Marine Foam Filled Fenders

Urethane Products Corporation

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Marine Guard™

The ultimate protection for ships, harbor crafts, docks, piers and wharves. Constructed with the latest design and material technology. Tough Marine Guard™ netless foam filled marine fenders provide a proven and quality solution in a high performance fendering system.

Features and advantages:

- High energy absorption and low reaction force
- Conforms to hull protrusions
- Tough, nylon filament reinforced polyurethane skin
- Remains fully functional even if skin is punctured

Marine Fenders

Urethane Products' Marine Guard™ and Marine Cushion™ fenders are constructed of a closed-cell, energy absorbing resilient foam core and a filament reinforced, tough polyurethane skin. Foam-filled fenders absorb 40% more energy than pneumatic type fenders of the same size. The fenders will not experience a catastrophic failure and will remain fully functional even if the skin is punctured

Marine Guard Specification Chart

Fenders		Standard Capacity				High Capacity				Extra High Capacity				Super High Capacity			
Size ENGLISH /METRIC		Energy Absorption		Reaction Force		Energy Absorption		Reaction Force		Energy Absorption		Reaction Force		Energy Absorption		Reaction Force	
ft x ft	m x m	ft - kips	ton -m	kips	ton s	ft - kips	ton -m	kips	ton s	ft - kips	ton -m	kips	ton s	ft - kips	ton -m	kips	ton s
2 x 4	0.6 x 1.2	11	2	20	9	14	2	26	12	21	3	38	17	29	4	52	24
2 x 6	0.6 x 1.8	18	3	33	15	23	3	43	20	34	5	63	29	47	7	86	39
2 x 8	0.6 x 2.4	25	4	47	21	33	5	61	28	48	7	89	40	65	9	122	55
2 x 10	0.6 x 3.0	32	4	60	27	42	6	78	35	61	8	114	52	83	11	156	71
3 x 5	0.9 x 1.5	31	4	45	20	40	6	59	27	59	8	86	39	81	11	117	53
3 x 6	0.9 x 1.8	39	5	48	22	51	7	62	28	74	10	91	41	101	14	125	57
3 x 8	0.9 x 2.4	55	8	68	31	72	10	88	40	105	15	129	59	143	20	177	80
3 x 10	0.9 x 3.0	71	10	88	40	92	13	114	52	135	19	167	76	185	26	229	104
3 x 12	0.9 x 3.7	87	12	108	49	113	16	140	64	165	23	205	93	226	31	281	127
3 x 14	0.9 x 4.3	103	14	128	58	134	19	166	75	196	27	243	110	268	37	333	151
4 x 6	1.2 x 1.8	60	8	56	26	78	11	73	33	114	16	106	48	156	22	146	66
4 x 8	1.2 x 2.4	89	12	83	38	116	16	108	49	169	23	158	72	231	32	216	98
4 x 10	1.2 x 3.0	118	16	111	50	153	21	144	65	224	31	211	96	307	42	289	131
4 x 12	1.2 x 3.7	146	20	136	62	190	26	177	80	277	38	258	117	380	53	354	161
4 x 16	1.2 x 4.9	203	28	189	86	264	37	246	112	386	53	359	163	528	73	491	223
4 x 20	1.2 x 6.1	260	36	242	110	338	47	315	143	494	68	460	209	676	93	629	285
5 x 8	1.5 x 2.4	135	18	100	45	176	24	130	59	257	36	190	86	351	49	260	118
5 x 10	1.5 x 3.0	180	25	134	61	234	32	174	79	342	47	255	116	468	65	348	158
5 x 12	1.5 x 3.7	225	31	167	75	293	41	217	98	428	59	317	144	585	81	434	197
5 x 14	1.5 x 4.3	269	37	200	91	350	48	260	118	511	71	380	172	699	97	520	236
5 x 16	1.5 x 4.9	313	43	233	106	407	56	303	137	595	82	443	201	814	113	606	275
5 x 18	1.5 x 5.5	357	49	266	121	464	64	346	157	678	94	505	229	928	128	692	314
6 x 12	1.8 x 3.7	300	41	186	84	390	54	242	110	570	79	353	160	780	108	484	220
6 x 14	1.8 x 4.3	364	50	225	102	473	65	293	133	692	96	428	194	946	131	585	265
6 x 16	1.8 x 4.9	427	59	265	120	555	77	345	156	811	112	504	229	1,110	154	689	313
6 x 18	1.8 x 5.5	491	68	305	138	638	88	397	180	933	129	580	263	1,277	177	793	360
6 x 20	1.8 x 6.1	554	77	344	156	720	100	447	203	1,053	146	654	297	1,440	199	894	406
7 x 14	2.1 x 4.3	487	67	259	117	633	88	337	153	925	128	492	223	1,266	175	673	305
7 x 16	2.1 x 4.9	574	79	305	138	746	103	397	180	1,091	151	580	263	1,492	206	793	360
7 x 18	2.1 x 5.5	660	91	351	159	858	119	456	207	1,254	173	667	303	1,716	237	913	414
7 x 20	2.1 x 6.1	747	103	397	180	971	134	516	234	1,419	196	754	342	1,942	269	1,032	468
7 x 22	2.1 x 6.7	833	115	443	201	1,083	150	576	261	1,583	219	842	382	2,166	300	1,152	523
8 x 14	2.4 x 4.3	619	85	288	130	805	111	374	170	1,176	163	547	248	1,609	223	749	340
8 x 16	2.4 x 4.9	733	101	341	155	953	132	443	201	1,393	193	648	294	1,906	264	887	402
8 x 18	2.4 x 5.5	847	117	394	179	1,101	152	512	232	1,609	223	749	340	2,202	305	1,024	464
8 x 20	2.4 x 6.1	961	133	447	203	1,249	173	581	264	1,826	253	849	385	2,499	346	1,162	527
8 x 22	2.4 x 6.7	1,075	149	500	227	1,398	193	650	295	2,043	283	950	431	2,795	387	1,300	590
9 x 16	2.7 x 4.9	890	123	368	167	1,157	160	478	217	1,691	234	699	317	2,314	320	957	434
9 x 18	2.7 x 5.5	1,032	143	427	194	1,342	186	555	252	1,961	271	811	368	2,683	371	1,110	503
9 x 20	2.7 x 6.1	1,175	163	486	220	1,528	211	632	287	2,233	309	923	419	3,055	423	1,264	573
9 x 22	2.7 x 6.7	1,318	182	545	247	1,713	237	709	322	2,504	346	1,036	470	3,427	474	1,417	643
10 x 16	3.0 x 4.9	1,081	150	402	182	1,405	194	523	237	2,054	284	764	347	2,811	389	1,045	474
10 x 18	3.0 x 5.5	1,258	174	468	212	1,635	226	608	276	2,390	331	889	403	3,271	452	1,217	552
10 x 20	3.0 x 6.1	1,435	198	534	242	1,866	258	694	315	2,727	377	1,015	460	3,731	516	1,388	630
10 x 22	3.0 x 6.7	1,612	223	600	272	2,096	290	780	354	3,063	424	1,140	517	4,191	580	1,560	708

Marine Foam Filled Fenders

Since 1976

Marine Cushion™

Marine Cushion Specification Chart

Fenders (size)		Standard Capacity			
English	Metric	Energy Absorption @ 60% Compression		Reaction Force @ 60% Compression	
ft x ft	m x m	ft - kips	ton - m	kips	tons
3 x 6	0.92 x 1.83	36	5	56	25.4
4 x 8	1.22 x 2.44	85	12	98	44
5 x 10	1.53 x 3.05	165	23	152	68
5 x 16	1.53 x 3.05	262	36	243	110
6 x 12	1.83 x 3.66	282	39	217	98.4
7 x 14	2.13 x 4.27	445	62	294	133
8 x 12	2.44 x 3.66	465	64	268	121
8 x 16	2.44 x 4.88	661	91	381	173
9 x 14	2.75 x 4.27	729	101	373	169
9 x 18	2.75 x 5.49	937	130	480	218
10 x 16	3.05 x 4.88	976	135	450	204
10 x 20	3.05 x 6.10	1,280	177	590	267
11 x 18	3.35 x 6.71	1,389	192	581	263
11 x 22	3.35 x 6.71	1,697	235	711	322
12 x 24	3.70 x 7.30	2,196	304	844	383
13 x 26	3.96 x 7.90	2,784	385	987	447
14 x 28	4.27 x 8.53	3,379	467	1,128	511

Marine Cushion ™
The ultimate protection for ship to ship and ship to dock applications, providing superior abrasion resistance under the harshest conditions. Marine Cushion™ netted foam filled marine fenders are constructed with the same proven quality as our Marine Guard™ netless foam filled marine fenders.

Unique features and advantages:

- Great for ship-to-ship lightering and dock fendering.
- Large Standoff distance
- High energy absorption
- Easy Installation
- Adjusts to water level
- Low maintenance
- Abrasion protection for rough surfaces
- Will not fail if skin is punctured

Monopile Donut Fenders

'Donut' style fenders are designed to float freely around a pile. This allows the fender to maintain the same attitude in the water even where extreme tidal fluctuations occur. The internal steel core of the fender is lined with plastic bearing pads, facilitating rotation of the fender around the pile. Used as a turning dolphin, these fenders can help 'guide' vessels in difficult berthing situations by rotating while under compression.

The closed-cell foam core and the deflection of the pile are the energy absorbing components of this fendering system.

Applications:

- Turning Dolphin
- Corner Protection
- Breasting Dolphin
- Bridge, pier protection
- Used where high tidal fluctuations occur
- Ferry terminals

Donut Fender Specification Chart

Donut Diameter Feet/meters	4.5/ 1.37		5.0/ 1.52		6.0/ 1.82		7.0/ 2.13		7.5/ 2.29		9.0/ 2.74	
Pile Diameter Feet/meters	2.0/ 0.61		2.5/ 0.76		3.0/ 0.91		3.5/ 1.06		4.0/ 1.22		5.0/ 1.52	
Performance Rating	Energy Absorption	Reaction Force	Energy Absorption	Reaction Force	Energy Absorption	Reaction Force	Energy Absorption	Reaction Force	Energy Absorption	Reaction Force	Energy Absorption	Reaction Force
Flat Height	Ft*kip (kN*m)	Kip (kN)	Ft*kip (kN*m)	Kip (kN)	Ft*kip (kN*m)	Kip (kN)	Ft*kip (kN*m)	Kip (kN)	Ft*kip (kN*m)	Kip (kN)	Ft*kip (kN*m)	Kip (kN)
2 ft./0.61 m	4 (5)	18 (80)	5 (7)	20 (89)	7 (9)	24 (107)	-	-	-	-	-	-
3 ft./ 0.91 m	6 (8)	27 (120)	7 (9)	29 (129)	11 (15)	36 (156)	15 (20)	41 (182)	17 (23)	44 (196)	24 (33)	53 (236)
4 ft./ 1.22m	8 (11)	35 (156)	10 (14)	39 (173)	14 (19)	47 (209)	19 (26)	55 (245)	22 (30)	59 (262)	32 (43)	71 (316)
5ft/ 1.52 m	10 (14)	44 (196)	12 (16)	49 (218)	18 (24)	59 (262)	24 (33)	69 (307)	28 (38)	74 (329)	40 (54)	88 (391)
6 ft./ 1.82 m	12 (16)	53 (236)	15 (20)	59 (262)	21 (28)	71 (316)	29 (39)	83 (369)	33 (45)	88 (391)	48 (65)	106 (471)
7 ft/ 2.13 m	14 (19)	63 (280)	17 (23)	69 (307)	25 (34)	83 (369)	34 (46)	96 (427)	39 (53)	103 (458)	56 (76)	124 (552)
8 ft/ 2.44 m	16 (22)	72 (320)	20 (27)	79 (351)	29 (39)	94 (418)	39 (53)	110 (489)	45 (61)	118 (525)	64 (87)	141 (627)

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