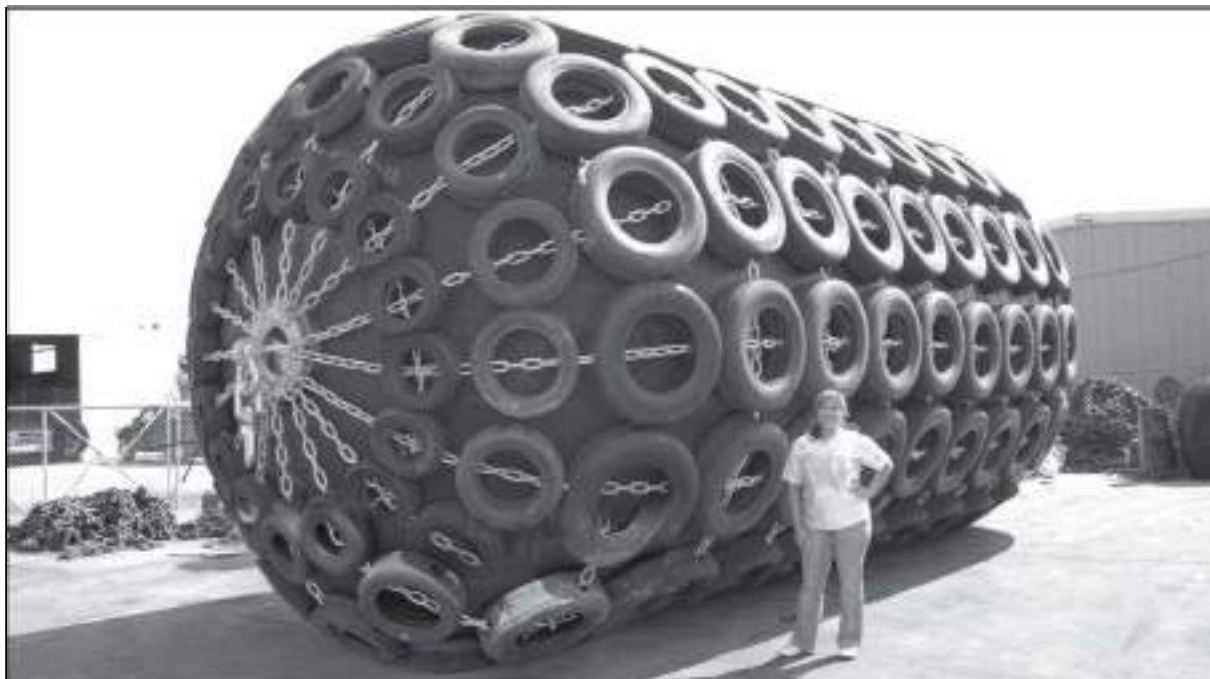




PNEUMATIC FENDERS



PNEUMATIC FENDER WITH CHAIN HARNESS



PNEUMATIC SLING TYPE FENDER

PNEUMATIC FENDERS



PNEUMATIC FENDERS





PNEUMATIC FENDERS



PNEUMATIC FENDERS

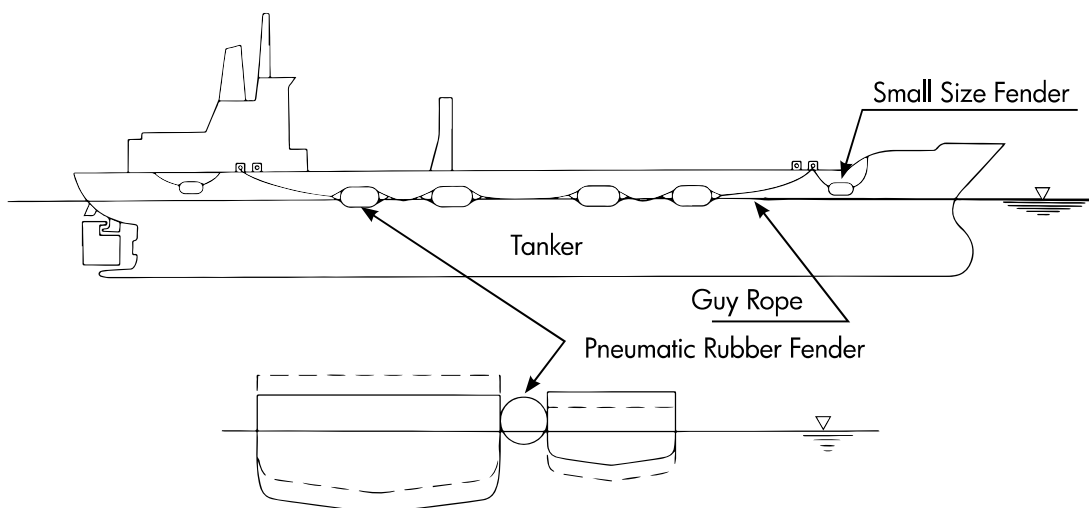


PNEUMATIC FENDERS

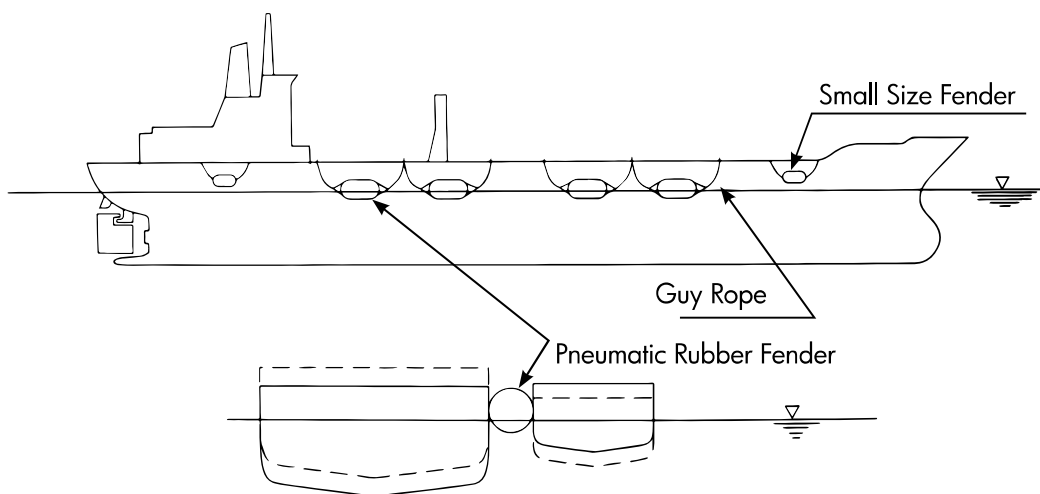
SHIP-TO-SHIP APPLICATIONS

INSTALLATION EXAMPLES

Four large-size fenders are usually floated at the water line as primary fenders to absorb impact energy at berthing and keep proper stand-off distance between two ships. Two small-size fenders (secondary fenders) are hung high on the hull at both bow and stern of smaller ship to prevent contact from rolling of ships due to swell and wind. "STS Transfer Guide," published by the International Chamber of Shipping is a good reference for further information.



(a) Fenders Rigged in a Continuous String



(b) Fenders Guyed Individually

Installation Method in case of Ship-to-Ship Transfer Operations.

Actual Installation Method in case of Ship-to-Ship Transfer Operations.



PNEUMATIC FENDERS

SHIP-TO-JETTY APPLICATIONS

INSTALLATION METHODS

At both ends of the fender, first shackles, then swivel joints, followed by a further shackle should be installed. A guy chain or guy rope is secured to the outer shackle. The swivel joint prevents twisting of the guy chain or wire.

(a) Dolphin

H.W.L. —

L.W.L. —

Anchor
Shackle
End Link

Guy Chain

Rubber Sleeve

End Link
Shackle
Swivel Joint
First Shackle
Towing Ring

Floating-Type
Pneumatic
Rubber Fender

(b) Continuous Quay

H.W.L.

L.W.L.

Installation Methods for
Ship-to-Jetty Applications.

PNEUMATIC FENDERS



Cables Cadenas
y Bandas de México
S.A. de C.V.

www.ccbm.mx
ventas@ccbm.mx
(833) 227 85 07



PNEUMATIC FENDERS

PNEUMATIC 50 (U.S. CUSTOMARY)

PNEUMATIC 50 STANDARD SIZES

NOMINAL SIZE		INITIAL INTERNAL PRESSURE	GUARANTEED ENERGY ABSORPTION (GEA)	REACTION FORCE AT GEA	HULL PRESSURE AT GEA	SAFETY VALUE SETTING PRESSURE	TESTING PRESSURE	WEIGHT OF NET TYPE (TYPE I)				WEIGHT OF SLING TYPE (TYPE II)
								APPROX. FENDER BODY WEIGHT	APPROXIMATE WEIGHT OF NET			
DIAMETER X LENGTH			E	R	P				CHAIN NET	WIRE NET	SYNTHETIC FIBER NET	
(FT X FT)	(MM X MM)	(KIPS)	(KIPS)	(KIPS)	(KIPS/ FT ²)	(PSI)	(PSI)	(LBS)	(LBS)	(LBS)	(LBS)	(LBS)
1.6 x 3	500 x 1000	7.3	4.4	14.4	2.72	-	29.0	49	243	66	44	71
2 x 3	600 x 1000	7.3	5.9	16.7	2.59	-	29.0	55	265	66	49	79
2.3 x 5	700 x 1500	7.3	12.5	30.8	2.78	-	29.0	99	331	88	82	121
3 x 5	1000 x 1500	7.3	23.6	41.0	2.51	-	29.0	161	441	176	112	216
3 x 6.5	1000 x 2000	7.3	33.2	57.8	2.72	-	29.0	194	485	309	126	249
4 x 6.5	1200 x 2000	7.3	46.5	66.8	2.59	-	29.0	289	706	419	150	344
4.4 x 8	1350 x 2500	7.3	75.3	96.1	2.67	-	29.0	441	772	441	-	529
5 x 10	1500 x 3000	7.3	113.0	130.0	2.72	-	29.0	551	1169	772	-	639
5.6 x 10	1700 x 3000	7.3	141.0	144.0	2.63	-	29.0	639	1279	970	-	728
6.5 x 11.5	2000 x 3500	7.3	227.0	197.0	2.63	-	29.0	893	2117	1411	-	1025
8 x 13	2500 x 4000	7.3	489.0	311.0	2.82	25.4	36.3	1989	2734	2007	-	2381
8 x 18	2500 x 5500	7.3	696.0	454.0	3.04	25.4	36.3	2403	4079	2558	-	2911
11 x 15	3300 x 4500	7.3	867.0	424.0	2.67	25.4	36.3	3219	3771	2800	-	4057
11 x 21	3300 x 6500	7.3	1339.0	678.0	3.00	25.4	36.3	4123	5667	4212	-	4961
11 x 35	3300 x 10600	7.3	2264.0	1183.0	3.25	25.4	36.3	5645	10275	7277	-	6747
15 x 30	4500 x 9000	7.3	3507.0	1293.0	3.00	25.4	36.3	8688	11885	7762	-	-
15 x 40	4500 x 12000	7.3	4777.0	1796.0	3.17	25.4	36.3	10562	15413	11444	-	-

PNEUMATIC 50 POPULAR NON STANDARD SIZES

NOMINAL SIZE		INITIAL INTERNAL PRESSURE	GUARANTEED ENERGY ABSORPTION (GEA)	REACTION FORCE AT GEA	HULL PRESSURE AT GEA	SAFETY VALUE SETTING PRESSURE	TESTING PRESSURE	WEIGHT OF NET TYPE (TYPE I)				WEIGHT OF SLING TYPE (TYPE II)
								APPROX. FENDER BODY WEIGHT	APPROXIMATE WEIGHT OF NET			
DIAMETER X LENGTH			E	R	P				CHAIN NET	WIRE NET	SYNTHETIC FIBER NET	
(FT X FT)	(MM X MM)	(KIPS)	(KIPS)	(KIPS)	(KIPS/FT²)	(PSI)	(PSI)	(LBS)	(LBS)	(LBS)	(LBS)	(LBS)
1.3 x 5	400 x 1500	7.3	4.4	19.6	3.11	-	29.0	51	-	-	-	73
2 x 4	600 x 1200	7.3	7.4	20.9	2.72	-	29.0	62	-	-	-	86
2.6 x 4	800 x 1200	7.3	11.8	26.1	2.51	-	29.0	107	529	-	-	128
4 x 6	1200 x 1800	7.3	40.6	59.0	2.51	-	29.0	271	684	-	-	326
4.4 x 11.5	1350 x 3500	7.3	112.0	144.0	2.90	-	29.0	562	1323	-	-	650
5 x 8	1500 x 2500	7.3	90.8	104.0	2.59	-	29.0	487	970	-	-	576
6.5 x 10	2000 x 3000	7.3	188.0	164.0	2.51	-	29.0	809	1985	-	-	942
6.5 x 15	2000 x 4500	7.3	309.0	267.0	2.82	-	29.0	1058	2646	-	-	1191
8 x 25	2500 x 7700	7.3	996.0	664.0	3.23	25.4	36.3	3021	6659	-	-	3528
11 x 28	3300 x 8600	7.3	1803.0	931.0	3.17	25.4	36.3	4895	8181	-	-	5998
15 x 21	4500 x 6400	7.3	2390.0	854.0	2.74	25.4	36.3	7497	8600	-	-	-



PNEUMATIC FENDERS

PNEUMATIC 80 (U.S. CUSTOMARY)

PNEUMATIC 80 STANDARD SIZES

NOMINAL SIZE		INITIAL INTERNAL PRESSURE	GUARANTEED ENERGY ABSORPTION (GEA)	REACTION FORCE AT GEA	HULL PRESSURE AT GEA	SAFETY VALUE SETTING PRESSURE	TESTING PRESSURE	WEIGHT OF NET TYPE (TYPE I)				WEIGHT OF SLING TYPE (TYPE II)
								APPROX. FENDER BODY WEIGHT	APPROXIMATE WEIGHT OF NET			
DIAMETER X LENGTH			E	R	P				CHAIN NET	WIRE NET	SYNTHETIC FIBER NET	
(FT X FT)	(MM X MM)	(KIPS)	(KIPS)	(KIPS)	(KIPS/FT²)	(PSI)	(PSI)	(LBS)	(LBS)	(LBS)	(LBS)	(LBS)
1.6 x 3	500 x 1000	11.6	5.9	19.1	3.58	-	36.3	53	243	66	44	75
2 x 3	600 x 1000	11.6	8.1	22.1	3.41	-	36.3	60	265	66	49	84
2.3 x 5	700 x 1500	11.6	17.7	40.5	3.64	-	36.3	104	331	88	82	126
3 x 5	1000 x 1500	11.6	33.2	53.8	3.29	-	36.3	168	441	176	112	223
3 x 6.5	1000 x 2000	11.6	46.5	76.1	3.58	-	36.3	203	485	309	126	258
4 x 6.5	1200 x 2000	11.6	64.9	87.8	3.41	-	36.3	298	706	419	150	353
4.4 x 8	1350 x 2500	11.6	105.0	126.0	3.50	-	36.3	452	772	441	-	540
5 x 10	1500 x 3000	11.6	158.0	171.0	3.58	-	36.3	611	1169	772	-	699
5.6 x 10	1700 x 3000	11.6	197.0	189.0	3.46	-	36.3	697	1279	970	-	785
6.5 x 11.5	2000 x 3500	11.6	317.0	259.0	3.46	-	36.3	911	2139	1521	-	1043
8 x 13	2500 x 4000	11.6	683.0	408.0	3.70	33.4	43.5	2227	2756	2007	-	2624
8 x 18	2500 x 5500	11.6	972.0	597.0	4.01	33.4	43.5	2712	4101	2580	-	3219
11 x 15	3300 x 4500	11.6	1210.0	557.0	3.52	33.4	43.5	3793	3793	2822	-	4608
11 x 21	3300 x 6500	11.6	1869.0	891.0	3.93	33.4	43.5	4851	5689	4388	-	5667
11 x 35	3300 x 10600	11.6	3160.0	1554.0	4.28	33.4	43.5	6681	10275	7277	-	7762
15 x 30	4500 x 9000	11.6	4896.0	1699.0	3.95	33.4	43.5	9658	11995	7894	-	-
15 x 40	4500 x 12000	11.6	6670.0	2360.0	4.16	33.4	43.5	11753	15501	11532	-	-

PNEUMATIC 80 POPULAR NON STANDARD SIZES

NOMINAL SIZE		INITIAL INTERNAL PRESSURE	GUARANTEED ENERGY ABSORPTION (GEA)	REACTION FORCE AT GEA	HULL PRESSURE AT GEA	SAFETY VALUE SETTING PRESSURE	TESTING PRESSURE	WEIGHT OF NET TYPE (TYPE I)				WEIGHT OF SLING TYPE (TYPE II)
								APPROX. FENDER BODY WEIGHT	APPROXIMATE WEIGHT OF NET			
DIAMETER X LENGTH			E	R	P				CHAIN NET	WIRE NET	SYNTHETIC FIBER NET	
(FT X FT)	(MM X MM)	(KIPS)	(KIPS)	(KIPS)	(KIPS/FT²)	(PSI)	(PSI)	(LBS)	(LBS)	(LBS)	(LBS)	(LBS)
1.3 x 5	400 x 1500	11.6	6.6	25.7	4.09	-	36.3	53	-	-	-	75
2 x 4	600 x 1200	11.6	10.3	27.5	3.58	-	36.3	66	-	-	-	90
2.6 x 4	800 x 1200	11.6	17.0	34.4	3.29	-	36.3	110	529	-	-	132
4 x 6	1200 x 1800	11.6	56.8	77.4	3.29	-	36.3	280	684	-	-	335
4.4 x 11.5	1350 x 3500	11.6	157.0	189.0	3.81	-	36.3	576	1323	-	-	664
5 x 8	1500 x 2500	11.6	126.0	137.0	3.41	-	36.3	538	970	-	-	626
6.5 x 10	2000 x 3000	11.6	263.0	215.0	3.29	-	36.3	827	1985	-	-	959
6.5 x 15	2000 x 4500	11.6	431.0	351.0	3.68	-	36.3	1076	2668	-	-	1208
8 x 25	2500 x 7700	11.6	1391.0	872.0	4.24	33.4	43.5	3418	6681	-	-	3925
11 x 28	3300 x 8600	11.6	2517.0	1223.0	4.16	33.4	43.5	5777	8181	-	-	6858
15 x 21	4500 x 6400	11.6	3335.0	1122.0	3.58	33.4	43.5	8291	8622	-	-	-



PNEUMATIC FENDERS

SIZES AND PERFORMANCES

The Pneumatic Rubber Fenders are available in the following sizes, which are generally expressed in terms of diameter by length.

Ø4500 x 9000L - P80
Pneumatic Rubber Fender

