

SAN Arch Fenders

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The SAN arch fenders are particularly useful for vessels with high allowable hull pressures and for locations where mounting space is limited.

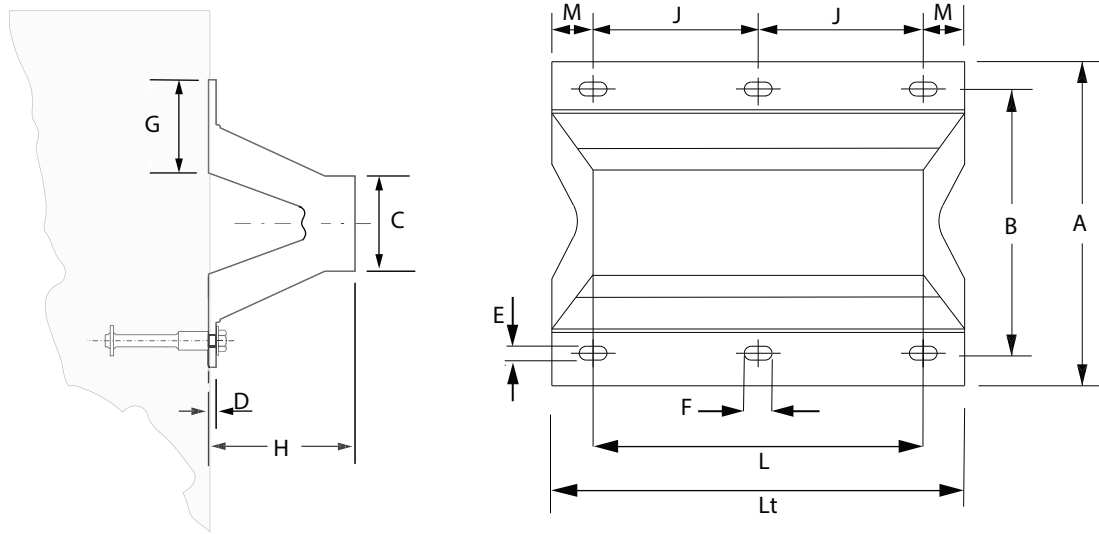
The SAN arch fender can be equipped with an additional embedded steel plate (SAN-PE). This allows the installation of a low friction PE-rubbing plate, a steel fender panel or the mounting of the fender unit behind a pile construction.

Key performance characteristics include:

- ▶ Good energy absorption and low reaction force.
- ▶ With shockproof plates at the front, it may reduce surface pressure.
- ▶ Pro-longed life and easy replacement.
- ▶ Excellent shear resistance.



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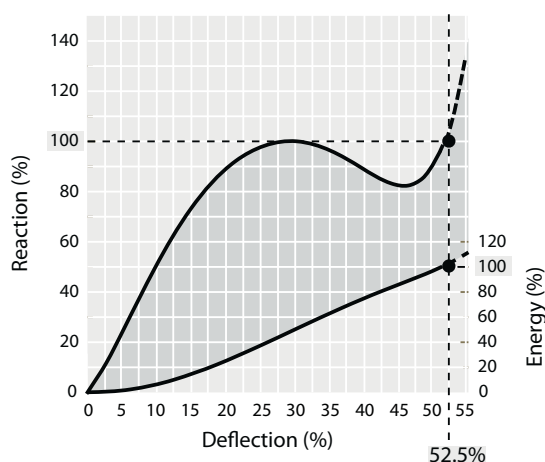


Type	A	B	C	D	E	F	G	H	Anchor	Weight
PSG-SAN	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	M	kg/m
H200	400	320	130	35	29	58	128	200	M24	62
H300	600	490	225	33	35	70	195	300	M30	129
H400	800	670	300	40	41	82	260	400	M36	218
H500	1000	840	375	45	47	94	325	500	M42	245
H600	1200	1010	450	54	50	100	390	600	M48	500
H800	1600	1340	600	72	63	136	520	800	M60	900
H1000	2000	1680	750	90	68	136	650	1000	M64	1400

Type		Bolt Hole Pitch					
PSG-SAN		metrics in mm and units					
	L	1000mm	1500mm	2000mm	2500mm	3000mm	3500mm
H200	Lt	1100	1600	2100	2600	3100	3600
	J	860	680	620	785	715	672
	M	120	120	120	122,5	120	120
	bolts	4	6	8	8	10	12
H300	Lt	1150	1650	2150	2650	3150	3650
	J	870	685	625	790	715	674
	M	140	140	137,5	140	145	140
	bolts	4	6	8	8	10	12
H400	Lt	1200	1700	2200	2700	3200	3700
	J	900	700	635	800	725	680
	M	150	150	147,5	150	150	150
	bolts	4	6	8	8	10	12
H500	Lt	1250	1750	2250	2750	3250	3750
	J	930	715	645	810	730	686
	M	160	160	157,5	160	165	160
	bolts	4	6	8	8	10	12
H600	Lt	1300	1800	2300	2800	3300	3800
	J	960	730	655	820	740	692
	M	170	170	167,5	170	170	170
	bolts	4	6	8	8	10	12
H800	Lt	1400	1900	2400	2900	3400	
	J	1040	770	680	845	760	
	M	180	180	180	182,5	180	
	bolts	4	6	8	8	10	
H1000	Lt	1500	2000	2500			
	J	900	700	630			
	M	200	200	200			
	bolts	4	6	8			

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Generic performance curve SAN fender



Rubber grade		Compound A				Compound B				Compound C				Compound D			
Deflection		52.5%		55%		52.5%		55%		52.5%		55%		52.5%		55%	
Type / values	(L) m	E kNm	R kN	E kNm	R kN	E kNm	R kN	E kNm	R kN	E kNm	R kN	E kNm	R kN	E kNm	R kN	E kNm	R kN
SAN 200H	1	14	174	15	234	12	151	13	204	10	113	11	153	6	76	7	104
	1,5	21	261	23	351	18	227	20	306	15	170	17	230	9	114	11	156
	2	28	348	30	468	24	302	26	408	20	226	22	306	12	152	14	208
	2,5	35	435	38	585	30	378	33	510	25	283	28	383	15	190	18	260
	3	42	522	45	702	36	453	39	612	30	339	33	459	18	228	21	312
	3,5	49	609	53	819	42	529	46	714	35	396	39	536	21	266	25	364
SAN 300H	1	41	324	44	450	31	249	33	346	26	206	28	286	22	177	25	246
	1,5	62	486	66	675	47	374	50	519	39	309	42	429	33	266	36	369
	2	82	648	88	900	62	498	66	692	52	412	56	572	44	354	48	492
	2,5	103	810	110	1125	78	623	83	865	65	515	70	715	55	443	60	615
	3	123	972	132	1350	93	747	99	1038	78	618	84	858	66	531	72	738
	3,5	144	1134	154	1575	109	872	116	1211	91	721	98	1001	77	620	84	861
SAN 400H	1	73	432	78	600	56	332	60	461	46	275	49	382	40	236	43	328
	1,5	110	648	117	900	84	498	90	692	69	413	74	573	60	354	65	492
	2	146	864	156	1200	112	664	120	922	92	550	98	764	80	472	86	656
	2,5	183	1080	195	1500	140	830	150	1153	115	688	123	955	100	590	108	820
	3	219	1296	234	1800	168	996	180	1383	138	825	147	1146	120	708	129	984
	3,5	256	1512	273	2100	196	1162	210	1614	161	963	172	1337	140	826	151	1148
SAN 500H	1	113	540	121	750	87	415	93	576	72	344	77	478	62	295	66	410
	1,5	170	810	182	1125	131	623	140	864	108	516	116	717	93	443	99	615
	2	226	1080	242	1500	174	830	186	1152	144	688	154	956	124	590	132	820
	2,5	283	1350	303	1875	218	1038	233	1440	180	860	193	1195	155	738	165	1025
	3	339	1620	363	2250	261	1245	279	1728	216	1032	231	1434	186	885	198	1230
	3,5	396	1890	424	2625	305	1453	326	2016	252	1204	270	1673	217	1033	231	1435
SAN 600H	1	163	647	175	899	126	498	135	692	104	412	111	572	89	354	95	492
	1,5	245	971	263	1349	189	747	203	1038	156	618	167	858	134	531	143	738
	2	326	1294	350	1798	252	996	270	1384	208	824	222	1144	178	708	190	984
	2,5	408	1618	438	2248	315	1245	338	1730	260	1030	278	1430	223	885	238	1230
	3	489	1941	525	2697	378	1494	405	2076	312	1236	333	1716	267	1062	285	1476
	3,5	571	2265	613	3147	441	1743	473	2422	364	1442	389	2002	312	1239	333	1722
SAN 800H	1	290	864	311	1200	223	664	239	922	185	550	198	764	159	472	170	656
	1,5	435	1296	467	1800	335	996	359	1383	278	825	297	1146	239	708	255	984
	2	580	1728	622	2400	446	1328	478	1844	370	1100	396	1528	318	944	340	1312
	2,5	725	2160	778	3000	558	1660	598	2305	463	1375	495	1910	398	1180	425	1640
	3	870	2592	933	3600	669	1992	717	2766	555	1650	594	2292	477	1416	510	1968
SAN 1000H	1	454	1080	486	1500	349	830	374	1153	289	688	310	956	248	590	266	820
	1,5	681	1620	729	2250	524	1245	561	1730	434	1032	465	1434	372	885	399	1230
	2	908	2160	972	3000	698	1660	748	2306	578	1376	620	1912	496	1180	532	1640

Note: R = Reaction Force E = Energy Absorption Performance Tolerance $\pm 10\%$
Rated compression deflection 52.5% and maximum compression deflection 55%.
Fenders in different energy absorption and reaction force are available upon request.

SAN-PE Arch Fenders

The hugely popular SAN-PE arch fender has a better energy/reaction force ratio and is recommended for all types of applications.

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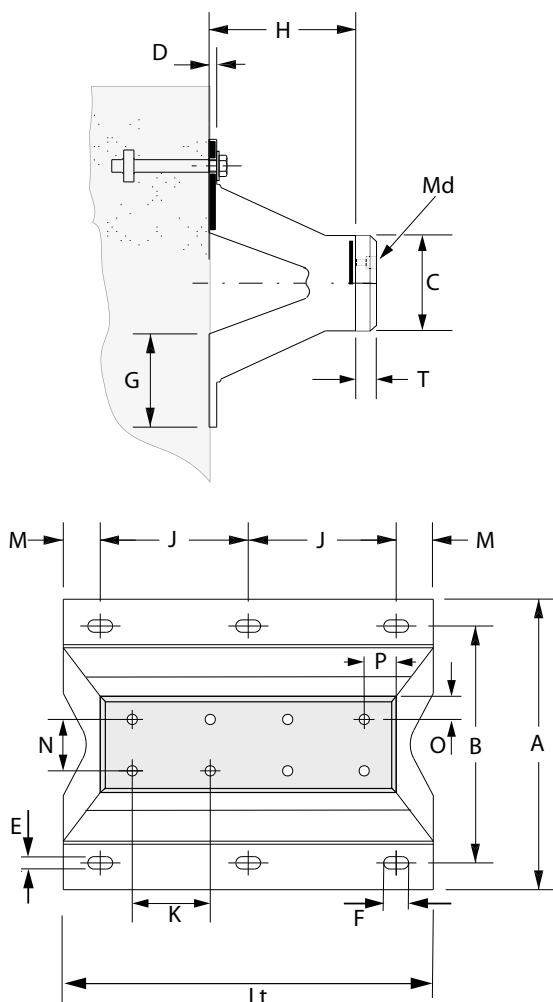
The SAN-PE arch fenders are particularly useful for vessels with high allowable hull pressures and for locations where mounting space is limited.

Key performance characteristics include:

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SAN-PE Arch Fenders

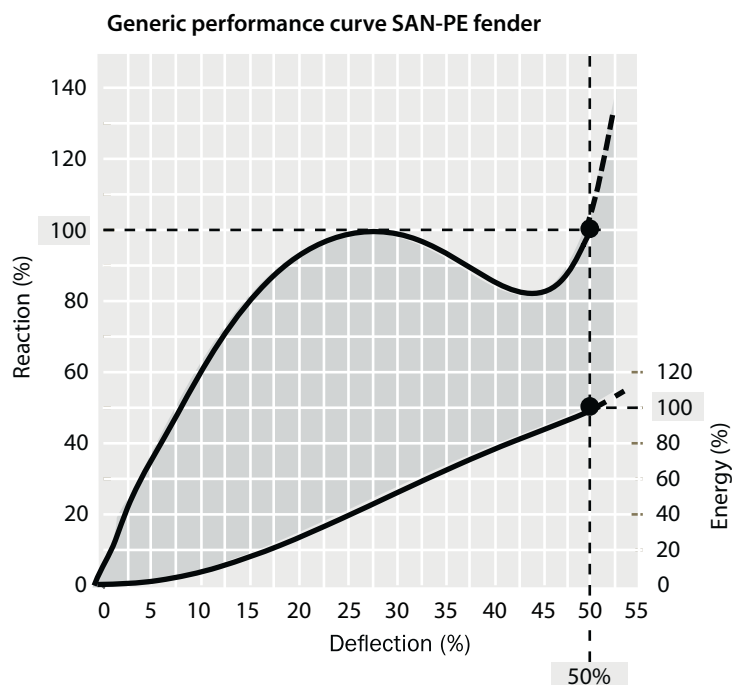


Type		Bolt Hole Pitch					
Arch		metrics in mm and units					
H200	L	1000	1500	2000	2500	3000	3500
	Lt	1100	1600	2100	2600	3100	3600
	J	860	680	620	785	715	672
	M	120	120	120	122,5	120	120
	Anchor	4	6	8	8	10	12
	Size	M24	M24	M24	M24	M24	M24
H300	Lt	1150	1650	2150	2650	3150	3650
	J	870	685	625	790	715	674
	M	140	140	137,5	140	145	140
	Anchor	4	6	8	8	10	12
	Size	M30	M30	M30	M30	M30	M30
H400	Lt	1200	1700	2200	2700	3200	3700
	J	900	700	635	800	725	680
	M	150	150	147,5	150	150	150
	Anchor	4	6	8	8	10	12
	Size	M36					
H500	Lt	1250	1750	2250	2750	3250	3750
	J	930	715	645	810	730	686
	M	160	160	157,5	160	165	160
	Anchor	4	6	8	8	10	12
	Size	M42	M42	M42	M42	M42	M42
H600	Lt	1300	1800	2300	2800	3300	3800
	J	960	730	655	820	740	692
	M	170	170	167,5	170	170	170
	Anchor	4	6	8	8	10	12
	Size	M48	M48	M48	M48	M48	M48
H800	Lt	1400	1900	2400	2900	3400	
	J	1040	770	680	845	760	
	M	180	180	180	182,5	180	
	Anchor	4	6	8	8	10	
	Size	M60	M60	M60	M60	M60	
H1000	Lt	1500	2000	2500			
	J	900	700	630			
	M	200	200	200			
	Anchor	4	6	8			
	Size	M64	M64	M64			

Type	A	B	C	D	E	F	G	H	K*	N	O	P*	T	Md
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	size
H200	400	320	130	35	29	58	128	200	300-400	0	66	60	35	M16
H300	600	490	225	33	35	70	195	300	300-400	105	60	65-85	40	M16
H400	800	670	300	40	41	82	260	400	300-400	108	60	65-85	50	M16
H500	1000	840	375	45	47	94	325	500	300-400	245	65	65-85	55	M16
H600	1200	1010	450	54	50	100	390	600	300-400	310	70	65-85	55	M16
H800	1600	1340	600	72	63	136	520	800	300-400	440	80	65-85	60	M16
H1000	2000	1680	750	90	68	136	650	1000	300-400	570	90	65-85	70	M16

* These specified dimensions are when fitting the UHMW PE front plate , so
if a steel panel be installed the P metric will be changed to 125 mm and K to 250-300 mm.

SAN-PE Arch Fenders



Specification Hight x Length	Compound A		Compound B		Compound C		Compound D		Tolerance
	Energy absorbtion (kNm)	Reaction force (kN)	Energy absorbtion (kNm)	Reaction force (kN)	Energy absorbtion (kNm)	Reaction force (kN)	Energy absorbtion (kNm)	Reaction force (kN)	
SAN-PE 200	13	241	11	208	8	157	6	103	±10%
SAN-PE 300	35	326	27	242	21	200	16	158	
SAN-PE 400	64	413	49	316	41	261	31	229	
SAN-PE 500	102	511	78	401	64	354	54	269	
SAN-PE 600	133	613	108	462	83	386	71	299	
SAN-PE 800	265	831	200	621	150	510	126	456	
SAN-PE 1000	417	1015	312	788	262	659	221	539	

The above values are per metre fender system and by 50 % deflection.