TEKMARINE

Marine Fenders

About TekMarine

From its base in the United States, TekMarine Systems LLC designs and supplies advanced marine fendering and mooring systems to ports, harbors and waterways across the world.

We bring a wealth of engineering and market experience to each project. Our fender solutions range from simple modules to the most sophisticated engineered systems. We supply every type of berth, including passenger terminals, bulk and RoRo ports, Oil and Gas installations and naval facilities.

We offer full support at each step from early concept discussions through to design and detailing, material selection, construction, testing, shipping, and installation. A full after-care service helps keep your investment working safely and reliably for many years after commission.

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Foam Fender Technology

The same advanced materials technology goes into every TekMarine foam fender and buoy. A filament-reinforced outer layer shields the closed-cell polyethylene foam core. While the fender's skin shrugs off wear and tear, the foam provides buoyancy and absorbs berthing energy.

Foam grades

With grades from Standard to Ultra High Capacity, you can select a fender for any application. Softer grades provide a gentler reaction, while stiffer grades can cope with much higher impact energies.

Durable skin

The polyurethane elastomer skin provides a highly durable, non-marking surface. It is available in a wide choice of colors.

Reinforcement

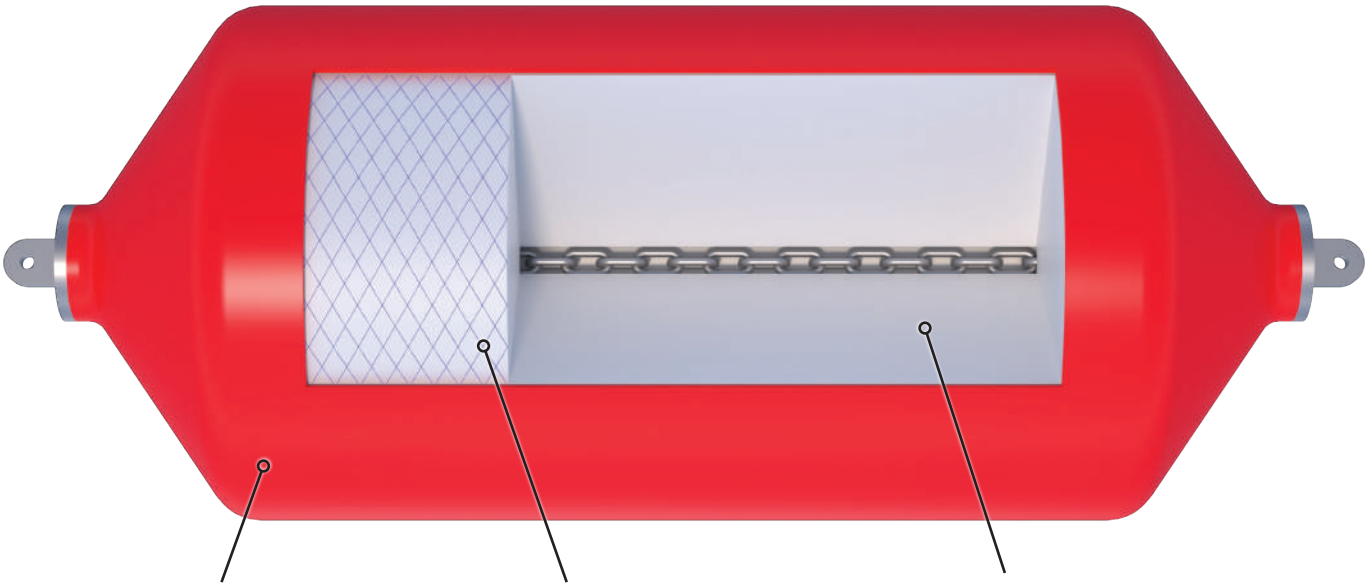
Each reinforcing filament is wound at a precise angle and tension into the elastomer skin, forming a multi-directional, many layered "net" that distributes stresses across the fender during impact.

Buoyancy

The fully protected, closed-cell foam construction limits water ingress even if the tough outer layer is punctured. In the unlikely event of severe damage the fender will stay afloat until repairs can be made.

Long life

Every TekGuard fender should work reliably for many years. If the fender does suffer damage during extreme weather or a difficult berthing maneuver, it can be returned to the factory for refurbishment and then redeployed.



Polyurethane elastomer skin

Property	Requirement
Hardness	75–95 Shore A
Tensile strength	>13.8 MPa
Elongation at break	>350%
Tear strength	>32 kN/m
Working life	>10000 cycles
Abrasion resistance	>100 NBS

Reinforcing filament

Property	Requirement
Size of filament	2520 denier
Tensile strength	>230 N
Elongation at break	>16%
Winding angle	45–60°
Spacing	<4 mm

Polyethylene foam core

Property	Requirement
Density	58–70 kg/m³
Tensile strength	>414 kPa
Elongation at break	>140%
Water absorption	<1kg/m² of cut surface
Compressive strength	>140 kN/m² (at 50%)
Working temperature	–30 to +70°C

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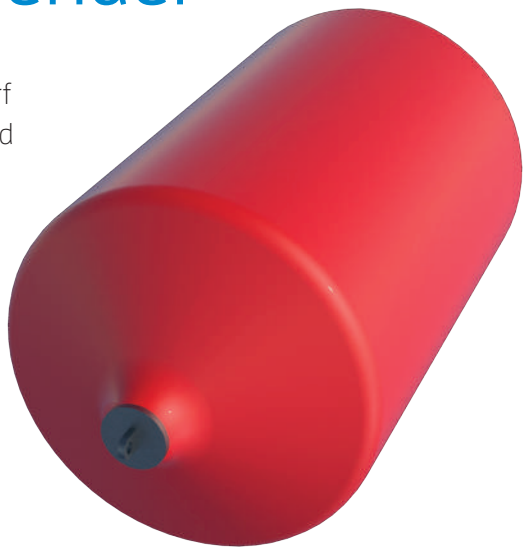
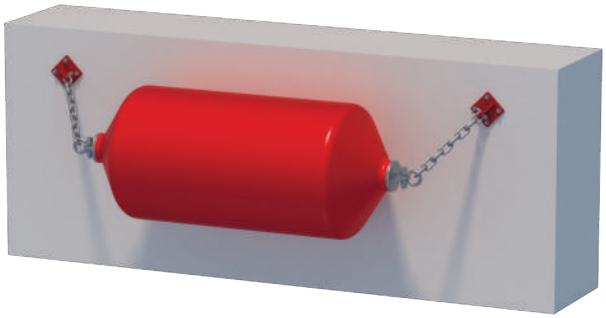
TJPF TekGuard Foam Fender



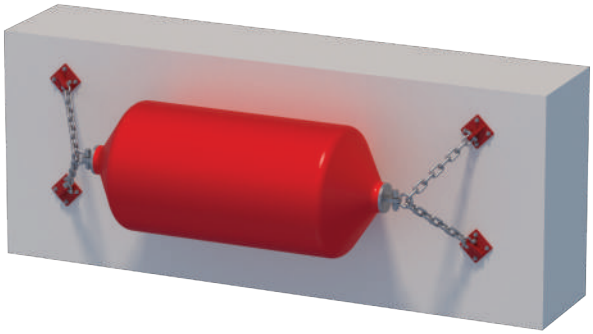
TekGuard Foam Fenders are used for ship-to-ship maneuvers and wharf protection. Their tough, non-marking skins come in white, naval gray and high visibility colors. They resist UV and ozone damage and will not deflate or sink.

Low hull pressures prevent damage to incoming vessels, and the TekGuard fender's non-marking skin will not damage the paintwork of liners, passenger ferries or yachts.

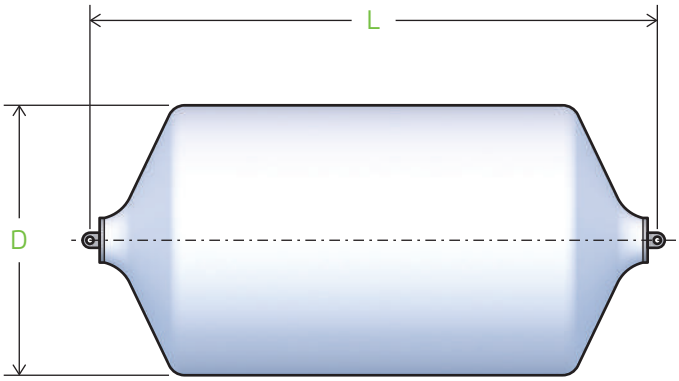
They are deployed either floating or suspended, and are easy to relocate. At the end of its service life a TekGuard fender can simply be returned for refurbishment and put back to work.

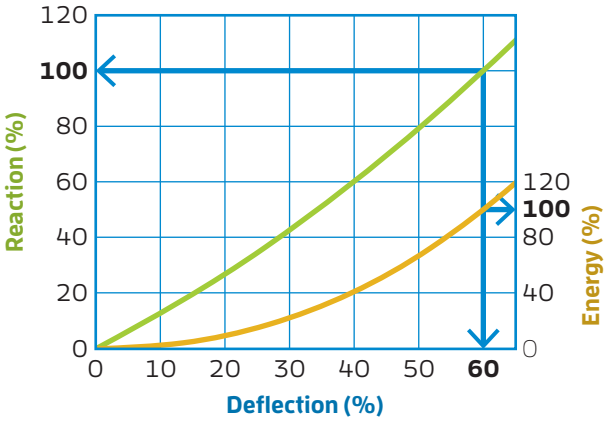


TekGuard fenders can be suspended from a single pair of chains, attached to brackets or U-anchors. This allows the fender to rise and fall with changes in water level. It is the recommended option in sites with high tidal ranges.



TekGuard fenders can be fixed in place by attaching them to paired chains at either end. This is suitable for berths where the fender is mounted above the water level or there is a low tidal range.





TJPF Dimensions and Performance

ØD		Low Reaction				Standard Capacity				High Capacity				Safe working load	
		Energy		Reaction		Energy		Reaction		Energy		Reaction			
m	ft	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kips	kN
0.6 × 1.2	2 × 4	9	7	53	12	15	11	89	20	19	14	116	26	42	9.5
0.6 × 1.8	2 × 6	15	11	89	20	24	18	147	33	31	23	191	43	42	9.5
0.6 × 2.4	2 × 8	20	15	125	28	34	25	209	47	45	33	271	61	42	9.5
0.6 × 3.0	2 × 10	26	19	160	36	43	32	267	60	57	42	347	78	42	9.5
0.9 × 1.5	3 × 5	26	19	120	27	42	31	200	45	54	40	263	59	42	9.5
0.9 × 1.8	3 × 6	31	23	129	29	53	39	214	48	69	51	276	62	42	9.5
0.9 × 2.4	3 × 8	45	33	182	41	75	55	303	68	98	72	392	88	76	17
0.9 × 3.0	3 × 10	58	43	236	53	96	71	392	88	125	92	507	114	76	17
0.9 × 3.7	3 × 12	71	52	289	65	118	87	481	108	153	113	623	140	76	17
0.9 × 4.3	3 × 14	84	62	343	77	140	103	570	128	182	134	739	166	76	17
1.2 × 1.8	4 × 6	49	36	151	34	81	60	249	56	106	78	325	73	76	17
1.2 × 2.4	4 × 8	72	53	223	50	121	89	369	83	157	116	481	108	76	17
1.2 × 3.0	4 × 10	96	71	298	67	160	118	494	111	207	153	641	144	76	17
1.2 × 3.7	4 × 12	119	88	365	82	198	146	605	136	258	190	788	177	107	24
1.2 × 4.9	4 × 16	165	122	503	113	275	203	841	189	358	264	1095	246	151	34
1.2 × 6.1	4 × 20	212	156	645	145	353	260	1077	242	458	338	1402	315	151	34
1.5 × 2.4	5 × 8	110	81	267	60	183	135	445	100	239	176	579	130	76	17
1.5 × 3.0	5 × 10	146	108	356	80	244	180	596	134	317	234	774	174	107	24
1.5 × 3.7	5 × 12	183	135	445	100	305	225	743	167	397	293	966	217	107	24
1.5 × 4.3	5 × 14	218	161	534	120	365	269	890	200	475	350	1157	260	151	34
1.5 × 4.9	5 × 16	255	188	623	140	424	313	1037	233	552	407	1348	303	151	34
1.5 × 5.5	5 × 18	290	214	712	160	484	357	1184	266	629	464	1540	346	222	50
1.8 × 3.7	6 × 12	244	180	498	112	407	300	828	186	529	390	1077	242	151	34
1.8 × 4.3	6 × 14	296	218	601	135	494	364	1001	225	641	473	1304	293	151	34
1.8 × 4.9	6 × 16	347	256	708	159	579	427	1179	265	752	555	1535	345	222	50
1.8 × 5.5	6 × 18	400	295	814	183	666	491	1357	305	865	638	1767	397	311	70
1.8 × 6.1	6 × 20	450	332	917	206	751	554	1531	344	976	720	1989	447	311	70
2.1 × 4.3	7 × 14	396	292	690	155	660	487	1153	259	858	633	1500	337	222	50
2.1 × 4.9	7 × 16	466	344	814	183	778	574	1357	305	1011	746	1767	397	222	50
2.1 × 5.5	7 × 18	537	396	939	211	895	660	1562	351	1163	858	2029	456	311	70
2.1 × 6.1	7 × 20	607	448	1059	238	1013	747	1767	397	1316	971	2296	516	311	70
2.1 × 6.7	7 × 22	678	500	1184	266	1129	833	1971	443	1468	1083	2563	576	311	70
2.4 × 3.7	8 × 12	433	319	659	148	720	531	1095	246	936	690	1424	320	311	70
2.4 × 4.3	8 × 14	503	371	770	173	839	619	1282	288	1091	805	1664	374	311	70
2.4 × 4.9	8 × 16	597	440	912	205	994	733	1517	341	1292	953	1971	443	311	70
2.4 × 5.5	8 × 18	689	508	1050	236	1148	847	1753	394	1493	1101	2278	512	311	70
2.4 × 6.1	8 × 20	782	577	1193	268	1303	961	1989	447	1693	1249	2585	581	311	70
2.4 × 6.7	8 × 22	875	645	1335	300	1458	1075	2225	500	1895	1398	2893	650	489	110
2.7 × 4.3	9 × 14	633	467	859	193	1056	779	1433	322	1372	1012	1860	418	311	70
2.7 × 4.9	9 × 16	724	534	983	221	1207	890	1638	368	1569	1157	2127	478	311	70
2.7 × 5.5	9 × 18	839	619	1139	256	1399	1032	1900	427	1820	1342	2470	555	311	70
2.7 × 6.1	9 × 20	956	705	1299	292	1593	1175	2163	486	2072	1528	2812	632	489	110
2.7 × 6.7	9 × 22	1072	791	1455	327	1787	1318	2425	545	2323	1713	3155	709	489	110
3.0 × 4.9	10 × 16	880	649	1072	241	1466	1081	1789	402	1905	1405	2327	523	311	70
3.0 × 5.5	10 × 18	1024	755	1250	281	1706	1258	2083	468	2217	1635	2706	608	311	70
3.0 × 6.1	10 × 20	1167	861	1424	320	1946	1435	2376	534	2530	1866	3088	694	489	110
3.0 × 6.7	10 × 22	1311	967	1602	360	2186	1612	2670	600	2842	2096	3471	780	489	110
3.0 × 7.3	10 × 24	1474	1087	1798	404	2455	1811	2999	674	3099	2286	3783	850	489	110
3.4 × 5.5	11 × 18	1205	889	1339	301	2009	1482	2229	501	2613	1927	2897	651	489	110
3.4 × 6.1	11 × 20	1380	1018	1531	344	2299	1696	2550	573	2903	2141	3315	745	489	110
3.4 × 6.7	11 × 22	1554	1146	1727	388	2590	1910	2875	646	3366	2483	3738	840	489	110
3.4 × 7.3	11 × 24	1695	1250	1878	422	2824	2083	3133	704	3673	2709	4076	916	489	110
3.7 × 6.1	12 × 20	1760	1298	1891	425	2933	2163	3151	708	3813	2812	4094	920	489	110
3.7 × 7.3	12 × 24	2111	1557	2270	510	3518	2595	3783	850	4575	3374	4917	1105	489	110
4.0 × 7.9	13 × 26	2636	1944	2630	591	4393	3240	4383	985	5711	4212	5700	1281	489	110
4.3 × 8.5	14 × 28	3254	2400	3017	678	5423	4000	5029	1130	7050	5200	6537	1469	489	110

Custom sizes are available on request. Please ask TekMarine for details.

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TJPF Dimensions and Performance

ØD		Extra High Capacity				Super High Capacity				Ultra High Capacity				Safe working load	
		Energy		Reaction		Energy		Reaction		Energy		Reaction			
m	ft	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kips	kN
0.6 × 1.2	2 × 4	28	21	169	38	39	29	231	52	50	37	303	68	42	9.5
0.6 × 1.8	2 × 6	46	34	280	63	64	47	383	86	83	61	498	112	42	9.5
0.6 × 2.4	2 × 8	65	48	396	89	88	65	543	122	115	85	712	160	42	9.5
0.6 × 3.0	2 × 10	83	61	507	114	113	83	694	156	148	109	908	204	42	9.5
0.9 × 1.5	3 × 5	80	59	383	86	110	81	521	117	142	105	681	153	42	9.5
0.9 × 1.8	3 × 6	100	74	405	91	137	101	556	125	180	133	725	163	42	9.5
0.9 × 2.4	3 × 8	142	105	574	129	194	143	788	177	254	187	1028	231	76	17
0.9 × 3.0	3 × 10	183	135	743	167	251	185	1019	229	327	241	1331	299	76	17
0.9 × 3.7	3 × 12	224	165	912	205	306	226	1250	281	401	296	1633	367	76	17
0.9 × 4.3	3 × 14	266	196	1081	243	363	268	1482	333	475	350	1936	435	76	17
1.2 × 1.8	4 × 6	155	114	472	106	212	156	650	146	277	204	846	190	76	17
1.2 × 2.4	4 × 8	229	169	703	158	313	231	961	216	411	303	1255	282	76	17
1.2 × 3.0	4 × 10	304	224	939	211	416	307	1286	289	544	401	1678	377	76	17
1.2 × 3.7	4 × 12	376	277	1148	258	515	380	1575	354	672	496	2056	462	107	24
1.2 × 4.9	4 × 16	523	386	1598	359	716	528	2185	491	936	690	2861	643	151	34
1.2 × 6.1	4 × 20	670	494	2047	460	917	676	2799	629	1199	884	3662	823	151	34
1.5 × 2.4	5 × 8	348	257	846	190	476	351	1157	260	622	459	1513	340	76	17
1.5 × 3.0	5 × 10	464	342	1135	255	635	468	1549	348	830	612	2029	456	107	24
1.5 × 3.7	5 × 12	580	428	1411	317	793	585	1931	434	1037	765	2528	568	107	24
1.5 × 4.3	5 × 14	693	511	1691	380	948	699	2314	520	1241	915	3026	680	151	34
1.5 × 4.9	5 × 16	807	595	1971	443	1104	814	2697	606	1443	1064	3524	792	151	34
1.5 × 5.5	5 × 18	919	678	2247	505	1258	928	3079	692	1646	1214	4023	904	222	50
1.8 × 3.7	6 × 12	773	570	1571	353	1058	780	2154	484	1383	1020	2812	632	151	34
1.8 × 4.3	6 × 14	938	692	1905	428	1283	946	2603	585	1679	1238	3404	765	151	34
1.8 × 4.9	6 × 16	1100	811	2243	504	1505	1110	3066	689	1969	1452	4009	901	222	50
1.8 × 5.5	6 × 18	1265	933	2581	580	1731	1277	3529	793	2263	1669	4615	1037	311	70
1.8 × 6.1	6 × 20	1428	1053	2910	654	1952	1440	3978	894	2554	1884	5207	1170	311	70
2.1 × 4.3	7 × 14	1254	925	2189	492	1716	1266	2995	673	2245	1656	3920	881	222	50
2.1 × 4.9	7 × 16	1479	1091	2581	580	2023	1492	3529	793	2647	1952	4615	1037	222	50
2.1 × 5.5	7 × 18	1700	1254	2968	667	2327	1716	4063	913	3042	2244	5309	1193	311	70
2.1 × 6.1	7 × 20	1924	1419	3355	754	2633	1942	4592	1032	3444	2540	6008	1350	311	70
2.1 × 6.7	7 × 22	2146	1583	3747	842	2937	2166	5126	1152	3840	2832	6702	1506	311	70
2.4 × 3.7	8 × 12	1367	1008	2083	468	1870	1379	2857	642	2447	1805	3720	836	311	70
2.4 × 4.3	8 × 14	1594	1176	2434	547	2182	1609	3333	749	2854	2105	4357	979	311	70
2.4 × 4.9	8 × 16	1889	1393	2884	648	2584	1906	3947	887	3379	2492	5158	1159	311	70
2.4 × 5.5	8 × 18	2182	1609	3333	749	2986	2202	4557	1024	3905	2880	5963	1340	311	70
2.4 × 6.1	8 × 20	2476	1826	3778	849	3388	2499	5171	1162	4429	3267	6764	1520	311	70
2.4 × 6.7	8 × 22	2770	2043	4228	950	3790	2795	5785	1300	4956	3655	7565	1700	489	110
2.7 × 4.3	9 × 14	2007	1480	2719	611	2746	2025	3725	837	3592	2649	4873	1095	311	70
2.7 × 4.9	9 × 16	2293	1691	3111	699	3137	2314	4259	957	4103	3026	5567	1251	311	70
2.7 × 5.5	9 × 18	2659	1961	3609	811	3638	2683	4940	1110	4758	3509	6461	1452	311	70
2.7 × 6.1	9 × 20	3028	2233	4107	923	4142	3055	5625	1264	5416	3995	7351	1652	489	110
2.7 × 6.7	9 × 22	3395	2504	4610	1036	4646	3427	6306	1417	6075	4481	8246	1853	489	110
3.0 × 4.9	10 × 16	2785	2054	3400	764	3811	2811	4650	1045	4983	3675	6083	1367	311	70
3.0 × 5.5	10 × 18	3240	2390	3956	889	4435	3271	5416	1217	5799	4277	7080	1591	311	70
3.0 × 6.1	10 × 20	3697	2727	4517	1015	5059	3731	6177	1388	6615	4879	8081	1816	489	110
3.0 × 6.7	10 × 22	4153	3063	5073	1140	5682	4191	6942	1560	7431	5481	9078	2040	489	110
3.0 × 7.3	10 × 24	4530	3341	5536	1244	6199	4572	7574	1702	8348	6157	10199	2292	489	110
3.4 × 5.5	11 × 18	3818	2816	4236	952	5224	3853	5798	1303	6832	5039	7578	1703	489	110
3.4 × 6.1	11 × 20	4370	3223	4851	1090	5979	4410	6635	1491	7818	5766	8669	1948	489	110
3.4 × 6.7	11 × 22	4920	3629	5460	1227	6733	4966	7476	1680	8805	6494	9772	2196	489	110
3.4 × 7.3	11 × 24	5368	3959	5954	1338	7346	5418	8152	1832	9602	7082	10653	2394	489	110
3.7 × 6.1	12 × 20	5571	4109	5990	1346	7624	5623	8192	1841	9971	7354	10711	2407	489	110
3.7 × 7.3	12 × 24	6686	4931	7187	1615	9148	6747	9835	2210	11962	8823	12861	2890	489	110
4.0 × 7.9	13 × 26	8346	6156	8330	1872	11421	8424	11396	2561	14936	11016	14903	3349	489	110
4.3 × 8.5	14 × 28	10304	7600	9554	2147	14101	10400	13074	2938	18439	13600	17097	3842	489	110

Custom sizes are available on request. Please ask TekMarine for details.

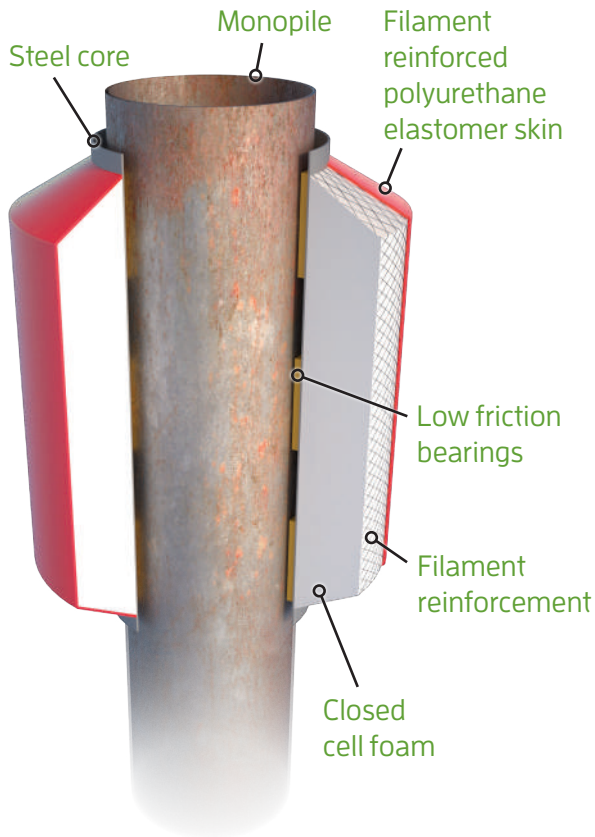
TJDF Donut Fender

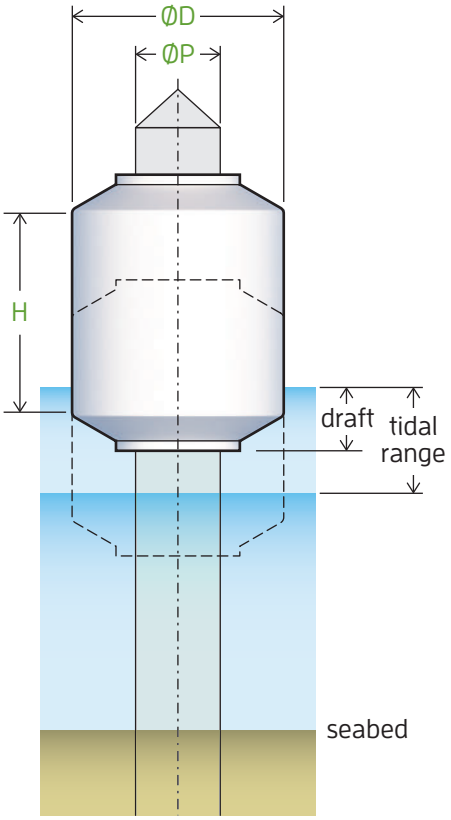
TJDF Donut Fenders guide vessels at lock entrances, berth approaches and turning points. The donut floats around a tubular pile and follows changes in the water level.

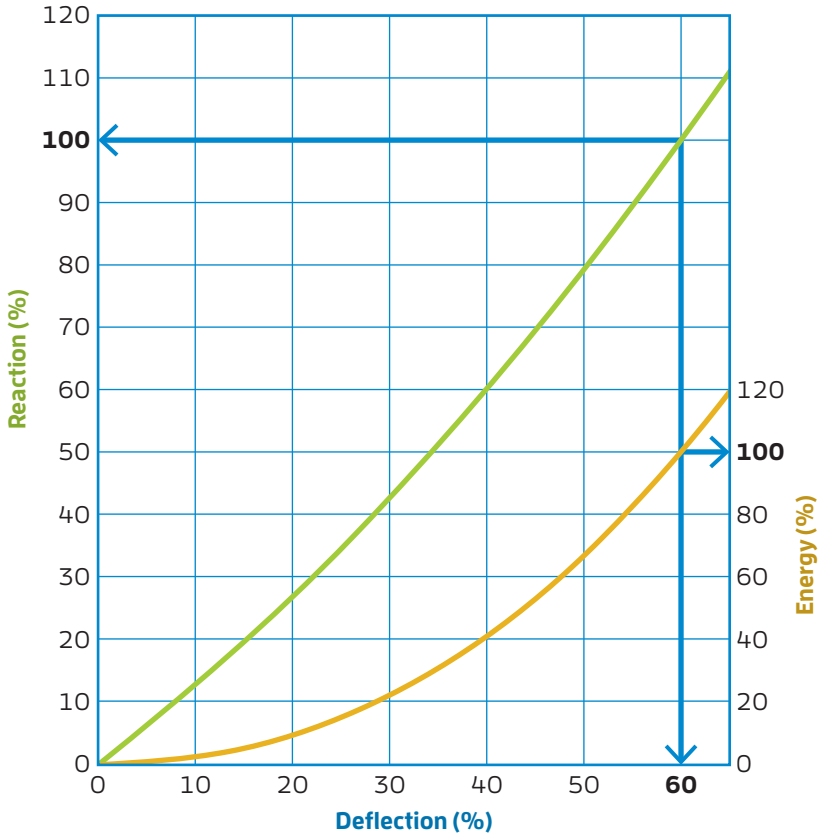
Installation could not be easier: simply lower the fender over the monopole until it floats.

The donut's durable, low-friction bearings allow free movement with minimal maintenance. Its closed-cell foam core makes the donut impossible to sink, burst or deflate. The filament-reinforced, polyurethane elastomer skin is exceptionally tough.

TJDF Donut Fenders are available in a range of foam grades and high visibility colors.







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Dimensions and Performance

ØD		ØP		H		Standard Capacity				High Capacity				Extra High Capacity				Super High Capacity				Ultra High Capacity			
						Energy		Reaction		Energy		Reaction		Energy		Reaction		Energy		Reaction		Energy		Reaction	
ft	m	ft	m	ft	m	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips	kNm	ft.kip	kN	kips
4.5	1.4	2.0	0.6	2.0	0.6	5.4	4.0	80.1	18.0	9.8	7.0	129	29.0	13.7	10.0	196	44.0	20.6	15.0	294	66.0	27.5	20.0	400	90.0
4.5	1.4	2.0	0.6	3.0	0.9	8.1	6.0	120	27.0	13.7	10.0	191	43.0	20.6	15.0	294	66.0	29.4	22.0	440	99.0	40.2	30.0	601	135
4.5	1.4	2.0	0.6	4.0	1.2	10.8	8.0	156	35.0	17.7	13.0	258	58.0	27.5	20.0	391	88.0	40.2	30.0	587	132	54.0	40.0	801	180
4.5	1.4	2.0	0.6	5.0	1.5	13.6	10.0	196	44.0	21.6	16.0	320	72.0	34.3	25.0	489	110	50.0	37.0	734	165	69.7	51.0	1001	225
4.5	1.4	2.0	0.6	6.0	1.8	16.3	12.0	236	53.0	27.5	20.0	387	87.0	40.2	30.0	587	132	59.8	44.0	881	198	82.4	61.0	1201	270
4.5	1.4	2.0	0.6	7.0	2.1	19.0	14.0	276	62.0	31.4	23.0	449	101	47.1	35.0	685	154	70.6	52.0	1023	230	96.1	71.0	1401	315
4.5	1.4	2.0	0.6	8.0	2.4	21.7	16.0	316	71.0	35.3	26.0	516	116	54.0	40.0	783	176	80.4	59.0	1170	263	110	81.0	1601	360
5.0	1.5	2.5	0.8	2.0	0.6	6.8	5.0	93.4	21.0	10.8	8.0	151	34.0	16.7	12.0	227	51.0	23.5	17.0	343	77.0	32.4	24.0	467	105
5.0	1.5	2.5	0.8	3.0	0.9	9.5	7.0	138	31.0	14.7	11.0	227	51.0	23.5	17.0	343	77.0	35.3	26.0	512	115	47.1	35.0	698	157
5.0	1.5	2.5	0.8	4.0	1.2	13.6	10.0	182	41.0	20.6	15.0	303	68.0	31.4	23.0	458	103	47.1	35.0	685	154	63.8	47.0	934	210
5.0	1.5	2.5	0.8	5.0	1.5	16.3	12.0	231	52.0	25.5	19.0	374	84.0	39.2	29.0	569	128	57.9	43.0	854	192	80.4	59.0	1165	262
5.0	1.5	2.5	0.8	6.0	1.8	20.3	15.0	276	62.0	31.4	23.0	449	101	47.1	35.0	685	154	70.6	52.0	1023	230	96.1	71.0	1401	315
5.0	1.5	2.5	0.8	7.0	2.1	23.0	17.0	320	72.0	36.3	27.0	525	118	54.0	40.0	801	180	81.4	60.0	1197	269	113	83.0	1633	367
5.0	1.5	2.5	0.8	8.0	2.4	27.1	20.0	369	83.0	40.2	30.0	601	135	62.8	46.0	912	205	93.2	69.0	1366	307	128	94.0	1864	419
6.0	1.8	3.0	0.9	2.0	0.6	9.5	7.0	107	24.0	16.7	12.0	174	39.0	24.5	18.0	262	59.0	35.3	26.0	391	88.0	49.1	36.0	534	120
6.0	1.8	3.0	0.9	3.0	0.9	14.9	11.0	156	35.0	23.5	17.0	258	58.0	35.3	26.0	391	88.0	54.0	40.0	587	132	73.6	54.0	801	180
6.0	1.8	3.0	0.9	4.0	1.2	19.0	14.0	209	47.0	31.4	23.0	343	77.0	47.1	35.0	520	117	71.6	53.0	783	176	98.1	72.0	1068	240
6.0	1.8	3.0	0.9	5.0	1.5	24.4	18.0	262	59.0	39.2	29.0	427	96.0	59.8	44.0	654	147	89.3	66.0	974	219	122	90.0	1335	300
6.0	1.8	3.0	0.9	6.0	1.8	28.5	21.0	316	71.0	47.1	35.0	516	116	71.6	53.0	783	176	107	79.0	1170	263	146	108	1601	360
6.0	1.8	3.0	0.9	7.0	2.1	33.9	25.0	369	83.0	55.9	41.0	601	135	84.4	62.0	912	205	125	92.0	1366	307	171	126	1864	419
6.0	1.8	3.0	0.9	8.0	2.4	39.3	29.0	418	94.0	62.8	46.0	685	154	95.2	70.0	1041	234	142	105	1561	351	195	144	2131	479
7.0	2.1	3.5	1.1	3.0	0.9	20.3	15.0	178	40.0	32.4	24.0	289	65.0	50.0	37.0	440	99.0	75.5	56.0	658	148	103	76.0	899	202
7.0	2.1	3.5	1.1	4.0	1.2	25.8	19.0	236	53.0	45.1	33.0	387	87.0	66.7	49.0	587	132	100	74.0	881	198	137	101	1201	270
7.0	2.1	3.5	1.1	5.0	1.5	32.5	24.0	294	66.0	55.9	41.0	485	109	84.4	62.0	734	165	127	93.0	1099	247	171	126	1499	337
7.0	2.1	3.5	1.1	6.0	1.8	39.3	29.0	356	80.0	66.7	49.0	578	130	100	74.0	881	198	151	111	1317	296	206	152	1797	404
7.0	2.1	3.5	1.1	7.0	2.1	46.1	34.0	414	93.0	77.5	57.0	676	152	118	87.0	1028	231	177	130	1539	346	240	177	2100	472
7.0	2.1	3.5	1.1	8.0	2.4	52.9	39.0	472	106	88.3	65.0	774	174	134	99.0	1174	264	201	148	1757	395	274	202	2398	539
7.5	2.3	4.0	1.2	3.0	0.9	23.0	17.0	196	44.0	36.3	27.0	320	72.0	55.9	41.0	489	110	84.4	62.0	734	165	114	84.0	1001	225
7.5	2.3	4.0	1.2	4.0	1.2	29.8	22.0	262	59.0	49.1	36.0	427	96.0	74.6	55.0	654	147	111	82.0	974	219	152	112	1335	300
7.5	2.3	4.0	1.2	5.0	1.5	38.0	28.0	329	74.0	60.8	45.0	538	121	93.2	69.0	814	183	139	103	1219	274	190	140	1668	375
7.5	2.3	4.0	1.2	6.0	1.8	44.7	33.0	396	89.0	73.6	54.0	645	145	111	82.0	979	220	163	120	1464	329	230	169	1997	449
7.5	2.3	4.0	1.2	7.0	2.1	52.9	39.0	458	103	85.3	63.0	752	169	131	96.0	1139	256	195	144	1708	384	267	197	2331	524
7.5	2.3	4.0	1.2	8.0	2.4	61.0	45.0	525	118	98.1	72.0	859	193	149	110	1303	293	224	165	1953	439	305	225	2665	599
8.3	2.5	4.5	1.4	3.0	0.9	27.1	20.0	218	49.0	45.1	33.0	356	80.0	67.7	50.0	538	121	102	75.0	805	181	138	102	1099	247
8.3	2.5	4.5	1.4	4.0	1.2	36.6	27.0	289	65.0	59.8	44.0	472	106	89.3	66.0	716	161	135	100	1072	241	184	136	1468	330
8.3	2.5	4.5	1.4	5.0	1.5	44.7	33.0	360	81.0	74.6	55.0	592	133	113	83.0	894	201	168	124	1343	302	231	170	1833	412
8.3	2.5	4.5	1.4	6.0	1.8	54.2	40.0	432	97.0	89.3	66.0	707	159	135	100	1077	242	202	149	1610	362	277	204	2197	494
8.3	2.5	4.5	1.4	7.0	2.1	63.7	47.0	507	114	104	77.0	827	186	157	116	1254	282	236	174	1877	422	323	238	2567	577
8.3	2.5	4.5	1.4	8.0	2.4	73.2	54.0	578	130	120	88.0	943	212	181	133	1432	322	270	199	2149	483	369	272	2931	659
9.0	2.7	5.0	1.5	3.0	0.9	32.5	24.0	236	53.0	53.0	39.0	387	87.0	80.4	59.0	587	132	121	89.0	881	198	164	121	1201	270
9.0	2.7	5.0	1.5	4.0	1.2	43.4	32.0	316	71.0	70.6	52.0	516	116	107	79.0	783	176	162	119	1170	263	220	162	1601	360
9.0	2.7	5.0	1.5	5.0	1.5	54.2	40.0	396	89.0	88.3	65.0	645	145	134	99.0	979	220	201	148	1464	329	274	202	1997	449
9.0	2.7	5.0	1.5	6.0	1.8	65.1	48.0	472	106	106	78.0	774	174	162	119	1174	264	241	178	1757	395	330	243	2398	539
9.0	2.7	5.0	1.5	7.0	2.1	75.9	56.0	552	124	124	91.0	903	203	187	138	1370	308	281	207	2051	461	384	283	2798	629
9.0	2.7	5.0	1.5	8.0	2.4	86.8	64.0	632	142	141	104	1032	232	215	158	1566	352	322	237	2344	527	440	324	3198	719

Custom sizes are available on request. Please ask TekMarine for details.

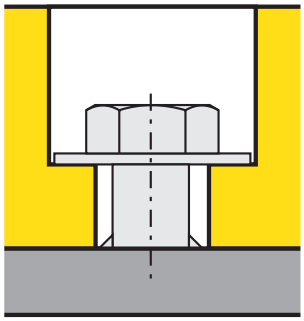
UHMW-PE Facings

TekMarine protects every fender panel with top quality UHMW-PE (Ultra High Molecular Weight Polyethylene) facings. Impact resistant and very low in friction, UHMW-PE allows vessels to move smoothly past a fender system without snagging or abrasion. It is also popular for heavy duty impact protection where fenders are not required.

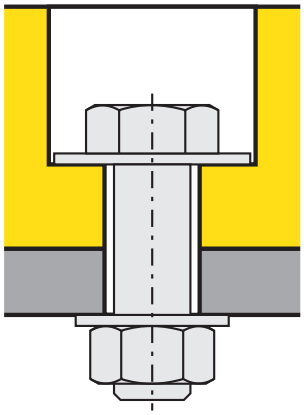
Easy to machine and install, UHMW-PE comes in many colors and several quality grades.

UHMW-PE does not rot, split or decay and does not suffer from UV or ozone damage. It is fully recyclable.

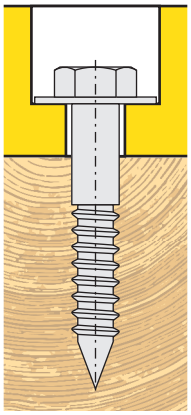
Steel panel with welded stud



Open steel structure



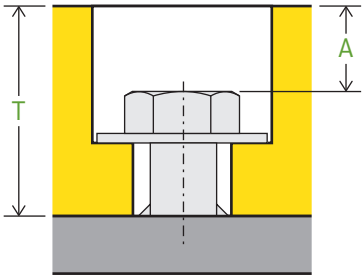
Timber structure



The fixing type depends on the underlying structure. Welded studs or stronger 'blind boss' fixings are used for steel panels. Oversize washers are recommended when bolting through open steel structures.

Fixings are available in various steel grades and finishes: please ask TekMarine for more details.

Wear Allowances



T	A
30	5
40	10
50	15
70	25
100	40

A small increase in the thickness of UHMW-PE can dramatically improve the working life of the facing, protecting the fender and structure for longer.

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Physical Properties

Property	Test method	Metric			US Units		
		Unit	Virgin	Recycled	Unit	Virgin	Recycled
Density	ASTM D-792	kg/m³	930	945	lb/ft³	58.01	58.9
Molecular Weight	Viscosimetric	g/mol	4.2×10^6	4.2×10^6	g/mol	4.2×10^6	4.2×10^6
Yield Strength	ASTM D-638	MPa	21	20	psi	3050	2900
Ultimate Strength	ASTM D-638	MPa	40	34.3	psi	5800	4974
Elongation at Break	ASTM D-638	%	250	218	%	250	218
Impact Strength	ASTM D-4020	kJ/m²	70	50	ft-lb/in²	34	24
Tensile Impact	DIN 53448	kJ/m²	2200	1600	ft-lb/in²	1050	762
Abrasion Index (Sand Slurry)	ASTM 965	AR-01 Steel=100	90	116	AR-01 Steel=100	90	116
Hardness	ASTM D-2240	Type D	68	70	Type D	68	70
Static Friction	ASTM D-1894	–	0.15	0.15–0.20	–	0.15	0.15–0.20
Dynamic Friction	ASTM D-1894	–	0.12	0.14–0.16	–	0.12	0.14–0.16
Operating Temperature		°C	–80 to +80	–80 to +80	°F	–112 to 176	–112 to 176
Thermal Expansion	ASTM D-696	K^{-1}	2.0×10^{-4}	1.8×10^{-4}	$°F^{-1}$	1.1×10^{-4}	1.1×10^{-4}
Melting Point	ASTM D-3417	°C	137–143	137–143	°F	278–289	278
Water Absorption	ASTM D-570	%	0	0	%	0	0

Friction comparisons

Material	Coefficient of friction against steel (μ)
UHMW-PE	**0.15–0.2**
HD-PE	0.3
Nylon	0.2
Rubber	0.6–0.7
Timber	0.4
Steel	0.5

The coefficient of friction of UHMW-PE varies according to the material grade and the pressure applied to the panel's surface.

These coefficients of friction only apply to smooth contact surfaces.

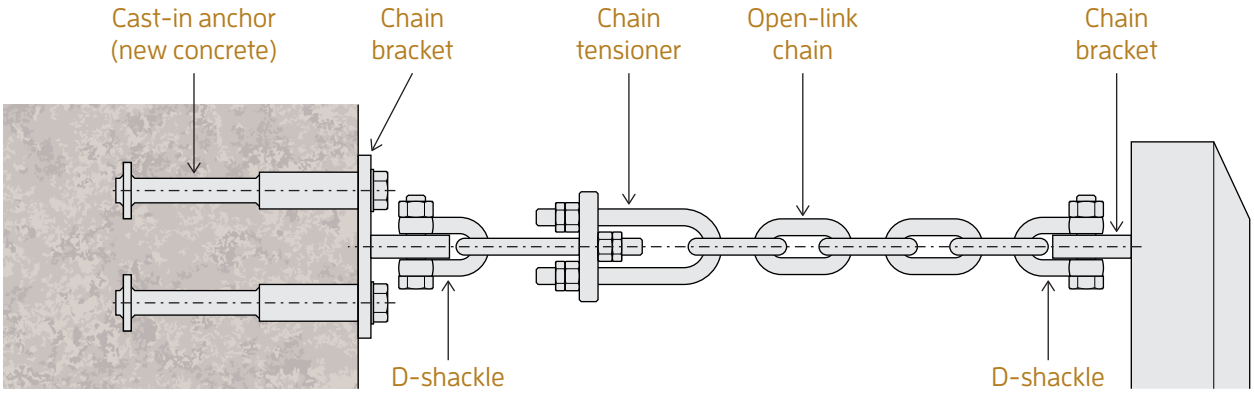
Source: BS 6349-4:2014

For more information please consult TekMarine.

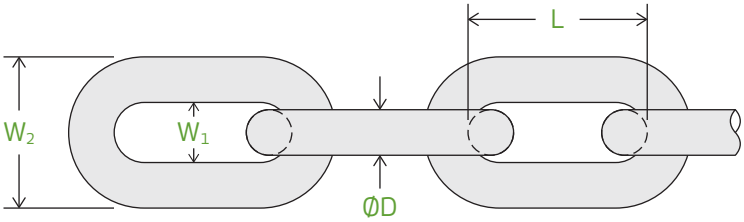
Anchors and Fixings

A fender system relies on the best quality fixings and accessories to perform properly. Large or heavy-duty fenders need chain systems to manage shear, tension and weight. These comprise open or stud-link chain, tensioners and shackles. Cast-in or resin anchors connect the chain systems and brackets to the quay structure. Various material grades and finishes are available: please ask TekMarine for details.

Typical chain system



Chains



ØD	W_1	W_2	L = 4D	Weight	W_1	W_2	L = 5D	Weight	MBL	
									SL2	SL3
mm	mm	mm	mm	kg/m	mm	mm	mm	kg/m	kN	kN
14	20	48	56	3.8	21	49	70	3.7	124	154
16	22	54	64	5.0	24	56	80	4.8	160	202
18	25	61	72	6.3	27	63	90	6.0	209	262
20	28	68	80	7.8	30	70	100	7.5	264	330
22	31	75	88	9.4	33	77	110	9.0	304	380
25	35	85	100	12.1	38	88	125	11.6	393	491
28	39	95	112	15.2	42	98	140	14.6	492	616
30	42	102	120	17.4	45	105	150	16.7	566	706
32	45	109	128	19.8	48	112	160	19.0	644	804
35	49	119	140	23.8	53	123	175	22.8	770	964
38	53	129	152	28.0	57	133	190	26.9	900	1130
40	56	136	160	31.0	60	140	200	29.8	1010	1260
45	63	153	180	39.3	68	158	225	37.7	1275	1590
50	70	170	200	48.5	75	175	250	46.5	1570	1960
55	77	187	220	58.6	83	193	275	56.4	1900	2380
60	84	204	240	70.0	90	210	300	67.0	2260	2770

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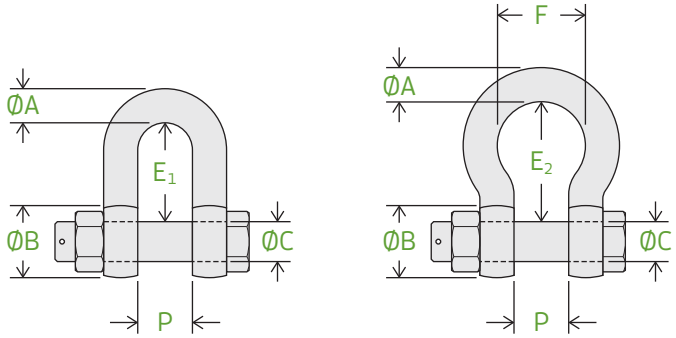
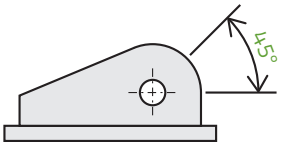
Shackles



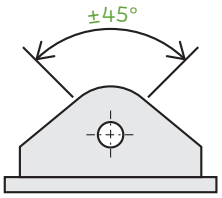
ØA	ØB	ØC	P	D-shackle		Bow shackle			NBL
				E_1	Weight	E_2	F	Weight	
mm	mm	mm	mm	mm	kg	mm	mm	kg	kN
13	26	16	22	43	0.4	51	32	0.4	120
16	32	19	27	51	0.7	64	43	0.8	195
19	38	22	31	59	1.1	76	51	1.3	285
22	44	25	36	73	1.5	83	58	1.9	390
25	50	28	43	85	2.6	95	68	2.8	510
28	56	32	47	90	3.3	108	75	3.8	570
32	64	35	51	94	4.7	115	83	5.3	720
35	70	38	57	115	6.2	133	95	7.0	810
38	76	42	60	127	7.6	146	99	8.8	1020
45	90	50	74	149	12.8	178	126	15.0	1500
50	100	57	83	171	18.2	197	138	20.7	2100
57	114	65	95	190	27.8	222	160	29.3	2550
65	130	70	105	203	35.1	254	180	64.5	3330

Brackets

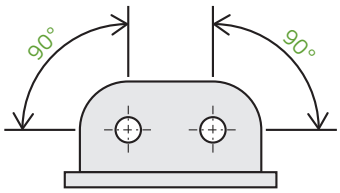
BSO



BSC

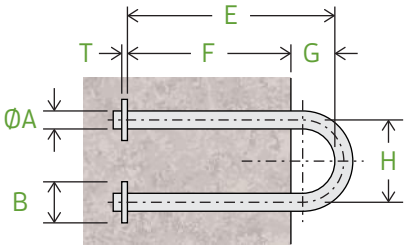


BDB



Brackets are purpose designed for every project. Please ask TekMarine for details.

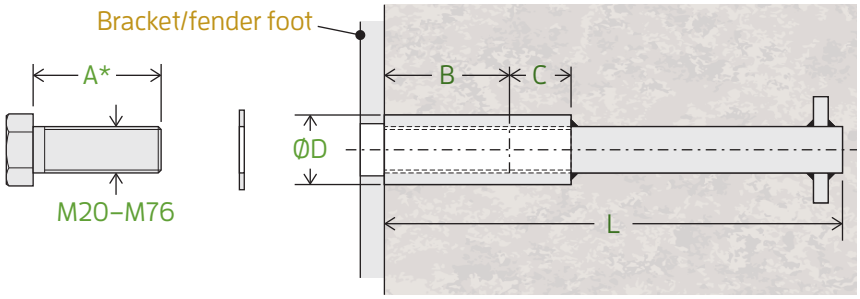
U-anchors



ØA	E	F	G	H	B	T	Weight	NBL
mm	mm	mm	mm	mm	mm	mm	kg	kN
26	320	260	60	104	50	12	3.4	209
30	370	300	70	120	50	15	5.1	264
34	410	340	70	136	60	15	7.3	304
36	430	360	70	144	60	20	8.6	393
42	510	420	90	168	70	20	13.7	492
44	540	440	100	176	80	20	16.1	566
48	580	480	100	192	80	25	20.5	644
50	610	500	110	200	90	25	23.7	770
56	680	560	120	224	100	30	33.4	900
60	730	600	130	240	110	30	41.1	1010
66	800	660	140	264	120	35	54.8	1275
74	900	740	160	296	130	40	76.9	1570

Anchors

Anchors are available in galvanized or stainless steel finishes, in various strength grades and in metric or inch sizes. Ask TekMarine for details if the required specification is not listed.

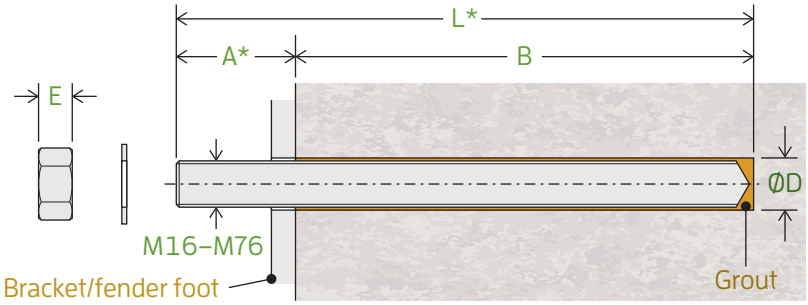


Cast-in type

Cast-in anchors are preferred for new concrete structures. The threaded anchor links via a long tail to an anchor plate, for even load distribution.

* Dimension A varies according to the thickness of the bracket or fender foot and should always be calculated.

Anchor	B	C	ØD	L	Weight
mm	mm	mm	mm	mm	kg
M20	50	20	30	214	0.9
M24	60	25	35	258	1.5
M30	70	30	45	318	2.7
M36	80	40	55	328	4.2
M42	85	45	65	416	6.9
M48	100	50	75	431	10.2
M56	105	60	85	436	14.0
M64	128	80	100	600	29.8
M76	152	90	114	700	46.1



Chemical type

Chemical anchors are used for existing concrete structures.

Please ask about glass grout capsules and other grouting systems.

For an accurately drilled hole, allow for grout wastage of 10%–30%, depending on grout type.

* Dimensions A and L depend on the bracket/fender foot thickness and the concrete grade, and should always be calculated.

Anchor	B	ØD	E	Grout
mm	mm	mm	mm	ml
M16	140	20	13	16
M20	170	24	16	23
M24	210	28	19	34
M30	280	35	24	71
M36	360	42	29	132
M42	420	50	34	243
M48	460	54	38	221
M56	500	64	45	377
M64	560	72	51	479
M76	670	84	61	674

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Tolerances

Standard manufacturing and performance tolerances apply to all TekMarine fenders. TekMarine may agree to smaller tolerances in special cases. Please ask TekMarine for tolerances of types not listed below.

Fender Type	Property		Tolerance
TJCO, TJSC, TJUE, TJDA-A and TJDA-B	All dimensions		±3% or ±2mm (whichever greater)
	Bolt hole spacing		±2mm
TJCY	Outside diameter		±4%
	Inside diameter		±4%
	Length		±40mm
TJDD, TJSD, TJDO and TJSO	Cross-section		±4%
	Length		±2% or ±10mm(whichever greater)
	Drilled hole centers		±4mm (non-cumulative)
	Counterbore depth		±4mm (under-head depth)
TJCA, TJCB	Cross-section		±3% or ±2mm (whichever greater)
	Length		±2% or ±25mm (whichever greater)
	Drilled hole centers		±4mm (non-cumulative)
	Counterbore depth		±4mm (under-head depth)
HD-PE fenders	Cross-section		±4%
	Length		±2% or ±20mm (whichever greater)
	Drilled hole centers		±4mm (non-cumulative)
	Counterbore depth		±4mm (under-head depth)
UHMW-PE panels	Length and width	(cut panels)	±5mm (cut pads)
		(uncut sheets)	±20mm (uncut sheets)
	Planed thickness	≤ 30mm	±0.2mm
		31–100mm	±0.3mm
		≥ 100mm	±0.5mm
	Unplaned thickness	≤ 30mm	±2.5mm
		31–100mm	±4.0mm
		≥ 100mm	±6.0mm
	Drilled hole centers		±2mm (non-cumulative)
	Counterbore depth		±2mm (under-head depth)
M, W and Block fenders	Cross-section		±3% or ±2mm (whichever greater)
	Length		±3% or ±20mm (whichever greater)
	Fixing hole centers		±3mm
	Fixing hole diameter		±3mm

Performance

Fender Type	Property	Tolerance
TJCO, TJSC, TJUE, TJDA-A and TJDA-B	Reaction, energy and deflection	±10%
Cylindricals (wrapped)	Reaction, energy and deflection	±10%
Cylindricals (extruded)	Reaction, energy and deflection	±10%
Profile fenders	Reaction, energy and deflection	±10%
Pneumatic fenders	Reaction and energy	±10%
Foam fenders	Reaction and energy	±15%

Unless otherwise listed or agreed with TekMarine, tolerances are ±20%.

Unit Conversions

Length

	m	ft	in
1 m =	1	3.281	39.37
1 ft =	0.3048	1	12
1 in =	0.0245	0.0833	1

Force

	kN	tonne-f	ton-f
1 kN =	1	0.102	0.225
1 tonne-f =	9.81	1	2.2046
1 ton-f =	4.45	0.454	1

Area

	m^2	ft^2	in^2
1 m^2 =	1	10.764	1550
1 ft^2 =	0.0929	1	144
1 in^2 =	645.2×10^{-6}	6.944×10^{-3}	1

Energy

	kNm	tf-m	ft.kip
1 kNm =	1	0.102	0.7376
1 tf-m =	9.81	1	7.233
1 ft.kip =	1.36	0.138	1

Volume

	m^3	ft^3	in^3
1 m^3 =	1	35.315	61024
1 ft^3 =	0.0283	1	1728
1 in^3 =	16.387×10^{-6}	578.7×10^{-6}	1

Pressure

	kPa	t/m^2	kip/ft^2
1 kPa =	1	0.102	0.0209
1 t/m^2 =	9.81	1	0.205
1 kip/ft^2 =	47.9	4.88	1

Velocity

	m/s	ft/s	km/h	mph	knot
1 m/s =	1	3.2808	3.6	2.2369	1.9438
1 ft/s =	0.3048	1	1.0973	0.6818	0.5925
1 km/h =	0.2778	0.9113	1	0.6214	0.54
1 mph =	0.447	1.4667	1.6093	1	0.869
1 knot =	0.5144	1.6878	1.852	1.1508	1

Acceleration

	g	m/s^2	ft/s^2
1 g =	1	9.807	32.17
1 m/s^2 =	0.102	1	3.281
1 ft/s^2 =	0.031	0.3048	1

Important note

US customary units are listed for your convenience in this catalog, however figures in metric prevail throughout.

Useful software

At the time of publication, third-party unit conversion tools include:

Convert for Windows: https://joshmadison.com/convert-for-windows/

NumericalChameleon: http://sourceforge.net/projects/numchameleon/

TekMarine offers no warranty for nor makes any claims as to accuracy or fitness for purpose of these programs.

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