TSUBAKI®

POWER-LOCK®

The solution for shaft locking devices

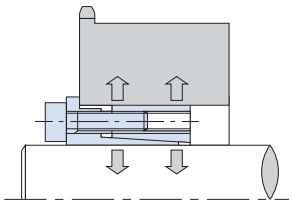
www.ustsubaki.com

POWER-LOCK Selection Guide

AD Series

KE Series

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

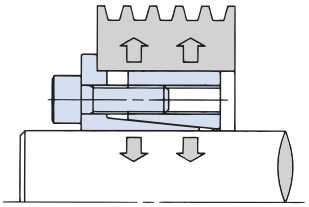


Wide Range of Tolerances

High Torque

AE Series

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



AS Series Multipurpose

Multipurpose Flange

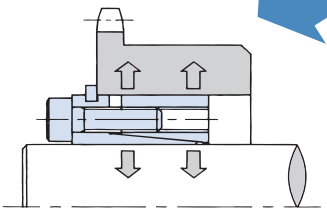
Environment Resistant

Flush Mounting

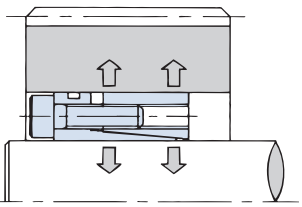
RE Series Stainless Steel

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

Flange Type



Straight Type



FL Series

AS Inch and Metric Series

MOST POPULAR STYLE

Locking Bolts | Taper Ring (A) | Outer Ring | Inner Ring | Taper Ring (B)

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 maching 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.

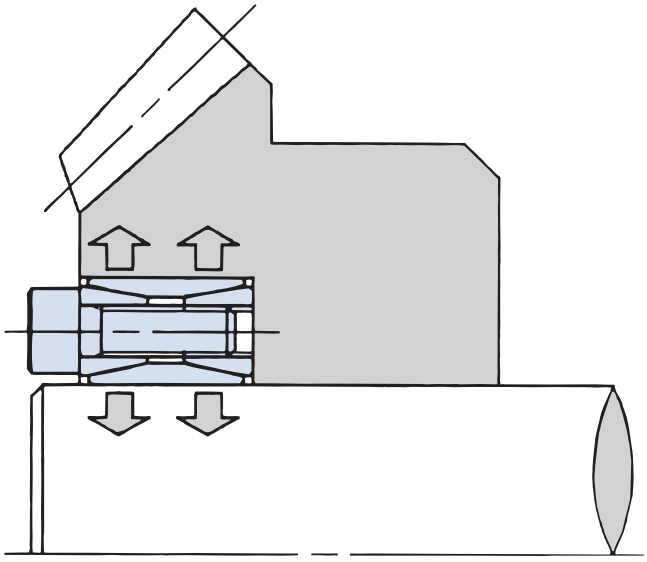
Model Number

Inch Series: PL 2 AS

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

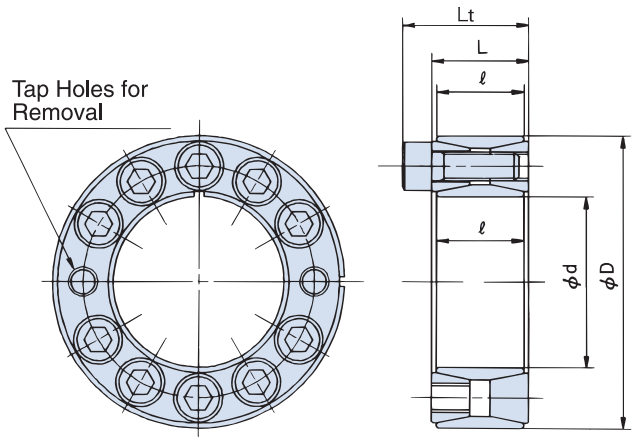
Metric Series: PL 020 X 047 AS

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



AS Inch Series

MOST POPULAR STYLE



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	-0.0013" +0	1.8500	+0.0015" -0	0.787	0.709	1.024	188	5,940	30290	12370	6	M6 X 18	12.5	0.5
PL7/8	AS	0.8750		1.8500		0.787	0.709	1.024	217	5,940	26020	12370	6	M6 X 18	12.5	0.4
PL1	AS	1.0000		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	-0.0015" +0	2.1590	+0.0018" -0	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		2.9530		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		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	-0.0018" +0	3.3465	+0.0021" -0	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		3.7402		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		3.7370		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	-0.0021" +0	4.9213	+0.0025" -0	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		5.3050		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		5.7080		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		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	-0.0025" +0	7.0866	+0.0028" -0	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		7.4920		1.438	1.339	1.910	15,120	65,560	23750	17490	16	M12 X 35	105	7.9
PL6	AS	6.0000		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	-0.0028" +0	10.2350	+0.0032" -0	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		11.2205		2.205	2.008	2.835	50,050	141,020	22040	16640	18	M16 X 50	257	25
PL9	AS	9.0000		11.6690		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	-0.0032" +0	12.7953	+0.0035" -0	2.205	2.008	2.835	75,220	180,180	23890	18770	23	M16 X 50	257	30
PL10-1/2	AS	10.5000		13.3190		2.205	2.008	2.835	78,840	180,180	22750	18060	23	M16 X 50	257	31
PL11	AS	11.0000		14.0000		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

AS Inch Series

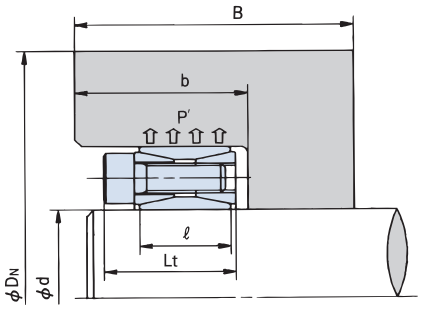
MOST POPULAR STYLE

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.

$$B \geq 2\ell$$

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



Hub Configuration Coefficient $K_3 = 0.6$

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	4140 1045	1055	
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	2.851	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
PL2 AS	18910	6.055	5.395	4.990	4.809	4.658	4.488	4.395	4.220	4.096	4.003
PL2-1/8 AS	18910	6.055	5.395	4.990	4.809	4.658	4.488	4.395	4.220	4.096	4.003
PL2-3/16 AS	17780	6.140	5.530	5.147	4.975	4.829	4.665	4.575	4.405	4.284	4.193
PL2-1/4 AS	17780	6.140	5.530	5.147	4.975	4.829	4.665	4.575	4.405	4.284	4.193
PL2-3/8 AS	17780	6.119	5.511	5.130	4.958	4.813	4.650	4.559	4.390	4.269	4.178
PL2-7/16 AS	18340	6.620	5.932	5.504	5.312	5.151	4.970	4.870	4.683	4.550	4.450
PL2-1/2 AS	18340	6.620	5.932	5.504	5.312	5.151	4.970	4.870	4.683	4.550	4.450
PL2-9/16 AS	18340	6.615	5.927	5.500	5.308	5.147	4.966	4.866	4.680	4.546	4.446
PL2-5/8 AS	19340	7.983	7.083	6.534	6.290	6.087	5.859	5.734	5.500	5.334	5.210
PL2-11/16 AS	19340	7.983	7.083	6.534	6.290	6.087	5.859	5.734	5.500	5.334	5.210
PL2-3/4 AS	19340	7.983	7.083	6.534	6.290	6.087	5.859	5.734	5.500	5.334	5.210
PL2-7/8 AS	18490	8.061	7.213	6.687	6.452	6.254	6.032	5.910	5.681	5.518	5.395
PL2-15/16 AS	18490	8.061	7.213	6.687	6.452	6.254	6.032	5.910	5.681	5.518	5.395
PL3 AS	17780	8.186	7.373	6.863	6.633	6.439	6.220	6.010	5.874	5.712	5.590
PL3-3/8 AS	18630	8.809	7.871	7.292	7.032	6.815	6.570	6.436	6.185	6.006	5.871
PL3-7/16 AS	17920	8.916	8.020	7.460	7.207	6.994	6.755	6.622	6.375	6.198	6.065
PL3-1/2 AS	17920	8.916	8.020	7.460	7.207	6.994	6.755	6.622	6.375	6.198	6.065
PL3-3/4 AS	18770	9.548	8.519	7.886	7.603	7.366	7.099	6.953	6.679	6.484	6.338
PL3-15/16 AS	18490	10.162	9.092	8.430	8.133	7.884	7.604	7.450	7.161	6.955	6.801
PL4 AS	18060	10.233	9.193	8.544	8.251	8.006	7.729	7.577	7.291	7.086	6.933
PL4-7/16 AS	17780	11.257	10.139	9.437	9.121	8.855	8.554	8.388	8.077	7.854	7.687
PL4-1/2 AS	17780	11.257	10.139	9.437	9.121	8.855	8.554	8.388	8.077	7.854	7.687
PL4-15/16 AS	17350	12.086	10.927	10.195	9.863	9.584	9.267	9.092	8.764	8.529	8.352
PL5 AS	17350	12.086	10.927	10.195	9.863	9.584	9.267	9.092	8.764	8.529	8.352
PL5-1/2 AS	17490	12.843	11.597	10.812	10.457	10.158	9.819	9.632	9.281	9.030	8.841
PL6 AS	18770	14.881	13.278	12.291	11.849	11.480	11.065	10.836	10.410	10.106	9.878
PL6-1/2 AS	17210	15.028	13.604	12.702	12.292	11.948	11.557	11.341	10.935	10.644	10.425
PL7 AS	17490	15.860	14.322	13.352	12.913	12.544	12.125	11.895	11.462	11.151	10.918
PL7-1/2 AS	16210	16.074	14.672	13.771	13.358	13.008	12.611	12.390	11.974	11.675	11.450
PL7-7/8 AS	16350	16.832	15.347	14.393	13.957	13.589	13.169	12.937	12.499	12.184	11.946
PL8 AS	15930	17.019	15.570	14.633	14.203	13.839	13.424	13.194	12.760	12.447	12.211
PL8-1/2 AS	16640	18.645	16.959	15.882	15.391	14.976	14.504	14.243	13.751	13.398	13.132
PL9 AS	15930	18.906	17.296	16.256	15.779	15.374	14.913	14.658	14.175	13.827	13.565
PL9-1/2 AS	17210	20.620	18.666	17.428	16.866	16.393	15.857	15.560	15.003	14.604	14.304
PL10 AS	18770	23.028	20.548	19.021	18.337	17.766	17.123	16.770	16.110	15.639	15.287
PL10-1/2 AS	18060	23.325	20.954	19.475	18.809	18.250	17.618	17.271	16.619	16.154	15.804
PL11 AS	16500	23.147	21.079	19.755	19.150	18.638	18.057	17.735	17.129	16.693	16.364
PL11-13/16 AS	17060	24.907	22.576	21.096	20.423	19.856	19.212	18.857	18.189	17.709	17.348

AS Inch Series

MOST POPULAR STYLE

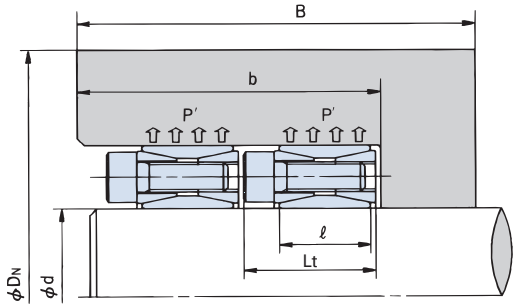
Hub Diameters for Multiple Unit Installation

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 $K_3 = 0.8$

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
					1010 304SS 316SS	1015 1118	1020	1030	1035 1040 1144	4140 1045	1055	
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	4.123	3.981	3.876
PL1-15/16	AS	16,350	6.436	5.548	5.037	4.816	4.635	4.434	4.325	4.123	3.981	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	9.447	9.189	8.717	8.388	8.145
PL4-1/2	AS	17,780	14.538	12.182	10.903	10.364	9.926	9.447	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	10.003	9.632	9.358
PL6	AS	18,770	19.849	16.238	14.370	13.597	12.977	12.304	11.945	11.290	10.836	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