Manuplas
By Advanced Insulation

Manuplas®
cast vessel fendering

High quality, lightweight, durable and non-marking vessel fenders

▪ *CTruk - wind farm crew transfer vessel*

Manuplas® fendering for vessels

Manuplas cast fenders are manufactured from a high performance physically cross-linked polyethylene foam core.

At Manuplas, we provide "better products for challenging situations". Innovation is crucial to our success and that's why up to 10% of revenue is invested into research and development every year. As part of Manuplas's drive for better products, a range of vessel fendering solutions for the most challenging of marine environments was developed.

Manuplas cast fenders

- High performance physically crossed-linked polyethylene foam core
- Coated with a unique protective marine-grade polyurethane coating

The result is a high quality, smooth surface finish, ideal for both commercial vessels and luxury yacht tenders.

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▪ *Safehaven Marine - The Barracuda SV11 high speed interceptor & patrol vessel*

Designed to protect, built to last

Manuplas cast fenders are coated with a unique protective polyurethane coating.

A unique protective polyurethane elastomer coating is cast applied to the core. Cast fendering uses in-house manufactured tooling to produce a custom mould. Cast fendering is therefore appropriate when a high quality, smooth surface finish and tighter design tolerances are necessary. It is particularly viable for a series of boats rather than a one-off build, unless the project is not cost sensitive.

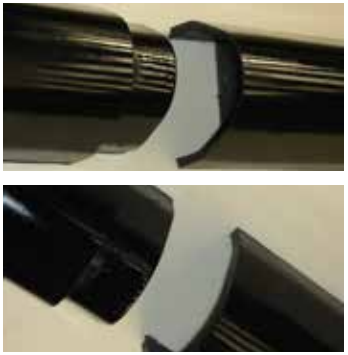
The 'Barracuda SV11' high speed interceptor and patrol vessel from Safehaven Marine was designed specifically for military and law inforcement roles. The Manuplas fenders are manufactured from a lightweight polyurethane foam core and cast with a unique protective polyurethane coating. The Barracuda is capable of speeds of 35-40kts + and this light weight fender construction (less than one third of the weight of rubber fenders) helps to minimise the weight on the vessel, ensuring that its operations are carried out within very tight time constraints.

▪ *South Boats IOW – wind farm service vessel*

Manuplas® cast fendering benefits

Manuplas vessel fendering provides many benefits:

- High quality, smooth and consistent surface finish for maximum visual appeal
- Less than 1/3 of the weight of rubber fenders, helping to improve vessel speed and fuel consumption
- Custom designs to suit budget and application
- High impact and abrasion resistance prevents damage to the vessels structure in harsh marine environments
- Male and female joint system supplied as standard
- Tooling manufactured in-house enabling tight controls of quality and lead times
- Highly durable and reliable
- A virtually non-marking external finish
- Variable core densities to suit vessel usage or specific location on vessel
- Custom moulded bow and corner sections for exceptional fitting
- Square, shaped or custom shaped terminating ends available
- Easily bonded to the hull for quick installation
- Rapid lead times



▪ *Male and female cast fender connectors*

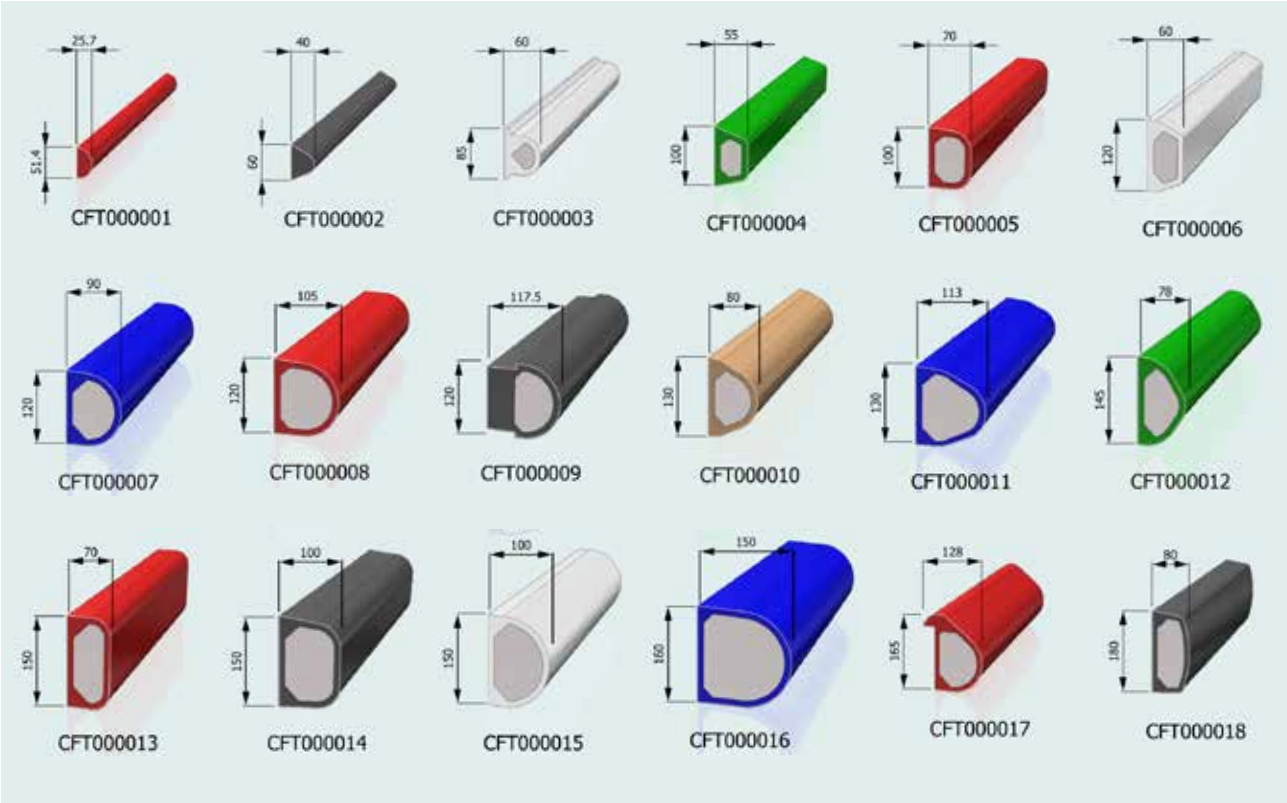
▪ *Briggs Marine - pilot boat*

Cast vessel fender

Manuplas cast fenders have been designed, manufactured and installed on a number of vessels- providing a lightweight, durable, quality fender solution for the vessel manufacturers and operators.

Briggs Marine - pilot boat
A complete Manuplas cast fendering set was supplied to Briggs Marine for their Lochin 366 Pilot Boat based on the Rye, East Sussex. The set featured a lightweight, non-absorbent foam core with an abrasion resistant Polyurethane elastomer skin. High stress sections, such as the bow and aft corners were upgraded to a higher density foam core and thicker elastomer skin, with pre-curved sections for a better fit.

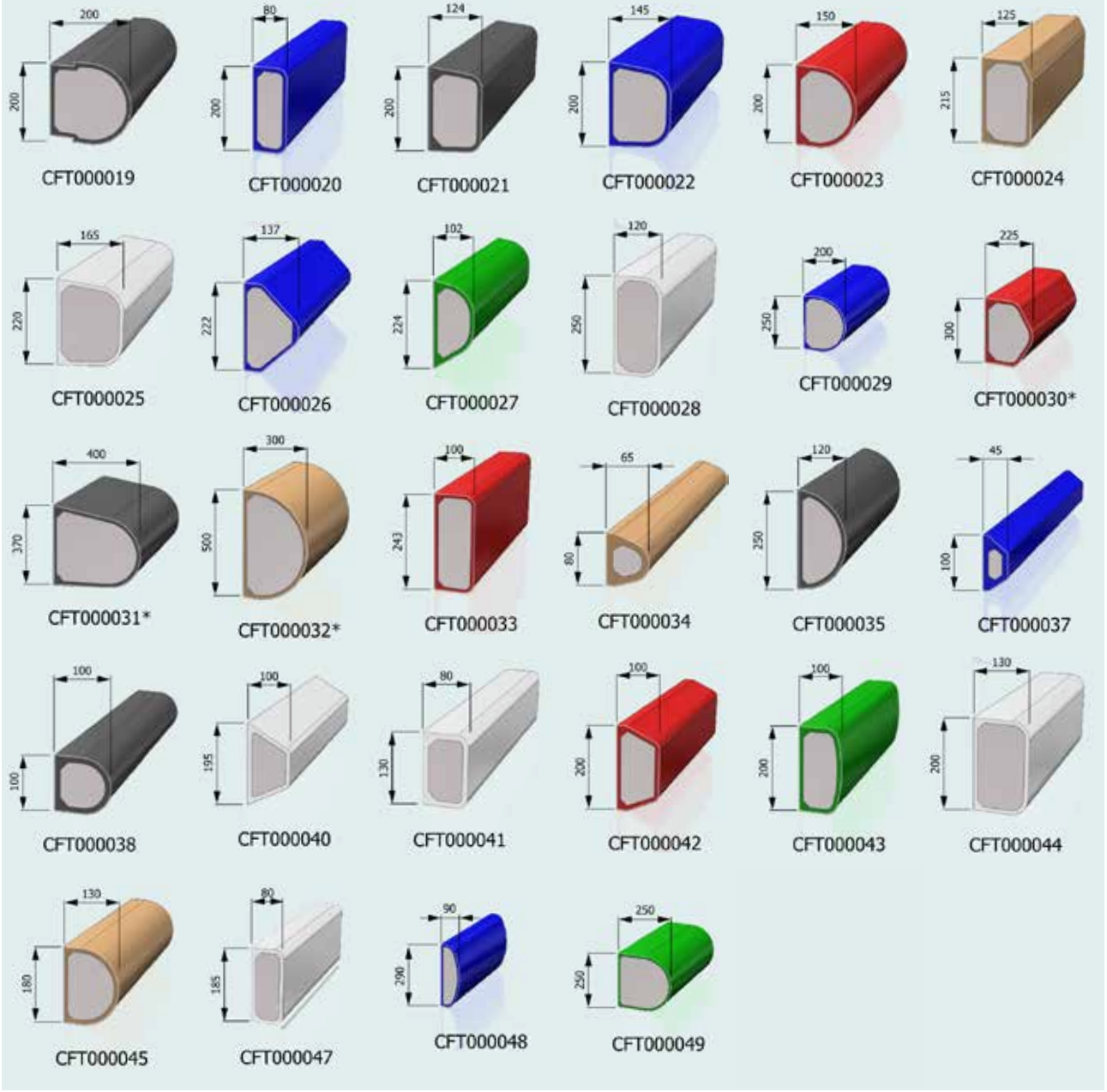
South Boats IOW – wind farm service vessels
Manuplas cast side vessel fender sections were supplied to South Boats IOW for their Wind Farm Service Vessels (WFSVs). The fenders have been manufactured from a high performance physically cross-linked foam core and coated with a unique marine-grade polyurethane coating. The result is a long lasting quality, durable, light weight fender which is highly impact absorbent. A virtually non-marking, smooth surface finish requires minimal maintenance whilst deployed in the harsh offshore environment.



Manuplas® profiles

Manuplas vessel fendering provides a wide range of profiles to meet your requirements.

- Fendering can be supplied in lengths up to 3m
- Custom profiles availables on request
- Fender joins consist of one spigot and one cuff end. Alternative end types will affect final fender set weight
- Fender weights calculated using 33kg/m3 foam, alternative foam densities are available. Weights are also calculated using a 10mm (*15mm where indicated) skin thickness.
- All fender weights are calculated assuming straight fender sections. Custom bow or corner pieces will vary in weight depending on profile characteristics.
- Colours are for illustrative purposes only. Standard fender colour is black. Alternative colours available on request.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180
CFT000045
80
185
CFT000047
90
290
CFT000048
250
250
CFT000049

▪ *Dalby Offshore - wind farm service vessel*

PROFILE HEIGHT (mm)	PROFILE DEPTH (mm)	WEIGHT (kg/m)	CAST FENDER PROFILE REF
51.4	25.7	1.2	CFT000001
100	45	2.7	CFT000037
120	60	3.9	CFT000006
130	80	4.2	CFT000010
150	70	5.2	CFT000013
165	128	6.5	CFT000017
195	100	5.5	CFT000040
200	124	7.6	CFT000021
200	200	8.8	CFT000019
224	102	6.6	CFT000027
250	200	10.5	CFT000029
500	300	27.6	CFT000032*

All fender weights calculated assuming straight fender sections. Custom bow or corner pieces will vary in weight depending on profile characteristics. All fender weights calculated using 33kg/m^3 foam. Alternative foam densities are available. All fender weights calculated using 10mm (15mm*) skin thickness. Fendering can be supplied in lengths up to 3m. Custom profiles available on request. Table of cast fender profiles is based on our standard specifications and represents a small sample of sizes and specifications available.

Standard foam density information: 25 kg/m^3 to 125 kg/m^3
PU thickness information: 8mm minimum no maximum

▪ *Adhesive bonding*

▪ *Vertical through bolting*

▪ *Horizontal bolting*

Fixing methods

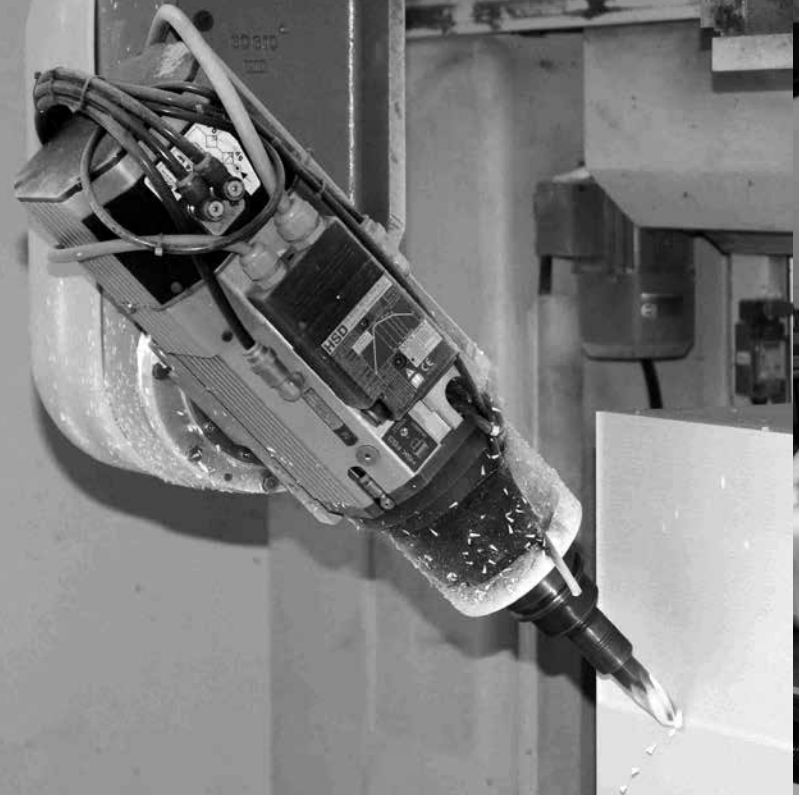
Manuplas cast fendering is typically fixed to a vessel using one of three methods; adhesives, vertical through bolting or horizontal bolting. Manuplas can provide advise regarding fixing methods that are most suited to the characteristics of each individual vessel and its use.

Adhesive Bonding
Manuplas fenders are designed to be glued to the hull of a vessel using a moisture curing polyurethane mastic. This method of attaching a fender system to a boat hull spreads applied loads evenly over the back face of the fender rather than the point-loading effect applicable to mechanically fixed systems. It is also the lowest weight option for a complete fitted fender set.

Bolting
In the event that fenders need to be removed quickly or regularly for operation or maintenance purposes, a bolt in place system can be supplied. Fenders can be vertically or horizontally fixed:

Vertical Through Bolting:
The fenders can sit inside two horizontal plates that are integral to the bolt hull. The back face of the fender has a thicker elastomer skin so that it can be drilled to take a bolt that passes through the fender.

Horizontal Bolting:
An aluminium or stainless steel plate is incorporated in the back of each fender section. This can either be configured with threaded holes or protruding studs. Holes are drilled through the hull at set locations to mechanically secure the fenders in place.



Manuplas® tooling

Manuplas in-house 5 axis CNC machining facility provides the ultimate in quality and design accuracy of the fender mould finish. Custom fender shapes and sizes can be accommodated to suit the application and budget. Manuplas also have an extensive library of standard fender moulds available.

▪ *Maritime Craft: wind farm service vessel*

Here to help

Find out more about Manuplas lightweight cast fender systems for your vessel:

www.manuplas.co.uk

Or email us at:

sales@manuplas.co.uk

We offer a full technical support service for all our products, regardless of location or application. For further information please contact us to discuss your requirements:

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