

# We Are Checkmate

MARINE • CARGO PROTECTION • SPECIALIST •  
PERISTALTIC • BESPOKE • MILITARY  
AND DEFENCE • RESCUE • RENEWABLES

Leading designer  
& manufacturer  
of advanced  
flexible & rubber  
structures



**What we do.**



# The Checkmate Service

Excellent service is the driving force behind what we do. Producing technically innovative, cost effective products derived from knowledge of elastomeric materials, design and manufacturing techniques. We combine theory and practice to ensure the best solutions.

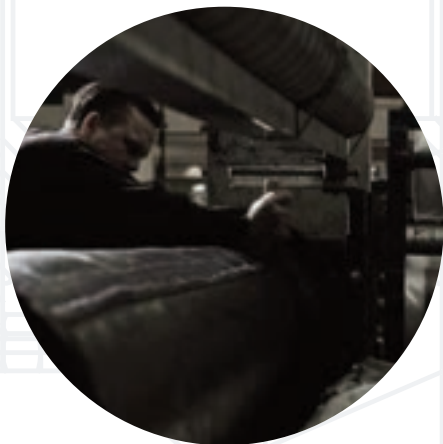
## Products

Our award-winning, precision engineered products are used in various sectors including: Cargo Protection, Defence & Military, Rescue, Industrial, Marine & Renewables.

## A Complete Service

We're not just manufacturers, we're also problem solvers: Consultancy services, Bespoke product development & design, Repairs and Maintenance.

# Who are we?



## A History of commitment

Our beginnings can be traced back over a century, building a reputation of technical excellence, quality, value and responsiveness to customer needs.





## Our Capabilities

Our unrivalled experience has evolved over many years serving different customers and challenging projects.



## Materials

Selection and specification of appropriate materials is vital for ensuring effectiveness in terms of cost, quality and life. Customer requirements are supported by an extensive materials database.



## Customers

A recognised supplier to the UK and overseas Armed Forces, including European ministries of defence, major aerospace and engineering companies, design and consultancies.



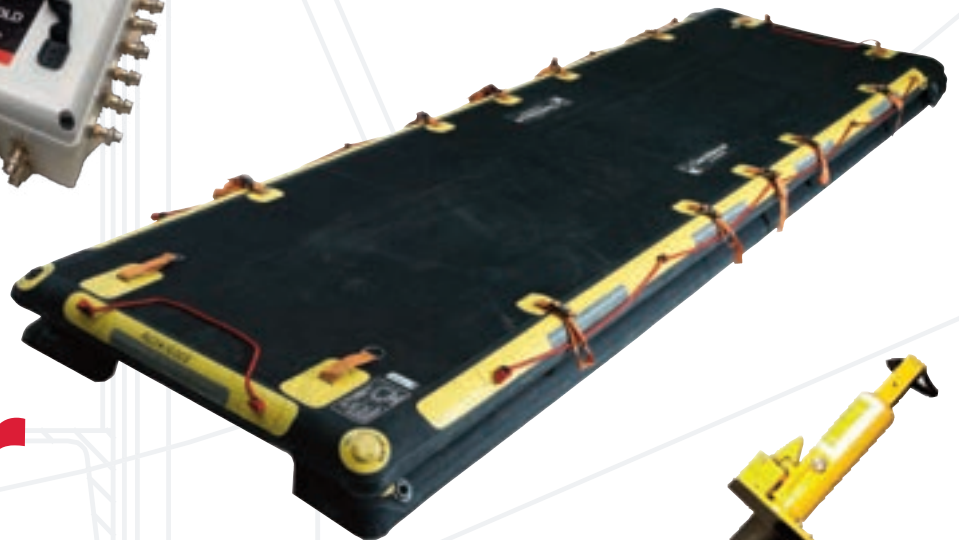
## Craftsman

With many years experience developing skills, our people continue to actively participate in design and quality assurance to ensure continuous improvement.



## Quality

We operate a quality management system under ISO 9001 2015 which is certified by a UKAS registered company. With ABS (American Bureau of Shipping Approvals) accreditation for our market leading Dunnage Bag.



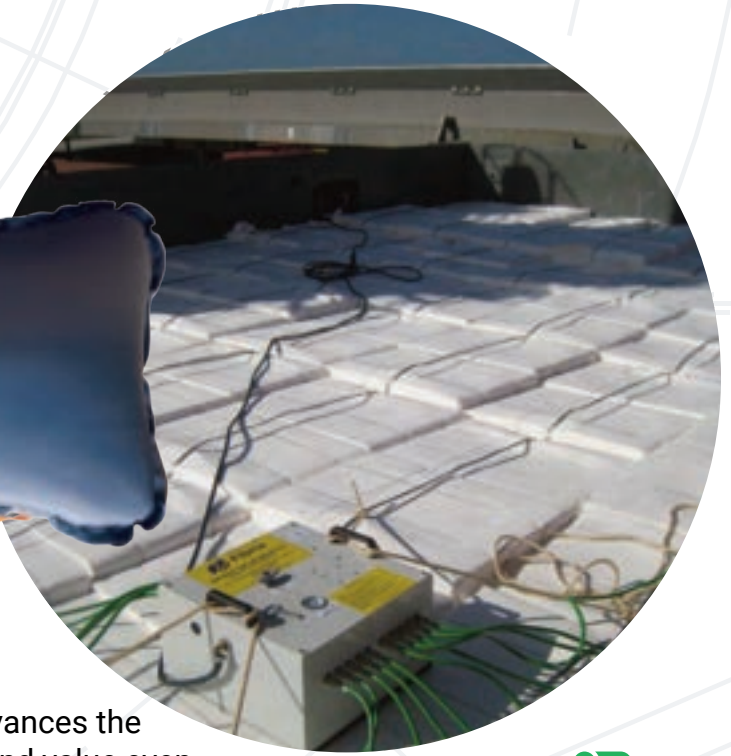
# Our Products

# — Cargo Protection

We work with some of the largest shipping companies in the world, including Saga Welco, G2Ocean, Korean Shipping Corp, COSCO, Pan Ocean and pulp producers Suzano (Fibria), who are all using our world renowned air inflation cargo protection systems.







## The Dunnage Bag

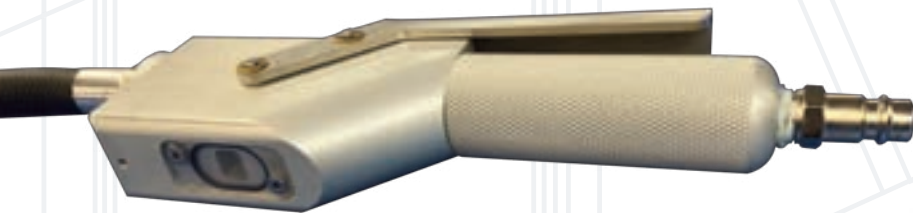
Orange Label patented dunnage bag advances the standard of dunnage bag construction and value even further than the Queen's Award-winning corner fill dunnage bag which became the world leader after its introduction in 2006.

Advances in valve design, strength and quality have been incorporated into the Orange Label dunnage bag which further strengthens its position in the world market.

- Can be fully inserted into small gaps in the stow before inflation
- Higher pressures and force reduce the risk of bursts in heavy seas
- Marine grade brass valve
- Standard airline connector – no special arrangements are required
- The connector is compatible with our Air Bag Pressure Maintenance System
- Only dunnage bags in the world which are ABS  
(American Bureau of Shipping) Type Class Approved



*Our corner fill rubber bags are fully recyclable upon return to Checkmate Flexible Engineering*



## Dunnage Bag Inflation Pistol

Designed, developed and manufactured exclusively in the UK to offer a simple and reliable inflation solution within a sturdy and compact assembly. These advances include an ergonomic shape to fit perfectly within the hand, allowing for ease of use and controlled inflation even when using gloves.

Our robust inflator features a built in pneumatic indicator that is quick and easy to read with no external gauges or workings, reducing the risk of damage and is easily adapted. It offers fast, efficient and controlled inflation of our Heavy Duty Corner Fill Air Bag's but easily adapted for use with a variety of dunnage bags.





## Manifold Air Pressure Maintenance System

This patented and unique system ensures less movement in the whole stow and has been proven to reduce the overall number of airbags needed, saving money and ensuring safety during transit. Its cost effectiveness is proven and demonstrated by its continued sales growth, with hundreds of systems supplied and operated worldwide. New for 2023 a compact design with 30 outlets.



- Keeps airbags correctly inflated at all times with no need for crew intervention
- Rapidly inflates up to thirty airbags simultaneously
- maintains the pressure to a pre-set value for the duration of the voyage
- Designed to cope with critical events, including air leaks of up to 5 litres/minute
- Sealed with no maintenance required under normal operating conditions for 5 years
- An advanced 30 outlet manifold system now available
- Mandated for use with cargos being shipped by the world's largest pulp producer
- We are a one stop shop as we maintain and recertify the units.

New compact design for 2023



## The Mega Bag

The Checkmate Mega Bag is a robust re-usable dunnage bag designed for use in the toughest conditions. The heavy duty woven polypropylene outer and high density polythene liner ensure a high degree of strength, durability and air retention at a competitive price. It is ideal for use in cargo securing where a high quality cost effective solution is required.

The outer layer of tubular woven polypropylene is folded and sewn at the ends with polyester cloth re-enforcement giving it a high strength and excellent puncture resistance. A high density co-extruded blow moulded inner with valve assembly welded in place ensure highly effective air retention.



- Sizes and Weights standard airbag sizes are 120cm x 240cm, weighing 4.2kg.
- Working pressure 0.4 BAR (6psi)
- Re-usable
- High burst pressure
- Performance unaffected by moisture
- Highly friction resistant
- Lightweight
- Valve design simple and effective
- Rapid deflation tool can be provided if required



Simple and effective  
welded valve



Easy inflation with  
Checkmate inflation tool



Rapid deflation using  
Checkmate deflation tool



Red section for maximum  
operating size guide



Dual language  
Warning signs



Fully  
recyclable



Dual language  
instructions



Option to have  
logo/name printed



We are proud to announce that our Corner Fill Rubber bags are fully recyclable. By returning these bags to Checkmate Flexible Engineering, you contribute to a sustainable and responsible recycling process and help us with our commitment to a greener future.

# — Defence & Aviation

The specific requirements of this sector often require our skilled technical team to develop bespoke solutions where performance and reliability are of the utmost importance.

We work to military specifications, with full technical and engineering resources to support skilled manufacturing as well as our ISO 9001 quality system. The following products demonstrate just some of our capabilities.



## Seals & Gaiters

One of the only places in the world you find gaiters as effective as these!

- Our low-cost tooling dramatically reduces your costs  
Used with modern UK and NATO developed weapon launch systems

## Submarine Gaiters

Our submarine gaiters are a mission critical component deep within the bow structure.



## Dry Sacs

Crafted to endure the range of severe conditions that are experienced by special forces. Reinforced by neoprene and hot bonding to ensure high and low temperature resistance.

- Complete water tightness
- Excellent strength
- Used by British Special Forces and overseas defence agencies
- Fully codified and allocated with NATO Stock Numbers
- Custom designs available – for example outboard motors & weapons



## Air Landing Bags

Have been manufactured by Checkmate for many years for both land and sea operation. Designed to meet various military and civilian requirements.







Photo courtesy of Umoe Mandal

# — Marine

Our marine clients include the world's navies, leading shipping companies, hovercrafts and operators of surface effect ships and air-cushioned vehicles such as hover barges.





## Maritime Engineering

One of the world's leading manufacturer of ACV (Air Cushion Vehicle) skirt components, specialising in the design and supply of hovercraft and SES (Surface Effect Ship) skirt systems.

- Designed on an individual basis.
- Proven track record of design and manufacture of SES skirts and Hoverbarge skirt systems to some of the largest and fastest craft in the world
- Long history of laboratory development and "oncraft" experience, we can easily create compounds and materials to accommodate specific needs for varying degrees of Ozone, chemical and abrasion resistance.
- Refined manufacturing methods offer the most economically viable options for the production and maintenance of ACV skirt systems.

***OUR MARINE CLIENTS  
INCLUDE THE WORLD'S  
NAVIES, LEADING  
SHIPPING COMPANIES  
AND HOVERCRAFT  
OPERATORS***

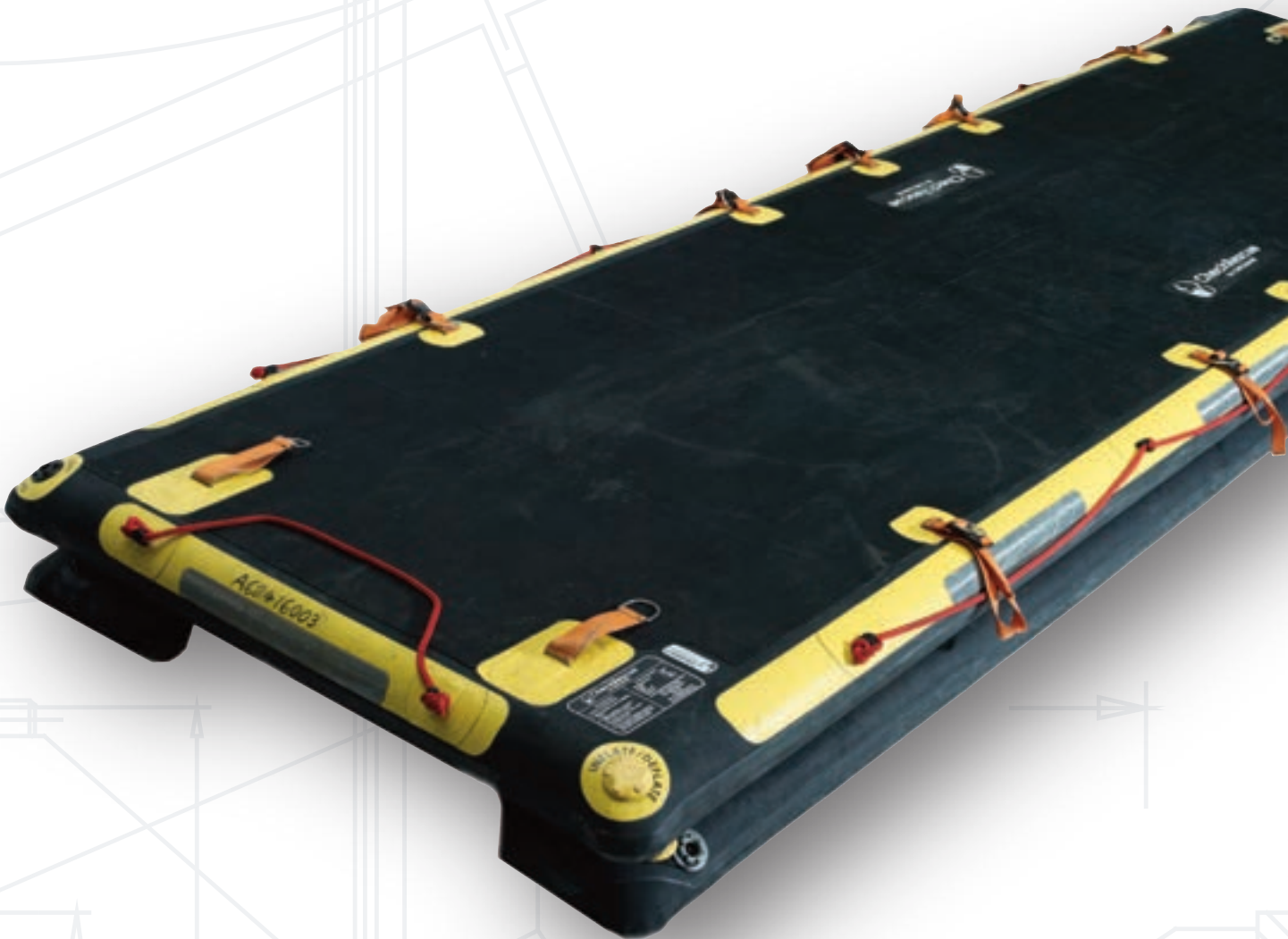




# Check Rescue

The Check Rescue Inflatable walkway is suitable for ice and mud rescue as well as providing emergency flotation for use in shallow water. Now developed to include a boat conversion!

Developed for use by emergency rescue organisations such as; fire brigades, coastguards and mountain rescue teams.





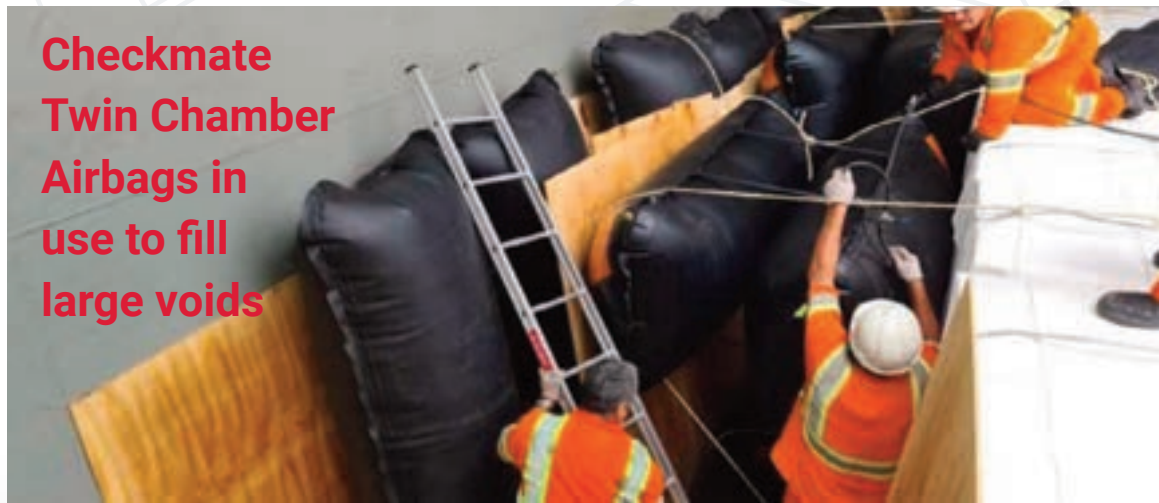
## Jacking Bag

Our multi-purpose jacking bags are designed for use in difficult to access areas.

- Tough
- High-quality
- Continuous maintenance of pressure
- Compatible with the CFE air pressure maintenance system
- Available with our Corner fill Valve to increase their utility and allow them to be positioned fully inside gaps
- Available as double or multi-chamber bags



### Checkmate Twin Chamber Airbags in use to fill large voids



## Inflatable Walkway: How does it work?

Multiple features and capabilities enable it to be used for a variety of rescue scenarios. Drop-stitch elastomeric coated material is used, which when inflated becomes rigid. The unit is compact when deflated and easily carried.

- Sealed edges make it robust
- Value for money
- Longer lasting
- Reliable
- Non-slip surface
- Boat conversion available!



# — Core Probe

Checkmate Flexible Engineering, has developed a lightweight probe for use on 3 and 4 inch inside diameter reel cores. Specially shaped jaws which distribute gripping force evenly make for easy disengagement and minimise tube damage whilst providing high slip resistance.

The latching system is also new and is designed for simplicity and reliability with no need for air supply. Disengagement is simple, with an action which can only take place once the reel is grounded and the load is safe.

Gripper changes are easy and there is no need for adjustment or set up.

Stands can be offered for ease of transportation and storage. A 4-probe version is shown however many variants are available on request.







# Industrial

Our industrial products are required to be manufactured to a high degree of precision and care. A number of our products are often hand made to ensure an unrivalled level of quality. Here are some examples of products we have developed, using our in house production facilities that include presses to mould products to our own exacting standards.





## Peristaltic Hoses

Specially developed, modern, reliable, handbuilt peristaltic hoses for hose pumps.

- Full range of liner compounds available for different applications
- Hoses available for any make of pump
- Inside diameter from 30mm to 200mm
- These hoses are supplied to most of the pump OEMs and major distributors
- Specially developed rubber compounds
- Highly abrasion resistant outer-layer
- Strength to withstand high-working pressures
- Made to suit your required use



## Tube Press Pressure Bags

Highly flexible unreinforced bags (or bladders) are used to apply hydraulic pressure for dewatering of minerals in tube presses.



# Compression Moulding Capability

2 off 120 Ton Clamp Pressure

Platen size 600mm x 600mm

1 off 350 Ton Clamp pressure

Platen size 1100mm x 900mm

1 off 80 Ton Clamp Pressure

Platen size 150mm x 3650mm  
(for long narrow parts)

8 off Mobile compression mouldings presses for continuously joining large rubberised fabric materials

Ancillary equipment:

- Guyson Shotblast Machine
- Painting/Spray booth

Laboratory:

- Rheometer
- Tensile Test Machine



## Compression Moulding

Compression moulding is the original way to mould rubber, and is a much simpler process. Heat and pressure are again utilised to change the properties of the rubber.

The mould comes in two halves, a lower fixed half, and an upper movable portion. The mould is heated and the uncured rubber, known as the 'blank', is placed in the lower mould. The upper mould is placed on top, and pressure is applied. The pressure exerted on the charge by the blank causes it to retain the shape of the mould. The heat applied vulcanises and changes the characteristics of the rubber.

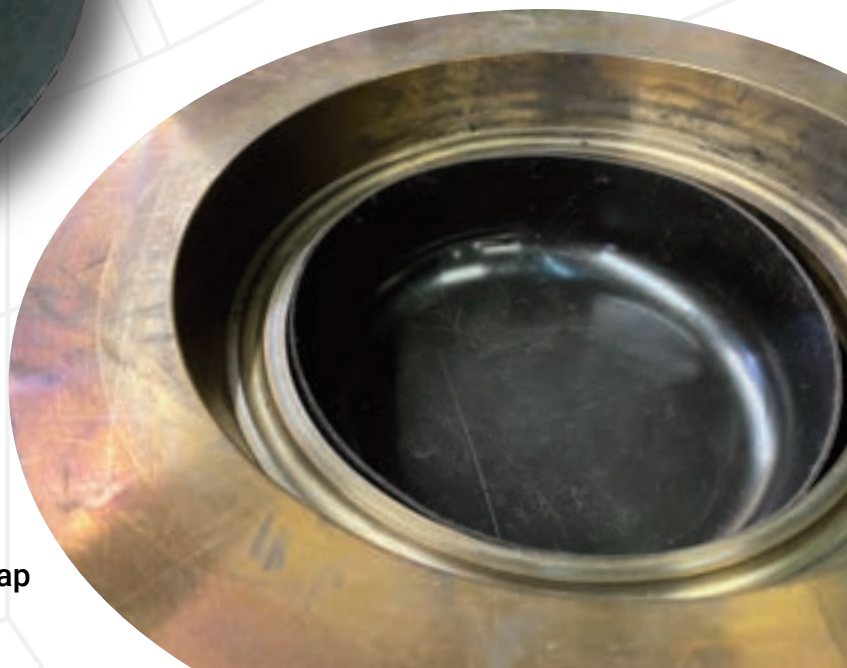
The main advantage of compression moulding comes from the simpler, and lower cost tooling that is required. The tolerances of the final rubber product are not as fine as those manufactured using injection moulding, and some finishing may be required to remove flashes and parting lines.



Stainless steel  
to rubber



Brass to rubber



End Cap





# — Renewables

Renewable Energy applications present some of the most challenging environments. We are at the forefront when it comes to developing some of the world's most innovative and critically demanding renewable energy devices and components using elastomeric engineering.





## Wind Turbine Components

Our technology and precision engineering ensures that our components are built with longevity and the ability to withstand the demanding conditions.



## Anaconda - Lobe Tendon Wave Energy Device

We are heavily involved in the rigorous development of the patented Anaconda, which uses an entirely novel concept to harvest wave energy. The concept involves a distensible rubber tube anchored to the seabed that floats just beneath the surface head to sea, where bulge waves are excited by passing sea waves. The device is continually squeezed by passing sea waves. These waves form bulges in the water-filled tube and travel down its length developing the power to drive a turbine generator in the stern.



# — Bespoke products: development & design

## A Complete Service

We can see projects right through from concept to full scale production and aftercare support.



## Consultancy

Our experienced engineers provide a comprehensive range of consultancy services:

- Specification, evaluation and clarification
- Advise on materials and formulation
- Reducing costs and using efficient manufacturing processes
- Material testing and analysis
- Material development
- Concept planning
- Project management
- Design
- Manufacture

# OUR EXPERIENCE IS UNRIVALLED



## Product Design & Solutions

Our specialist knowledge of rubber fabrication and engineering means that we have a comprehensive design capability which extends beyond purely rubber fabrications into projects where composite structures are required. With a technical laboratory, and testing systems, we provide authoritative advice for design solutions to ensure:

**OPTIMUM PERFORMANCE**

**REDUCED COSTS**

**LONGEVITY**

**Bespoke  
Products**



## Contact Us

[www.checkmateflex.com](http://www.checkmateflex.com)

+44 1225 705 465

Checkmate Flexible Engineering  
Melksham  
Wiltshire  
SN12 6TR  
United Kingdom

