



ORION
CORPORATION

**EURO STYLE
PIVOTING SHOE
THRUST BEARING**



Orion Euro Style Bearings

About Orion Corporation

Orion Corporation is a leading designer and manufacturer of hydrodynamic bearings for rotating machinery. Products include a complete line of Euro Style pivoting shoe thrust bearings, tilting pad journal bearings, equalizing and non-equalizing tilting pad thrust bearings, and flat and tapered-land thrust plates.

Our experienced, skilled engineering group will work with you to develop the right solution for your application. For more than 50 years, we have designed and built bearings for turbines, turbochargers, compressors, expanders, gear drives, electric motors, generators, pumps, diesel locomotives and other equipment for industrial, utility and marine applications.

Orion's primary manufacturing plant, along with corporate, sales and engineering offices are located in Grafton, Wisconsin, USA. A second plant is located in Columbus, Nebraska, USA.

Quality certifications

Quality Management Systems are certified to ISO 9001:2000 standards by Lloyd's Register Quality Assurance, LTD. This includes accreditation by the National Accreditation Council (Great Britain), Dutch Council of Certification and DAR Accreditation (Germany). All critical operations in bearing manufacture, including centrifugal casting, machining, assembly and inspection are performed at our facilities.

Euro Style Bearings

Orion Corporation, a leader in the manufacture of tilting pad journal and self-leveling tilting pad thrust bearings, now offers a complete line of Euro Style pivoting shoe thrust bearings. This design is interchangeable with European-type thrust bearings, and is ideal for new or retrofit applications.

Bearing description

The Euro Style features the Orion spray nozzle lubrication system. This proven technology offers spray nozzle feed between pads, which improves oil flow. It also improves oil film thickness, while lowering lube oil frictional loss and oil film temperatures. The result is improved performance and increased dependability. The Euro Style bearings are designed to rotate in either a clockwise or counter-clockwise direction, minimizing the number of spares required.

Carrier rings are constructed in halves to facilitate easy installation in applications where access is difficult. Lubrication ports from the bearing ring deliver oil to the sprays and then into the bearing pads. The pad body is standardly constructed of low carbon steel with a high tin content babbitt face. Variations in material selection are available for special applications.

Orion's spherical pivot allows the pad to pivot to the most desirable angle for optimal film generation, without the edge-loading problem common on line contact pivots. This pivot design also allows for more uniform temperature distribution on the pad. The pad pivot on the back of the pad is hardened to 48 to 52 Rockwell C to prevent flattening of the sphere.

The retaining ring is manufactured from low carbon steel with tensile of 480 MPA. A retaining fastener, similar to those used in most European-type bearings, holds pads in place.

Specifying your bearing

The pages that accompany this overview provide the following information designed to help you select the correct 8- or 11-pad Euro-Style bearing for your application:

- Bearing specifications
- Graphs showing power loss, load capacity and oil flow
- Schematic drawings of bearings

Please contact Orion if you have questions or require assistance. We will work with you to specify, design and manufacture the product that best meets your requirements.

Orion Corporation

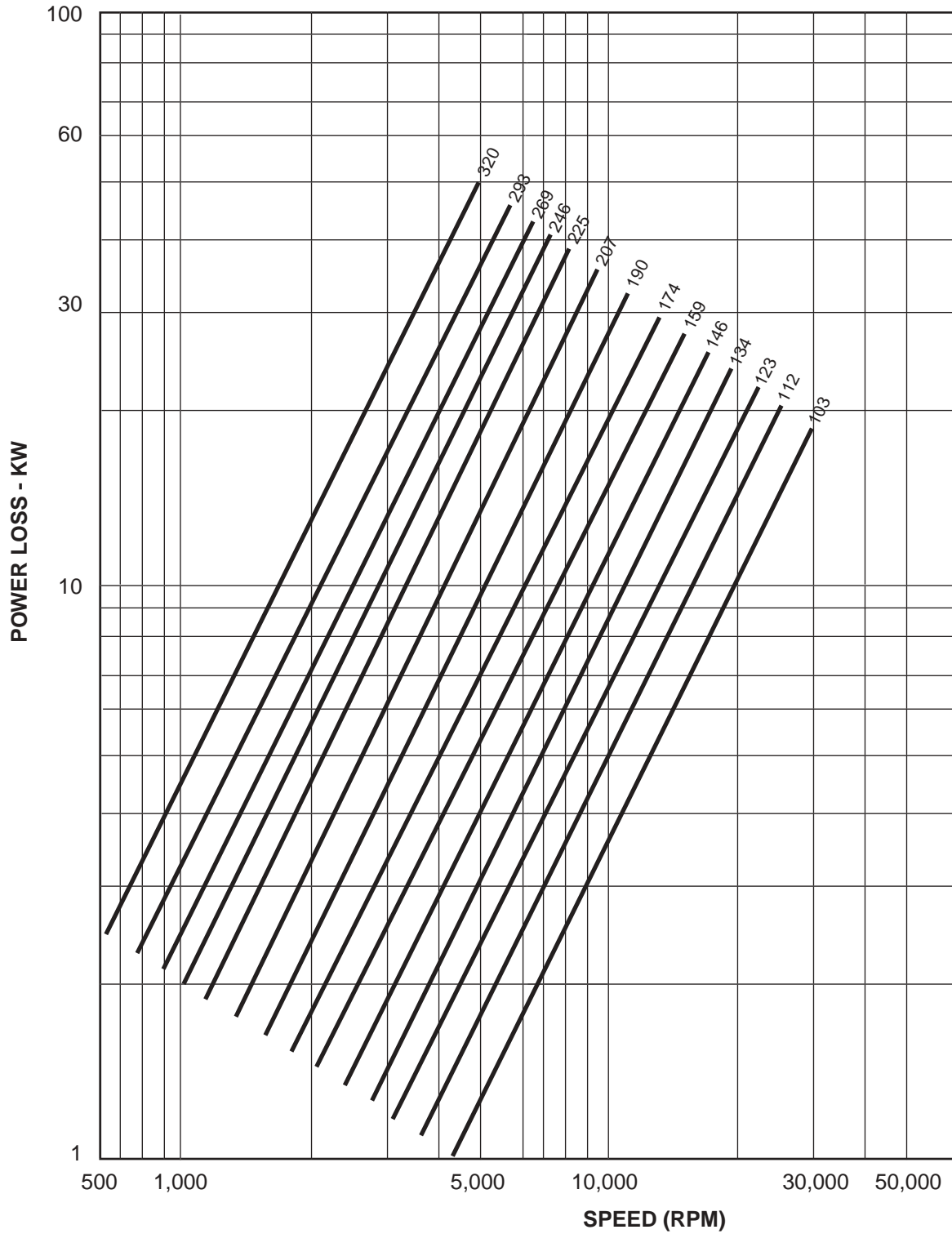
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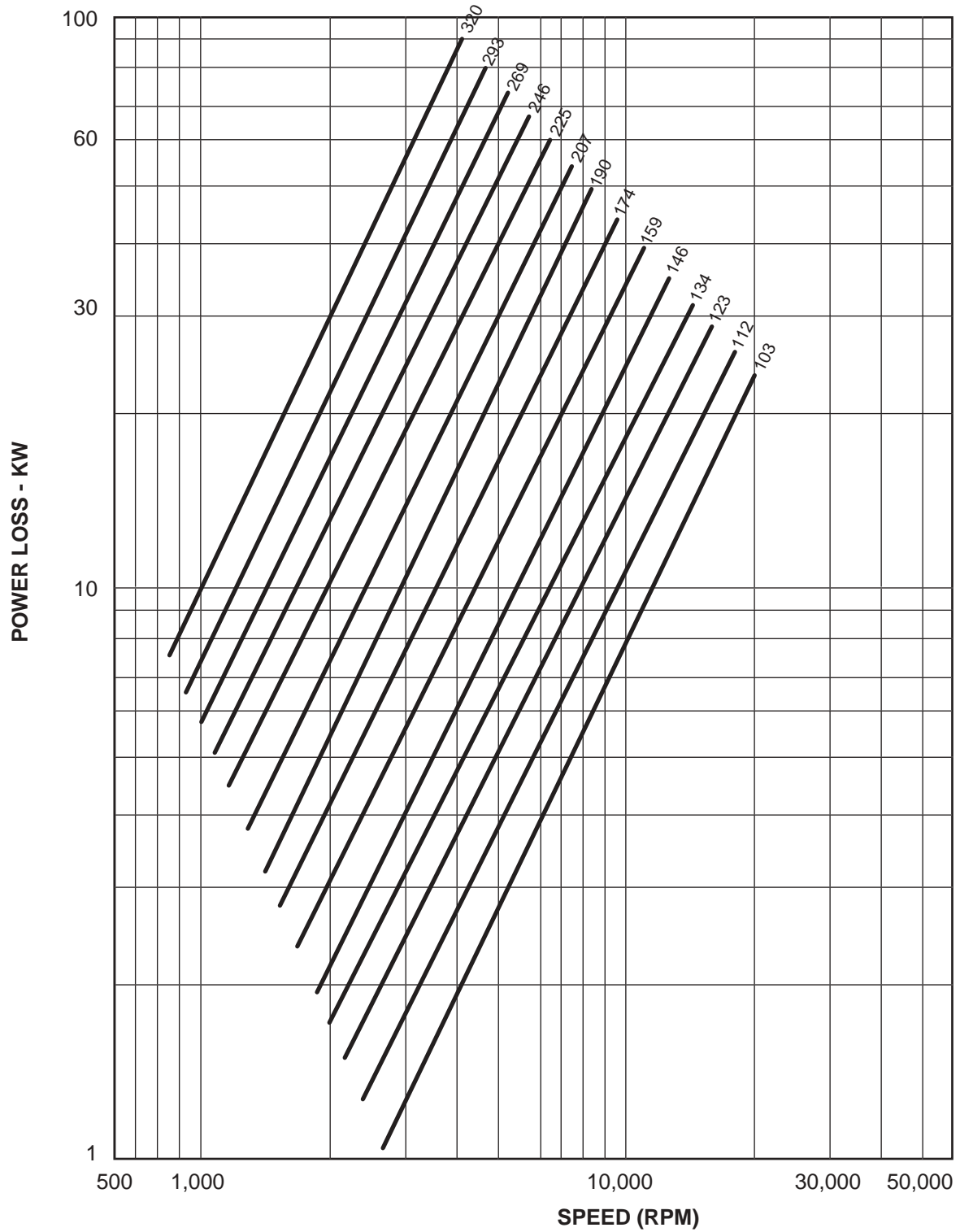


Euro Style Pivoting Shoe Thrust Bearing

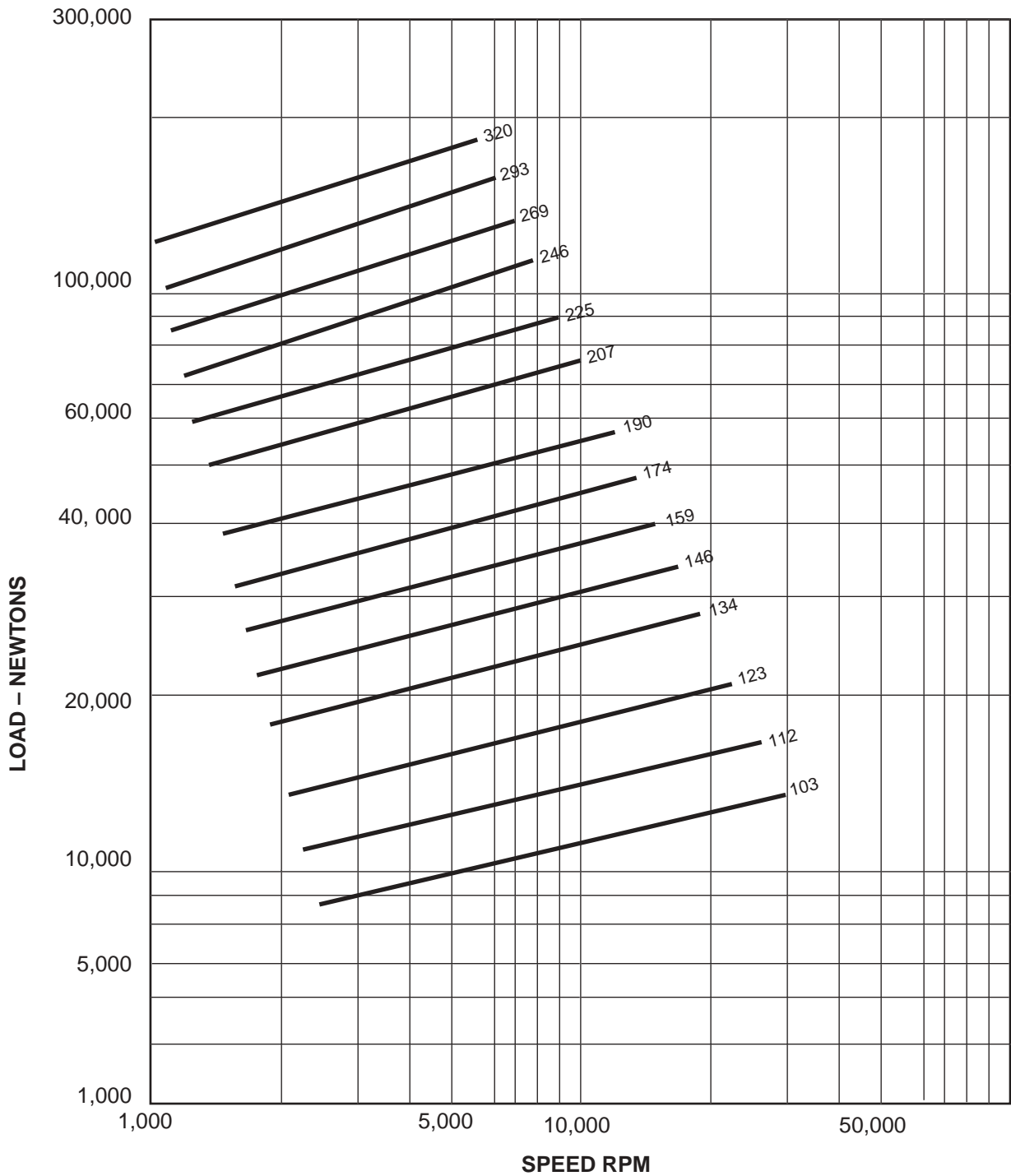
8 PAD - Power Loss



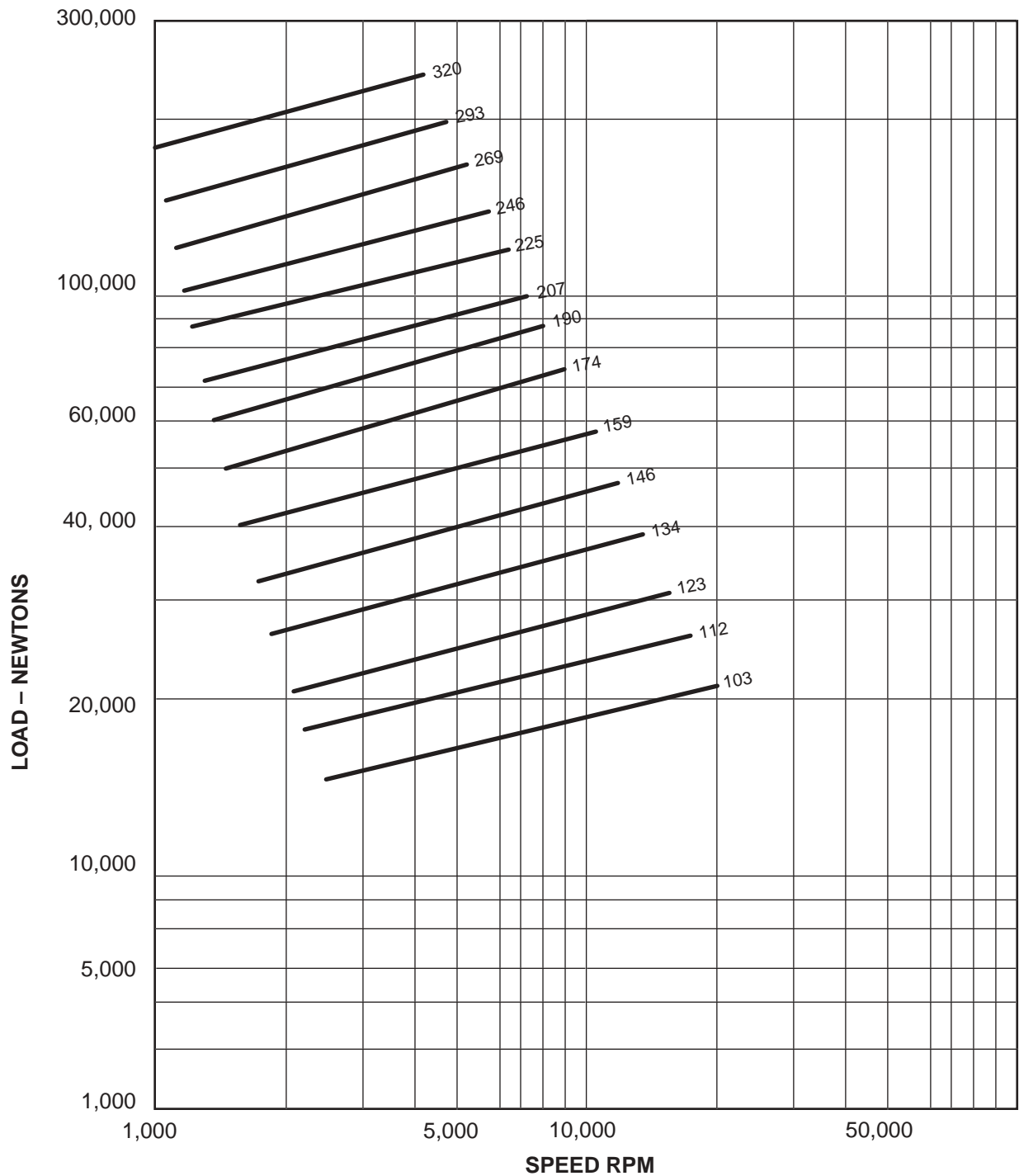
11 PAD - Power Loss



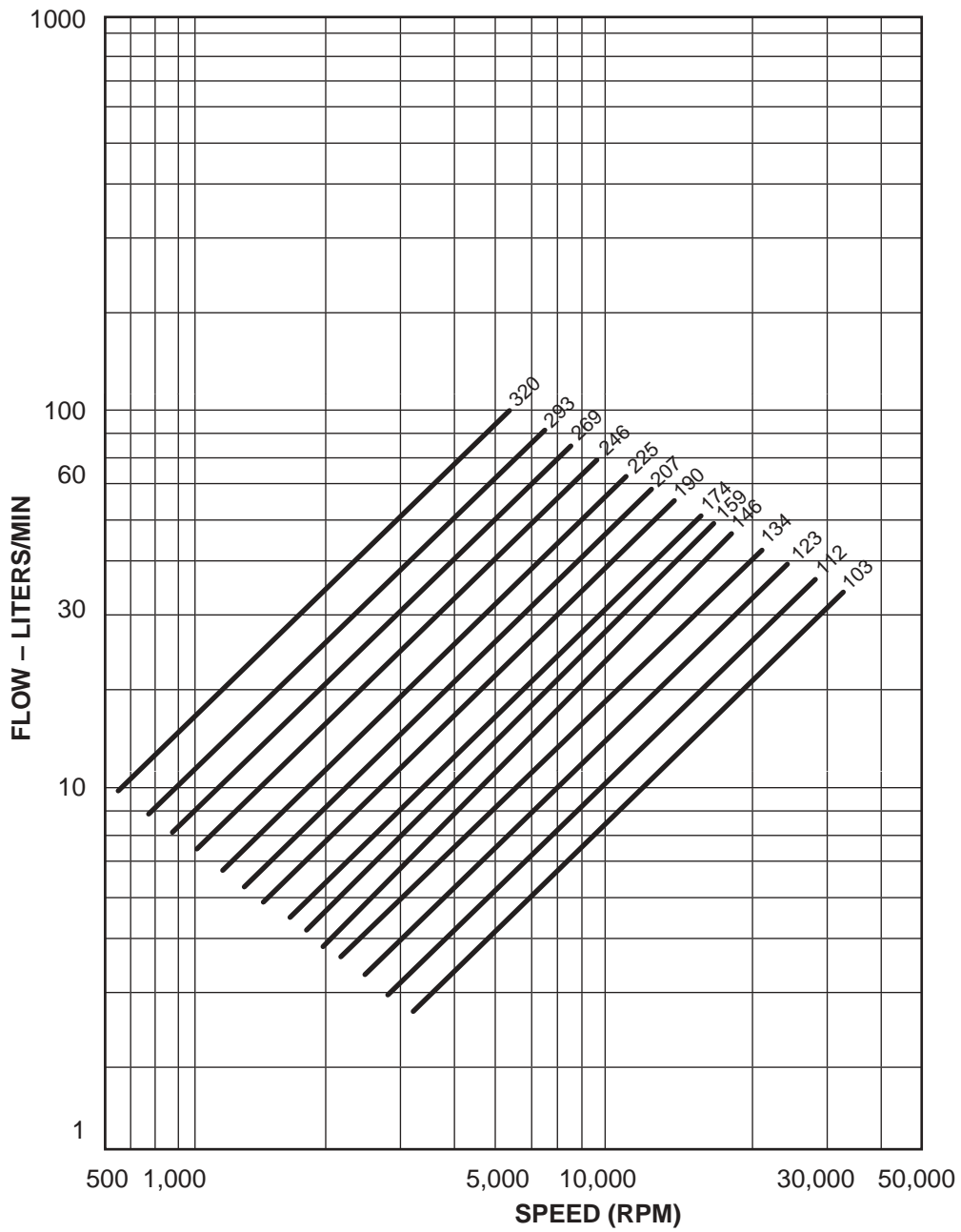
8 PAD - Load Capacity



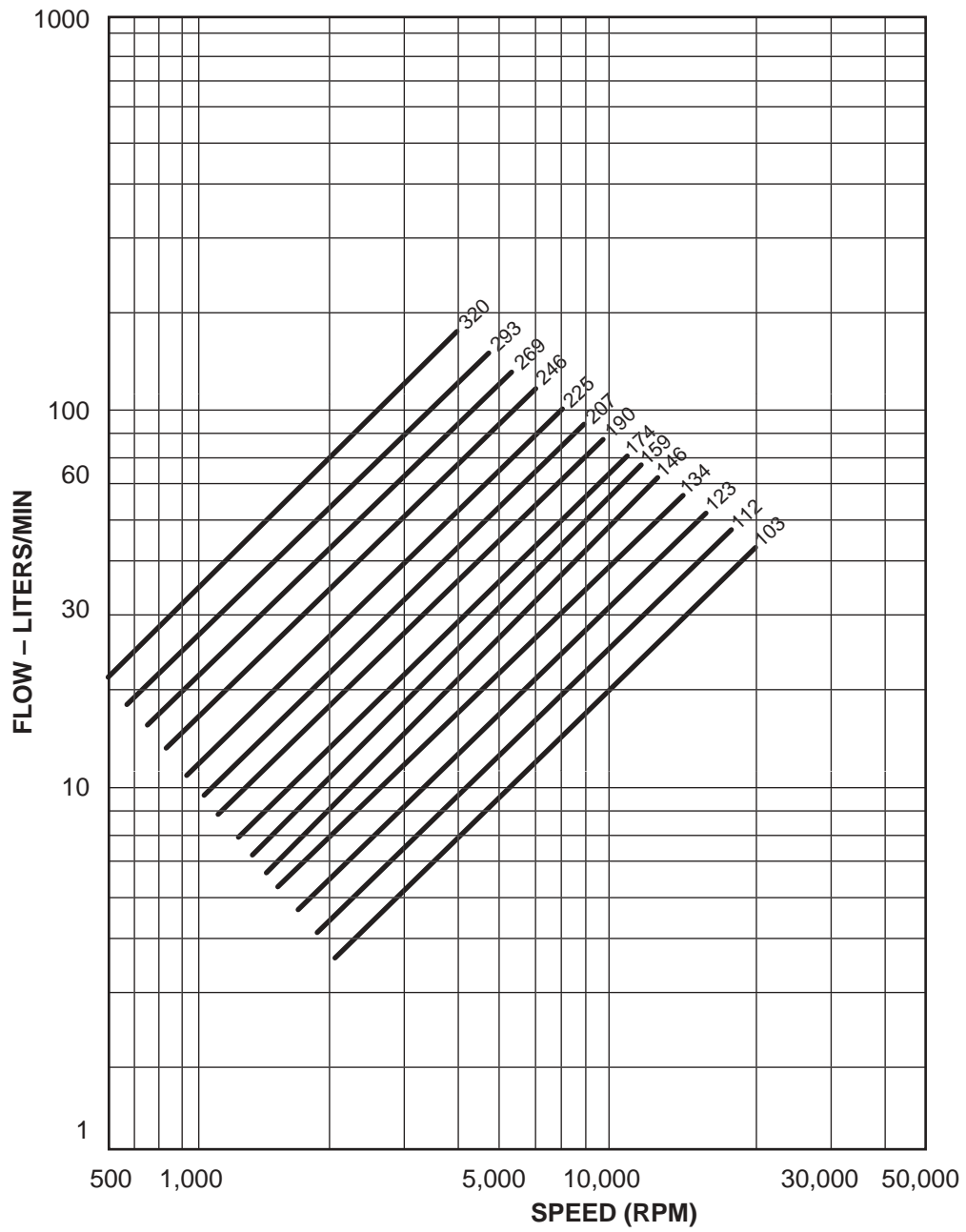
11 PAD - Load Capacity



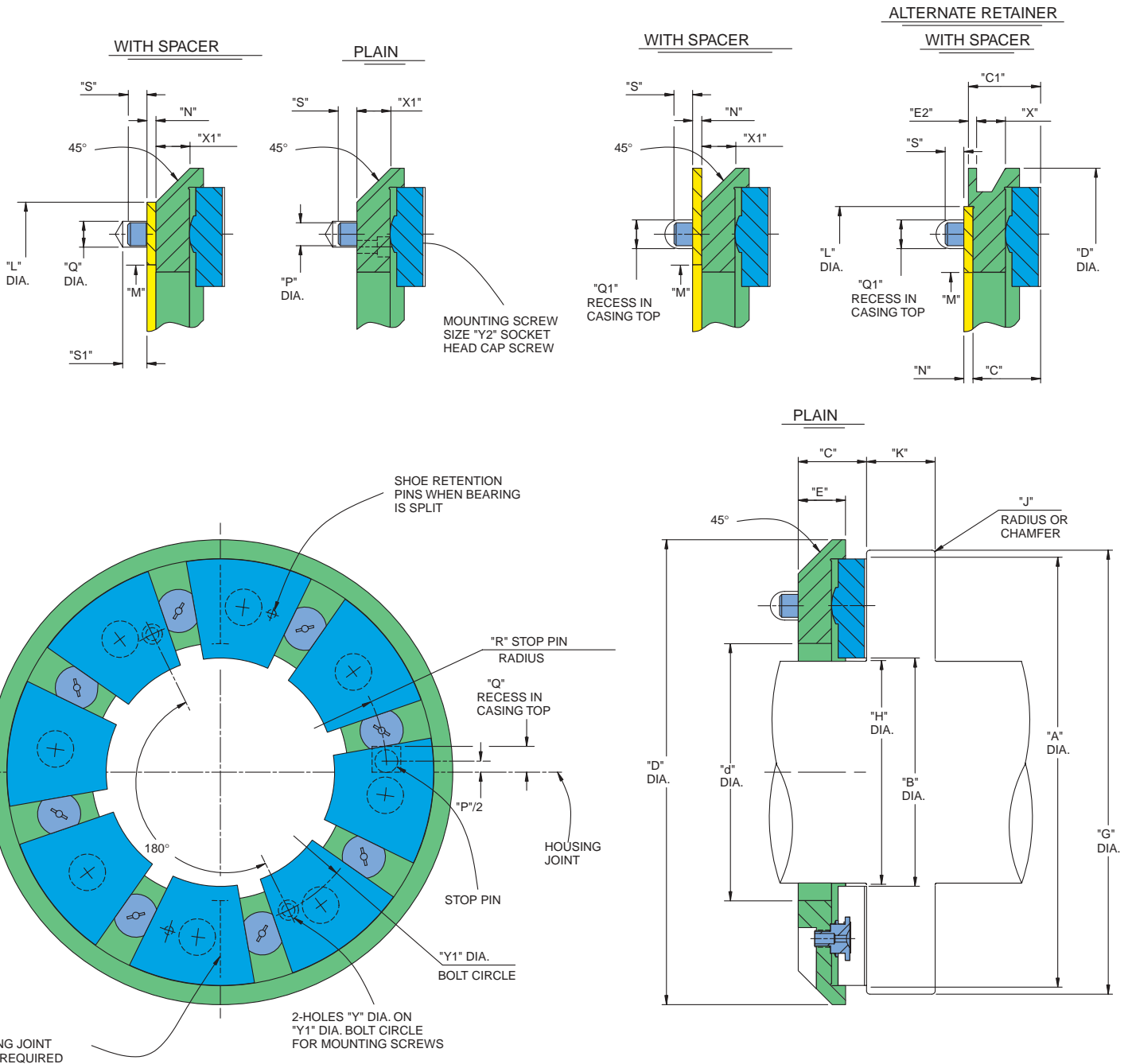
8 PAD - Oil Flow



11 PAD - Oil Flow



8 PAD



8 PAD - Specification

Size	Thrust Pad		Thickness		Outer Diameter D		Thrust Surface mm ²	Dia. d	Total Axial Clearance	E	E2	Collar Sizes			
	Outer Diameter A	Inner Diameter B			Ring O.D.	Housing Bore						G	H	J	K
			C	C1											
103	114	62	20.64	23.94	130.14 130.10	130.22 130.18	5,500	89.2	0.30	16	4.0	117	59	0.8	17
112	124	66.5	22.23	25.53	139.66 139.22	139.74 139.70	6,500	96.5	0.30	17	4.0	127	64	0.8	19
123	137	73	23.81	27.11	152.36 152.32	152.44 152.40	7,750	106	0.30	17	4.0	140	70	0.8	21
134	149	79.5	25.40	28.70	168.24 168.20	168.32 168.28	9,250	116	0.35	19	4.0	152	76	0.8	22
146	162	87.5	26.99	30.29	180.91 180.86	181.01 180.98	11,000	126	0.35	20	4.0	165	84	0.8	25
159	176	93.5	28.58	31.88	196.80 196.75	196.90 196.85	13,100	137	0.35	21	4.0	179	92	0.8	27
174	192	103	31.75	35.05	215.85 215.80	215.95 215.90	15,500	150	0.40	22	4.0	195	100	0.8	30
190	210	113	34.92	39.82	234.90 234.85	235.00 234.95	18,600	163	0.40	25	4.0	213	110	0.8	32
207	229	122	38.10	43.00	253.94 253.89	254.05 254.00	22,100	178	0.40	27	4.0	232	119	0.8	35
225	251	135	41.28	46.18	279.34 279.29	279.45 279.40	26,300	196	0.50	30	4.0	254	132	0.8	38
246	273	146	44.45	49.35	301.57 301.52	301.68 301.63	31,300	213	0.50	32	4.0	276	141	0.8	43
269	297	159	47.63	52.53	323.79 323.73	323.91 323.85	37,300	232	0.50	33	4.0	300	156	0.8	48
293	324	175	50.80	58.80	355.64 355.48	355.66 355.60	44,300	253	0.50	35	6.0	327	170	0.8	51
320	354	191	57.15	65.15	384.12 384.06	384.24 384.18	52,900	276	0.60	40	6.0	357	187	0.8	56

Size	Spacer			Stops						X	Groove X1	Fixing Screws		
	L	M	N	P	Q	Q1	R	S	S1			Hole Dia. Y	Y1	Screw Size Y2
103	105	73	4.8	6.4	7.5	10	44.5	7	7.8	10.0	11	4.5	81.0	M4
112	113	81	4.8	6.4	7.5	10	48.4	7	7.8	11.0	11	4.5	89.7	M4
123	125	87	4.8	6.4	7.5	10	53.2	7	7.8	11.0	12	4.5	99.2	M4
134	135	97	4.8	7.9	9.0	10	57.9	8	8.8	13.0	14	6.6	108.0	M6
146	149	105	4.8	7.9	9.0	10	63.5	8	8.8	14.0	15	6.6	119.1	M6
159	162	117	4.8	7.9	9.0	10	69.9	8	8.8	15.0	16	6.6	127.0	M6
174	178	127	4.8	9.5	11.0	12	76.2	8	8.8	17.0	17	9.0	138.9	M8
190	191	140	6.4	9.5	11.0	12	82.6	8	8.8	21.0	20	9.0	152.4	M8
207	206	149	6.4	11.1	13.0	14	88.9	8	8.8	23.0	22	9.0	165.1	M8
225	229	165	6.4	12.7	14.0	16	98.4	10	10.8	26.0	25	9.0	180.2	M8
246	244	181	6.4	12.7	14.0	16	106.4	10	10.8	28.0	27	9.0	195.3	M8
269	270	194	6.4	15.9	18.0	20	115.9	13	13.8	29.0	28	9.0	214.3	M8
293	292	216	9.5	15.9	18.0	20	127.0	13	13.8	31.0	30	11.0	231.8	M10
320	321	232	9.5	19.1	21.0	22	138.1	13	13.8	36.0	35	11.0	254.0	M10

11 PAD - Specification

Size	Thrust Pad		Thickness		Outer Diameter D		Thrust Surface mm ²	Dia. d	Total Axial Clearance	E	E2	Collar Sizes			
	Outer Diameter A	Inner Diameter B			Ring O.D.	Housing Bore						G	H	J	K
			C	C1											
1103	148	95.6	22.23	25.53	168.24 168.20	168.32 168.28	7,550	123	0.30	17	4.0	151	92	0.8	17
1112	162	105	23.81	27.11	180.93 180.88	181.03 180.98	8,950	135	0.30	19	4.0	165	102	0.8	19
1123	175	113	25.40	28.70	196.80 196.75	196.90 196.85	10,600	145	0.30	19	4.0	178	110	0.8	21
1134	191	122	26.99	30.29	212.68 212.63	212.78 212.73	12,700	158	0.35	21	4.0	194	119	0.8	22
1146	210	135	28.58	33.48	234.90 234.85	235.00 234.95	15,100	174	0.35	21	4.0	213	132	0.8	25
1159	229	148	30.16	35.06	253.94 253.89	254.05 254.00	17,900	191	0.35	22	4.0	232	144	0.8	27
1174	249	160	31.75	36.65	279.34 279.29	279.45 279.40	21,300	208	0.40	22	4.0	252	157	0.8	30
1190	271	175	34.93	39.83	301.57 301.52	301.68 301.63	25,500	226	0.40	25	4.0	275	171	0.8	32
1207	295	191	38.10	43.00	323.79 323.73	323.91 323.85	30,400	246	0.40	27	4.0	298	187	0.8	35
1225	324	210	41.28	49.28	355.54 355.48	355.66 355.60	36,100	270	0.50	29	4.0	327	206	0.8	38
1246	352	227	44.45	52.45	384.12 384.06	384.24 384.18	43,000	292	0.50	32	4.0	356	224	0.8	43
1269	384	248	47.63	55.63	415.88 415.80	415.99 415.93	51,400	320	0.50	33	4.0	391	241	1.5	48
1293	419	270	50.80	58.80	453.96 453.90	454.09 454.03	60,900	349	0.50	35	6.0	425	264	1.5	51
1320	457	295	57.15	65.15	495.23 495.17	495.36 495.30	72,900	381	0.60	40	6.0	464	289	1.5	56

Size	Spacer			Stops						X	Groove X1	Fixing Screws		
	L	M	N	P	Q	Q1	R	S	S1			Hole Dia. Y	Y1	Screw Size Y2
1103	138	106	4.8	6.4	7.5	10	61.0	7	7.8	11.0	12	3.4	116.7	M3
1112	154	116	4.8	6.4	7.5	10	67.0	7	7.8	13.0	14	4.5	127.8	M4
1123	164	125	4.8	7.9	9.0	10	72.0	8	8.8	13.0	14	4.5	138.1	M4
1134	178	140	4.8	7.9	9.0	10	79.0	8	8.8	15.0	15	6.6	150.8	M6
1146	197	152	6.4	9.5	11.0	12	87.0	8	8.8	17.0	15	6.6	165.9	M6
1159	216	165	6.4	9.5	11.0	12	95.0	8	8.8	18.0	17	6.6	181.0	M6
1174	235	184	6.4	9.5	11.0	12	105.0	8	8.8	18.0	17	6.6	196.1	M6
1190	254	197	6.4	11.1	13.0	14	113.0	8	8.8	21.0	20	9.0	213.5	M8
1207	276	213	6.4	12.7	14.0	16	122.0	10	10.8	23.0	22	9.0	233.4	M8
1225	308	232	9.5	15.9	18.0	20	135.0	13	13.8	28.0	23	9.0	254.0	M8
1246	330	254	9.5	15.9	18.0	20	146.0	13	13.8	31.0	27	9.0	276.2	M8
1269	359	283	9.5	15.9	18.0	20	160.0	13	13.8	32.0	28	11.0	301.6	M10
1293	394	305	9.5	19.1	21.0	22	175.0	13	13.8	31.0	30	11.0	327.0	M10
1320	425	337	9.5	19.1	21.0	22	191.0	13	13.8	36.0	35	11.0	358.0	M10