



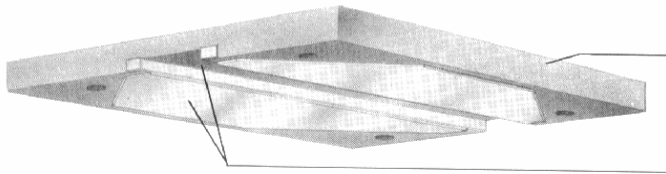
Honel Structural Products

(Pty) Ltd.



K-SERIES POT BEARINGS





TOP PLATE: Steel to SABS 1431 Grade 300WA

BEARING PLATE: Stainless steel 316 S16 to BS 1449

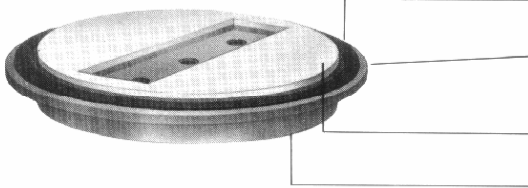


GUIDE BAR BOLT: High tensile cap screw



BEARING MATERIAL: GLACIER DU

GUIDE BAR: Steel to SABS 1431 Grade 300WA

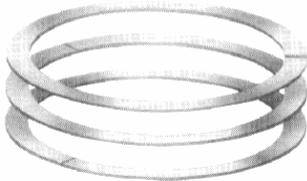


WIPER SEAL: Expanded Polyethylene

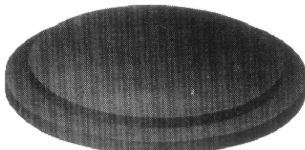
PISTON PLATE: Steel to SABS 1431 Grade 300WA

BEARING MATERIAL: PTFE to BS 3784 grade A

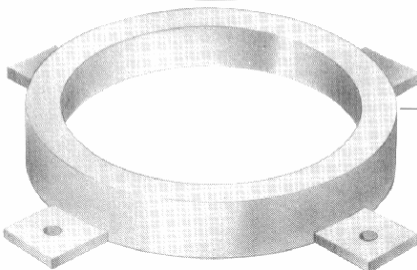
ROTATION SEAL: Expanded Polyethylene



SEALING RINGS: Brass 70/30 to BS 1400



ELASTOMERIC PAD: 55° Shore natural rubber to BS 1154 grade Z13



POT: Steel to SABS 1431 Grade 300WA



Design Data

STANDARDS

The designs confirm, where appropriate, to the recommendations of British Department of Environment and of the Institute für Bautechnik, Berlin.

PTFE PRESSURE

Standard 'K' series bearings are designed for PTFE pressures in accordance with BS 5400 which limits maximum pressure to 40 Mpa.

CONCRETE PRESSURE

Standard 'K' series bearings are designed for a mean concrete seating pressure of 18,5 Mpa, resulting in a maximum edge pressure (due to horizontal load and rotation) of approximately 21 Mpa.

In the interests of economy and standardisation, designers are strongly strength (35 Mpa minimum) or an epoxy mortar beds to accept the standard plates for the appropriate concrete pressure, (see page 12), should be specified. The alternative solution of designing special bearings is not preferred.

Notes on Application

BEARING CONFIGURATIONS

1. There is a nominal mm transverse clearance between the guide bar and plate slot in unidirectional bearings. For this reason, horizontal load sharing between two or more bearings cannot be safely assumed if they are fixed to a common pier or abutment, and the full horizontal force should be assumed to act on one bearing only. In case of separate pier, however, their flexibility may be sufficient to permit load sharing between the bearings.
2. Where a fixed bearing and a unidirectional bearing are mounted on the same pier or abutment, the notes in par. 1 above should again be considered.
3. Fixed and unidirectional bearings with proportionately very high horizontal loads should be avoided, the preferred solution being the use of pin bearings and guide bearings where possible.
4. Unidirectional bearings should be used only where they serve an essential function. Excessive restraint of the structure should be avoided.
5. Provision should always be made for transverse shrinkage and thermal movement of the dark between bearings fixed to a common pier, if their centers are more than 2m part.

Standard Range

The tables list the standard range of 'K' series bearings, showing overall dimensions, load capacities, and fixing details. Standard drawings are available for each bearing listed, showing full dimensions and tolerances for designers wishing to check our calculations for approval purposes. Substantial economic advantages are to be gained by selecting bearings from this standard range.

HORIZONTAL LOAD CAPACITY

Normal horizontal load capacities of KB and KC type bearings are given in the tables. For KC type bearings, the values range from a maximum of 9% of the vertical load to 4% for large bearings. The range for KB type bearings is from 18% down to 4%. (See paragraph below on special bearings.)

FIXING ATTACHMENTS

The standard method of attachments is by anchor bars and bolts. This method is simple and adequate for most cases, and permits bearing removal / replacement with the minimum of jacking of the structure. Alternatively, the bearing may be recessed in an adaptor plate which is anchored to the concrete by ragbolts or the like. This system is sometimes

regarded as being more convenient for installation. Adaptor plates may be required, in any event, if the permissible concrete seating pressure is below 17,5 Mpa and an epoxy mortar bed is not used. Anchor bolt and bar sizes shown in the tables for KB and KC type bearings are designed to accommodate the horizontal loads shown **providing that at least 50% of the tabulated vertical load is acting simultaneously**. If this condition is not met, larger anchor bolts and bars will be necessary (see paragraph on special bearings).

TRANSLATION

The tables show standard translations for each bearing size, in 50mm increments, and designers are urged to select one of these standards wherever possible (see paragraph below on special bearings). N.B. presenting requirements, if applicable, should be stated clearly by the customer. If this information is not supplied, bearings will be supplied with top plates in the central position.

ROTATION

All the bearings can rotate at least 0.01 radians (0.57°) about any horizontal axis.

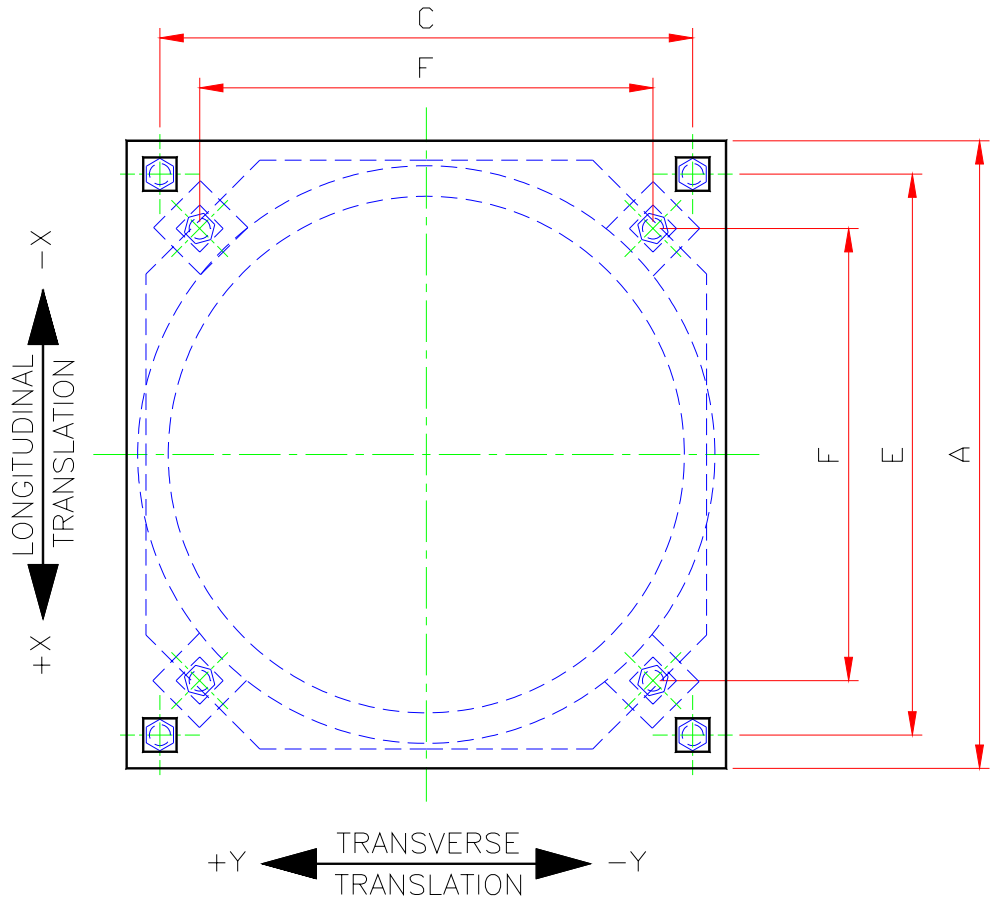
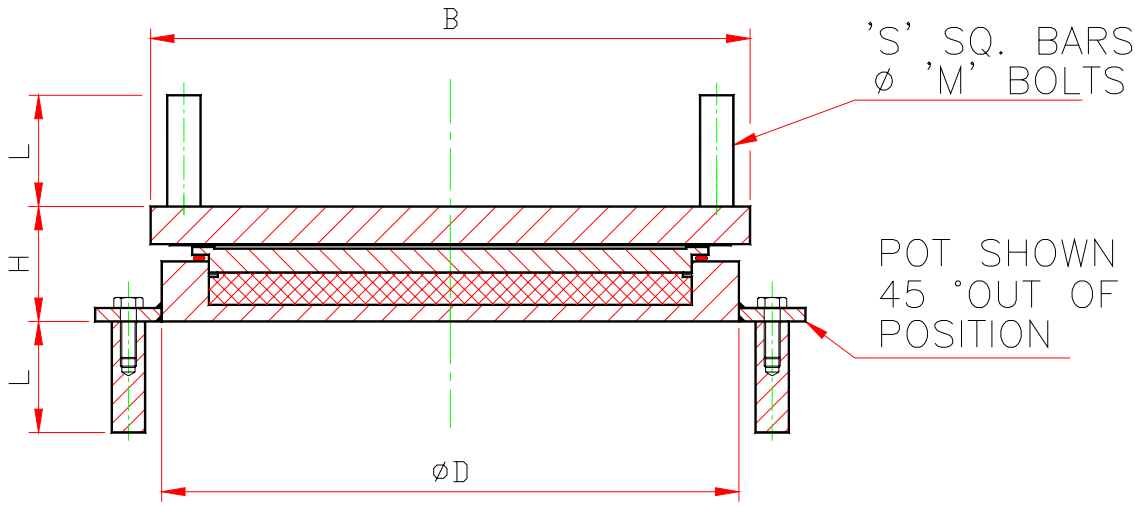
SPECIAL BEARINGS

Where combinations of loads and/or movements are such that standard bearings cannot be used, special bearings are designed for each particular case. References to such bearings will always carry the suffix "SP" e.g. KC 1400 SP.

EXAMPLES ON SELECTION OF BEARINGS

1. Bearing required for:
Maximum vertical Load : 3 300kN
Total longitudinal translation : 85mm
Total transverse translation : 10mm
Bearing code : KA 350/100/20
2. Bearing required for:
Maximum vertical Load : 5 900kN
Maximum horizontal load : 450 kN
Total longitudinal translation : 130mm
Transverse translation : restrained
Bearing code : KC 600/150

Type KA
Multidirectional
Pot Bearings



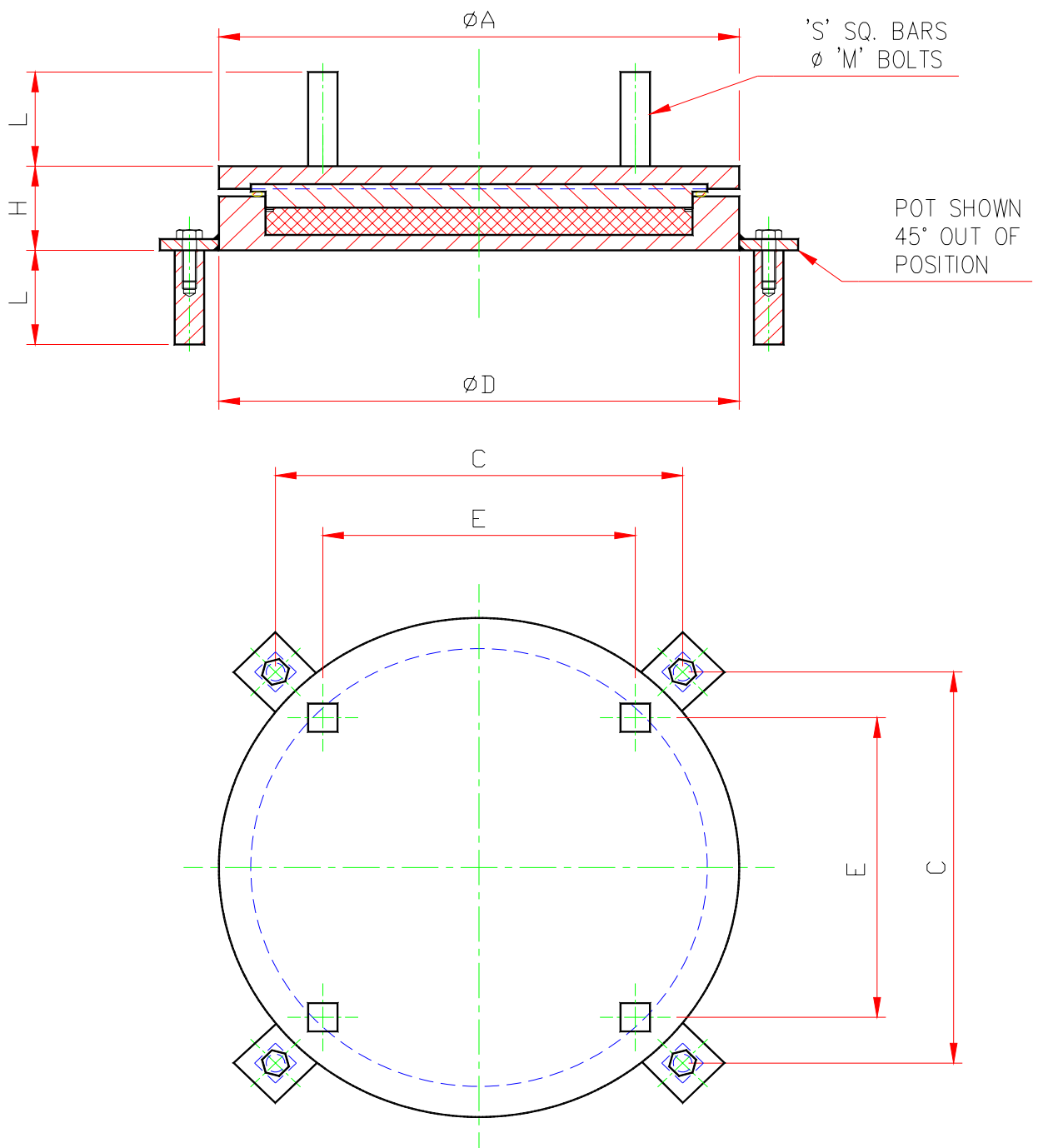
BEARING	VERT LOAD	D	C	H	S	L	M	B	F	BEARING SUFFIX								MASS
										/50/25		/100/25		/150/25		/200/25		
										X=25;Y=13		X=50; Y=13		X=75; Y=13		X=100;Y=13		
										A	E	A	E	A	E	A	E	
kN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	
KA 50	564	193	170	60	20	80	12	245	195	315	265	365	315	415	365	465	415	15
KA 75	821	234	200	64	20	80	12	280	225	345	295	395	345	445	395	495	445	22
KA 100	1 080	270	225	66	20	80	12	310	250	370	320	420	370	470	420	520	470	28
KA 125	1 322	301	250	72	20	80	12	335	275	395	345	445	395	495	445	454	495	36
KA 150	1 589	330	270	75	20	80	12	360	295	415	365	465	415	515	465	565	515	45
KA 175	1 881	360	290	77	20	80	12	385	315	435	385	485	435	535	485	585	535	53
KA 200	2 197	385	305	83	20	80	12	405	335	450	400	500	450	550	500	600	550	66
KA 250	2 754	426	335	92	20	80	12	450	360	480	430	530	480	580	530	630	580	91
KA 300	3 213	467	365	98	20	80	12	490	435	520	465	570	515	620	465	670	615	115
KA 350	3 707	506	395	100	20	80	12	252	465	555	495	605	545	655	595	705	645	136
KA 400	4 236	540	420	108	20	80	12	560	490	590	520	640	570	690	620	740	670	168
KA 450	4 705	573	440	117	20	80	12	595	510	625	540	675	590	725	640	775	690	183
KA 500	5 299	604	465	123	20	80	12	625	535	655	565	705	615	755	665	805	715	238
KA 600	6 368	665	510	134	25	100	16	685	590	715	620	765	670	815	720	865	770	320
KA 700	7 414	715	550	141	25	100	16	735	640	765	670	815	720	865	770	915	820	385
KA 800	8 411	763	585	151	25	100	16	785	690	815	720	865	770	915	820	965	870	475
KA 900	9 335	810	615	158	25	100	16	830	735	860	765	910	815	960	865	1 010	915	555
KA 1000	10 449	852	645	168	25	100	16	875	780	905	810	955	860	1 005	910	1 055	960	660
KA 1200	12 551	935	710	183	30	120	20	955	855	985	885	1 035	935	1 085	985	1 135	1 035	860
KA 1400	14 505	1 011	765	197	30	120	20	1 030	915	1 060	945	1 110	995	1 160	1 045	1 210	1 095	1 080
KA 1600	16 600	1 083	815	209	30	120	20	1 100	975	1 130	1 005	1 180	1 055	1 230	1 105	1 280	1 155	1 312
KA 1800	18 646	1 148	860	223	30	120	20	1 165	1 040	1 195	1 070	1 245	1 120	1 295	1 170	1 345	1 220	1 572
KA 2000	20 608	1 210	905	236	30	120	20	1 230	1 105	1 260	1 135	1 310	1 185	1 360	1 235	1 410	1 285	1 863
KA 2250	23 093	1 280	960	249	40	150	24	1 300	1 175	1 330	1 205	1 380	1 255	1 430	1 305	1 480	1 355	2 200
KA 2500	25 719	1 350	1 010	262	40	150	24	1 370	1 245	1 400	1 275	1 450	1 325	1 500	1 375	1 550	1 425	2 574
KA 2750	28 251	1 415	1 055	271	40	150	24	1 435	1 310	1 465	1 340	1 515	1 390	1 565	1 440	1 615	1 490	3 068
KA 3000	30 900	1 480	1 100	284	40	150	24	1 500	1 375	1 530	1 405	1 580	1 455	1 630	1 505	1 680	1 555	3 408

Rotation for all sizes: ± 0.01 radians in all planes.

Note: Anchors not necessary due to zero horizontal load capacity



Type KB Fixed Pot Bearings



BEARING		VERT LOAD	HORIZ. LOAD	D	C	A	E	H	S	L	M	MASS
		kN	kN	mm	mm	mm	mm	mm	mm	mm	mm	mm
KB	50	564	100	211	200	195	200	53	20	120	20	14
KB	75	821	140	256	240	235	240	57	20	150	24	22
KB	100	1 080	180	296	265	270	265	60	25	150	24	31
KB	125	1 322	210	327	290	305	290	70	25	150	24	44
KB	150	1 589	240	358	315	335	315	74	25	200	30	55
KB	175	1 881	265	387	335	360	335	77	40	200	30	67
KB	200	2 197	280	411	355	385	355	82	40	200	30	80
KB	250	2 754	340	458	385	430	385	91	40	200	30	110
KB	300	3 213	390	499	415	470	415	97	40	200	30	138
KB	350	3 707	435	542	445	505	445	102	40	200	30	170
KB	400	4 236	480	580	475	540	475	107	40	200	30	203
KB	450	4 705	515	609	495	575	495	114	50	200	30	239
KB	500	5 299	550	640	515	605	515	120	50	200	30	278
KB	600	6 368	600	700	560	665	560	131	50	200	30	360
KB	700	7 414	650	753	595	715	565	138	50	200	30	436
KB	800	8 411	700	801	630	765	630	147	50	200	30	526
KB	900	9 335	750	849	665	810	665	155	50	200	30	620
KB	1000	10 449	800	892	700	855	700	161	50	200	30	710
KB	1200	12 551	840	970	755	935	755	173	50	200	30	830
KB	1400	14 505	880	1 047	810	1 010	810	185	60	240	36	1 110
KB	1600	16 600	920	1 115	860	1 080	860	196	60	240	36	1 331
KB	1800	18 646	960	1 182	905	1 145	905	207	60	240	36	1 575
KB	2000	20 608	1 000	1 238	945	1 210	945	219	60	240	36	1 833
KB	2250	23 093	1 050	1 308	995	1 280	995	231	60	240	36	2 155
KB	2 500	25 719	1 100	1 380	1 045	1 350	1 045	241	60	240	36	2 495
KB	2 750	28 251	1 150	1 445	1 090	1 415	1 090	252	60	240	36	2 855
KB	3 000	30 900	1 200	1 508	1 140	1 480	1 140	263	60	240	36	3 240

ROTATION FOR ALL SIZES: ± 0.01 RADIANS IN ALL PLANES.

Final anchor sizes to be determined by specific load case.



BEARING	VERT LOAD	HORIZ LOAD	D	C	H	M	S	L	B	F	BEARING SUFFIX								MASS
											/50		/100		/150		/200		
											X=25;Y=0		X=50; Y=0		X=75; Y=0		X=100;Y=0		
											A	E	A	E	A	E	A	E	
	kN	kN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
KC 50	564	50	201	175	80	12	20	80	235	140	315	265	365	315	415	365	465	415	23
KC 75	821	75	244	210	85	12	20	80	265	165	335	285	385	335	435	385	485	435	33
KC 100	1 080	100	284	235	91	12	20	80	290	180	360	310	410	360	460	410	510	460	44
KC 125	1 322	125	315	265	96	16	25	100	315	200	400	330	450	380	500	430	550	480	56
KC 150	1 589	150	348	290	100	16	25	100	340	220	425	360	475	410	525	460	575	510	69
KC 175	1 881	175	377	310	107	16	25	100	365	240	450	385	500	435	550	485	600	535	85
KC 200	2 197	200	403	325	112	16	25	100	385	260	470	405	520	455	570	505	620	555	102
KC 250	2 754	250	448	365	122	20	30	120	430	280	510	445	560	495	610	545	660	595	137
KC 300	3 213	300	491	395	133	20	30	120	470	300	560	495	610	545	660	595	710	645	180
KC 350	3 707	350	536	435	139	24	40	150	505	320	620	555	670	605	720	655	770	705	218
KC 400	4 236	400	572	460	148	24	40	150	540	340	660	595	710	645	760	695	810	745	266
KC 450	4 705	450	605	490	157	30	50	200	575	355	700	610	750	660	800	710	850	760	318
KC 500	5 299	500	636	515	162	30	50	200	605	390	735	645	785	695	835	745	885	795	363
KC 600	6 368	600	700	560	177	30	50	200	665	425	770	680	820	730	870	780	920	830	479
KC 700	7 414	650	753	595	185	30	50	200	715	460	810	720	860	770	910	820	960	870	576
KC 800	8 411	700	801	630	188	30	50	200	765	495	845	755	895	805	945	855	995	905	660
KC 900	9 335	750	849	665	193	30	50	200	810	530	880	790	930	840	980	890	1030	940	758
KC 1000	10 449	800	892	700	199	30	50	200	855	565	915	825	965	875	1015	925	1065	975	863
KC 1200	12 551	840	970	755	205	30	50	200	935	620	985	885	1035	935	1085	985	1135	1035	1045
KC 1400	14 505	880	1047	810	212	36	60	240	1010	675	1 060	945	1110	995	1160	1045	1210	1095	1253
KC 1600	16 600	920	1115	860	220	36	60	240	1080	730	1 130	1005	1180	1055	1230	1105	1280	1155	1475
KC 1800	18 646	960	1182	905	230	36	60	240	1145	785	1 195	1070	1245	1120	1295	1170	1345	1220	1732
KC 2000	20 608	1 000	1238	945	241	36	60	240	1210	840	1 260	1135	1310	1185	1360	1235	1410	1285	2012
KC 2250	23 093	1 050	1308	995	251	36	60	240	1280	895	1 330	1205	1380	1255	1430	1305	1480	1355	2532
KC 2500	25 719	1 100	1380	1045	261	36	60	240	1350	950	1 400	1275	1450	1325	1500	1375	1550	1425	2720
KC 2750	28 251	1 150	1445	1090	276	36	60	240	1415	1005	1 465	1340	1515	1390	1565	1440	1615	1490	3140
KC 3000	30 900	1 200	1502	1140	289	36	60	240	1480	1060	1 530	1405	1580	1455	1630	1505	1680	1555	3580

Rotation for all sizes: ± 0.01 radians in all planes.

Final anchor sizes to be determined by specific load case.



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