



A BRIEF HISTORY AND DEVELOPMENT OF THE MARINE ANCHOR

Mariners take it for granted. Landlubbers seldom give it a thought. And yet the Anchor has become a symbol of the very sea itself. On this one page, we hope to give you a brief history of its development.

Primitive & Ancient

When man first invented the boat and took to the water, he soon discovered that tides, currents and winds often took him where he didn't want to go. And this was particularly irritating when he wanted to stay right where he was. So he invented the anchor. The first anchor (and it seemed like a good idea at the time) was simply a heavy stone tied to a crude rope. Several lost boats later, grooves were cut into the stone to stop the rope from slipping off. But weight alone was not enough to hold a boat in one place for long. An efficient anchor needed some kind of hooking device. So the early boatmen added wooden crosses or iron hooks to their stones to increase the holding power. These "killicks" are still used by primitive peoples around the world. The Chinese developed true hooking anchors 4000 years ago - and they're still standard equipment on Chinese junks! Double-armed anchors with opposing stocks were known to the ancient Greeks in the 8th century B.C., and a Sardinian Scarab dated 650 B.C. shows a stockless double-armed anchor, thought to be the first anchor made of iron. Three or four hundred years later, vessels of the Athenian Navy were carrying iron anchors weighing nearly 500 pounds. And at about this time came the first rudimentary palms. Ships could now drop anchor, and reasonably expect to stay where they were. But there were still plenty of improvements to be made.

British Anchors

The Britons were late starters in the anchor-making business - the earliest known British anchor is a mere 2000 years old! The first English iron anchors are said to have been forged in East Anglia in 578 A.D. They had very small palms, and were designed to be used with a wooden stock. The Bayeux Tapestry shows what could be the first imported anchor being carried ashore by the invading Normans. By this time anchor making was a growing trade, and anchor-smiths even had their own Patron Saint. Known as St. Clements 4th Pope said to have been thrown into the sea tied to an anchor. This was a then known form of execution.

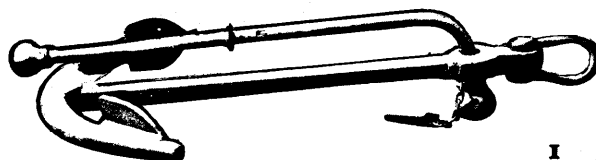
In the 15th century, the Statutes of Genoa required a 1500 ton ship to carry twelve anchors weighing well over half a ton each. And the large, traditional Kedge type anchors with wooden stocks were seen on the ships of the great navigators of the day. Kedges were effective, but extremely heavy. And the development of iron stocks in the late 18th century didn't do much to solve the weight problem. But over the years gradual improvements took place. Better welding. Shorter shanks. Increased arm curvature. And by 1846 the Royal Navy had adopted the modified 'Admiralty' iron-stocked kedge. Meanwhile, however, work had been going on in other directions. Notably the development of a tumbling fluke anchor introduced in 1818 by one Lieutenant Belcher R.N. Cant-palms had been added to Belcher's design by a man named Trotman, and in 1852 a British Commission declared that the Trotman anchor was the best anchor of all. But its success was short-lived - due largely to the development of the Hawkins patent tumbling fluke stockless anchor. The great advantage of the stockless anchor is the ease of stowage in a hawse pipe; and today stockless anchors are practically the only type used on larger ships.



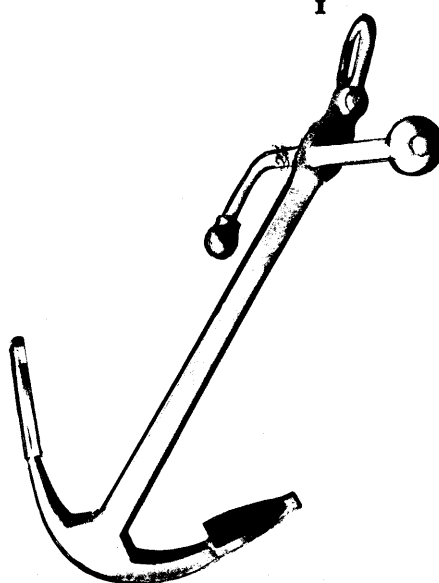
W.J. KEATING LIMITED

ALL TYPES FOR ALL TYPES

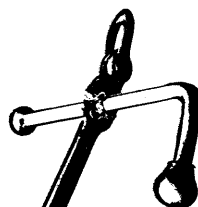
1 ORDINARY PATTERN ANCHOR This traditional design, known variously as the "Admiralty", "Kedge" or "Common" anchor, became established with the Royal Navy in its present form around the middle of the last century. And it's still in use — mostly on small fishing vessels — to this day. The anchor is manufactured in weights from 1 cwt. to 40 cwt. (50 to 2000 kilos).



2 SINGLE ARM MOORING ANCHOR Used principally as a permanent mooring anchor, its single arm feature prevents fouling of other vessels at low tide. The crown shackle is fitted to facilitate removal and for fixing of a marker buoy line. Manufactured in weights from 56 lbs. to 30 cwts. (25 to 1500 kilos).

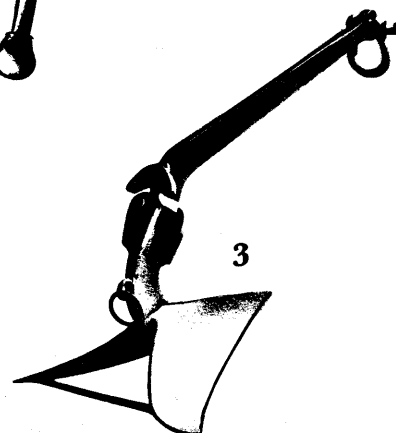
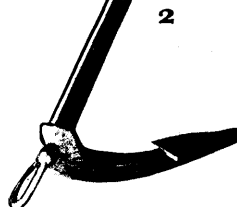
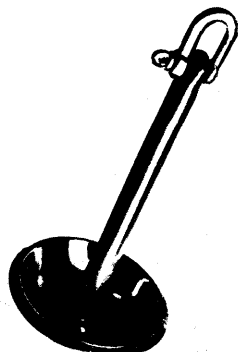
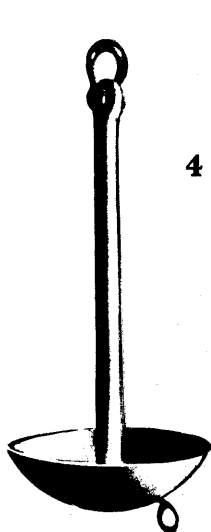


3 PLOUGH ANCHOR Developed before the last war and recently re-designed, this anchor is popular with small boat owners. It's an efficient anchor, but doesn't equal the performance of the Meon anchor of comparable weight. The plough is made in weights from 5 lbs. to 280 lbs. (2 to 128 kilos.)



4 MUSHROOM ANCHOR First introduced more than a century ago, the Mushroom is used mainly for lightships and other permanent moorings, or when the bottom is soft and muddy.

The Mushroom is manufactured in weights from 1½ lbs. to 20 cwt. (¾ to 1,000 kilos). **SMALL MUSHROOM ANCHORS** The Small Mushroom is a really new idea. It's nylon coated, with no sharp corners. So it's just the job for a rubber dinghy particularly in muddy bottomed rivers and sandy shores. Small Mushroom Anchors weigh approximately 3 lbs. (1½ kilos).

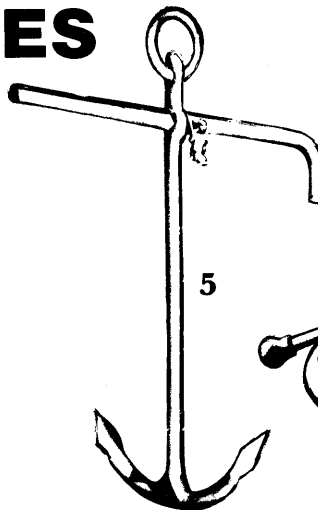




ALL TYPES FOR ALL TYPES

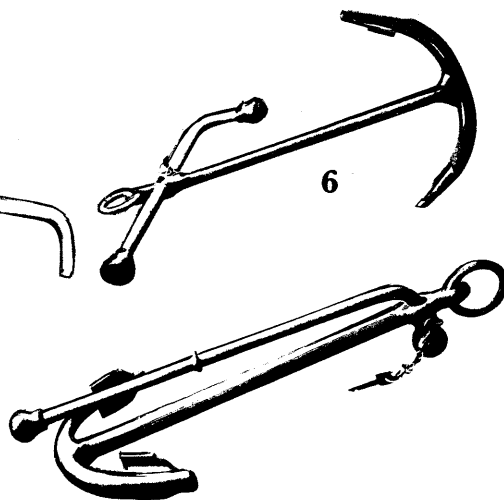
5 SOLID PALM YACHT ANCHOR

(FISHERMAN TYPE) The popular Fishermen Anchor has remained virtually unchanged since 1846, and its history has been much the same as that of the Ordinary Pattern Anchor. It's still a favourite today, especially with fishermen operating around rocky shores. Manufactured in weights from 4 lbs. to 150 lbs. (2 to 70 kilos).



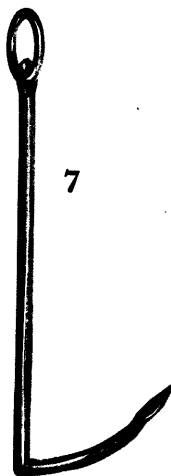
5

6 COMMON ANCHOR This anchor similar to the Ordinary Pattern Anchor, is also in general use on small fishing vessels. Its development following closely that of the "Admiralty" and "Kedge" anchors. Manufactured in weights from 30 lbs. to 230 lbs. (14 to 100 kilos).



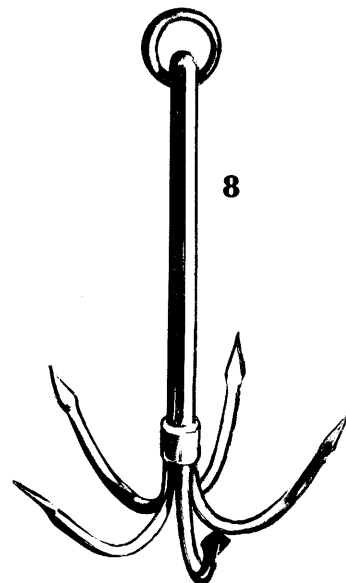
6

7 ROND ANCHOR The Rond is strictly for river or canal use. Made in weights from 1 lb. to 3 lbs. (½ to 1½ kilos) it's used by simply sticking it into the bank.



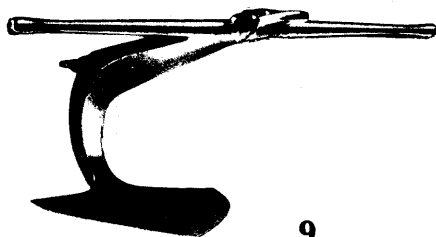
7

8 FIVE PRONG GRAPNELS The Five Prong Grapnel is really no more than a five fluke anchor, fitted with a collar. It's manufactured in weights from 4 lbs. to 112 lbs. (2 to 50 kilos) but larger sizes can be specially made to order. The Grapnel is ideal for use on rocky shores and for inshore mooring of small craft. It's used too, as a grappling iron, and for dragging the river clearance. The principal market for Grapnels is South America, where they are used for gold prospecting as well as for normal marine applications.



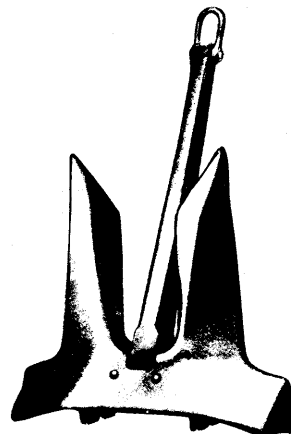
8

9 A.M. 12 ANCHOR A single Fluke Anchor developed by the Armiralty for permanent Navy moorings.



9

10 A.C. 14 ANCHOR This is the Admiralty High Holding Power Anchor, designed by them for Navy use. Better suited to recessed type stowage now considered necessary in a warship. Although principally used by the Royal Navy it is available commercially, where the Classification Societies apply the 25% weight concession rule.

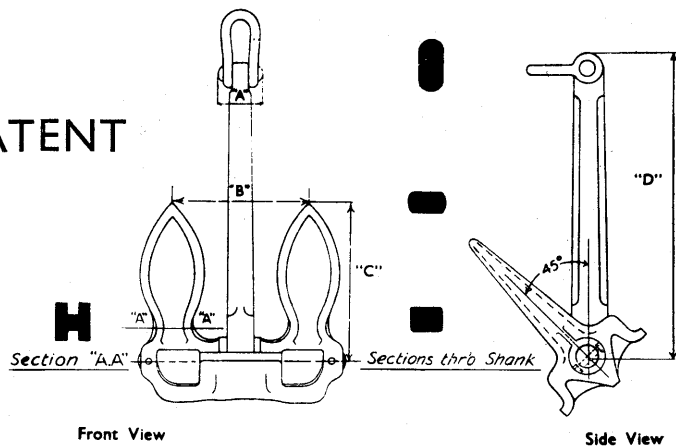


10



"BYERS"

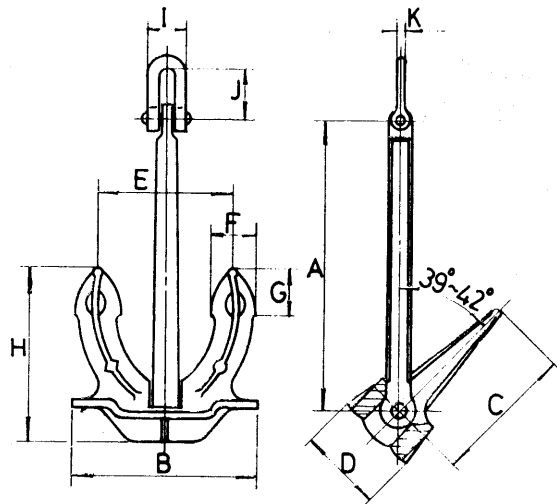
LATEST IMPROVED PATENT STOCKLESS ANCHOR



Weight of Anchor Cwts.	A	B	C	D	Weight of Anchor Cwts.	A	B	C	D
4 $\frac{3}{8}$	6 $\frac{1}{2}$	16 $\frac{1}{2}$	19 $\frac{1}{4}$	41	65 $\frac{1}{2}$	14 $\frac{1}{2}$	41	49	98
5 $\frac{1}{4}$	6 $\frac{1}{2}$	17	19 $\frac{3}{4}$	42	69 $\frac{1}{2}$	14 $\frac{1}{2}$	42	50	99
6 $\frac{1}{4}$	7	17	19 $\frac{3}{4}$	43	73 $\frac{1}{2}$	15 $\frac{1}{2}$	43	51	102
7 $\frac{1}{8}$	7	18	23 $\frac{1}{2}$	45	77 $\frac{3}{4}$	15 $\frac{1}{2}$	43	51	103
8 $\frac{1}{8}$	8 $\frac{1}{4}$	21	24 $\frac{3}{4}$	46	81 $\frac{3}{4}$	16	43	51	105
9	8 $\frac{1}{4}$	21	25 $\frac{1}{2}$	48	86	16	45	53	106
9 $\frac{3}{4}$	8 $\frac{1}{2}$	22 $\frac{1}{2}$	26	49	90 $\frac{1}{4}$	16	46	54	109
11 $\frac{7}{8}$	8 $\frac{1}{2}$	22 $\frac{1}{2}$	26	52	94 $\frac{1}{2}$	17	46	54	113
13 $\frac{7}{8}$	9	24	28 $\frac{1}{4}$	56	99	17	46	57	114
16	9 $\frac{1}{2}$	25 $\frac{1}{4}$	29 $\frac{1}{2}$	62	103 $\frac{1}{2}$	17 $\frac{1}{4}$	46	58	120
18	9 $\frac{1}{2}$	25 $\frac{3}{4}$	31 $\frac{1}{2}$	64	107 $\frac{3}{4}$	17 $\frac{1}{2}$	46	58	121
20 $\frac{1}{8}$	10	28	33 $\frac{1}{2}$	66	112	17 $\frac{3}{4}$	46	58	122
22 $\frac{1}{4}$	10	28	34 $\frac{1}{4}$	69	116 $\frac{1}{4}$	18	46	58	122
24 $\frac{1}{2}$	10 $\frac{1}{2}$	29 $\frac{1}{2}$	35 $\frac{1}{2}$	72	120 $\frac{1}{2}$	18	51	61	123
26 $\frac{3}{4}$	10 $\frac{1}{2}$	29 $\frac{1}{2}$	36 $\frac{1}{4}$	74	125	18	52	61	126
29	11 $\frac{1}{2}$	31	37 $\frac{1}{4}$	74	129 $\frac{3}{4}$	18 $\frac{1}{2}$	52	61	129
31 $\frac{3}{8}$	11 $\frac{1}{2}$	31	38	76	134 $\frac{3}{4}$	18 $\frac{1}{2}$	52	61	132
33 $\frac{7}{8}$	12	33	39 $\frac{1}{4}$	78	140	18 $\frac{1}{2}$	52	61	132
36 $\frac{7}{8}$	12	33	40 $\frac{1}{4}$	78	145 $\frac{1}{2}$	18 $\frac{1}{2}$	53	65	132
39 $\frac{7}{8}$	12 $\frac{1}{2}$	33	41	83	151 $\frac{1}{2}$	18 $\frac{3}{4}$	53	65	132
43 $\frac{1}{4}$	13	35	42 $\frac{1}{2}$	86	157 $\frac{1}{2}$	18 $\frac{3}{4}$	56	67	132
46 $\frac{7}{8}$	13	36	43 $\frac{1}{2}$	87	163 $\frac{1}{2}$	20 $\frac{1}{4}$	56	67	134
50	13	37 $\frac{1}{2}$	44	90	169 $\frac{1}{2}$	20 $\frac{3}{4}$	56	67	134
53 $\frac{3}{4}$	13 $\frac{1}{2}$	38 $\frac{1}{2}$	46 $\frac{1}{2}$	93	175 $\frac{1}{2}$	22	59	69	138
57 $\frac{1}{2}$	13 $\frac{1}{2}$	38 $\frac{3}{4}$	46 $\frac{1}{2}$	96	181 $\frac{1}{2}$	22 $\frac{1}{2}$	59	69	144
61 $\frac{1}{2}$	14 $\frac{1}{2}$	41	48	96	188	22 $\frac{1}{2}$	60	71	148



HALLS TYPE

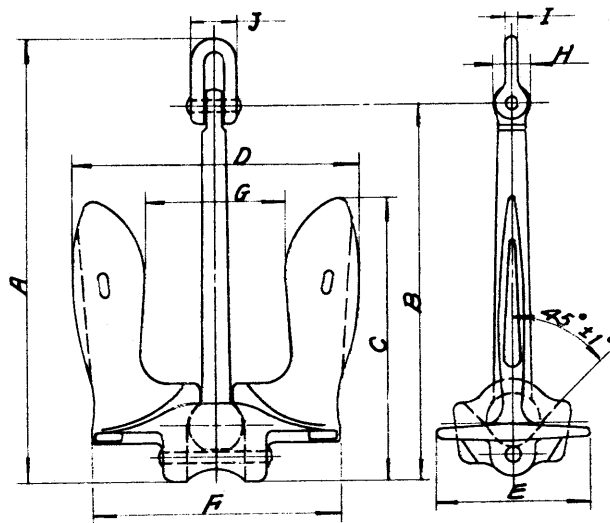


DIMENSIONS (mm)

ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I	J	K
LBS	KG											
1260	570	1330	950	700	408	670	219	249	862	170	221	52
1455	660	1400	1000	740	430	710	230	262	910	179	234	55
1720	780	1480	1060	870	456	750	244	278	960	189	247	58
1985	900	1550	1110	820	477	780	255	291	1009	199	259	61
2250	1020	1620	1160	860	500	820	267	304	1057	208	272	64
2515	1140	1680	1200	890	520	850	276	315	1094	215	281	66
2845	1290	1750	1260	920	540	880	288	328	1132	224	293	69
3175	1440	1820	1300	960	560	920	299	340	1181	234	306	72
3505	1590	1880	1340	990	580	950	308	351	1218	240	315	74
3835	1740	1930	1380	1020	600	980	318	362	1255	247	323	76
4230	1920	2000	1430	1060	620	1010	329	375	1303	257	336	79
4630	2100	2060	1470	1090	640	1040	338	385	1340	263	344	81
5025	2280	2110	1510	1120	650	1070	347	396	1377	270	353	83
5425	2460	2170	1550	1150	670	1100	357	306	1414	277	361	85
5820	2640	2230	1590	1180	690	1120	366	417	1450	284	370	87
6285	2850	2280	1630	1210	700	1150	375	427	1487	292	383	90
6745	3060	2340	1670	1240	720	1180	384	438	1524	299	391	92
7275	3300	2390	1710	1270	740	1210	393	448	1561	306	400	94
7805	3540	2450	1750	1290	750	1240	402	458	1588	313	408	96
8335	3780	2510	1790	1320	770	1260	412	469	1624	320	417	98
8930	4050	2650	1830	1350	790	1290	420	480	1661	328	429	101
9525	4320	2620	1870	1380	800	1320	430	490	1698	335	438	103
10120	4590	2670	1910	1410	820	1350	440	500	1735	342	446	105
10780	4890	2730	1950	1440	840	1380	448	510	1772	349	455	107
11575	5250	2800	2000	1480	860	1410	460	520	1820	358	467	110
12370	5610	2860	2040	1510	880	1440	470	530	1857	365	476	112
13230	6000	2930	2090	1540	900	1480	480	550	1895	384	489	120
14220	6450	3000	2140	1580	920	1510	492	560	1944	384	502	118
15210	6900	3070	2190	1620	940	1550	500	570	1992	390	510	120
16205	7350	3140	2240	1650	960	1580	520	590	2030	401	522	123
17195	7800	3190	2280	1680	980	1610	530	600	2068	407	530	125
18300	8300	3260	2330	1720	1000	1560	540	610	2116	417	540	128
19180	8700	3311	2365	1745	1017	1580	544	620	2147	423	553	130
19400	8800	3330	2380	1760	1020	1610	550	620	2165	426	560	131
20500	9300	3390	2420	1790	1040	1650	560	630	2201	433	570	133
20610	9350	3390	2420	1790	1040	1670	560	630	2201	433	570	133
21825	9900	3460	2470	1820	1060	1680	570	650	2240	442	580	136
23150	10500	3530	2520	1860	1080	1710	580	660	2288	452	590	139



U.S. NAVY TYPE STOCKLESS ANCHOR

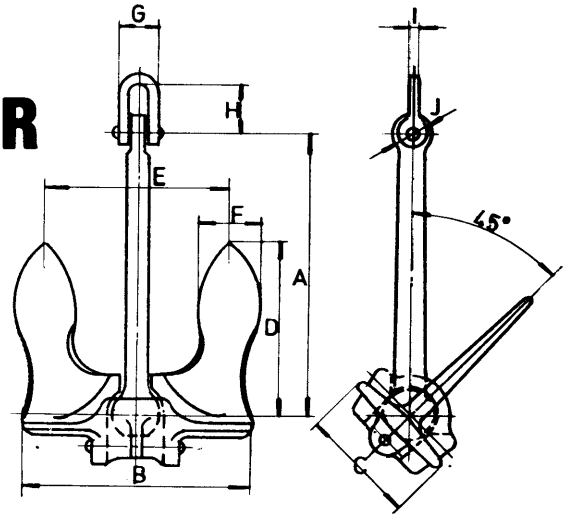


ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I	J
LBS	KG										
100	45	702	590	447	441	241	390	221	61	19	69
200	90	885	744	563	555	304	491	279	77	24	87
300	136	1016	854	644	635	348	562	319	88	28	100
400	181	1117	939	709	699	384	619	351	98	31	109
500	226	1210	1018	769	753	412	666	379	104	33	118
600	272	1285	1081	819	800	438	708	401	111	36	129
700	317	1356	1141	864	842	462	745	424	118	37	133
800	362	1417	1192	903	880	483	779	443	123	39	139
900	408	1461	1227	939	915	502	810	461	128	41	145
1000	453	1513	1271	973	948	520	839	477	133	42	150
1100	498	1575	1324	1003	979	536	866	492	135	46	155
1200	544	1622	1364	1034	1008	552	892	507	139	47	160
1300	589	1660	1396	1056	1035	567	916	521	144	44	167
1400	635	1700	1429	1059	1062	583	940	534	149	49	169
1500	680	1736	1459	1100	1086	596	962	546	152	50	173
1600	725	1777	1494	1127	1109	608	982	558	155	50	177
1700	771	1812	1523	1151	1132	621	1002	569	158	51	181
1800	816	1846	1551	1172	1154	633	1021	580	161	52	184
1900	861	1880	1580	1191	1174	644	1040	591	162	52	187
2000	907	1913	1608	1212	1195	655	1058	601	165	53	190
2200	997	1974	1659	1253	1234	676	1092	621	171	55	197
2500	1134	2061	1732	1309	1287	706	1139	648	182	57	207
3000	1360	2495	2149	1412	1398	775	1270	704	190	60	216
3500	1587	2306	1938	1466	1440	790	1275	725	200	63	225
4000	1814	2410	2025	1529	1506	826	1333	758	223	68	242
5000	2268	2592	2177	1646	1622	889	1436	816	231	73	260
6000	2721	2747	2306	1738	1724	947	1528	867	244	77	276
7000	3175	2902	2438	1806	1815	996	1606	913	252	80	290
8000	3628	3034	2548	1924	1897	1040	1679	955	263	85	303
9000	4082	3155	2650	2002	1973	1082	1747	993	274	88	315
10000	4536	3271	2748	2079	2044	1120	1809	1028	284	92	328
11000	4989	3370	2831	2139	2110	1158	1868	1062	298	95	339
12000	5443	3462	2909	2194	2172	1193	1924	1093	301	98	346
13000	5896	3538	2968	2247	2231	1184	1965	1122	312	99	355
14500	6577	3692	3100	2346	2313	1170	2047	1164	327	104	369
15000	6804	3738	3140	2369	2340	1295	2089	1177	330	107	379
16000	7257	3813	3202	2417	2390	1311	2116	1203	336	107	382
18000	8164	3956	3320	2504	2486	1365	2200	1251	350	111	399



W.J. KEATING LIMITED

BALDT TYPE STOCKLESS ANCHOR

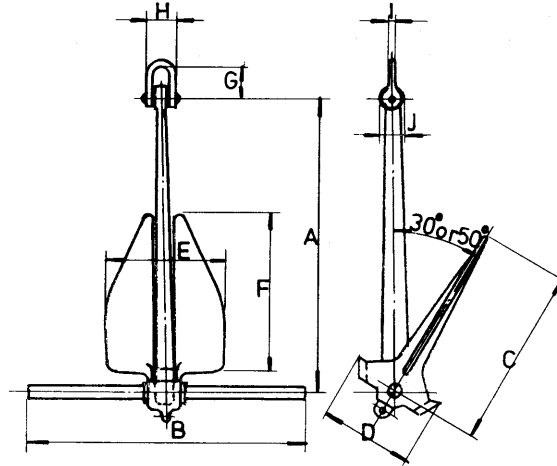


DIMENSIONS (mm)

ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I	J
LBS	KG										
4000	1815	1660	1300	677	983	1076	373	230	321	67	220
4250	1928	1694	1327	691	1004	1098	381	235	328	68	225
4500	2040	1726	1352	704	1022	1119	388	239	334	69	229
4750	2155	1758	1377	717	1042	1140	395	244	340	71	233
5000	2268	1788	1400	729	1059	1159	402	248	346	72	237
5250	2380	1818	1423	742	1077	1178	409	252	352	73	241
5500	2495	1845	1445	753	1093	1196	415	256	357	74	245
5750	2608	1874	1457	765	1110	1214	421	260	363	75	248
6000	2722	1900	1488	775	1125	1231	427	263	368	76	252
6300	2858	1932	1513	788	1144	1252	435	266	374	78	256
6500	2948	1958	1528	976	1156	1265	439	270	378	78	259
6790	3062	1976	1548	806	1170	1281	445	274	383	79	262
7000	3175	2000	1567	816	1185	1297	450	277	387	80	265
7250	3288	2024	1585	826	1199	1312	455	280	392	81	258
7600	3443	2056	1610	839	1218	1333	462	285	398	83	273
8100	3674	2100	1645	857	1244	1361	472	291	407	84	278
8600	3900	2142	1768	874	1269	1384	482	297	415	86	284
9000	4082	2175	1704	888	1289	1410	489	301	421	87	288
9500	4309	2215	1735	904	1312	1436	498	307	429	89	294
10000	4536	2253	1764	919	1335	1460	407	312	436	91	299
11000	4990	2326	1821	949	1378	1508	523	322	450	93	308
12000	5443	2394	1875	977	1418	1552	538	332	463	96	317
13000	5897	2459	1926	1003	1457	1594	553	341	476	99	326
13500	6124	2490	1950	1016	1475	1614	550	345	482	100	330
14000	6350	2520	1974	1028	1493	1634	567	349	488	101	334
15000	6804	2583	2023	1054	1530	1675	581	358	500	104	342
16000	7257	2635	2064	1075	1561	1708	593	365	510	106	349
17000	7711	2689	2106	1097	1593	1743	504	373	521	108	356
18000	8165	2740	2146	1118	1623	1776	516	380	530	110	363
19000	8618	2790	2189	1139	1653	1809	628	387	540	112	370
20000	9072	2832	2218	1155	1677	1835	637	392	548	114	375
22000	9980	2930	2295	1196	1736	1899	659	406	567	118	388
24000	10886	3016	2362	1231	1787	1955	678	418	584	121	400
26000	11794	3098	2426	1264	1835	2008	697	429	600	124	411
28000	12700	1375	2487	1296	1881	2058	714	440	615	128	421
30000	13608	3249	2545	1326	1295	1205	731	450	629	130	430
35000	15876	3420	2679	1396	2026	2217	769	474	662	137	453
40000	18144	3576	2800	1459	2119	2318	804	495	692	144	474



LIGHT WEIGHT TYPE ANCHOR

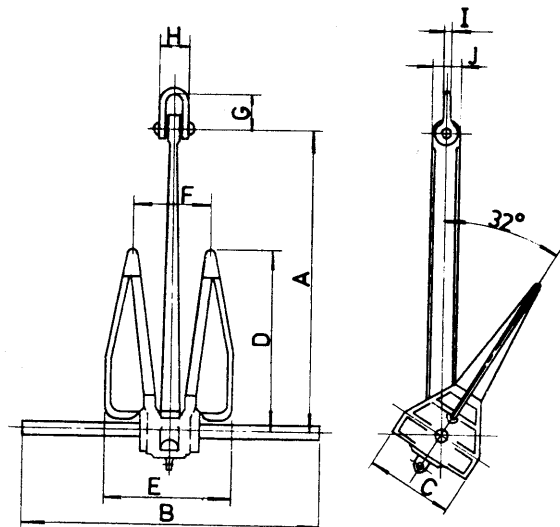


DIMENSIONS (mm)

ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I	J
LBS	KG										
500	227	1285	1218	787	438	505	687	206	135	34	104
750	340	1471	1394	901	502	578	786	235	154	38	119
1000	454	1619	1535	992	552	636	866	259	169	42	131
1500	680	1853	1757	1135	632	728	991	296	194	48	150
2000	907	2040	1933	1250	696	802	1091	326	208	53	166
2500	1134	2197	2083	1346	750	864	1175	352	230	57	178
3000	1360	2335	2213	1432	797	918	1248	374	244	61	190
3500	1588	2458	2330	1506	839	966	1314	393	257	64	199
4000	1815	2570	2436	1573	877	1010	1374	411	269	67	208
4500	2041	2673	2533	1637	912	1053	1427	427	280	70	217
5000	2268	2768	2623	1696	945	1088	1480	443	290	72	224
6000	2722	2941	2788	1802	1003	1156	1573	471	308	77	238
7000	3175	3097	2935	1809	1057	1217	1656	495	324	81	251
8000	3629	3238	3069	1983	1104	1273	1731	518	338	85	262
9000	4082	3368	3192	2063	1194	1324	1800	539	352	88	273
10000	4536	3488	3306	2173	1190	1371	1865	558	365	91	284
12000	5443	3707	3513	2270	1265	1457	1982	593	388	97	300
13000	5897	3807	3608	2332	1300	1496	2036	609	398	99	309
13228	6000	3829	3629	2346	1306	1505	2047	613	401	100	311
14000	6350	3902	3698	2390	1331	1534	2086	624	408	102	317
15000	6804	3993	3784	2446	1362	1569	2135	639	418	104	324
16000	7258	4080	3867	2500	1392	1604	2182	653	427	106	331
18000	8165	4243	4022	2600	1448	1668	2269	679	444	111	344
20000	9072	4394	4166	2692	1498	1727	2350	703	460	115	357
22000	9980	4537	4300	2780	1548	1783	2436	726	475	118	368
25000	11340	4733	4487	2900	1615	1860	2531	757	495	124	385
30000	13608	5030	4768	3082	1716	1977	2690	805	256	131	408
35000	15876	5295	5020	3244	1806	2081	2832	847	554	138	430
40000	18144	5536	5248	3392	1887	2276	2961	886	579	145	450
45000	20412	5759	5459	3528	1965	2264	3079	921	603	150	467
50000	22680	5964	5653	3654	2035	2344	3189	954	624	156	484
60000	27216	6338	6007	3883	2162	2491	3389	1014	663	165	514
70000	31752	6673	6324	4088	2176	2624	3586	1068	698	174	541
80000	36288	6976	6612	4273	2380	2742	3730	1116	730	182	566
90000	40824	7255	6788	4445	2475	2852	3879	1161	759	189	589
100000	45360	7515	7122	4604	2564	2954	4018	1202	786	196	610



DANFORTH TYPE ANCHOR

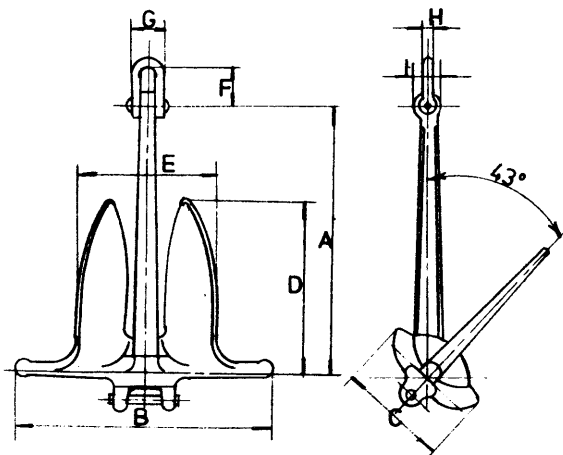


DIMENSIONS (mm)

ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I	J
LBS	KG										
500	227	1289	1186	331	803	523	206	215	155	42	121
750	340	1476	1358	379	919	599	236	247	177	48	138
1000	454	1624	1494	418	1012	659	260	271	195	53	153
1500	680	1860	1711	478	1158	654	297	311	223	61	175
2000	907	2047	1883	526	1275	830	327	342	246	67	193
2500	1134	2205	2028	567	1373	894	353	368	264	72	208
3000	1361	2343	2155	602	1459	950	375	392	281	77	221
3500	1588	2466	2269	634	1536	1001	396	412	296	81	232
4000	1814	2579	2372	663	1606	1046	413	431	309	85	243
4500	2041	2682	2467	690	1670	1088	429	448	322	88	253
5000	2268	2778	2556	714	1730	1127	444	464	333	91	262
6000	2722	2952	2716	759	1839	1198	472	493	354	97	278
7000	3175	3108	2859	799	1936	1261	497	519	373	102	293
8000	3629	3249	2989	835	2024	1318	520	543	390	107	306
10000	4536	3500	3220	900	2180	1420	560	585	420	115	330
12000	5443	3719	3422	956	2316	1509	595	622	446	122	351
13000	5897	3820	3515	982	2380	1550	611	639	458	125	360
14000	6350	3915	3602	1007	2439	1588	626	654	470	129	369
15000	6804	4006	3686	1030	2495	1625	641	670	481	132	378
16000	7258	4094	3766	1053	2550	1661	655	684	491	134	386
20000	9072	4410	4057	1134	2747	1789	705	737	529	145	416
22000	9979	4551	4188	1170	2835	1847	728	761	546	149	429
25000	11340	4750	4370	1221	2959	1927	760	794	570	156	448
30000	13608	5048	4644	1298	3144	2048	808	844	606	166	476
35000	15876	5314	4889	1366	3310	2156	850	888	638	175	501
40000	18144	5556	5111	1429	3460	2254	889	929	667	182	524
50000	22680	5985	5506	1539	3728	2428	957	1000	718	197	564
60000	27220	6360	5851	1635	3961	2580	1017	1063	763	209	600
70000	31752	6695	6160	1722	4170	2716	1071	1119	803	220	631
80000	36288	7000	6440	1800	4360	2840	1120	1170	840	230	660
90000	40824	7280	6698	1872	4534	2954	1165	1217	874	239	686
100000	45360	7540	6937	1939	4697	3059	1206	1260	905	248	711



SNUG STOWING TYPE ANCHOR



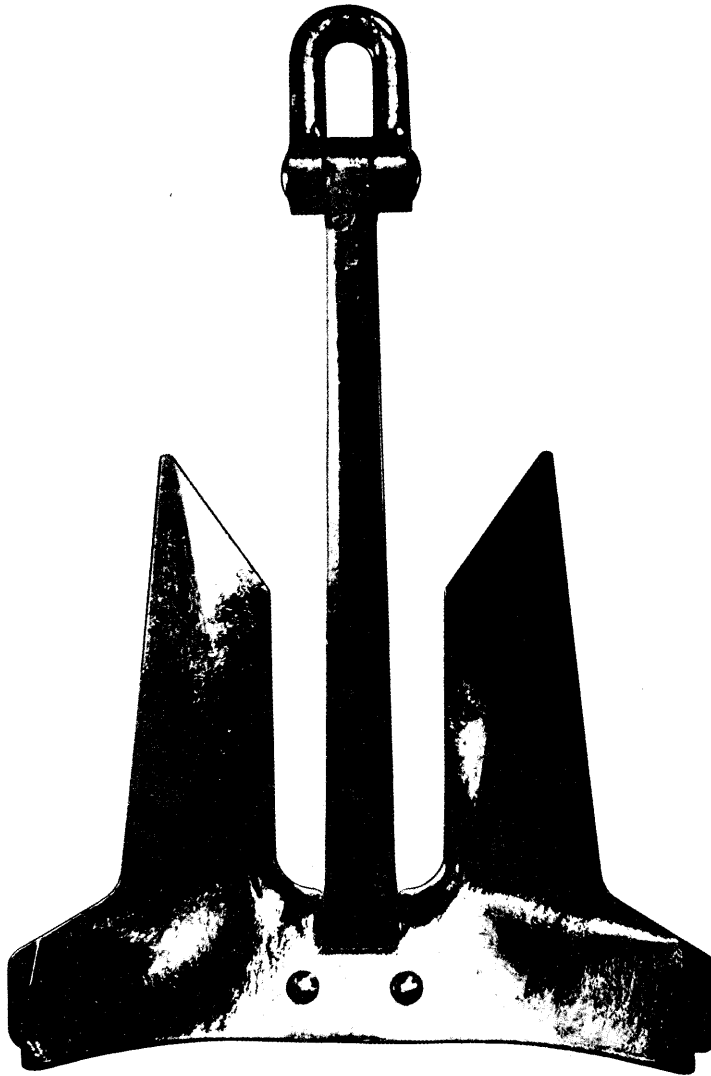
DIMENSIONS (mm)

ANCHOR WEIGHT		A	B	C	D	E	F	G	H	I
LBS	KG									
500	230	1054	1014	411	687	552	155	111	33	98
750	340	1207	1160	470	786	632	178	127	38	112
1000	450	1328	1277	517	865	695	196	140	41	124
1500	680	1521	1462	592	990	796	224	161	47	142
2000	910	1674	1609	652	1090	876	247	177	52	156
2500	1130	1803	1734	702	1174	944	266	190	56	168
3000	1360	1916	1842	746	1248	1003	282	202	60	178
3500	1580	2017	1939	786	1314	1056	297	219	63	188
4000	1810	2109	2028	821	1374	1104	311	223	66	196
4500	2040	2193	2109	854	1429	1148	323	232	68	204
50000	2270	2271	2184	885	1480	1189	335	240	71	211
6000	2720	2414	2321	940	1572	1264	356	265	75	225
7000	3170	2541	2443	990	1655	1330	375	268	79	237
8000	3630	2657	2554	1035	1731	1391	392	280	83	247
11000	4990	2954	2841	1151	1924	1547	436	312	92	275
12000	5440	3041	2924	1184	1981	1592	448	321	95	283
13000	5900	3124	3003	1217	2035	1635	461	330	97	291
14000	6350	3202	3078	1247	2089	1676	472	338	100	298
15000	6800	3276	3150	1276	2134	1715	483	346	102	305
16000	7260	3347	3218	1304	2180	1752	494	353	104	312
18000	8160	3481	3347	1356	2268	1822	513	368	108	324
20000	9070	3606	3469	1404	2349	1888	532	381	112	336
25000	11340	3884	3735	1513	2530	2033	573	410	121	362
30000	13610	4128	3969	1608	2689	2161	509	436	129	384
35000	15870	4345	4178	1692	2830	2275	641	459	135	405
40000	18140	4543	4368	1769	2959	2378	670	480	141	423
45000	20410	4725	4543	1840	3078	2473	697	499	147	440
50000	22680	4894	4705	1906	3188	2562	722	517	152	456
60000	27210	5200	5000	2026	3387	2722	767	549	162	484
70000	31750	5475	5264	2132	3566	2866	807	578	170	510
80000	36290	5724	5504	2229	3728	2996	844	604	178	533
90000	40820	5953	5724	2319	3877	3116	878	629	185	554
100000	45360	6166	5928	2402	4016	3228	909	691	192	574



AC-14 TYPE

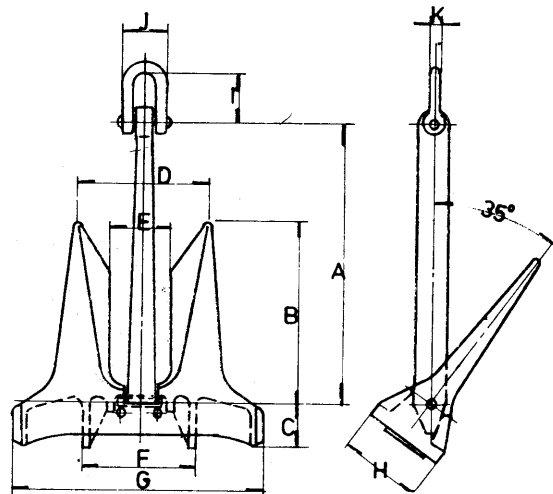
**High Holding Power Stockless Bower Anchor
with Weight Reduction**



- Scientifically dimensioned.
- Maximum surface as regards of its weight.
- Strong.
- Greater reliability in soft mud, sand, sand/shingle and clay bottoms.
- It fits itself properly in ships of modern design.
- Holding pull is at least $2\frac{1}{2}$ to 3 times greater than other types of standard anchors of the same weight in practically all types of sea beds.
- Several Classification Societies allow up to 25 % weight reduction for commercial ships on the normal recommended weight of a standard anchor.



AC-14 TYPE ANCHOR



DIMENSIONS (mm)

ANCHOR WEIGHT		A	L	C	D	E	F	G	H	I	J	K
LBS	KG											
2840	1290	1556	1067	290	834	342	827	1566	470	290	259	75
3170	1440	1614	1107	301	865	354	858	1623	488	301	268	78
3500	1590	1668	1144	311	894	366	886	1678	405	311	277	80
3840	1740	1719	1179	320	921	377	913	1729	519	320	286	83
4230	1920	1776	1218	331	952	390	944	1787	537	331	295	86
4630	2100	1830	1255	341	981	402	972	1841	553	341	304	88
5030	2280	1881	1290	350	1008	413	1000	1892	568	350	313	91
5420	2460	1929	1323	359	1034	424	1025	1941	583	359	321	93
5820	2640	1975	1355	368	1059	434	1050	1987	597	368	329	95
6280	2850	2026	1390	378	1086	445	1077	2038	612	378	337	98
6750	3060	2075	1423	387	1112	456	1103	2087	627	387	345	100
7280	3300	2127	1459	396	1141	467	1131	2140	643	396	354	103
7800	3540	2178	1494	406	1168	478	1157	2191	658	406	362	105
8330	3780	2226	1527	415	1193	489	1183	2239	673	415	370	107
8930	4050	2278	1562	424	1221	500	1210	2291	688	424	379	110
9520	4320	2327	1596	434	1248	511	1327	2341	703	434	387	112
10120	4590	2375	1629	443	1273	522	1262	2389	718	443	395	115
10780	4890	2425	1663	452	1300	533	1289	2440	733	452	403	117
11530	5230	2480	1701	462	1330	545	1318	2495	749	462	412	120
12370	5610	2539	1741	473	1361	558	1349	2554	767	473	422	123
13230	6000	2597	1781	484	1392	570	1380	2612	785	484	432	125
14220	6450	2660	1824	496	1426	584	1414	2676	804	495	442	128
15210	6900	2720	1866	507	1458	597	1446	2737	822	507	452	131
16200	7350	2778	1906	518	1489	610	1477	2795	840	518	462	134
17200	7800	2834	1944	528	1519	622	1506	2851	856	528	471	137
18300	8300	2893	1984	539	1551	635	1538	2911	874	539	481	140
19180	8700	2939	2016	548	1576	645	1562	2957	888	548	489	142
20500	9300	3005	2061	560	1611	660	1597	3028	908	560	500	145
21830	9900	3068	2104	572	1645	674	1631	3087	927	572	510	148
23150	10500	3129	2146	583	1678	687	1663	3148	945	583	520	151
24470	11100	3188	2187	594	1707	700	1694	3207	963	594	530	154
25790	11700	3244	2225	605	1739	712	1724	3263	980	605	540	157
27120	12300	3299	2262	615	1768	724	1753	3318	997	615	549	159
28440	12900	3351	2299	625	1797	736	1781	3371	1013	625	558	162
29760	13500	3402	2334	634	1824	747	1808	3423	1028	634	566	164
31080	14100	3452	2368	643	1851	758	1835	3473	1043	643	574	167
32410	14700	3500	2401	652	1877	769	1860	3521	1058	652	582	169
33730	15300	3547	2433	661	1902	779	1885	3569	1072	661	590	171
35490	16100	3608	2475	672	1934	792	1918	3630	1090	672	600	174
39240	17800	3731	2559	695	2000	819	1983	3753	1127	695	621	180



W.J. KEATING LIMITED

STOKES BOWER ANCHOR

Standard stock sizes are listed, intermediate weights can be supplied by the addition of extra metal in the crown cavity. Larger sizes available. The standard angle of swing of 40° can be altered on request at manufacturing stage.

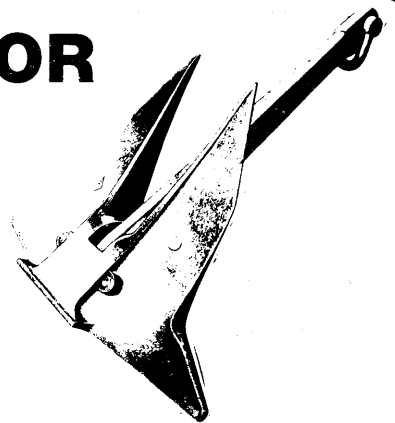
Flukes manufactured of cast steel. B.S. 1456.

Forged steel shanks up to 7,000 lb.—over this weight cast steel B.S. 1456.

Finished in black rust resistant paint.

500 lb. sizes and below can be galvanised at extra cost.

The following classification Societies have accepted the Stokes Anchor as a high efficiency Anchor and allow 25% weight reduction below the equipment weight—Germanischer Lloyd, Det Norske Veritas. Lloyds, Bureau Veritas, R.I.Na.—20% weight reduction—American Bureau of Shipping.

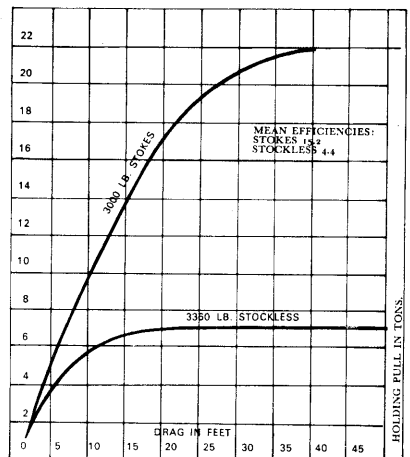


Anchor Trials - Warsash, 1966

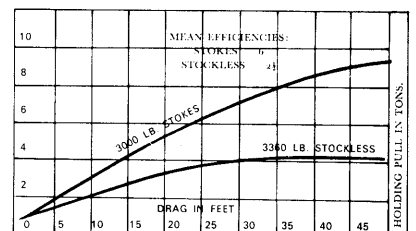
Graphs showing comparisons of holding power between Stokes and Stockless Anchors.

Dimensions

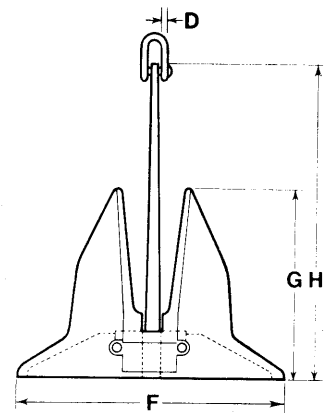
Anchor Weight		H		I		K		G		F		J		Shackle	
lbs.	kilos	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.
100	45	27½	70	2½	7	2	5.0	16½	42	23½	59	7½	18	8	1.6
150	68	34½	88	3½	9	2½	6.5	20½	53	29½	74	9	23	¾	1.9
200	91	37½	95	3½	9	2½	7.0	22½	57	31½	81	10	25	¾	2.2
250	113	40½	103	4	10	3	7.7	24½	62	34½	87	10½	27	¾	2.2
300	136	42½	108	4½	11	3½	8.0	26	66	36½	93	11½	29	1	2.5
400	181	47½	120	4¾	12	3½	9.0	28½	72	40	102	12½	32	1	2.5
500	227	51	130	5	13	3¾	9.6	30	76	43½	110	13½	34	1½	2.8
600	272	54	137	5½	14	4	10.0	32½	83	45½	116	14½	36	1½	3.2
750	340	58½	149	5¾	15	4½	10.8	35	89	49½	126	15½	39	1½	3.8
1,000	454	64½	164	6½	17	4¾	12.0	38½	98	54½	138	17	43	1½	4.2
1,500	680	72	183	7¼	18	5¼	13.4	43½	110	61	155	19	48	1½	4.8
2,000	907	81½	207	8	20	6	15.0	49	124	69	176	21½	55	2	5.2
2,500	1,134	87½	223	8¾	22	6¼	16.0	52½	134	74½	189	23	58	2½	5.7
3,000	1,360	93½	237	9¼	24	6¾	17.0	56	142	79	201	24½	63	2½	5.7
4,000	1,814	103	262	10¼	26	7½	19.0	62	158	87½	222	27½	69	2¾	6.1
5,000	2,268	111½	283	11	28	8	20.3	67	170	94½	240	29½	75	2¾	6.1
6,000	2,722	118½	301	11¾	30	8½	21.6	71	181	100½	255	31½	79	2¾	6.3
7,000	3,175	125	318	12½	32	9	23.0	75	191	106	269	33	84	2¾	6.8
8,000	3,629	130	330	13	33	9½	24.0	78	198	110½	282	34½	88	3	7.6
9,000	4,082	135	343	13½	34	9¾	24.8	81	206	114½	291	35½	91	3	7.6
10,000	4,536	140	356	14	36	10¼	26.0	84	214	120	305	37½	95	3¾	9.0
12,000	5,443	149	378	14¾	37	10¾	27.3	89	226	126	320	39¼	100	4½	11.5
14,000	6,350	156	396	15½	39	11¼	28.6	93½	238	132	335	41	104	5	12.7
16,000	7,258	162	412	16¼	41	11¾	30.0	97½	247	138	350	42½	109	5¼	13.3
20,000	9,072	175	445	17½	44	12¾	32.3	105	267	148	376	46	117	5¾	14.3
24,000	10,886	187	475	18½	47	13½	34.3	112	285	158	401	49	124	5¾	14.3
30,000	13,608	204	518	20¼	51	14¾	37.5	122	310	173	439	53½	136	6½	16.5
40,000	18,143	220	559	23	58	17	43.3	135	343	192	488	60	152	6½	16.5
50,000	22,680														



GOOD HOLDING GROUND — GRAVEL, SAND AND CLAY.

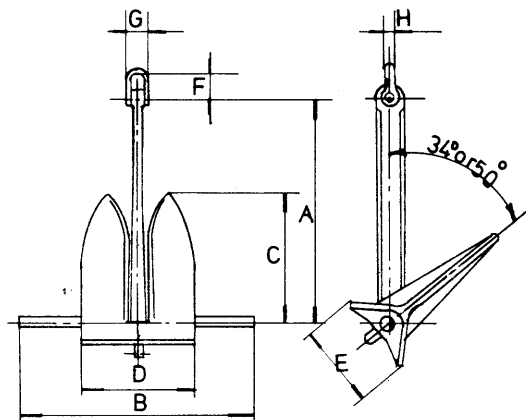


BAD HOLDING GROUND — VERY SOFT MUD.





MOORFAST TYPE ANCHOR



DIMENSIONS (mm)

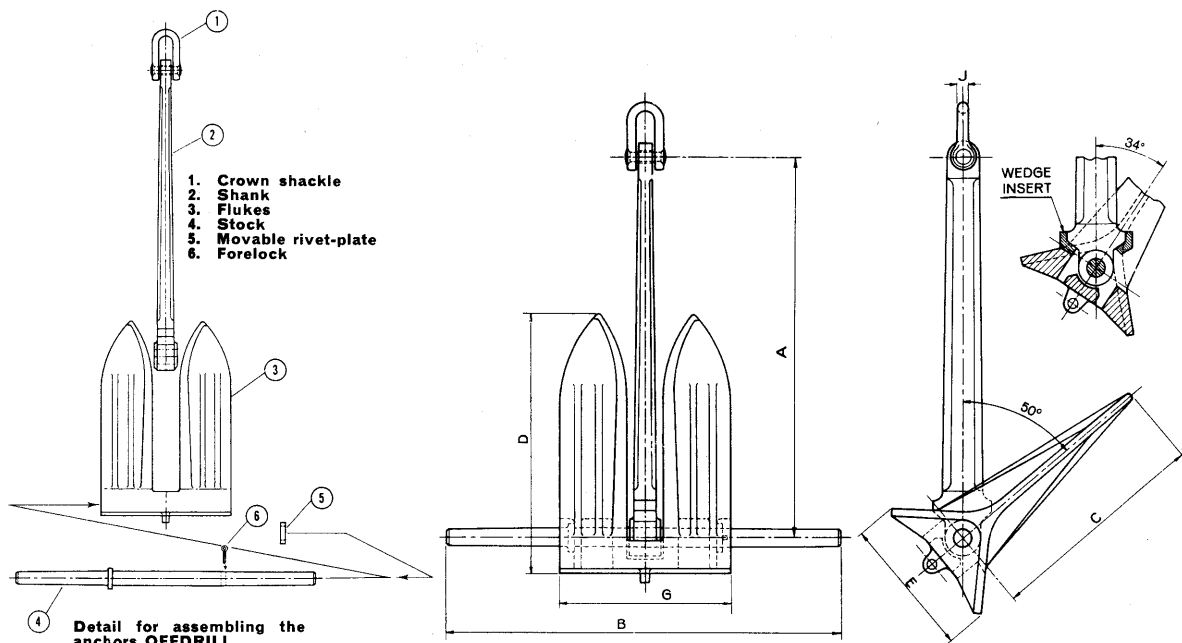
ANCHOR WEIGHT		A	B	C	D	E	F	G	H
LBS	KG								
500	225	1207	1361	730	511	401	165	123	32
750	340	1381	1558	836	585	459	189	140	37
1000	450	1521	1715	920	644	505	208	154	41
2000	910	1916	2161	1160	811	637	263	195	51
2500	1130	2064	2328	1249	874	686	283	210	55
3000	1360	2193	2474	1327	928	729	301	223	59
3500	1590	2309	2604	1397	977	767	317	234	62
4000	1810	2414	2723	1461	1022	802	331	245	65
4500	2040	2510	2832	1520	1063	834	344	255	67
5000	2270	2600	2933	1574	1101	864	357	264	70
6000	2720	2763	3117	1672	1170	918	379	281	74
7000	3180	2909	3281	1761	1231	966	399	295	78
8000	3630	3041	3431	1841	1287	1010	417	309	82
10000	4540	3276	3696	1983	1387	1088	449	333	88
12000	5440	3481	3927	2107	1474	1157	477	354	93
14000	6350	3665	4134	2218	1551	1218	503	372	98
16000	7260	3872	4322	2319	1622	1273	525	389	103
20000	9070	4128	4656	2498	1747	1371	566	419	111
25000	11340	4446	5016	2691	1882	1417	610	452	119
30000	13610	4725	5330	2860	2000	1570	648	480	127
35000	15880	4974	5611	3011	2105	1653	682	505	134
40000	18140	5200	5866	3148	2201	1728	713	528	140
45000	20410	5409	6101	3274	2289	1797	742	549	145
50000	22680	5602	6319	3391	2371	1861	768	569	150
60000	27220	5953	6715	3603	2520	1978	816	605	160
70000	31750	6267	7069	3793	2653	2082	859	637	168
80000	36290	6552	7391	3966	2773	2177	898	666	176
90000	40820	6815	7687	4125	2884	2264	934	692	183
100000	45360	7058	7962	4272	2988	2345	968	717	190



W.J. KEATING LIMITED

OFFDRILL®

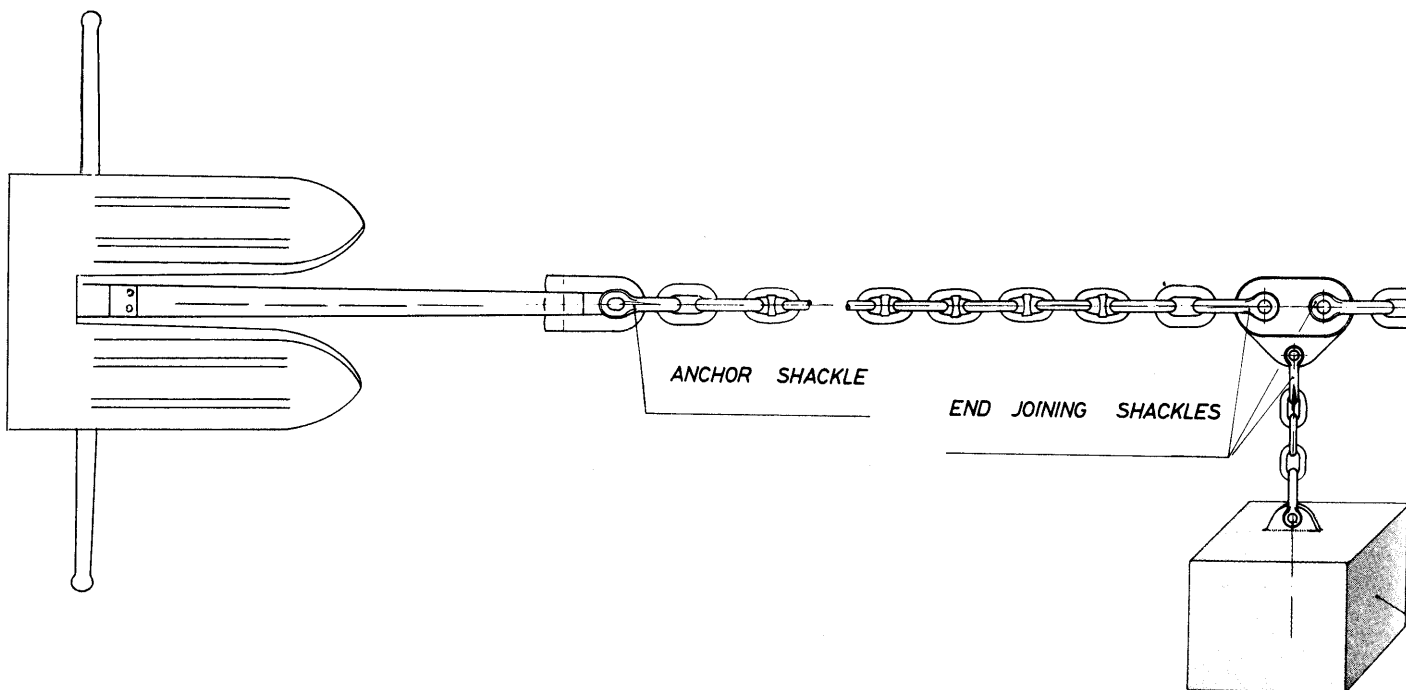
High Holding Power Anchor



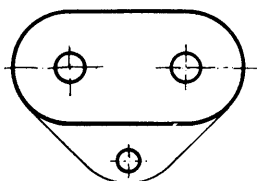
ANCHOR WEIGHT		DIMENSIONS IN mm							HOLDING POWER	
lbs.	kg	A	B	C	D	E	G	Ø J Shackle	α = 0° In Sand Bottom lbs.	α = 0° In Mud Bottom lbs.
500	227	1205	1330	725	865	395	495	40	25500	20500
1000	454	1520	1675	915	1090	500	625	50	40000	32500
1500	680	1770	2120	1050	1250	550	740	50	52000	42300
2000	908	1950	2340	1160	1380	605	815	65	62500	52700
2500	1134	2100	2520	1250	1485	650	875	65	72000	65000
3000	1360	2230	2655	1330	1560	680	930	75	82000	69000
3500	1588	2350	2820	1400	1665	730	980	75	90500	77700
4000	1814	2500	2945	1460	1740	800	1020	75	100000	84000
4500	2041	2555	3065	1520	1805	830	1065	80	108000	91000
5000	2268	2645	3175	1575	1870	860	1100	85	117000	97500
6000	2722	2815	3375	1675	1990	870	1170	100	132000	110000
7000	3176	2950	3540	1755	2090	915	1230	100	146000	123000
8000	3629	3035	3690	1840	2190	960	1290	105	165000	134800
10000	4540	3335	4000	1985	2360	1035	1390	115	186800	155200
12000	5443	3540	4250	2110	2505	1095	1475	125	209000	175100
14000	6350	3728	4500	2220	2640	1155	1555	130	132500	193800
15000	6810	3900	4750	2220	2640	1200	1555	130	243500	203000
16000	7258	3900	4750	2320	2760	1205	1625	130	254000	212000
20000	9080	4200	4900	2500	2975	1360	1750	145	294500	249600
25000	11325	4500	5165	2680	3190	1485	1875	155	341100	286500
30000	13620	4810	5335	2860	3405	1565	2000	165	386000	323500
34000	15854	4900	5390	2955	3515	1610	2070	170	428000	358000
40000	18120	5120	5635	3090	3675	1685	2165	180	468000	382000
45000	20385	5330	5865	3215	3825	1750	2250	180	507500	424000
50000	22700	5600	6150	3360	4000	1840	2365	200	546000	454000
60000	27261	5950	6535	3570	4250	1955	2515	215	615200	514500
70000	31752	6260	6875	3755	4470	2055	2645	215	679000	569000



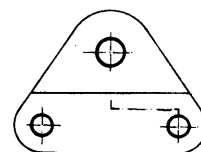
Typical general arrangement of Buoys and Chains



TRIANGULAR PLATE

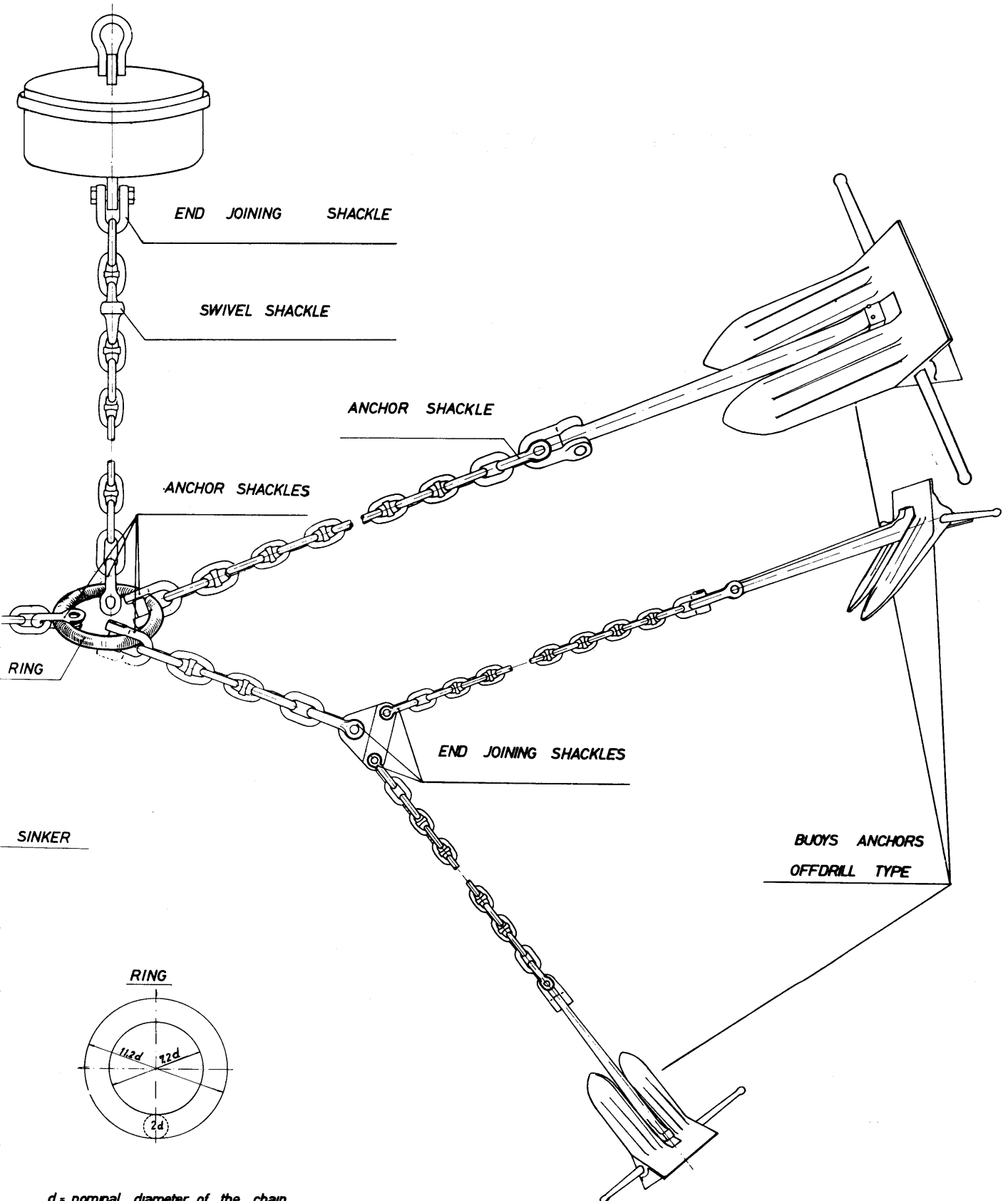


TRIANGULAR PLATE





W.J. KEATING LIMITED





THE BRUCE ANCHOR MARK 2

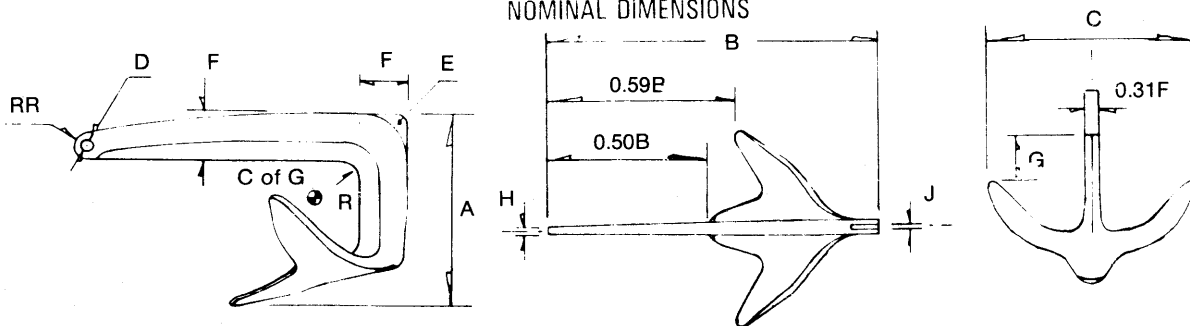
ANCHOR OPERATION

The Bruce anchor self-orientates to an upright attitude because of the action of the curved side extensions of the single fluke while engaging the sea bed soil. It rolls upright, irrespective of initial drop attitude, within two shank lengths after engaging the sea bed. This rolling action occurs at zero cable angle at the anchor shackle (long scope), or at any cable angle up to 30° (ultra short scope), whereupon complete burial proceeds in the usual manner.

The anchor has **ABSOLUTE ROLL STABILITY**, for the first time in the history of anchor design, due to the presence of stabilizing forces produced by the curved shape of the fluke while interacting with the sea bed soil: any disturbance of the anchor from the upright attitude causes a differential imbalance of these stabilizing forces which acts in opposition to the disturbance. **FULL VEERING CAPABILITY** through 360° is obtained as a consequence of the absolute roll stability: the anchor banks in the sea bed without breaking out and maintains its hold while veering. **HIGH HOLDING POWER** is obtained by the highly efficient fluke and shank design which combines maximum fluke area, optimum shank to fluke separation, minimum shank penetration resistance, and optimum fluke angle. **LOW BREAKOUT FORCE** is obtained due to the short

broad single fluke giving rise to small shear moments in the sea bed soil when the anchor is rotating upwards during weighing. Breakout force for the Bruce anchor is generally between 20 and 50 per cent of the prior holding pull compared with between 50 and 100 per cent for other anchors. **ULTRA SHORT SCOPE CAPABILITY** is obtained due to the centre of area of the fluke being located much nearer to the fore point of the fluke than is possible in other designs of anchors. The Bruce anchor will bury into the sea bed with the cable at an angle of up to 30° at the anchor shackle compared with a maximum of between 10° and 15° for other anchors. **HIGH ROCK HOOKING CAPABILITY** is furnished by the three points of the fluke which enable the anchor to nip as well as the Common or Fisherman type anchor on rocky beds. The advantage of **NO MOVING PARTS** to clog or jam arises from the one-piece construction of heat-treated cast steel which gives the Bruce anchor strength in excess of any other patent anchor of similar weight. Finally, **EASE OF STOWAGE** and handling arises due to the anchor being both **STOCKLESS** (by virtue of its inherent absolute roll stability rendering a stock unnecessary) and very compact for a given weight and performance.

NOMINAL DIMENSIONS



Nominal weight kg	A m	B m	C m	D dia mm	E dia mm	F mm	G mm	H mm	J mm	R mm	RR mm
600	1.13	2.02	1.37	46	34	298	289	56	40	171	61
1000	1.34	2.40	1.63	54	46	353	342	64	53	201	72
2000	1.69	3.03	2.05	66	54	444	431	84	61	256	91
3000	1.93	3.46	2.35	75	60	508	493	92	70	292	105
6500	2.53	4.53	3.07	100	75	666	646	125	92	380	137
9000	2.79	5.00	3.38	117	75	734	712	140	92	419	151

Note: Existing bolster bars readily accommodate the Bruce anchor if their diameter is greater than 1.03 times dimension G. Geometrical data can be supplied on request to assist in the design of bolster bars for new vessels or conversions.

Other Sizes Geometrically to Scale

In the interest of continuous product improvement rights are reserved to change specifications and recommendations without notice.



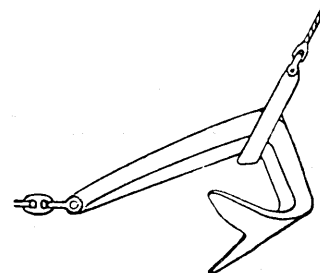
The Bruce Anchor Mark 2

Materials, Lugs, Shackles

Anchor Material		Heat-treated cast alloy steel to BS3100 BT1						
Anchor Size		lb kg	1,320 600	2,205 1,000	4,409 2,000	6,614 3,000	14,331 6,500	19,843 9,000
Recommended Front Bow Shackle	Safe Working Load	tons	17	25	35	50	100	130
	Pin Diameter	ins	1 1/4	2	2 1/4	2 1/2	3 1/4	4 1/4
		mm	44	51	57	73	98	111
	Body Diameter	ins	1 1/2	1 3/4	2	2 1/4	3 1/4	4
		mm	38	44	51	64	89	102
	Minimum Breaking Load	tons	102	150	210	300	500	650
Recommended Rear Bow Shackle	Safe Working Load	tons	9 1/2	17	25	35	50	50
	Pin Diameter	ins	1 1/4	1 5/8	2	2 1/4	2 1/2	2 3/4
		mm	32	44	51	57	73	73
	Body Diameter	ins	1 1/8	1 1/2	1 3/4	2	2 1/4	2 1/2
		mm	29	33	44	51	64	64
	Minimum Breaking Load	tons	57	102	150	210	300	300
Anchor Front Lug	Calculated minimum yield load of lug for recommended shackle	lb	297,913	425,000	731,000	906,167	1,710,000	2,014,169
		kg	135,415	192,779	331,579	411,035	775,651	913,621
Anchor Rear Lug	Calculated minimum yield load of lug for recommended shackle	lb	183,348	300,000	500,000	676,707	1,004,000	1,004,000
		kg	83,340	136,079	226,799	306,952	455,411	455,411
Anchor Shank Strength	Allowable fluke loading in sand without exceeding yield stress (500MN/m ²) in shank	lb	177,012	229,000	363,000	476,000	815,000	990,000
		kg	80,460	103,874	164,656	215,912	369,682	449,061

CHASING:

The Bruce anchor is recognised as the ideal anchor design for chasing applications. Its fluke to shank separation eliminates any possibility of chaser jamming while its centre of gravity ensures an easy transfer from the semi-submersible's anchor rack due to the natural tendency of the anchor to tip forwards during this procedure. For the same reason, anchor lifting during retrieval is easy and the risk of the chaser slipping off the anchor, and picking up a bight of chain or mooring cable, is eliminated.

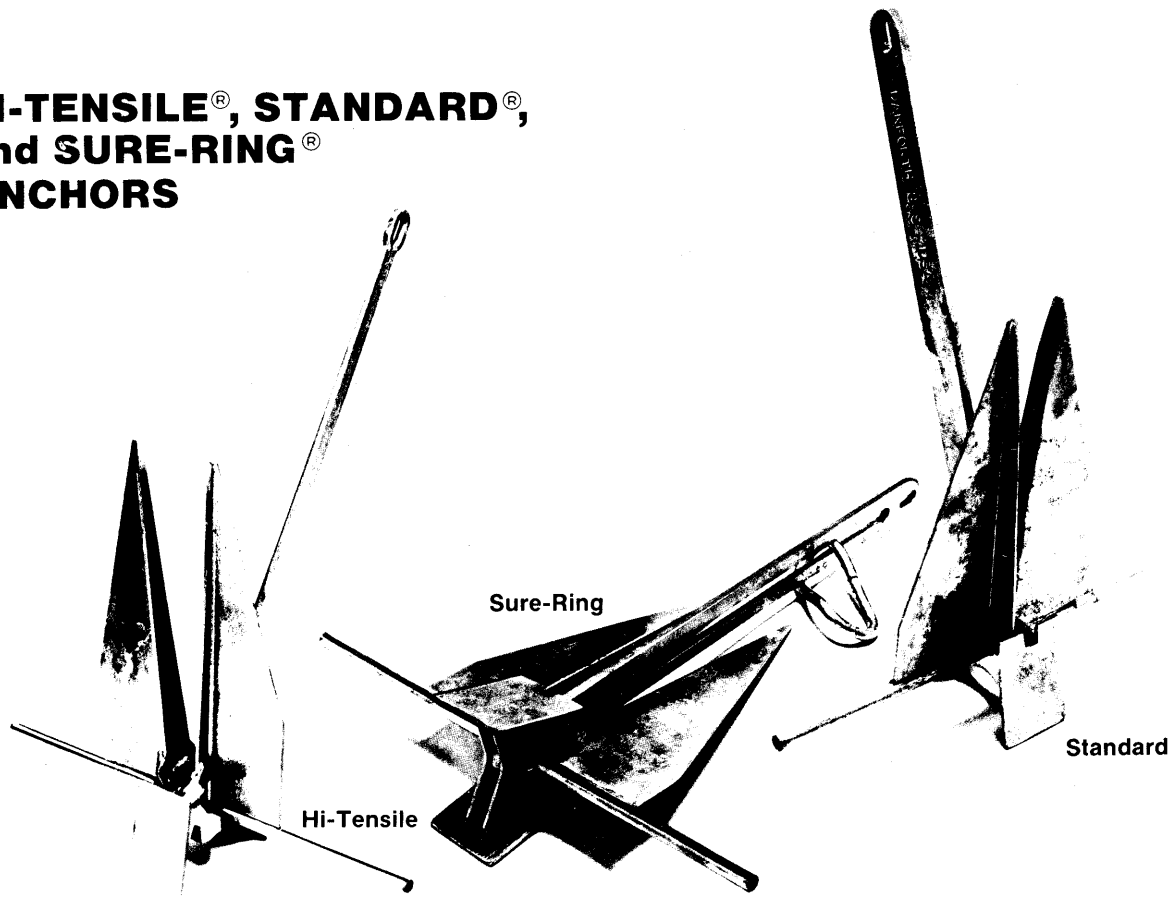




W.J. KEATING LIMITED

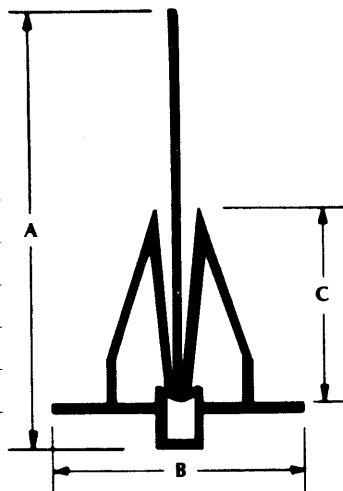
SMALL BOAT ANCHORS

**HI-TENSILE®, STANDARD®,
and SURE-RING®
ANCHORS**



Dimensions

	ANCHOR SIZE	A ANCHOR LENGTH	B STOCK LENGTH	C FLUKE LENGTH
079-2397	5-H	21½" 54½ cm.	16½" 42 cm.	11¼" 30 cm.
079-2404	*12-H	28¼" 72 cm.	21½" 54½ cm.	15½" 39½ cm.
079-2422	20-H	35" 89 cm.	26¾" 68 cm.	19" 48½ cm.
079-2440	35-H	40¾" 103½ cm.	31" 78½ cm.	22" 56 cm.
079-2468	60-H	50" 127 cm.	38" 96½ cm.	27" 68½ cm.
079-2486	90-H	54" 137 cm.	41" 104 cm.	29¼" 74½ cm.
079-2413	150-H	57¼" 145½ cm.	43½" 110½ cm.	30¾" 78 cm.
079-2431	190-H	61" 155 cm.	46" 117 cm.	32½" 82½ cm.



Standard and Sure-Ring Dimensions Size designates approximate weight.

	ANCHOR SIZE	A ANCHOR LENGTH	B STOCK LENGTH	C FLUKE LENGTH
079-2832	2½-S	17¼" 44 cm.	13" 33 cm.	9" 23 cm.
079-2459	4-S	19½" 49½ cm.	14¾" 37½ cm.	10½" 26½ cm.
079-2477	4-SR	24"	18¼"	12¾"
079-2495	*8-S	24"	18¼"	12¾"
079-2798	*9-SR	61 cm.	46½ cm.	32½ cm.
079-2805	13-S	28¼"	21½"	15¼"
079-2823	16-SR	72 cm.	54½ cm.	38½ cm.
079-2841	22-S	35" 89 cm.	26¾" 68 cm.	19" 48½ cm.
079-2869	40-S	40¾" 103½ cm.	31" 78½ cm.	22" 56 cm.
079-2887	65-S	50" 127 cm.	38" 96½ cm.	26½" 67½ cm.
079-2814	85-S	54" 137 cm.	41" 104 cm.	28½" 72½ cm.



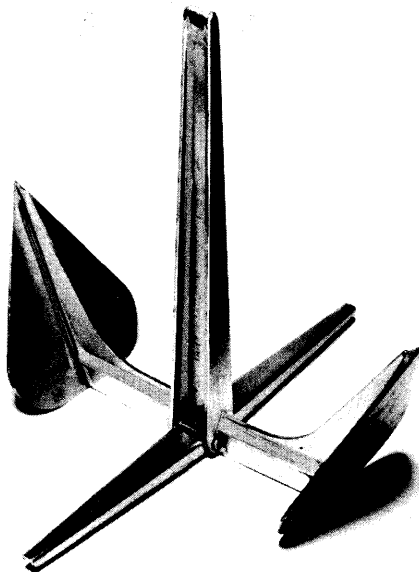
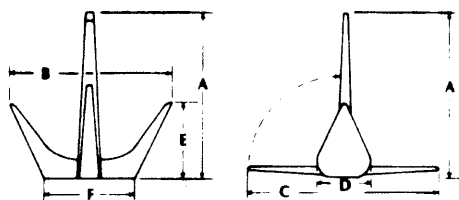
W.J. KEATING LIMITED

UTILITY ANCHORS

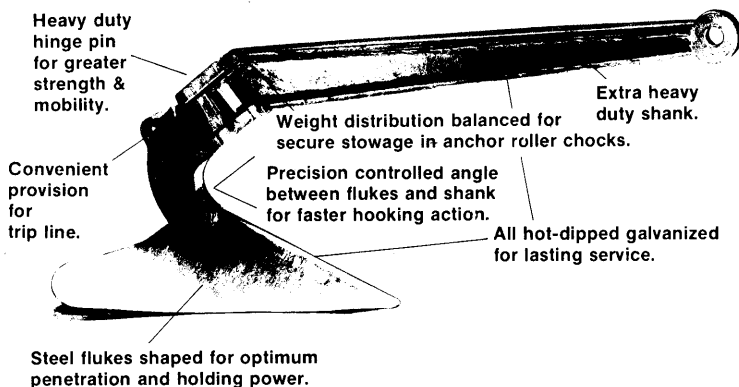
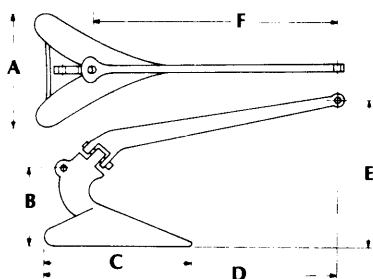
NORTHILL TYPE

Dimensions

Anchor Number	A	B	C	D	E	F	Part No.
6U	19 $\frac{7}{8}$ "	16 $\frac{1}{2}$ "	22"	6 $\frac{7}{8}$ "	7 $\frac{1}{8}$ "	8 $\frac{5}{8}$ "	079-2850
• 12U	22"	22 $\frac{3}{4}$ "	24"	8 $\frac{5}{8}$ "	9 $\frac{5}{8}$ "	13 $\frac{3}{8}$ "	079-2878
20U	26 $\frac{1}{2}$ "	26 $\frac{1}{2}$ "	32 $\frac{1}{4}$ "	10"	11 $\frac{1}{4}$ "	15 $\frac{1}{2}$ "	079-2896
30U	34 $\frac{3}{8}$ "	30 $\frac{1}{2}$ "	39 $\frac{1}{4}$ "	11 $\frac{7}{8}$ "	13 $\frac{5}{8}$ "	16 $\frac{3}{4}$ "	079-3190
50U	37 $\frac{1}{2}$ "	35"	43 $\frac{3}{4}$ "	13 $\frac{7}{8}$ "	16"	19 $\frac{1}{2}$ "	079-3207
80U	46 $\frac{3}{8}$ "	39 $\frac{5}{8}$ "	50"	15 $\frac{3}{8}$ "	17 $\frac{1}{8}$ "	23 $\frac{1}{8}$ "	079-3225
100U	49 $\frac{1}{2}$ "	42"	52 $\frac{1}{2}$ "	17"	18 $\frac{3}{4}$ "	24"	079-3243



PLOW ANCHORS

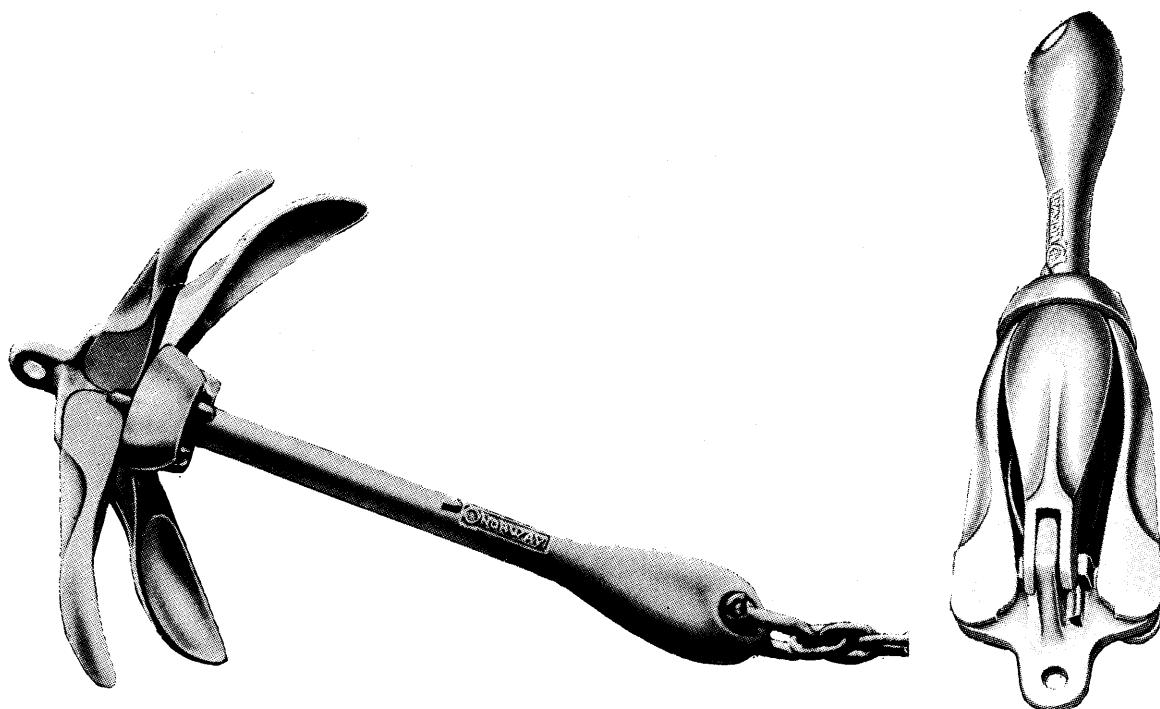


Part No.	Size (Approximate weight. lbs.) _A		Dimensions				
			B	C	D	E	F
079-3261	25	12" 30½ cm.	7¾" 19¾ cm.	16¼" 41¼ cm.	32" 81¼ cm.	12" 30½ cm.	23⅛" 60½ cm.
079-3289	35	13½" 34¼ cm.	7¾" 19¾ cm.	18¼" 46¼ cm.	34¼" 87 cm.	18" 45¼ cm.	27" 68⅛ cm.
079-3216	45	14½" 36½ cm.	10" 25½ cm.	20¼" 51½ cm.	39" 99 cm.	17" 43¼ cm.	27¼" 70½ cm.
079-3234	60	15½" 40 cm.	10½" 26¼ cm.	22½" 57¼ cm.	41¼" 104¼ cm.	17½" 44½ cm.	30¾" 76⅜ cm.



W.J. KEATING LIMITED

NORWAY FOLDING ANCHOR



The new design gives a better grip in sand. Because of a higher centre of gravity the anchor will quickly settle in correct position, and the new shape of the flukes will ensure a better grip.

SAV Folding Anchor takes a minimum of space to store, and has no sharp edges that can cause damage to deck and topsides.

10 SIZES

New design		Weight		Dimensions in inches	
		Kg.	lbs.	A	B
		0.75	1.7	7 1/4"	6 1/16"
		1.5	3.4	11 7/8"	11 7/16"
		2.5	5.5	14 1/16"	12 9/16"
		3.2	7	15 15/16"	14 3/16"
		4	9	17 11/16"	15 3/4"
		6	13	21 7/16"	19 1/16"
		8	18	22 7/16"	21"
		10	22	25 13/16"	24"
		12	26	27 9/16"	25 1/4"
		13.5	30	27 9/16"	25 1/4"



THE AWARD WINNING BRUCE ANCHOR

ANCHOR OPERATION

The Bruce anchor self-orientates to an upright attitude because of the action of the curved side extensions of the single fluke while engaging the sea bed soil. It rolls upright, irrespective of initial drop attitude, within two shank lengths after engaging the sea bed. This rolling action occurs at zero cable angle at the anchor shackle (long scope), or at any cable angle up to 30° (ultra short scope), whereupon complete burial proceeds in the usual manner.

The anchor has **ABSOLUTE ROLL STABILITY**, for the first time in the history of anchor design, due to the presence of stabilizing forces produced by the curved shape of the fluke while interacting with the sea bed soil: any disturbance of the anchor from the upright attitude causes a differential imbalance of these stabilizing forces which acts in opposition to the disturbance. **FULL VEERING CAPABILITY** through 360° is obtained as a consequence of the absolute roll stability: the anchor banks in the sea bed without breaking out and maintains its hold while veering. **HIGH HOLDING POWER** is obtained by the highly efficient fluke and shank design which combines maximum fluke area, optimum shank to fluke separation, minimum shank penetration resistance, and optimum fluke angle.

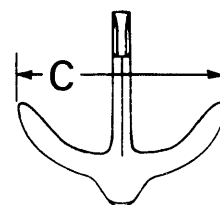
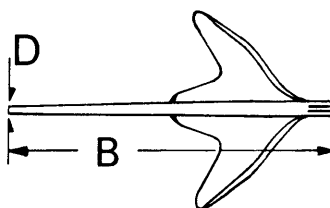
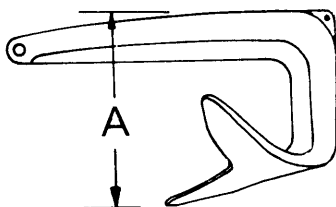
LOW BREAKOUT FORCE results from the short broad single fluke giving rise to small shear moments in the sea bed soil when the anchor is rotating upwards during weighing. Breakout force for the Bruce anchor is generally 20 per cent of the prior holding pull.

ULTRA SHORT SCOPE CAPABILITY is obtained due to the centre of area of the fluke being located much nearer to the fore point of the fluke than is possible in other designs of anchor. The Bruce anchor will bury into the sea bed with the cable at an angle of up to 30° at the anchor shackle compared with a maximum of between 10° and 15° for other anchors.

HIGH ROCK HOOKING CAPABILITY is furnished by the three points of the fluke which enable the anchor to nip as well as the Common or Fisherman type anchor on rocky beds. The advantage of **NO MOVING PARTS** to clog or jam arises from the one-piece construction of heat-treated cast steel which gives the Bruce anchor strength in excess of any other patent anchor of similar weight. Finally, **EASE OF STOWAGE** and handling arises due to the anchor being both **STOCKLESS** (by virtue of its inherent absolute roll stability rendering a stock unnecessary) and very compact for a given weight and performance.

SUGGESTED ANCHOR AND RODE SIZES

Maximum Boat Dimensions					Anchor Weight		Recommended Rode			Alloy Steel Shackle			
Length O.A.		Beam		Power	kg	lb	Nylon Rope Dia.	Chain Dia.	Chafing Chain Length	Pin Dia.	Body Dia.	mm	ins
m	ft	m	ft	m									
2.8	9	1.3	4.3	1.4	4.6	1	2.2	6	0.24	5	4.9	6	0.24
4.6	15	2.0	6.6	2.2	7.2	2	4.4	9	0.31	5	0.20	2.0	6.6
7.0	23	2.7	8.9	2.9	9.5	5	11	10	0.39	6	0.24	2.6	8.5
9.2	30	3.2	10.5	3.4	11.2	7.5	16.5	12	0.47	7	0.28	3.0	9.8
10.8	35	3.5	11.5	3.9	12.8	10	22	14	0.55	8	0.31	3.2	10.5
12.2	40	3.8	12.5	4.2	13.8	15	33	16	0.63	9	0.35	3.7	12.1
14.3	47	4.2	13.8	4.7	15.4	20	44	18	0.71	10	0.39	4.0	13.1
19.2	63	5.1	16.7	5.6	18.4	30	66	22	0.87	12	0.47	4.5	14.8
28	92	6.1	20.0	7.3	24	50	110	26	1.02	16	0.63	5.0	16.4



Manufactured of Heat-Treated Cast Steel to B.S. 3100A6

Type approved by Classification Societies as a general purpose high holding power anchor

NOMINAL DIMENSIONS

Nominal Weight		A		B		C		D	
kg	lb	mm	ins	mm	ins	mm	ins	mm	ins
1	2.2	148	5.8	296	11.7	199	7.8	5.9	0.23
2	4.4	183	7.2	362	14.3	246	9.7	7.8	0.31
5	11	240	9.4	469	18.4	315	12.4	10.8	0.43
7.5	16.5	273	10.8	531	20.9	361	14.2	12	0.47
10	22	292	11.5	583	23.0	385	15.2	12	0.47
15	33	342	13.5	655	25.8	433	17.0	13.4	0.53
20	44	372	14.6	701	27.6	458	18.0	18.6	0.73
30	66	415	16.3	790	31.1	520	20.5	18.6	0.73
50	110	510	20.1	948	37.3	598	23.5	22	0.87