GOSALIA RUBBER INDUSTRIES

Presentation on Rubber Fenders

ABOUT US

- Established in 1969, Gosalia Rubber Industries is one of the oldest rubber factory on the western coast of the country. The sole aim of commencing the operations was to support the maintenance of heavy earthmoving machineries and automobiles and import substitute rubber parts post the Portuguese Era. Ever since, the company has only grown from strength to strength.

  Now an ISO 9001: 2015 company, Gosalia Rubber Industries or (GRI) proudly boasts of its prestigious clientele ranging right from the Defence PSU's to big names in Marine,Automobile, Pharma and Engineering sectors.

  GRI is also a proud member of Indian Rubber Manufacturer's Research Association (IRMRA), All India Rubber Industries Association (AIRIA), Confederate of Indian Industries (CII) thus being the only rubber industries from Goa to do so.

  Current promoters being Mr Prakash Gosalia and Mr Samik Gosalia.

PRODUCTS

- Here's a brief list of products currently manufactured by GRI at its facility at Cacora-Curchorem. Most of the products are customized manufactured as per the customer needs and applications. Hence our product list and our clientele list ever keeps growing.

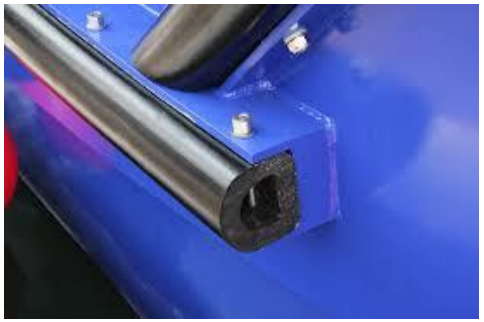
GENERAL PRODUCTS

- Rubber Sheets (Natural, Chloroprene, EPDM, Silicon)
- Rubber-lining of Bearing Bushes for Propeller systems of Marine vessels
- Rubber extruded Profiles
- Rubber Marine Fenders
- Rubber Mats and Road Ramblers.
- Conveyor Belts (Authorised Dealers)
- Moulded Rubber Profile
- Sponge Rubber Strips and Acoustic Mats

INTRODUCTION TO MARINE FENDERS

Marine fenders are a type of equipment that are used to prevent boats, ships and other naval vessels from colliding against each other or against docks, wharves, piers and jetties.

The primary objective of the rubber fenders on the dock and on vessels is to absorb collision energy during the along side berthing process. This in return protects both the ship and the dock after collision.



WHY FENDERS?

The most convenient and simple answer to this will be '***To save punitive damages***' .

Fenders, used on all types of vessels, from cargo ships to cruise ships, ferries and personal yachts, prevent damage to vessels and berthing structures. To do this, fenders have high energy absorption and low reaction force.

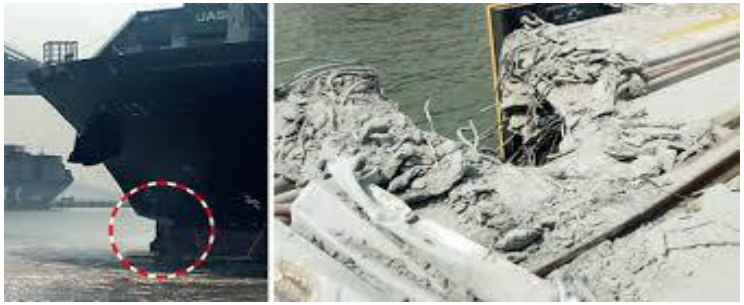
When a marine vessel approaches another vessel or a berthing structure like a dock or a jetty or a pier, the vessel approaches with a certain momentum. Due to the various tide conditions and choppiness present in the water, the vessels do not tend to remain stationary in certain position as intend, hence causing a lot of unintended brushing/contact to the adjoining vessel/berthing structure. Such contacts in turn may cause severe damage resulting in heavy repair costs to both, the berthing structure and the vessel

WHY FENDERS?

And in an eventuality like a pillar or a concrete column of a jetty or a pier gets hit, such could be the collision impact that the structure could be thrown out of service for a longest period of time causing huge damages and inconvenience to everyone operating it

Hence equipments like fenders are particularly designed and developed keeping in mind all the involving factors, such as the size of vessels, water body, approach speed etc.

As the wise old saying goes.. ' *Prevention is better than cure*'.



TYPES OF FENDERS

Fenders are majorly divided into two categories depending upon its application.

- **Ship to Berth Fendering:** Such fenders are used between a berthing structure and approaching vessel to absorb the kinetic energy from the vessel and in turn protecting both the vessel and the structure. These are further categorised in *fixed type and floating type*
- **Ship to Ship Fendering:** The fenders used between two ships while bunkering next to each other. The fenders are fixed on vessels on most likeable point of contacts when two ships approach each other in close proximity.

FIXED TYPE FENDERS

Fenders that are mounted on to the berthing structure or to the hull of the ship with help of fixing arrangements like fasteners , plates and rods. These fenders protect the most vulnerable point of contact by absorbing the kinetic energy of impact and not causing any damage to the structure.

Design life of fenders will vary by ship type, berthing frequency, temperature, and other environmental factors. Considering the various factors, an appropriate fenders are recommended to the end user.

Fender spacing should be determined by the smallest ship using the berth, as well as the design ships' hull radius of curvature. To ensure all ships can be accommodated at the berth, fender spacing should be about 5%-10% of the ship's length for vessels.

FENDER SHAPES AND APPLICATION

CYLINDRICAL FENDERS

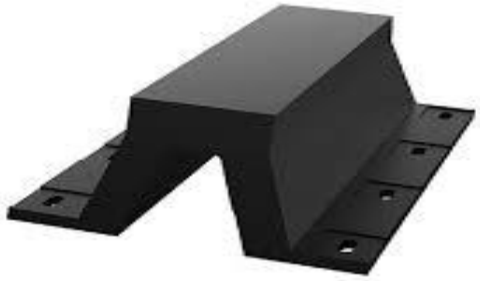
Cylindrical fenders are commonly used fenders which ensure a safe and linear berthing for different kinds of vessels. Cylindrical fenders are an economical solution to protect most berthing structures, and offer ease of installation. As compared to the other fenders these fenders are most widely used for protection of berthing structures. The either be fixed or hung using chains along the line of impact.

Cylindrical fender

FENDER SHAPES AND APPLICATION

ARCH FENDERS

Arch fenders were introduced to improve upon the performance of Cylindrical fenders. Arch fenders have a better Energy / Reaction force ratio and recommended for all types of applications. The shape of these fenders helps to dissipate the stresses evenly. These rubber fenders are very easy to install and are maintenance free. Generally preferred for small to medium range vessels.

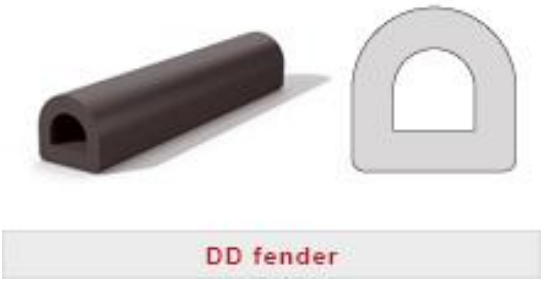


FENDER SHAPES AND APPLICATION

D SHAPED FENDERS

D-type fenders are commonly used on vessels as well as small jetties. They are produced by the means of extrusion and compression moulding in extensive range and designs. The flat back of this type of fender facilitate the easy installation of D fenders on various surfaces of vessels and structures.

DC fender

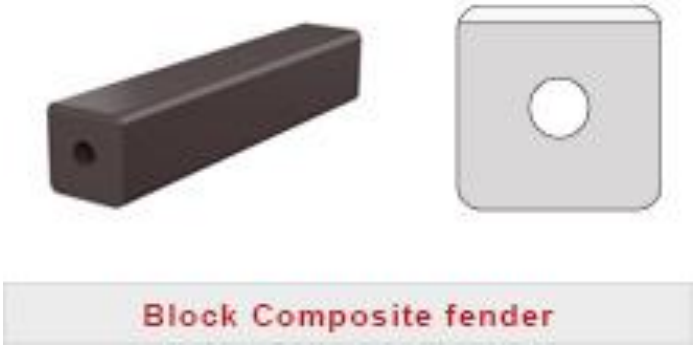


DD fender

FENDER SHAPES AND APPLICATION

SQUARE FENDERS

Square fenders can be produced in various sizes and they can be used for various applications. When compared to D shaped fenders, square fenders are used when a more rigid and stronger bumper is required for use in a more severe conditions.



Block Composite fender

FENDER SHAPE AND APPLICATION

WING FENDERS

Wing fenders are D fenders that are further developed. They are often used as an alternative for the protection of vessel walls, docks and piers. This type of fender is generally mounted in a profile, which creates a bumper that is highly resistant to various forces. Wing fenders are easy to install and replace when necessary.

Wing fender with bore

FENDER SHAPES AND APPLICATION

KEY HOLE FENDERS

Keyhole rubber fenders are used worldwide and they offer very reliable protection for the bow of a vessel or for the wall of a quay. This type of rubber fender is characterized by the key hole shaped opening on the inside and it is used in areas where large forces must be absorbed. Keyhole fenders are strong and they can be produced with a curve. The two mounting holes facilitate easy and accurate installation.

FLOATING TYPE FENDERS

PNUEMATIC FENDERS

Pneumatic Fenders. Pneumatic Fenders are ideal for permanent and semi-permanent port applications and for offshore ship-to-ship transfers. Larger fenders are commonly fitted with a chain-tyre net (CTN) for added protection.

These fenders can be placed and removed as and when required. There are basically bladders filled with air to absorb any impact caused due to collision.

However they sometimes can be unstable in windy and tide conditions.

INFRASTRUCTURE AT GRI

GRI or Gosalia Rubber Industries is fully capable and equipped to carry out orders of any magnitude and for any sizes. Boosted by the machineries at its helm along with years of decade, We deliver what we are asked to, on time and on the point of excellence in expectation.

List of Machineries (brief)

1. 650 T Rubber Compression Moulding Press for Fenders
2. Compression Moulding Presses for Blocks and General Items
3. Lathe Machines
4. Shaping Machines
5. Rubber Extruders
6. Mixing Mills
7. Autoclave

QUALITY AND ASSURANCE

In-house laboratory for testing and quality checking of the raw material and the final products, is a big advantage for the customers of GRI as they know they have the confidence of getting the right quality and right specifications for what they came looking for. Having equipped with the latest testing apparatus needed for quality checking of rubber products, We promise and vouch for quality and nothing else. Having associated with NABL labs and Class certifications agencies, We also provide third party inspection and testing as when demanded.

List of Testing Equipements.

1. Tensile Testing
2. Hardness Testing
3. Age Testing
4. Rheometer
5. Compression Set Testing

BRIEF PRODUCTION PROCESS

DESIGN	• Understanding the application and end use, we design the product in loop with the customer and the architect if any.
RAW MATERIAL	• Raw material is then procured and blended in line with the specifications and the batches are tested for consistency
PRODUCTION	• The product is then taken up for production either by moulding process or extrusion process which ever is relevant.
FINISHING, Q&A, DISPATCH	• The product is then finished and cleaned and the batches under go testing for required specification before dispatch.

WHY US!!!

We instead let our products and quality pitch for us.

After providing decades of service to the marine and the engineering sectors, we continue to bring in honesty and experience to the table.

We customise manufacture keeping in mind the application and the deciding factors and we deliver, no matter how small the requirement or how stringent the time.

“We might not be the biggest in business,
but we are the mightiest in quality and deliverance.”

QUESTIONS

WE ARE NOW AVAILABLE TO CLARIFY YOUR DOUBTS

AND

ANSWER YOUR QUESTIONS…

Thank You…