

Proof & Breaking Loads

$$\text{LOAD (in kN)} = c \times d^2 \times (44 - 0.08 \times d) \quad (d \text{ in mm})$$

$$\text{MASS (in kg/m)} = 0.0219 \times d^2 \quad (d \text{ in mm})$$

Due to the application of different rounding off principles at calculation of loads, individual classification societies show slightly different load values in their tables for vessels. The table below for vessels is based on the table established by the international association of classification societies (IACS).

Diameter of Chain		Anchor Chain for Vessel				Offshore Mooring Chain						No. of Links per 27.5m	Approx Mass (Weight)	
		Grade 2		Grade 3		ORQ, RQ3		NV K3 RIG		NV K4 RIG, RQ4				
		IACS				API, ABS		DNV		DNV, ABS				
		Proof Test Load	Break Test Load	Proof Test Load	Break Test Load	Proof Test Load	Break Test Load	Proof Test Load	Break Test Load	Proof Test Load	Break Test Load			
		0.0098	0.0137	0.0137	0.0196	0.014	0.0211	0.0148	0.0211	0.0216	0.0274			
in.	mm	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	Links	per m	per 27.6m
13/16	20.5	175	244	244	349	249	376	-	-	-	-	331	9.2	253
7/8	22	200	280	280	401	286	431	-	-	-	-	309	10.6	292
15/16	24	237	332	332	476	339	511	-	-	-	-	283	12.6	347
1	26	278	389	389	556	397	598	-	-	-	-	261	14.8	407
1.1/8	28	321	449	449	642	458	691	-	-	-	-	243	17.2	473
1.3/16	30	368	514	514	735	524	790	-	-	-	-	225	19.7	542
1.1/4	32	417	583	583	833	594	895	-	-	-	-	211	22.4	616
1.5/16	34	468	655	655	937	668	1007	-	-	-	-	199	25.3	696
1.7/16	36	523	732	732	1050	746	1124	-	-	-	-	189	28.4	781
1.1/2	38	581	812	812	1160	828	1248	-	-	-	-	179	31.6	869
1.9/16	40	640	896	896	1280	914	1377	-	-	-	-	169	35	963
1.5/8	42	703	981	981	1400	999	1513	-	-	-	-	161	38.6	1062
1.3/4	44	769	1080	1080	1540	1097	1654	-	-	-	-	155	42.4	1166
1.13/16	46	837	1170	1170	1680	1194	1800	-	-	-	-	147	46.3	1273
1.7/8	48	908	1270	1270	1810	1295	1952	-	-	-	-	141	50.4	1386
2	50	981	1370	1370	1960	1400	2110	1480	2110	2160	2740	135	54.8	1507
2.1/16	52	1060	1480	1480	2110	1508	2273	1590	2270	2330	2960	131	59.2	1628
2.1/8	54	1140	1590	1590	2270	1620	2441	1710	2440	2500	3170	125	63.8	1755
2.3/16	56	1220	1710	1710	2430	1735	2615	1830	2610	2680	3400	121	68.7	1889
2.5/16	58	1290	1810	1810	2600	1854	2794	1960	2794	2860	3630	117	73.6	2024
2.3/8	60	1380	1940	1940	2770	1976	2978	2090	2978	3050	3870	113	78.8	2167
2.7/16	62	1470	2060	2060	2940	2101	3166	2220	3170	3240	4120	109	84.2	2316
2.1/2	64	1560	2190	2190	3130	2230	3360	2360	3360	3440	4370	105	89.7	2467
2.5/8	66	1660	2310	2310	3300	2361	3559	2500	3560	3640	4630	103	95.4	2624
2.11/16	68	1750	2450	2450	3500	2496	3762	2640	3760	3850	4890	99	101.3	2786
2.3/4	70	1840	2580	2580	3690	2634	3790	2780	3970	4060	5160	97	107.3	2951
2.7/8	73	1990	2790	2790	3990	2846	4291	3010	4290	4390	5580	93	116.7	3209
3	76	2150	3010	3010	4300	3066	4621	3240	4620	4730	6010	89	126.5	3479
3.1/16	78	2260	3160	3160	4500	3216	4847	3400	4850	4960	6300	87	133.2	3663
3.3/16	81	2410	3380	3380	4820	3446	5194	3640	5190	5320	6750	83	143.7	3952
3.5/16	84	2580	3610	3610	5160	3683	5550	3890	5550	5680	7220	81	154.5	4249
3.7/16	87	2750	3850	3850	5500	3924	5916	4150	5920	6060	7690	77	165.8	4560
3.9/16	90	2920	4090	4090	5840	4173	6289	4410	6290	6440	8180	75	177.4	4879
3.5/8	92	3040	4260	4260	6080	4342	6544	4590	6540	6700	8510	73	185.4	5099
3.3/4	95	3230	4510	4510	6440	4599	6932	4860	6930	7100	9010	71	197.6	5434
3.13/16	97	3340	4680	4680	6690	4774	7195	5040	7200	7370	9360	71	206.1	5668
3.15/16	100	3530	4940	4940	7060	5040	7596	5320	7600	7780	9880	67	219	6023

Quality ORQ + 20% has proof - and break - test - values 20% higher than the values for ORQ.

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		0.0098	0.0137	0.0137	0.0196	0.014	0.0211	0.0148	0.0211	0.0216	0.0274			
in.	mm	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	Links	per m	per 27.6m
4	102	3660	5120	5120	7320	5220	7868	5510	7870	8050	10230	67	227.8	6265
4.1/8	105	3850	5390	5390	7700	5495	8282	5800	8280	8480	10770	65	241.4	6639
4.3/16	107	3980	5570	5570	7960	5681	8561	6000	8560	8760	11130	63	250.7	6894
4.3/8	111	4250	5940	5940	8480	6058	9130	6400	9130	9350	11870	61	269.8	7420
4.1/2	114	4440	6230	6230	8890	6346	9565	6700	9570	9790	12440	59	284.6	7827
4.5/8	117	4650	6510	6510	9300	6639	10005	7000	10000	10240	13010	57	299.8	8245
4.3/4	120	4850	6810	6810	9720	6935	10452	7320	10450	10700	13590	57	315.4	8674
4.7/8	124	5140	7200	7200	10280	7336	11057	7750	11060	11320	14380	55	336.7	9259
5	127	5350	7490	7490	10710	7641	11516	8070	11520	11790	14980	53	353.2	9713
5.3/16	132	5720	8000	8000	11420	8157	12294	8610	12290	12590	15990	51	381.6	10494
5.3/8	137	6080	8510	8510	12160	8682	13085	9170	13090	13400	17020	49	411	11303
5.9/16	142	6450	9030	9030	12910	9214	13887	9730	13890	14220	18060	47	441.6	12144
5.3/4	147	6840	9560	9560	13660	9753	14700	10290	14700	15050	19120	47	473.2	13013
6	152	7220	10100	10100	14430	10299	15522	10870	15520	15890	20190	45	506	13915
6.3/16	157	7600	10640	10640	15200	10850	16352	11450	16350	16740	21270	43	539.8	14845
6.3/4	162	7990	11170	11170	15970	11405	17189	12040	17190	17500	22350	43	574.7	15800

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