Manuplas®
Floats and Buoys
For marine applications inshore and offshore
Better products for challenging situations

For further information about the Manuplas® range of products, please visit www.advancedinsulation.com
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Find out more about Manuplas® at: www.advancedinsulation.com
Advanced Insulation’s Manuplas® division has been a global designer, manufacturer and supplier of floats and buoys to the marine and offshore energy markets for over 25 years.

The Manuplas® marine product range includes surface buoys, quayside fenders/floats, vessel fendering, mooring cable protection and offshore rope protection.

Manuplas® offers a range of products to meet the growing demand for buoys and fender systems which can withstand increasingly challenging marine conditions.

The company’s expertise in sprayed cast and moulded polymer engineering brings significant benefits to Manuplas® products over those manufactured using traditional technologies.
Manuplas®

Benefits of Floats & Buoys

Manuplas® supply a wide range of high performance flotation and buoyancy solutions to meet client requirements

Product benefits:

+ Highly durable
+ Virtually non-marking external finish for minimal maintenance
+ Optional Kevlar reinforcement of elastomer skin to further increase tear resistance
+ A large range of standard products are available for quick lead-times
+ Tailor made solutions to meet your bespoke requirements are also available

<table>
<thead>
<tr>
<th>Lightweight</th>
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<tbody>
<tr>
<td>KG</td>
</tr>
<tr>
<td>For simple installation &amp; maintenance</td>
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<table>
<thead>
<tr>
<th>Highly Impact Absorbent</th>
</tr>
</thead>
<tbody>
<tr>
<td>And high abrasion resistance</td>
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</table>

Find out more about Manuplas® at: www.advancedinsulation.com
## Manuplas®

### Foam Filled Floating Fenders

Enable safe berthing, protecting port and harbour facilities as well as vessels moored or operating within them

**Robust and reliable construction:**

+ Physically cross-linked thermolaminated closed cell polyethylene foam core in a range of densities. Standard foam density 30-50kg/m³
+ Unique spray applied ultra high performance polyurethane elastomer skin
+ 22 diameter sizes available as standard
+ Range of body lengths available

+ Rope through or chain through configuration available on selected sizes
+ Nylon reinforcing of the elastomer skin increases tear resistance and extends life of the fender in harsh marine environments
+ Kevlar reinforcement is also available as an optional extra

### Properties

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion Resistant</td>
<td>And non-marking skin</td>
</tr>
<tr>
<td>Easy Installation</td>
<td>And virtually maintenance free</td>
</tr>
<tr>
<td>High Energy Absorption</td>
<td>And low reaction forces</td>
</tr>
<tr>
<td>Virtually Unsinkable</td>
<td>Skin will not puncture in challenging conditions</td>
</tr>
</tbody>
</table>
Find out more about Manuplas® at: www.advancedinsulation.com
Manuplas® | Floats and Buoys
**Manuplas®**

**Floating Fender Performance Data**

Manuplas® supply a large range of standard specification foam filled floating fenders

<table>
<thead>
<tr>
<th>Body Diameter (mm)</th>
<th>Body Length (mm)</th>
<th>Reaction Force @60% Compression (Kn)</th>
<th>% Compression (Kn)</th>
<th>Weight (Kg)</th>
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</thead>
<tbody>
<tr>
<td>300</td>
<td>1000</td>
<td>26.7</td>
<td>1.9</td>
<td>7.4</td>
</tr>
<tr>
<td>500</td>
<td>1000</td>
<td>74.2</td>
<td>8.7</td>
<td>15.4</td>
</tr>
<tr>
<td>600</td>
<td>1000</td>
<td>89.1</td>
<td>12.5</td>
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<td>700</td>
<td>1500</td>
<td>155.9</td>
<td>25.5</td>
<td>65.7</td>
</tr>
<tr>
<td>900</td>
<td>1800</td>
<td>240.0</td>
<td>51.0</td>
<td>121.0</td>
</tr>
<tr>
<td>1000</td>
<td>2000</td>
<td>296.9</td>
<td>69.3</td>
<td>132.9</td>
</tr>
<tr>
<td>1200</td>
<td>2000</td>
<td>356.3</td>
<td>99.8</td>
<td>163.0</td>
</tr>
<tr>
<td>1500</td>
<td>3000</td>
<td>668.1</td>
<td>233.8</td>
<td>381.3</td>
</tr>
<tr>
<td>2000</td>
<td>4000</td>
<td>1187.7</td>
<td>554.2</td>
<td>1037.1</td>
</tr>
<tr>
<td>2500</td>
<td>5000</td>
<td>1856.0</td>
<td>1082.0</td>
<td>1746.8</td>
</tr>
<tr>
<td>3000</td>
<td>6000</td>
<td>2672.3</td>
<td>1870.6</td>
<td>2848.8</td>
</tr>
<tr>
<td>3300</td>
<td>6500</td>
<td>3184.5</td>
<td>2452.0</td>
<td>3309.7</td>
</tr>
</tbody>
</table>

The table of fender sizes is based on our standard specification and represents a small sample of sizes and specifications available. Standard foam density 30-50kg/m³. Note all values within this document may vary due to material property and dimensional tolerances and operational conditions.
Manuplas®
Donut Fenders

Manuplas® foam-filled donut fenders are installed over monopiles to maximise protection and enhance visibility.

Standard and custom sizes and specifications available.

Kevlar reinforcing of polyurethane elastomer skin to increase tear resistance.

Constructed with either a low friction polyethylene central tube or UHMW-PE wear pads.

**Applications include:**
+ Dock and port entrances
+ Bridge supports

<table>
<thead>
<tr>
<th>High Energy Absorption</th>
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<tbody>
<tr>
<td>To protect the application and nearby vessels</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Easy Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>And low maintenance</td>
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</table>
Manuplas®

Low Freeboard Submarine Fenders

Manuplas® submarine fenders provide a custom solution for navies requiring a low freeboard fender to position alongside a vessel needing protection from a submarine when it comes alongside.

Construction:
- Manufactured from a solid, cast polyurethane elastomer with an arrangement of alliptical vertical holes to reduce weight and allow for some compression of the fender
- Vertical chain assemblies located on either side of the centre-line of the fender

Features:
- A long lasting, quality fender
- Durable and reliable
- Bespoke sizes and configurations available

Highly Impact Absorbent
To protect both the vessel & the submarine

Bespoke Sizes
And configurations available

Find out more about Manuplas® at: www.advancedinsulation.com
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Commercial Mooring Buoys

Manuplas® low maintenance mooring buoys are ideal for vessel applications in ports and harbours, and are used by the RNLI & MOD

Durable, long lasting construction:

- Closed cell polyethylene foam core in a range of densities
- Reinforced high performance polyurethane elastomer skin
- Available with chain through, pad eye or handling crucifix configuration, non-slip deck, LED lantern and/or radar reflector

Manuplas® offer a range of different mooring buoys available as standard:

- Commercial Mooring Buoy Chain Through
- Commercial Mooring Buoy Pad Eye
- Barrel Buoy Chain Through
- Barrel Buoy Handling Crucifix
- Barrel Buoy Modular

Find out more about Manuplas® at: www.advancedinsulation.com
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Chain Support Buoys

Manuplas® manufacture and supply resilient chain support buoys which can be used for a range of marine applications.

Manuplas® chain support buoys are manufactured from polyethylene foam and coated in a polyurethane elastomer skin. They are both impact and abrasion resistant.

Manuplas® offer a number of different chain support buoy options:

+ Swivel eyes top and bottom
+ Chain through arrangement
+ Pick-up buoys

Applications include:

+ Moorings
+ Markers
+ Pick-up operations
+ Pipe or chain systems

Non-Marking
Self-colour polyurethane elastomer skin

Bespoke Sizes
And a range of options are available

Skin Reinforcement
With Kevlar is available as optional

Durable and Reliable
For optimum service life
Manuplas®

Anchor Pendant Buoys

Manuplas® anchor pendant buoys are extremely robust and suitable for the harshest of marine environments

Manuplas® can manufacture anchor pendant buoys to a range of nett buoyancies. Standard styles available:

+ Cylindrical pendant buoy with handling crucifix
+ Rectangular pendant buoy with handling crucifix
+ Modular pendant buoy with handling crucifix

Construction:

+ Closed polyethylene foam core in a range of densities
+ Foam core coated in high performance polyurethane elastomer skin
+ Standard colours: orange or yellow
+ Standard foam density: 35kg/cu.m

Durable and Reliable
Suitable for challenging marine environments

Skin Reinforcement
With Nylon or Kevlar for optimum tear resistance

Virtually Non-marking
Polyurethane elastomer skin

Bespoke Sizes
And a range of options are available

Find out more about Manuplas® at: www.advancedinsulation.com
Manuplas® modular buoyancy is a customisable product providing support for mooring systems from surface to 3000msw

Manuplas® supply modular buoyancy units in three industry standard sizes:

+ **MIN** - 1750mm X 1750mm Cross-section
+ **MID** - 2350mm x 2350mm Cross-section
+ **MAX** - 3000mm x 3000mm Cross-section

Individual buoyancy elements or complete buoys including central structural steelwork assemblies are also available and can be supplied with a variety of handling options.

**Applications:**

+ Suspended mooring
+ Equipment installation
+ General offshore operations

**Construction:**

+ The flotation core component maybe syntactic foam for deepwater deployment or more lightweight expanded polymer foams to maximise buoyancy yield in shallow waters
+ Cast with a robust impact resistant rotationally moulded external finish
Features and benefits:
+ Modular design, 1-40T of nett buoyancy
+ MIN, MID and MAX industry standard sizes
+ Compartmentalised design for greater protection
+ Flat sides to facilitate stable storage and tight operational configurations
+ Central structural steelwork
+ Lightweight foam flotation cores

Interlocking Design
To eliminate rotation during operation

Easily Adjustable
To meet specific buoyancy requirement

Easy to Repair
Easy buoyancy element change-out if damaged

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Navigation Buoys

Manuplas® has supplied IALA compliant navigation buoys for over 25 years

+ Available in a range of diameters for in-shore applications.
+ Constructed from a closed cell polyethylene foam core and a spray applied self-coloured UV stable polyurethane elastomer skin
+ Configured with self-contained LED lights, radar reflector and top mark assembly as required

**Navigation Hull diameters available:**

- 1250
- 1750 / 1800
- 2000
- 2000 / 2500
- 3000

**Lightweight & Modular**

Design for easy installation

**Low Maintenance**

And long lasting
Manuplas®

Marker Buoys

Manuplas® IALA compliant marker buoys are easy to install and are practically maintenance free

+ Available in 10 configurations as standard, ranging from 0.6m - 1.5m diameter
+ Marker buoys suited to operating in currents up to five knots can be supplied
+ The hull / daymark core construction is closed cell rigid expanded polystyrene or resilient thermolaminated polyethylene foam
+ The hull / daymark skin construction is a polyurethane elastomer skin as standard
+ Can be configured with either a pad eye or through hole for mooring
+ Can be fitted with lifting eyes for easy installation
+ All metal work hot dipped galvanised
+ Options available include: self contained LED lights, radar reflector and top mark

**6 Knot Fast Water Buoys**

Also available from Manuplas®
Manuplas®

Spar Buoys

Manuplas® supply IALA compliant spar buoys

Manuplas® highly visual spar buoys are ideal for marking dangers, waterways and mooring fields.

Applications:
+ Ports and harbours
+ Channels / waterways
+ River waterways

- Highly Impact Absorbent
  And practically unsinkable for high reliability

- Lightweight
  For easy installation and maintenance

Additional options available: self contained LED lights, radar reflector and/or top mark
Polyethylene foam core coated in a self-colour UV stabilised polyurethane elastomer skin
Stainless steel lifting eye
Stainless steel mooring eye for maximum stability and durability

Find out more about Manuplas® at: www.advancedinsulation.com
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Tubular Floats

Manuplas® tubular floats are designed to provide additional buoyancy to offshore fibre rope assemblies

Construction:

+ Manufactured as a one piece with a longitudinal split
+ Thermolaminated closed cell polyethylene foam core
+ Spray applied polyurethane elastomer skin
+ Approximate outer elastomer skin thickness: 3-4mm
+ 100-150mm of each end is internally sprayed with a 2mm elastomer skin
+ Float can be secured to the pipe with 19mm wide stainless steel banding if required

High Performance Skin
- High abrasion & impact resistance

Easy Installation
- And low maintenance
Manuplas®

Tow-Tectors

Manuplas® manufacture Tow-Tectors which are moulded sleeves designed to provide impact, abrasion and wear resistance to mooring chains, ropes and cables.

Manuplas® Tow-Tectors are available in a range of diameters and lengths to suit the application and can be supplied as a one-piece sleeve or a two-piece bolt together assembly for retro fitting.

Differing external geometries can be provided for instance to limit rolling or meet other challenges in use. These products maybe used in conjunction with Manuplas® polyurethane clamps to secure to the mooring system in use.

Features:

+ One-piece or two-piece options
+ High performance moulded polyurethane elastomer

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>High abrasion &amp; impact resistance</td>
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<table>
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<tr>
<th>Bespoke Sizes</th>
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<tbody>
<tr>
<td>Range of diameters, lengths &amp; external geometries</td>
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</tbody>
</table>

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Marine Product Applications

Manuplas® marine products are supplied to a broad range of customers across many industries.

Manuplas® marine products are used across the following customer groups:

+ Port Managers
+ Harbour Masters
+ Boat Builders
+ Boat Operators
+ The Military
+ Buoy Inspection & Maintenance organisations
+ Users of offshore facilities and infrastructure

Marine | Renewables | Defence | SAR | Transport
What can Marine Products Protect?

Manuplas® marine products can protect a range of vessels and infrastructure both inshore and offshore

- The hulls and bows of commercial and leisure boats
- Port, harbour dock and marina facilities / infrastructure
- Offshore facilities and infrastructure
Global Presence

Advanced Insulation is a market-leading insulation provider with global reach

Advanced Insulation offers a fully comprehensive service for its Manuplas marine products which includes design, manufacture and technical support.

Requests for quotation and marketing enquiries should be submitted to: sales@manuplas.co.uk

With branches across the world, the company can offer organisations and businesses a comprehensive array of products including fendering systems, marine buoys, subsea buoyancy, cable protection systems, clamping solutions, insulation jackets, passive fire protection jackets, topside and subsea insulation, cryogenic spill protection, blast and fire walls.

A full technical support service is available for all products, at any location.
Manufacturing Facilities
Fender & Buoyancy manufacture & sales

1. United Kingdom
Unit 18
Estover Road
Plymouth
PL6 7PY
Tel: +44(0)1752 771740

2. Angola
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Luanda
Tel: +244923 364 273

3. Brazil
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Caixa Postal 255
13820-000
Tel: +55 19 41417117

4. Kazakhstan
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