Pneumatic Fender

Pneumatic Fender(YPF)

Feature

1. High energy absorption and low reaction force
2. Adjustable PF performance against different initial pressure
3. The lowest maintenance costs
4. The most suitable for areas caused by large or small tides
5. An optional chain net & tires for heavy duty applications

Performance Table

Fender size		Internal Pressure : 50KPa(0.5kgf/㎠)			Internal Pressure : 80KPa(0.8kgf/㎠)			Approx. Weight(kg)	
		Energy Absorption	Reaction Force	Hull Pressure at 60% Def.	Energy Absorption	Reaction Force	Hull Pressure at 60% Def.		
mm(D)	mm(L)	kN-m	kN	KPa	kN-m	kN	KPa	Body only	With CTN
YPF 300	500	1.2	21	126	1.7	28	166	12	-
	600	1.5	26	125	2.1	35	165	17	-
YPF 500	800	5.6	59	129	7.5	78	170	30	-
	1000	6	64	132	8	85	174	36	-
YPF 600	1000	8	74	126	11	98	166	45	-
	1200	11	95	132	15	125	173	50	-
YPF 700	1500	17	137	135	24	180	177	80	-
YPF 800	1200	17	120	123	24	158	163	73	173
	1500	28	187	125	39	246	165	100	210
YPF 1000	1500	32	182	122	45	239	160	140	310
	2000	45	257	132	63	338	174	170	370
YPF 1200	1800	57	265	123	80	348	163	170	380
	2000	63	297	126	88	390	166	185	410
	3000	98	460	145	137	605	169	270	570
YPF 1350	2500	102	427	130	141	561	170	280	545
	3500	154	650	142	213	854	173	355	660
YPF 1500	2500	125	471	128	175	619	170	305	705
	3000	153	579	132	214	761	174	345	745
	4000	215	805	145	300	1058	179	400	900
YPF 1700	3000	191	639	128	267	840	168	505	1115
	7200	534	1769	152	746	2325	195	1203	2250
YPF 2000	3000	254	727	123	355	955	166	550	1350
	3500	308	875	128	430	1150	168	660	1560
	6000	630	1750	143	880	2300	171	945	2200
YPF 2500	4000	663	1381	137	925	1815	180	1105	2610
	5500	943	2019	148	1317	2653	195	1305	2985
	7700	1341	2953	158	1872	3880	206	1850	3840
YPF 3000	5000	1230	2221	139	1717	2919	183	1690	4290
YPF 3300	4500	1175	1884	130	1640	2476	171	1850	4260
	6500	1814	3015	146	2532	3961	191	2150	5270
	10600	3067	5257	158	4281	6907	208	2505	6995
YPF 4500	7000	3869	4695	134	5400	6188	176	4100	9100
	9000	4752	5747	146	6633	7551	192	4895	11145
	12000	6473	7984	154	9037	10490	202	5980	13705

Notes
- Above detail performance of components can be changed depending on owner specification and local environment condition.
- Detail performance will be guided by our drawing and specification.

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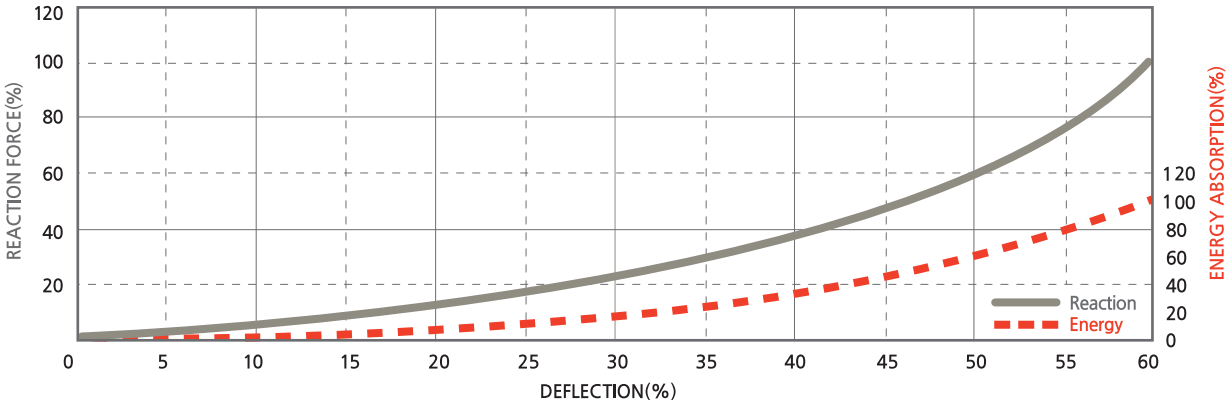
Performance Curve



Performance of Intermediate Deflection

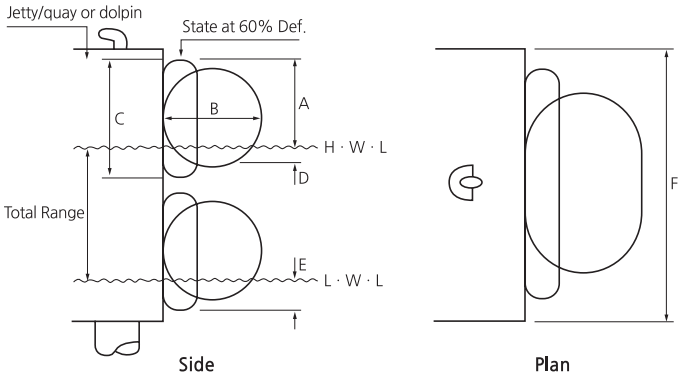
Deflection(%)	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%
Reaction(%)	0%	3%	6%	9%	13%	18%	23%	29%	36%	45%	58%	75%	100%
Energy(%)	0%	0%	1%	4%	7%	11%	16%	24%	32%	44%	58%	76%	100%

Compression Test

Notes

1. The above compression test is according to JIS K6301-1994.
   And about the same size, in the case of identifying the test method above the two kinds, below two methods are adopted
   - hardness test : Spring type hardness test(A type)
   - aging test : air heating aging test / test temperature -70±1°C / test time -96 hours
2. Above detail performance of components can be changed depending on owner specification and local environment condition.
   Detail performance will be guided by our drawing and specification.

Dimension of installation at jetty

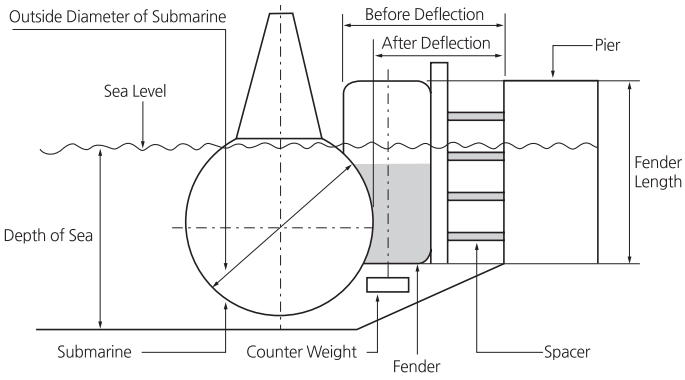


Installation Dimension

Unit : mm

Size	A	B	C	D	E	F
Ø1000 X 1500L	975	950	1350	200	375	2000
Ø1200 X 2000L	1200	1140	1620	220	430	2600
Ø1500 X 2500L	1525	1420	2050	250	525	3250
Ø2000 X 3500L	2050	1900	2700	300	650	4500
Ø2500 X 4000L	2490	2380	3380	450	890	5200
Ø3300 X 6500L	3380	3140	4460	500	1080	8500
Ø4500 X 9000L	4710	4270	6180	800	1470	12000

Typical Fender Arrangement for Submarine



Submarine Type Fender Performance Table(Initial Pressure : 50kPa)

Size	Ø1700 X 7200L		Ø2000 X 6000L		Ø2500 X 5500L		Ø3300 X 6500L		Ø3300 X 10600L		Ø4500 X 9000L	
DEF[%]	60	45	60	45	60	45	60	45	60	45	60	45
Water Ratio[%]	0.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0	65.0
R · F[kN]	1769	611	1750	599	2019	686	3015	1246	5257	1275	5747	2191
E · A[kN-m]	534	134	650	155	2953	223	1814	615	3067	589	4752	865

- R · F : Reaction Force[kN] - E · A : Energy Absorption[kN-m] - Tolerance : ±5% or ±10%

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Neo Cover

During ship coming alongside the pier for welding repairing, Fender defect is often occurs because welding flame is dropped to a fender

Fender surface defect can be prevented and fender body can be protected it covered by fire-retardant rubber(Neo Cover). So, Fender defect can be prevented in advance

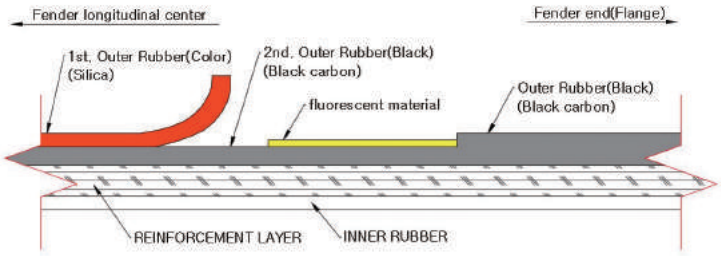
Rent & Repair

Proceed exchange work and body repair with long time know-how

Each standard size product reserves For arriving at a field in a short time

Double Layer

Durability of products is innovatively improved because around Lug is composed of black color rubber with high tension



Double layer is for making up for the existing pneumatic fender's fault by covering double layer on outer of pneumatic fender.
It is for enchancing durability by using block color rubber with high property of matter inside floor of colored rubber with rapid aging.