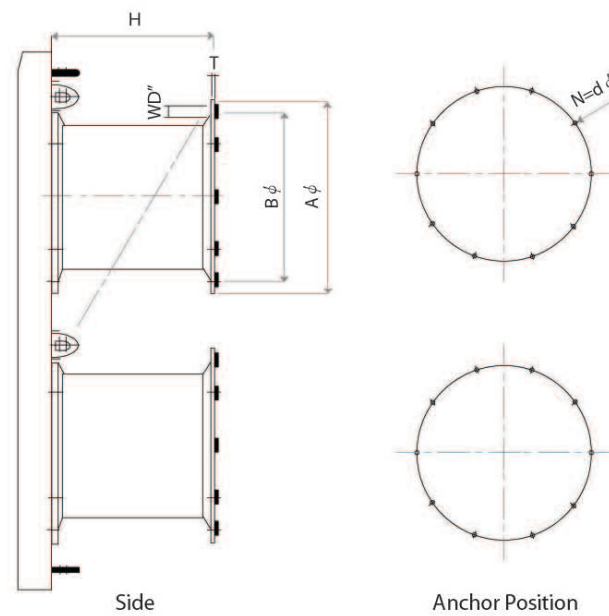
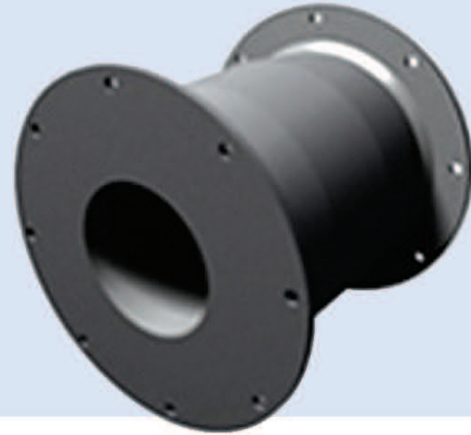


System Fenders

DR Fender

DR type Fender is a cylindrical elastomeric section with steel mounting plates permanently bonded to the main column during vulcanization. Under axial loading, the contoured profile of the cylinder buckles radially. This controlled, multi-directional dispersion of energy combines the high absorptive efficiency of the buckling column with the strength-extending characteristics of a stable geometric shape-high energy absorption and low reaction force as distinguished features. In addition, DR Fenders can be fitted with frontal frames to obtain wide contact area with the vessel, reducing pressure against the vessel hulls as much as required.



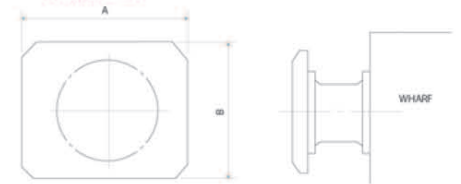
Dimensions	WD	T	Aφ	Bφ	N	dφ
Height						
DR500H	1	25	650	550	4	32
DR650H	1 1/8	25	870	730	4	39
DR800H	1 1/4	30	1050	900	6	40
DR1000H	1 1/2	35	1300	1100	6	47
DR1200H	1 3/4	40	1550	1350	6	53
DR1400H	2	42	1800	1600	6	61
DR1600H	2	45	2000	1800	8	61
DR1700H	2 1/4	50	2100	1900	8	66
DR2000H	2 1/2	50	2450	2250	8	74
DR2250H	2 1/2	57	2550	2300	10	74
DR2500H	2 1/2	70	2950	2700	10	74
DR3000H	3"	75	3500	3250	12	90

System Fenders

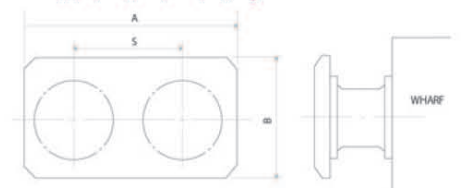
Materials & Standards

No	Accessories	Parts	Material	Grade Standard	Corresponding Standard
1	Anchor (Resin, U-type)	Anchor Bolt Pin Washer	Synthetic Resin Rolled Steel or Stainless Steel	- SS400 (Zn-Galvanized) STS304(316)	KS D 3503 ASTM A 36
2	Protector Panel With Relative Parts	Protector Panel Bolt Nut Washer	Rolled Steel Rolled Steel Rolled Steel Rolled Steel	SS400 (Zn-Galvanized)	KS D 3503 ASTM A 36
3	Fender Top	Fender Top	(HDPE & UHMW)		
4	Chain	Horizontal Chain	Steel Bars for Chain	SBC490 or SBC690	KS D 3504
5	Chain	Suspension Chain	Steel Bars for Chain	SBC490 or SBC690	KS D 3504
6	Chain	Shear Chain	Steel Bars for Chain	SBC490 or SBC690	KS D 3504
7	U-Anchor	U-Anchor	Rolled Steel or Stainless Steel	SS400 (Zn-Galvanized) STS304(316)	KS D 3503 ASTM A 36

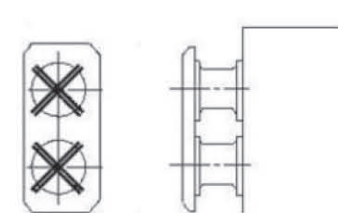
Single unit



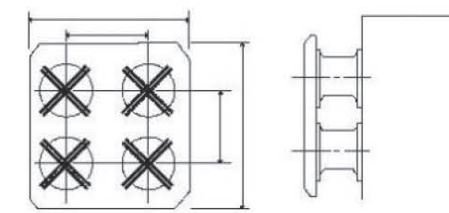
Two units horizontally



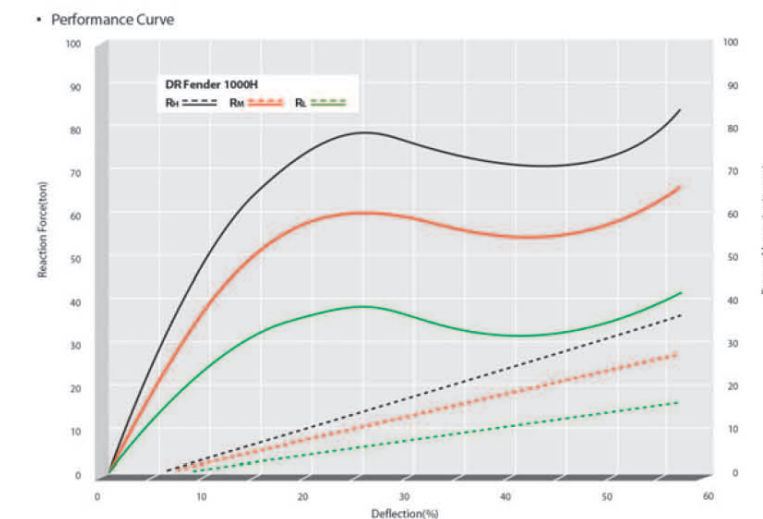
Two units vertically



Four units (Two horizontally, Two vertically)



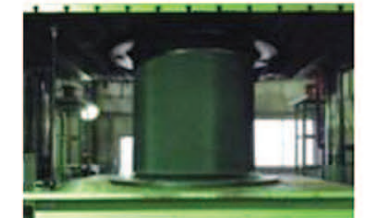
Performance Curve



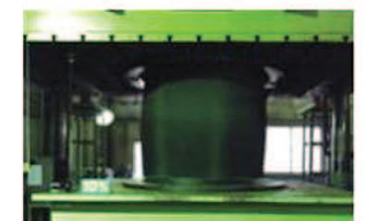
Size	500H	650H	800H	1000H	1200H	1400H	1600H	1700H	2000H	2250H	2500H
RS	R-F (ton)	21.6	35.1	55.0	87.8	126.4	172.0	222.3	253.9	351.0	493.7
	E-A (ton-m)	4.1	9.4	17.0	38.6	70.2	108.8	158.0	189.5	308.9	489.1
RH	R-F (ton)	18.5	30	47	75	108	147	190	217	300	422
	E-A (ton-m)	3.5	8	14.5	33	60	93	135	162	264	418
RM	R-F (ton)	14.5	24	36	58	82	112	148	167	231	325
	E-A (ton-m)	2.7	7	11	25.5	47	74	104	125	203	321
RL	R-F (ton)	8.8	16.1	21.5	35	52	73	91	103	142	212
	E-A (ton-m)	1.6	3.6	6.8	15.5	22	36	64	77	125	210

- Deflection : 52.5% - Tolerance : ±10% - R-F : Reaction Force - E-A : Energy Absorption

DR Fender Compression Test



Deflection 0%



Deflection 10%



Deflection 30%



Deflection 52.5%