



# QPF Pneumatic Fenders

## Operation Manual



**QUAYQUIP**

A EUROTECH BENELUX  
COMPANY

# Introduction

The QuayQuip QPF Pneumatic Fender has an air-filled cylindrical body with hemispherical ends. One or both ends may have a flange opening. The fender body is made from an outer rubber layer, several reinforcing layers of synthetic tyre cords and another, inner rubber layer which is air-impermeable. The three layers are permanently vulcanised together as a single construction.



## 1 General

Before installing a pneumatic fender, users should check the fender's weight in the manufacturer's documentation. Sizes below 2500mm do not require special equipment and may be handled with forklift trucks or small cranes; above that size cranes are recommended.

**Do not carry out any work near the fender that creates sparks or naked flames, such as electrical welding or gas cutting. If such work cannot be avoided, protect the fender from heat damage using welding blankets or similar.**

Fender inflation should be carried out carefully, in line with the instructions below.

## 2 Handling and installation

### 2.1 Unpacking

Cut any ropes used for packing the fender, or release the wire clip fixings (see figure 1).

**CAUTION: where wire ropes are used these may recoil at speed when cut. Ensure all personnel are in a safe area when cutting ropes or clips.**

Carefully remove the wire and ropes so as not to cut or scratch the fender (see figure 2).

Figure 1



Wire rope

Polypropylene rope

Wire clip

Figure 2

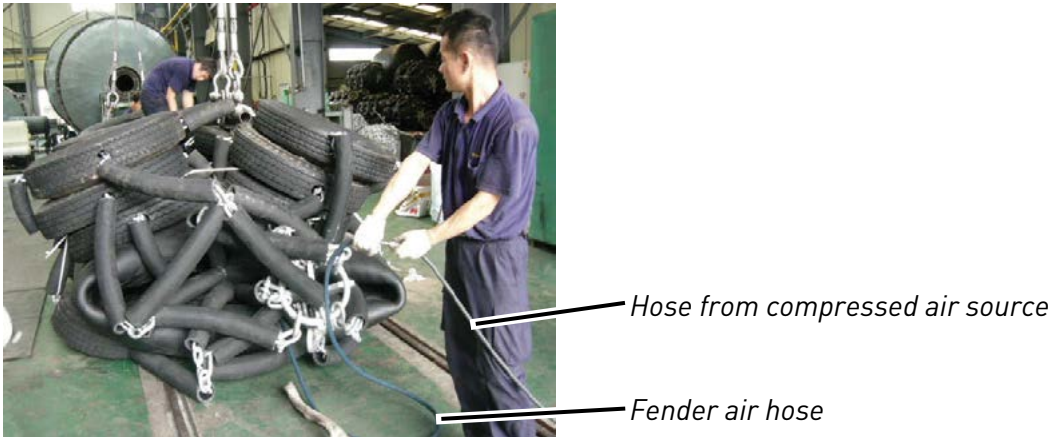




## 2.2 Inflation

Connect the supplied fender air hose and connect it to the compressed air source (see figure 3).

**Figure 3**

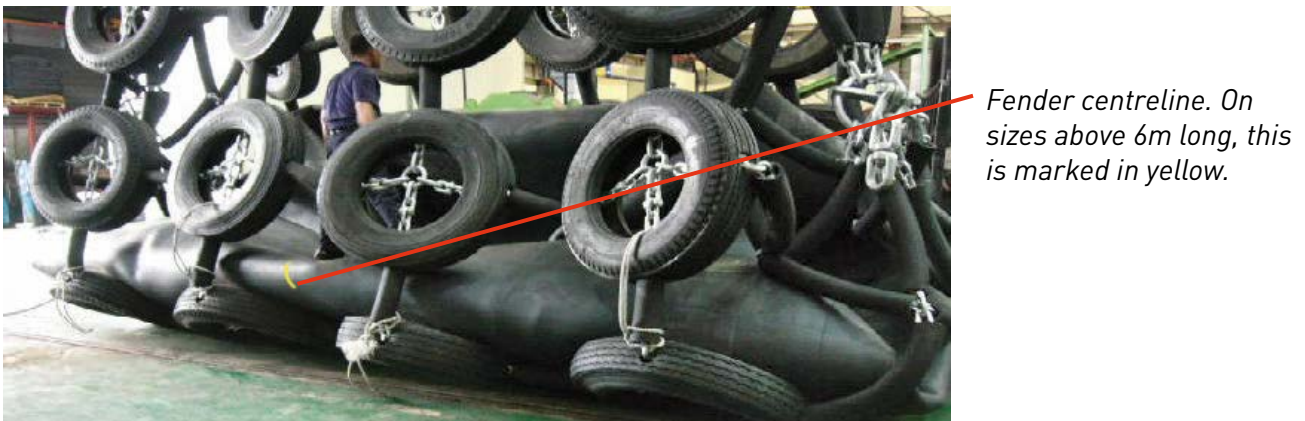


Inflate the fender from the compressed air source. Ideally the compressor should incorporate a dryer to remove most of the water vapour from the compressed air.

**Important: check the discharge valve is closed (where fitted)**

As the fender inflates, the net should be adjusted so that it is correctly centred (see figure 4).

**Figure 4**



*Fender centreline. On sizes above 6m long, this is marked in yellow.*

As the fender inflates and reaches its final shape, check the air pressure gauge.

Depending on local operating air and sea temperatures, the final inflated pressure may vary according to the formula below. Pressure should be adjusted to avoid excessive increase under combined hottest conditions, ie. 50kPa (7.2psi) for IP50 fenders and 80kPa (11.6psi) for IP80 fenders.

$$P_2 = 100 \times \left[ \frac{(1 + 0.01 P_1) \times (273 + t_2)}{(273 + t_1)} - 1 \right] \quad \text{where,}$$

$P_1$  = initial inflated pressure (kPa)  
 $P_2$  = final operating pressure (kPa)  
 $t_1$  = initial temperature (°C)  
 $t_2$  = final operating temperature (°C)

During inflation, ensure the CTN (where applicable) is distributed evenly and correctly around the fender body.

**Note: Guaranteed Energy Absorption is achieved even with moderate changes in operating temperature by small increases and decreases in actual deflection, within stated reaction tolerance.**

## 2.3 Moving the fender

Fix the lifting rope to the swivels on the fender's chain lugs (see figure 5).

Lift the fender well clear of the ground and any projections.

## 2.4 Lowering the fender into position

Connect the chains to the fender's chain lugs.

Lower the fender to the water.

Fix the chains to the anchors on the quay wall (figure 6).

### Note:

- 1 The chain anchors should be placed so the chain will be taut at low water level (LWL).
- 2 The fenders should be installed where the parallel line of the vessel touches to the fender.
- 3 Check the stand-off so that projected stern plane does not contact the quay wall when fenders are in position.

Figure 5

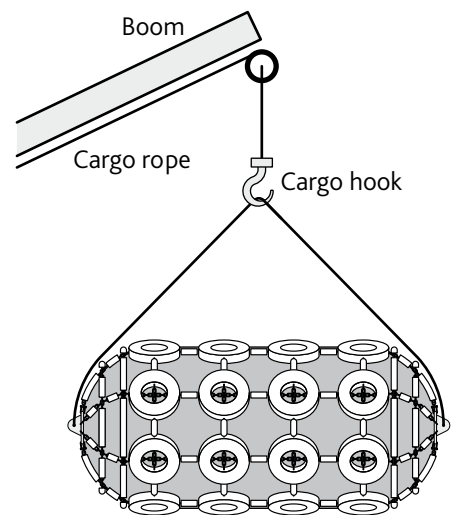
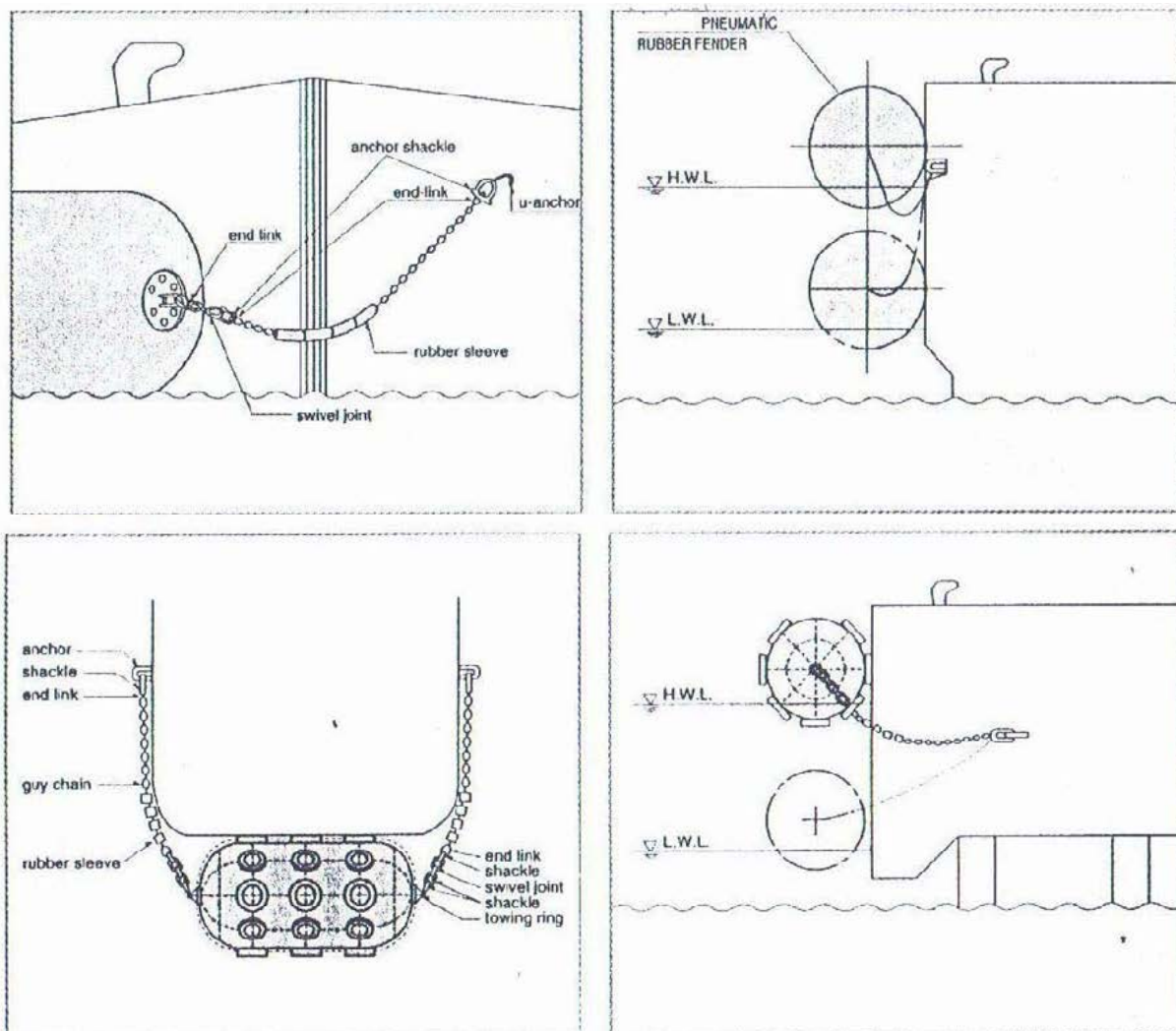


Figure 6





## 2.5 Storage

Place the fender in a safe storage area, away from direct sunlight. The storage areas should be cool and dry. If that is not possible, cover the fender. When not being used for long periods, the fender surface should be washed with fresh water before storage. Any oil on the rubber surface should be cleaned off with soapy water.

When not in use, the fender should be kept away from heat sources, grease, machine oil and other substances that might damage it.

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