



V Fenders.

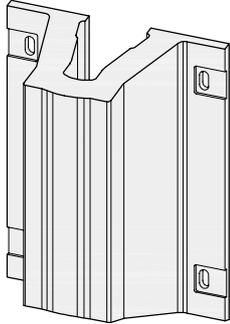
Characteristics

- ▶ Suitable for a wide range of applications
- ▶ Very robust, durable and requires low maintenance
- ▶ High shear resistance in the longitudinal direction
- ▶ Can be installed both, vertically and horizontally
- ▶ Suitable for turning dolphins & pivot points

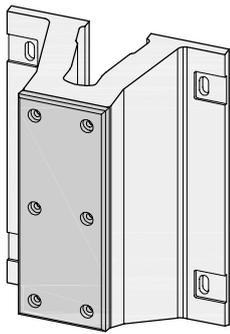
Typical Applications

- ▶ General Cargo Terminals
- ▶ Bulk Terminals
- ▶ Tug Boat Berth
- ▶ Multipurpose Terminals
- ▶ RoRo Ramps
- ▶ Passenger Terminals

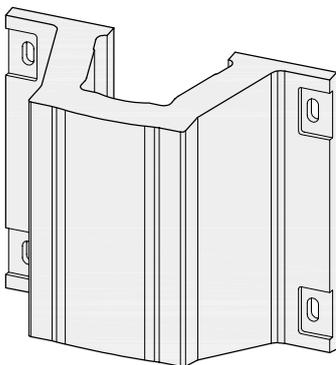
V FENDER DRAWINGS



SX FENDER



SX-P FENDER



SH FENDER



Ferry & RoRo Terminal | Kapellskär | Sweden



Waterland Terminal | Amsterdam | The Netherlands



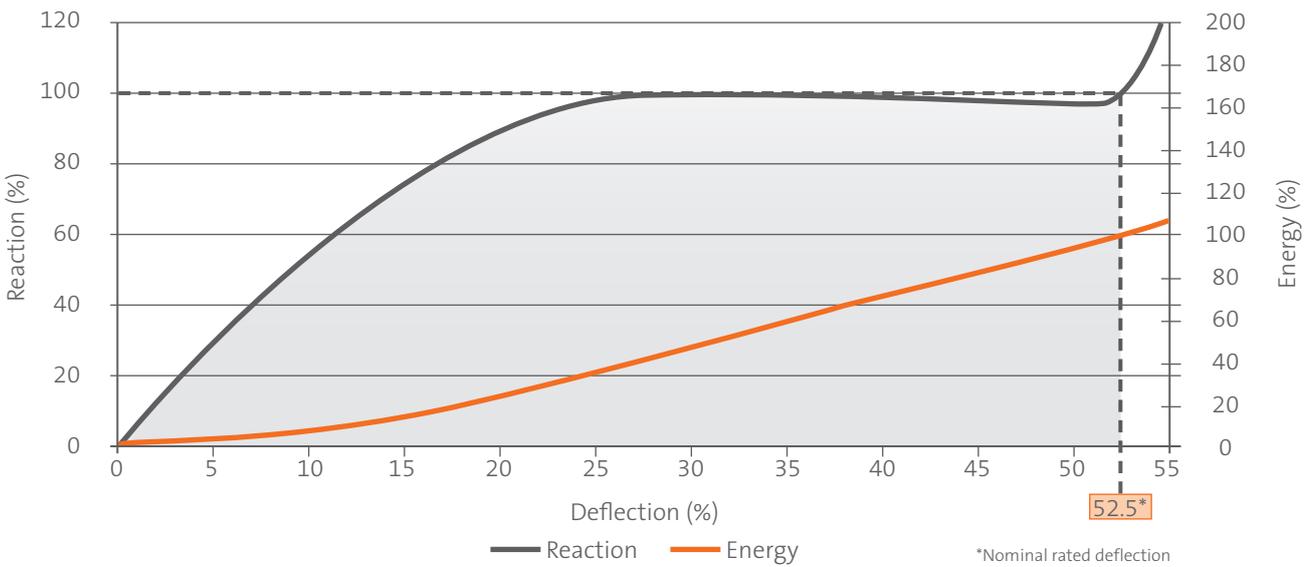
Turning Dolphin | Muuga | Estonia

PERFORMANCE TABLE V FENDERS (RPD = RATED PERFORMANCE DATA IN ACC. WITH PIANC)

Fender Size	E _A R _F	E/R	Rubber Grades									
			G 0.9	G 1.0	G 1.1	G 1.2	G 1.3	G 1.4	G 1.5	G 1.6	G 1.7	G 1.8
250	E _A R _F	0.11	14	14	15	16	16	17	18	18	19	20
			129	135	141	148	154	161	167	174	180	187
300	E _A R _F	0.13	20	21	21	22	23	24	25	26	27	28
			155	163	171	171	186	194	202	209	217	225
400	E _A R _F	0.17	35	36	38	40	42	43	45	47	49	50
			207	217	227	238	248	258	269	279	289	299
500	E _A R _F	0.21	54	57	60	62	65	68	70	73	76	79
			258	271	284	297	310	323	336	348	361	374
600	E _A R _F	0.25	78	82	86	90	94	98	101	105	109	113
			311	326	341	357	372	388	403	418	434	449
800	E _A R _F	0.34	138	145	152	159	166	173	180	187	194	201
			412	433	454	474	495	515	536	557	577	598
1000	E _A R _F	0.42	217	228	239	250	260	271	282	293	303	314
			516	542	568	594	620	645	671	697	723	749

Performance values for single units of 1,000 mm length | Energy Absorption (E_a) in kNm, Reaction Force (R_f) in kN | Nominal rated deflection is 52.5% | Actual deflection at Rated Performance Data may vary | Properties, tolerances, and testing standards can be found on pages 123 ff.

GENERIC PERFORMANCE CURVE V FENDERS



Tug Boat Berth | Lumut | Malaysia

Rubber Grades													Fender Size
G 1.9	G 2.0	G 2.1	G 2.2	G 2.3	G 2.4	G 2.5	G 2.6	G 2.7	G 2.8	G 2.9	G 3.0	G 3.1	
20 193	21 200	22 206	22 212	23 219	24 225	24 232	25 238	26 245	26 251	27 258	28 264	28 270	250
29 232	30 240	31 248	32 255	33 263	34 271	35 279	36 286	37 294	38 302	39 309	40 317	41 325	300
52 310	54 320	55 330	57 341	59 351	61 361	62 372	64 382	66 392	68 402	69 413	71 423	73 433	400
81 387	84 400	87 413	89 426	92 439	95 452	97 465	100 477	103 490	106 503	108 516	111 529	114 542	500
117 465	121 480	125 495	129 511	133 526	137 542	140 557	144 572	148 588	152 603	156 619	160 634	164 649	600
208 618	215 639	221 660	228 680	235 701	242 721	249 742	256 763	263 783	270 804	277 824	284 845	291 866	800
325 775	336 801	346 826	357 852	368 878	379 904	389 930	400 956	411 981	422 1,007	432 1,033	443 1,059	454 1,085	1000

CORRECTION FACTORS

FENDER PERFORMANCE AT INTERMEDIATE DEFLECTION

Deflection of original fender height [%]	0	5	10	15	20	25	30	35	40	45	50	52.5	55
Energy Absorption of original value [%]	0	2	6	14	24	35	47	59	71	82	94	100	107
Reaction Force of original value [%]	0	27	54	76	91	98	99	100	100	98	98	100	125

TEMPERATURE FACTOR

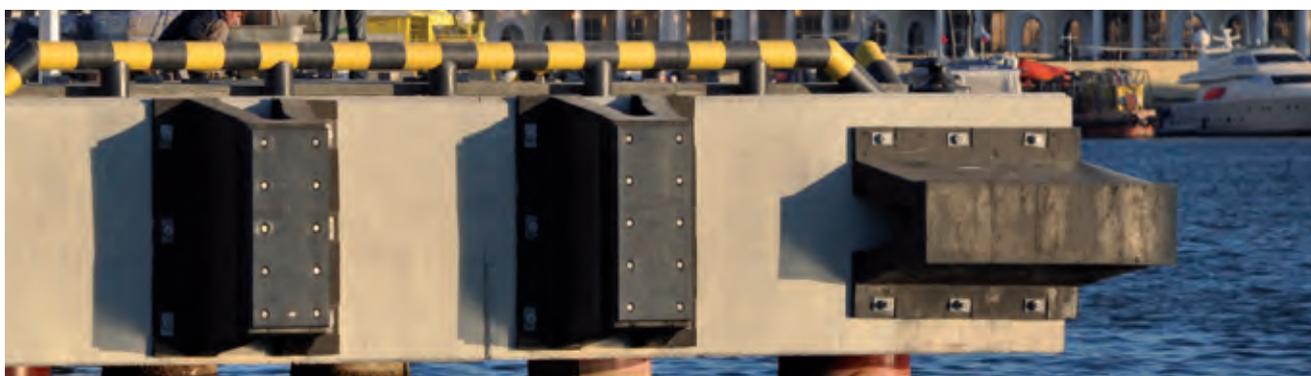
Temperature [°C]	-30	-20	-10	0	10	23	30	40	50	60
Correction Factor	1.559	1.375	1.182	1.083	1.034	1.000	0.976	0.945	0.918	0.917

VELOCITY FACTOR

Compression Time [s]	1	2	3	4	5	6	7	8	≥ 10
Correction Factor	1.014	1.005	1.004	1.003	1.003	1.002	1.000	1.000	1.000

ANGLE FACTOR

Compression Angle [°]	0	3	5	8	10	15	20
Energy Absorption of original value [%]	100	96	95	94	92	82	54
Reaction Force of original value [%]	100	100	100	100	100	100	100

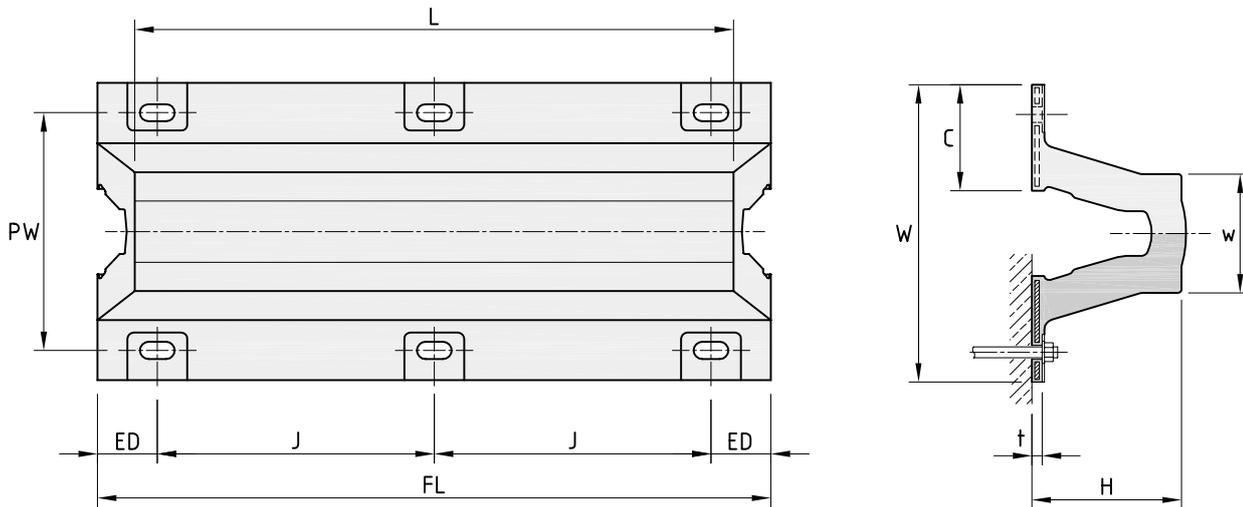


Passenger Terminal | Sochi | Russia

SX FENDER DIMENSIONS

Fender Size	H [mm]	W [mm]	w [mm]	t [mm]	C [mm]	PW [mm]	Fixing
SX 250	250	500	200	18	178	400	M24
SX 300	300	600	240	23	213	480	M30
SX 400	400	800	320	27	285	640	M36
SX 500	500	1,000	400	29	358	800	M36
SX 600	600	1,200	480	34	425	960	M42
SX 800	800	1,500	640	38	520	1,300	M48
SX 1000	1,000	1,800	800	47	610	1,550	M48

SX FENDER DRAWING



Turkmenbashi International Seaport | Turkmenbashi | Turkmenistan

AVAILABLE STANDARD LENGTHS

Fender Size	L [mm]	ED [mm]	J [mm]	FL [mm]	An-chors	Weight [kg]
SX 250	1,000	113	1 x 900	1,125	4	88
	1,500	113	2 x 700	1,625	6	129
	2,000	118	3 x 630	2,125	8	169
	2,500	113	3 x 800	2,625	8	211
	3,000	113	4 x 725	3,125	10	251
	3,500	113	5 x 680	3,625	12	293
SX 300	1,000	125	1 x 900	1,150	4	122
	1,500	125	2 x 700	1,650	6	178
	2,000	130	3 x 630	2,150	8	234
	2,500	125	3 x 800	2,650	8	290
	3,000	125	4 x 725	3,150	10	345
	3,500	125	5 x 680	3,650	12	402
SX 400	1,000	150	1 x 900	1,200	4	206
	1,500	150	2 x 700	1,700	6	298
	2,000	155	3 x 630	2,200	8	389
	2,500	150	3 x 800	2,700	8	482
	3,000	150	4 x 725	3,200	10	573
	3,500	150	5 x 680	3,700	12	666
SX 500	1,000	175	1 x 900	1,250	4	332
	1,500	175	2 x 700	1,750	6	475
	2,000	180	3 x 630	2,250	8	617
	2,500	175	3 x 800	2,750	8	762
	3,000	175	4 x 725	3,250	10	904
	3,500	175	5 x 680	3,750	12	1,048
SX 600	1,000	200	1 x 900	1,300	4	476
	1,500	200	2 x 700	1,800	6	676
	2,000	205	3 x 630	2,300	8	875
	2,500	200	3 x 800	2,800	8	1,076
	3,000	200	4 x 725	3,300	10	1,276
SX 800	1,000	250	1 x 900	1,400	4	840
	1,500	250	2 x 700	1,900	6	1,175
	2,000	255	3 x 630	2,400	8	1,510
	2,500	250	3 x 800	2,900	8	1,848
	3,000	250	4 x 725	3,400	10	2,183
SX 1000	1,000	300	1 x 900	1,500	4	1,363
	1,500	300	2 x 700	2,000	6	1,879
	2,000	305	3 x 630	2,500	8	2,395
	2,500	300	3 x 800	3,000	8	2,918
	3,000	300	4 x 725	3,500	10	3,434



Passenger Terminal | Rijeka | Croatia

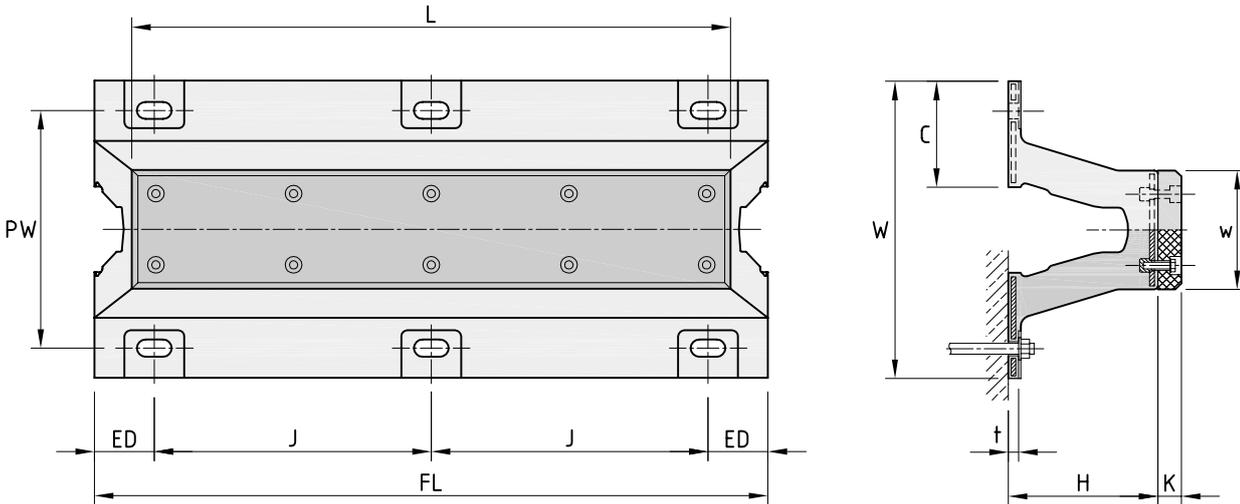


Quay No. 16 | Muuga | Estonia

SX-P FENDER DIMENSIONS

Fender Size	H [mm]	W [mm]	w [mm]	t [mm]	C [mm]	PW [mm]	K [mm]	Anchors/ Bolts	PE Bolts
SX-P 250	250	500	200	18	178	400	40	M24	M16
SX-P 300	300	600	240	23	213	480	40	M30	M20
SX-P 400	400	800	320	27	285	640	40	M36	M20
SX-P 500	500	1,000	400	29	358	800	50	M36	M24
SX-P 600	600	1,200	480	34	425	960	50	M42	M24
SX-P 800	800	1,500	640	38	520	1,300	60	M48	M30
SX-P 1000	1,000	1,800	800	47	610	1,550	80	M48	M36

SX-P FENDER DRAWING



Margate Bridge | Margate City, NJ | USA

AVAILABLE STANDARD LENGTHS

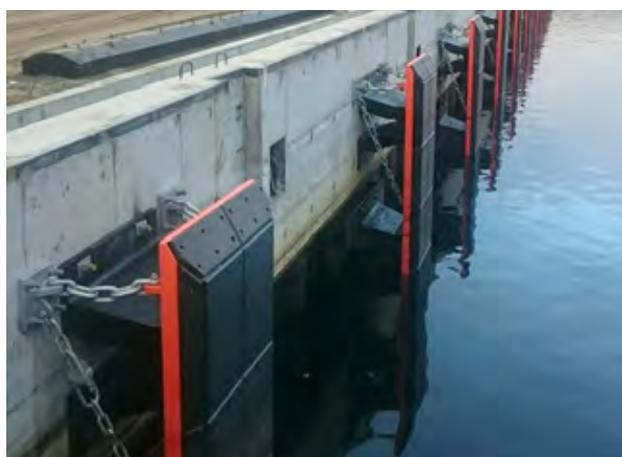
Fender Size	L [mm]	ED [mm]	J [mm]	FL [mm]	An-chors	Weight [kg]
SX-P 250	1,000	113	1 x 900	1,125	4	102
	1,500	113	2 x 700	1,625	6	150
	2,000	118	3 x 630	2,125	8	198
	2,500	113	3 x 800	2,625	8	246
	3,000	113	4 x 725	3,125	10	294
	3,500	113	5 x 680	3,625	12	343
SX-P 300	1,000	125	1 x 900	1,150	4	140
	1,500	125	2 x 700	1,650	6	204
	2,000	130	3 x 630	2,150	8	269
	2,500	125	3 x 800	2,650	8	334
	3,000	125	4 x 725	3,150	10	398
	3,500	125	5 x 680	3,650	12	464
SX-P 400	1,000	150	1 x 900	1,200	4	230
	1,500	150	2 x 700	1,700	6	333
	2,000	155	3 x 630	2,200	8	437
	2,500	150	3 x 800	2,700	8	541
	3,000	150	4 x 725	3,200	10	645
	3,500	150	5 x 680	3,700	12	749
SX-P 500	1,000	175	1 x 900	1,250	4	369
	1,500	175	2 x 700	1,750	6	531
	2,000	180	3 x 630	2,250	8	693
	2,500	175	3 x 800	2,750	8	856
	3,000	175	4 x 725	3,250	10	1,018
	3,500	175	5 x 680	3,750	12	1,181
SX-P 600	1,000	200	1 x 900	1,300	4	524
	1,500	200	2 x 700	1,800	6	748
	2,000	205	3 x 630	2,300	8	972
	2,500	200	3 x 800	2,800	8	1,198
	3,000	200	4 x 725	3,300	10	1,422
SX-P 800	1,000	250	1 x 900	1,400	4	916
	1,500	250	2 x 700	1,900	6	1,291
	2,000	255	3 x 630	2,400	8	1,665
	2,500	250	3 x 800	2,900	8	2,043
	3,000	250	4 x 725	3,400	10	2,420
SX-P 1000	1,000	300	1 x 900	1,500	4	1,475
	1,500	300	2 x 700	2,000	6	2,048
	2,000	305	3 x 630	2,500	8	2,621
	2,500	300	3 x 800	3,000	8	3,201
	3,000	300	4 x 725	3,500	10	3,775



Passenger Terminal | Sochi | Russia



Ethanol Jetty | Stenungsund | Sweden



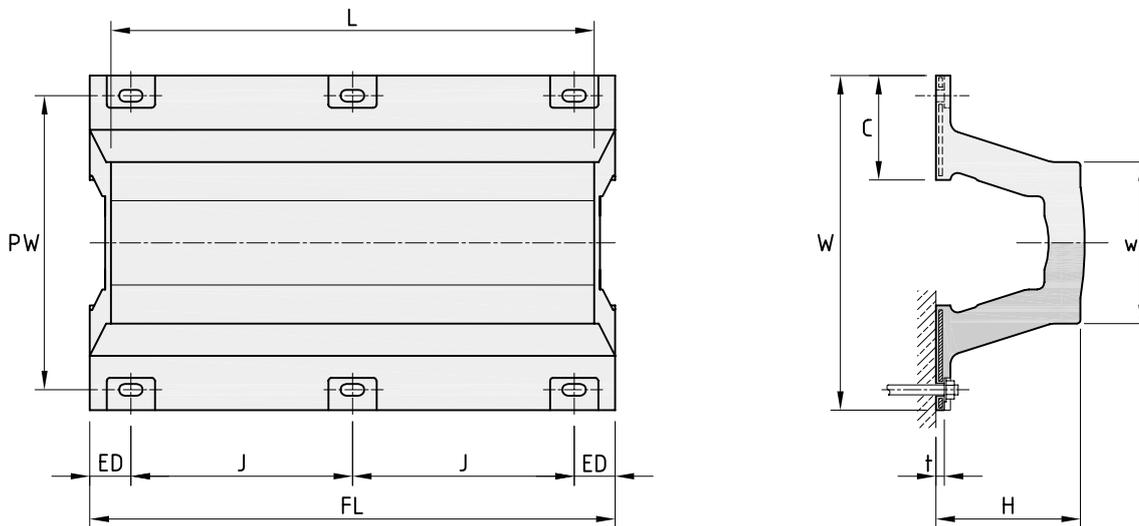
Bulk Terminal | Murmansk | Russia

SH FENDER DIMENSIONS

Fender Size	H [mm]	W [mm]	w [mm]	t [mm]	C [mm]	PW [mm]	Fixing
SH 400	400	1,000	450	27	325	850	M30
SH 500	500	1,200	560	30	380	1,040	M36
SH 600	600	1,400	675	35	438	1,230	M42
SH 800	800	1,800	900	40	550	1,600	M48
SH 1000	1,000	2,200	1,125	40	663	2,000	M48

SH Fenders also available with PE facing (SH-P Fenders) | Available sizes upon request

SH FENDER DRAWING



Toyotakaai | Zeebrugge | Belgium

AVAILABLE STANDARD LENGTHS

Fender Size	L [mm]	ED [mm]	J [mm]	FL [mm]	An-chors	Weight [kg]
SH 400	1,000	135	1 x 850	1,120	4	247
	1,500	140	2 x 670	1,620	6	361
	2,000	160	3 x 600	2,120	8	475
	2,500	140	3 x 780	2,620	8	589
	3,000	160	4 x 700	3,120	10	703
	3,500	160	5 x 660	3,620	12	816
SH 500	1,000	150	1 x 850	1,150	4	389
	1,500	155	2 x 670	1,650	6	566
	2,000	175	3 x 600	2,150	8	743
	2,500	155	3 x 780	2,650	8	920
	3,000	175	4 x 700	3,150	10	1,097
	3,500	175	5 x 660	3,650	12	1,274
SH 600	1,000	165	1 x 850	1,180	4	552
	1,500	170	2 x 670	1,680	6	800
	2,000	190	3 x 600	2,180	8	1,047
	2,500	170	3 x 780	2,680	8	1,294
	3,000	190	4 x 700	3,180	10	1,542
	3,500	195	5 x 660	3,680	12	1,789
SH 800	1,000	195	1 x 850	1,240	4	945
	1,500	200	2 x 670	1,740	6	1,357
	2,000	220	3 x 600	2,240	8	1,768
	2,500	200	3 x 780	2,740	8	2,180
	3,000	220	4 x 700	3,240	10	2,591
	3,500	225	5 x 660	3,740	12	3,002
SH 1000	1,000	225	1 x 850	1,300	4	1,426
	1,500	230	2 x 670	1,800	6	2,030
	2,000	250	3 x 600	2,300	8	2,634
	2,500	230	3 x 780	2,800	8	3,238
	3,000	250	4 x 700	3,300	10	3,842
	3,500	255	5 x 660	3,800	12	4,446



Boudewijnkanaal | Zeebrugge | Belgium



Boudewijnkanaal | Zeebrugge | Belgium



Oil Terminal | Muuga | Estonia