



GLEN Cone Fenders

Super cone fenders are the latest generation of fenders with high performance and efficiency. The conical body makes it very stable even at large compression angle.

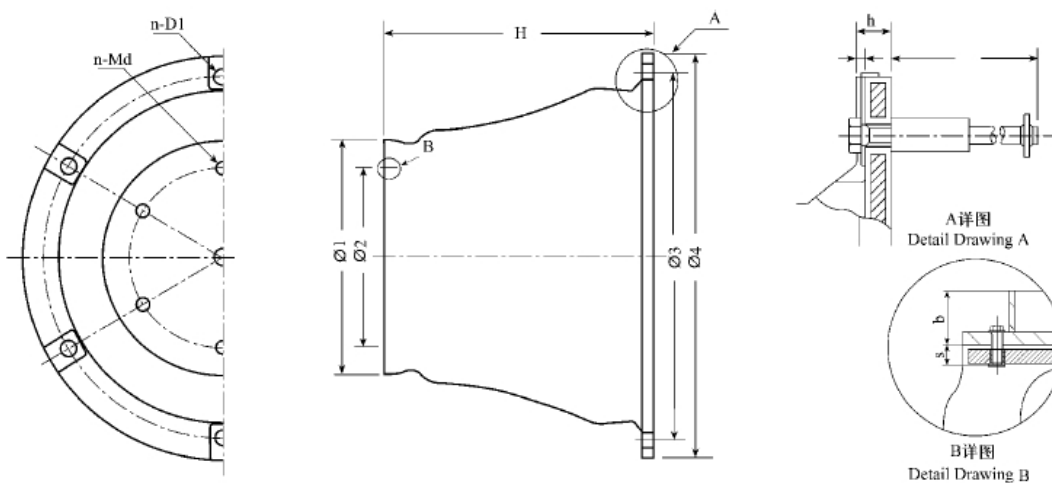
Features:

- big deflection, high performance
- stable shape resists shear
- can support large panel
- better performance on angel compression
- wide range sizes, can meet multi-design requirements
- easy installation

Applications:

- general cargo berths
- oil and LNG facilities
- container terminals
- Ro-RO and cruise terminals
- bulk terminals

Dimension: (mm)





Super Cone Rubber Fender (mm)												
Type	H	h	Φ1	Φ2	Φ3	Φ4	n	D 1	Md	a	b	s
Cone 500H	500	2 5	425	325	675	750	4	30	M2 4	4	75-95	36
Cone 600H	600	2 7	510	390	810	900	6	30	M2 4	5	90-110	40
Cone 700H	700	3 2	595	455	945	105 0	6	38	M3 0	6	105-12 5	40
Cone 800H	800	3 6	680	520	108 0	120 0	6	44	M3 6	7	120-14 0	52
Cone 900H	900	4 1	765	585	121 5	135 0	6	44	M3 6	8	135-15 5	55
Cone 1000H	100 0	4 5	850	650	135 0	150 0	6	56	M4 2	8	150-17 0	65
Cone 1100H	110 0	5 0	935	715	148 5	165 0	6	50	M4 2	8	165-18 5	65
Cone 1150H	115 0	5 2	998	750	155 0	172 5	6	56	M4 2	1 0	170-19 5	70
Cone 1200H	120 0	5 4	102 0	780	162 0	180 0	8	50	M4 2	1 0	180-21 0	75
Cone 1300H	130 0	5 9	110 5	845	175 5	195 0	8	60	M4 8	1 1	195-22 5	75
Cone 1400H	140 0	6 6	119 0	930	189 0	210 0	8	60	M4 8	1 2	210-23 5	70-8 0
Cone 1600H	160 0	7 2	136 0	106 0	216 0	240 0	8	70	M4 8	1 4	280-27 0	70-8 0
Cone 1800H	180 0	7 8	153 0	119 0	243 0	270 0	1 0	76	M5 6	1 6	270-29 0	75-9 0

Performance Data:

R/F: KN E/A:KN-m		RL		RO		RH		RS	
		Rated deflection 52.5%	Max deflection 55%	Rated deflection 52.5%	Max deflection 55%	Rated deflection 52.5%	Max deflection 55%	Rated deflection 52.5%	Max deflection 55%
Cone 500H	R	165	193	200	232	268	311	335	380
	E	37	41	47	50	63	70	79	90

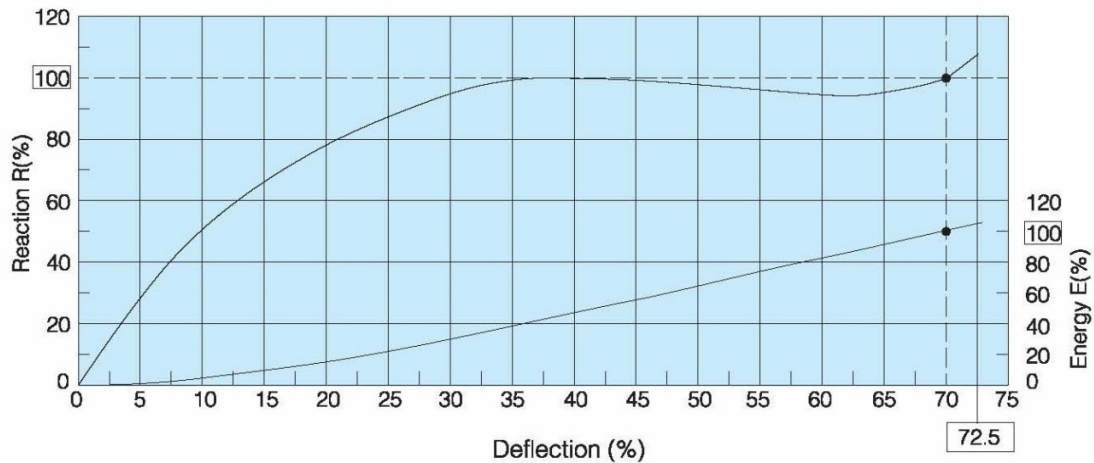


Cone 600H	R	225	258	283	319	382	429	480	542
	E	75	85	94	104	127	129	157	161
Cone 700H	R	308	341	384	426	522	568	652	691
	E	120	124	150	154	181	192	235	243
Cone 800H	R	402	428	502	576	706	833	862	930
	E	179	208	224	252	294	316	368	380
Cone 900H	R	508	558	635	703	862	957	1078	1189
	E	255	270	306	334	399	431	494	517
Cone 1000H	R	628	698	784	882	1078	1213	1339	1507
	E	350	380	437	478	541	588	669	735
Cone 1100H	R	800	833	927	1019	1146	1259	1430	1570
	E	408	432	495	527	650	681	830	885
Cone 1200H	R	890	979	1106	1229	1396	1536	1746	1920
	E	560	583	705	735	882	919	1103	1149
Cone 1300H	R	1125	1200	1320	1537	1705	1900	2125	2312
	E	750	800	1043	1077	1310	1360	1585	1640
Cone 1400H	R	1150	1278	1443	1604	1804	2005	2255	2506
	E	860	896	1079	1124	1349	1405	1686	1756
Cone 1600H	R	1418	1575	1814	20016	2268	2520	3024	3150
	E	1234	1285	1548	1613	1935	2016	2419	2520
Cone 1800H	R	1912	2125	2401	2667	3000	3333	3750	4166
	E	1804	1880	2264	2359	2830	2948	3538	3686

*Performance tolerance: $\pm 10\%$

*Other performance are available to meet customers' request

Performance Curves:



Intermediate Deflection:

H (%)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	72.5
E (%)	0	4.5	5.7	13.7	18.3	25	32	41	52	59.5	68.4	78	87	92	100	105
R (%)	0	24	52	69	80	90	97	98.5	100	98.5	98	92	90	91	100	107

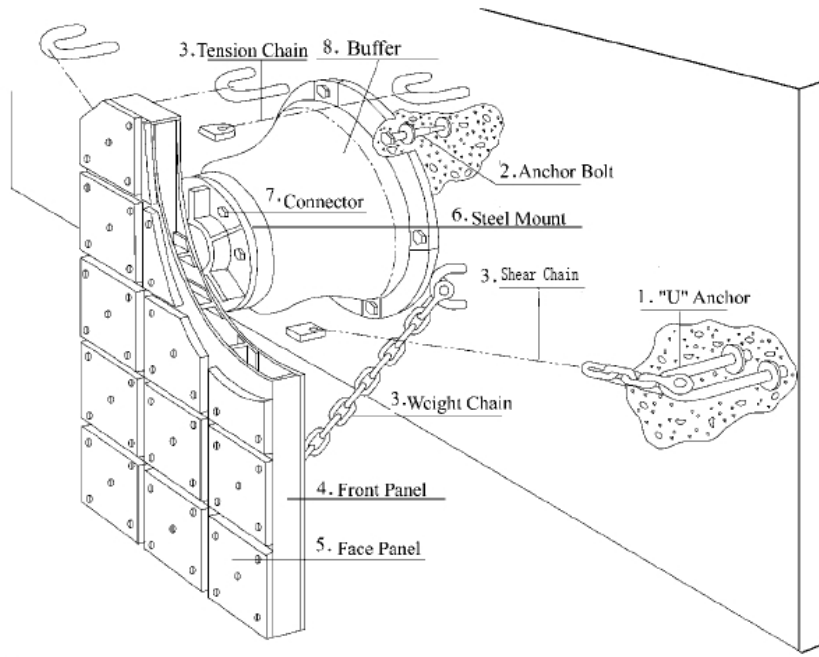
Angular compression correction coefficient of energy absorption & reaction force:

Angle	0°	1°	3°	5°	7°	9°	10°	11°	13°	15°	20°	30°
E(%)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.98	0.97	0.93	0.87	0.63
R (%)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.82

Installation:



Main Accessories and Applications:

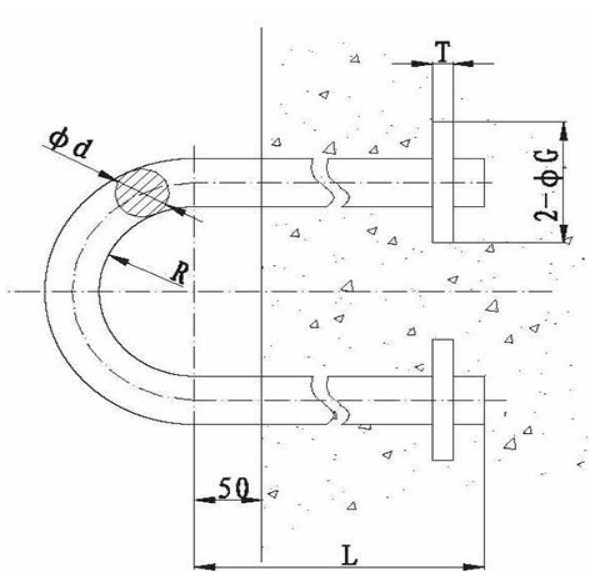


No.	Name	Applications	Material
1	Pre-built in U ring	Holding chains	Q235 H.D.G
2	Anchor bolt & Nut	Fasten fenders onto dock	Stainless steel, Q235 H.D.G
3	Chains (including tensile chain, weight chain, shear chain)	1. limit fender deflection while fender local part under strain 2. support the front panel in avoid of sagging 3. prevent fender system from shear deflection	Q235 H.D.G 15Mn or 20Mn H.D.G
4	Front panel	Reduce surface pressure in avoid of damage of the fender & vessels	Q235 painted
5	Face pad	Reduce friction coefficient to protect hull	UHMW-PE



6	Steel Mount	Increase fender performance	Q235 painted
7	Connector	Connect the fender & Front panel	Stainless steel, Q235 H.D.G
8	Buffer	Absorb ship berthing energy to protect dock and vessels	Rubber, Q235

Accessories – U shackle



Material: Q235 H.D.G

2Cr18Ni10Ti

0Cr17Ni12Mo0

0Cr18Ni9

[Unit: mm]

Type	Φd	R80	L	ΦG	T
CONE500H	$\Phi 50$	R80	650	$\Phi 100$	20~30

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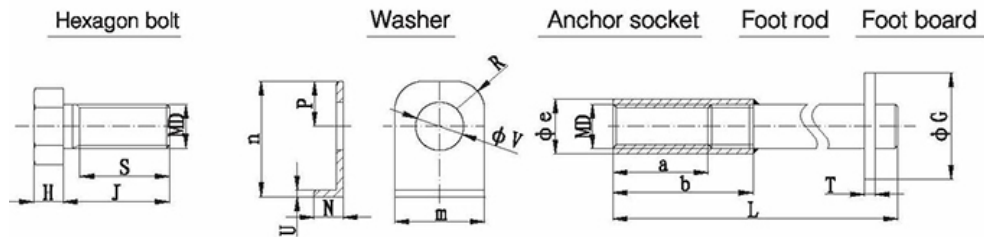
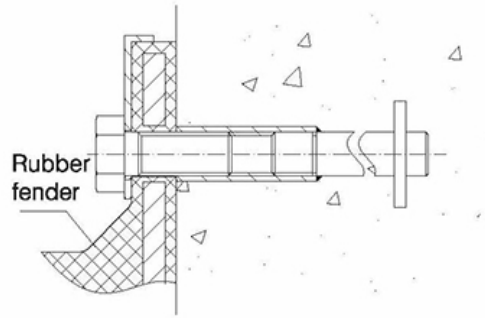
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CONE600H	Φ55	R90	730	Φ120	20~30
CONE700H	Φ55	R90	730	Φ120	20~30
CONE800H	Φ55	R90	730	Φ120	20~30
CONE900H	Φ60	R100	780	Φ140	25~35
CONE1000H	Φ60	R100	780	Φ140	25~35
CONE1100H	Φ60	R100	780	Φ140	25~35
CONE1150H	Φ65	R105	830	Φ150	25~35
CONE1200H	Φ65	R105	830	Φ150	25~35
CONE1300H	Φ65	R105	830	Φ150	25~35
CONE1400H	Φ65	R105	830	Φ150	25~35
CONE1600H	Φ70	R115	880	Φ160	25~35
CONE1800H	Φ70	R115	880	Φ160	25~35
CONE2000H	Φ80	R120	930	Φ160	25~35

Super Cell Fender Fixings for New Concrete:

Type	MD	Hexagon bolt			Washer							Anchor Socket			Foot rod		Foot board
		H	J	S	m	N	n	P	U	V	R	b	e	a	G	T	L
CONE500H	M24	17	60	50	55	20	73	28	5	28	15	80	34	50	70	6-10	240
CONE600H	M24	17	60	50	55	20	80	28	5	28	15	80	34	50	70	6-10	240
CONE700H	M30	19	75	65	65	20	93	33	5	34	15	100	39	65	80	10-12	300
CONE800H	M36	23	85	75	70	24	12	35	5	40	15	110	47	70	85	10-12	360
CONE900H	M36	23	90	80	70	24	111	35	6	40	15	110	47	70	85	10-12	360
CONE1000H	M42	26	100	80	85	26	126	43	6	46	25	120	54	75	100	12-16	420
CONE1100H	M42	26	105	90	85	26	134	43	6	46	25	120	54	75	100	12-16	420
CONE1150H	M42	26	105	90	85	28	139	43	6	46	25	120	54	75	100	12-16	420
CONE1200H	M42	26	110	90	85	31	144	43	8	46	25	120	54	75	100	12-16	420
CONE1300H	M48	30	120	95	100	31	158	50	8	52	30	140	64	85	130	12-16	480
CONE1400H	M52	35	130	100	110	34	170	55	8	56	30	140	69	85	130	12-16	520
CONE1600H	M56	35	140	110	120	34	192	60	10	60	30	150	74	90	140	16-20	560
CONE1800H	M56	35	150	110	120	34	207	60	10	60	30	150	74	90	140	16-20	560
CONE2000H	M56	35	160	130	130	45	212	60	10	60	30	150	74	90	140	16-20	560



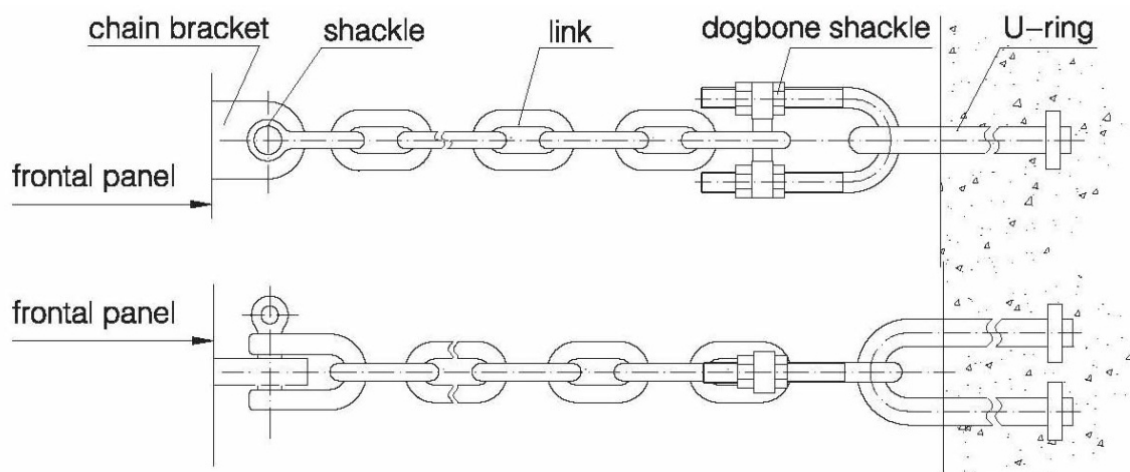
Type	MD	Nut	Washer							Resin bolt		
		H	m	N	n	p	U	V	R	a	L	A
CONE300H	M16	10	35	10	41	41	3	20	5	40	200	32
CONE350H	M20	17	40	15	57	57	5	23	10	55	240	25
CONE400H	M20	17	40	15	57	57	5	23	10	50	240	25
CONE500H	M24	17	55	20	73	28	5	28	15	55	280	30
CONE600H	M24	17	55	20	80	28	5	28	15	55	280	30
CONE700H	M30	19	65	20	93	33	5	34	15	65	360	38
CONE800H	M36	23	70	24	102	35	5	40	15	75	440	46
CONE900H	M36	23	70	24	111	35	6	40	15	80	440	46
CONE1000H	M42	26	85	26	126	43	6	46	25	95	510	55
CONE1100H	M42	26	85	26	134	43	6	46	25	95	510	55
CONE1150H	M42	26	85	28	139	43	6	46	25	95	510	55
CONE1200H	M42	26	85	31	144	43	8	46	25	105	510	55
CONE1300H	M48	30	100	31	158	50	8	52	30	115	580	60
CONE1400H	M52	35	110	34	170	55	8	56	30	12	600	65
CONE1600H	M56	35	120	34	192	60	10	60	30	135	680	68

Super Cell Fender Fixings for Existing Concrete:



CONE1800H	M56	35	120	34	207	60	10	60	30	140	680	68
CONE2000H	M56	35	130	45	212	60	10	60	30	160	680	68

Spring Chains: (unit: mm/KN)

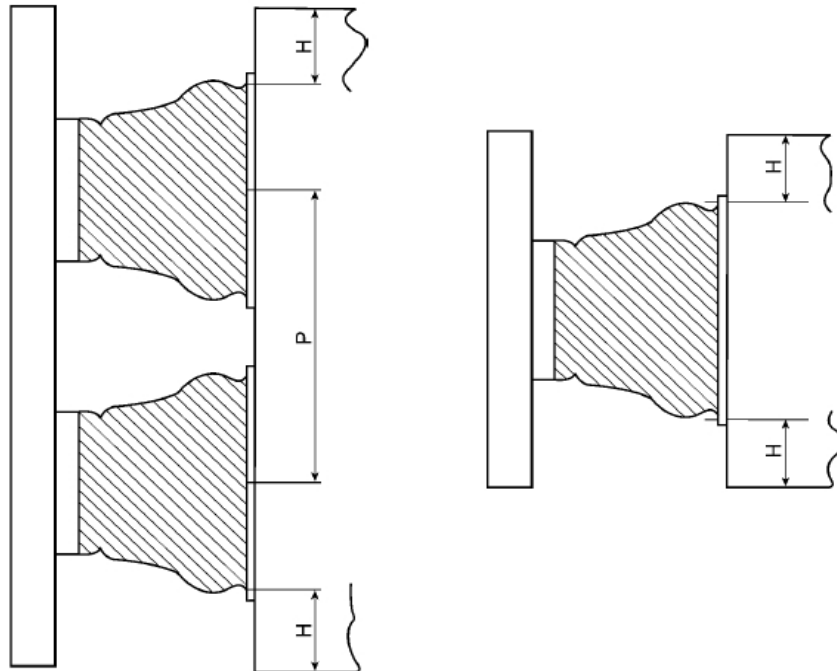


Type	Shackle 45# H.D.G	Link 20Mn H.D.G	Spring frame Q235 H.D.G	Rubber spring rubber	Dogbone Shackle Q235 H.D.G	Breaking load
CONE500H	M22	Φ20	M30	Φ100*Φ30*150	M30	78
CONE600H						



CONE700H	M25	Φ25			M36	109
CONE800H	M32	Φ28	M36		M39	135
CONE900H		Φ32			M42	188
CONE1000H	M36	Φ34	M42		M45	202
CONE1100H	M38	Φ36		M48	227	
CONE1150H		Φ38	M48	M52	253	
CONE1200H	M42	Φ40		M56	280	
CONE1300H					309	
CONE1400H				M56	Φ150*Φ50*200	M60
CONE1600H	M45	Φ42				
CONE1800H						
CONE2000H	M50	Φ46				

Min. spacing between fender installation & min. spacing between fender and concrete structure (mm)





Type	CONE 500	CONE 600	CONE 700	CONE 800	CONE 900	CONE 1000	CONE 1100	CONE 1150	CONE 1200	CONE 1300	CONE 1400	CONE 1600	CONE 1800
H	240	240	300	360	360	420	420	420	420	480	480	480	430
P	850	1020	1190	1360	1530	1700	1870	1955	2040	2220	2420	2820	3220