

# Special Solutions.

## Characteristics

- ▶ Highly customized solutions for special applications

## Applications

- ▶ Various applications in a marine environment

Ball Fenders

Fenderracks

Shear Fenders

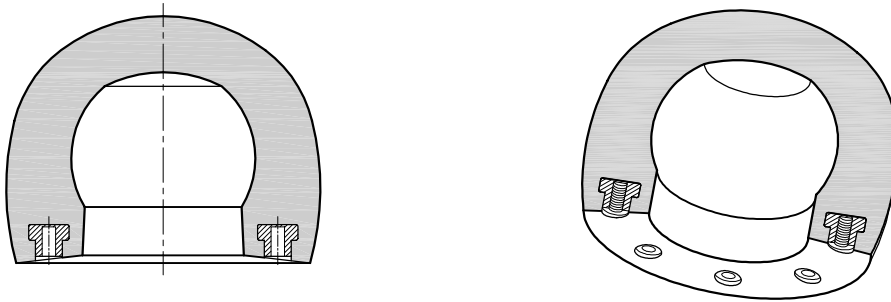
Fender Bars

Car Stoppers

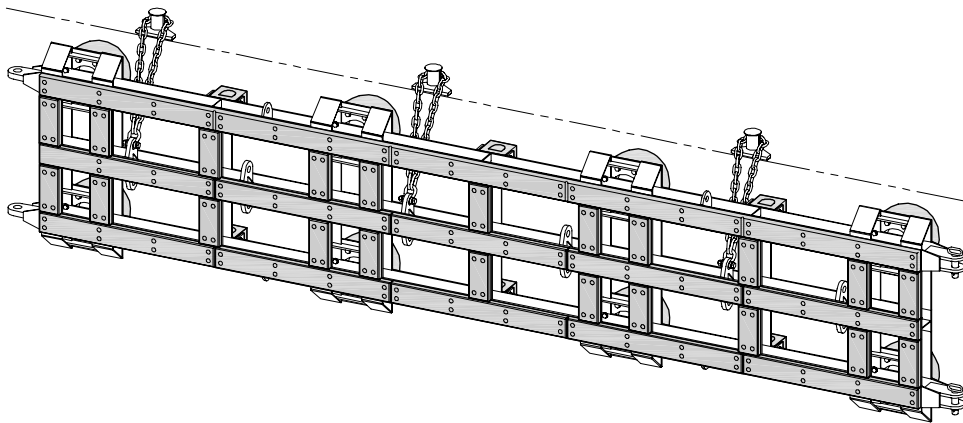
PU Pile Fenders

Ladders

### BALL FENDER DRAWING



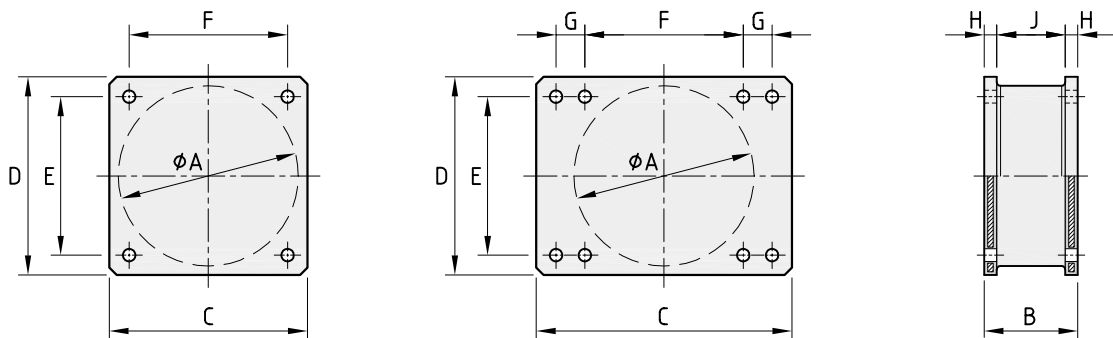
### FENDERRACK DRAWING



### SHEAR FENDER DIMENSIONS AND PERFORMANCE VALUES

Fender Type	$\phi A$ [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	J [mm]	H [mm]	Bolts	Energy [kJ]	Reaction [kN]
SF 400-180	400	180	525	525	405	405	–	136	22	4 x M24	10.0	147
SF 500-260	500	260	710	550	440	440	80	190	35	8 x M30	25.5	250
SF 500-285	500	285	610	610	510	510	–	231	32	4 x M24	24.9	216

### SHEAR FENDER DRAWING

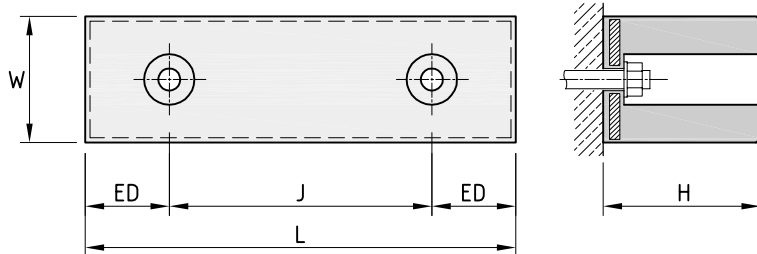


### FENDER BAR DIMENSIONS

Fender Type	W [mm]	H [mm]	ED [mm]	J [mm]	Anchors	Weight [kg/m]
FB 15-15	150	150	250	500	M24	38
FB 15-20	150	200	250	500	M24	43
FB 20-20	200	200	250	500	M30	65
FB 20-25	200	250	250	500	M30	77
FB 20-30	200	300	250	500	M30	88

Made from Rubber

### FENDER BAR DRAWING



Ferry Terminal | Landskrona | Sweden

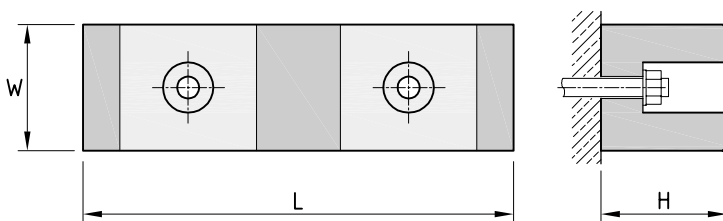
### CAR STOPPER DIMENSIONS

Size	W [mm]	H [mm]	L [mm]	Weight [kg/m]
ST 90	90	90	6,000	7.5
ST 110	110	110	6,000	11.3
ST 150	150	150	6,000	20.9
ST 170	170	170	6,000	27.0
ST 190	190	190	6,000	33.6

Size	W [mm]	H [mm]	L [mm]	Weight [kg/m]
ST 200	200	200	4,000	40.0
ST 240	240	240	5,000	53.6
ST 250	200	250	4,000	50.0
ST 290	290	290	5,000	78.2
ST 300	200	300	4,000	60.0

Made from HD-PE

### CAR STOPPER DRAWING



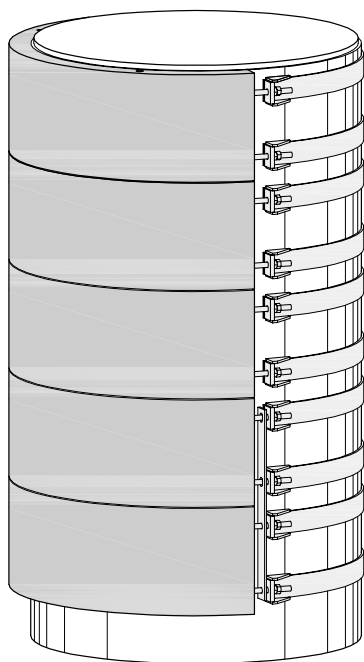
Southern Quay Wall | Simaisma | Qatar

## PU PILE FENDER DIMENSIONS

Fender Size	Pile Diameter [mm]	Height [mm]	Thickness [mm]
PF 914	914	500	100
PF 1016	1,016	500	100
PF 1520	1,520	500	100

Fenders for other pile sizes available upon request

## PU PILE FENDER DRAWING



Standby piles | Kiel | Germany



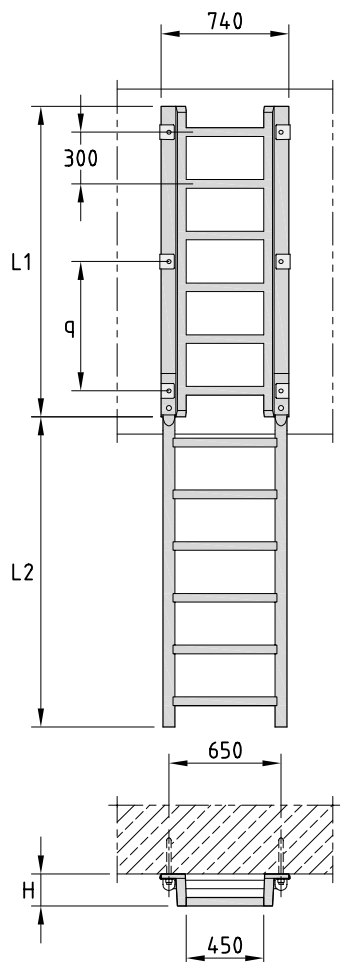
Kiel Canal | Germany

## PU LADDER DIMENSIONS

Ladder Type	Height [mm]	L1 [mm]	Rungs	q [mm]
PU 185	185	600	2	1 x 300
PU 185	185	900	3	1 x 600
PU 185	185	1,200	4	2 x 450
PU 185	185	1,500	5	2 x 600
PU 185	185	1,800	6	2 x 750
PU 185	185	2,100	7	3 x 600
PU 185	185	2,400	8	3 x 700
PU 185	185	2,700	9	3 x 800
PU 185	185	3,000	10	4 x 675

Ladder Type	Height [mm]	L1 [mm]	Rungs	Bolt Pitch (q) [mm]
PU 250	250	800	3	500
PU 250	250	1,100	4	400 + 400
PU 250	250	1,400	5	550 + 550
PU 250	250	1,700	6	700 + 700
PU 250	250	2,000	7	550 + 600 + 550
PU 250	250	2,300	8	650 + 700 + 650
PU 250	250	2,600	9	750 + 800 + 750
PU 250	250	2,900	10	650 + 650 + 650 + 650

## PU LADDER DRAWING

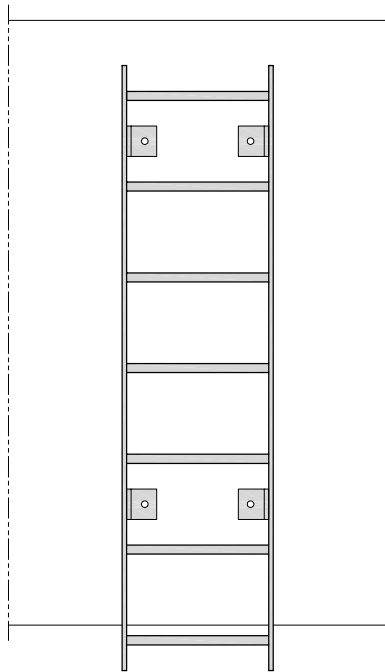


Joint Ladders for both types available in various lengths, typically max. 3,000 mm length of use (L2)



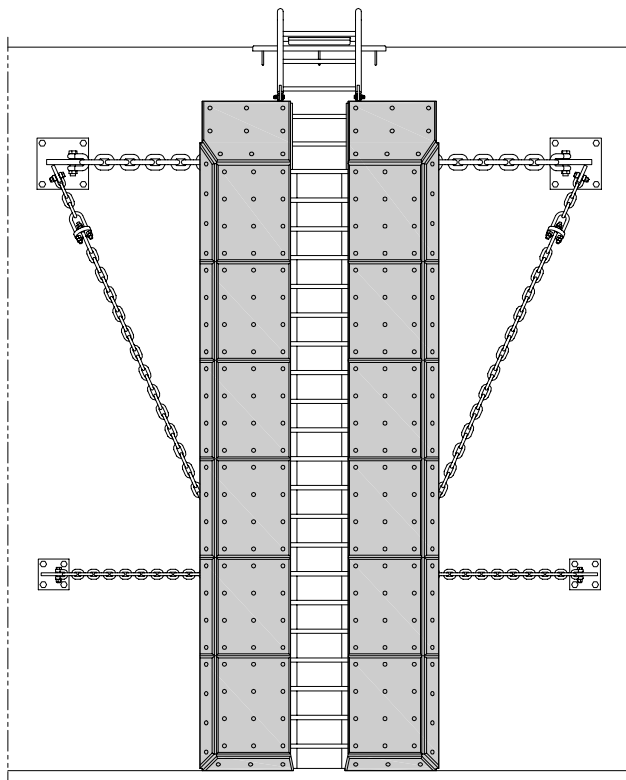
Passenger Terminal | Sochi | Russia

### STEEL LADDERS.



Naval Base | Doha | Qatar

### INTEGRATED LADDERS.

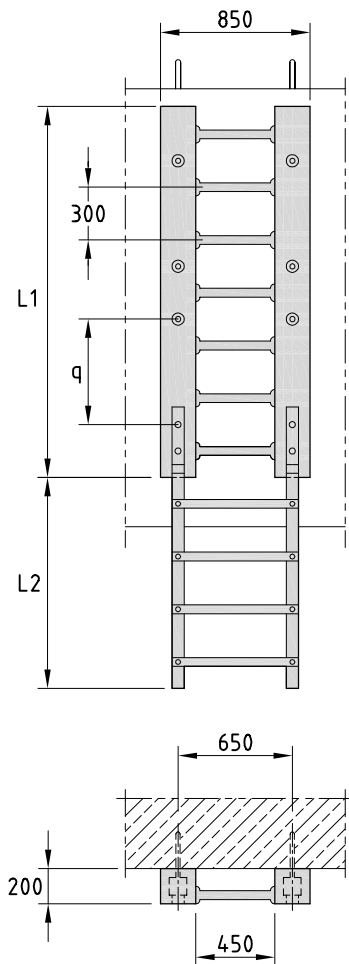


Maasvlakte II | Rotterdam | The Netherlands

### RL RUBBER LADDER DIMENSIONS

Ladder Type	Length [mm]	Weight [kg]	Rungs	Bolts	Bolt Pitch (q) [mm]
RL 200	900	93	3	2x2	300+300+300
RL 200	1,200	125	4	3x2	300+300+300+300
RL 200	1,500	157	5	3x2	300+600+300+300
RL 200	1,800	188	6	4x2	300+300+600+300+300
RL 200	2,100	221	7	4x2	300+600+300+600+300
RL 200	2,400	252	8	5x2	300+600+300+300+600+300
RL 200	2,700	284	9	5x2	300+600+600+300+600+300
RL 200	3,000	316	10	6x2	300+600+300+600+300+600+300

### RL RUBBER LADDER DRAWING



Joint Ladders available in various lengths, typically max. 1,800 mm length of use (L2)



International Cruise Terminal | Singapore

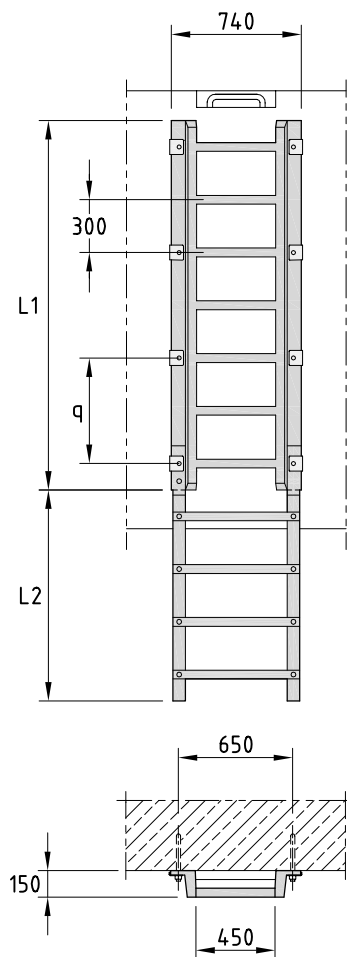


IDPT Jetty 1 | Johor | Malaysia

## RV RUBBER LADDER DIMENSIONS

Ladder Type	Length [mm]	Weight [kg]	Rungs	Bolts	Bolt Pitch (q) [mm]
RV 150	600	32	2	2x2	150+300+150
RV 150	900	48	3	2x2	150+600+150
RV 150	1,200	64	4	3x2	150+450+450+150
RV 150	1,500	80	5	3x2	150+600+600+150
RV 150	1,800	96	6	3x2	150+750+750+150
RV 150	2,100	112	7	4x2	150+600+600+600+150
RV 150	2,400	128	8	4x2	150+750+600+750+150
RV 150	2,700	144	9	5x2	150+600+600+600+600+150
RV 150	3,000	160	10	5x2	150+600+750+750+600+150

## RV RUBBER LADDER DRAWING



Joint Ladders available in various lengths, typically max. 1,800 mm length of use (L2)



Feed Solid Product Jetty | Johor | Malaysia



Kashima Port | Kashima | Japan