

FOAM FILLED FENDERS

LOW MAINTENANCE

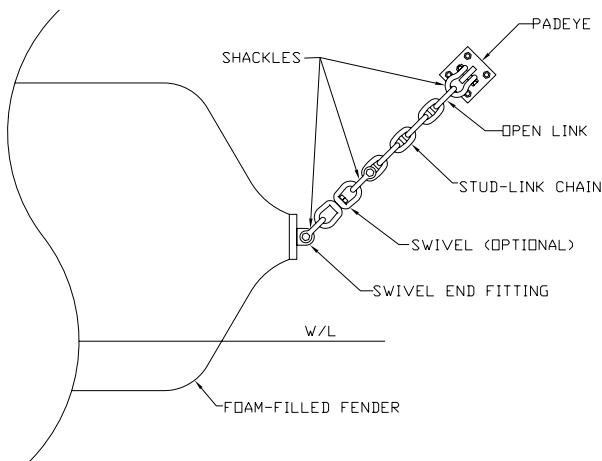
The design of the foam-filled Ocean Guard™ Netless Fender is highly resistant to environmental hazards such as extreme temperatures, hydrocarbons, fresh and salt water, ozone and ultraviolet radiation. The fender skin is even resistant to chemicals such as diesel fuels.

Additionally, since the internal construction consists of a solid heat laminated foam core, there is no need to maintain air pressure, inflation or relief valves, as with pneumatic fenders.



INSTALLATION

Ocean Guard™ Netless Fenders are designed for easy installation. Their buoyant construction allows the option of a floating installation. The unique end fittings and ultra heavy duty internal chain are also ideal for a fixed hanging installation. Both installations can include a 2-point and 4-point mounting arrangement. Typical mounting hardware includes dock plate padeyes, anchor bolts, shackles, swivels and stud link chain.



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CONSTRUCTION FEATURES

FOAM CORE

Construction begins with a resilient energy absorbing closed cell cross-linked polyethylene foam core which is heat laminated into one piece solid foam core. This heat lamination process produces a thermal bond between the layers of foam which is stronger than the foam itself, which, will not delaminate even under the most abusive berthing conditions. This ensures that the foam core construction of the fender will provide years of quality service and performance.

Because of this foam core, if punctured the fender will not experience a catastrophic failure as would pneumatic fenders.

REINFORCED ELASTOMERIC SKIN

The energy absorbing foam core is protected by a tough thick filament nylon tire cord reinforced elastomer skin. This non-marking reinforced elastomer fender skin is the wear surface of the fender. The reinforcing filaments are continuously wound in a helix pattern through up to 90% of the elastomer skin and wrap around the fender swivel end fitting housings on each end of the fender. This continuous reinforcement of the elastomer skin not only increases the tensile and tear strength of the elastomer but also distributes loads through the fender skin.

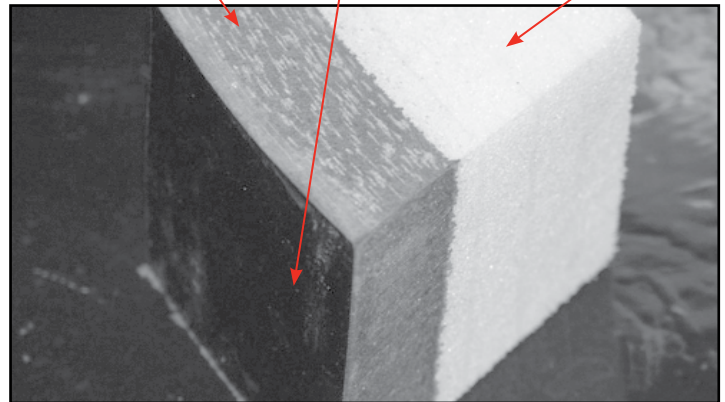
Our elastomer skin exemplifies the latest in urethane technology. This tough resilient material is specially formulated to withstand the worlds harshest environment conditions providing superior performance in extreme temperatures, toxic environments, against hydrocarbons, salt water, ozone, and ultraviolet radiation. Its smooth sleek construction is not prone to snagging on dock or hull protrusions.

URETHANE SKIN AND ENERGY ABSORBING FOAM CORE CONSTRUCTION

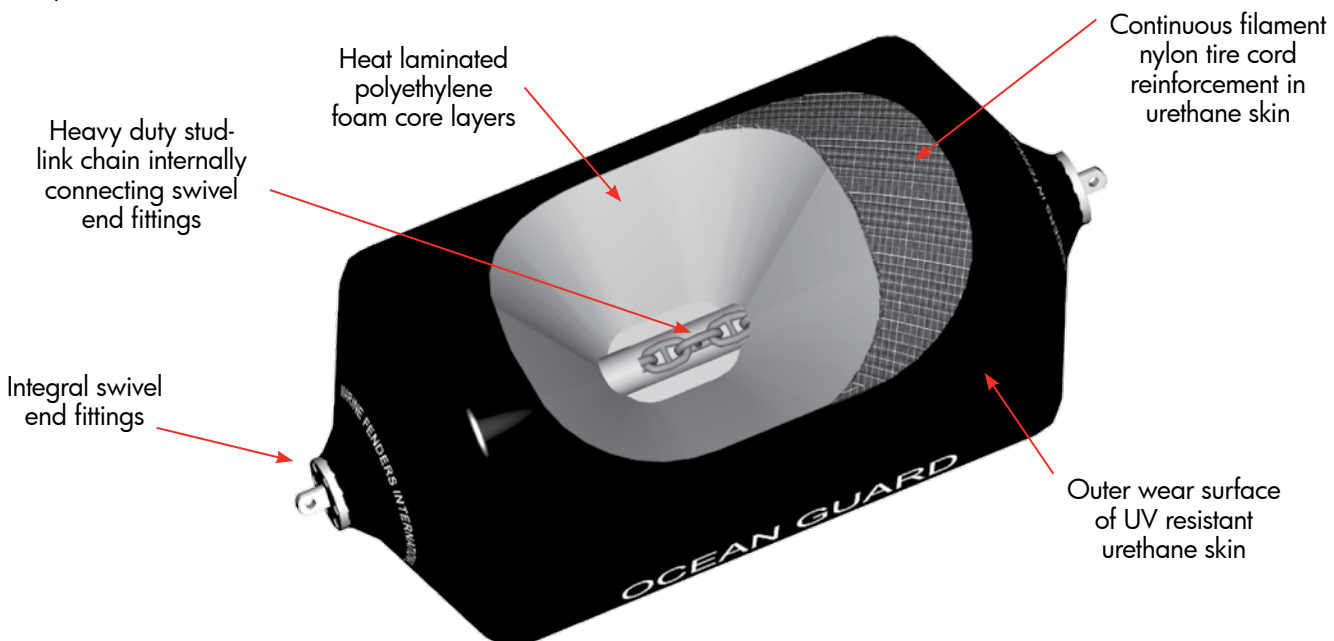
Continuous filament nylon tire cord reinforcement in urethane skin

Outer wear surface of UV resistant urethane skin

Heat laminated polyethylene foam core layers



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OCEAN GUARD™ NETLESS

FENDERS		LOW REACTION				ENHANCED CAPACITY				STANDARD CAPACITY				ADVANCED CAPACITY				HIGH CAPACITY							
SIZE		ENERGY ABSORPTION		REACTION FORCE		ENERGY ABSORPTION		REACTION FORCE		ENERGY ABSORPTION		REACTION FORCE		ENERGY ABSORPTION		REACTION FORCE		ENERGY ABSORPTION		REACTION FORCE					
ENGLISH	METRIC	FT-KIPS		TON-M		KIPS		TONS		FT-KIPS		TON-M		KIPS		TONS		FT-KIPS		TON-M		KIPS		TONS	
FT X FT	M X M	FT-KIPS	TON-M	KIPS	TONS	FT-KIPS	TON-M	KIPS	TONS	FT-KIPS	TON-M	KIPS	TONS	FT-KIPS	TON-M	KIPS	TONS	FT-KIPS	TON-M	KIPS	TONS	FT-KIPS	TON-M	KIPS	TONS
2 x 4	0.6 x 1.2	7	1	12	5	9	1	16	7	11	2	20	9	13	2	23	10	14	2	26	12				
2 x 6	0.6 x 1.8	11	2	20	9	14	2	26	12	18	3	33	15	21	3	38	17	23	3	43	20				
2 x 8	0.6 x 2.4	15	2	28	13	20	3	38	17	25	4	47	21	29	4	54	24	33	5	61	28				
2 x 10	0.6 x 3.0	19	3	36	16	26	4	48	22	32	4	60	27	37	5	69	31	42	6	78	35				
3 x 5	0.9 x 1.5	19	3	27	12	25	3	36	16	31	4	45	20	36	5	52	23	40	6	59	27				
3 x 6	0.9 x 1.8	23	3	29	13	31	4	38	18	39	5	48	22	45	6	55	25	51	7	62	28				
3 x 8	0.9 x 2.4	33	5	41	19	44	6	54	25	55	8	68	31	63	9	78	36	72	10	88	40				
3 x 10	0.9 x 3.0	43	6	53	24	57	8	70	32	71	10	88	40	82	11	101	46	92	13	114	52				
3 x 12	0.9 x 3.7	52	7	65	29	70	10	86	39	87	12	108	49	100	14	124	56	113	16	140	64				
3 x 14	0.9 x 4.3	62	8	77	35	82	11	102	46	103	14	128	58	118	16	147	67	134	19	166	75				
4 x 6	1.2 x 1.8	36	5	34	16	48	7	45	21	60	8	56	26	69	10	64	30	78	11	73	33				
4 x 8	1.2 x 2.4	53	7	50	23	71	10	66	30	89	12	83	38	102	14	95	44	116	16	108	49				
4 x 10	1.2 x 3.0	71	10	67	30	94	13	89	40	118	16	111	50	136	18	128	58	153	21	144	65				
4 x 12	1.2 x 3.7	88	12	82	37	117	16	109	50	146	20	136	62	168	23	156	71	190	26	177	80				
4 x 16	1.2 x 4.9	122	17	113	52	162	22	151	69	203	28	189	86	233	32	217	99	264	37	246	112				
4 x 20	1.2 x 6.1	156	22	145	66	208	29	194	88	260	36	242	110	299	41	278	127	338	47	315	143				
5 x 8	1.5 x 2.4	81	11	60	27	108	14	80	36	135	18	100	45	155	21	115	52	176	24	130	59				
5 x 10	1.5 x 3.0	108	15	80	37	144	20	107	49	180	25	134	61	207	29	154	70	234	32	174	79				
5 x 12	1.5 x 3.7	135	19	100	45	180	25	134	60	225	31	167	75	259	36	192	86	293	41	217	98				
5 x 14	1.5 x 4.3	161	22	120	55	215	30	160	73	269	37	200	91	309	43	230	105	350	48	260	118				
5 x 16	1.5 x 4.9	188	26	140	64	250	34	186	85	313	43	233	106	360	49	268	122	407	56	303	137				
5 x 18	1.5 x 5.5	214	29	160	73	286	39	213	97	357	49	266	121	411	56	306	139	464	64	346	157				
6 x 12	1.8 x 3.7	180	25	112	50	240	33	149	67	300	41	186	84	345	47	214	97	390	54	242	110				
6 x 14	1.8 x 4.3	218	30	135	61	291	40	180	82	364	50	225	102	419	58	259	117	473	65	293	133				
6 x 16	1.8 x 4.9	256	35	159	72	342	47	212	96	427	59	265	120	491	68	305	138	555	77	345	156				
6 x 18	1.8 x 5.5	295	41	183	83	393	54	244	110	491	68	305	138	565	79	351	159	638	88	397	180				
6 x 20	1.8 x 6.1	332	46	206	94	443	62	275	125	554	77	344	156	637	89	396	179	720	100	447	203				
7 x 14	2.1 x 4.3	292	40	155	70	390	54	207	94	487	67	259	117	560	77	298	135	633	88	337	153				
7 x 16	2.1 x 4.9	344	47	183	83	459	63	244	110	574	79	305	138	660	91	351	159	746	103	397	180				
7 x 18	2.1 x 5.5	396	55	211	95	528	73	281	127	660	91	351	159	759	105	404	183	858	119	456	207				
7 x 20	2.1 x 6.1	448	62	238	108	598	82	318	144	744	103	397	180	859	118	457	207	971	134	516	234				
7 x 22	2.1 x 6.7	500	69	266	121	666	92	354	161	833	115	443	201	958	132	509	231	1083	150	576	261				
8 x 12	2.4 x 3.7	319	44	148	67	425	58	197	89	531	73	246	111	611	84	283	128	690	95	320	145				
8 x 14	2.4 x 4.3	371	51	173	78	495	68	230	104	619	85	288	130	712	98	331	150	805	111	374	170				
8 x 16	2.4 x 4.9	440	61	205	93	586	81	273	124	733	101	341	155	843	116	392	178	953	132	443	201				
8 x 18	2.4 x 5.5	508	70	236	107	678	94	315	143	847	117	394	179	974	135	453	206	1101	152	512	232				
8 x 20	2.4 x 6.1	577	80	268	122	769	106	358	162	961	133	447	203	1105	153	514	233	1249	173	581	264				
8 x 22	2.4 x 6.7	645	89	300	136	860	119	400	182	1075	149	50	227	1236	171	575	261	1398	193	650	295				
9 x 14	2.7 x 4.3	467	65	193	88	623	86	258	117	779	108	322	146	896	124	370	168	1012	140	418	190				
9 x 16	2.7 x 4.9	534	74	221	100	712	98	294	134	890	123	368	167	1024	141	423	192	1157	160	478	217				
9 x 18	2.7 x 5.5	619	86	256	116	826	114	342	155	1032	143	427	194	1187	164	491	223	1342	186	555	252				
9 x 20	2.7 x 6.1	705	98	292	132	940	130	389	176	1175	163	486	220	1351	187	559	252	1528	211	632	287				
9 x 22	2.7 x 6.7	791	109	327	148	1054	146	436	198	1318	182	545	247	1516	209	627	284	1713	237	709	322				
10 x 16	3.0 x 4.9	649	90	241	109	865	120	322	146	1081	150	402	182	1243	173	462	209	1405	194	523	237				
10 x 18	3.0 x 5.5	755	104	281	127	1006	139	374	170	1258	174	468	212	1447	200	538	244	1635	226	608	276				
10 x 20	3.0 x 6.1	861	119	320	145	1148	158	427	194	1435	198	534	242	1650	228	614	278	1866	258	694	315				
10 x 22	3.0 x 6.7	967	134	360	163	1290	178	480	218	1612	223	600	272	1854	256	690	313	2096	290	780	354				
10 x 24	3.0 x 7.3	1087	150	404	184	1449	200	539	245	1811	250	674	306	2083	288	775	352	2286	316	850	386				
11 x 18	3.4 x 5.5	889	131	301	159	1186	175	401	212	1482	219	501	265	1704	252	576	305	1927	267	651	295				
11 x 20	3.4 x 6.1	1018	145	344	167	1657	193	458	223	1696	241	573	279	1950	277	659	321	2141	296	745	338				
11 x 22	3.4 x 6.7	1146	158	388	176	1528	211	517	234	1910	264	646	293	2197	304	743	337	2483	343	840	381				
11 x 24	3.4 x 7.3	1250	173	422	191	1666	230	563	255	2083	288	704	319	2395	331	810	367	2709	375	916	415				
12 x 20	3.7 x 6.1	1298	179	425	193	1730	239	566	257	2163	299	708	321	2487	344	814	369	2812	389	920	417				
12 x 24	3.7 x 7.3	1557	215	510	231	2076	286	680	308	2595	358	850	385	2984	412	978	443	3374	467	1105	501				
13 x 26	4.0 x 7.9	1944	269	591	268	2592	358	788	358	3240	448	985	447	3726	515	1133	514	4212	583	1281	581				
14 x 28	4.3 x 8.5	2400	332	678	308	3200	442	904	410	4000	553	1130	513	4600	636	1300	590	5200	719	1469	665				

* Actual values for above sizes may vary +/- 15% due to variations in materials, speed of compression, temperatures and tolerances. Performance based on 60% compression.

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