1.614	2.008	0.177	0.157	4.921	3,679	30,580	34113	18194	10	M10 X 25	60	3.8
PL2-15/16	AE	2.8750	4.5276	+0	1.102	1.437	1.614	2.008	0.177	0.157	4.921	3,759	30,580	33403	18194	10	M10 X 25	60	3.9
PL3	AE	2.9375	4.7244	+0.0021"	1.102	1.437	1.614	2.008	0.177	0.157	5.118	4,611	36,740	39230	20895	12	M10 X 25	60	4.1
PL3-1/4	AE	3.0000	4.9213	+0.0025"	1.102	1.437	1.614	2.008	0.177	0.157	5.315	4,994	36,740	36280	20184	12	M10 X 25	60	4.4
PL3-3/8	AE	3.3750	4.9213	+0.0025"	1.102	1.437	1.614	2.008	0.177	0.157	5.315	5,190	36,740	34966	20184	12	M10 X 25	60	4.4
PL3-7/16	AE	3.4375	5.1181	+0	1.102	1.476	1.693	2.087	0.217	0.157	5.512	5,283	36,740	35819	19331	12	M10 X 25	60	4.7
PL3-1/2	AE	3.5000	5.1181	+0	1.102	1.476	1.693	2.087	0.217	0.157	5.512	5,378	36,740	35108	19331	12	M10 X 25	60	4.7
PL3-3/4	AE	3.7500	5.3150	+0	1.102	1.476	1.693	2.087	0.217	0.157	5.709	6,729	42,900	38235	21747	14	M10 X 25	60	4.8
PL3-15/16	AE	3.9375	5.7087	+0	1.339	1.732	1.969	2.362	0.236	0.157	6.102	7,567	45,980	31413	17910	15	M10 X 25	60	6.7
PL4	AE	4.0000	5.7087	+0	1.339	1.732	1.969	2.362	0.236	0.157	6.102	7,691	45,980	30986	17910	15	M10 X 25	60	6.7

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples										
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi	
PL3/4	AE	13503	3.234	2.907	2.702	2.610	2.533	2.445	2.397	2.307	2.243	2.194
PL7/8	AE	13503	3.234	2.907	2.702	2.610	2.533	2.445	2.397	2.307	2.243	2.194
PL1	AE	14783	3.678	3.250	2.992	2.877	2.782	2.675	2.617	2.508	2.431	2.373
PL1-1/8	AE	15351	4.175	3.658	3.352	3.217	3.105	2.980	2.912	2.786	2.697	2.630
PL1-3/16	AE	15351	4.175	3.658	3.352	3.217	3.105	2.980	2.912	2.786	2.697	2.630
PL1-1/4	AE	16346	4.825	4.160	3.777	3.611	3.475	3.325	3.243	3.092	2.986	2.907
PL1-3/8	AE	16346	4.825	4.160	3.777	3.611	3.475	3.325	3.243	3.092	2.986	2.907
PL1-7/16	AE	15067	4.856	4.274	3.925	3.771	3.643	3.500	3.422	3.277	3.174	3.097
PL1-1/2	AE	15067	4.856	4.274	3.925	3.771	3.643	3.500	3.422	3.277	3.174	3.097
PL1-5/8	AE	18905	7.160	5.837	5.157	4.876	4.652	4.408	4.278	4.042	3.878	3.757
PL1-11/16	AE	18905	7.160	5.837	5.157	4.876	4.652	4.408	4.278	4.042	3.878	3.757
PL1-3/4	AE	18905	7.160	5.837	5.157	4.876	4.652	4.408	4.278	4.042	3.878	3.757
PL1-7/8	AE	19615	8.077	6.448	5.645	5.319	5.061	4.782	4.634	4.366	4.181	4.046
PL1-15/16	AE	19615	8.077	6.448	5.645	5.319	5.061	4.782	4.634	4.366	4.181	4.046
PL2	AE	19615	8.077	6.448	5.645	5.319	5.061	4.782	4.634	4.366	4.181	4.046
PL1-1/8	AE	18478	7.864	6.482	5.756	5.454	5.211	4.946	4.804	4.546	4.367	4.234
PL1-3/16	AE	18478	7.864	6.482	5.756	5.454	5.211	4.946	4.804	4.546	4.367	4.234
PL2-1/4	AE	17483	7.774	6.556	5.887	5.603	5.372	5.118	4.981	4.730	4.555	4.425
PL2-3/8	AE	17483	7.774	6.556	5.887	5.603	5.372	5.118	4.981	4.730	4.555	4.425
PL2-7/16	AE	19900	9.821	7.768	6.775	6.375	6.058	5.717	5.537	5.211	4.987	4.823
PL2-1/2	AE	19900	9.821	7.768	6.775	6.375	6.058	5.717	5.537	5.211	4.987	4.823
PL2-9/16	AE	19900	9.821	7.768	6.775	6.375	6.058	5.717	5.537	5.211	4.987	4.823
PL2-11/16	AE	19047	10.616	8.620	7.602	7.184	6.849	6.487	6.294	5.943	5.700	5.521
PL2-3/4	AE	19047	10.616	8.620	7.602	7.184	6.849	6.487	6.294	5.943</		

AE Inch Series

SELF CENTERING SERIES

AE Metric Series

SELF CENTERING SERIES



Installing to hubs with a guide portion

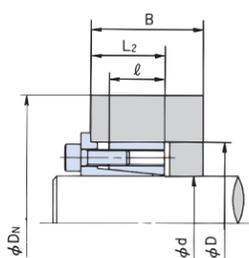
when $L_2 < B < 2l$
(See Installation Example B)

Installing to hubs without a guide portion

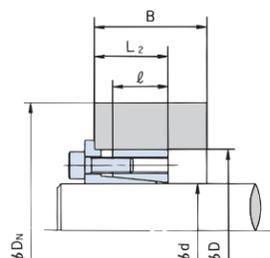
(See Installation Example C)

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

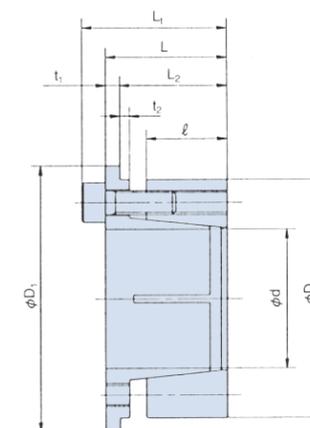
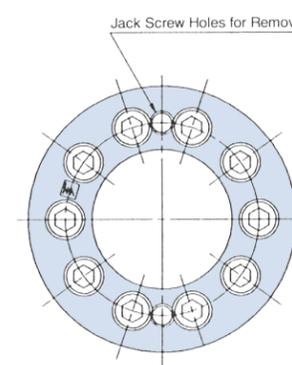
<EXAMPLE> Hub Material Yield Point = 35500 psi
PL2AE = 5.862" min. hub diameter



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	AE	13503	3.905	3.334	3.012	2.874	2.761	2.636	2.569	2.444	2.357	2.293
PL7/8	AE	13503	3.905	3.334	3.012	2.874	2.761	2.636	2.569	2.444	2.357	2.293
PL1	AE	14783	4.626	3.813	3.386	3.208	3.065	2.910	2.826	2.674	2.569	2.491
PL1-1/8	AE	15351	5.367	4.340	3.821	3.608	3.438	3.254	3.157	2.979	2.856	2.766
PL1-3/16	AE	15351	5.367	4.340	3.821	3.608	3.438	3.254	3.157	2.979	2.856	2.766
PL1-1/4	AE	16346	6.500	5.045	4.366	4.096	3.884	3.658	3.538	3.323	3.175	3.068
PL1-3/8	AE	16346	6.500	5.045	4.366	4.096	3.884	3.658	3.538	3.323	3.175	3.068
PL1-7/16	AE	15067	6.173	5.041	4.458	4.217	4.024	3.814	3.702	3.498	3.357	3.253
PL1-1/2	AE	15067	6.173	5.041	4.458	4.217	4.024	3.814	3.702	3.498	3.357	3.253
PL1-5/8	AE	18905	12.047	7.648	6.226	5.721	5.342	4.954	4.755	4.405	4.172	4.004
PL1-11/16	AE	18905	12.047	7.648	6.226	5.721	5.342	4.954	4.755	4.405	4.172	4.004
PL1-3/4	AE	18905	12.047	7.648	6.226	5.721	5.342	4.954	4.755	4.405	4.172	4.004
PL1-7/8	AE	19615	15.430	8.703	6.917	6.310	5.862	5.409	5.179	4.779	4.513	4.324
PL1-15/16	AE	19615	15.430	8.703	6.917	6.310	5.862	5.409	5.179	4.779	4.513	4.324
PL2	AE	19615	15.430	8.703	6.917	6.310	5.862	5.409	5.179	4.779	4.513	4.324
PL2-1/8	AE	18478	12.521	8.361	6.892	6.359	5.955	5.537	5.322	4.943	4.689	4.505
PL2-3/16	AE	18478	12.521	8.361	6.892	6.359	5.955	5.537	5.322	4.943	4.689	4.505
PL2-1/4	AE	17483	11.267	8.193	6.926	6.444	6.072	5.681	5.478	5.115	4.869	4.690
PL2-3/8	AE	17483	11.267	8.193	6.926	6.444	6.072	5.681	5.478	5.115	4.869	4.690
PL2-7/16	AE	19900	20.141	10.626	8.354	7.597	7.042	6.484	6.202	5.713	5.390	5.160
PL2-1/2	AE	19900	20.141	10.626	8.354	7.597	7.042	6.484	6.202	5.713	5.390	5.160
PL2-9/16	AE	19900	20.141	10.626	8.354	7.597	7.042	6.484	6.202	5.713	5.390	5.160
PL2-5/8	AE	19047	18.246	11.358	9.204	8.446	7.879	7.299	7.002	6.483	6.136	5.887
PL2-11/16	AE	19047	18.246	11.358	9.204	8.446	7.879	7.299	7.002	6.483	6.136	5.887
PL2-3/4	AE	18194	16.094	11.055	9.183	8.494	7.969	7.424	7.142	6.644	6.308	6.066
PL2-7/8	AE	18194	16.094	11.055	9.183	8.494	7.969	7.424	7.142	6.644	6.308	6.066
PL2-15/16	AE	20895	47.007	14.955	11.231	10.088	9.275	8.474	8.075	7.392	6.947	6.632
PL3	AE	20184	29.732	14.394	11.183	10.136	9.376	8.614	8.231	7.569	7.133	6.823
PL3-3/8	AE	20184	29.732	14.394	11.183	10.136	9.376	8.614	8.231	7.569	7.133	6.823
PL3-7/16	AE	19331	23.133	13.771	11.055	10.116	9.418	8.707	8.345	7.713	7.293	6.992
PL3-1/2	AE	19331	23.133	13.771	11.055	10.116	9.418	8.707	8.345	7.713	7.293	6.992
PL3-3/4	AE	21747	na	18.797	13.393	11.879	10.833	9.825	9.330	8.493	7.953	7.573
PL3-15/16	AE	17910	na	13.632	11.407	10.577	9.941	9.277	8.932	8.322	7.910	7.612
PL4	AE	17910	na	13.632	11.407	10.577	9.941	9.277	8.932	8.322	7.910	7.612

AE Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D. d	Hub Counter I.D. D	Dimensions inch									Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
			Tolerance t1	Tolerance t2	f	L2	L	Lt	t1	t2	D1			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL019X047	AE	0.7480	1.8504	0.748	0.976	1.075	1.311	0.098	0.118	2.087	196	6,314	41627	13489	6	M6 X 18	12.5	0.62	
PL020X047	AE	0.7874	1.8504	0.748	0.976	1.075	1.311	0.098	0.118	2.087	202	6,314	39451	13489	6	M6 X 18	12.5	0.59	
PL022X047	AE	0.8661	1.8504	0.748	0.976	1.075	1.311	0.098	0.118	2.087	224	6,314	35970	13489	6	M6 X 18	12.5	0.57	
PL024X050	AE	0.9449	1.9685	0.748	0.996	1.094	1.331	0.098	0.118	2.244	289	7,370	39741	14794	7	M6 X 18	12.5	0.06	
PL025X050	AE	0.9843	1.9685	0.748	0.996	1.094	1.331	0.098	0.118	2.244	304	7,370	40901	14794	7	M6 X 18	12.5	0.64	
PL028X055	AE	1.1024	2.1654	0.748	0.996	1.126	1.362	0.130	0.118	2.441	383	8,426	39016	15374	8	M6 X 18	12.5	0.77	
PL030X055	AE	1.1811	2.1654	0.748	0.996	1.126	1.362	0.130	0.118	2.441	412	8,426	36405	15374	8	M6 X 18	12.5	0.75	
PL032X060	AE	1.2598	2.3622	0.807	1.075	1.217	1.453	0.142	0.118	2.638	550	10,538	38726	16390	10	M6 X 18	12.5	0.97	
PL035X060	AE	1.3780	2.3622	0.807	1.075	1.217	1.453	0.142	0.118	2.638	607	10,538	35390	16390	10	M6 X 18	12.5	0.90	
PL038X065	AE	1.4961	2.5591	0.807	1.083	1.224	1.461	0.142	0.118	2.874	658	10,538	33069	15084	10	M6 X 18	12.5	1.06	
PL040X065	AE	1.5748	2.5591	0.807	1.083	1.224	1.461	0.142	0.118	2.874	687	10,538	31474	15084	10	M6 X 18	12.5	0.99	
PL042X075	AE	1.6535	2.9528	0.925	1.213	1.370	1.685	0.157	0.118	3.268	1,210	17,534	41336	18855	9	M8 X 22	30	1.67	
PL045X075	AE	1.7717	2.9528	0.925	1.213	1.370	1.685	0.157	0.118	3.268	1,291	17,534	38581	18855	9	M8 X 22	30	1.6	
PL048X080	AE	1.8898	3.1496	0.925	1.220	1.378	1.693	0.157	0.118	3.465	1,519	19,492	40611	19725	10	M8 X 22	30	1.8	
PL050X080	AE	1.9685	3.1496	0.925	1.220	1.378	1.693	0.157	0.118	3.465	1,593	19,492	39161	19725	10	M8 X 22	30	1.7	
PL055X085	AE	2.1654	3.3465	0.925	1.213	1.370	1.685	0.157	0.118	3.701	1,733	19,492	35100	18565	10	M8 X 22	30	1.8	
PL060X090	AE	2.3622	3.5433	0.925	1.213	1.370	1.685	0.157	0.118	3.898	1,881	19,492	31764	17695	10	M8 X 22	30	2.0	
PL065X095	AE	2.5591	3.7402	0.925	1.213	1.370	1.685	0.157	0.118	4.094	2,456	23,320	35680	19871	12	M8 X 22	30	2.1	
PL070X110	AE	2.7559	4.3307	1.102	1.437	1.614	2.008	0.177	0.157	4.724	3,540	30,800	35825	19145	10	M10 X 25	60	3.7	
PL075X115	AE	2.9528	4.5276	1.102	1.437	1.614	2.008	0.177	0.157	4.921	3,762	30,800	33359	18275	10	M10 X 25	60	3.9	
PL080X120	AE	3.1496	4.7244	1.102	1.437	1.614	2.008	0.177	0.157	5.118	4,846	36,960	37710	21031	12	M10 X 25	60	4.2	
PL085X125	AE	3.3465	4.9213	1.102	1.437	1.614	2.008	0.177	0.157	5.315	5,133	36,960	35390	20161	12	M10 X 25	60	4.4	
PL090X130	AE	3.5433	5.1181	1.102	1.476	1.693	2.087	0.217	0.157	5.512	5,495	36,960	34955	19435	12	M10 X 25	60	4.7	
PL095X135	AE	3.7402	5.3150	1.102	1.476	1.693	2.087	0.217	0.157	5.709	6,719	43,340	38726	21901	14	M10 X 25	60	4.9	
PL100X145	AE	3.9370	5.7087	1.339	1.732	1.969	2.362	0.236	0.157	6.102	7,597	46,420	31619	17840	15	M10 X 25	60	6.8	
PL110X155	AE	4.3307	6.1024	1.339	1.732	1.969	2.362	0.236	0.157	6.575									

AE Metric Series

SELF CENTERING SERIES

AE Metric Series

SELF CENTERING SERIES

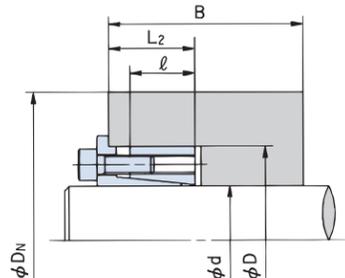


Installing to hubs with a guide portion

when $B \geq 2\ell$
(See Installation Example A)

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
PL030X055AE = 3.107" min. hub diameter



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

Installing to hubs with a guide portion

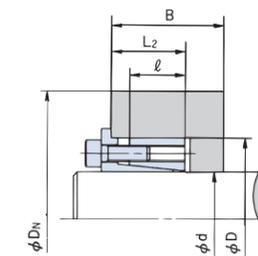
when $L_2 < B < 2\ell$
(See Installation Example B)

Installing to hubs without a guide portion

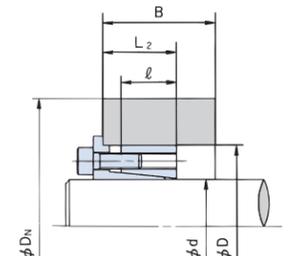
(See Installation Example C)

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
PL030X055AE = 3.441" 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 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 AE	13490	3.231	2.905	2.701	2.609	2.532	2.445	2.397	2.307	2.242	2.194
PL020X047 AE	13490	3.231	2.905	2.701	2.609	2.532	2.445	2.397	2.307	2.242	2.194
PL022X047 AE	13490	3.231	2.905	2.701	2.609	2.532	2.445	2.397	2.307	2.242	2.194
PL024X050 AE	14800	3.680	3.252	2.993	2.878	2.783	2.676	2.618	2.509	2.432	2.374
PL025X050 AE	14800	3.680	3.252	2.993	2.878	2.783	2.676	2.618	2.509	2.432	2.374
PL028X055 AE	15380	4.180	3.662	3.354	3.219	3.107	2.982	2.914	2.787	2.698	2.631
PL030X055 AE	15380	4.180	3.662	3.354	3.219	3.107	2.982	2.914	2.787	2.698	2.631
PL032X060 AE	16400	4.838	4.167	3.782	3.616	3.479	3.328	3.246	3.094	2.987	2.908
PL035X060 AE	16400	4.838	4.167	3.782	3.616	3.479	3.328	3.246	3.094	2.987	2.908
PL038X065 AE	15090	4.861	4.277	3.927	3.773	3.645	3.501	3.423	3.278	3.175	3.097
PL040X065 AE	15090	4.861	4.277	3.927	3.773	3.645	3.501	3.423	3.278	3.175	3.097
PL042X075 AE	18860	7.134	5.823	5.148	4.869	4.645	4.403	4.274	4.038	3.875	3.755
PL045X075 AE	18860	7.134	5.823	5.148	4.869	4.645	4.403	4.274	4.038	3.875	3.755
PL048X080 AE	19730	8.150	6.484	5.668	5.338	5.076	4.794	4.645	4.375	4.188	4.052
PL050X080 AE	19730	8.150	6.484	5.668	5.338	5.076	4.794	4.645	4.375	4.188	4.052
PL055X085 AE	18570	7.913	6.509	5.774	5.469	5.223	4.956	4.813	4.553	4.372	4.239
PL060X090 AE	17700	7.884	6.619	5.930	5.638	5.402	5.143	5.003	4.748	4.569	4.438
PL065X095 AE	19880	9.797	7.757	6.767	6.369	6.053	5.713	5.533	5.208	4.985	4.821
PL070X110 AE	19150	10.697	8.661	7.629	7.206	6.868	6.502	6.307	5.953	5.708	5.529
PL075X115 AE	18280	10.486	8.686	7.732	7.333	7.011	6.660	6.472	6.129	5.890	5.714
PL080X120 AE	21040	13.761	10.422	8.936	8.356	7.903	7.423	7.170	6.718	6.410	6.185
PL085X125 AE	20170	13.216	10.361	9.002	8.459	8.030	7.570	7.327	6.889	6.588	6.368
PL090X130 AE	19440	12.935	10.384	9.113	8.595	8.182	7.737	7.501	7.072	6.776	6.559
PL095X135 AE	21910	16.992	12.324	10.409	9.882	9.121	8.532	8.225	7.679	7.309	7.040
PL100X145 AE	17850	12.828	10.735	9.602	9.124	8.737	8.313	8.086	7.669	7.378	7.163
PL110X155 AE	16830	12.836	10.969	9.914	9.461	9.091	8.682	8.461	8.054	7.768	7.556
PL120X165 AE	18860	15.695	12.810	11.325	10.712	10.220	9.687	9.402	8.884	8.525	8.261
PL130X180 AE	18720	16.937	13.878	12.290	11.633	11.105	10.531	10.225	9.667	9.280	8.995
PL140X190 AE	17850	16.809	14.066	12.582	11.956	11.449	10.893	10.595	10.049	9.668	9.386
PL150X200 AE	20310	21.420	16.703	14.483	13.598	12.900	12.154	11.760	11.051	10.564	10.208

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 AE	13490	3.901	3.331	3.001	2.872	2.759	2.635	2.568	2.444	2.357	2.292
PL020X047 AE	13490	3.901	3.331	3.001	2.872	2.759	2.635	2.568	2.444	2.357	2.292
PL022X047 AE	13490	3.901	3.331	3.001	2.872	2.759	2.635	2.568	2.444	2.357	2.292
PL024X050 AE	14800	4.631	3.815	3.388	3.210	3.066	2.910	2.827	2.675	2.569	2.491
PL025X050 AE	14800	4.631	3.815	3.388	3.210	3.066	2.910	2.827	2.675	2.569	2.491
PL028X055 AE	15380	5.379	4.346	3.825	3.611	3.441	3.257	3.158	2.980	2.857	2.767
PL030X055 AE	15380	5.379	4.346	3.825	3.611	3.441	3.257	3.158	2.980	2.857	2.767
PL032X060 AE	16400	6.532	5.059	4.375	4.104	3.890	3.662	3.542	3.326	3.178	3.070
PL035X060 AE	16400	6.532	5.059	4.375	4.104	3.890	3.662	3.542	3.326	3.178	3.070
PL038X065 AE	15090	6.183	5.047	4.461	4.220	4.026	3.816	3.704	3.500	3.358	3.254
PL040X065 AE	15090	6.183	5.047	4.461	4.220	4.026	3.816	3.704	3.500	3.358	3.254
PL042X075 AE	18860	11.919	7.616	6.209	5.708	5.332	4.946	4.748	4.400	4.168	4.000
PL045X075 AE	18860	11.919	7.616	6.209	5.708	5.332	4.946	4.748	4.400	4.168	4.000
PL048X080 AE	19730	15.975	8.796	6.962	6.343	5.889	5.429	5.196	4.791	4.523	4.332
PL050X080 AE	19730	15.975	8.796	6.962	6.343	5.889	5.429	5.196	4.791	4.523	4.332
PL055X085 AE	18570	12.731	8.422	6.925	6.384	5.975	5.553	5.336	4.953	4.697	4.512
PL060X090 AE	17700	11.623	8.324	7.002	6.504	6.121	5.719	5.511	5.140	4.889	4.707
PL065X095 AE	19880	na	10.596	8.339	7.586	7.034	6.478	6.197	5.709	5.387	5.157
PL070X110 AE	19150	na	11.458	9.256	8.485	7.910	7.323	7.023	6.498	6.148	5.897
PL075X115 AE	18280	na	11.127	9.223	8.525	7.994	7.443	7.159	6.656	6.318	6.074
PL080X120 AE	21040	na	15.203	11.333	10.160	9.330	8.515	8.109	7.417	6.966	6.647
PL085X125 AE	20170	na	14.359	11.167	10.125	9.367	8.608	8.225	7.565	7.130	6.820
PL090X130 AE	19440	na	13.905	11.122	10.166	9.457	8.737	8.371	7.732	7.308	7.004
PL095X135 AE	21910	na	na	13.541	11.981	10.909	9.880	9.376	8.525	7.978	7.594
PL100X145 AE	17850	na	na	11.366	10.544	9.915	9.256	8.915	8.308	7.899	7.603
PL110X155 AE	16830	na	na	11.543	10.793	10.208	9.587	9.261	8.677	8.279	7.989
PL120X165 AE	18860	na	na	13.659	12.557	11.731	10.881	10.445	9.680	9.169	8.802
PL130X180 AE	18720	na	na	14.781	13.608	12.725	11.814	11.347	10.525	9.974	9.579
PL140X190 AE	17850	na	na	14.893	13.817	12.992	12.129	11.681	10.887	10.350	9.962
PL150X200 AE	20310	na	na	18.029	16.317	15.078	13.840	13.218	12.146	11.441	10.940

FL Inch Series

FLUSH-MOUNT SELF-CENTERING STYLE

FL Inch Series

FLUSH-MOUNT SELF-CENTERING STYLE

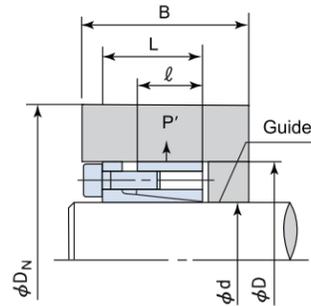


Installing to hubs with a guide portion

when $B \geq 2\ell$
(See Installation Example A)

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
PL2FL = 5.282" min. hub diameter



Hub with Guide

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

Installing to hubs with a guide portion

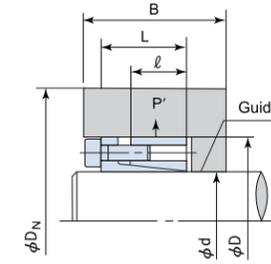
when $L2 < B < 2\ell$
(See Installation Example B)

Installing to hubs without a guide portion

(See Installation Example C)

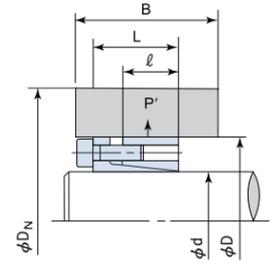
D_N is the minimum hub diameter required to tolerate P' or the pressure exerted from within the hub.

<EXAMPLE> Hub Material Yield Point = 35500 psi
PL2FL = 6.242" min. hub diameter



Hub with Guide

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



Hub with Guide

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	
PL3/4	FL	13747	3.274	2.934	2.723	2.628	2.548	2.458	2.409	2.317	2.251	2.201
PL7/8	FL	13747	3.274	2.934	2.723	2.628	2.548	2.458	2.409	2.317	2.251	2.201
PL1	FL	16153	3.975	3.438	3.127	2.993	2.882	2.758	2.692	2.568	2.481	2.416
PL1-1/8	FL	17621	4.795	4.032	3.615	3.438	3.295	3.137	3.053	2.898	2.789	2.709
PL1-3/16	FL	17621	4.795	4.032	3.615	3.438	3.295	3.137	3.053	2.898	2.789	2.709
PL1-1/4	FL	17466	5.177	4.368	3.922	3.733	3.579	3.410	3.320	3.153	3.036	2.949
PL1-3/8	FL	19961	6.235	4.922	4.289	4.034	3.833	3.616	3.502	3.295	3.153	3.048
PL1-7/16	FL	18426	5.991	4.944	4.393	4.164	3.979	3.778	3.670	3.473	3.337	3.236
PL1-1/2	FL	20729	7.238	5.553	4.784	4.481	4.244	3.991	3.858	3.619	3.456	3.337
PL1-5/8	FL	19304	7.385	5.952	5.232	4.938	4.703	4.450	4.315	4.070	3.901	3.777
PL1-11/16	FL	19304	7.385	5.952	5.232	4.938	4.703	4.450	4.315	4.070	3.901	3.777
PL1-3/4	FL	19304	7.385	5.952	5.232	4.938	4.703	4.450	4.315	4.070	3.901	3.777
PL1-7/8	FL	18097	7.204	5.993	5.345	5.074	4.854	4.614	4.485	4.250	4.086	3.965
PL1-15/16	FL	21114	9.250	6.980	5.977	5.586	5.282	4.958	4.789	4.485	4.278	4.128
PL2	FL	21114	9.250	6.980	5.977	5.586	5.282	4.958	4.789	4.485	4.278	4.128
PL1-1/8	FL	19872	8.766	6.941	6.055	5.699	5.416	5.112	4.951	4.660	4.460	4.314
PL1-3/16	FL	19872	8.766	6.941	6.055	5.699	5.416	5.112	4.951	4.660	4.460	4.314
PL2-1/4	FL	21449	10.774	8.003	6.814	6.356	6.000	5.625	5.428	5.077	4.838	4.665
PL2-3/8	FL	21449	10.774	8.003	6.814	6.356	6.000	5.625	5.428	5.077	4.838	4.665
PL2-7/16	FL	22860	13.516	9.201	7.625	7.047	6.607	6.151	5.916	5.500	5.221	5.019
PL2-1/2	FL	22860	13.516	9.201	7.625	7.047	6.607	6.151	5.916	5.500	5.221	5.019
PL2-9/16	FL	22860	13.516	9.201	7.625	7.047	6.607	6.151	5.916	5.500	5.221	5.019
PL2-11/16	FL	20463	11.950	9.264	8.013	7.517	7.127	6.710	6.491	6.095	5.824	5.626
PL2-3/4	FL	20463	11.950	9.264	8.013	7.517	7.127	6.710	6.491	6.095	5.824	5.626
PL2-7/8	FL	19573	11.570	9.249	8.102	7.637	7.266	6.867	6.655	6.271	6.007	5.813
PL2-15/16	FL	22370	15.320	10.800	9.040	8.383	7.880	7.354	7.081	6.598	6.271	6.035
PL3	FL	21437	14.348	10.663	9.081	8.471	7.998	7.497	7.235	6.768	6.450	6.219
PL3-1/4	FL	20580	13.726	10.593	9.147	8.575	8.126	7.647	7.395	6.941	6.630	6.404
PL3-3/8	FL	23152	18.568	12.341	10.160	9.370	8.772	8.155	7.837	7.277	6.901	6.630
PL3-7/16	FL	22262	17.086	12.128	10.174	9.441	8.879	8.291	7.986	7.444	7.078	6.813
PL3-1/2	FL	22262	17.086	12.128	10.174	9.441	8.879	8.291	7.986	7.444	7.078	6.813
PL3-3/4	FL	21437	16.142	11.996	10.216	9.530	8.997	8.434	8.140	7.614	7.256	6.996
PL3-15/16	FL	21916	18.282	13.249	11.187	10.405	9.801	9.168	8.837	8.250	7.852	7.563
PL4	FL	21916	18.282	13.249	11.187	10.405	9.801	9.168	8.837	8.250	7.852	7.563

Min. Hub Dia. (D_N in inches)

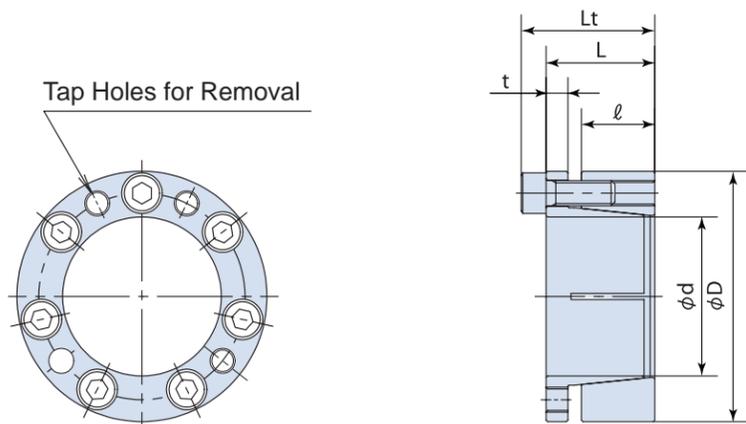
Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples										
		147 Mpa	176 Mpa	206 Mpa	225 Mpa	245 Mpa	274 Mpa	294 Mpa	343 Mpa	392 Mpa	441 Mpa	
		21300 psi	25500 psi	29900 psi	32600 psi	35500 psi	39700 psi	42600 psi	49700 psi	56900 psi	64000 psi	
PL3/4	FL	13747	3.982	3.379	3.043	2.900	2.783	2.654	2.585	2.457	2.368	2.302
PL7/8	FL	13747	3.982	3.379	3.043	2.900	2.783	2.654	2.585	2.457	2.368	2.302
PL1	FL	16153	5.301	4.151	3.605	3.387	3.215	3.030	2.933	2.757	2.636	2.548
PL1-1/8	FL	17621	7.025	5.059	4.263	3.962	3.730	3.487	3.360	3.136	2.983	2.873
PL1-3/16	FL	17621	7.025	5.059	4.263	3.962	3.730	3.487	3.360	3.136	2.983	2.873
PL1-1/4	FL	17466	7.493	5.455	4.613	4.293	4.046	3.786	3.650	3.408	3.245	3.126
PL1-3/8	FL	19961	13.015	6.753	5.295	4.812	4.459	4.104	3.924	3.614	3.408	3.262
PL1-7/16	FL	18426	9.481	6.366	5.256	4.851	4.545	4.227	4.064	3.775	3.582	3.442
PL1-1/2	FL	20729	21.563	7.945	6.018	5.418	4.989	4.564	4.352	3.988	3.750	3.582
PL1-5/8	FL	19304	13.252	7.925	6.368	5.828	5.427	5.019	4.811	4.447	4.205	4.032
PL1-11/16	FL	19304	13.252	7.925	6.368	5.828	5.427	5.019	4.811	4.447	4.205	4.032
PL1-3/4	FL	19304	13.252	7.925	6.368	5.828	5.427	5.019	4.811	4.447	4.205	4.032
PL1-7/8	FL	18097	11.014	7.632	6.356	5.884	5.524	5.149	4.955	4.611	4.380	4.213
PL1-15/16	FL	21114	45.068	10.239	7.597	6.803	6.242	5.693	5.420	4.955	4.652	4.438
PL2	FL	21114	45.068	10.239	7.597	6.803	6.242	5.693	5.420	4.955	4.652	4.438
PL1-1/8	FL	19872	17.841	9.481	7.462	6.788	6.294	5.796	5.545	5.108	4.820	4.614
PL1-3/16	FL	19872	17.841	9.481	7.462	6.788	6.294	5.796	5.545	5.108	4.820	4.614
PL2-1/4	FL	21449	na	12.026	8.743	7.791	7.127	6.481	6.162	5.620	5.269	5.022
PL2-3/8	FL	21449	na	12.026	8.743	7.791	7.127	6.481	6.162	5.620	5.269	5.022
PL2-7/16	FL	22860	na	15.930	10.253	8.912	8.028	7.202	6.806	6.146	5.727	5.436
PL2-1/2	FL	22860	na	15.930	10.253	8.912	8.028	7.202	6.806	6.146	5.727	5.436
PL2-9/16	FL	22860	na	15.930	10.253	8.912	8.028	7.202	6.806	6.146	5.727	5.436
PL2-11/16	FL	20463	na	13.051	10.014	9.045	8.348	7.653	7.305	6.706	6.312	6.033
PL2-3/4	FL	20463	na	13.051	10.014	9.045	8.348	7.653	7.305	6.706	6.312	6.033
PL2-7/8	FL	19573	na	12.461	9.918	9.052	8.413	7.765	7.435	6.862	6.482	6.211
PL2-15/16	FL	22370	na	17.634	11.943	10.481	9.495	8.561	8.108	7.348	6.862	6.523
PL3	FL	21437	na	16.010	11.649	10.382	9.498	8.637	8.213	7.491	7.024	6.695
PL3-1/4	FL	20580	na	15.024	11.464	10.340	9.533	8.732	8.331	7.642	7.190	6.870
PL3-3/8	FL	23152	na	22.282	13.819	11.937	10.714	9.582	9.042	8.148	7.582	7.190
PL3-7/16	FL	22262	na	19.581	13.391	11.775	10.680	9.640	9.134	8.284	7.740	7.360
PL3-1/2	FL	22262	na	19.581	13.391	11.775	10.680	9.640	9.134	8.284	7.740	7.360
PL3-3/4	FL	21437	na	18.011	13.105	11.680	10.685	9.717	9.239	8.428	7.902	7.532
PL3-15/16	FL	21916	na	20.691	14.560	12.879	11.725	10.617	10.075	9.160	8.572	8.158
PL4	FL	21916	na	20.691	14.560	12.879	11.725	10.617	10.075	9.160	8.572	8.158

FL Metric Series

FLUSH-MOUNT SELF-CENTERING STYLE

FL Metric Series

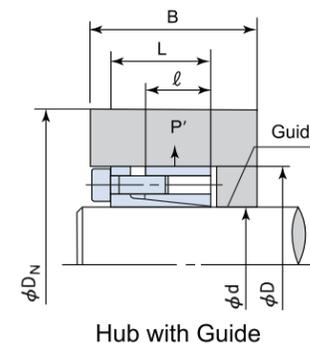
FLUSH-MOUNT SELF-CENTERING STYLE



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

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
PL030X055FL = 3.295" min. hub diameter



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

FL Inch Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch			Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	d	Tolerance t_1	D	Tolerance t_2	l	L	Lt			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL019X047 FL	0.7480		1.8504		0.748	1.075	1.311	201	6,452	40321	13779	4	M6x18	12.5	0.6
PL020X047 FL	0.7874		1.8504	+0.0015" -0	0.748	1.075	1.311	212	6,452	40321	13779	4	M6x18	12.5	0.6
PL022X047 FL	0.8661	-0.0013" +0	1.8504		0.748	1.075	1.311	233	6,452	36695	13779	4	M6x18	12.5	0.6
PL024X050 FL	0.9449		1.9685		0.748	1.094	1.331	318	8,070	41191	16099	5	M6x18	12.5	0.6
PL025X050 FL	0.9843		1.9685		0.748	1.094	1.331	331	8,070	40901	16099	5	M6x18	12.5	0.6
PL028X055 FL	1.1024		2.1654		0.748	1.126	1.362	445	9,689	41046	17550	6	M6x18	12.5	0.7
PL030X055 FL	1.1811		2.1654		0.748	1.126	1.362	477	9,689	40321	17550	6	M6x18	12.5	0.7
PL032X060 FL	1.2598		2.3622		0.807	1.217	1.453	593	11,307	41481	17405	7	M6x18	12.5	0.9
PL035X060 FL	1.3780		2.3622		0.807	1.217	1.453	648	11,307	37855	17405	7	M6x18	12.5	0.9
PL038X065 FL	1.4961		2.5591	+0.0018" -0	0.807	1.224	1.461	906	14,522	41481	20741	9	M6x18	12.5	1.1
PL040X065 FL	1.5748	-0.0015" +0	2.5591		0.807	1.224	1.461	953	14,522	40611	20741	9	M6x18	12.5	1.1
PL042X075 FL	1.6535		2.9528		0.925	1.370	1.685	1,233	17,894	41481	19290	6	M8x22	30	1.7
PL045X075 FL	1.7717		2.9528		0.925	1.370	1.685	1,321	17,894	39451	19290	6	M8x22	30	1.5
PL048X080 FL	1.8898		3.1496		0.925	1.378	1.693	1,644	20,884	41772	21176	7	M8x22	30	1.8
PL050X080 FL	1.9685		3.1496		0.925	1.378	1.693	1,712	20,884	41772	21176	7	M8x22	30	1.8
PL055X085 FL	2.1654		3.3465		0.925	1.370	1.685	1,884	20,884	40031	19871	7	M8x22	30	2.0
PL060X090 FL	2.3622		3.5433		0.925	1.370	1.685	2,348	23,829	39451	21466	8	M8x22	30	2.0
PL065X095 FL	2.5591	-0.0018" +0	3.7402	+0.0021" -0	0.925	1.370	1.685	2,862	26,751	40901	22916	9	M8x22	30	2.1
PL070X110 FL	2.7559		4.3307		1.102	1.614	2.008	3,806	33,046	38291	20451	7	M10x25	60	3.7
PL075X115 FL	2.9528		4.5276		1.102	1.614	2.008	4,661	37,766	40901	22336	8	M10x25	60	3.9
PL080X120 FL	3.1496		4.7244		1.102	1.614	2.008	4,971	37,766	38291	21466	8	M10x25	60	4.1
PL085X125 FL	3.3465		4.9213		1.102	1.614	2.008	5,942	42,712	40611	23206	9	M10x25	60	4.4
PL090X130 FL	3.5433	-0.0021" +0	5.1181	+0.0025" -0	1.102	1.693	2.087	6,291	42,712	38291	22191	9	M10x25	60	4.7
PL095X135 FL	3.7402		5.3150		1.102	1.693	2.087	6,641	42,712	36260	21466	9	M10x25	60	4.8
PL100X145 FL	3.9370		5.7087		1.339	1.969	2.362	9,321	56,874	38581	21901	12	M10x25	60	6.7

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 FL	13747	3.279	2.937	2.725	2.630	2.550	2.460	2.411	2.318	2.252	2.202
PL020X047 FL	13747	3.279	2.937	2.725	2.630	2.550	2.460	2.411	2.318	2.252	2.202
PL022X047 FL	13747	3.279	2.937	2.725	2.630	2.550	2.460	2.411	2.318	2.252	2.202
PL024X050 FL	16153	3.962	3.430	3.122	2.988	2.878	2.755	2.689	2.566	2.479	2.414
PL025X050 FL	16153	3.962	3.430	3.122	2.988	2.878	2.755	2.689	2.566	2.479	2.414
PL028X055 FL	17621	4.772	4.019	3.606	3.431	3.288	3.132	3.048	2.894	2.786	2.707
PL030X055 FL	17621	4.772	4.019	3.606	3.431	3.288	3.132	3.048	2.894	2.786	2.707
PL032X060 FL	17466	5.156	4.356	3.914	3.726	3.574	3.406	3.315	3.149	3.033	2.947
PL035X060 FL	17466	5.156	4.356	3.914	3.726	3.574	3.406	3.315	3.149	3.033	2.947
PL038X065 FL	20729	7.246	5.556	4.786	4.483	4.245	3.992	3.859	3.620	3.456	3.337
PL040X065 FL	20729	7.246	5.556	4.786	4.483	4.245	3.992	3.859	3.620	3.456	3.337
PL042X075 FL	19304	7.377	5.948	5.229	4.936	4.702	4.448	4.314	4.069	3.901	3.777
PL045X075 FL	19304	7.377	5.948	5.229	4.936	4.702	4.448	4.314	4.069	3.901	3.777
PL048X080 FL	21114	9.309	7.005	5.992	5.598	5.291	4.966	4.796	4.490	4.283	4.131
PL050X080 FL	21114	9.309	7.005	5.992	5.598	5.291	4.966	4.796	4.490	4.283	4.131
PL055X085 FL	19872	8.766	6.940	6.055	5.698	5.416	5.112	4.951	4.660	4.460	4.313
PL060X090 FL	21449	10.794	8.011	6.819	6.360	6.003	5.627	5.430	5.079	4.840	4.666
PL065X095 FL	22860	13.626	9.235	7.643	7.061	6.619	6.160	5.924	5.506	5.225	5.023
PL070X110 FL	20463	11.936	9.258	8.001	7.514	7.125	6.708	6.489	6.094	5.823	5.626
PL075X115 FL	22370	15.255	10.778	9.028	8.373	7.872	7.348	7.076	6.594	6.268	6.033
PL080X120 FL	21437	14.392	10.681	9.092	8.479	8.004	7.503	7.240	6.771	6.453	6.221
PL085X125 FL	23152	18.723	12.385	10.184	9.388	8.787	8.166	7.847	7.284	6.907	6.635
PL090X130 FL	22262	16.937	12.076	10.144	9.418	8.860	8.276	7.973	7.434	7.070	6.806
PL095X135 FL	21437	16.191	12.016	10.228	9.539	9.005	8.440	8.145	7.618	7.259	6.999
PL100X145 FL	21916	18.251	13.237	11.180	10.400	9.797	9.164	8.834	8.248	7.850	7.562

FL Metric Series

FLUSH-MOUNT SELF-CENTERING STYLE

RE Metric Series

STAINLESS STEEL FLANGED/STRAIGHT OPTION



Installing to hubs with a guide portion

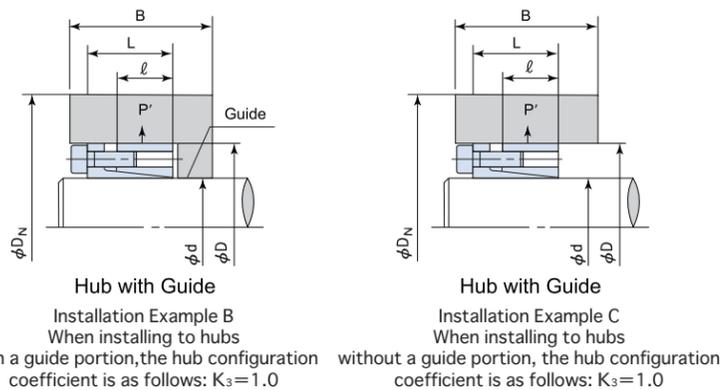
when $L2 < B < 2l$
(See Installation Example B)

Installing to hubs without a guide portion

(See Installation Example C)

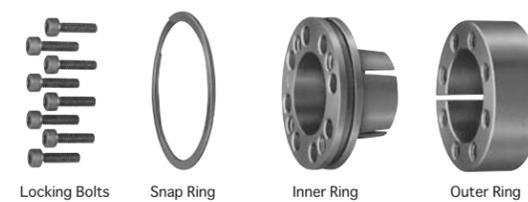
D_N is the minimum hub diameter required to tolerate P' or the pressure exerted from within the hub.

<EXAMPLE> Hub Material Yield Point = 35500 psi
PL030X055FL = 3.730" min. hub diameter



Min. Hub Dia. (D_N in inches)

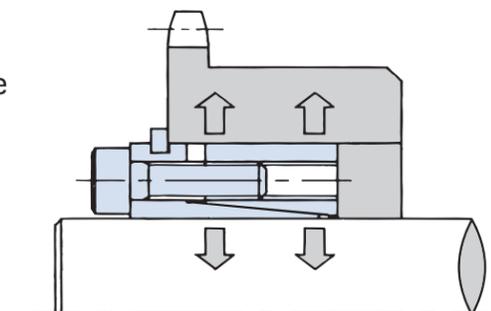
Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL019X047 FL	13747	3.992	3.385	3.047	2.903	2.786	2.657	2.587	2.459	2.369	2.303
PL020X047 FL	13747	3.992	3.385	3.047	2.903	2.786	2.657	2.587	2.459	2.369	2.303
PL022X047 FL	13747	3.992	3.385	3.047	2.903	2.786	2.657	2.587	2.459	2.369	2.303
PL024X050 FL	16153	5.270	4.136	3.596	3.380	3.209	3.025	2.928	2.754	2.634	2.546
PL025X050 FL	16153	5.270	4.136	3.596	3.380	3.209	3.025	2.928	2.754	2.634	2.546
PL028X055 FL	17621	6.952	5.032	4.247	3.950	3.720	3.479	3.354	3.130	2.979	2.870
PL030X055 FL	17621	6.952	5.032	4.247	3.950	3.720	3.479	3.354	3.130	2.979	2.870
PL032X060 FL	17466	7.428	5.431	4.599	4.282	4.037	3.778	3.644	3.404	3.241	3.123
PL035X060 FL	17466	7.428	5.431	4.599	4.282	4.037	3.778	3.644	3.404	3.241	3.123
PL038X065 FL	20729	21.790	7.956	6.023	5.421	4.991	4.566	4.353	3.989	3.751	3.582
PL040X065 FL	20729	21.790	7.956	6.023	5.421	4.991	4.566	4.353	3.989	3.751	3.582
PL042X075 FL	19304	13.205	7.915	6.363	5.825	5.425	5.017	4.809	4.446	4.204	4.031
PL045X075 FL	19304	13.205	7.915	6.363	5.825	5.425	5.017	4.809	4.446	4.204	4.031
PL048X080 FL	21114	na	10.319	7.629	6.825	6.259	5.705	5.431	4.962	4.658	4.443
PL050X080 FL	21114	na	10.319	7.629	6.825	6.259	5.705	5.431	4.962	4.658	4.443
PL055X085 FL	19872	na	9.480	7.461	6.787	6.294	5.796	5.545	5.108	4.820	4.614
PL060X090 FL	21449	na	12.053	8.754	7.799	7.132	6.485	6.165	5.623	5.271	5.024
PL065X095 FL	22860	na	16.111	10.300	8.942	8.050	7.218	6.819	6.155	5.734	5.441
PL070X110 FL	20463	na	13.033	10.006	9.040	8.343	7.650	7.302	6.704	6.311	6.032
PL075X115 FL	22370	na	17.535	11.913	10.461	9.480	8.551	8.099	7.342	6.858	6.519
PL080X120 FL	21437	na	16.071	11.672	10.398	9.510	8.646	8.220	7.497	7.028	6.698
PL085X125 FL	23152	na	22.552	13.882	11.977	10.742	9.602	9.058	8.159	7.591	7.197
PL090X130 FL	22262	na	19.357	13.320	11.727	10.645	9.615	9.113	8.269	7.729	7.350
PL095X135 FL	21437	na	18.080	13.131	11.698	10.698	9.727	9.248	8.434	7.907	7.536
PL100X145 FL	21916	na	20.646	14.544	12.868	11.717	10.611	10.070	9.157	8.569	8.156



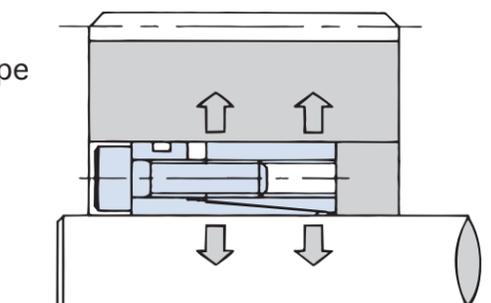
Features & Application

- Installation Options**
Comes with removable snap ring allowing either flange type or straight type mounting
- Austenite Stainless Steel**
The main unit is made of highly anticorrosive austenite stainless steel, which makes the entire product excellent for clean-room operation.
- No Lubrication Required**
Locking bolts are lubricated so that no additional lubrication is necessary during assembly.

Flange Type



Straight Type



Model Number

PL **010 X 026** **RE-SS**
 POWER-LOCK® Shaft Dia. (mm) Outer Dia. (mm) Series Stainless Steel

RE Metric Series

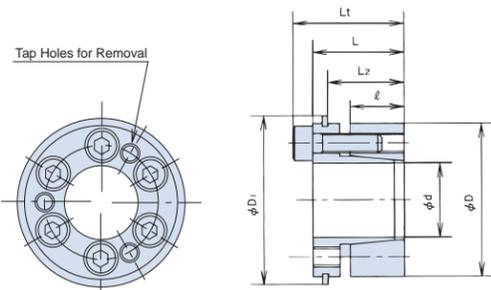
STAINLESS STEEL FLANGED/STRAIGHT OPTION

RE Metric Series

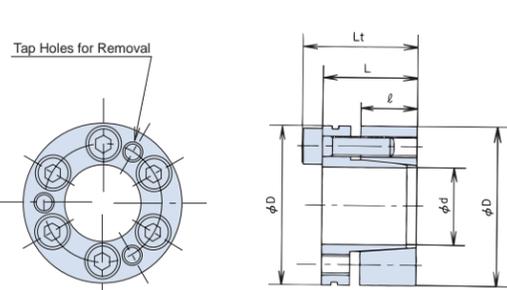
STAINLESS STEEL FLANGED/STRAIGHT OPTION



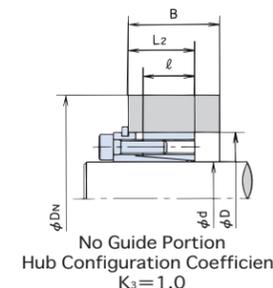
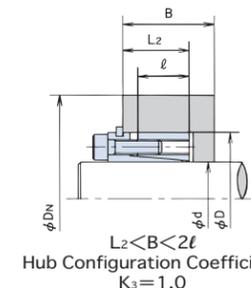
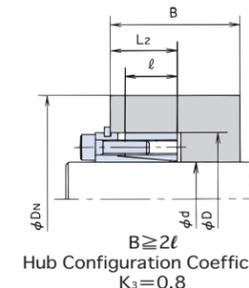
Flange Type (with snap ring)



Straight Type (without snap ring)



Flange Type
With Snap Ring Installed



Snap Ring installed – RE-SS POWER-LOCK® Specifications

Model Number	Shaft O.D. d	Hub Counter I.D. D	Dimensions inch				Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.			
			r	L ₂	L	Lt			D ₁	Shaft P	Hub Bore P'	Qty.	Size		Tightening Torque ft.lbs.		
PL005X018 RE-SS	0.1969	-0.0007 ⁺	0.7087	+0.0011 ⁻	0.315	0.433	0.531	0.650	0.787	4	425	16099	4496	3	M3 X 10	0.7	0.04
PL006X019 RE-SS	0.2362	+0	0.7480		0.315	0.433	0.531	0.650	0.846	4	425	13344	4206	3	M3 X 10	0.7	0.04
PL008X021 RE-SS	0.3150	-0.0009 ⁺	0.8268		0.315	0.433	0.531	0.650	0.925	8	568	13344	5076	4	M3 X 10	0.7	0.07
PL010X026 RE-SS	0.3937	+0	1.0236	+0.0013 ⁻	0.394	0.551	0.650	0.807	1.130	18	1,008	15229	5802	4	M4 X 14	1.5	0.13
PL011X027 RE-SS	0.4331		1.0630		0.394	0.571	0.669	0.827	1.169	19	1,008	13924	5657	4	M4 X 14	1.5	0.13
PL012X028 RE-SS	0.4724		1.1024		0.394	0.591	0.689	0.846	1.209	26	1,261	15809	6817	5	M4 X 14	1.5	0.13
PL014X030 RE-SS	0.5512		1.1811		0.433	0.610	0.728	0.886	1.303	37	1,511	14794	6962	6	M4 X 14	1.5	0.18
PL015X031 RE-SS	0.5906	-0.0011 ⁺	1.2205	+0	0.433	0.610	0.728	0.886	1.343	40	1,511	13924	6672	6	M4 X 14	1.5	0.18
PL016X032 RE-SS	0.6299		1.2598		0.433	0.610	0.728	0.886	1.382	42	1,511	13054	6527	6	M4 X 14	1.5	0.18
PL017X033 RE-SS	0.6693		1.2992		0.472	0.650	0.768	0.925	1.441	45	1,511	11168	5802	6	M4 X 14	1.5	0.2
PL018X034 RE-SS	0.7087		1.3386		0.472	0.650	0.768	0.925	1.480	47	1,511	10588	5657	6	M4 X 14	1.5	0.2
PL019X035 RE-SS	0.7480		1.3780		0.472	0.650	0.787	0.945	1.516	67	2,015	13344	7252	8	M4 X 14	1.5	0.2
PL020X039 RE-SS	0.7874		1.5354	+0.0015 ⁻	0.531	0.768	0.925	1.122	1.701	104	2,992	16825	8557	6	M5 X 20	4.0	0.3
PL022X041 RE-SS	0.8661		1.6142		0.531	0.768	0.925	1.122	1.772	115	2,992	15229	8122	6	M5 X 20	4.0	0.4
PL024X043 RE-SS	0.9449	-0.0013 ⁺	1.6929	+0	0.591	0.866	1.024	1.220	1.870	167	4,004	16825	9428	8	M5 X 20	4.0	0.4
PL025X044 RE-SS	0.9843		1.7323		0.591	0.866	1.024	1.220	1.909	174	4,004	16099	9138	8	M5 X 20	4.0	0.4
PL028X049 RE-SS	1.1024		1.9291		0.650	0.925	1.122	1.319	2.118	243	4,994	16390	9283	10	M5 X 20	4.0	0.6
PL030X050 RE-SS	1.1811		1.9685		0.650	0.925	1.122	1.319	2.157	261	4,994	15229	9138	10	M5 X 20	4.0	0.6
PL032X052 RE-SS	1.2598		2.0472		0.669	0.945	1.142	1.339	2.232	278	4,994	13924	8557	10	M5 X 20	4.0	0.6
PL035X058 RE-SS	1.3780		2.2835		0.669	1.004	1.201	1.398	2.480	365	6,006	15229	9138	12	M5 X 20	4.0	0.8
PL038X060 RE-SS	1.4961		2.3622		0.709	1.043	1.240	1.476	2.559	468	7,084	15664	9863	10	M6 X 25	6.5	0.9
PL040X063 RE-SS	1.5748	-0.0015 ⁺	2.4803	+0.0018 ⁻	0.709	1.043	1.240	1.476	2.697	493	7,084	14939	9428	10	M6 X 25	6.5	0.9
PL042X066 RE-SS	1.6535		2.5984		0.748	1.122	1.339	1.575	2.807	621	8,492	16099	10298	12	M6 X 25	6.5	1.1
PL045X068 RE-SS	1.7717		2.6772		0.748	1.122	1.339	1.575	2.902	665	8,492	15084	10008	12	M6 X 25	6.5	1.1
PL048X072 RE-SS	1.8898		2.8346		0.748	1.122	1.339	1.575	3.083	710	8,492	14069	9428	12	M6 X 25	6.5	1.3
PL050X075 RE-SS	1.9685		2.9528		0.748	1.181	1.398	1.634	3.197	863	9,922	15809	10588	14	M6 X 25	6.5	1.4

Without Snap Ring – RE-SS POWER-LOCK® Specifications

Model Number	Shaft O.D. d	Hub Counter I.D. D	Dimensions inch				Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.	
			r	L	Lt	D ₁			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.		
PL005X018 RE-SS	0.1969	-0.0007 ⁺	0.7087	+0.0011 ⁻	0.315	0.531	0.650	5	735	27703	7687	3	M3 X 10	0.7	0.04
PL006X019 RE-SS	0.2362	+0	0.7480		0.315	0.531	0.650	7	735	23061	7252	3	M3 X 10	0.7	0.04
PL008X021 RE-SS	0.3150	-0.0009 ⁺	0.8268		0.315	0.531	0.650	14	979	23061	8847	4	M3 X 10	0.7	0.07
PL010X026 RE-SS	0.3937	+0	1.0236	+0.0013 ⁻	0.394	0.650	0.807	30	1,740	26252	10153	4	M4 X 14	1.5	0.13
PL011X027 RE-SS	0.4331		1.0630		0.394	0.669	0.827	33	1,740	23932	9718	4	M4 X 14	1.5	0.13
PL012X028 RE-SS	0.4724		1.1024		0.394	0.689	0.846	45	2,176	27413	11748	5	M4 X 14	1.5	0.13
PL014X030 RE-SS	0.5512		1.1811		0.433	0.728	0.886	64	2,618	25672	11893	6	M4 X 14	1.5	0.18
PL015X031 RE-SS	0.5906	-0.0011 ⁺	1.2205	+0	0.433	0.728	0.886	68	2,618	23932	11603	6	M4 X 14	1.5	0.18
PL016X032 RE-SS	0.6299		1.2598		0.433	0.728	0.886	73	2,618	22481	11168	6	M4 X 14	1.5	0.18
PL017X033 RE-SS	0.6693		1.2992		0.472	0.768	0.925	77	2,618	19290	10008	6	M4 X 14	1.5	0.2
PL018X034 RE-SS	0.7087		1.3386		0.472	0.768	0.925	82	2,618	18275	9718	6	M4 X 14	1.5	0.2
PL019X035 RE-SS	0.7480		1.3780		0.472	0.787	0.945	115	3,476	23061	12473	8	M4 X 14	1.5	0.2
PL020X039 RE-SS	0.7874		1.5354	+0.0015 ⁻	0.531	0.925	1.122	180	5,170	29008	14939	6	M5 X 20	4.0	0.3
PL022X041 RE-SS	0.8661		1.6142		0.531	0.925	1.122	198	5,170	26397	14214	6	M5 X 20	4.0	0.4
PL024X043 RE-SS	0.9449	-0.0013 ⁺	1.6929	+0	0.591	1.024	1.220	288	6,908	29008	16245	8	M5 X 20	4.0	0.4
PL025X044 RE-SS	0.9843		1.7323		0.591	1.024	1.220	300	6,908	27848	15809	8	M5 X 20	4.0	0.4
PL028X049 RE-SS	1.1024		1.9291		0.650	1.122	1.319	420	8,624	28283	16099	10	M5 X 20	4.0	0.6
PL030X050 RE-SS	1.1811		1.9685		0.650	1.122	1.319	451	8,624	26397	15809	10	M5 X 20	4.0	0.6
PL032X052 RE-SS	1.2598		2.0472		0.669	1.142	1.339	481	6,424	23932	14794	10	M5 X 20	4.0	0.6
PL035X058 RE-SS	1.3780		2.2835		0.669	1.201	1.398	631	10,362	26397	15954	12	M5 X 20	4.0	0.8
PL038X060 RE-SS	1.4961		2.3622		0.709	1.240	1.476	811	12,232	27123	17115	10	M6 X 25	6.5	0.9
PL040X063 RE-SS	1.5748	-0.0015 ⁺	2.4803	+0.0018 ⁻	0.709	1.240	1.476	848	12,232	25672	16390	10	M6 X 25	6.5	0.9
PL042X066 RE-SS	1.6535		2.5984		0.748	1.339	1.575	1070	14,674	27848	17695	12	M6 X 25	6.5	1.1
PL045X068 RE-SS	1.7717		2.6772		0.748	1.339	1.575	1151	14,674	25962	17260	12	M6 X 25	6.5	1.1
PL048X072 RE-SS	1.8898		2.8346		0.748	1.339	1.575	1224	14,674	24367	17695	12	M6 X 25	6.5	1.3
PL050X075 RE-SS	1.9685		2.9528		0.748	1.398	1.634	1490	17,138	27268	18130	14	M6 X 25	6.5	1.4

Hub Configuration Coefficient $K_3 = 0.8$ Min. Hub Dia.

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL005X018 RE-SS	4496	0.840	0.817	0.800	0.792	0.784	0.776	0.771	0.762	0.755	0.750
PL006X019 RE-SS	4206	0.877	0.854	0.838	0.830	0.823	0.814	0.810	0.800	0.794	0.788
PL008X021 RE-SS	5076	1.003	0.971	0.948	0.937	0.927	0.916	0.910	0.897	0.888	0.881
PL010X026 RE-SS	5802	1.277	1.230	1.197	1.181	1.177	1.167	1.162	1.151	1.141	1.101
PL011X027 RE-SS	5657	1.319	1.272	1.238	1.222	1.208	1.192	1.182	1.165	1.151	1.141
PL012X028 RE-SS	6817	1.432	1.369	1.326	1.305	1.287	1.266	1.254	1.231	1.214	1.201
PL014X030 RE-SS	6962	1.543	1.474	1.426	1.403	1.383					

RE Metric Series

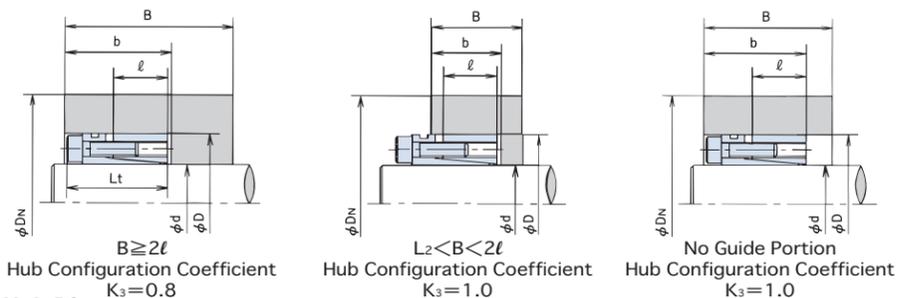
STAINLESS STEEL FLANGED/STRAIGHT OPTION

KE Inch and Metric Series

SELF-CENTERING KEYLESS LOCKING POWER



Straight Type Without Snap Ring



Hub Configuration Coefficient $K_3=0.8$ Min. Hub Dia.

Model Number	RE-SS	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
			147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL005X018	RE-SS	7687	0.954	0.906	0.873	0.858	0.844	0.828	0.819	0.802	0.790	0.780
PL006X019	RE-SS	7252	0.989	0.943	0.911	0.895	0.882	0.867	0.858	0.841	0.829	0.819
PL008X021	RE-SS	8847	1.167	1.099	1.053	1.031	1.012	0.990	0.978	0.954	0.937	0.924
PL010X026	RE-SS	10153	1.529	1.423	1.353	1.320	1.292	1.259	1.241	1.207	1.182	1.163
PL011X027	RE-SS	9718	1.558	1.456	1.387	1.355	1.328	1.296	1.278	1.244	1.220	1.201
PL012X028	RE-SS	11748	1.770	1.622	1.527	1.483	1.445	1.403	1.379	1.335	1.303	1.278
PL014X030	RE-SS	11893	1.909	1.747	1.643	1.595	1.554	1.508	1.482	1.433	1.398	1.372
PL015X031	RE-SS	11603	1.946	1.787	1.683	1.635	1.595	1.548	1.523	1.474	1.439	1.413
PL016X032	RE-SS	11168	1.969	1.816	1.715	1.669	1.629	1.584	1.558	1.511	1.476	1.450
PL017X033	RE-SS	10008	1.928	1.797	1.710	1.669	1.634	1.594	1.571	1.528	1.497	1.473
PL018X034	RE-SS	9718	1.962	1.833	1.747	1.707	1.672	1.632	1.610	1.567	1.536	1.512
PL019X035	RE-SS	12473	2.289	2.082	1.950	1.890	1.839	1.781	1.749	1.689	1.645	1.613
PL020X039	RE-SS	14939	2.893	2.551	2.345	2.254	2.179	2.094	2.048	1.962	1.901	1.855
PL022X041	RE-SS	14214	2.926	2.606	2.410	2.322	2.249	2.167	2.121	2.037	1.977	1.932
PL024X043	RE-SS	16245	3.437	2.968	2.698	2.581	2.484	2.377	2.319	2.212	2.136	2.080
PL025X044	RE-SS	15809	3.428	2.982	2.721	2.607	2.513	2.409	2.352	2.246	2.172	2.117
PL028X049	RE-SS	16099	3.883	3.362	3.060	2.928	2.820	2.700	2.635	2.514	2.429	2.366
PL030X050	RE-SS	15809	3.896	3.389	3.093	2.963	2.856	2.737	2.673	2.553	2.468	2.405
PL032X052	RE-SS	14794	3.828	3.382	3.113	2.994	2.894	2.783	2.722	2.609	2.529	2.469
PL035X058	RE-SS	15954	4.557	3.955	3.604	3.451	3.326	3.186	3.110	2.969	2.869	2.795
PL038X060	RE-SS	17115	5.060	4.300	3.876	3.694	3.546	3.383	3.295	3.133	3.020	2.936
PL040X063	RE-SS	16390	5.080	4.376	3.972	3.797	3.653	3.494	3.408	3.249	3.137	3.054
PL042X066	RE-SS	17695	5.782	4.854	4.349	4.135	3.961	3.771	3.669	3.482	3.351	3.254
PL045X068	RE-SS	17260	5.789	4.905	4.414	4.205	4.034	3.847	3.746	3.560	3.430	3.334
PL048X072	RE-SS	17695	6.308	5.295	4.744	4.511	4.322	4.114	4.003	3.798	3.656	3.550
PL050X075	RE-SS	18130	6.769	5.627	5.017	4.761	4.555	4.329	4.208	3.987	3.833	3.719

Hub Configuration Coefficient $K_3=1.0$ Min. Hub Dia.

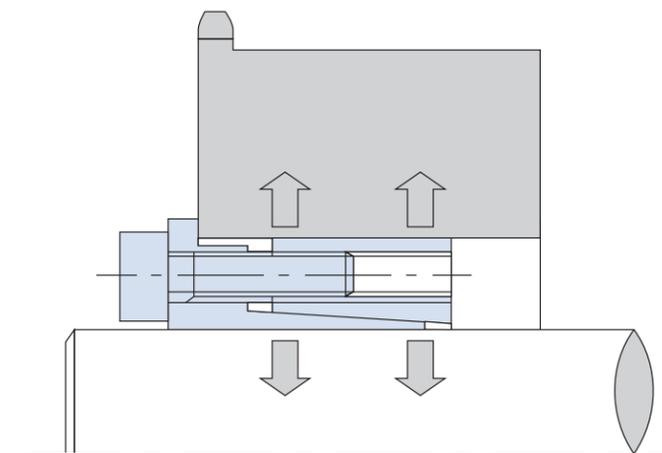
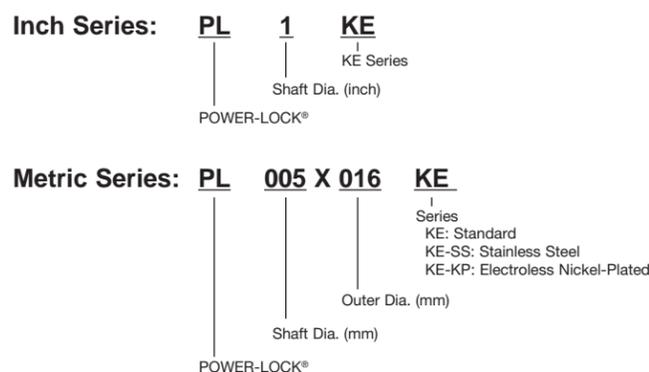
Model Number	RE-SS	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
			147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL005X018	RE-SS	7687	1.034	0.967	0.922	0.901	0.883	0.862	0.850	0.828	0.812	0.800
PL006X019	RE-SS	7252	1.066	1.002	0.958	0.938	0.920	0.900	0.888	0.866	0.850	0.838
PL008X021	RE-SS	8847	1.286	1.187	1.122	1.092	1.066	1.037	1.021	0.990	0.967	0.950
PL010X026	RE-SS	10153	1.718	1.559	1.458	1.412	1.373	1.329	1.305	1.259	1.226	1.201
PL011X027	RE-SS	9718	1.739	1.587	1.490	1.445	1.407	1.364	1.341	1.296	1.263	1.239
PL012X028	RE-SS	11748	2.049	1.813	1.670	1.607	1.554	1.495	1.463	1.402	1.359	1.327
PL014X030	RE-SS	11893	2.217	1.957	1.800	1.731	1.673	1.608	1.573	1.507	1.460	1.426
PL015X031	RE-SS	11603	2.246	1.993	1.839	1.770	1.713	1.649	1.613	1.548	1.501	1.466
PL016X032	RE-SS	11168	2.254	2.014	1.866	1.800	1.744	1.682	1.647	1.583	1.537	1.503
PL017X033	RE-SS	10008	2.162	1.966	1.841	1.784	1.735	1.681	1.650	1.593	1.552	1.521
PL018X034	RE-SS	9718	2.189	1.999	1.876	1.820	1.772	1.718	1.688	1.631	1.591	1.560
PL019X035	RE-SS	12473	2.693	2.351	2.149	2.061	1.988	1.907	1.862	1.780	1.722	1.679
PL020X039	RE-SS	14939	3.660	3.002	2.659	2.518	2.404	2.280	2.214	2.093	2.009	1.948
PL022X041	RE-SS	14214	3.609	3.025	2.708	2.574	2.466	2.347	2.283	2.166	2.084	2.023
PL024X043	RE-SS	16245	4.605	3.591	3.114	2.924	2.774	2.613	2.528	2.376	2.271	2.195
PL025X044	RE-SS	15809	4.496	3.573	3.122	2.939	2.795	2.639	2.557	2.408	2.305	2.230
PL028X049	RE-SS	16099	5.164	4.054	3.524	3.312	3.144	2.965	2.870	2.699	2.581	2.495
PL030X050	RE-SS	15809	5.109	4.060	3.547	3.340	3.176	2.999	2.905	2.736	2.619	2.534
PL032X052	RE-SS	14794	4.816	3.968	3.523	3.338	3.189	3.027	2.940	2.782	2.672	2.591
PL035X058	RE-SS	15954	6.018	4.753	4.143	3.897	3.703	3.494	3.384	3.184	3.047	2.946
PL038X060	RE-SS	17115	7.141	5.318	4.533	4.229	3.994	3.745	3.614	3.381	3.223	3.108
PL040X063	RE-SS	16390	6.859	5.312	4.594	4.309	4.085	3.845	3.719	3.492	3.337	3.223
PL042X066	RE-SS	17695	8.523	6.104	5.135	4.769	4.488	4.194	4.041	3.769	3.585	3.452
PL045X068	RE-SS	17260	8.252	6.090	5.174	4.823	4.550	4.263	4.113	3.845	3.663	3.531
PL048X072	RE-SS	17695	9.298	6.659	5.601	5.203	4.896	4.575	4.408	4.112	3.911	3.766
PL050X075	RE-SS	18130	10.382	7.173	5.969	5.524	5.185	4.832	4.649	4.326	4.109	3.952



Features & Application

- Self-Centering**
 Ideal for A-type sprockets and narrow gears, POWER-LOCK KE actually strengthens the shaft. Pre-centering is not required.
- Strong, Long-Lasting Performance**
 POWER-LOCK KE has been tested in hundreds of applications. It offers high durability against reversing or impacting loads.
- Range of Sizes Available**
 Available in a variety of sizes, including fractional inch sizes for smaller motors or sensors. No costly machining.

Model Number

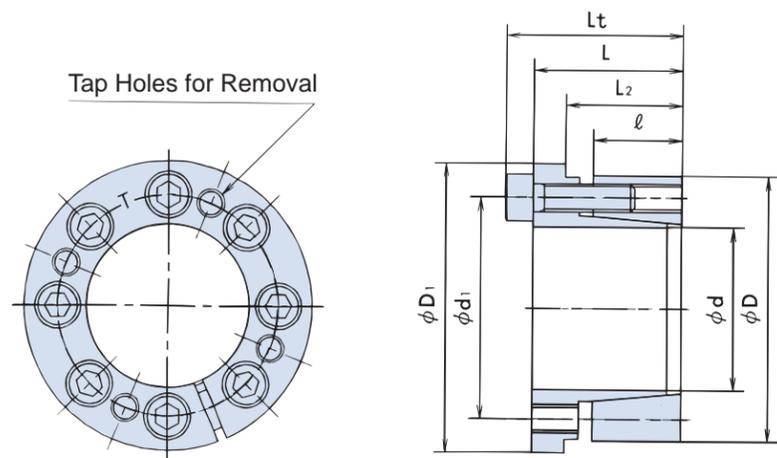


KE Inch Series

SELF-CENTERING KEYLESS LOCKING POWER

KE Inch Series

SELF-CENTERING KEYLESS LOCKING POWER

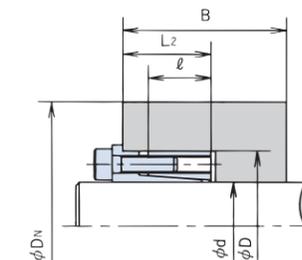


Installing to hubs with a guide portion

when $B \geq 2l$
(See Installation Example A)

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
PL2KE = 4.596" min. hub diameter



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

KE Inch Series POWER-LOCK® Specifications

Model Number		Shaft O.D.		Hub Counter I.D.		O.D. of KE	Dimensions inch				Transmissible Torque ft.lbs.	Transmissible Torque lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.	
		d	Tolerance t_1	D	Tolerance t_2		D_1	Lt	L	L2			ϵ	Shaft P	Hub Bore P'	Qty.	Size		Tightening Torque ft.lbs.
PL3/8	KE	0.3750	-0.0009 ⁺ +0	0.9375	+0.0013 ⁺ -0	1.063	0.807	0.650	0.563	0.394	22	1,340	28283	11313	3	M4X12	3.5	0.09	
PL1/2	KE	0.5000	-0.0011 ⁺ +0	1.0625	+0.0013 ⁺ -0	1.188	0.807	0.650	0.563	0.394	39	1,785	28283	13344	4	M4X12	3.5	0.11	
PL5/8	KE	0.6250	+0	1.1875	+0.0015 ⁺ -0	1.313	0.965	0.807	0.688	0.472	74	2,680	28283	14939	6	M4X16	3.5	0.15	
PL3/4	KE	0.7500	-0.0013 ⁺ +0	1.3125	+0.0015 ⁺ -0	1.438	0.965	0.807	0.688	0.472	89	2,680	23642	13489	6	M4X16	3.5	0.18	
PL7/8	KE	0.8750	-0.0013 ⁺ +0	1.5625	+0.0015 ⁺ -0	1.750	1.181	0.984	0.813	0.591	169	4,377	26397	14794	6	M5X20	7.5	0.33	
PL1	KE	1.0000	+0	1.6875	+0.0015 ⁺ -0	1.875	1.181	0.984	0.813	0.591	257	5,836	30894	18275	8	M5X20	7.5	0.35	
PL1-1/8	KE	1.1250	-0.0015 ⁺ +0	1.8750	+0.0018 ⁺ -0	2.000	1.299	1.102	0.938	0.669	326	6,564	27268	16390	9	M5X20	7.5	0.48	
PL1-3/16	KE	1.1875	-0.0015 ⁺ +0	1.9375	+0.0018 ⁺ -0	2.063	1.299	1.102	0.938	0.669	382	7,295	28573	17550	10	M5X20	7.5	0.51	
PL1-1/4	KE	1.2500	-0.0015 ⁺ +0	2.0000	+0.0018 ⁺ -0	2.125	1.299	1.102	0.938	0.669	402	7,295	27268	16970	10	M5X20	7.5	0.53	
PL1-3/8	KE	1.3750	-0.0015 ⁺ +0	2.1250	+0.0018 ⁺ -0	2.250	1.299	1.102	0.938	0.669	443	7,295	24802	15954	10	M5X20	7.5	0.57	
PL1-7/16	KE	1.4375	-0.0015 ⁺ +0	2.3125	+0.0018 ⁺ -0	2.500	1.496	1.260	1.063	0.748	522	8,234	23932	14794	8	M6X25	12.5	0.84	
PL1-1/2	KE	1.5000	-0.0015 ⁺ +0	2.3750	+0.0018 ⁺ -0	2.563	1.496	1.260	1.063	0.748	681	10,294	28573	18130	10	M6X25	12.5	0.86	
PL1-5/8	KE	1.6250	-0.0015 ⁺ +0	2.5000	+0.0018 ⁺ -0	2.688	1.496	1.260	1.063	0.748	738	10,294	26397	17115	10	M6X25	12.5	0.92	
PL1-11/16	KE	1.6875	-0.0015 ⁺ +0	2.5625	+0.0018 ⁺ -0	2.750	1.496	1.260	1.063	0.748	766	10,294	25382	16825	10	M6X25	12.5	0.95	
PL1-3/4	KE	1.7500	-0.0018 ⁺ +0	2.6250	+0.0021 ⁺ -0	2.813	1.496	1.260	1.063	0.748	794	10,294	24512	16390	10	M6X25	12.5	0.97	
PL1-7/8	KE	1.8750	-0.0018 ⁺ +0	2.7500	+0.0021 ⁺ -0	2.938	1.496	1.260	1.063	0.748	1,022	12,353	27413	18710	12	M6X25	12.5	1.03	
PL1-15/16	KE	1.9375	-0.0018 ⁺ +0	2.8125	+0.0021 ⁺ -0	3.000	1.496	1.260	1.063	0.748	1,143	13,382	28863	19871	13	M6X25	12.5	1.06	
PL2	KE	2.0000	-0.0018 ⁺ +0	2.8750	+0.0021 ⁺ -0	3.063	1.594	1.358	1.125	0.748	1,180	13,382	27848	19435	13	M6X25	12.5	1.12	
PL2-1/8	KE	2.1250	-0.0018 ⁺ +0	3.0000	+0.0021 ⁺ -0	3.188	1.594	1.358	1.125	0.748	1,351	14,410	28283	20016	14	M6X25	12.5	1.19	
PL2-3/16	KE	2.1875	-0.0018 ⁺ +0	3.0625	+0.0021 ⁺ -0	3.250	1.594	1.358	1.125	0.748	1,390	14,410	27413	19580	14	M6X25	12.5	1.21	
PL2-1/4	KE	2.2500	-0.0018 ⁺ +0	3.1250	+0.0021 ⁺ -0	3.313	1.594	1.358	1.125	0.748	1,430	14,410	26687	19290	14	M6X25	12.5	1.23	
PL2-3/8	KE	2.3750	-0.0018 ⁺ +0	3.2500	+0.0021 ⁺ -0	3.438	1.594	1.358	1.125	0.748	1,618	15,439	27123	19871	15	M6X25	12.5	1.30	
PL2-7/16	KE	2.4375	-0.0018 ⁺ +0	3.3125	+0.0021 ⁺ -0	3.500	1.591	1.358	1.125	0.748	1,660	15,439	26397	19435	15	M6X25	12.5	1.32	
PL2-1/2	KE	2.5000	-0.0018 ⁺ +0	3.3750	+0.0021 ⁺ -0	3.563	1.594	1.358	1.125	0.748	1,702	15,439	25817	19145	15	M6X25	12.5	1.34	
PL2-5/8	KE	2.6250	-0.0021 ⁺ +0	3.5000	+0.0021 ⁺ -0	3.688	1.594	1.358	1.125	0.748	1,788	15,439	24512	18420	15	M6X25	12.5	1.41	
PL2-11/16	KE	2.6875	-0.0021 ⁺ +0	3.5750	+0.0021 ⁺ -0	3.938	1.909	1.594	1.250	0.866	2,706	22,822	30603	22336	12	M8X30	30	2.00	
PL2-3/4	KE	2.7500	-0.0021 ⁺ +0	3.8125	+0.0021 ⁺ -0	4.000	1.909	1.594	1.250	0.866	2,769	22,822	29878	21611	12	M8X30	30	2.20	
PL2-7/8	KE	2.8750	-0.0021 ⁺ +0	3.9375	+0.0021 ⁺ -0	4.125	1.909	1.594	1.250	0.866	2,894	22,822	28573	20886	12	M8X30	30	2.29	
PL2-15/16	KE	2.9375	-0.0021 ⁺ +0	4.0000	+0.0021 ⁺ -0	4.188	1.909	1.594	1.250	0.866	2,958	22,822	27993	20596	12	M8X30	30	2.33	
PL3	KE	3.0000	-0.0021 ⁺ +0	4.0625	+0.0021 ⁺ -0	4.188	1.909	1.594	1.250	0.866	3,020	22,822	27413	20306	12	M8X30	30	2.35	
PL3-3/8	KE	3.4375	-0.0021 ⁺ +0	4.4375	+0.0025 ⁺ -0	4.625	1.949	1.634	1.313	0.866	3,964	26,628	28428	21611	14	M8X30	30	2.68	
PL3-7/16	KE	3.4375	-0.0021 ⁺ +0	4.5000	+0.0025 ⁺ -0	4.688	1.949	1.634	1.313	0.866	4,038	26,628	27848	21321	14	M8X30	30	2.73	
PL3-1/2	KE	3.5000	-0.0021 ⁺ +0	4.7500	+0.0025 ⁺ -0	5.000	2.520	2.126	1.688	1.142	6,528	42,278	33069	24367	14	M10X40	60	4.38	
PL3-3/4	KE	3.7500	-0.0021 ⁺ +0	5.0625	+0.0025 ⁺ -0	5.250	2.520	2.126	1.688	1.142	6,994	42,278	30749	22771	14	M10X40	60	4.91	
PL3-15/16	KE	3.9375	-0.0021 ⁺ +0	5.2500	+0.0025 ⁺ -0	5.500	2.520	2.126	1.688	1.142	7,344	42,278	29298	22046	14	M10X40	60	5.13	
PL4	KE	4.0000	-0.0021 ⁺ +0	5.3125	+0.0025 ⁺ -0	5.500	2.520	2.126	1.688	1.142	7,460	42,278	28863	21756	14	M10X40	60	5.19	

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples										
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi	
		1010 304SS 316SS	1015 1118	1020	1030	1035 1040 1144	1045	1055	1055	1055	1055	
PL3/8	KE	11313	1.475	1.358	1.282	1.246	1.216	1.182	1.163	1.127	1.101	1.081
PL1/2	KE	13344	1.842	1.659	1.544	1.492	1.449	1.399	1.372	1.321	1.285	1.257
PL5/8	KE	14939	2.238	1.973	1.814	1.744	1.685	1.620	1.584	1.517	1.470	1.435
PL3/4	KE	13489	2.292	2.060	1.916	1.851	1.796	1.734	1.700	1.636	1.591	1.556
PL7/8	KE	14794	2.921	2.581	2.376	2.285	2.209	2.124	2.078	1.991	1.930	1.884
PL1	KE	18275	3.908	3.238	2.882	2.733	2.613	2.482	2.412	2.284	2.195	2.130
PL1-1/8	KE	16390	3.840	3.308	3.002	2.870	2.762	2.642	2.576	2.456	2.371	2.308
PL1-3/16	KE	17550	4.270	3.596	3.226	3.070	2.942	2.803	2.728	2.590	2.493	2.422
PL1-1/4	KE	16970	4.245	3.618	3.265	3.114	2.991	2.855	2.781	2.646	2.551	2.481
PL1-3/8	KE	15954	4.241	3.681	3.354	3.212	3.095	2.965	2.894	2.763	2.670	2.601
PL1-7/16	KE	14794	4.323	3.820	3.516	3.381	3.269	3.144	3.075	2.947	2.856	2.789
PL1-1/2	KE	18130	5.445	4.526	4.035	3.830	3.663	3.482	3.385	3.207	3.083	2.991
PL1-5/8	KE	17115	5.356	4.551	4.102	3.910	3.753	3.581	3.487	3.316	3.196	3.107
PL1-11/16	KE	16825	5.390	4.606	4.163	3.973	3.818	3.646	3.553	3.382	3.262	3.173
PL1-3/4	KE	16390	5.376	4.631	4.203	4.018	3.866	3.698	3.607	3.438	3.320	3.232
PL1-7/8	KE	18710	6.573	5.385	4.769	4.514	4.309	4.087	3.968	3.751	3.601	3.490
PL1-15/16	KE	19871	7.367	5.833	5.089	4.789	4.551	4.296	4.161	3.917	3.748	3.625
PL2	KE	19435	7.266	5.833	5.119	4.828	4.596	4.346	4.213	3.973	3.806	3.684
PL2-1/8	KE	20016	7.956	6.268	5.458	5.132	4.875	4.599	4.452	4.188	4.007	3.874
PL2-3/16	KE	19580	7.831	6.259	5.482	5.167	4.916	4.646	4.502	4.243	4.064	3.932
PL2-1/4	KE	19290	7.807	6.295	5.534	5.224	4.976	4.708	4.565	4.307	4.128	3.997
PL2-3/8	KE	19871	8.513	6.740	5.880	5.534	5.259	4.964	4.808	4.526	4.331	4.189
PL2-7/16	KE	19435	8.371	6.721	5.898	5.563	5.296	5.008	4.855	4.577	4.386	4.245
PL2-1/2	KE	19145	9.263	7.500	6.606	6.240	5.947					

KE Inch Series

SELF-CENTERING KEYLESS LOCKING POWER

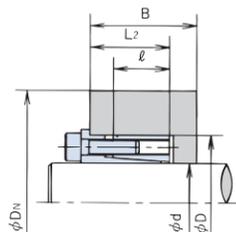
KE Metric Series

SELF-CENTERING KEYLESS LOCKING POWER



Installing to hubs with a guide portion

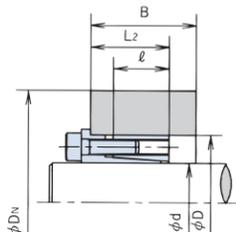
when $L_2 < B < 2l$
(See Installation Example B)



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

Installing to hubs without a guide portion

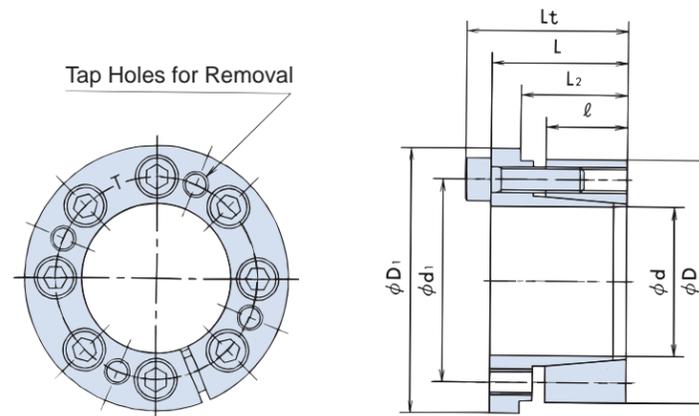
(See Installation Example C)



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

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
PL2KE = 5.309" min. hub diameter



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
PL3/4 KE	11304	1.692	1.509	1.396	1.346	1.303	1.256	1.230	1.181	1.147	1.121
PL1/2 KE	13333	2.213	1.897	1.717	1.640	1.576	1.506	1.468	1.398	1.349	1.313
PL5/8 KE	14928	2.828	2.320	2.056	1.946	1.858	1.763	1.712	1.618	1.554	1.506
PL3/4 KE	13478	2.765	2.361	2.134	2.036	1.957	1.868	1.821	1.733	1.671	1.626
PL7/8 KE	14783	3.672	3.027	2.688	2.547	2.433	2.309	2.243	2.123	2.039	1.977
PL1 KE	18261	6.069	4.143	3.435	3.175	2.978	2.773	2.667	2.480	2.354	2.263
PL1-1/8 KE	16377	5.178	4.013	3.471	3.256	3.086	2.906	2.811	2.639	2.522	2.436
PL1-3/16 KE	17536	6.208	4.498	3.798	3.532	3.327	3.112	3.000	2.800	2.665	2.567
PL1-1/4 KE	16957	5.923	4.453	3.808	3.557	3.362	3.155	3.047	2.853	2.720	2.624
PL1-3/8 KE	15942	5.593	4.420	3.853	3.625	3.444	3.250	3.148	2.962	2.835	2.741
PL1-7/16 KE	14783	5.434	4.479	3.978	3.769	3.601	3.418	3.320	3.142	3.018	2.926
PL1-1/2 KE	18116	8.331	5.763	4.978	4.763	4.601	4.440	4.288	4.140	4.000	3.878
PL1-5/8 KE	17102	7.545	5.624	4.794	4.474	4.225	3.961	3.824	3.577	3.410	3.288
PL1-11/16 KE	16812	7.452	5.648	4.844	4.530	4.285	4.024	3.888	3.643	3.476	3.354
PL1-3/4 KE	16377	7.249	5.618	4.859	4.558	4.321	4.068	3.935	3.695	3.531	3.411
PL1-7/8 KE	18696	10.737	6.997	5.732	5.277	4.935	4.582	4.401	4.083	3.869	3.716
PL1-15/16 KE	19855	14.906	7.955	6.265	5.700	5.286	4.869	4.658	4.292	4.050	3.877
PL2 KE	19420	13.310	7.800	6.242	5.706	5.309	4.906	4.700	4.342	4.104	3.934
PL2-1/8 KE	20000	16.779	8.610	6.741	6.123	5.672	5.219	4.990	4.594	4.332	4.146
PL2-3/16 KE	19565	14.778	8.422	6.706	6.120	5.689	5.251	5.028	4.641	4.384	4.201
PL2-1/4 KE	19275	13.920	8.365	6.728	6.160	5.737	5.307	5.087	4.703	4.448	4.265
PL2-3/8 KE	19855	17.225	9.193	7.239	6.587	6.108	5.626	5.382	4.959	4.680	4.480
PL2-7/16 KE	19420	15.335	8.987	7.192	6.575	6.117	5.652	5.415	5.002	4.728	4.532
PL2-1/2 KE	19130	16.113	9.908	8.008	7.342	6.845	6.338	6.078	5.624	5.322	5.105
PL2-5/8 KE	18406	12.921	8.693	7.180	6.629	6.211	5.778	5.555	5.161	4.897	4.706
PL2-11/16 KE	22319	na	14.482	9.854	8.656	7.846	7.078	6.704	6.078	5.678	5.398
PL2-3/4 KE	21594	na	13.196	9.503	8.450	7.718	7.009	6.660	6.069	5.687	5.418
PL2-7/8 KE	20870	na	12.428	9.346	8.157	7.422	7.057	6.725	6.157	5.787	5.525
PL2-15/16 KE	20580	na	12.212	9.318	8.404	7.748	7.097	6.771	6.211	5.844	5.584
PL3 KE	20290	na	12.016	9.293	8.412	7.774	7.137	6.817	6.264	5.901	5.643
PL3-3/8 KE	21594	na	15.360	11.061	9.835	8.983	8.158	7.752	7.064	6.619	6.306
PL3-7/16 KE	21304	na	14.985	10.994	9.818	8.993	8.188	7.790	7.112	6.672	6.362
PL3-1/2 KE	24348	na	30.894	14.874	12.456	10.990	9.692	9.090	8.113	7.507	7.092
PL3-3/4 KE	22754	na	21.124	13.760	10.811	9.710	9.180	8.297	7.735	7.344	7.092
PL3-15/16 KE	22029	na	19.358	13.501	11.919	10.839	9.804	9.299	8.448	7.901	7.518
PL4 KE	21739	na	18.766	13.378	11.868	10.824	9.818	9.323	8.487	7.948	7.569

KE Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch				Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			
	d	Tolerance t_1	D	Tolerance t_2	Lt	L	L2	r			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	Wt. lbs.
	PL005X016 KE	0.1969	-0.0007"	0.6299	+0.0011"	0.650	0.531	0.472	0.315	6	643	32344	10153	3	M3 X 10	1.5
PL006X017 KE	0.2362	+0	0.6693	-0	0.650	0.531	0.472	0.315	7	643	26977	9573	3	M3 X 10	1.5	0.04
PL008X021 KE	0.3150	-0.0009"	0.8268	+0.0011"	0.807	0.650	0.571	0.394	18	1,340	33649	12764	3	M4 X 12	3.5	0.07
PL010X023 KE	0.3937	+0	0.9055	-0	0.807	0.650	0.571	0.394	23	1,340	26977	11603	3	M4 X 12	3.5	0.09
PL011X024 KE	0.4331	-0.0011"	0.9449	+0.0013"	0.807	0.650	0.571	0.394	25	1,340	24512	11168	3	M4 X 12	3.5	0.09
PL012X026 KE	0.4724	+0	1.0236	-0	0.807	0.650	0.571	0.394	37	1,785	30023	13779	4	M4 X 12	3.5	0.11
PL014X028 KE	0.5512	-0.0011"	1.1024	+0	0.945	0.787	0.689	0.472	54	2,226	26687	13344	5	M4 X 14	3.5	0.13
PL015X029 KE	0.5906	+0	1.1417	-0	0.945	0.787	0.689	0.472	69	2,675	30023	15519	6	M4 X 14	3.5	0.15
PL016X030 KE	0.6299	-0.0011"	1.1811	+0	0.945	0.787	0.689	0.472	75	2,675	28138	14939	6	M4 X 14	3.5	0.15
PL017X031 KE	0.6693	+0	1.2205	-0	0.945	0.787	0.689	0.472	79	2,675	26397	14504	6	M4 X 14	3.5	0.15
PL018X032 KE	0.7087	-0.0013"	1.2598	+0.0015"	0.945	0.787	0.689	0.472	83	2,675	24947	14069	6	M4 X 14	3.5	0.18
PL019X033 KE	0.7480	+0	1.2992	-0	0.945	0.787	0.689	0.472	89	2,675	23642	13634	6	M4 X 14	3.5	0.18
PL020X038 KE	0.7874	-0.0013"	1.4961	+0	1.181	0.984	0.807	0.591	152	4,361	29443	15519	6	M5 X 18	7.5	0.3
PL022X040 KE	0.8661	+0	1.5748	-0	1.181	0.984	0.807	0.591	167	4,361	26687	14649	6	M5 X 18	7.5	0.3
PL024X042 KE	0.9449	-0.0013"	1.6535	+0	1.181	0.984	0.807	0.591	243	5,822	32634	18565	8	M5 X 18	7.5	0.4
PL025X043 KE	0.9843	+0	1.6929	-0	1.181	0.984	0.807	0.591	253	5,822	31329	18130	8	M5 X 18	7.5	0.4
PL028X046 KE	1.1024	-0.0015"	1.8110	+0.0018"	1.299	1.102	0.886	0.669	319	6,564	27703	16970	9	M5 X 18	7.5	0.5
PL030X048 KE	1.1811	+0	1.8898	-0	1.299	1.102	0.886	0.669	380	7,284	28863	17985	10	M5 X 18	7.5	0.5
PL032X050 KE	1.2598	-0.0015"	1.9685	+0.0018"	1.299	1.102	0.886	0.669	405	7,284	26977	17405	10	M5 X 18	7.5	0.5
PL035X057 KE	1.3780	+0	2.2441	-0	1.496	1.260	0.984	0.748	500	8,228	24947	15374	8	M6 X 22	12.5	0.8
PL038X060 KE	1.4961	-0.0015"	2.3622	+0.0018"	1.496	1.260	0.984	0.748	679	10,296	28718	18130	10	M6 X 22	12.5	3.1
PL040X062 KE	1.5748	+0	2.4409	-0	1.496	1.260	0.984	0.748	715	10,296	27268	17695	10	M6 X 22	12.5	3.1
PL042X064 KE	1.6535	-0.0018"	2.5197	+0.0021"	1.496	1.260	0.984	0.748	745	10,296	25962	17115	10	M6 X 22	12.5	0.9
PL045X067 KE	1.7717	+0	2.6378	-0	1.496	1.260	0.984	0.748	804	10,296	24367	16390	10	M6 X 22	12.5	1.0
PL048X070 KE	1.8898	-0.0018"	2.7559	+0.0021"	1.496	1.260	0.984	0.748	1,025	12,342	27268	18710	12	M6 X 22	12.5	1.0
PL050X072 KE	1.9685	+0	2.8346	-0	1.594	1.358	1.024	0.748	1,254	14,410	30603	21176	14	M6 X 25	12.5	1.1
PL055X077 KE	2.1654	-0.0018"	3.0315	+0.0025"	1.594	1.358	1.024	0.748	1,372	14,410	27703	19871	14	M6 X 25	12.5	1.2
PL060X082 KE	2.3622	+0	3.2283	-0	1.594	1.358	1.024	0.748	1,608	15,421	27268	19871	15	M6 X 25	12.5	1.3
PL065X087 KE	2.5591	-0.0021"	3.4252	+0.0028"	1.594	1.358	1.024	0.748	1,741	15,421	25092	18710	15	M6 X 25	12.5	1.4
PL070X097 KE	2.7559	+0	3.8189	-0	1.909	1.594										

KE Metric Series

SELF-CENTERING KEYLESS LOCKING POWER

KE Metric Series

SELF-CENTERING KEYLESS LOCKING POWER

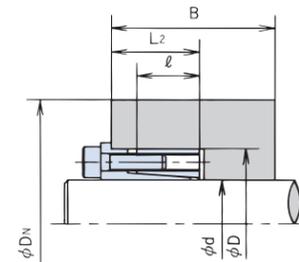


Installing to hubs with a guide portion

when $B \geq 2\ell$
(See Installation Example A)

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
PL030X048KE = 2.904" min. hub diameter



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

Installing to hubs with a guide portion

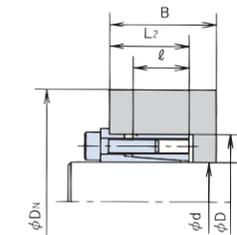
when $L_2 < B < 2\ell$
(See Installation Example B)

Installing to hubs without a guide portion

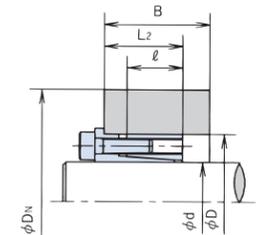
(See Installation Example C)

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
PL030X048KE = 3.300" 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
PL005X016 KE	10153	0.941	0.876	0.833	0.812	0.795	0.775	0.764	0.743	0.727	0.716
PL006X017 KE	9573	0.975	0.912	0.870	0.850	0.833	0.814	0.803	0.782	0.766	0.755
PL008X021 KE	12764	1.393	1.263	1.180	1.143	1.111	1.075	1.055	1.018	0.991	0.971
PL010X023 KE	11603	1.444	1.326	1.249	1.213	1.183	1.149	1.130	1.094	1.068	1.048
PL011X024 KE	11168	1.477	1.362	1.286	1.251	1.222	1.188	1.169	1.133	1.107	1.088
PL012X026 KE	13779	1.814	1.625	1.508	1.455	1.411	1.361	1.334	1.282	1.246	1.218
PL014X028 KE	13344	1.911	1.721	1.602	1.548	1.503	1.452	1.424	1.371	1.333	1.305
PL015X029 KE	15519	2.222	1.942	1.777	1.704	1.644	1.577	1.541	1.473	1.425	1.390
PL016X030 KE	14939	2.226	1.962	1.804	1.734	1.676	1.611	1.575	1.509	1.462	1.427
PL017X031 KE	14504	2.246	1.993	1.839	1.770	1.713	1.649	1.613	1.548	1.501	1.466
PL018X032 KE	14069	2.266	2.023	1.872	1.805	1.749	1.686	1.651	1.586	1.540	1.505
PL019X033 KE	13634	2.286	2.051	1.905	1.839	1.784	1.722	1.688	1.624	1.578	1.543
PL020X038 KE	15519	2.912	2.545	2.328	2.233	2.155	2.067	2.019	1.931	1.868	1.821
PL022X040 KE	14649	2.921	2.586	2.383	2.293	2.218	2.134	2.088	2.002	1.941	1.895
PL024X042 KE	18565	3.910	3.216	2.853	2.702	2.581	2.449	2.378	2.250	2.161	2.095
PL025X043 KE	18130	3.881	3.226	2.876	2.730	2.611	2.482	2.413	2.286	2.197	2.132
PL028X046 KE	16970	3.844	3.276	2.957	2.820	2.708	2.585	2.519	2.396	2.310	2.247
PL030X048 KE	17985	4.289	3.577	3.195	3.034	2.904	2.761	2.685	2.545	2.448	2.376
PL032X050 KE	17405	4.297	3.630	3.262	3.105	2.978	2.838	2.763	2.624	2.528	2.456
PL035X057 KE	15374	4.332	3.795	3.476	3.336	3.220	3.090	3.020	2.889	2.796	2.726
PL038X060 KE	18130	5.415	4.502	4.014	3.809	3.644	3.463	3.366	3.189	3.066	2.975
PL040X062 KE	17695	5.432	4.560	4.085	3.884	3.721	3.543	3.447	3.271	3.148	3.057
PL042X064 KE	17115	5.398	4.587	4.134	3.940	3.783	3.609	3.515	3.342	3.221	3.132
PL045X067 KE	16390	5.402	4.653	4.224	4.038	3.885	3.716	3.624	3.455	3.336	3.247
PL048X070 KE	18710	6.587	5.397	4.780	4.524	4.319	4.095	3.976	3.759	3.609	3.498
PL050X072 KE	21176	8.378	6.304	5.392	5.038	4.762	4.469	4.316	4.041	3.854	3.718
PL055X077 KE	19871	7.941	6.287	5.485	5.162	4.831	4.485	4.321	4.040	3.807	3.607
PL060X082 KE	19871	8.456	6.695	5.841	5.497	5.224	4.931	4.776	4.496	4.303	4.161
PL065X087 KE	18710	8.186	6.708	5.940	5.623	5.367	5.090	4.942	4.672	4.485	4.347
PL070X097 KE	21466	11.633	8.634	7.349	6.854	6.470	6.065	5.852	5.474	5.216	5.029
PL075X102 KE	20451	11.068	8.584	7.427	6.968	6.606	6.221	6.017	5.651	5.400	5.216
PL080X107 KE	22771	15.035	10.305	8.555	7.912	7.422	6.913	6.650	6.185	5.872	5.646
PL085X112 KE	21756	13.866	10.138	8.585	7.993	7.535	7.053	6.802	6.354	6.050	5.829
PL090X123 KE	23932	20.885	12.812	10.349	9.488	8.845	8.188	7.853	7.266	6.875	6.594
PL095X128 KE	22916	18.359	12.443	10.298	9.513	8.918	8.300	7.981	7.419	7.040	6.768
PL100X133 KE	22046	17.028	12.247	10.316	9.587	9.025	8.436	8.130	7.585	7.217	6.949

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
PL005X016 KE	10153	1.057	0.960	0.897	0.869	0.845	0.818	0.803	0.775	0.755	0.739
PL006X017 KE	9573	1.085	0.993	0.933	0.905	0.882	0.856	0.841	0.813	0.793	0.778
PL008X021 KE	12764	1.650	1.432	1.305	1.250	1.204	1.153	1.126	1.075	1.039	1.012
PL010X023 KE	11603	1.667	1.479	1.364	1.313	1.271	1.223	1.197	1.148	1.114	1.088
PL011X024 KE	11168	1.690	1.510	1.400	1.350	1.308	1.261	1.235	1.187	1.153	1.127
PL012X026 KE	13779	2.208	1.872	1.686	1.606	1.541	1.470	1.431	1.360	1.311	1.274
PL014X028 KE	13344	2.298	1.969	1.782	1.702	1.636	1.563	1.524	1.451	1.400	1.362
PL015X029 KE	15519	2.877	2.312	2.030	1.915	1.823	1.725	1.672	1.577	1.511	1.462
PL016X030 KE	14939	2.815	2.309	2.046	1.937	1.849	1.754	1.703	1.610	1.546	1.498
PL017X031 KE	14504	2.798	2.326	2.074	1.968	1.883	1.789	1.739	1.648	1.584	1.537
PL018X032 KE	14069	2.783	2.342	2.101	1.998	1.915	1.824	1.775	1.685	1.622	1.576
PL019X033 KE	13634	2.770	2.358	2.126	2.027	1.947	1.858	1.810	1.721	1.659	1.613
PL020X038 KE	15519	3.770	3.030	2.660	2.509	2.389	2.260	2.191	2.066	1.980	1.916
PL022X040 KE	14649	3.657	3.026	2.693	2.553	2.441	2.319	2.253	2.133	2.050	1.988
PL024X042 KE	18565	6.291	4.161	3.422	3.154	2.952	2.744	2.636	2.447	2.321	2.229
PL025X043 KE	18130	5.953	4.113	3.422	3.167	2.973	2.770	2.666	2.480	2.356	2.266
PL028X046 KE	16970	5.372	4.036	3.450	3.223	3.046	2.858	2.760	2.584	2.464	2.377
PL030X048 KE	17985	6.487	4.539	3.791	3.513	3.300	3.078	2.963	2.760	2.622	2.523
PL032X050 KE	17405	6.190	4.526	3.833	3.568	3.364	3.149	3.036	2.836	2.701	2.602
PL035X057 KE	15374	5.575	4.504	3.964	3.743	3.566	3.375	3.273	3.089	2.961	2.868
PL038X060 KE	18130	8.306	5.739	4.775	4.419	4.148	3.866	3.719	3.461	3.287	3.161
PL040X062 KE	17695	8.007	5.734	4.823	4.480	4.216	3.940	3.796	3.541	3.368	3.243
PL042X064 KE	17115	7.617	5.673	4.835	4.511	4.260	3.994	3.855	3.607	3.438	3.315
PL045X067 KE	16390	7.294	5.650	4.885	4.582	4.344	4.090	3.955	3.714	3.549	3.428
PL048X070 KE	18710	10.792	7.020	5.748	5.292	4.948	4.594	4.413	4.093	3.879	3.725
PL050X072 KE	21176	14.521	9.287	6.866	6.143	5.633	5.135	4.888	4.466	4.192	3.999
PL055X077 KE	19871	na	8.588	6.759	6.149	5.701	5.251	5.023	4.627	4.366	4.180
PL060X082 KE	19871	na	9.146	7.198	6.548	6.072	5.592	5.349	4.928	4.650	4.452
PL065X087 KE	18710	na	8.725	7.144	6.577	6.150	5.710	5.484	5.087	4.821	4.630
PL070X097 KE	21466	na	12.991	9.435	8.405	7.687	6.989	6.645	6.060	5.681	5.415
PL075X102 KE	20451	na	12.085	9.278	8.382	7.736	7.094	6.716	6.216	5.852	5.593
PL080X107 KE	22771	na	17.636	11.466	9.985	9.004	8.085	7.643	6.907	6.439	6.113
PL085X112 KE	21756	na	15.614	11.118	9.860	8.991	8.154	7.743	7.047	6.599	6.284
PL090X123 KE	23932	na	26.962	14.567	12.346	10.963	9.718	9.134	8.181	7.586	7.176
PL095X128 KE	22916	na	21.708	13.877	12.049	10.846	9.725	9.187	8.293	7.726	7.332
PL100X133 KE	22046	na	19.357	13.482	11.899	10.819	9.785	9.280	8.430	7.883	7.501

TF Metric Series

SELF-CONTAINED THIN PROFILE

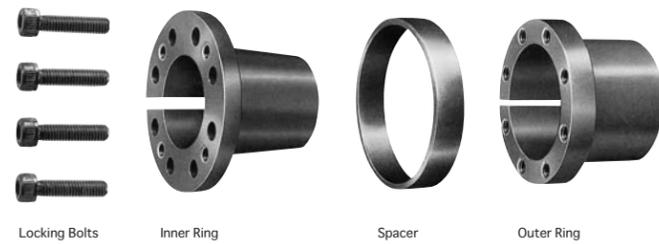
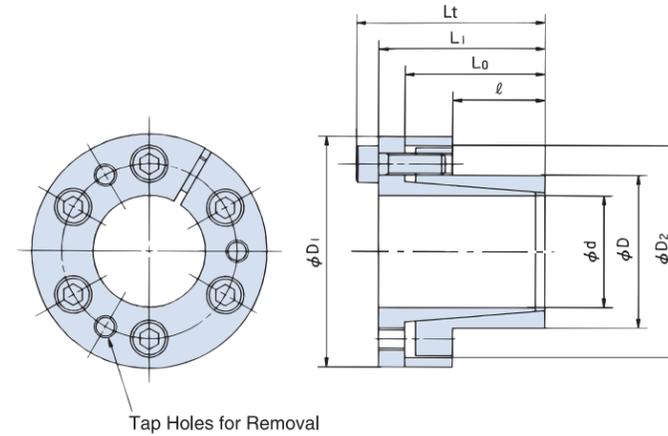
TF Metric Series

SELF-CONTAINED THIN PROFILE



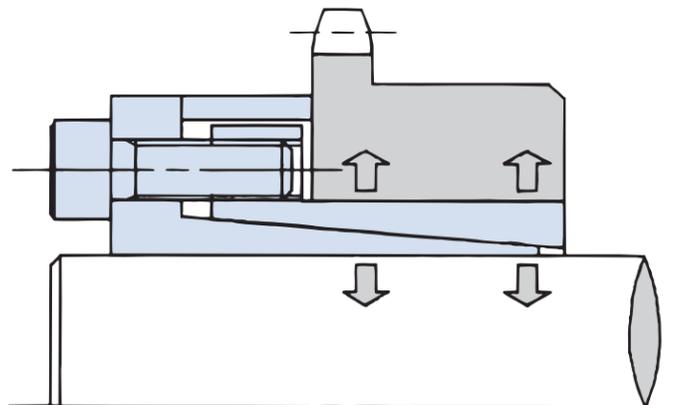
Features & Application

- Same Inner and Outer Diameters as the EL Series**
 Designed with the same inner and outer diameters as an EL Series POWER-LOCK.
- Self-Centering**
 These units provide accurate shaft-hub alignment and concentricity, allowing straight bore mounting.
- Simple Construction**
 Constructed with only an inner and an outer ring and locking bolts. Simply tighten these bolts to achieve a completely secure connection.



Model Number

PL 010 X 018 TF
 TF: Standard
 TF-KP: Electroless Nickel-Plated
 Outer Dia. (mm)
 Shaft Dia. (mm)
 POWER-LOCK®



TF Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch					Transmissible Torque		Transmissible Thrust		Contact Pressure psi		Locking Bolts			
	d	Tolerance t ₁	D	Tolerance t ₂	ℓ	L ₀	L ₁	L _t	D ₁	D ₂	ft.lbs.	lbs.	Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	Wt. lbs.	
PL006X012	TF	0.2362	-0.0007* +0	0.4724		0.394	0.748	0.827	0.945	0.984	0.906	8	849	26977	13489	3	M3 X 10	2.0	0.1
PL007X012	TF	0.2756		0.4724		0.394	0.748	0.827	0.945	0.984	0.886	10	849	23206	13489	3	M3 X 10	2.0	0.1
PL008X015	TF	0.3150	-0.0009* +0	0.5906	+0.0011* -0	0.472	0.866	0.984	1.142	1.063	0.945	19	1,465	29008	15519	3	M4 X 10	3.5	0.2
PL010X018	TF	0.3937		0.7087		0.551	0.906	1.024	1.181	1.260	1.102	33	1,954	26542	14794	4	M4 X 10	3.5	0.2
PL011X018	TF	0.4331		0.7087		0.551	0.906	1.024	1.181	1.260	1.102	35	1,954	24222	14794	4	M4 X 10	3.5	0.2
PL012X020	TF	0.4724		0.7874		0.551	0.906	1.024	1.181	1.339	1.181	38	1,954	22191	13344	4	M4 X 10	3.5	0.2
PL014X022	TF	0.5512	-0.0011* +0	0.8661		0.551	0.906	1.024	1.181	1.496	1.299	45	1,954	19000	12038	4	M4 X 10	3.5	0.3
PLX15X023	TF	0.5906		0.9055		0.551	0.945	1.181	1.378	1.535	1.398	79	3,190	28863	18855	4	M5 X 14	7.5	0.3
PL016X024	TF	0.6299		0.9449		0.551	0.945	1.181	1.378	1.575	1.437	84	3,190	27123	18130	4	M5 X 14	7.5	0.4
PL018X026	TF	0.7087		1.0236		0.709	1.220	1.496	1.732	1.850	1.654	145	4,840	31474	18275	4	M6 X 18	12.5	0.6
PL019X027	TF	0.7480		1.0630		0.709	1.220	1.496	1.732	1.929	1.693	152	4,840	29733	17695	4	M6 X 18	12.5	0.6
PL020X028	TF	0.7874		1.1024		0.709	1.220	1.496	1.732	1.969	1.732	159	4,840	28283	17115	4	M6 X 18	12.5	0.7
PL022X032	TF	0.8661		1.2598		0.984	1.496	1.772	2.008	2.126	1.890	181	4,840	17550	10733	4	M6 X 18	12.5	0.8
PL024X034	TF	0.9449	-0.0013* +0	1.3386		0.984	1.496	1.772	2.008	2.205	1.969	196	4,840	16099	10153	4	M6 X 18	12.5	0.9
PL025X034	TF	0.9843		1.3386		0.984	1.496	1.772	2.008	2.205	1.969	202	4,840	15519	10153	4	M6 X 18	12.5	0.9
PL028X039	TF	1.1024		1.5354	+0.0015* -0	0.984	1.496	1.772	2.008	2.402	2.165	121	7,260	20596	13199	6	M6 X 18	12.5	1.0
PL030X041	TF	1.1811		1.6142		0.984	1.496	1.772	2.008	2.441	2.244	369	7,260	19290	12473	6	M6 X 18	12.5	1.1
PL032X043	TF	1.2598		1.6929		0.984	1.496	1.772	2.008	2.559	2.323	390	7,260	17985	11893	6	M6 X 18	12.5	1.1
PL035X047	TF	1.3780		1.8504		1.260	1.772	2.047	2.283	2.717	2.441	571	9,900	16825	11313	8	M6 X 18	12.5	1.4
PL038X050	TF	1.4961		1.9685		1.260	1.772	2.047	2.283	2.835	2.598	622	9,900	15519	10733	8	M6 X 18	12.5	1.5
PL040X053	TF	1.5748	-0.0015* +0	2.0866		1.260	1.772	2.047	2.283	2.953	2.717	651	9,900	14649	10153	8	M6 X 18	12.5	1.6
PL042X055	TF	1.6535		2.1654		1.260	1.772	2.047	2.283	3.071	2.795	687	9,900	13924	9863	8	M6 X 18	12.5	1.7
PL045X059	TF	1.7717		2.3228	+0.0018* -0	1.772	2.441	2.756	3.071	3.386	3.150	1,365	18,480	17260	11893	8	M8 X 22	30	2.7
PL048X062	TF	1.8898		2.4409		1.772	2.441	2.756	3.071	3.425	3.189	1,453	18,480	16099	11313	8	M8 X 22	30	2.7
PL050X065	TF	1.9685		2.5591		1.772	2.441	2.756	3.071	3.622	3.386	1,519	18,480	15519	10733	8	M8 X 22	30	3.1
PL055X071	TF	2.1654		2.7953		2.165	2.835	3.150	3.465	3.858	3.622	1,881	20,680	12619	9138	9	M8 X 22	30	3.7
PL060X077	TF	2.3622		3.0315		2.165	2.835	3.150	3.465	4.094	3.858	2,043	20,680	11603	8412	9	M8 X 22	30	4.2
PL065X084	TF	2.5591	-0.0018* +0	3.3071		2.165	2.835	3.150	3.465	4.370	4.134	2,220	20,680	10733	7687	9	M8 X 22	30	4.9
PL070X090	TF	2.7559		3.5433		2.559	3.386	3.780	4.173	4.685	4.449	3,798	33,000	13344	9718	9	M10 X 25	60	6.7
PL075X095	TF	2.9528		3.7402	+0.0021* -0	2.559	3.386	3.780	4.173	4.961	4.685	4,049	33,000	12473	9138	9	M10 X 25	60	7.3
PL080X100	TF	3.1496		3.9370		2.559	3.386	3.780	4.173	5.157	4.921	5,783	44,000	15664	11458	12	M10 X 25	60	7.7
PL085X106	TF	3.3465	-0.0021* +0	4.1732		2.559	3.386	3.780	4.173	5.394	5.157	6,144	44,000	14649	10878	12	M10 X 25	60	8.4
PL090X112	TF	3.5433		4.4094		2.559	3.386	3.780	4.173	5.669	5.394	6,505	44,000	13924	10443	12	M10 X 25	60	9.2

TF Metric Series

SELF-CONTAINED THIN PROFILE

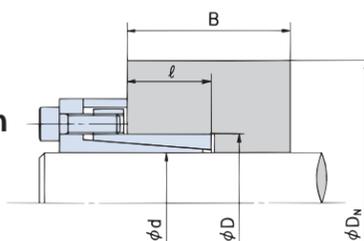
TF Metric Series

SELF-CONTAINED THIN PROFILE



Installing to hubs with a guide portion

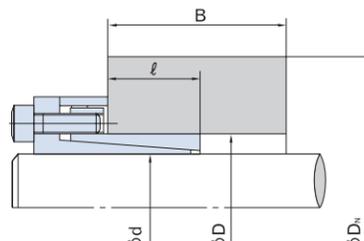
when $B \geq 2\ell$
(See Installation Example A)



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

Installing to hubs without a guide portion

when $B \geq 2\ell$
(See Installation Example B)



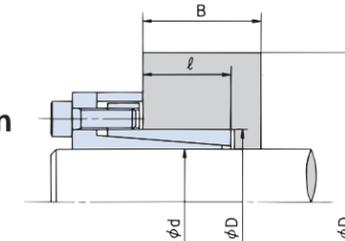
Installation Example B
When installing to hubs without a guide portion, the hub configuration coefficient is as follows: $K_3=0.8$

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
PL030X041TF = 2.154" min. hub diameter

Installing to hubs with a guide portion

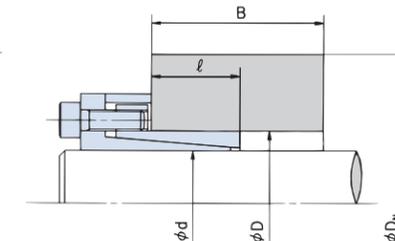
when $\ell \leq B < 2\ell$
(See Installation Example C)



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

Installing to hubs without a guide portion

when $\ell \leq B < 2\ell$
(See Installation Example D)



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

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
PL030X041TF = 2.329" min. hub diameter

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
PL006X012 TF	13489	0.825	0.742	0.690	0.666	0.646	0.624	0.612	0.589	0.573	0.560
PL007X012 TF	13489	0.825	0.742	0.690	0.666	0.646	0.624	0.612	0.589	0.573	0.560
PL008X015 TF	15519	1.149	1.005	0.919	0.882	0.850	0.816	0.797	0.762	0.737	0.719
PL010X018 TF	14794	1.325	1.171	1.078	1.036	1.002	0.963	0.942	0.903	0.875	0.855
PL011X018 TF	14794	1.325	1.171	1.078	1.036	1.002	0.963	0.942	0.903	0.875	0.855
PL012X020 TF	13344	1.365	1.229	1.144	1.106	1.074	1.037	1.017	0.979	0.952	0.932
PL014X022 TF	12038	1.409	1.288	1.210	1.174	1.144	1.109	1.090	1.054	1.028	1.008
PLX15X023 TF	18855	2.188	1.786	1.579	1.493	1.425	1.350	1.311	1.238	1.188	1.152
PL016X024 TF	18130	2.166	1.801	1.605	1.524	1.457	1.385	1.347	1.276	1.227	1.190
PL018X026 TF	18275	2.371	1.964	1.748	1.658	1.585	1.506	1.463	1.386	1.332	1.292
PL019X027 TF	17695	2.365	1.986	1.779	1.692	1.621	1.543	1.501	1.424	1.371	1.331
PL020X028 TF	17115	2.362	2.007	1.809	1.724	1.655	1.579	1.538	1.462	1.409	1.370
PL022X032 TF	10733	1.931	1.788	1.693	1.649	1.612	1.569	1.545	1.500	1.467	1.442
PL024X034 TF	10153	1.999	1.861	1.769	1.726	1.689	1.647	1.623	1.578	1.546	1.521
PL025X034 TF	10153	1.999	1.861	1.769	1.726	1.689	1.647	1.623	1.578	1.546	1.521
PL028X039 TF	13199	2.643	2.384	2.221	2.148	2.086	2.016	1.977	1.905	1.853	1.814
PL030X041 TF	12473	2.681	2.439	2.284	2.214	2.154	2.086	2.049	1.978	1.927	1.889
PL032X043 TF	11893	2.736	2.504	2.355	2.286	2.228	2.161	2.124	2.055	2.004	1.967
PL035X047 TF	11313	2.911	2.681	2.530	2.460	2.401	2.333	2.295	2.224	2.173	2.134
PL038X050 TF	10733	3.017	2.793	2.646	2.577	2.519	2.452	2.414	2.343	2.292	2.253
PL040X053 TF	10153	3.117	2.901	2.758	2.691	2.633	2.567	2.530	2.460	2.409	2.371
PL042X055 TF	9863	3.193	2.981	2.838	2.771	2.714	2.648	2.611	2.541	2.490	2.451
PL045X059 TF	11893	3.754	3.436	3.231	3.136	3.056	2.965	2.915	2.819	2.750	2.698
PL048X062 TF	11313	3.840	3.536	3.337	3.245	3.167	3.078	3.028	2.934	2.866	2.815
PL050X065 TF	10733	3.922	3.631	3.440	3.350	3.274	3.187	3.139	3.046	2.980	2.929
PL055X071 TF	9138	3.996	3.753	3.588	3.511	3.444	3.367	3.324	3.241	3.181	3.135
PL060X077 TF	8412	4.203	3.971	3.812	3.737	3.672	3.597	3.554	3.474	3.414	3.369
PL065X084 TF	7687	4.450	4.228	4.075	4.002	3.939	3.865	3.824	3.745	3.686	3.642
PL070X090 TF	9718	5.193	4.853	4.625	4.517	4.426	4.320	4.261	4.148	4.066	4.004
PL075X095 TF	9138	5.347	5.021	4.801	4.697	4.608	4.505	4.447	4.337	4.256	4.195
PL080X100 TF	11458	6.235	5.733	5.406	5.254	5.126	4.979	4.898	4.744	4.632	4.548
PL085X106 TF	10878	6.437	5.952	5.633	5.485	5.358	5.214	5.133	4.980	4.869	4.786
PL090X112 TF	10443	6.671	6.194	5.877	5.729	5.603	5.458	5.378	5.224	5.113	5.028

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
PL006X012 TF	13489	0.996	0.851	0.769	0.733	0.705	0.673	0.656	0.624	0.602	0.585
PL007X012 TF	13489	0.996	0.851	0.769	0.733	0.705	0.673	0.656	0.624	0.602	0.585
PL008X015 TF	15519	1.488	1.196	1.050	0.991	0.943	0.892	0.865	0.815	0.781	0.756
PL010X018 TF	14794	1.667	1.374	1.220	1.155	1.104	1.048	1.018	0.963	0.925	0.897
PL011X018 TF	14794	1.667	1.374	1.220	1.155	1.104	1.048	1.018	0.963	0.925	0.897
PL012X020 TF	13344	1.641	1.406	1.273	1.216	1.169	1.117	1.088	1.037	1.000	0.973
PL014X022 TF	12038	1.642	1.445	1.328	1.276	1.232	1.184	1.158	1.109	1.074	1.048
PLX15X023 TF	18855	3.655	2.335	1.904	1.750	1.635	1.517	1.456	1.349	1.278	1.227
PL016X024 TF	18130	3.322	2.295	1.910	1.768	1.659	1.546	1.488	1.384	1.315	1.265
PL018X026 TF	18275	3.691	2.516	2.085	1.927	1.807	1.683	1.618	1.505	1.428	1.373
PL019X027 TF	17695	3.487	2.497	2.101	1.951	1.836	1.716	1.653	1.542	1.467	1.412
PL020X028 TF	17115	3.332	2.482	2.115	1.974	1.864	1.747	1.687	1.578	1.504	1.450
PL022X032 TF	10733	2.192	1.972	1.835	1.773	1.721	1.662	1.629	1.569	1.525	1.492
PL024X034 TF	10153	2.247	2.039	1.907	1.847	1.796	1.738	1.706	1.646	1.603	1.571
PL025X034 TF	10153	2.247	2.039	1.907	1.847	1.796	1.738	1.706	1.646	1.603	1.571
PL028X039 TF	13199	3.165	2.721	2.468	2.358	2.268	2.168	2.115	2.015	1.945	1.893
PL030X041 TF	12473	3.155	2.754	2.518	2.414	2.329	2.234	2.182	2.086	2.017	1.967
PL032X043 TF	11893	3.178	2.805	2.580	2.480	2.398	2.305	2.255	2.160	2.093	2.043
PL035X047 TF	11313	3.341	2.979	2.756	2.657	2.573	2.480	2.428	2.332	2.264	2.213
PL038X050 TF	10733	3.425	3.082	2.867	2.770	2.689	2.597	2.546	2.451	2.383	2.332
PL040X053 TF	10153	3.503	3.179	2.973	2.879	2.799	2.710	2.660	2.566	2.499	2.449
PL042X055 TF	9863	3.572	3.255	3.051	2.958	2.879	2.790	2.740	2.647	2.580	2.529
PL045X059 TF	11893	4.360	3.848	3.540	3.403	3.290	3.163	3.093	2.964	2.872	2.804
PL048X062 TF	11313	4.408	3.930	3.636	3.504	3.395	3.271	3.203	3.077	2.986	2.919
PL050X065 TF	10733	4.453	4.006	3.727	3.601	3.495	3.376	3.310	3.186	3.098	3.031
PL055X071 TF	9138	4.420	4.065	3.834	3.727	3.636	3.533	3.475	3.366	3.287	3.228
PL060X077 TF	8412	4.601	4.269	4.049	3.946	3.859	3.758	3.702	3.596	3.519	3.460
PL065X084 TF	7687	4.824	4.512	4.303	4.204	4.120	4.023	3.968	3.865	3.789	3.732
PL070X090 TF	9718	5.795	5.291	4.966	4.817	4.691	4.548	4.468	4.319	4.211	4.130
PL075X095 TF	9138	5.914	5.439	5.130	4.987	4.866	4.727	4.650	4.504	4.398	4.319
PL080X100 TF	11458	7.177	6.383	5.898	5.681	5.500	5.297	5.186	4.978	4.830	4.719
PL085X106 TF	10878	7.328	6.579	6.112	5.902	5.726	5.527	5.417	5.212	5.065	4.955
PL090X112 TF	10443	7.535	6.809	6.351	6.144	5.969	5.771	5.662	5.457	5.310	5.199

SL Series

SHRINK DISK STYLE

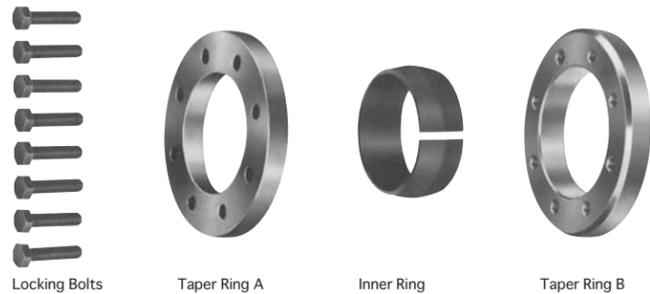
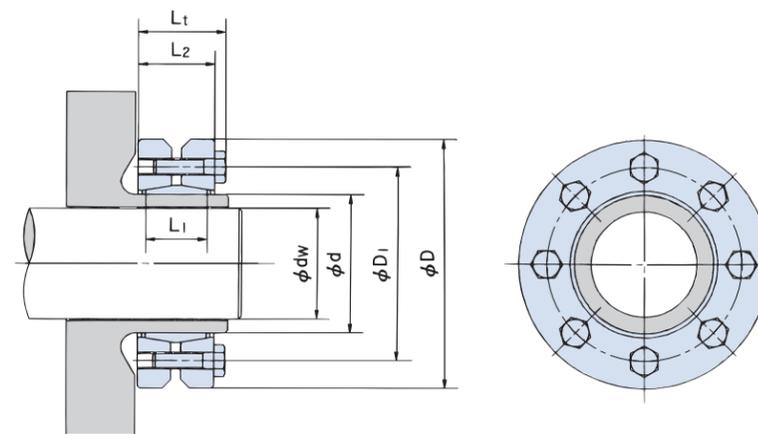
SL Series

SHRINK DISK STYLE

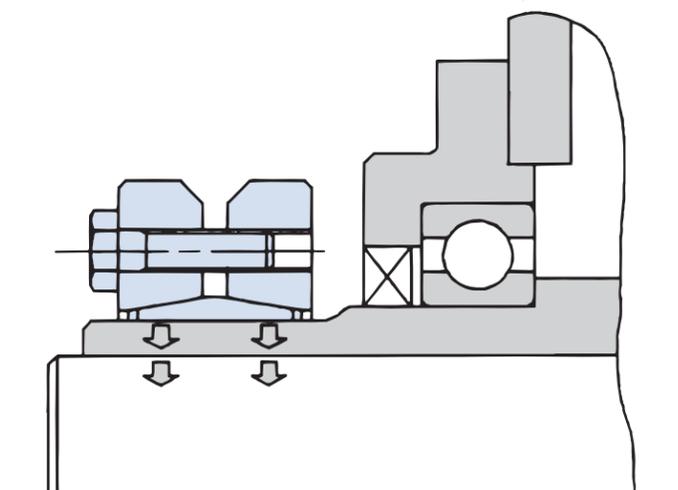
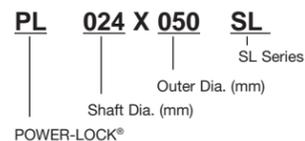


Features & Application

- External Lock**
 Excellent for hollow shaft or space restricted installation.
- Easy to Install and Remove**
 Installs or removes just by the tightening or loosening of bolts. No need to hassle with adjusting keyways and thermal fittings.
- Simple Construction**
 Simply constructed with only an inner ring and taper rings A and B. Simply tighten the locking bolts to achieve a completely secure connection.



Model Number



SL Series POWER-LOCK® Specifications

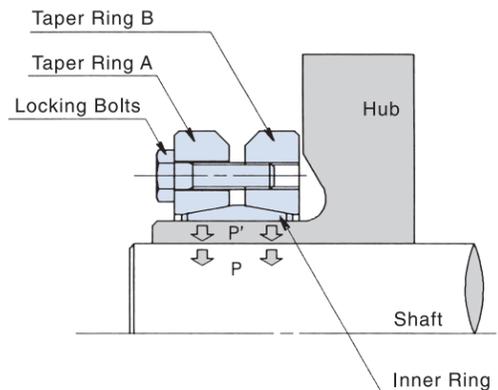
Model Number	Dimension Inch					Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	dw	D1	L1	L2	L3			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL024X050 SL	0.748	1.417	0.551	0.768	0.906	123	4,026	28863	45543	6	M5x18	3.5	0.4
	0.787					151	4,620	31329					
	0.827					179	5,214	33649					
PL030X060 SL	0.945	1.732	0.630	0.846	0.984	189	4,796	23787	36840	7	M5x18	3.5	0.7
	0.984					219	5,324	25382					
	1.024					251	5,874	26832					
PL036X072 SL	1.102	2.047	0.709	0.925	1.083	339	7,370	27848	39306	5	M6x20	9.0	0.9
	1.181					420	8,536	30168					
	1.220					442	8,690	29588					
PL044X080 SL	1.339	2.402	0.787	1.004	1.161	578	10,340	29008	40321	7	M6x20	9.0	1.3
	1.378					632	11,000	29878					
	1.417					689	11,660	30749					
PL050X090 SL	1.496	2.756	0.866	1.083	1.240	745	11,902	27123	37420	8	M6x22	9.0	1.8
	1.575					870	13,200	28573					
	1.654					1,003	14,542	30023					
PL055X100 SL	1.654	2.953	0.906	1.201	1.358	826	12,012	23642	32779	8	M6x25	9.0	2.4
	1.772					1,025	13,860	25527					
	1.890					1,239	15,752	27123					
PL062X110 SL	1.890	3.386	0.906	1.201	1.358	1,365	17,336	28283	36115	10	M6x25	9.0	2.9
	1.969					1,534	18,656	29298					
	2.047					1,637	19,206	29008					
PL068X115 SL	1.969	3.386	0.906	1.201	1.358	1,313	15,994	25092	33214	10	M6x25	9.0	3.1
	2.165					1,645	18,172	25962					
	2.362					2,117	21,494	28138					
PL075X138 SL	2.165	3.937	0.984	1.280	1.496	1,910	21,186	27848	36695	7	M8x30	22	3.7
	2.441					24,860	29878	31619					
	3,039					28,380	31619						
PL080X145 SL	2.362	3.937	0.984	1.280	1.496	2,198	22,220	26832	34665	7	M8x30	22	4.2
	2.559					25,744	28573	30168					
	2.756					29,260	30168						
PL090X155 SL	2.559	4.488	1.181	1.535	1.752	3,393	31,680	29443	36985	10	M8x35	22	7.3
	2.756					4,130	35,860	30894					
	2.953					4,942	40,040	32199					
PL100X170 SL	2.756	4.882	1.339	1.732	1.949	4,212	36,520	27703	35100	12	M8x35	22	10
	2.953					5,045	40,920	29008					
	3.150					5,967	45,320	30168					
PL110X185 SL	2.953	5.354	1.535	1.969	2.244	5,133	41,580	25672	32779	9	M10x40	43	13
	3.150					6,085	46,420	26832					
	3.346					6,904	49,500	26977					

SL Series

SHRINK DISK STYLE

EF Metric Series

THIN PROFILE SERIES



When an SL POWER-LOCK is tightened, the wedging action between the inner ring and the taper rings applies radial pressure P' on the hub exterior. This pressure P' molds the hub towards the radial direction and strengthens the hub-shaft connection. The greater the value of P' , the tighter the connection.



Features & Application

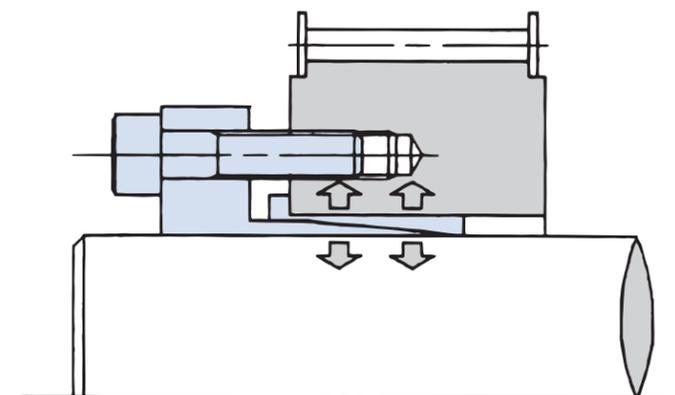
- Same Inner and Outer Diameters as the EL Series**
 Designed with the same inner and outer diameters as an EL Series POWER-LOCK.
- Self-Centering**
 These units provide accurate shaft-hub alignment and concentricity, allowing straight bore mounting.
- Simple Construction**
 Constructed with only an inner and an outer ring and locking bolts. Simply tighten these bolts to achieve a completely secure connection.

SL Series POWER-LOCK® Specifications

Model Number	Dimension inch					Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.
	dw	D1	L ₁	L ₂	L ₃			Shaft P	Hub Bore P'	Qty.	Size	Tightening Torque ft.lbs.	
PL125X215 SL	3.346	6.299	1.654	2.126	2.402	7,523	53,900	27123	34810	12	M10x40	43	18
	3.583					8,703	58,740	28138					
	3.740					9,957	64,020	29008					
PL140X230 SL	3.740	6.890	1.811	2.382	2.697	10,768	75,020	28428	35100	10	M12x45	72	22
	3.937					12,244	74,360	29153					
	4.134					13,792	80,080	29878					
PL155X265 SL	4.134	7.559	1.969	2.539	2.854	14,161	82,060	28283	34375	12	M12x50	72	33
	4.331					15,931	88,000	28863					
	4.528					17,702	93,720	29443					
PL165X290 SL	4.528	8.268	2.205	2.795	3.189	21,758	115,060	32199	37565	8	M16x55	181	48
	4.724					24,045	122,100	32779					
	4.921					26,036	126,720	32634					
PL175X300 SL	4.921	8.661	2.205	2.795	3.189	24,045	117,260	30168	35680	8	M16x55	181	48
	5.118					24,045	123,860	30749					
	5.315					29,060	131,120	31184					
PL185X330 SL	5.315	9.291	2.795	3.386	3.780	33,190	149,600	28138	33069	10	M16x65	181	81
	5.512					36,214	157,520	28573					
	5.709					39,460	165,660	29008					
PL195X350 SL	5.512	9.685	2.795	3.386	3.780	40,418	175,780	31909	36840	12	M16x65	181	90
	5.906					47,646	193,380	32779					
	6.102					51,482	202,180	33069					
PL200X350 SL	5.906	9.685	2.795	3.386	3.780	47,646	193,380	32779	36840	12	M16x65	181	90
	6.102					51,482	202,180	33069					
	6.299					55,465	210,980	33504					
PL220X370 SL	6.299	10.630	3.465	4.094	4.488	61,218	233,200	29878	33939	15	M16x80	181	119
	6.496					65,790	242,000	30168					
	6.693					69,458	253,000	30458					
PL240X405 SL	6.693	11.614	3.622	4.291	4.803	81,869	292,600	33794	37710	12	M20x80	354	147
	7.087					92,933	314,600	34375					
	7.480					103,996	334,400	34520					
PL260X430 SL	7.480	12.638	4.055	4.724	5.236	109,897	352,000	32489	36405	14	M20x90	354	180
	7.874					124,648	378,400	33069					
	8.268					138,662	402,600	33504					
PL280X460 SL	8.268	13.622	4.488	5.276	5.787	144,562	418,000	31619	34955	16	M20x100	354	224
	8.661					161,526	446,600	32054					
	9.055					178,490	473,000	32489					
PL300X485 SL	9.055	14.331	4.803	5.591	6.102	185,128	490,600	31474	34375	18	M20x100	354	260
	9.449					204,304	519,200	31909					
	9.646					213,893	532,400	32054					



Model Number

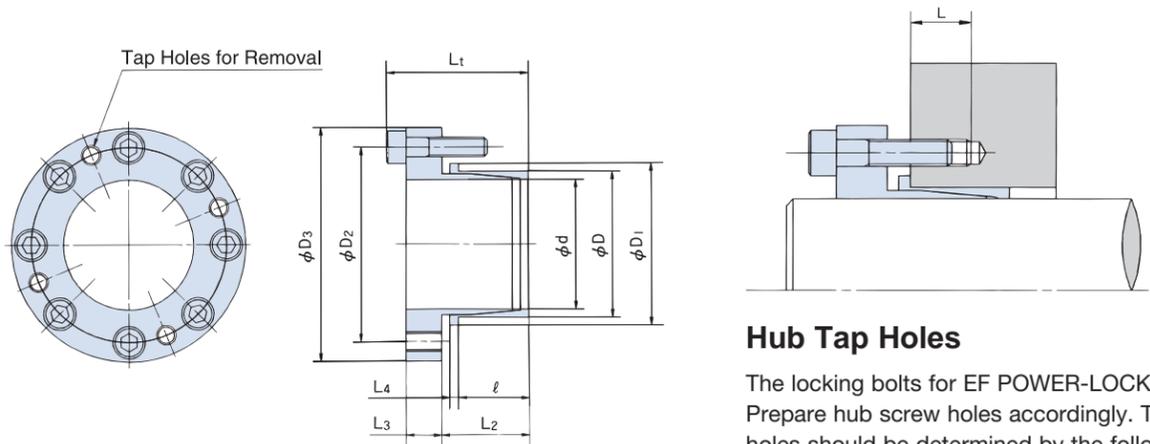


EF Metric Series

THIN PROFILE SERIES

EF Metric Series

THIN PROFILE SERIES



Hub Tap Holes

The locking bolts for EF POWER-LOCKS are equally spaced. Prepare hub screw holes accordingly. The depths of tap holes should be determined by the following formula.

$L = \text{The nominal length of bolts} - (L_3 + L_4)$
 L_3 : Inner Ring Flange Thickness
 L_4 : Outer Ring Flange Thickness

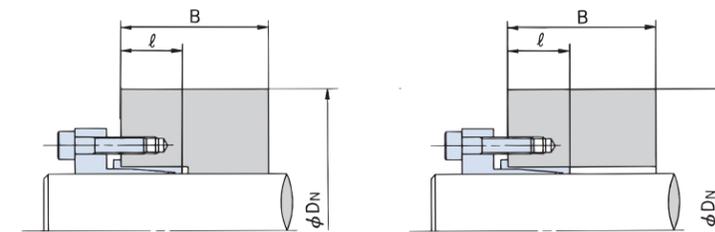
Installing to hubs with a guide portion

when $B \geq 2l$
 (See Installation Example A)

Installing to hubs without a guide portion

when $B \geq 2l$
 (See Installation Example B)

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: $K_3=0.8$

Installation Example B
 When installing to hubs without a guide portion, the hub configuration coefficient is as follows: $K_3=0.8$

<EXAMPLE> Hub Material Yield Point = 35500 psi
 PL030X035EF = 3.346" min. hub diameter

EF Metric Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Dimensions inch							Transmissible Torque ft.lbs.	Transmissible Thrust lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.	
	d	Tolerance t1	D	Tolerance t2	I	L2	L3	L4	Lt	D1	D2			D3	Shaft P	Hub Bore P'	Qty.	Size		Tightening Torque ft.lbs.
PL010X013 EF	0.3937	-0.0009" +0	0.5118		0.453	0.571	0.197	0.059	0.925	0.630	0.866	1.181	29	1,751	42352	32489	3	M4 X 16	3	0.09
PL011X014 EF	0.4331		0.5512	+0.0011"	0.453	0.571	0.197	0.059	0.925	0.669	0.906	1.220	32	1,751	38581	30313	3	M4 X 16	3	0.09
PL012X015 EF	0.4724		0.5906	-0	0.453	0.571	0.197	0.059	0.925	0.709	0.945	1.260	35	1,751	35245	28283	3	M4 X 16	3	0.09
PL014X018 EF	0.5512		0.7087		0.630	0.787	0.236	0.079	1.181	0.866	1.063	1.378	54	2,338	30313	23642	4	M4 X 18	3	0.13
PL015X019 EF	0.5906		0.7480		0.630	0.787	0.236	0.079	1.181	0.906	1.102	1.417	58	2,338	28283	22336	4	M4 X 18	3	0.15
PL016X020 EF	0.6299		0.7874		0.630	0.787	0.276	0.079	1.220	0.945	1.142	1.457	92	3,507	39596	31764	6	M4 X 18	3	0.18
PL017X021 EF	0.6693		0.8268		0.630	0.787	0.276	0.079	1.220	0.984	1.181	1.496	97	3,507	37420	30313	6	M4 X 18	3	0.18
PL018X022 EF	0.7087		0.8661		0.630	0.787	0.276	0.079	1.260	1.024	1.299	1.693	114	3,844	38726	31619	4	M5 X 20	6	0.22
PL019X024 EF	0.7480		0.9449	+0.0013"	0.630	0.787	0.276	0.079	1.260	1.102	1.378	1.772	120	3,844	36550	29008	4	M5 X 20	6	0.24
PL020X025 EF	0.7874		0.9843	-0	0.630	0.787	0.276	0.079	1.260	1.142	1.417	1.811	126	3,844	34810	27848	4	M5 X 20	6	0.26
PL022X026 EF	0.8661		1.0236		0.630	0.787	0.276	0.079	1.260	1.181	1.496	1.890	137	3,844	31619	26687	4	M5 X 20	6	0.26
PL024X028 EF	0.9449		1.1024	+0	0.630	0.787	0.276	0.079	1.260	1.260	1.575	1.969	152	3,844	29008	24947	4	M5 X 20	6	0.26
PL025X030 EF	0.9843		1.1811		0.630	0.787	0.276	0.079	1.260	1.339	1.654	2.047	159	3,844	27848	23206	4	M5 X 20	6	0.35
PL028X032 EF	1.1024		1.2598		0.630	0.807	0.315	0.079	1.319	1.417	1.732	2.126	260	5,755	37275	32489	6	M5 X 25	6	0.35
PL030X035 EF	1.1811		1.3780		0.630	0.807	0.315	0.079	1.319	1.535	1.850	2.244	282	5,755	34810	29878	6	M5 X 25	6	0.42
PL032X036 EF	1.2598		1.4173	+0.0015"	0.630	0.827	0.354	0.098	1.378	1.614	1.929	2.323	304	5,755	32489	29008	6	M5 X 25	6	0.44
PL035X040 EF	1.3780		1.5748	-0	0.689	0.886	0.354	0.098	1.437	1.772	2.087	2.480	333	5,755	25817	22771	6	M5 X 25	6	0.51
PL038X044 EF	1.4961		1.7323		0.689	0.906	0.394	0.098	1.535	1.929	2.283	2.756	506	8,115	33504	29008	6	M6 X 28	10	0.73
PL040X045 EF	1.5748		1.7717	+0	0.787	1.004	0.394	0.098	1.634	1.969	2.323	2.795	535	8,115	26107	23351	6	M6 X 28	10	0.73
PL042X048 EF	1.6535		1.8898		0.787	1.004	0.433	0.098	1.673	2.087	2.441	2.913	745	10,790	33214	29153	8	M6 X 28	10	0.88
PL045X052 EF	1.7717		2.0472		0.984	1.240	0.512	0.118	2.067	2.283	2.717	3.307	1,099	14,904	35390	30603	6	M8 X 35	25.5	1.4
PL048X055 EF	1.8898		2.1654		0.984	1.240	0.512	0.118	2.067	2.402	2.835	3.425	1,180	14,904	33069	28863	6	M8 X 35	25.5	1.5
PL050X057 EF	1.9685		2.2441	+0.0018"	0.984	1.240	0.512	0.118	2.067	2.480	2.913	3.504	1,224	14,904	31909	27848	6	M8 X 35	25.5	1.5
PL055X062 EF	2.1654		2.4409	-0	0.984	1.240	0.512	0.118	2.067	2.677	3.110	3.701	1,342	14,904	28863	25527	6	M8 X 35	25.5	1.6
PL060X068 EF	2.3622		2.6772		1.063	1.339	0.512	0.138	2.165	2.953	3.386	3.976	1,468	14,904	23787	20886	6	M8 X 35	25.5	1.9
PL065X073 EF	2.5591		2.8740	+0	1.063	1.339	0.591	0.138	2.244	3.150	3.583	4.173	2,117	19,895	29153	25962	8	M8 X 40	25.5	2.4
PL070X079 EF	2.7559		3.1102		1.220	1.496	0.591	0.138	2.402	3.386	3.819	4.409	2,286	19,895	25672	22916	8	M8 X 40	25.5	2.6
PL075X084 EF	2.9528		3.3071		1.220	1.516	0.630	0.138	2.461	3.583	4.147	4.606	3,061	24,953	30023	26832	10	M8 X 40	25.5	2.9
PL080X091 EF	3.1496		3.5827	+0.0021"	1.339	1.654	0.669	0.157	2.638	3.898	4.331	4.921	3,260	24,953	25527	22481	10	M8 X 40	25.5	3.7
PL085X096 EF	3.3465		3.7795	-0	1.339	1.673	0.748	0.157	2.815	4.094	4.646	5.394	4,411	31,697	30749	27123	8	M10 X 45	50	4.8
PL090X101 EF	3.5433		3.9764		1.339	1.673	0.748	0.157	2.815	4.291	4.843	5.591	4,669	31,697	29008	25817	8	M10 X 45	50	5.1
PL095X106 EF	3.7402		4.1732	+0	1.339	1.673	0.748	0.157	2.815	4.488	5.039	5.787	4,927	31,697	27413	24657	8	M10 X 45	50	5.3
PL100X114 EF	3.9370		4.4882		1.654	1.988	0.787	0.157	3.169	4.803	5.354	6.102	6,483	39,565	23932	20886	10	M10 X 45	50	6.6
PL110X124 EF	4.3307		4.8819	+0.0025"	1.654	1.988	0.787	0.157	3.169	5.197	5.748	6.496	7,132	39,565	21756	19290	10	M10 X 45	50	7.3
PL120X134 EF	4.7244		5.2756	-0	1.654	1.988	0.866	0.157	3.248	5.591	6.142	6.890	9,293	47,433	23932	21466	12	M10 X 50	50	8.4

Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples					
		245 Mpa	274 Mpa	294 Mpa	343 Mpa	392 Mpa	441 Mpa
		35500 psi	39700 psi	42600 psi	49700 psi	56900 psi	64000 psi
PL010X013 EF	32489	1.496	1.299	1.220	1.220	1.220	1.220
PL011X014 EF	30313	1.457	1.299	1.220	1.220	1.220	1.220
PL012X015 EF	28283	1.417	1.299	1.260	1.260	1.260	1.260
PL014X018 EF	23642	1.457	1.378	1.378	1.378	1.378	1.378
PL015X019 EF	22336	1.496	1.496	1.496	1.496	1.496	1.496
PL016X020 EF	31764	2.087	1.850	1.732	1.575	1.457	1.457
PL017X021 EF	30313	2.087	1.850	1.772	1.575	1.496	1.496
PL018X022 EF	31619	2.323	2.047	1.929	1.732	1.732	1.732
PL019X024 EF	29008	2.283	2.047	1.969	1.772	1.772	1.772
PL020X025 EF	27848	2.283	2.087	1.969	1.811	1.811	1.811
PL022X026 EF	26687	2.283	2.087	2.008	1.969	1.969	1.969
PL024X028 EF	24947	2.283	2.126	2.047	2.047	2.047	2.047
PL025X030 EF	23206	2.323	2.165	2.087	2.087	2.087	2.087
PL028X032 EF	32489	3.425	2.953	2.795	2.480	2.283	2.165
PL030X035 EF	29878	3.346	2.992	2.795	2.559	2.362	2.244
PL032X036 EF	29008	3.307	2.992	2.835	2.559	2.402	2.362
PL035X040 EF	22771	2.992	2.795	2.717	2.520	2.520	2.520
PL038X044 EF	29008	4.055	3.622	3.425	3.110	2.913	2.795
PL040X045 EF	23351	3.425	3.189	3.071	2.874	2.874	2.874
PL042X048 EF	29153	4.409	3.937	3.740	3.386	3.189	3.031
PL045X052 EF	30603	5.079	4.528	4.252	3.858	3.583	3.386
PL048X055 EF	28863	5.039	4.528	4.291	3.898	3.661	3.504
PL050X057 EF	27848	5.039	4.567	4.331	3.976	3.740	3.583
PL055X062 EF	25527	5.039	4.646	4.449	4.134	3.898	3.740
PL060X068 EF	20886	4.803	4.528	4.370	4.134	3.976	3.976
PL065X073 EF	25962	5.945	5.472	5.236	4.803	4.567	4.370
PL070X079 EF	22916	5.827	5.433	5.276	4.921	4.685	4.528
PL075X084 EF	26832	7.008	6.378	6.102	5.591	5.276	5.039
PL080X091 EF	22481	6.575	6.181	5.945	5.551	5.315	5.118
PL085X096 EF	27123	8.110	7.402	7.047	6.457	6.063	5.787
PL090X101 EF	25817	8.150	7.480	7.165	6.614	6.220	5.984
PL095X106 EF	24657	8.189	7.598	7.283	6.417	6.142	6.142
PL100X114 EF	20886	7.874	7.441	7.205	6.496	6.260	6.260
PL110X124 EF	19290	8.189	7.756	7.559	7.165	6.850	6.654
PL120X134 EF	21466	9.370	8.780	8.504	7.992	7.638	7.362

EF Metric Series

THIN PROFILE SERIES

EL Series

LOCKING ELEMENT STYLE



Installing to hubs with a guide portion

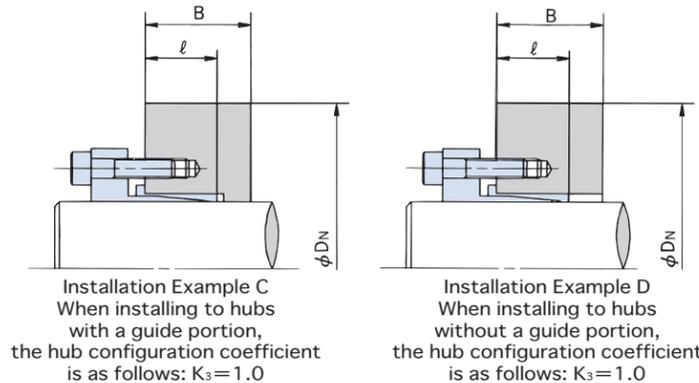
when $l \leq B < 2l$
(See Installation Example C)

Installing to hubs without a guide portion

when $l \leq B < 2l$
(See Installation Example D)

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
PL030X035EF = 4.882" min. hub diameter



Min. Hub Dia. (D_N in inches)

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples					
		245 Mpa	274 Mpa	294 Mpa	343 Mpa	392 Mpa	441 Mpa
		35500 psi	39700 psi	42600 psi	49700 psi	56900 psi	64000 psi
		1020	1030	1035 1040 1144	1035 1045	1055	1055
PL010X013	EF 32489	2.638	1.811	1.575	1.299	1.299	1.299
PL011X014	EF 30313	2.126	1.654	1.496	1.299	1.299	1.299
PL012X015	EF 28283	1.929	1.614	1.496	1.299	1.299	1.299
PL014X018	EF 23642	1.772	1.575	1.496	1.378	1.378	1.378
PL015X019	EF 22336	1.732	1.575	1.496	1.496	1.496	1.496
PL016X020	EF 31764	3.465	2.520	2.244	1.850	1.654	1.535
PL017X021	EF 30313	3.110	2.402	2.165	1.850	1.693	1.575
PL018X022	EF 31619	3.780	2.756	2.441	2.047	1.850	1.693
PL019X024	EF 29008	3.189	2.598	2.362	2.047	1.890	1.772
PL020X025	EF 27848	3.031	2.559	2.362	2.087	1.890	1.890
PL022X026	EF 26687	2.953	2.520	2.362	2.087	1.929	1.929
PL024X028	EF 24947	2.835	2.520	2.362	2.126	1.969	1.969
PL025X030	EF 23206	2.795	2.520	2.402	2.165	2.047	2.047
PL028X032	EF 32489	6.220	4.213	3.661	2.953	2.638	2.441
PL030X035	EF 29878	4.882	3.858	3.504	2.992	2.677	2.520
PL032X036	EF 29008	4.685	3.780	3.465	2.992	2.717	2.520
PL035X040	EF 22771	3.583	3.228	3.071	2.795	2.638	2.520
PL038X044	EF 29008	5.709	4.646	4.213	3.622	3.307	3.071
PL040X045	EF 23351	4.134	3.740	3.543	3.189	2.992	2.835
PL042X048	EF 29153	6.260	5.079	4.606	3.937	3.583	3.346
PL045X052	EF 30603	7.795	5.984	5.354	4.528	4.055	3.780
PL048X055	EF 28863	7.047	5.748	5.276	4.528	4.134	3.858
PL050X057	EF 27848	6.772	5.669	5.236	4.567	4.173	3.898
PL055X062	EF 25527	6.378	5.551	5.236	4.646	4.291	4.055
PL060X068	EF 20886	5.591	5.118	4.921	4.528	4.252	4.094
PL065X073	EF 25962	7.638	6.614	6.181	5.472	5.039	4.764
PL070X079	EF 22916	7.008	6.339	5.984	5.433	5.118	4.843
PL075X084	EF 26832	9.213	7.835	7.283	6.378	5.866	5.512
PL080X091	EF 22481	7.874	7.126	6.772	6.181	5.787	5.512
PL085X096	EF 27123	10.748	9.094	8.425	7.402	6.772	6.378
PL090X101	EF 25817	10.433	9.055	8.465	7.480	6.929	6.535
PL095X106	EF 24657	10.197	9.016	8.465	7.598	7.047	6.654
PL100X114	EF 20886	9.213	8.465	8.071	7.441	7.008	6.732
PL110X124	EF 19290	9.409	8.701	8.386	7.756	7.362	7.087
PL120X134	EF 21466	11.024	10.039	9.606	8.780	8.268	7.874

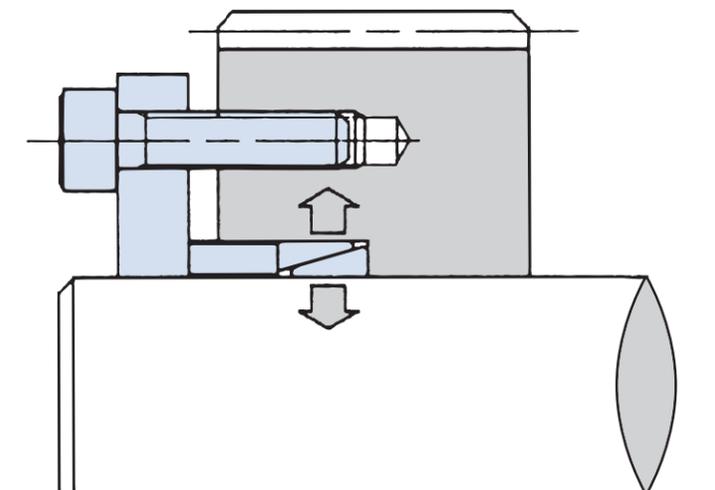


Model Number

PL 010 X 013 E
 Shaft Dia. (mm)
 Outer Dia. (mm)
 EL Series
 POWER-LOCK®

Features & Application

- **External Lock**
Excellent for hollow shaft or space restricted installation.
- **Easy to Install and Remove**
Installs or removes just by the tightening or loosening of bolts. No need to hassle with adjusting keyways and thermal fittings.
- **Simple Construction**
Simply constructed with only an inner ring and taper rings A and B. Simply tighten the locking bolts to achieve a completely secure connection.

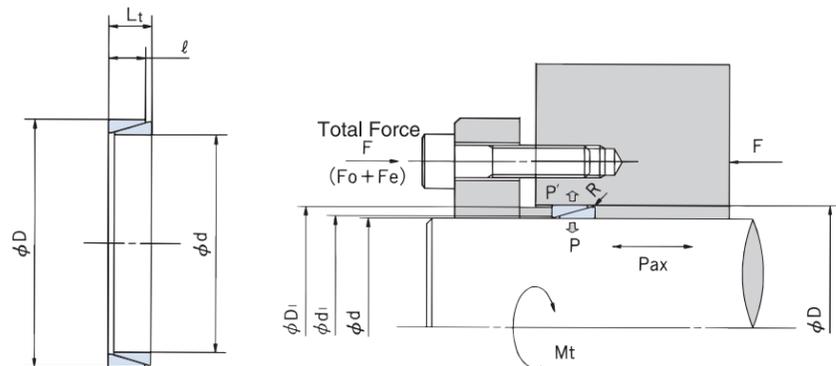


EL Series

LOCKING ELEMENT STYLE

EL Series

LOCKING ELEMENT STYLE



Shaft Diameter (d) and Hub Tap Diameter (D) Tolerances

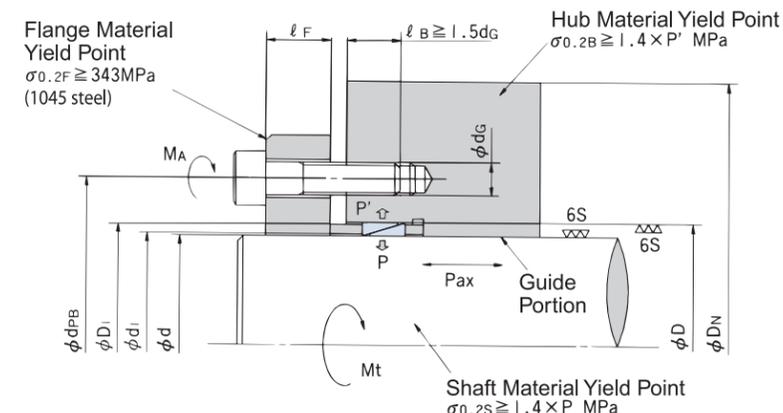
Shaft Diameter (d)	Shaft Diameter Tolerance (d)	Hub Bore Tolerance (D)
φ10~φ38	h6	H7
φ40~φ150	h8	H8

- Refer to Pressure System Designs for d1 and D1 measurements.
- Determine the length of a guide portion based on the required centering accuracy. (d/2 or above is most commonly used.)

Notes) 1. Tightening torque or Ma values shown in the table below are based on 10.9 strength bolts. Use 10.9 or 12.9 strength bolts accordingly.
2. Use the following formula to calculate transmissible thrust, Pax.

$$Pax = \frac{2000 \times Mt}{d} \quad \left(\begin{array}{l} Mt : \text{Transmissible Torque N} \cdot \text{m} \\ d : \text{Shaft Diameter mm} \end{array} \right)$$

3. For pressure flange designs, refer to Technical Notes section.



EL Series POWER-LOCK® Specifications

Model Number	Shaft O.D.		Hub Counter I.D.		Preload force Fo lbs.	Actual Locking Force [Fe] lbs.	Transmissible Torque [Mt] ft.lbs.	Transmissible Thrust [Pax] lbs.	Contact Pressure psi		Wt. lbs.
	d	Tolerance t _t	D	Tolerance t _z					Shaft P	Hub Bore P'	
PL010X013 E	0.3937	-0.00035* +0	0.5118	+0.0007* -0	1320	1386	5	308	14214	10878	0.004
PL011X014 E	0.4331	-0.00043* +0	0.5512		1217	1518	6	337	14214	11168	0.005
PL012X015 E	0.4724		0.5906		1122	1650	7	367	14214	11313	0.005
PL013X016 E	0.5118		0.6299		1056	1804	9	398	14214	11458	0.005
PL014X018 E	0.5512		0.7087	1826	2772	14	616	14214	11023	0.011	
PL015X019 E	0.5906	0.7480	2310	2970	16	660	14214	11168	0.011		
PL016X020 E	0.6299	0.7874	2200	3168	19	704	14214	11313	0.012		
PL017X021 E	0.6693	0.8268	2068	3366	21	748	14214	11458	0.013		
PL018X022 E	0.7087	0.8661	2002	3564	23	792	14214	11603	0.013		
PL019X024 E	0.7480	0.9449	2772	3762	26	836	14214	11168	0.017		
PL020X025 E	0.7874	0.9843	2662	3960	29	880	14214	11313	0.018		
PL022X026 E	0.8661	1.0236	2002	4356	35	968	14214	12038	0.016		
PL024X028 E	0.9449	1.1024	1848	4752	42	1,056	14214	12183	0.017		
PL025X030 E	0.9843	1.1811	2178	4950	45	1,100	14214	11748	0.022		
PL028X032 E	1.1024	1.2598	1606	5544	56	1,232	14214	12473	0.020		
PL030X035 E	1.1811	1.3780	1870	5940	65	1,320	14214	12183	0.026		
PL032X036 E	1.2598	1.4173	1738	6336	74	1,408	14214	12619	0.023		
PL035X040 E	1.3780	1.5748	2222	7832	101	1,738	14214	12473	0.034		
PL036X042 E	1.4173	1.6535	2552	8052	106	1,782	14214	12183	0.042		
PL038X044 E	1.4961	1.7323	2442	8514	118	1,892	14214	12183	0.044		
PL040X045 E	1.5748	1.7717	3036	9900	144	2,189	14214	12619	0.044		
PL042X048 E	1.6535	1.8898	3432	10340	159	2,310	14214	12473	0.055		
PL045X052 E	1.7717	2.0472	5742	14520	237	3,212	14214	12328	0.089		
PL048X055 E	1.8898	2.1654	5412	15400	271	3,432	14214	12328	0.094		
PL050X057 E	1.9685	2.2441	5214	16060	293	3,564	14214	12473	0.098		
PL055X062 E	2.1654	2.4409	4774	17600	354	3,916	14214	12619	0.107		
PL056X064 E	2.2047	2.5197	6424	21780	445	4,840	14214	12473	0.152		
PL060X068 E	2.3622	2.6772	6028	23320	511	5,170	14214	12473	0.162		
PL063X071 E	2.4803	2.7953	5742	24420	564	5,434	14214	12619	0.169		
PL065X073 E	2.5591	2.8740	5588	25300	600	5,610	14214	12619	0.174		
PL070X079 E	2.7559	3.1102	6820	31900	817	7,084	14214	12619	0.249		
PL071X080 E	2.7953	3.1496	6732	32340	839	7,194	14214	12619	0.251		
PL075X084 E	2.9528	3.3071	7568	34100	933	7,590	14214	12619	0.264		
PL080X091 E	3.1496	3.5827	10582	44880	1,309	9,900	14214	12473	0.425		
PL085X096 E	3.3465	3.7795	10010	47520	1,476	10,560	14214	12473	0.449		
PL090X101 E	3.5433	3.9764	9482	50380	1,656	11,220	14214	12619	0.473		
PL095X106 E	3.7402	4.1732	8998	53240	1,844	11,880	14214	12764	0.499		
PL100X114 E	3.9370	4.4882	13420	69740	2,546	15,620	14214	12473	0.834		
PL110X124 E	4.3307	4.8819	14388	76780	3,074	17,160	14214	12619	0.913		
PL120X134 E	4.7244	5.2756	13244	83820	3,653	18,700	14214	12764	0.990		
PL130X148 E	5.1181	5.8268	21054	122760	5,786	27,280	14214	12473	1.870		
PL140X158 E	5.5118	6.2205	19646	132220	6,727	29,370	14214	12619	2.002		
PL150X168 E	5.9055	6.6142	18414	141636	7,739	31,460	14214	12619	2.134		

※To simplify your calculations, the figures provided above are based on the maximum transmissible torque and thrust at shaft contact pressure, P=14,214 PSI.
When other Fe values apply, calculate specifications proportionally.

EL Series POWER-LOCK® Specifications

Model Number	Locking Bolts			Transmissible Torque				Contact Pressure psi		Contact Pressure psi	
	Qty.	Size	Tightening Torque ft.lbs.	Number of EL POWER-LOCKS				Shaft P	Hub Bore P'	PCD Dia.	Thickness If
				1 ft.lbs.	2 ft.lbs.	3 ft.lbs.	4 ft.lbs.				
PL010X013 E	3	M4	3.0	8	13	15	17	23351	17840	0.984	0.315
PL011X014 E	3	M4	3.0	9	15	18	19	22191	17405	1.024	0.315
PL012X015 E	3	M4	3.0	11	17	20	22	21321	17115	1.063	0.315
PL013X016 E	3	M4	3.0	12	19	22	24	20016	16390	1.102	0.315
PL014X018 E	4	M4	3.0	15	24	28	30	15229	11748	1.181	0.315
PL015X019 E	6	M4	3.0	27	42	50	54	23351	18275	1.220	0.315
PL016X020 E	6	M4	3.0	29	46	54	59	22481	17840	1.260	0.315
PL017X021 E	6	M4	3.0	32	49	59	64	21611	17550	1.299	0.315
PL018X022 E	6	M4	3.0	34	53	63	68	20451	16825	1.339	0.315
PL019X024 E	6	M4	3.0	30	48	56	61	16825	13199	1.417	0.315
PL020X025 E	6	M4	3.0	33	51	61	67	16245	12909	1.457	0.315
PL022X026 E	6	M4	3.0	41	64	77	83	16970	14359	1.496	0.315
PL024X028 E	6	M4	3.0	47	73	88	94	16099	13779	1.575	0.315
PL025X030 E	6	M4	3.0	46	70	84	91	14359	11893	1.654	0.315
PL028X032 E	6	M4	3.0	57	89	105	114	14359	12473	1.732	0.315
PL030X035 E	8	M4	3.0	85	131	157	169	18420	15809	1.850	0.315
PL032X036 E	8	M4	3.0	91	142	169	183	17695	15664	1.969	0.315
PL035X040 E	8	M5	6.0	123	191	228	246	17405	15229	2.165	0.394
PL036X042 E	6	M5	6.0	122	190	226	244	16390	14069	2.244	0.394
PL038X044 E	6	M5	6.0	129	201	240	260	15664	13489	2.323	0.394
PL040X045 E	6	M6	10	198	307	366	395	19435	17405	2.402	0.472
PL042X048 E	6	M6	10	203	314	376	405	18130	15954	2.520	0.472
PL045X052 E	8	M6	10	269	419	499	535	16099	13924	2.638	0.472
PL048X055 E	8	M6	10	294	455	542	586	15519	13489	2.835	0.472
PL050X057 E	8	M6	10	309	477	571	622	15084	13199	2.874	0.472
PL055X062 E	10	M6	10	485	715	848	922	18420	16390	3.071	0.472
PL056X064 E	6	M8	25	491	767	907	988	15809	13779	3.228	0.630
PL060X068 E	6	M8	25	542	833	996	1,077	14939	13199	3.386	0.630
PL063X071 E	8	M8	25	811	1,261	1,497	1,623	20451	18130	3.504	0.630
PL065X073 E	8	M8	25	841	1,291	1,549	1,667	19725	17695	3.583	0.630
PL070X079 E	10	M8	25	1,136	1,755	2,095	2,264	19725	17550	3.819	0.630
PL071X080 E	10	M8	25	1,151	1,778	2,124	2,301	19435	17405	3.898	0.630
PL075X084 E	10	M8	25	1,188	1,844	2,198	2,375	17985	16099	4.016	0.630
PL080X091 E	8	M10	50	1,586	2,456	2,928	3,142	17260	15084	4.370	0.630
PL085X096 E	8	M10	50	1,704	2,648	3,142	3,400	16535	14649	4.567	0.787
PL090X101 E	10	M10	50	2,353	3,651	4,374	4,698	20161	17985	4.764	0.787
PL095X106 E	10	M10	50	2,500	3,865	4,625	4,986	19290	17405	4.961	0.787
PL100X114 E	12	M10	50	3,076	4,735	5,709	6,144	17115	14939	5.276	0.945
PL110X124 E	10	M12	87	4,189	6,505	7,744	8,408	19290	17260	5.748	0.945
PL120X134 E	10	M12	87	4,588	7,154	8,556	9,146	17840	16099	6.142	0.945
PL130X148 E	10	M14	137	6,719	8,261	12,465	13,424	16390	14359	6.693	1.102
PL140X158 E	10	M14	137	7,302	11,285	13,497	14,604	15374	13634	7.087	1.102
PL150X168 E	12	M14	137	9,662	15,046	17,923	19,398	17840	15954	7.480	1.102

EL Series

LOCKING ELEMENT STYLE

EL Series

LOCKING ELEMENT STYLE

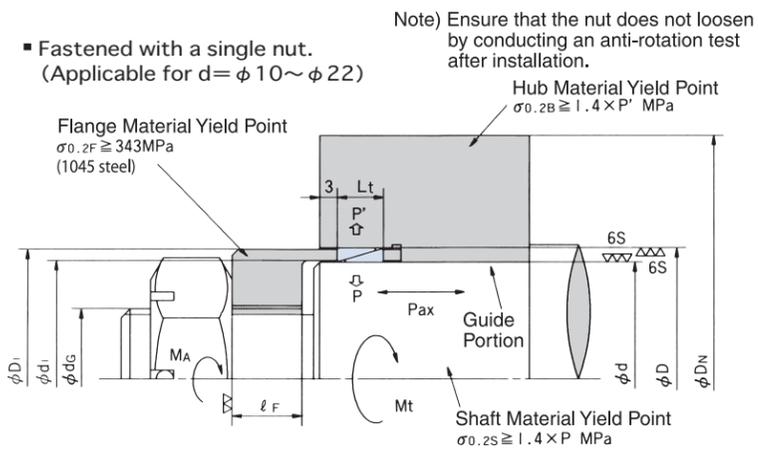


Shaft Diameter (d) and Hub Tap Diameter (D) Tolerances

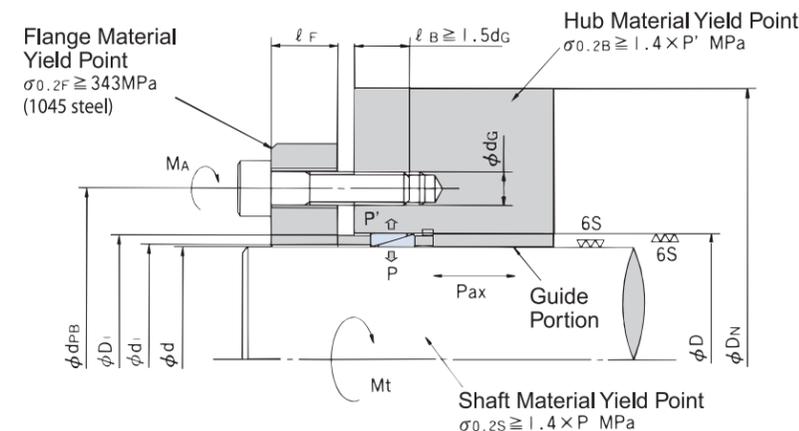
Shaft Diameter (d)	Shaft Diameter Tolerance (d)	Hub Bore Tolerance (D)
φ10~φ38	h6	H7
φ40~φ150	h8	H8

- Refer to Pressure System Designs for d1 and D1 measurements.
- Determine the length of a guide portion based on the required centering accuracy. (d/2 or above is most commonly used.)

- Notes)
- Tightening torque or Ma values shown in the table below are based on 10.9 strength bolts. Use 10.9 or 12.9 strength bolts accordingly.
 - Use the following formula to calculate transmissible thrust, Pax.
 - For pressure flange designs, refer to Technical Notes section.



$$Pax = \frac{2000 \times Mt}{d} \quad \left(\begin{array}{l} Mt : \text{Transmissible Torque N} \cdot \text{m} \\ d : \text{Shaft Diameter mm} \end{array} \right)$$



EL Series POWER-LOCK® Specifications

Model Number	Locking Bolts			Transmissible Torque				Contact Pressure		Contact Pressure		
	Qty.	Size	Tightening Torque ft.lbs.	Number of EL POWER-LOCKS				Shaft P	Hub Bore P'	PCD Dia.	Thickness If	
				1 ft.lbs.	2 ft.lbs.	3 ft.lbs.	4 ft.lbs.					
PL010X013	E	1	M8	18	9	13	16	17	23,787	18,130	na	0.157
PL011X014	E	1	M8	18	10	15	18	19	22,626	17,550	na	0.157
PL012X015	E	1	M8	18	11	17	20	22	21,611	17,405	na	0.157
PL013X016	E	1	M8	18	12	19	23	24	20,306	16,535	na	0.157
PL014X018	E	1	M10	35	20	31	38	41	20,161	15,664	na	0.197
PL015X019	E	1	M10	35	19	30	35	38	16,535	13,054	na	0.197
PL016X020	E	1	M10	35	21	33	38	42	16,099	12,764	na	0.197
PL017X021	E	1	M10	35	23	35	43	46	15,664	12,619	na	0.197
PL018X022	E	1	M10	35	24	38	46	49	14,794	12,038	na	0.197
PL019X024	E	1	M12	62	39	61	72	78	21,321	16,970	na	0.276
PL020X025	E	1	M12	62	42	61	78	84	20,741	16,680	na	0.276
PL022X026	E	1	M12	62	51	80	94	103	20,886	17,695	na	0.276
PL024X028	E	3	M5	7	46	72	86	92	15,664	13,344	0.433	0.394
PL025X030	E	3	M5	7	44	69	82	89	14,069	11,748	0.472	0.394
PL028X032	E	3	M6	10	68	106	127	136	17,260	15,084	0.551	0.472
PL030X035	E	3	M6	10	71	109	131	141	15,519	13,199	0.630	0.472
PL032X036	E	3	M6	10	77	119	142	153	14,794	13,054	0.630	0.472
PL035X040	E	4	M6	10	114	176	210	228	16,099	14,069	0.748	0.472
PL036X042	E	4	M6	10	113	175	208	226	15,084	12,909	0.787	0.472
PL038X044	E	4	M6	10	120	186	221	239	14,504	12,473	0.866	0.472
PL040X045	E	6	M6	10	198	308	365	394	19,435	17,405	0.945	0.472
PL042X048	E	6	M6	10	203	314	376	405	18,130	15,954	1.024	0.472
PL045X052	E	8	M6	10	269	416	495	535	16,099	13,924	1.142	0.472
PL048X055	E	8	M6	10	293	455	542	586	15,519	13,489	1.260	0.472
PL050X057	E	8	M6	10	311	415	571	622	15,084	13,199	1.339	0.472
PL055X062	E	8	M6	10	350	542	651	701	14,069	12,473	1.535	0.472
PL056X064	E	6	M8	25	495	767	907	996	15,809	13,779	1.496	0.630
PL060X068	E	6	M8	25	538	833	996	1077	14,939	13,199	1.654	0.630
PL063X071	E	8	M8	25	811	1261	1497	1623	20,451	18,130	1.772	0.630
PL065X073	E	8	M8	25	841	1291	1549	1667	19,725	17,695	1.850	0.630
PL070X079	E	6	M10	50	1070	1660	1991	2146	18,565	16,535	1.969	0.787
PL071X080	E	6	M10	50	1092	1682	2014	2176	18,420	16,390	2.008	0.787
PL075X084	E	6	M10	50	1129	1741	2080	2250	17,260	15,374	2.165	0.787
PL080X091	E	8	M10	50	1586	2456	2928	3179	17,260	15,084	2.362	0.787
PL085X096	E	8	M10	50	1571	2648	3142	3400	16,535	14,649	2.559	0.787
PL090X101	E	10	M10	50	2353	3651	4374	4698	20,161	17,985	2.756	0.787
PL095X106	E	10	M10	50	2500	3865	4625	4986	19,290	17,405	2.953	0.787
PL100X114	E	12	M10	50	3076	4735	5709	6144	17,115	14,939	3.150	0.787
PL110X124	E	10	M12	87	4189	6505	7744	8408	19,290	17,260	3.465	0.945
PL120X134	E	10	M12	87	4588	7154	8556	9146	17,840	16,099	3.858	0.945
PL130X148	E	10	M14	137	6719	10400	12465	13424	16,390	14,359	4.252	1.102
PL140X158	E	10	M14	137	7302	11285	13497	14604	15,374	13,634	4.646	1.102
PL150X168	E	12	M14	137	9662	15046	17923	19398	17,840	15,954	5.039	1.102

Hub Configuration Coefficient K3=0.8 Min. Hub Dia.

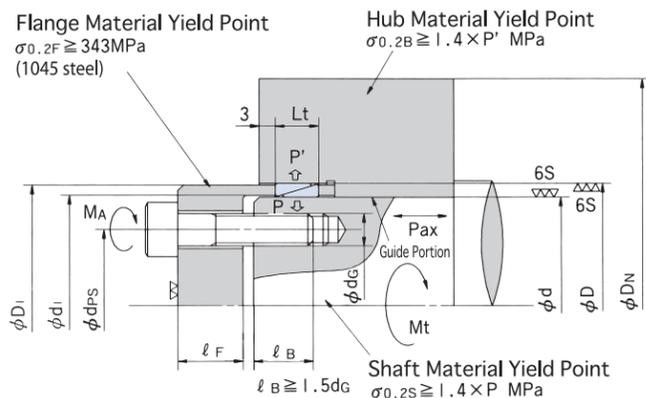
Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples										
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi	
		1010 304SS 316SS	1015 1118	1020	1030	1035 1040 1144	1055	1055	1055	1055	1055	
PL010X013	E	17840	1.378	1.378	1.378	1.378	1.378	1.378	1.378	1.378	1.378	1.378
PL011X014	E	17405	1.417	1.417	1.417	1.417	1.417	1.417	1.417	1.417	1.417	1.417
PL012X015	E	17115	1.457	1.457	1.457	1.457	1.457	1.457	1.457	1.457	1.457	1.457
PL013X016	E	16390	1.496	1.496	1.496	1.496	1.496	1.496	1.496	1.496	1.496	1.496
PL014X018	E	11748	1.575	1.575	1.575	1.575	1.575	1.575	1.575	1.575	1.575	1.575
PL015X019	E	18275	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
PL016X020	E	17840	1.654	1.654	1.654	1.654	1.654	1.654	1.654	1.654	1.654	1.654
PL017X021	E	17550	1.693	1.693	1.693	1.693	1.693	1.693	1.693	1.693	1.693	1.693
PL018X022	E	16825	1.732	1.732	1.732	1.732	1.732	1.732	1.732	1.732	1.732	1.732
PL019X024	E	13199	1.811	1.811	1.811	1.811	1.811	1.811	1.811	1.811	1.811	1.811
PL020X025	E	12909	1.850	1.850	1.850	1.850	1.850	1.850	1.850	1.850	1.850	1.850
PL022X026	E	14359	2.027	1.890	1.890	1.890	1.890	1.890	1.890	1.890	1.890	1.890
PL024X028	E	13779	2.111	1.969	1.969	1.969	1.969	1.969	1.969	1.969	1.969	1.969
PL025X030	E	11893	2.066	2.047	2.047	2.047	2.047	2.047	2.047	2.047	2.047	2.047
PL028X032	E	12473	2.250	2.126	2.126	2.126	2.126	2.126	2.126	2.126	2.126	2.126
PL030X035	E	15809	2.884	2.530	2.323	2.323	2.323	2.323	2.323	2.323	2.323	2.323
PL032X036	E	15664	2.939	2.583	2.362	2.362	2.362	2.362	2.362	2.362	2.362	2.362
PL035X040	E	15229	3.212	2.844	2.638	2.638	2.638	2.638	2.638	2.638	2.638	2.638
PL036X042	E	14069	3.172	2.851	2.677	2.677	2.677	2.677	2.677	2.677	2.677	2.677
PL038X044	E	13489	3.222	2.916	2.756	2.756	2.756	2.756	2.756	2.756	2.756	2.756
PL040X045	E	17405	4.103	3.503	3.172	3.031	2.916	2.874	2.874	2.874	2.874	2.874
PL042X048	E	15954	4.008	3.509	3.219	3.093	2.992	2.992	2.992	2.992	2.992	2.992
PL045X052	E	13924	3.892	3.504	3.265	3.158	3.110	3.110	3.110	3.110	3.110	3.110
PL048X055	E	13489	4.018	3.636	3.397	3.307	3.307	3.307	3.307	3.307	3.307	3.307
PL050X057	E	13199	4.099	3.721	3.483	3.375	3.346	3.346	3.346	3.346	3.346	3.346
PL055X062	E	16390	5.235	4.542	4.145	3.973	3.832	3.675	3.590	3.543	3.543	3.543
PL056X064	E	13779	4.780	4.315	4.026	3.896	3.788	3.780	3.780	3.780	3.780	3.780
PL060X068	E	13199	4.923	4.472	4.188	4.060	3.952	3.937	3.937	3.937	3.937	3.937
PL063X071	E	18130	6.723	5.642	5.064	4.822	4.627	4.413	4.299	4.089	4.055	4.055
PL065X073	E	17695	6.710	5.684	5.125	4.888	4.697	4.486	4.373	4.166	4.134	4.134
PL070X079	E	17550	7.169	6.087	5.494	5.243	5.038	4.814	4.693	4.472	4.370	4.370
PL071X080	E	17405	7.190	6.123	5.534	5.283	5.080	4.856	4.735	4.514	4.449	4.449
PL075X084	E	16099	6.972	6.078	5.560	5.335	5.149	4.944	4.832	4.625	4.567	4.567
PL080X091	E	15084	7.199	6.381	5.892	5.676	5.496	5.296	5.186	5.000	5.000	5.000
PL085X096	E	14649	7.405	6.601	6.114	5.898	5.718	5.516	5.405	5.199	5.197	5.197
PL090X101	E	17985	9.418	7.921	7.116	6.777	6.503	6.204	6.043	5.749	5.544	5.394
PL095X106	E	17405	9.503	8.089	7.308	6.977	6.707	6.410	6.251	5.957	5.752	5.591
PL100X114	E	14939	8.851	7.851	7.250	6.983	6.762	6.515	6.380	6.128	5.949	5.906
PL110X124	E	17260	11.029	9.416	8.522	8.140	7.829	7.488	7.303	6.964	6.727	6.552
PL120X134	E	16099	11.091	9.666	8.839	8.480	8.185	7.856	7.678	7.348	7.116	6.943
PL130X148	E	14359	11.194	10.012	9.290	8.968	8.699	8.397	8.232	7.923	7.703	7.538
PL140X158	E	13634	11.494	1								

EL Series

LOCKING ELEMENT STYLE

EL Series

BASIC CHARACTERISTICS

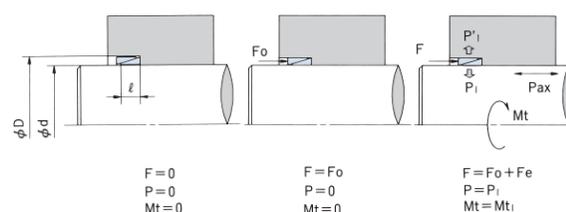


Hub Configuration Coefficient K3=0.6 Min. Hub Dia.

Model Number	Hub Contact Pressure P' (psi)	Yield Point and Material examples									
		147 Mpa 21300 psi	176 Mpa 25500 psi	206 Mpa 29900 psi	225 Mpa 32600 psi	245 Mpa 35500 psi	274 Mpa 39700 psi	294 Mpa 42600 psi	343 Mpa 49700 psi	392 Mpa 56900 psi	441 Mpa 64000 psi
PL010X013 E	17840	0.889	0.800	0.745	0.719	0.698	0.675	0.661	0.637	0.619	0.606
PL011X014 E	17405	0.942	0.851	0.794	0.768	0.746	0.721	0.708	0.682	0.664	0.650
PL012X015 E	17115	0.998	0.905	0.845	0.818	0.795	0.769	0.755	0.728	0.709	0.694
PL013X016 E	16390	1.037	0.946	0.887	0.860	0.837	0.811	0.797	0.770	0.750	0.736
PL014X018 E	11748	0.999	0.941	0.901	0.883	0.866	0.848	0.837	0.817	0.803	0.792
PL015X019 E	18275	1.321	1.184	1.099	1.061	1.029	0.993	0.973	0.936	0.909	0.889
PL016X020 E	17840	1.368	1.231	1.146	1.107	1.074	1.038	1.018	0.980	0.953	0.932
PL017X021 E	17550	1.420	1.282	1.195	1.155	1.122	1.085	1.064	1.025	0.997	0.976
PL018X022 E	16825	1.449	1.316	1.231	1.193	1.160	1.123	1.103	1.064	1.036	1.016
PL019X024 E	13199	1.396	1.302	1.240	1.210	1.185	1.156	1.140	1.109	1.087	1.070
PL020X025 E	12909	1.440	1.346	1.283	1.254	1.228	1.199	1.183	1.152	1.129	1.112
PL022X026 E	14359	1.571	1.454	1.377	1.341	1.311	1.276	1.256	1.219	1.193	1.172
PL024X028 E	13779	1.660	1.543	1.465	1.428	1.397	1.361	1.342	1.304	1.276	1.255
PL025X030 E	11893	1.673	1.574	1.507	1.475	1.448	1.416	1.398	1.365	1.340	1.321
PL028X032 E	12473	1.818	1.704	1.627	1.591	1.560	1.524	1.504	1.466	1.438	1.417
PL030X035 E	15809	2.223	2.036	1.914	1.859	1.812	1.758	1.728	1.671	1.631	1.600
PL032X036 E	15664	2.275	2.086	1.963	1.906	1.858	1.804	1.773	1.716	1.675	1.643
PL035X040 E	15229	2.490	2.290	2.160	2.010	1.958	1.904	1.873	1.816	1.775	1.743
PL036X042 E	14069	2.514	2.332	2.211	2.155	2.107	2.052	2.021	1.963	1.920	1.888
PL038X044 E	13489	2.563	2.406	2.287	2.232	2.184	2.130	2.099	2.041	1.999	1.967
PL040X045 E	17405	3.027	2.736	2.552	2.468	2.398	2.319	2.275	2.192	2.133	2.089
PL042X048 E	15954	3.064	2.803	2.634	2.557	2.491	2.416	2.375	2.296	2.240	2.197
PL045X052 E	13924	3.097	2.876	2.729	2.660	2.601	2.534	2.497	2.425	2.374	2.335
PL048X055 E	13489	3.229	3.007	2.859	2.790	2.730	2.662	2.624	2.552	2.499	2.459
PL050X057 E	13199	3.315	3.093	2.944	2.875	2.815	2.746	2.708	2.635	2.582	2.541
PL055X062 E	16390	4.020	3.664	3.436	3.331	3.243	3.143	3.087	2.982	2.907	2.850
PL056X064 E	13779	3.793	3.526	3.348	3.264	3.194	3.112	3.066	2.980	2.917	2.869
PL060X068 E	13199	3.954	3.690	3.512	3.429	3.358	3.276	3.231	3.143	3.080	3.032
PL063X071 E	18130	4.908	4.407	4.094	3.953	3.835	3.702	3.628	3.491	3.393	3.319
PL065X073 E	17695	4.964	4.475	4.167	4.028	3.911	3.779	3.706	3.570	3.472	3.398
PL070X079 E	17550	5.343	4.823	4.495	4.346	4.221	4.080	4.002	3.856	3.751	3.672
PL071X080 E	17405	5.382	4.864	4.537	4.388	4.263	4.122	4.044	3.898	3.793	3.714
PL075X084 E	16099	5.390	4.925	4.625	4.487	4.371	4.238	4.165	4.026	3.926	3.851
PL080X091 E	15084	5.637	5.190	4.898	4.763	4.648	4.517	4.444	4.306	4.207	4.131
PL085X096 E	14649	5.859	5.412	5.118	4.982	4.866	4.733	4.659	4.518	4.417	4.340
PL090X101 E	17985	6.944	6.242	5.804	5.607	5.441	5.253	5.150	4.957	4.819	4.715
PL095X106 E	17405	7.131	6.444	6.011	5.814	5.649	5.462	5.358	5.164	5.025	4.921
PL100X114 E	14939	7.026	6.477	6.116	5.950	5.808	5.646	5.556	5.385	5.262	5.168
PL110X124 E	17260	8.298	7.508	7.008	6.782	6.591	6.374	6.255	6.030	5.869	5.748
PL120X134 E	16099	8.599	7.856	7.307	7.158	6.972	6.761	6.642	6.422	6.263	6.143
PL130X148 E	14359	8.944	8.279	7.840	7.636	7.462	7.263	7.152	6.941	6.788	6.672
PL140X158 E	13634	9.320	8.671	8.238	8.036	7.864	7.665	7.554	7.343	7.190	7.074
PL150X168 E	15954	10.726	9.810	9.219	8.948	8.718	8.456	8.311	8.037	7.840	7.691

1. Transmissible Torque, Transmissible Thrust and Contact Pressure

- Mt: Transmissible Torque
- Pax: Transmissible Load
- P, P': Contact Pressure
- Fo: Preload Force
- Fe: Actual Locking Force
- F: Total Force



The EL Series POWER-LOCKS require preload force Fo to obtain a 0 clearance shaft-hub connection.

The degree of tightness achieved by applying the actual locking force Fe in addition to the preload force Fo, is directly proportional to the Fe as indicated in the above diagram. Accordingly, we use the following formula to calculate the total force required to reach the desired degree of tightness. $F=Fe+Fo2$.

Transmissible torque and contact pressure are generally determined by the following formulas.

$$Mt = N \times \mu \times \frac{d}{2} (\mu: \text{Friction Coefficient}) \quad (1)$$

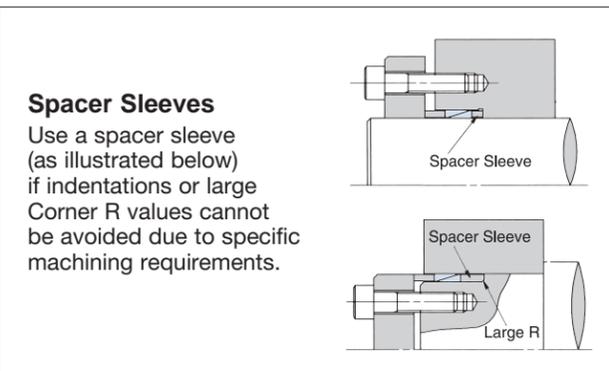
$$Pax = N \times \mu = 2Mt/d \quad (2)$$

$$P = N / \pi d \ell \quad (3)$$

$$P' = N / \pi D \ell \quad (4)$$

$$N = \frac{Fe}{\tan \beta + 2} (\beta: \text{EL Power-Lock taper angle}) \quad (5)$$

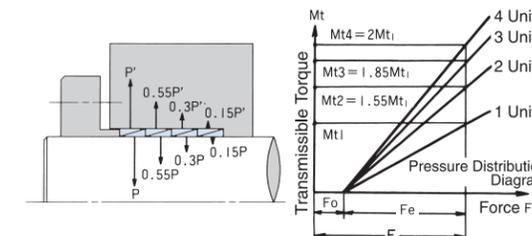
Note: Mt1, P1, P1' refer to single unit installation



Spacer Sleeves

Use a spacer sleeve (as illustrated below) if indentations or large Corner R values cannot be avoided due to specific machining requirements.

2. Contact Pressure and Transmissible Torque for Multiple POWER-LOCK Installation



In the case of multiple EL POWER-LOCK installation the pressure applied on the rings will distribute as illustrated above.

The following table indicates transmissible torque ratios for specific numbers of unit(s) installed.

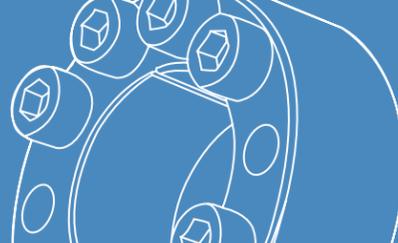
No. of Unit(s) Z	Multiplying Ratio
1	1.0
2	1.55
3	1.85
4	2.0

A maximum of four EL POWER-LOCKS may be installed.

Corner R Values

If you are not using a spacer sleeve, maintain the following Corner R values.

Model No.	Corner R	Model No.	Corner R
PL010X013E	Below 0.2	PL070X079E	Below 0.3
PL042X048E		PL090X106E	
PL045X052E	Below 0.3	PL100X114E	Below 0.4
PL065X073E		PL150X168E	



Selection Guide and Procedure

.....D-86 ~ D-90

(1) Maximum Torque and Maximum Thrust

(2) Selection by Series

- AS, AD, ADN, AE, FL, KE, RE, EF, TF Series
- SL Series
- EL Series



Installation and Removal

.....D-91 ~ D-94

- AS, AD, ADN, AE, FL, KE, TF, EF Series
- AS-SS, KE-SS, RE-SS, SL Series
- EL Series

Precautions

.....D-95 ~ D-96

1. Installing to Keyed Shafts
2. Installation Accuracy
3. Hub's Outer Diameter Deformation
4. Ambient Temperature
5. Allowable Deviation of Tightening Torque MA
6. Hub Movement
7. Assembly Lubrication
8. Bending Moment
9. Outdoor Use

Note:

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



(1) Maximum Torque and Maximum Thrust

Calculate maximum torque and thrust based on transmissible capacity and safety factor.

When using POWER-LOCKS for servo motor or stepping motor applications, use a safety factor greater than 1 for every maximum or peak torque.

$$T_{max} = \frac{5252 \cdot HP \cdot sf}{n} \quad (\text{ft.}/\text{lbs.})$$

n: RPM sf: Safety Factor

Pmax = Pax · sf	
Pmax:	Max. Thrust Load
Pax :	Thrust Load
sf :	Safety Factor

sf : Safety Factor

Loading Conditions		Safety Factor
Smooth with no shock	Low inertia	1.5~2.5
Some shock	Medium inertia	2.0~4.0
Severe shock	High inertia	3.0~5.0

If torque and thrust apply simultaneously:

Calculate and compare the total load MR with the rated transmissible torque Mt.

$$MR = \sqrt{T_{max}^2 + (P_{max} \times \frac{d}{2})^2}$$

- Tmax : Max. transmissible torque
- Pmax : Max. transmissible thrust
- d : Shaft diameter

Compare the Tmax or MR obtained from the above calculation with the catalog rated transmissible torque Mt.

Mt ≥ Tmax or MR → Acceptable

Mt < Tmax or MR → Use larger or multiple units.

*Installing multiple units is possible for some series. When installing more than one unit, multiply the Mt value with the appropriate multiplying ratio given below.

Multiplying Ratio by Series and Number of Units (Table 1)

No. of Units	1	2	3	4
AS	1	2	3	4
AD/ADN	1	2	N/A	N/A
TF KE	1	2	N/A	N/A
EL	1	1.55	1.85	2
Others	1	N/A	N/A	N/A

(2) Selection by Series

AS, AD, ADN, AE, FL, KE, RE, EF, TF Series

STEP 1 Shaft and Hub

(1) Material Strength

Large contact pressure applies to both the shaft and hub during installation.

Select shaft and hub materials that meet the following strength requirements.

$$\sigma_{0.2S} \geq K_2 \times P \quad \sigma_{0.2B} \geq K_2 \times P'$$

- P : Contact pressure on the shaft
- P' : Contact pressure on the hub
- σ 0.2S : Yield point of shaft material
- σ 0.2B : Yield point of hub material
- K2 : Series coefficient (Table 2)

Series Coefficient K2 (Table 2)

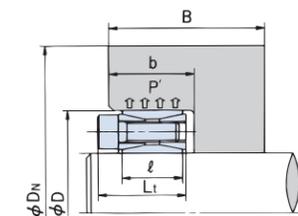
Series	Series Coefficient
AS, AD, ADN, TF	1.4
AE, EF, KE, RE	1.2

(2) Hub Outer Diameter

Refer to the Hub Diameters table provided for each series. If none of the materials listed apply, calculate the minimum hub diameter using the following formula.

$$\text{Hub outer diameter } DN \geq D \sqrt{\frac{\sigma_{0.2B} + K_3 \cdot P'}{\sigma_{0.2B} - K_3 \cdot P'}}$$

- DN : Hub outer diameter
- D : Hub inner diameter
- P' : Hub contact pressure
- σ 0.2B : Yield point of hub material
- K3 : Hub configuration coefficient (Refer to the appropriate Hub Diameters table.)



Note:

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

Technical Notes

SELECTION GUIDE AND PROCEDURE

Technical Notes

SELECTION GUIDE AND PROCEDURE



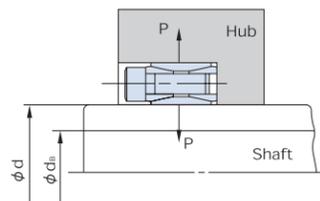
(3) Hollow Shaft Inner Diameter

Calculate the inner diameter of a hollow shaft, using the following formula.

d_B : Hollow shaft inner

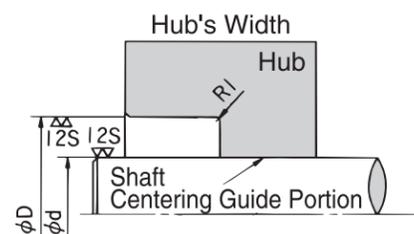
$$d_B \leq d \times \sqrt{\frac{\sigma_{0.2S} - 2 \cdot P \cdot K_3}{\sigma_{0.2S}}}$$

d : Shaft diameter
 P : Contact pressure on the shaft
 $\sigma_{0.2S}$: Yield point of shaft material
 K_3 : Hub configuration coefficient (Refer to the Hub Diameters table by series.)



STEP 2 AS Series Centering Guide Portion

Accurate centering is achieved by adjusting the hub's width to a value calculated based on the length of a centering portion, usually above $d/2$ (half of shaft diameter). In addition, the guide portion tolerance should be determined according to the required degree of accuracy.



STEP 3 Radial Load

If radial loads apply to POWER-LOCKS as in wheel applications, calculate the contact pressure on the shaft P_{rad} and hub P'_{rad} . Then, compare the values with those provided in the appropriate catalog table and confirm that they fall within the allowable range.

$$P_{rad} = \frac{1.3 \times Pr}{d \times \ell}$$

$$P'_{rad} = \frac{1.3 \times Pr}{D \times \ell}$$

Pr : Radial load
 ℓ : POWER-LOCK width mm
 d : Shaft diameter
 D : Hub inner diameter
 P : Contact pressure on the shaft MPa
 P' : Contact pressure on the hub MPa

If a radial load applies, calculate the required hub outer diameter D_n and inner hollow shaft diameter d_B by adding P_{rad} and P'_{rad} to P and P' respectively.

Table 4. Allowable Contact Pressure

Series	$P_{rad}(P'_{rad})/P(P')$
AS, AD, ADN, TF	50% and less
KE, AE, EF	20% and less

SL Series

STEP 1 Shaft and Hub

(1) Material Strength

Large contact pressure applies to both the shaft and hub during installation. Select shaft and hub materials that meet the following strength requirements.

$$\sigma_{0.2S} \geq 1.2 \times P \quad \sigma_{0.2B} \geq 1.2 \times P'$$

P : Contact pressure on the shaft
 P' : Contact pressure on the hub
 $\sigma_{0.2S}$: Yield point of shaft material
 $\sigma_{0.2B}$: Yield point of hub material

(2) Hub Material Strength

Torque and contact pressure will combine and produce stress on the hub. Calculate this stress using one of the following four formulas.

(a) Stress applied to the hub from a normal direction (σ_w)
 $\sigma_w = -P$
 P : Shaft contact pressure

(b) Stress applied to the hub from a tangential direction (σ_t)

$$\sigma_t = \frac{P(1+Q^2) - 2 \times P'}{1-Q^2}$$

$$Q = \frac{d_w}{d}$$

P : Contact pressure on the shaft
 P' : Contact pressure on the hub
 d_w : Shaft diameter
 d : Hub outer diameter

(c) Shearing stress applied to the hub by torsional force (τ_B)

$$\tau_B = \frac{16000 \times T_{max} \cdot d_w}{\pi (d^4 - d_w^4)}$$

(d) Combined stress applied to the hub (σ_v)

$$\sigma_v = \sqrt{\sigma_t^2 + \sigma_w^2 - \sigma_t \cdot \sigma_w + 3 \times \tau_B^2}$$

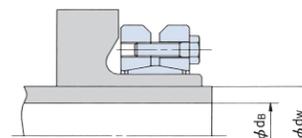
Make sure $\sigma_{0.2B}$ (yield point of the hub material) is greater than σ_v . $\sigma_v < \sigma_{0.2B}$

(3) Hollow Shaft Inner Diameter

Calculate the inner diameter of a hollow shaft using the following formula.

$$d_B \leq d_w \sqrt{\frac{\sigma_{0.2S} - 1.6 \times P}{\sigma_{0.2S}}}$$

d_B : Hollow shaft inner diameter
 d_w : Hollow shaft outer diameter
 $\sigma_{0.2S}$: Yield point of shaft material
 P : Contact pressure between the inner ring and shaft



EL Series

STEP 1 Actual Locking Force, Transmissible Torque and Contact Pressure

(1) When the required transmissible torque M_t is different from the (M_t) listed in the EL Series Specifications table

Calculate the actual locking force F_e , thrust P_{ax} , contact pressure P and P' using the following formulas.

$$C_1 = M_t / [M_t]$$

(Required transmissible torque ratio)

$$F_e = C_1 \times [F_e]$$

(Actual locking force)

$$F = F_0 + F_e$$

(Total Force)

$$P_{ax} = C_1 \times [P_{ax}]$$

(Transmissible thrust)

$$P = C_1 \times [P]$$

(Contact pressure on the shaft)

$$P' = C_1 \times [P']$$

(Contact pressure on the hub)

M_t : Required transmissible torque

F_0 , $[F_e]$, $[M_t]$, $[P_{ax}]$, $[P]$, $[P']$: Values are listed in EL Series Specifications table

(2) When the required actual locking force F_e is different from the (F_e) listed in the EL Series Specifications table

Calculate transmissible torque M_t , thrust P_{ax} , contact pressure P and P' using the following formulas.

$$C_2 = F_e / [F_e]$$

(Required actual locking force ratio)

$$M_t = C_2 \times [M_t]$$

(Transmissible torque)

$$P_{ax} = C_2 \times [P_{ax}]$$

(Transmissible thrust)

$$P = C_2 \times [P]$$

(Contact pressure on the shaft)

$$P' = C_2 \times [P']$$

(Contact pressure on the hub)

F_e : Required actual locking force

Note: $0.25 \leq C_2 \leq 2$

(3) Multiple POWER-LOCK Installation

Calculate transmissible torque M_{tz} , thrust P_{axz} and contact pressure P_z and P'_z using the following formulas. (z is the number of EL units installed.)

$$M_{tz} = S \cdot M_{t1}$$

$$P_{axz} = S \cdot P_{ax1}$$

$$P_z = P_1$$

(Contact pressure on the shaft)

$$P'_z = P'_1$$

(Contact pressure on the hub)

M_{t1} , P_{ax1} , P'_1 apply to single unit installation.

z	S
1	1
2	1.55
3	1.85
4	2



STEP 2 Shaft and Hub

EL Series POWER-LOCKS do not have a self-centering function. A hub must be pre-centered, using the guide portion provided between the shaft and hub. A guide portion length above $d/2$ is generally preferred. Also, select guide tolerance based on the degree of accuracy you desire.

(1) Material Strength

Select shaft and hub materials that meet the following strength requirements.

$$\sigma_{0.2S} \geq 1.4 \times P$$

$$\sigma_{0.2B} \geq 1.4 \times P'$$

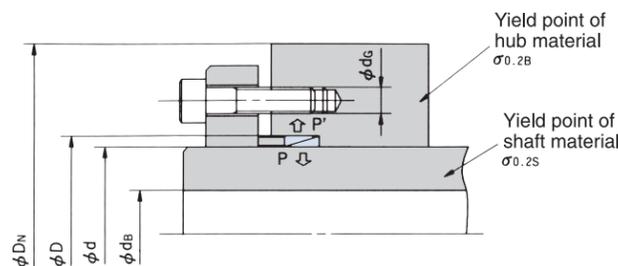
$\sigma_{0.2S}$, $\sigma_{0.2B}$: Yield point of shaft and hub material
 P , P' : Contact pressure on the shaft and hub bore

(2) Required Hub Outer Diameter D_N and Allowable Hollow Shaft Bore Diameter d_B

Hubs must have a D_N that is greater than the value obtained from the following formula.

If using a hollow shaft, its bore must be equivalent to or less than the d_B obtained from the appropriate formula below.

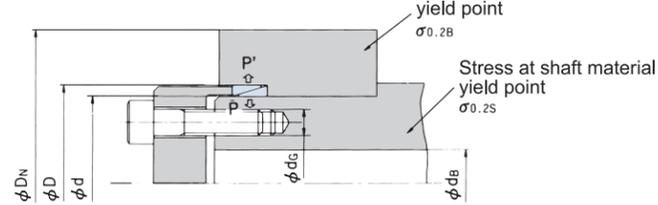
(a) Bolts Fastened to the Hub Section



$$D_N \geq D \sqrt{\frac{\sigma_{0.2B} + 0.8 \times P'}{\sigma_{0.2B} - 0.8 \times P'}} + d_G$$

$$d_B \leq d \sqrt{\frac{\sigma_{0.2S} - 1.2 \times P}{\sigma_{0.2S}}}$$

(b) Bolts Fastened to the Shaft Section



$$D_N \geq D \sqrt{\frac{\sigma_{0.2B} + 0.6 \times P'}{\sigma_{0.2B} - 0.6 \times P'}}$$

$$d_B \leq d \sqrt{\frac{\sigma_{0.2S} - 1.6 \times P}{\sigma_{0.2S}}} - d_G$$

P , P' : Contact pressure on the shaft and hub.

STEP 3 Selecting Locking Bolts

(1) Bolt Strength Classes and Mechanical Properties

In general, 10.9 and 12.9 class bolts should be used. These bolts are less affected by vibration and do not loosen as easily as others.

(2) Bolt Head Bearing Surface Pressure

When using 10.9 or 12.9 bolts, check the pressure at their bearing surfaces. If this pressure exceeds the maximum values provided below, the bearing surfaces will eventually deform, causing the bolts to loosen from decreased axial force. When the bearing pressure rises above the maximum values, reduce by increasing the strength of pressure flange (either change the material or treat with heat) or by lowering the tightening torque in order to prevent the bearing surfaces from deforming.

Bearing surface area = A_s
 $A_s = \frac{\pi}{4} (D^2 - d_a^2) \text{ mm}^2$

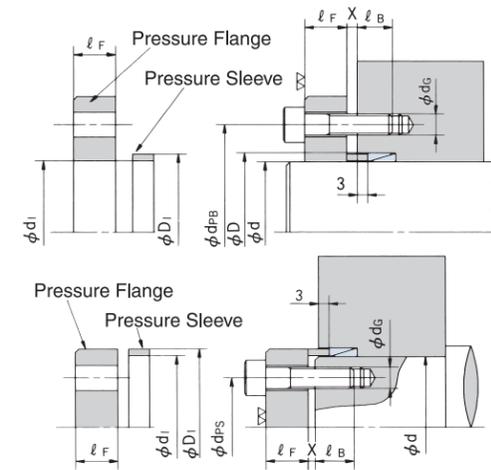
D : Bolt head diameter mm
 d_a max : Nominal diameter mm

Bearing surface pressure
 $P_s = F_v / A_s$

F_v : Tightening torque

STEP 4 Pressure System Designs

Pressure flanges experience a great deal of stress while locking bolts are being tightened. To avoid plastic deformation, use a pressure flange with the appropriate material strength and provide enough leeway in the design to account for some stress. Provided below are example pressure system design and calculations.



See table on the right for d_1 , D_1 and X dimensions.

(1) Bolt Pitch Circle Diameter d_{pB} , d_{pS} mm

(When $d = \phi 10 \sim \phi 30$)

$$d_{pB} = D + 8 + d_G$$

$$d_{pS} = d - 8 - d_G$$

(When $d = \phi 32 \sim \phi 150$)

$$d_{pB} = D + 10 + d_G$$

$$d_{pS} = d - 10 - d_G$$

However, if you are mounting a pressure flange to the hub, use 1/2 of the maximum number of bolts allowed or less, so that they may fit into the d_{pB} circumference.

(2) Thickness of Pressure Flange l_F mm

$$l_F \geq 2 \times d_G$$

(3) Strength of Pressure Flange ($\sigma_{0.2F}$)

When tightening with the torque required for 8.8 bolts.

$$\sigma_{0.2F} \geq 42,600 \text{ psi (1035 steel)}$$

When tightening with the torque required for 10.9 bolts.

$$\sigma_{0.2F} \geq 49,700 \text{ psi (1045 steel)}$$

When tightening with the torque required for 12.9 bolts.

$$\sigma_{0.2F} \geq 56,900 \text{ psi (1055 steel)}$$

$\sigma_{0.2F}$: Yield point of pressure flange

(4) Functioning Length of the Screw l_B mm

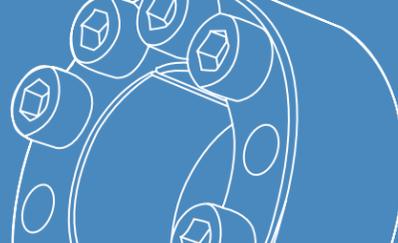
$$l_B \geq 1.5 \times d_G$$

Model Number	Dimension X (mm) No. of EL installed				Pressure Sleeve Diameters (mm)	
	1	2	3	4	d1	D1
PL010X013E	2	2	3	3	10.1	12.9
PL011X014E	2	2	3	3	11.1	13.9
PL012X015E	2	2	3	3	12.1	14.9
PL013X016E	2	2	3	3	13.1	15.9
PL014X018E	3	3	4	5	14.1	17.9
PL015X019E	3	3	4	5	15.1	18.9
PL016X020E	3	3	4	5	16.1	19.9
PL017X021E	3	3	4	5	17.1	20.9
PL018X022E	3	3	4	5	18.1	21.9
PL019X024E	3	3	4	5	19.2	23.8
PL020X025E	3	3	4	5	20.2	24.8
PL022X026E	3	3	4	5	22.2	25.8
PL024X028E	3	3	4	5	24.2	27.8
PL025X030E	3	3	4	5	25.2	29.8
PL028X032E	3	3	4	5	28.2	31.8
PL030X035E	3	3	4	5	30.2	34.8
PL032X036E	3	3	4	5	32.2	35.8
PL035X040E	3	3	4	5	35.2	39.8
PL036X042E	3	3	4	5	36.2	41.8
PL038X044E	3	3	4	5	38.2	43.8
PL040X045E	3	4	5	6	40.2	44.8
PL042X048E	3	4	5	6	42.2	47.8
PL045X052E	3	4	5	6	45.2	51.8
PL048X055E	3	4	5	6	48.2	54.8
PL050X057E	3	4	5	6	50.2	56.8
PL055X062E	3	4	5	6	55.2	61.8
PL056X064E	3	4	5	7	56.2	63.8
PL060X068E	3	4	5	7	60.2	67.8
PL063X071E	3	4	5	7	63.2	70.8
PL065X073E	3	4	5	7	65.2	72.8
PL070X079E	3	5	6	7	70.3	78.7
PL071X080E	3	5	6	7	71.3	79.7
PL075X084E	3	5	6	7	75.3	83.7
PL080X091E	4	5	6	8	80.3	90.7
PL085X096E	4	5	6	8	85.3	95.7
PL090X101E	4	5	6	8	90.3	100.7
PL095X106E	4	5	6	8	95.3	105.7
PL100X114E	4	6	7	9	100.3	113.7
PL110X124E	4	6	7	9	110.3	123.7
PL120X134E	4	6	7	9	120.3	133.7
PL130X148E	5	7	9	11	130.4	147.6
PL140X158E	5	7	9	11	140.4	157.6
PL150X168E	5	7	9	11	140.4	167.6

NOTE: Dimension X plus 3-mm is the minimum Pressure Sleeve length.

Technical Notes

INSTALLATION AND REMOVAL



Technical Notes

INSTALLATION AND REMOVAL



AS, AD, ADN, AE, FL, KE, TF, EF Series Installation and Removal

A. Installation

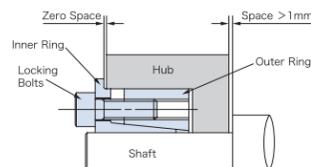
- (1) Verify that the shaft and the inner surface of the hub are clean, we recommend to lightly oil surfaces.

Note: Do not use silicone or molybdenum lubricants. Otherwise, friction coefficient will reduce, and standard torque will not be achieved.

- (2) Remove the bolts and clean all contact surfaces. Lightly coat the bolts, including their bearing surfaces, with oil or grease. For AD/ADN Series POWER-LOCKS, use an oil bath or a spray method to thoroughly lubricate each part.
- (3) Tighten the bolts part way, and preliminarily assemble the POWER-LOCK.

Notes: 1. Pre-assemble by keeping the phases of the slit and the taps for removal out of synch. For AD/ADN Series, maintain maximum space between the taper rings.

2. In the case of step shaft installation for AE Series, make sure the space between the hub and the steps is greater than 1 mm.



- (4) Mount hub to shaft, and lightly push the POWER-LOCK to the end of the hub. Take caution in carrying out this process with the AD/ADN Series for their taper angles are relatively small.

When the hub does not smoothly slide onto the shaft, either loosen the bolts or lightly tap on the hub until it is fixed into place.

Notes: 1. Do not hit the POWER-LOCK with a hammer. This will severely damage the product and possibly lead to accidents.

2. Included spacer must be used with a TF Series POWER-LOCK. Without the spacer, the unit will not transmit torque.

- (5) Determine the position of the hub along the shaft circumference and length. Using a torque wrench, tighten one bolt to approximately quarter of the specified torque MA, and then tighten the one diagonally across in the same manner. Repeat for the other bolts.

- (6) Using the torque wrench, tighten the bolts to one-half the specified torque MA and repeat the tightening procedure in step (5).

- (7) Bring up to full tightening torque MA and tighten as in step (5).

- (8) Tighten each bolt to full torque MA in a circular order. Repeat a few times until the bolts are completely tightened.

Notes: 1. A torque wrench must be used to tighten the locking bolts. Be sure to follow the above instructions to tighten the bolts to the specified torque. Hand-tightening or tightening with a wrench other than a torque wrench will result in incomplete installation, and lead to accidents.

2. Exceeding the specified tightening torque MA will damage the bolts. On the other hand, tightening to torque below MA will cause the bolts to loosen during operation. Be sure to use the correct torque to tighten these bolts.

3. Do not use bolts other than those provided. Otherwise, bolts may damage and cause accidents. If you misplace or damage any bolts, contact U.S. Tsubaki for replacement.

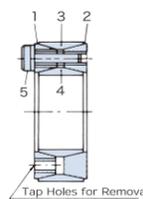
B. Removal

- (1) Verify that no torque or thrust is applied to the hub and shaft.

Note that in cases where a heavy shaft, hub or chain is used, disassembly may be slightly complicated. After removing the load, disassemble the unit by loosening the bolts in the correct order described in Installation A.

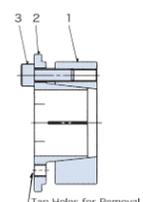
- ⚠ Caution: Loosening the bolts will release the locking function, which may cause the shaft to spin or jump out.
- (2) If the unit does not remove even after loosening all the bolts, tighten the bolts into the screw holes prepared for removal. This will release the lock.

Note: Take caution in installing and removing AD/ADN Series POWER-LOCKS for they have relatively smaller taper angles.



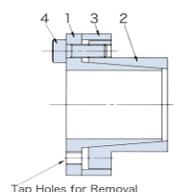
AS Series

- Parts
- 1: Taper Ring A
 - 2: Taper Ring B
 - 3: Outer Ring
 - 4: Inner Ring
 - 5: Locking Bolts



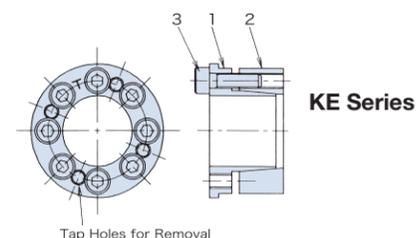
AE Series

- Parts
- 1: Outer Ring
 - 2: Inner Ring
 - 3: Locking Bolts



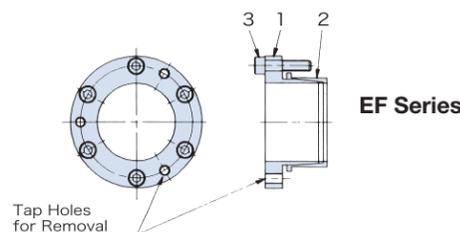
TF Series

- Parts
- 1: Inner Ring
 - 2: Outer Ring
 - 3: Spacer
 - 4: Locking Bolts



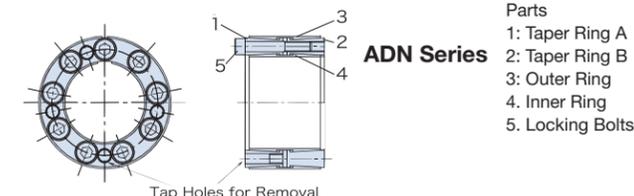
KE Series

- Parts
- 1: Inner Ring
 - 2: Outer Ring
 - 3: Locking Bolts



EF Series

- Parts
- 1: Inner Ring
 - 2: Outer Ring
 - 3: Locking Bolts



ADN Series

- Parts
- 1: Taper Ring A
 - 2: Taper Ring B
 - 3: Outer Ring
 - 4: Inner Ring
 - 5: Locking Bolts

C. Reusability

Assembly and disassembly of the POWER-LOCKS may be repeated a few times. However, if the hub and shaft material yield stresses $\sigma 0.2$ cannot tolerate the contact pressure P and P', repeated assembly and disassembly may damage certain parts of the hub-shaft contact surfaces.

AS-SS, AS-KP, KE-SS, KE-KP, TF-KP, RE-SS, SL Installation and Removal

A. Installation

- (1) Remove dust and oil from the hub and shaft with a cloth or alcohol. Be sure to completely remove any grease and oil. Otherwise, standard torque may not be achieved.

Note: The locking bolts are coated with a special substance so no lubrication is required.

- (2) Mount the POWER-LOCK onto the hub or shaft. Loosen the bolts or nut if difficult to install.

- (3) Using a torque wrench, tighten the bolts at quarter of the specified torque MA, starting with one bolt then another diagonally across and repeating for the other bolts. Then, tighten the bolts further to one-half the specified torque MA in the same crisscross sequence. Finally, tighten each bolt to full torque MA in a circular order. Repeat until each bolt is completely tightened.

Notes: 1. Do not hit the POWER-LOCK with a hammer. This will severely damage the product and possibly lead to accidents.

2. A torque wrench must be used to tighten the locking bolts. Be sure to follow the above instructions to tighten the bolts to the specified torque. Hand-tightening or tightening with a wrench other than a torque wrench will result in incomplete installation, and lead to accidents.

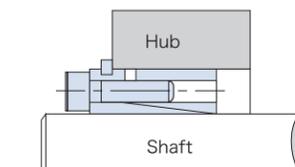
3. Exceeding the specified tightening torque MA will damage the bolts. On the other hand, tightening to torque below MA will cause the bolts to loosen during operation. Be sure to use the correct torque to tighten these bolts.

4. Do not use bolts or nuts other than those provided. Otherwise, bolts and nuts may damage and lead to accidents.

Notes on RE Series

(1) Installation A: With a Snap Ring

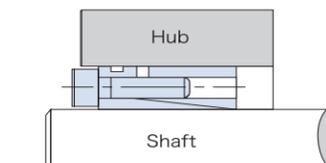
- ① Use a snap ring to prevent the hub from moving in the direction of the thrust.



(2) Installation B: Without a Snap Ring

- ① The hub will move in the direction of the thrust while the unit is being installed. See RE Series Movement in the Shaft Direction for amount of hub movement.

- ② Compared to Installation A, installation without a snap ring can transmit torque up to 1.7 times. Take note of the hub and shaft material strengths for this installation. The contact pressure generated at the hub and shaft from this setup is much larger than that achieved from Installation A. It is very important to check the hub material strength, for if the contact pressure is too high, the hub may displace itself. For required hub diameters, refer to the appropriate Hub Diameters table.



Technical Notes

INSTALLATION AND REMOVAL

③ The snap ring can be easily removed with a flat-blade screwdriver.

• Removing a snap ring:

The snap rings for POWER-LOCKS are shaped like spirals. Insert a flat-blade screwdriver in the slit of the snap ring and slightly lift to remove. See Illustration 1.

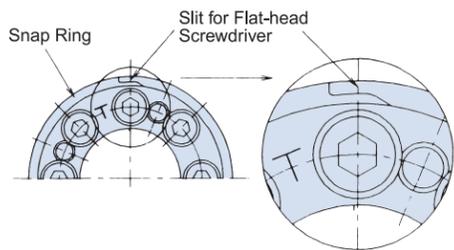


Illustration 1 Removing a Snap Ring

■ Notes on SL Series

Before installing an SL POWER-LOCK, loosen the locking bolts and remove the spacer inserted between the taper rings A and B. See Illustration 2.

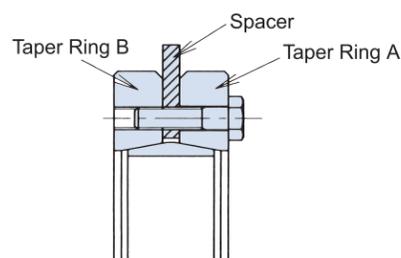


Illustration 2

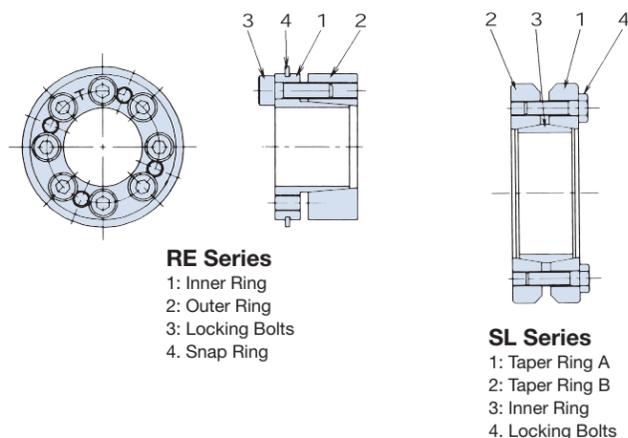
B. Removal

(1) Verify that no torque or thrust is applied to the hub and shaft.

Note that in cases where a heavy shaft, hub or chain is used, disassembly may be slightly complicated. After removing the load, disassemble the unit by loosening the bolts in the correct order described in Installation A.

⚠ Caution: Loosening the bolts will release the locking function, which may cause the shaft to spin or jump out.

(2) If the unit does not remove even after loosening all the bolts, tighten the bolts into the screw holes prepared for removal. This will instantly release the lock.



RE Series

- 1: Inner Ring
- 2: Outer Ring
- 3: Locking Bolts
- 4: Snap Ring

SL Series

- 1: Taper Ring A
- 2: Taper Ring B
- 3: Inner Ring
- 4: Locking Bolts

C. Reusability

(1) When POWER-LOCKS with specially lubricated bolts and inner rings start to flake, they cannot be reused. Also, if the end of a locking bolt seems to be damaged or if other parts show signs of wear, the product cannot be reused.

(2) Assembly and disassembly of the POWER-LOCKS may be repeated a few times. However, if the hub and shaft material yield stresses $\sigma_{0.2}$ cannot tolerate the contact pressure P and P' , repeated assembly and disassembly may damage certain parts of the hub-shaft contact surfaces.

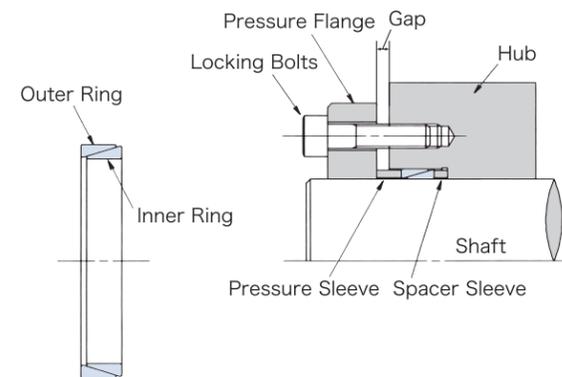
Technical Notes

INSTALLATION AND REMOVAL



EL Installation and Removal

A. Removal



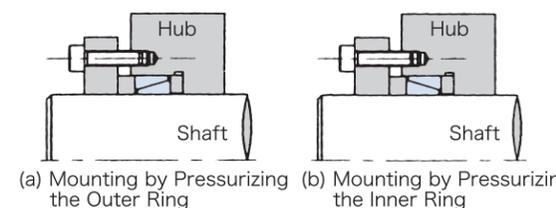
(1) Verify that the shaft and the inner surface of the hub are clean, we recommend to lightly oil surfaces.

Note: Do not use silicone or molybdenum lubricants. Otherwise, friction coefficient will reduce, and standard torque will not be achieved.

(2) If an indentation in the inner hub corner or a large R is machined, a spacer sleeve must be used.

(3) An EL POWER-LOCK can be installed in two ways, resulting in different transmissible torque: (a) Install by pressurizing the outer ring or (b) by pressurizing the inner ring. Pay close attention to the installation position during this procedure.

(4) Mount the POWER-LOCK so that it slightly moves in parallel to the shaft.



(5) Mount by tightening the bolts on the pressure flange evenly, in a crisscross sequence. Make sure that the amount of space between the pressure flange and the hub is uniform throughout the circumference.

Note: If the pressure flange material strength is insufficient, adequate pressure cannot be achieved. Confirm the catalog rate for pressure flange material strength before installing and avoid damages to the POWER-LOCK and the bolt head bearing surfaces.

(6) Hand-tighten the bolts until the pressure flange no longer moves in the shaft direction. Then, adjust the hub position and phase.

Note: Do not use a spring washer or toothed washer with the pressure flange and bolts.

(7) Using a torque wrench or a hexagonal spanner wrench tighten the bolts to approximately quarter of the specified torque.

(8) Using the wrench tighten the bolts to one-half the specified torque.

(9) Bring up to full tightening torque M_A until the bolts do not turn any further. Use the torque wrench to complete this final step and make sure that the space between the pressure flange and the hub or shaft end is uniform throughout the circumference.

■ Notes on AS and EL Series

When using a POWER-LOCK that is not self-centering, mount a guiding unit to the hub. Do not center by tightening the bolts. Instead, center or align the hub and shaft by adjusting the guide portion itself. The alignment accuracy is determined by the length and tolerance of the guide portion.

B. Removal

(1) Tighten the bolts in a crisscross sequence.

Normally, when the bolts are loosened, the POWER-LOCK will remove itself.

(2) If it does not remove after loosening all the bolts, clean the surrounding surface and lightly hit the POWER-LOCK with a hammer.

(3) If an EL POWER-LOCK does not remove by procedure (2), an increase in friction coefficient may have taken place due to damaged contact surfaces or a dislocation of the unit may have happened due to incorrect mounting or a plastic deformation may have occurred. In these cases, the unit must be disassembled and the problem investigated before reassembling.

C. Reusability

(1) An EL POWER-LOCK cannot be reused if the bolts or other parts are damaged.

(2) Assembly and disassembly of the POWER-LOCKS may be repeated a few times. However, if the hub and shaft material yield stresses $\sigma_{0.2}$ cannot tolerate the contact pressure P and P' , repeated assembly and disassembly may damage certain parts of the hub-shaft contact surfaces.

Technical Notes

PRECAUTIONS

Technical Notes

PRECAUTIONS



Precautions

1. Installing to Keyed Shafts

Mounting to keyed shafts such as motored shafts will reduce the transmissible torque M_t and transmissible thrust P_{ax} by 10%.

Transmissible torque : $M_t \times 0.9$

Transmissible thrust : $P_{ax} \times 0.9$

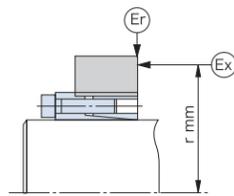
2. Installation Accuracy

When a POWER-LOCK is installed into a straight hub bore, the installation accuracy depends on the hub's length as shown below.

Ex: Hub End Face Runout Below $0.002 \times r$ mm

Er: Outer Hub Diameter Runout Below 0.05mm

Series	Hub Length B
ADN	L
AE	L_2
RE	L_2
KE	L_2
TF	ℓ
EF	ℓ

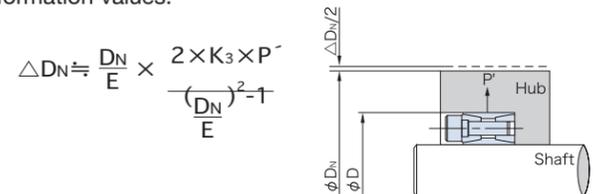


AS and EL are not self-centering. Refer to Selection Procedure for details.

3. Hub's Outer Diameter Deformation

Note: Following contains metric numbers and equations. If there are questions, contact U.S. Tsubaki.

When a POWER-LOCK is mounted onto a hub, contact pressure P' will exert on the hub's inner surface, causing the hub's outer diameter to experience a plastic deformation. The specific degree of deformation cannot be determined for it depends on the distribution of P' and the type of hub. However, the following formula can be used to obtain rough deformation values.



P' : Contact pressure of the hub MPa

E : Young's Modulus

For steel: $E=205800$ MPa

D : Hub inner diameter mm

D_N : Hub outer diameter mm

ΔD_N : Hub's outer diameter deformation mm

K_3 : Hub configuration coefficient

(See appropriate Hub Diameters table.)

4. Ambient Temperature

POWER-LOCKS must be operated in an appropriate environment with a temperature ranging from -22°F to 392°F .

5. Allowable Deviation of Tightening Torque MA

The allowable deviation from the specified tightening torque is $\pm 5\%$. If the bolts are correctly tightened within this range with a torque wrench as instructed, the unit should achieve adequate transmissible torque MA and thrust P_{ax} .

6. Hub Movement

The hub may move, depending on the type of POWER-LOCK installed. See Selection and Procedure for details.

(1) RE Series Hub Movement

The hub will move when installing an RE POWER-LOCK without a snap ring. This movement is caused by the deformation of the shaft and hub and varies depending on the hub's inner-to-outer diameter ratio a_N . See table below.

$$a_N = \frac{D_N}{D}$$

D : Inner Hub Diameter mm
 D_N : Outer Hub Diameter mm

Model Number	Hub Movement inch			
	$a_N=3$	$a_N=2$	$a_N=1.5$	
PL005X018	RE-SS	0.002	0.003	0.004
PL006X019	RE-SS	0.002	0.003	0.004
PL008X021	RE-SS	0.003	0.004	0.005
PL010X026	RE-SS	0.004	0.005	0.007
PL011X027	RE-SS	0.005	0.006	0.007
PL012X028	RE-SS	0.006	0.007	0.009
PL014X030	RE-SS	0.006	0.007	0.001
PL015X031	RE-SS	0.006	0.007	0.001
PL016X032	RE-SS	0.006	0.007	0.001
PL017X033	RE-SS	0.006	0.007	0.009
PL018X034	RE-SS	0.006	0.007	0.009
PL019X035	RE-SS	0.007	0.009	0.012
PL020X039	RE-SS	0.009	0.011	0.015
PL022X041	RE-SS	0.009	0.011	0.015
PL024X043	RE-SS	0.012	0.014	0.019
PL025X044	RE-SS	0.012	0.014	0.019
PL028X049	RE-SS	0.013	0.015	0.021
PL030X050	RE-SS	0.013	0.016	0.021
PL032X052	RE-SS	0.013	0.015	0.021
PL035X058	RE-SS	0.015	0.018	0.024
PL038X060	RE-SS	0.017	0.020	0.028
PL040X063	RE-SS	0.017	0.020	0.028
PL042X066	RE-SS	0.019	0.023	0.031
PL045X068	RE-SS	0.020	0.023	0.031
PL048X072	RE-SS	0.022	0.026	0.035
PL050X075	RE-SS	0.022	0.026	0.035

(2) EF Series Hub Movement

The hub will move when connecting a shaft and hub with an EF POWER-LOCK. This movement is caused by the deformation of the shaft and hub bore and varies depending on the hub's inner-to-outer diameter ratio a_N .

$$a_N = \frac{D_N}{D}$$

D : Inner Hub Diameter
 D_N : Outer Hub Diameter

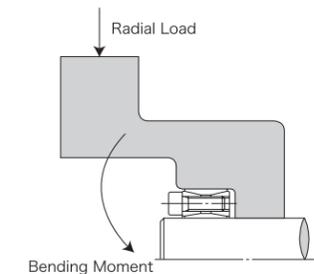
Model Number		Hub Movement inch		
		$a_N=1.5$	$a_N=2$	$a_N=3$
PL010X013	EF	0.011	0.009	0.007
PL011X014	EF	0.011	0.009	0.007
PL012X015	EF	0.011	0.009	0.007
PL014X018	EF	0.011	0.009	0.007
PL015X019	EF	0.011	0.009	0.007
PL016X020	EF	0.017	0.013	0.011
PL017X021	EF	0.017	0.013	0.011
PL018X022	EF	0.019	0.014	0.012
PL019X024	EF	0.019	0.014	0.012
PL020X025	EF	0.019	0.014	0.012
PL022X026	EF	0.019	0.014	0.012
PL024X028	EF	0.019	0.014	0.012
PL025X030	EF	0.019	0.014	0.012
PL028X032	EF	0.028	0.021	0.018
PL030X035	EF	0.028	0.021	0.018
PL032X036	EF	0.024	0.018	0.015
PL035X040	EF	0.025	0.018	0.015
PL038X044	EF	0.035	0.026	0.022
PL040X045	EF	0.028	0.021	0.018
PL042X048	EF	0.038	0.028	0.024
PL045X052	EF	0.043	0.032	0.027
PL048X055	EF	0.043	0.032	0.027
PL050X057	EF	0.043	0.032	0.027
PL055X062	EF	0.043	0.032	0.027
PL060X068	EF	0.039	0.029	0.024
PL065X073	EF	0.052	0.038	0.032
PL070X079	EF	0.049	0.036	0.031
PL075X084	EF	0.061	0.045	0.038
PL080X091	EF	0.056	0.041	0.035
PL085X096	EF	0.071	0.052	0.044
PL090X101	EF	0.071	0.052	0.044
PL095X106	EF	0.071	0.052	0.044
PL100X114	EF	0.065	0.048	0.041
PL110X124	EF	0.065	0.048	0.041
PL120X134	EF	0.078	0.058	0.049

7. Assembly Lubrication

A POWER-LOCK's main body and bolts must be lubricated during assembly. Some may be concerned that the lubrication may cause POWER-LOCKS to slip, or the bolts to loosen. However, specified tightening torque for the bolts is calculated provided that the bolts are thoroughly lubricated. Oil is also required for the tapered surfaces to slide smoothly. If the unit is not lubricated, transmissible torque will decrease approximately 25% due to a reduction in axial force. The bolts may also deform and lead to failure. In the case of a stainless steel or an electroless nickel-plated model, however, the bolts are coated with a special substance and the main unit is prepared so that it can be operated in the "dry state". Do not lubricate these models during assembly.

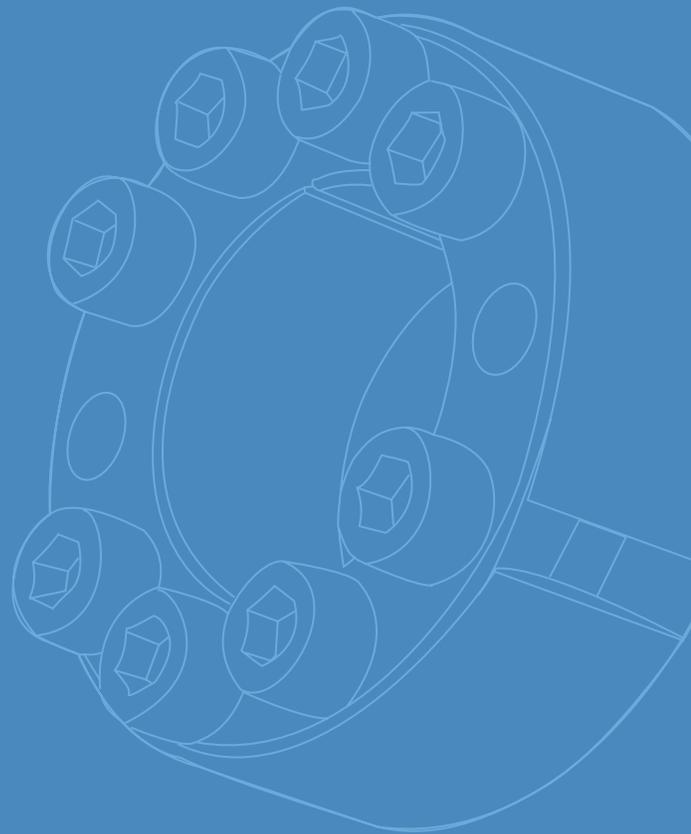
8. Bending Moment

POWER-LOCKS cannot tolerate bending moments. Contact U.S. Tsubaki if a bending moment applies as illustrated below.



9. Outdoor Use

POWER-LOCK performance is not affected by moisture or rain due to the tight seal of parts maintained by their high interfacial contact pressure. However, the exterior surfaces will begin to rust. The rust will reduce the bolts' tensile strengths and cause a sudden drop in the general tightening force. In order to prevent this, you must use a cover, thoroughly grease the unit and take countermeasures against corrosion. If the cover causes any inconvenience, opt for the anticorrosive stainless steel or electroless nickel-plated models. Also, note that although the exterior surfaces of SL POWER-LOCKS are coated with a special lubricant, it may not be effective after a certain period of time. It may be wise to lubricate them after assembly.



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CATALOGUE NUMBER: L0930000
Printed in U.S. 10/09