

# Cylindrical Fenders



Cylindrical fenders have protected ships for more years than any other fender type. They are simple, versatile and easy to install.

Their progressive reaction makes them ideal for berths serving large and small vessels. The wide range of available sizes (as well as almost any intermediate size) means cylindrical fenders can be closely matched to each application.

## FEATURES

- Simple and economical design
- Easy to install and maintain
- All sizes up to 2700 mm diameter
- Thick wall resists abrasion and wear
- Progressive load-deflection curve

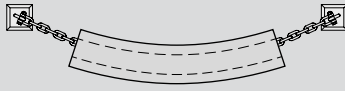
## APPLICATIONS

- Bulk cargo berths
- General cargo quays
- RoRo and ferry terminals
- Fishing and workboat berths
- Pontoons and floating structures
- Tug havens

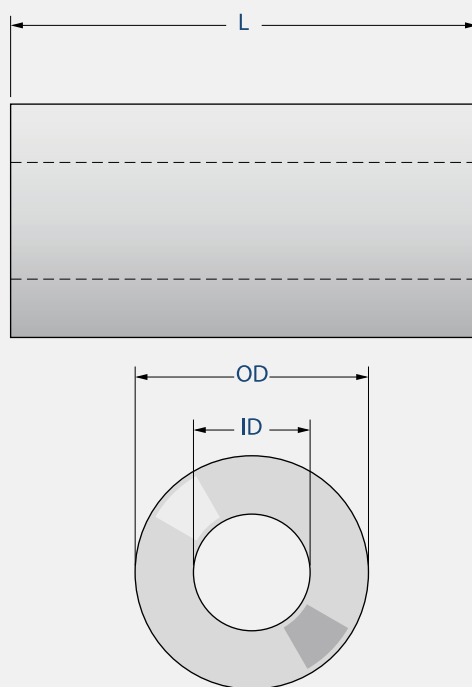
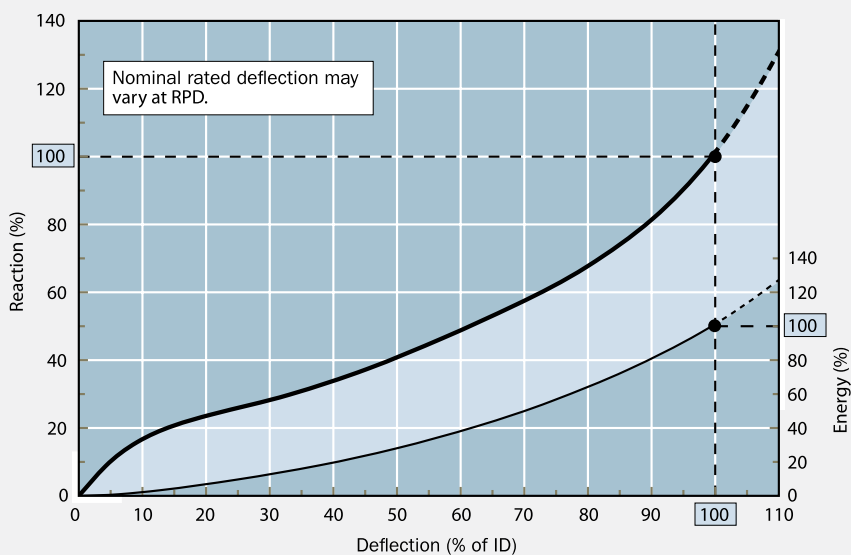
Note: HPSAR cylindrical fenders are available. Please refer to pg 5 - 6.

# Cylindrical Fenders

## PERFORMANCE (RPD)

| OD × ID (mm) | OD / ID | E (kNm) | R (kN) | P* (kN/m <sup>2</sup> ) | WEIGHT (kg/m) | TYPICAL FIXING ARRANGEMENTS   |
|--------------|---------|---------|--------|-------------------------|---------------|---|
| 100 × 50     | 2.00    | 0.8     | 43     | 547                     | 7.2           |  |
| 125 × 65     | 1.92    | 1.3     | 51     | 500                     | 11.0          |   |
| 150 × 75     | 2.00    | 1.8     | 65     | 552                     | 16.3          |   |
| 175 × 75     | 2.33    | 2.7     | 92     | 781                     | 24.1          |   |
| 200 × 100    | 2.00    | 3.3     | 86     | 547                     | 29.0          |   |
| 250 × 125    | 2.00    | 5.1     | 108    | 550                     | 45.3          |   |
| 300 × 150    | 2.00    | 7.4     | 129    | 547                     | 65.2          |   |
| 380 × 190    | 2.00    | 11.8    | 164    | 550                     | 105           |   |
| 400 × 200    | 2.00    | 13.1    | 172    | 547                     | 116           |   |
| 450 × 225    | 2.00    | 16.6    | 194    | 549                     | 147           |   |
| 500 × 250    | 2.00    | 28      | 275    | 700                     | 181           |   |
| 600 × 300    | 2.00    | 40      | 330    | 700                     | 255           |   |
| 800 × 400    | 2.00    | 72      | 440    | 700                     | 453           |   |
| 1000 × 500   | 2.00    | 112     | 550    | 700                     | 707           |   |
| 1200 × 600   | 2.00    | 162     | 660    | 700                     | 1018          |   |
| 1400 × 700   | 2.00    | 220     | 770    | 700                     | 1386          |   |
| 1400 × 800   | 1.75    | 208     | 649    | 516                     | 1245          |   |
| 1500 × 750   | 2.00    | 253     | 825    | 700                     | 1591          |   |
| 1600 × 800   | 2.00    | 288     | 880    | 700                     | 1810          |   |
| 1750 × 900   | 1.94    | 340     | 929    | 657                     | 2124          |   |
| 2000 × 1200  | 1.67    | 415     | 871    | 462                     | 2414          |   |
| 2400 × 1200  | 2.00    | 647     | 1321   | 701                     | 4073          |   |
| 2700 × 1300  | 2.08    | 818     | 1486   | 728                     | 5154          |   |

\*Excludes effect of fixing accessories. Deflection = ID. Performance per meter length.

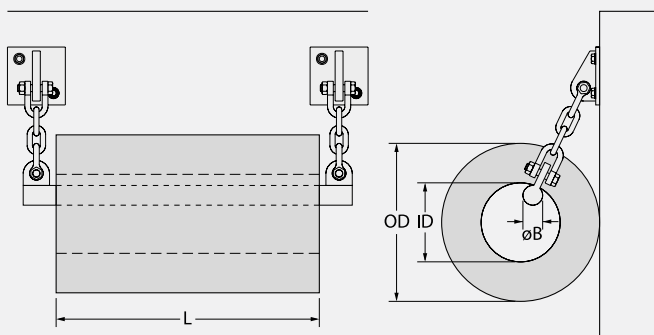


# Cylindrical Fenders

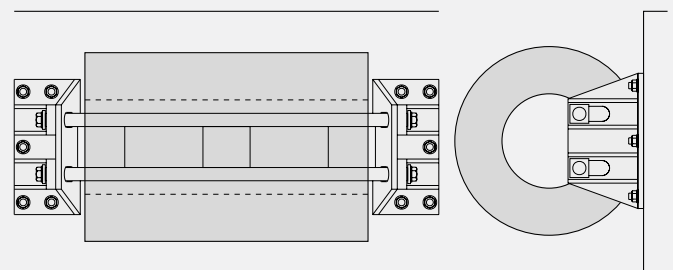
## LARGE CYLINDRICALS

| OD   | ID  | L    | BAR MATERIAL Gr. 8.8 |             |               | BAR MATERIAL Gr. 45 |             |               |
|------|-----|------|----------------------|-------------|---------------|---------------------|-------------|---------------|
|      |     |      | ØB                   | CHAIN (SL2) | SHACKLE PIN Ø | ØB                  | CHAIN (SL2) | SHACKLE PIN Ø |
| 800  | 400 | 1000 | 55                   | 20          | 25            | 65                  | 20          | 25            |
|      |     | 1500 | 70                   | 22          | 28            | 85                  | 22          | 28            |
|      |     | 2000 | 85                   | 28          | 35            | 105                 | 28          | 35            |
|      |     | 2500 | 100                  | 30          | 38            | 120                 | 30          | 38            |
|      |     | 3000 | 110                  | 34          | 42            | 135                 | 34          | 42            |
| 1000 | 500 | 1000 | 60                   | 20          | 25            | 70                  | 20          | 25            |
|      |     | 1500 | 75                   | 26          | 32            | 90                  | 26          | 32            |
|      |     | 2000 | 90                   | 30          | 38            | 110                 | 30          | 38            |
|      |     | 2500 | 105                  | 34          | 42            | 130                 | 34          | 42            |
|      |     | 3000 | 120                  | 40          | 50            | 145                 | 40          | 50            |
| 1200 | 600 | 1000 | 60                   | 22          | 28            | 75                  | 22          | 28            |
|      |     | 1500 | 80                   | 28          | 35            | 95                  | 28          | 35            |
|      |     | 2000 | 95                   | 34          | 42            | 115                 | 34          | 42            |
|      |     | 2500 | 110                  | 40          | 50            | 135                 | 40          | 50            |
|      |     | 3000 | 125                  | 40          | 50            | 155                 | 40          | 50            |
| 1400 | 800 | 1000 | 60                   | 22          | 28            | 75                  | 22          | 28            |
|      |     | 1500 | 80                   | 28          | 35            | 95                  | 28          | 35            |
|      |     | 2000 | 95                   | 34          | 42            | 115                 | 34          | 42            |
|      |     | 2500 | 110                  | 40          | 50            | 135                 | 40          | 50            |
|      |     | 3000 | 125                  | 40          | 50            | 155                 | 40          | 50            |
| 1600 | 800 | 1000 | 70                   | 30          | 35            | 80                  | 30          | 35            |
|      |     | 1500 | 90                   | 34          | 42            | 105                 | 34          | 42            |
|      |     | 2000 | 105                  | 40          | 50            | 130                 | 40          | 50            |
|      |     | 2500 | 125                  | 40          | 50            | 150                 | 40          | 50            |
|      |     | 3000 | 140                  | 44          | 57            | 170                 | 44          | 57            |

[ Units: mm ]



Large cylindricals (Ø900–Ø1600 mm) often use a central support bar connected at each end to chains which go back to brackets or U-anchors on the quay wall.



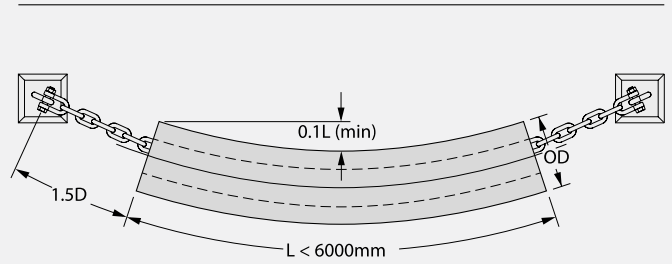
Very large cylindricals ( $\geq\text{Ø}1600$  mm) may require special ladder brackets due to their weight. These are specially designed for each application.

# Cylindrical Fenders

## SMALL CYLINDRICALS

| OD  | ID  | CHAIN | SHACKLE |
|-----|-----|-------|---------|
| 100 | 50  | 14    | 16      |
| 125 | 65  | 14    | 16      |
| 150 | 75  | 16    | 16      |
| 175 | 75  | 16    | 16      |
| 200 | 90  | 18    | 19      |
| 200 | 100 | 18    | 19      |
| 250 | 125 | 20    | 22      |
| 300 | 150 | 24    | 28      |
| 380 | 190 | 28    | 35      |
| 400 | 200 | 28    | 35      |
| 450 | 225 | 28    | 35      |
| 500 | 250 | 32    | 38      |
| 600 | 300 | 35    | 44      |

[ Units: mm ]



Small cylindricals ( $\leq \text{Ø}600 \text{ mm}$ ) are often suspended from chains connected to brackets or U-anchors on the quay wall.

