



Tug Boat Fenders.

Characteristics

- ▶ High abrasion resistance
- ▶ Non-marking navy grey color optional
- ▶ Light weight
- ▶ Ideal for tight corners

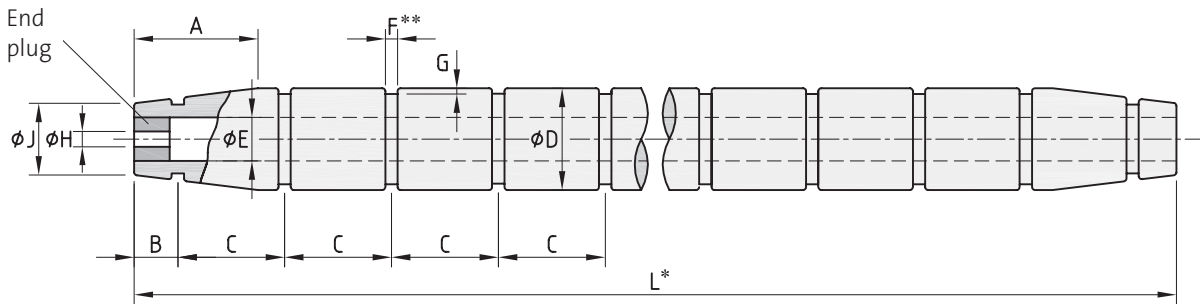
Applications

- ▶ Tug Boats
- ▶ Icebreakers
- ▶ Work & supply boats
- ▶ Other applications & structures like bridge and pile protection

BOW & STERN FENDERS.

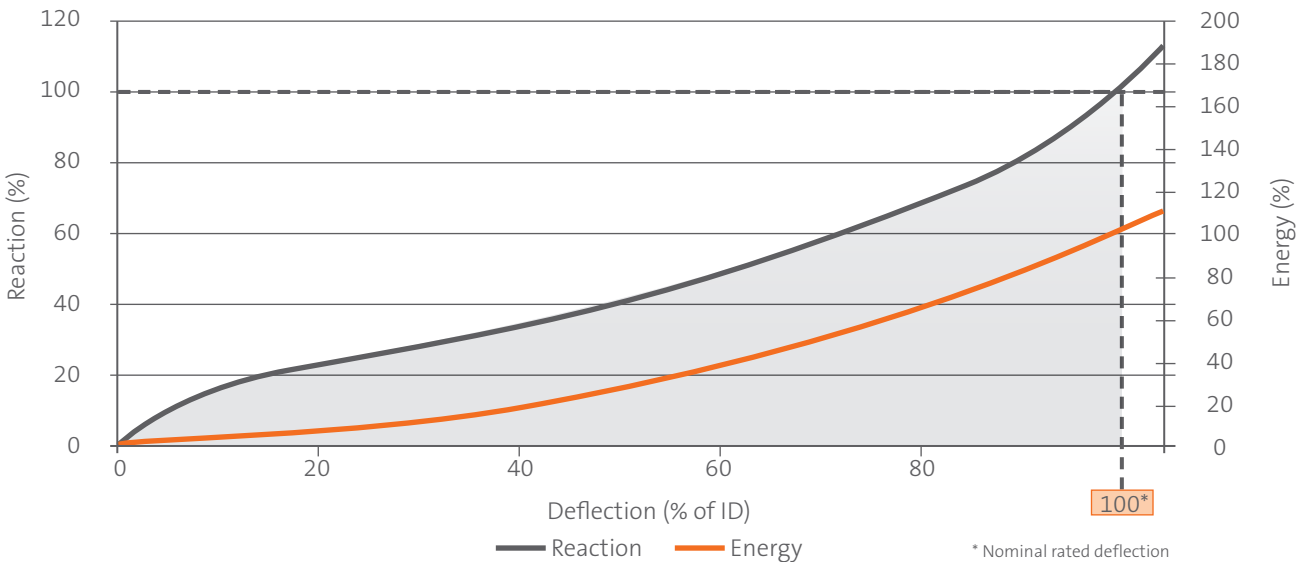
CYLINDRICAL TUG BOAT FENDER DIMENSIONS

| ϕD [mm] | ϕJ [mm] | ϕE [mm] | ϕH [mm] | A [mm] | B [mm] | C [mm] |
|------------------|------------------|------------------|------------------|-----------|-----------|-----------|
| 200 | 150 | 100 | 75 | 500 | 150 | 530 |
| 250 | 190 | 125 | 75 | 500 | 200 | 570 |
| 300 | 225 | 150 | 75 | 700 | 225 | 600 |
| 350 | 260 | 175 | 100 | 800 | 250 | 630 |
| 400 | 300 | 200 | 100 | 800 | 300 | 670 |
| 500 | 375 | 250 | 100 | 900 | 300 | 730 |
| 600 | 450 | 300 | 125 | 900 | 350 | 800 |
| 700 | 525 | 350 | 125 | 1,000 | 350 | 860 |
| 800 | 600 | 400 | 125 | 1,000 | 350 | 930 |
| 900 | 675 | 450 | 150 | 1,100 | 350 | 1,000 |
| 1,000 | 750 | 500 | 150 | 1,200 | 350 | 1,060 |



- * 2 – 13 meters in one section or plug joint for longer lengths (longer single lengths available upon request)
- ** dimensions of fixing recess (F & G) vary depending on size and type of fixing accessories (chain / nylon strap)
- *** end plug factory fitted or supplied separately for site installation

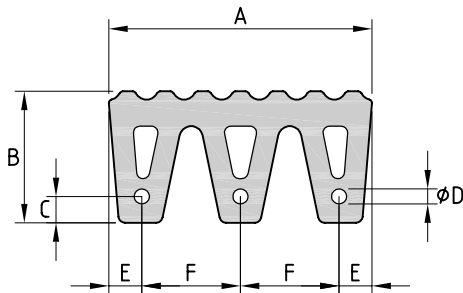
GENERIC PERFORMANCE CURVE CYLINDRICAL TUG BOAT FENDERS



M FENDER DIMENSIONS AND FIXING

| Fender Type | A [mm] | B [mm] | C [mm] | Ø D [mm] | E [mm] | F [mm] | L _{MAX} [mm] | Weight [kg/m] | Ø Pin [mm] | Flat bar [mm] | R _{min} [mm] |
|-------------|--------|--------|--------|----------|--------|--------|-----------------------|---------------|------------|---------------|-----------------------|
| M 40 | 400 | 200 | 40 | 23 | 50 | 150 | 2,000 | 56 | 20 | 100 x 15 | 450 |
| M 50 | 500 | 250 | 50 | 27 | 60 | 190 | 2,000 | 89 | 24 | 125 x 20 | 550 |
| M 60 | 600 | 300 | 60 | 33 | 70 | 230 | 2,000 | 132 | 30 | 150 x 20 | 650 |
| M 80 | 800 | 400 | 80 | 44 | 95 | 305 | 2,000 | 233 | 36 | 180 x 25 | 850 |

M FENDER DRAWING



Available with profiled or smooth surface

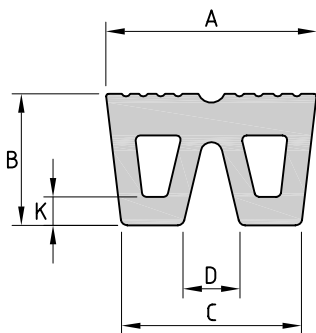


Tug Boat Terminal | Hamburg | Germany

W FENDER DIMENSIONS AND FIXING

| Fender Type | A [mm] | B [mm] | K [mm] | C [mm] | D [mm] | L _{MAX} [mm] | Weight [kg/m] | Ø Pin [mm] | Flat bar [mm] | R _{min} [mm] |
|-------------|--------|--------|--------|--------|--------|-----------------------|---------------|------------|---------------|-----------------------|
| W 32 | 320 | 200 | 50 | 280 | 100 | 2,000 | 51 | 25 | 100 x 20 | 600 |
| W 40 | 400 | 250 | 55 | 350 | 110 | 2,000 | 81 | 30 | 120 x 20 | 800 |
| W 48 | 480 | 300 | 65 | 426 | 135 | 2,000 | 120 | 40 | 140 x 20 | 900 |
| W 50-35 | 500 | 350 | 60 | 413 | 250 | 2,000 | 135 | 40 | 150 x 20 | 1,000 |
| W 50-45 | 500 | 450 | 75 | 420 | 90 | 2,000 | 180 | 40 | 150 x 20 | 1,000 |

W FENDER DRAWING



Available with profiled or smooth surface

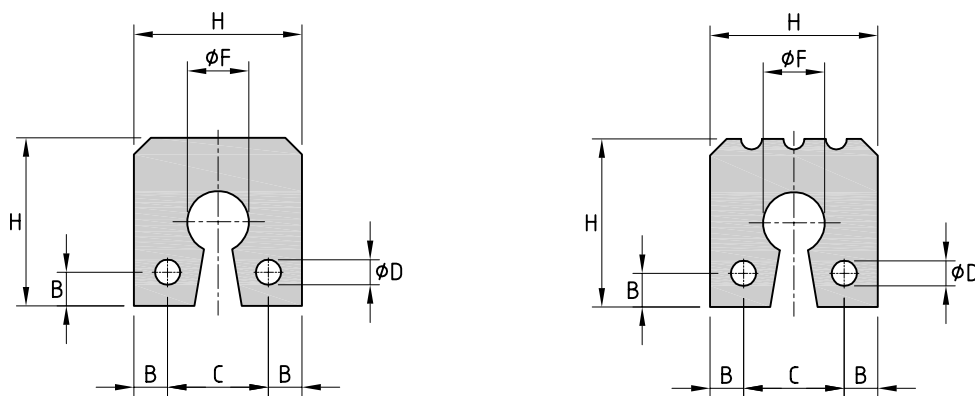


TNPA Tugs | Durban | South Africa

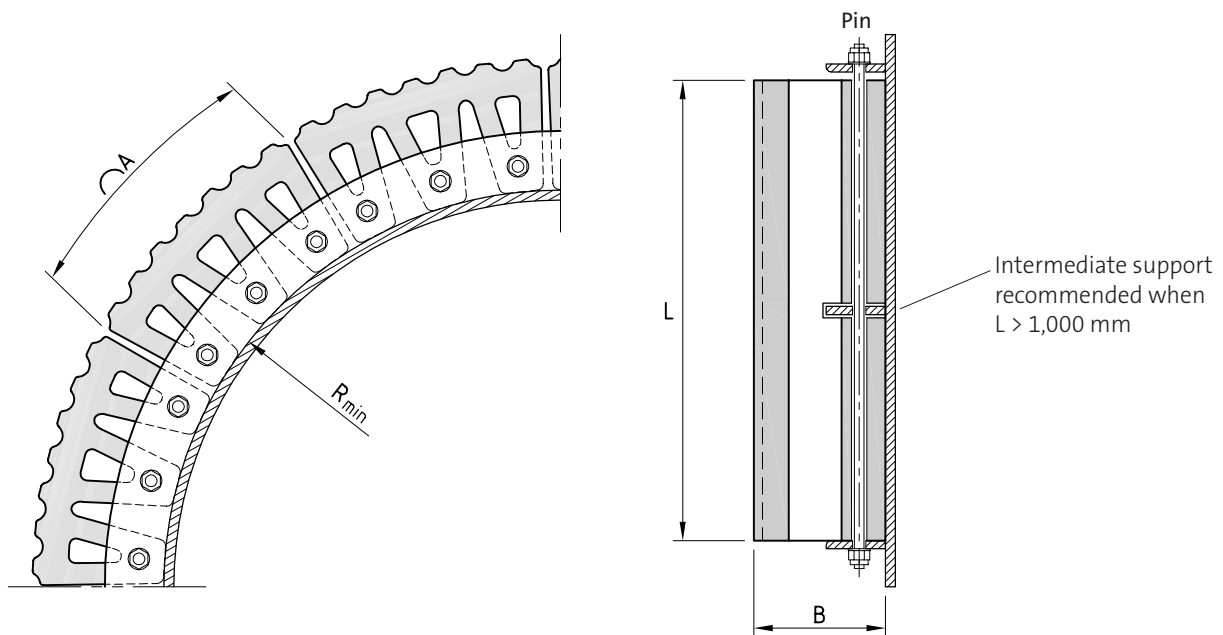
KEYHOLE FENDER DIMENSIONS AND FIXING

| Fender Type | H [mm] | B [mm] | C [mm] | Ø D [mm] | Ø F [mm] | L _{MAX} [mm] | Weight [kg/m] | Ø Pin [mm] | Flat bar [mm] | R _{min} [mm] |
|-------------|--------|--------|--------|----------|----------|-----------------------|---------------|------------|---------------|-----------------------|
| KH 20 | 200 | 35 | 130 | 28 | 90 | 2,000 | 33 | 25 | 100 x 15 | 450 |
| KH 25 | 250 | 50 | 150 | 33 | 100 | 2,000 | 54 | 30 | 120 x 20 | 600 |
| KH 30 | 300 | 60 | 180 | 33 | 115 | 2,000 | 80 | 30 | 150 x 20 | 800 |
| KH 35 | 350 | 70 | 210 | 33 | 125 | 2,000 | 114 | 30 | 175 x 25 | 1,000 |

KEYHOLE FENDER DRAWING



TYPICAL FIXING DRAWING

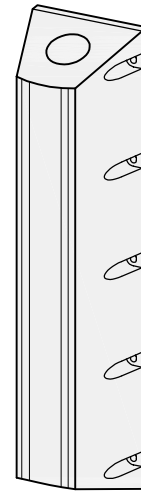


Suitable for M Fenders, W Fenders and Keyhole Fenders

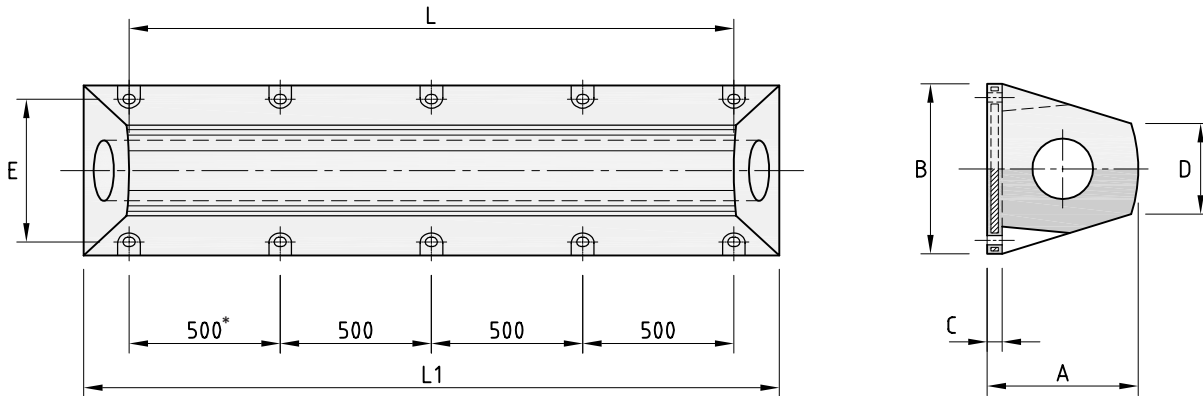
SIDE FENDERS.

MC FENDER DIMENSIONS

| Fender Type | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] |
|-------------|--------|--------|--------|--------|--------|
| MC 30 | 300 | 360 | 40 | 200 | 280 |
| MC 40 | 400 | 500 | 50 | 300 | 410 |
| MC 50 | 500 | 562 | 50 | 300 | 472 |
| MC 60 | 600 | 700 | 125 | 420 | 550 |



MC FENDER DRAWING



*Bolt spacing for MC 60 is 580 mm

AVAILABLE STANDARD LENGTHS

| Fender Type | L = 1,000 mm | | | L = 1,500 mm | | | L = 2,000 mm | | |
|-------------|--------------|---------|-------------|--------------|---------|-------------|--------------|----------|-------------|
| | L1 [mm] | Anchors | Weight [kg] | L1 [mm] | Anchors | Weight [kg] | L1 [mm] | Anchors | Weight [kg] |
| MC 30 | 1,350 | 6 x M22 | 141 | 1,850 | 8 x M22 | 198 | 2,350 | 10 x M22 | 255 |
| MC 40 | 1,300 | 6 x M24 | 256 | 1,800 | 8 x M24 | 362 | 2,300 | 10 x M24 | 469 |
| MC 50 | 1,300 | 6 x M24 | 356 | 1,800 | 8 x M24 | 507 | 2,300 | 10 x M24 | 658 |
| MC 60 | 1,300 | 4 x M48 | 531 | 1,800 | 6 x M48 | 748 | 2,300 | 8 x M48 | 966 |

| Fender Type | L = 2,500 mm | | | L = 3,000 mm | | |
|-------------|--------------|----------|-------------|--------------|----------|-------------|
| | L1 [mm] | Anchors | Weight [kg] | L1 [mm] | Anchors | Weight [kg] |
| MC 30 | 2,850 | 12 x M22 | 312 | 3,350 | 14 x M22 | 369 |
| MC 40 | 2,800 | 12 x M24 | 575 | 3,300 | 14 x M24 | 682 |
| MC 50 | 2,800 | 12 x M24 | 809 | - | - | - |
| MC 60 | 2,800 | 10 x M48 | 1,183 | 3,300 | 12 x M48 | 1,401 |

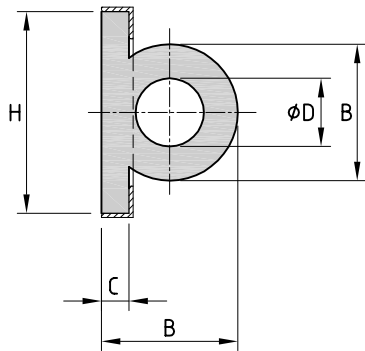
WING-TYPE FENDER DIMENSIONS

| Fender Type | H [mm] | B [mm] | C [mm] | Ø D [mm] | Weight [kg/m] |
|-------------|--------|--------|--------|----------|---------------|
| WD 18 | 180 | 100 | 25 | 50 | 10.5 |
| WD 21 | 215 | 150 | 30 | 75 | 20.3 |
| WD 24 | 245 | 150 | 30 | 75 | 21.3 |
| WD 28 | 280 | 200 | 40 | 100 | 35.8 |
| WD 32 | 320 | 200 | 40 | 100 | 37.6 |
| WD 37 | 370 | 250 | 50 | 125 | 57.0 |
| WD 41 | 410 | 250 | 50 | 125 | 59.0 |



Wing-Type Fenders

WING-TYPE FENDER DRAWING



For other Tug Boat Side Fenders, see Extruded Fenders p. 82 and Komposite Fenders p. 86



TNPA Tugs | Durban | South Africa