

U.S. TSUBAKI POWER-LOCK®

SPECIFICATIONS

AS Metric Series

Model Number

PL 020 x 047

Outside Dia. (mm)

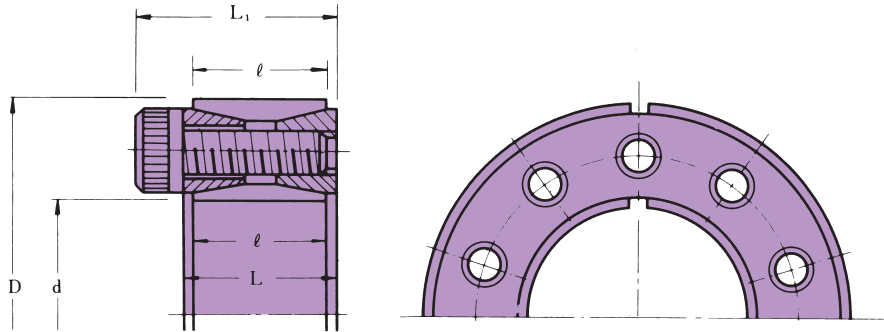
Shaft Dia. (mm)

POWER-LOCK® AS Series

<Conversion>

1 ft./lbs. = 0.1382 kgf/m = 1.3550 N•m

1 psi = 0.0007 kgf/mm² = 0.0069 MPa



NOTE: AS Metric available in stainless steel in standard sizes up to PL065X095. Larger sizes available as special orders.

Model Number Inside Dia. X Outside Dia. (d X D)	Tolerance		Dimensions inch			Transmissible Torque Mt ft./lbs.	Transmissible Thrust Pax lbs.	Contact Pressure psi		Locking Bolts			Wt. lbs.		
	Shaft O.D. t ₁	Hub I.D. t ₂	L	ℓ	L ₁			Shaft P	Hub bore P'	Qty.	Size	Tightening Torque Ma ft./lbs.			
PL019X047	-0.0013" +0	+0.0013" -0	.7874	.7087	1.0236	180.8	5,960	30,470	12,330	6	M6 X 18	12.3	.442		
PL020X047			.7874	.7087	1.0236	195.6	5,960	28,870	12,330	6	M6 X 18	12.3	.442		
PL022X047			.7874	.7087	1.0236	217.0	5,960	26,260	12,330	6	M6 X 18	12.3	.419		
PL024X050			.7874	.7087	1.0236	296.7	7,490	30,620	14,660	8	M6 X 18	12.3	.486		
PL025X050			.7874	.7087	1.0236	310.7	7,490	29,460	14,660	8	M6 X 18	12.3	.486		
PL028X055			.7874	.7087	1.0236	346.9	7,490	26,129	13,350	8	M6 X 18	12.3	.552		
* PL030X055 (PL 1 3/16)	-0.0015" +0	+0.0015" -0	.7874	.6299	1.0236	376.4	7,490	24,520	13,350	8	M6 X 18	12.3	.530		
PL032X060			.7874	.7087	1.0236	498.9	9,470	28,730	15,380	10	M6 X 18	12.3	.596		
* PL035X060 (PL 1 3/8)			.7874	.7087	1.0236	549.8	9,470	26,260	15,380	10	M6 X 18	12.3	.596		
PL038X065			.7874	.7087	1.0236	658.3	10,570	26,550	15,530	11	M6 X 18	12.3	.662		
PL040X065			.7874	.7087	1.0236	694.5	10,570	25,250	15,530	11	M6 X 18	12.3	.662		
PL042X075			.9449	.8268	1.2598	1100.0	15,880	31,050	17,560	9	M8 X 22	29.7	1.126		
PL045X075			.9449	.8268	1.2598	1181.0	15,880	29,020	17,560	9	M8 X 22	29.7	1.126		
PL048X080			.9449	.8268	1.2598	1255.0	15,880	27,290	16,400	9	M8 X 22	29.7	1.214		
PL050X080			.9449	.8268	1.2598	1306.0	15,880	26,120	16,400	9	M8 X 22	29.7	1.214		
PL055X085			.9449	.8268	1.2598	1764.0	19,390	29,170	18,860	11	M8 X 22	29.7	1.325		
* PL060X090 (PL 2 3/8)			-0.0018" +0	+0.0018" -0	.9449	.8268	1.2598	1926.0	19,390	26,700	17,850	11	M8 X 22	29.7	1.413
* PL065X095 (PL 2 3/16)					.9449	.8268	1.2598	2280.0	21,170	26,700	18,280	12	M8 X 22	29.7	1.523
* PL070X110 (PL 2 3/4)	1.1024	.9843			1.4961	3542.0	31,050	30,470	19,300	11	M10 X 25	60.0	2.671		
PL075X115	1.1024	.9843			1.4961	3830.0	31,050	28,440	18,430	11	M10 X 25	60.0	2.804		
PL080X120	1.1024	.9843			1.4961	4052.0	31,050	26,700	17,850	11	M10 X 25	60.0	2.936		
PL085X125	1.1024	.9843			1.4961	4701.0	33,750	27,420	18,570	12	M10 X 25	60.0	3.113		
PL090X130	1.1024	.9843			1.4961	4989.0	33,750	25,830	17,850	12	M10 X 25	60.0	3.245		
* PL095X135 (PL 3 3/4)	1.1024	.9843			1.4961	5712.0	36,670	26,560	18,720	13	M10 X 25	60.0	3.400		
* PL100X145 (PL 3 15/16)	1.2992	1.1417			1.7717	7380.0	45,225	26,700	18,430	11	M12 X 30	105.0	4.614		
PL110X155	1.2992	1.1417			1.7717	8192.0	45,225	24,380	17,410	11	M12 X 30	105.0	4.967		
PL120X165	1.2992	1.1417	1.7717	9668.0	49,500	24,380	17,850	12	M12 X 30	105.0	5.342				
PL130X180	-0.0021" +0	+0.0021" -0	1.4961	1.3386	1.9685	13,140.0	61,650	24,090	17,410	15	M12 X 35	105.0	7.461		
* PL140X190 (PL 5 1/2)			1.4961	1.3386	1.9685	15,130.0	65,700	23,800	17,560	16	M12 X 35	105.0	7.925		
PL150X200			1.4961	1.3386	1.9685	18,230.0	74,020	24,960	18,720	18	M12 X 35	105.0	8.433		
PL160X210			1.4961	1.3386	1.9685	20,440.0	78,070	24,670	18,720	19	M12 X 35	105.0	8.896		
PL170X225			1.7323	1.5748	2.2835	25,170.0	90,450	22,780	17,270	16	M14 X 40	166.0	12.119		
PL180X235			1.7323	1.5748	2.2835	28,340.0	95,850	22,930	17,560	17	M14 X 40	166.0	12.759		
* PL190X250 (PL 7 1/2)			2.0472	1.8898	2.5984	35,130.0	112,950	21,330	16,250	20	M14 X 45	166.0	17.417		
* PL200X260 (PL 7 3/8)			2.0472	1.8898	2.5984	38,890.0	118,570	21,180	16,400	21	M14 X 45	166.0	18.234		
PL220X285			2.2047	2.0079	2.8346	51,000.0	141,300	21,620	16,690	18	M16 x 50	257.0	23.400		
PL240X305			2.2047	2.0079	2.8346	61,840.0	157,050	22,060	17,410	20	M16 x 50	257.0	25.386		
PL260X325	-0.0032" +0	+0.0032" -0	2.2047	2.0079	2.8346	76,750.0	180,670	23,360	18,720	23	M16 x 50	257.0	27.815		
* PL280X355 (PL11)			2.5984	2.4016	3.3071	95,200.0	207,670	20,890	16,540	22	M18 x 60	351.0	41.280		
* PL300X375 (PL 11 13/16)			2.5984	2.4016	3.3071	111,400.0	225,000	21,330	17,120	24	M18 x 60	351.0	43.929		

Note: If your application requires slightly larger tolerances than noted, refer to page D-28.

* Identical unit with inch size AS POWER LOCK.

Minimum Hub Diameter (D_N) When Using One POWER-LOCK®

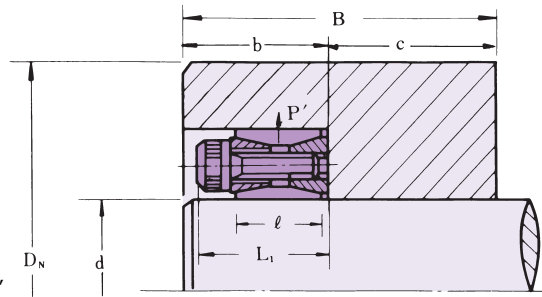
Suggested hub diameter for a single POWER-LOCK. This table shows minimum hub diameter D_N , which can tolerate surface pressure P' based on:

$$b \geq L_1$$

$$B \geq 2\ell$$

The value, $d/2$ or more, is to be suggested as the guide length c .

<EXAMPLE> Hub Material Yield Point = 50,000 psi } Min. $D_N = 2.559''$
PL030X055 to be used



<Conversion>

$$1 \text{ psi} = 0.0007 \text{ kgf/mm}^2 = 0.0069 \text{ Mpa}$$

Model Number	Contact Pressure in the Hub Bore P' psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 60004
PL019X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL020X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL022X047	12,330	2.3622	2.3228	2.2441	2.2047	2.1654	2.1260
PL024X050	14,660	2.6378	2.5590	2.4803	2.4016	2.3622	2.3228
PL025X050	14,660	2.6378	2.5590	2.4803	2.4016	2.3622	2.3228
PL028X055	13,350	2.7953	2.7559	2.6772	2.5984	2.5590	2.5200
PL030X055	13,350	2.7953	2.7559	2.6772	2.5984	2.5590	2.5200
PL032X060	15,380	3.1890	3.1102	2.9921	2.9134	2.8740	2.7953
PL035X060	15,380	3.1890	3.1102	2.9921	2.9134	2.8740	2.7953
PL038X065	15,530	3.4646	3.3858	3.2677	3.1890	3.1102	3.0315
PL040X065	15,530	3.4646	3.3858	3.2677	3.1890	3.1102	3.0315
PL042X075	17,560	4.1732	4.0551	3.8976	3.7795	3.6614	3.5827
PL045X075	17,560	4.1732	4.0551	3.8976	3.7795	3.6614	3.5827
PL048X080	16,400	4.3307	4.2126	4.0551	3.9370	3.8583	3.7795
PL050X080	16,400	4.3307	4.2126	4.0551	3.9370	3.8583	3.7795
PL055X085	18,860	4.8425	4.6850	4.4882	4.3307	4.2126	4.1339
PL060X090	17,850	5.0394	4.8819	4.6850	4.5276	4.4094	4.3307
PL065X095	18,280	5.3543	5.1969	4.9606	4.8031	4.6850	4.5669
PL070X110	19,300	6.3386	6.1417	5.8661	5.6693	5.5118	5.3543
PL075X115	18,430	6.4961	6.2992	6.0236	5.8268	5.6693	5.5118
PL080X120	17,850	6.6929	6.4961	6.2205	6.0236	5.9055	5.7480
PL085X125	18,570	7.0866	6.8504	6.5748	6.3386	6.1811	6.0236
PL090X130	17,850	7.2835	7.0472	6.7323	6.5354	6.3780	6.2205
PL095X135	18,720	7.6772	7.4409	7.1260	6.8898	6.6930	6.5354
PL100X145	18,430	8.1890	7.9528	7.5984	7.3622	7.1654	7.0079
PL110X155	17,410	8.5827	8.3071	7.9921	7.7559	7.5591	7.4016
PL120X165	17,850	9.2126	8.9370	8.5433	8.3070	8.0709	7.9136
PL130X180	17,410	9.9606	9.6457	9.2913	8.9764	8.7795	8.5827
PL140X190	17,560	10.5512	10.2362	9.8031	9.5276	9.2913	9.0551
PL150X200	18,720	11.3780	10.9843	10.5118	10.1575	9.9213	9.6457
PL160X210	18,720	11.9291	11.5354	11.0630	10.6693	10.3937	10.1575
PL170X225	17,270	12.4016	12.0472	11.5748	11.2205	10.9449	10.7087
PL180X235	17,560	13.0315	12.6378	12.1260	11.7717	11.4567	11.2205
PL190X250	16,250	13.5039	13.1102	12.6378	12.2835	12.0079	11.7323
PL200X260	16,400	14.0945	13.6614	13.1890	12.7953	12.5197	12.2441
PL220X285	16,690	15.5118	15.0787	14.4882	14.0945	13.7795	13.4646
PL240X305	17,410	16.8504	16.3386	15.7087	15.2362	14.8425	14.5276
PL260X325	18,720	18.4646	17.8740	17.0866	16.5354	16.1024	15.7087
PL280X355	16,540	19.2913	18.7402	18.0315	17.5197	17.1260	16.7323
PL300X375	17,120	20.5906	20.0000	19.2126	18.6614	18.1890	17.7953

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K_3) = 0.6. Refer to page D-29.

U.S. TSUBAKI POWER-LOCK®

Minimum Hub Diameter (D_N) When Using Multiple POWER-LOCK®

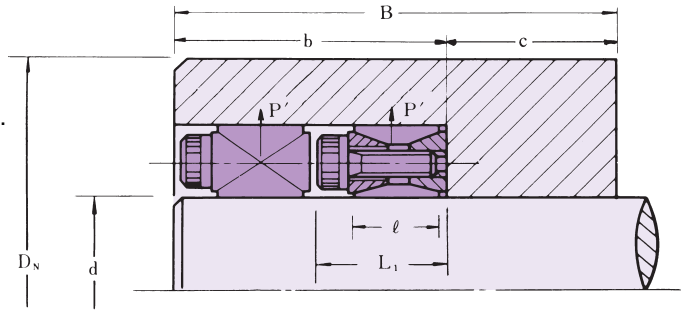
Suggested outside hub diameter for two or more POWER-LOCK. This table shows minimum hub diameter D_N , which can tolerate surface pressure P' based on:

$$b \geq N \cdot L_1 \quad \text{n: number of POWER-LOCK}$$

$$B \geq n \cdot L_1 + L_1 \quad (2 \leq N \leq 4)$$

The value, $d/2$ or more, is to be suggested as the guide length c .

<EXAMPLE> Hub Material Yield Point = 50,000 psi } Min. $D_N = 2.7165"$
PL030X055 to be used



<Conversion>
1 psi = 0.0007 kgf/mm² = 0.0069 Mpa

Min. Hub Dia. (D_N in inches)

Model Number	Contact Pressure in the Hub Bore P' psi	Yield Point of Various Hub Material Y.P. (psi) Y.P. = $\sigma_{0.2}$					
		32,000	35,000	40,000	45,000	50,000	56,000
		Class No. 40 Grade No. 60-30	Class No. 50 Grade No. 65-35	Class No. 60 Grade No. 40010	Grade No. 45006	Grade No. 50005 Grade No. 80-65	Grade No. 1040, 1045, 1137, 1141, 1144 Grade No. 60004
PL019X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL020X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL022X047	12,330	2.5591	2.4803	2.4016	2.3228	2.2835	2.2441
PL024X050	14,660	2.9134	2.7953	2.6772	2.5984	2.5197	2.4409
PL025X050	14,660	2.9134	2.7953	2.6772	2.5984	2.5197	2.4409
PL028X055	13,350	3.0709	2.9921	2.8740	2.7559	2.7165	2.6378
PL030X055	13,350	3.0709	2.9921	2.8740	2.7559	2.7165	2.6378
PL032X060	15,380	3.5433	3.4252	3.2677	3.1496	3.0709	2.9528
PL035X060	15,380	3.5433	3.4252	3.2677	3.1496	3.0709	2.9528
PL038X065	15,530	3.8583	3.7402	3.5433	3.4252	3.3070	3.2283
PL040X065	15,530	3.8583	3.7402	3.5433	3.4252	3.3070	3.2283
PL042X075	17,560	4.7638	4.5276	4.2913	4.0945	3.9370	3.8189
PL045X075	17,560	4.7638	4.5276	4.2913	4.0945	3.9370	3.8189
PL048X080	16,400	4.8819	4.6850	4.4488	4.2520	4.1339	4.0157
PL050X080	16,400	4.8819	4.6850	4.4488	4.2520	4.1339	4.0157
PL055X085	18,860	5.5906	5.3150	5.0000	4.7638	4.5669	4.4094
PL060X090	17,850	5.7480	5.4724	5.1575	4.9213	4.7638	4.6063
PL065X095	18,280	6.1417	5.8661	5.5118	5.2756	5.0787	4.9213
PL070X110	19,300	7.3622	6.9685	6.5354	6.2205	5.9843	5.7480
PL075X115	18,430	7.4803	7.1260	6.6929	6.3780	6.1417	5.9449
PL080X120	17,850	7.6378	7.2835	6.8848	6.5748	6.3386	6.1417
PL085X125	18,570	8.1496	7.7559	7.2835	6.9685	6.6929	6.4567
PL090X130	17,850	8.2677	7.9134	7.4409	7.1260	6.8898	6.6535
PL095X135	18,720	8.8583	8.4252	7.8740	7.5197	7.2441	7.0079
PL100X145	18,430	9.4094	8.9764	8.4251	8.0315	7.7559	7.4803
PL110X155	17,410	9.7638	9.3307	8.7795	8.4252	8.1496	7.8740
PL120X165	17,850	10.5118	10.0394	9.4488	9.0551	8.7402	8.4646
PL130X180	17,410	11.2992	10.8268	10.1969	9.7638	9.4488	9.1339
PL140X190	17,560	12.0079	11.4567	10.8268	10.3543	10.0000	9.6850
PL150X200	18,720	13.1102	12.4410	11.6429	11.1418	10.7480	10.3543
PL160X210	18,720	13.7402	13.0709	12.2835	11.6929	11.2598	10.9055
PL170X225	17,270	14.0945	13.4646	12.7165	12.1654	11.7717	11.4173
PL180X235	17,560	14.8425	14.1732	13.3858	12.7952	12.3622	11.9685
PL190X250	16,250	15.1575	14.5669	13.8189	13.2677	12.8740	12.4803
PL200X260	16,400	15.8268	15.1964	14.4094	13.8189	13.4252	12.9921
PL220X285	16,690	17.5197	16.7716	15.9055	15.2362	14.7638	14.3307
PL240X305	17,410	19.1732	18.3070	17.2835	16.5354	15.9843	15.5118
PL260X325	18,720	21.2598	20.2362	18.9764	18.1102	17.4409	16.8504
PL280X355	16,540	21.7322	20.8268	19.7244	18.9370	18.3465	17.7953
PL300X375	17,120	23.3465	22.3228	21.1024	20.2362	19.5669	18.9764

Note: Min. Hub Dia. (D_N) calculated based upon the Formula (3) at (K) = 0.8. Refer to page D-29.