



British Excellence

Leading the way

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Ed Slack is editor of IBI (International Boat Industry), the world's leading business title for the leisure marine sector.



*The British Marine Federation (BMF) have commissioned this publication to highlight the innovation, craftsmanship and design attributes of our industry, which we are extremely proud of. The UK industry is world-class and it deserves recognition. For more information on the BMF and its members, visit www.britishmarine.co.uk

Welcome

What makes the UK marine industry special?

“It’s all about the unique quality of its product offering, not to mention geography and the small matter of 300 years seafaring history,” says the British Marine Federation’s Rob Stevens.

The emphasis on quality, rather than volume, is what makes the UK marine industry the success it is, according to the Chief Executive of the British Marine Federation, Rob Stevens. “That’s the true strength of our boatbuilding industry — quality through and through — and that’s a real reflection on the product manufacturers that supply them,” Stevens says. “What I think makes our marine industry stronger is that our boatbuilders build right across the size range so they develop loyalty in the brands early, that’s what has carried them through difficult economic times in the past and will continue to do so. Our industry has been growing at a healthy rate for years which proves the inherent strength of the sector.”

Generating over £3 billion annually in turnover, £1 billion of that from exports, and employing over 34,000 people, Stevens says the UK leisure marine industry is now on a par with the country’s world-renowned warship building sector as a manufacturing force. “Our geography and experience of the sea has helped us,” he maintains. “Being an island the UK has a distinct advantage. Not only do we have a long and interesting coastline, we also have the natural challenges of that coast — the tidal ranges, strong currents, rocks — all of which help produce excellent seaman, but also fosters the development of seaworthy products.”

Importantly, the UK’s long and illustrious relationship with the sea that saw its navy rule the waves for more than 200 years, has ensured a tradition of boat design, craftsmanship and maritime innovation. This legacy provides a vital pool of talent, that is a key factor in the evident rejuvenation of our marine industries and necessary to sustain the industry’s upward curve.

Though the UK marine industry enjoys truly international recognition, it remains anchored to fundamental principles born of a close-knit working community. “We’re a very unified industry, an industry that interacts very well with each other,” Stevens says, also citing the networking that goes on every year at the country’s two major boat shows — London and Southampton, that are organised by National Boat Shows, a subsidiary of the British Marine Federation.

“The UK is a strong quality market with excellent products,” he concludes — “More and more of our manufacturers are offering a cradle-to-grave service, reinforcing brand values, and with it the reputation of brand UK.”

“This publication captures this sentiment well. I am very excited about the future for the UK Marine industry. I hope you will share that sense of optimism as you see the excellent products on display in the brochure.”



“More and more of our manufacturers are offering a cradle-to-grave service, reinforcing brand values, and with it, the reputation of brand UK”

Rob Stevens, British Marine Federation

The British Marine Federation

Fostering potential

In an increasingly competitive marketplace, the advantage of a strong collective to promote best practice and the needs of individual companies is vital. The British Marine Federation supports around 1,500 companies from the leisure, small commercial and superyacht sectors, helping them navigate the challenges of the modern workplace and develop new markets, whilst providing them the tools to gain that critical advantage over the competition.

Since its inception in September 1913 — in the guise of The Boat, Yacht and Allied Trades Association, formed to negotiate wage rates and forward the interest of boatbuilders — the BMF has been championing the cause of the UK marine industry*. Its remit is broad, its influence wide-ranging.

Bringing not only financial support to its members, the BMF signposts support, advice and guidance available to marine businesses, as well as providing an extensive knowledge base including accessing new markets around the globe, export laws and legislation. It also offers technical advice to ensure businesses are compliant with the latest regulations, keeping members briefed on legislative changes, making sure they stay ahead of the curve.

Leading by example

Developing training and protecting the environment remain core BMF principles. Leading by example the Federation is implementing its own Environmental Management System (EMS), acting as a template for its members so they too can deliver an EMS within their organization, whilst its in-house training team assists and advises on everything from career prospects to recruitment to training grants and short courses, continually looking to encourage UK marine companies to invest in training and their people.

Perhaps its most important roles are encouraging regular participation, and representing and raising the profile of the marine industry to the highest levels of government and to consumers.

It does this through marketing initiatives and through its two world-class Boat Shows held in London in January and Southampton in September — they provide major shop windows to the leisure marine industry. The BMF also provide a common voice for the UK industry, highlighting the industry's role in generating investment, regeneration, tourism and export revenues — in short to drive home the message that boating is much more than a pastime, but a way of life at the heart of which lies an industry whose dynamic continues to foster potential and inspire.

* Leisure, small commercial and superyacht sectors



Top: Representing the British marine industry to the highest levels of government

Bottom: 2008 London Boat Show in London at ExCeL – a world-class shop window to the industry



“Its remit is broad, its influence wide-ranging”

The UK's leisure marine industry is born out of an illustrious seafaring tradition, but it's the passion, spirit of innovation and engineering integrity of this island nation that ensures its industry today is as much about shaping the future as harnessing the past

It's in Our Blood

The statistics don't lie – the British leisure marine industry* is a major force within the UK's manufacturing sector contributing over £3 billion in annual sales to the economy and employing some 34,300 people across the sector. Although the Eurozone and the US remain the industry's major markets for export, the UK marine industry is already well established in emerging markets such as China, India, the Middle and Far East and South America, and the 'Built in Britain' marine brand garnering respect and trust wherever it is seen.

But as is often true of statistics, they don't quite tell the whole story. Britain's marine industry is arguably the most diverse in the world – its companies are world beaters in probably more sectors than any other, its legacy is far reaching – from the way boats are produced, how they look, the way they are financed and sold, to the equipment that goes on them, the laws and codes that determine how they are used and the legal frameworks within which the industry operates, down to the very clothes worn by those onboard – the British marine industry boasts a dynamic that resonates throughout the world.

Strength to strength

"The UK's leisure marine industry continues to maintain its strength and worldwide reputation for quality and innovation," says British Marine Federation's Director of Business Development, Sarah Dhanda. In true British spirit the men and women behind the 4,000-plus UK marine companies that have made the industry so successful over the years, go about their tasks diligently, continually striving to create better products and services without fanfare.

"The large UK powerboat builders are leading the way in emerging markets, establishing their brands and increasing the profile of boating in markets such as India and the Far East," Dhanda adds, "whilst the country's traditional strength in equipment manufacture and supply continues to grow both in existing markets such as Europe together with growing boatbuilding nations such as Turkey."

Born of tradition

History and tradition have a big role to play in the UK's marine prominence, as undoubtedly does the island nation's natural affinity with the water – it's estimated that approximately 4 million adults take part in some sort of boating activity every year.

Since the 1700s Britain has been refining its nautical genes both through exploration and through the influence of its Royal Navy that was to rise to world dominance in the 18th and 19th Centuries. A close affiliation with the sea is one thing, but it's the engineering expertise that seems prevalent in the British psyche that perhaps explains why the leisure marine sector remains a pioneer two hundred years on. Since the development of Turbinia, a private yacht powered by a revolutionary Parsons steam turbine that helped it to a record breaking 34.5 knots in 1896, the industry has been pushing the technological envelope.

Parallels can be drawn with the motor racing sector. The world of Formula One might present a heady mix of drivers from around the world, with teams backed by big name global sponsors, but behind closed doors – in the engine room if you will – you'll invariably find British mechanics, technicians and designers, experts in their respective fields, working their magic to shave off the milliseconds that divide winners from also-rans. The same it could be said of the marine sector. In the following pages you'll discover the depth and talent of the UK's marine industry, and learn about some of the unsung heroes that continue to raise the bar, to make great products better as they endeavour to shape and refine the boating experience for millions of boaters around the world.

**leisure, superyacht and small commercial*

The events that shaped a nation's love affair with the sea

Marine Industry Timeline

- 1660** Charles II is presented *Mary* by the Dutch and introduced to the sport of yachting
- 1870s** **Camper & Nicholson doubles in size and becomes 'The pivot from which it [yachting] was directed' – Hampshire Telegraph**
- 1897** *Turbinia* Sir Charles Parsons' steam turbine powered boat sets a world speed record of 34.5kt at the Spithead Review
- 1902** The Thames Boat Builders Protection Association – the first marine trade association initiates annual boating exhibition at Earls Court
- 1914** *Shamrock IV* Sir Thomas Lipton's America's Cup Challenger designed and built by Camper and Nicholson
- 1924** King George V's refit of *Britannia* helps revive British boatbuilding after the first world war
- 1932** *Miss England III* – first powerboat to break 100mph barrier (119.81mph)
- 1935** The British Powerboat Company develops the first mass production facility using pre-fabricated sections to build torpedo boats
- 1945** The first British marina, Port Hamble, opens
- 1946** Sir Richard Fairey and Uffa Fox develop the *Firefly* – a 12 foot dinghy to jump-start the marine industry after the second world war
- 1954** **First London International Boat Show at Olympia**
- 1958** Major Gatehouse begins electronic revolution with masthead wind indicator, which quickly expands to speed and depth instruments
- 1960s** **Boom in DIY plywood self-build dinghies leading to many new marine companies – Holt-Allen, RWO, Proctor Masts, Jeckells, Bruce Banks, Musto, Hyde**
- 1963** **Henri Strzelecki and Angus Lloyd establish clothing company Henri-Lloyd in Manchester**
- 1965** Francis Chichester completes solo circumnavigation
- 1965** David King is one of the founding directors of Marine Projects Ltd in Plymouth that builds Princess powerboats
- 1969** Robin Knox-Johnston – first to sail continuously around the world
- 1970** Tom Webb becomes president of Ship & Boat Builders National Federation and champions national apprenticeship schemes and establishes an export department – the first for a UK trade association
- 1972** Chay Blyth – first solo circumnavigator to sail non-stop against prevailing winds and currents
- 1974** Poole Powerboats becomes Sunseeker International, with Robert Braithwaite as managing director
- 1986** Federation changes name to British Marine Industries Federation
- 1996** First Clipper Round the World Race
- 1998** *Cable and Wireless* sets record circumnavigation under power
- 2012** UK to host Olympics, with sailing regatta held in Weymouth

The first National Boat Show, 1954



Packed up and ready for the show, outside Henri-Lloyd's offices in 1963



An 1891 advertisement for Camper & Nicholson's in the Yachtsman magazine



Firefly and do-it-yourself boatbuilding helped kick-start the industry after the Second World War

The Solent on England's south coast remains a mecca for boaters with Cowes Week the pinnacle of the Isle of Wight's illustrious race and regatta programme

Plain Sailing

If you were to post a letter to the home of yachting, it would undoubtedly end up in the seaport town of Cowes on the Isle of Wight. Since 1826 when a fleet of just seven boats contested the first Cowes Week, the event has become one of the 'must-do' regattas for sailors from around the world. Today up to 1,000 boats take part, with the fleet split between 40 classes catering for all types and levels of sailing from 100 year old wooden squibs and 20ft dayboats to 80ft carbonfibre offshore racing machines.

The range of crews is equally varied. Even within the same fleets it's not unusual to see world and Olympic champions racing against amateur weekend sailors and families. Cowes Week veterans include some of sailing's biggest names – Sir Robin Knox-Johnston, Dee Caffari, Mike Golding, Ben Ainslie, Shirley Robertson and Roland Jourdain to name just a few – adding to the unique appeal of the event that draws in over 100,000 spectators and 8,500 competitors from around the globe.

With numbers like that it's easy to see why the Solent – arguably already the busiest leisure yachting waterway in the world – becomes the ultimate boating mecca during the event which traditionally runs during the first week of August. "Being based in the middle of the Solent it creates complex local wind patterns with a unique seabreeze not to mention the area's renowned strong and complex tidal streams," says organiser

Michelle Warner. "Add to this 1,000 boats split into 40 classes and the potential interaction of these at different times during a race, one begins to see why Cowes Week is particularly challenging for the sailor!"

Packed regatta programme

Unlike many regattas, Cowes also has plenty to offer the landlubber with a range of shoreside social functions and entertainment that draws the crowds – including a discreet list of celebrity sailing enthusiasts and the royal family – HRH Prince Philip is a regular – all of which adds to the festival atmosphere of the event.

Cowes remains at the heart of a packed regatta, inshore and offshore sail race programme around the UK highlights of which include The Round the Island Race – the largest and most spectacular yacht race of its kind in the world – and the famous Fastnet that pits 300-plus yachts against each other on a 600 mile race round the Fastnet Rock on the southern tip of Ireland. There's also a packed summer superyacht regatta calendar that includes the annual J-Class Regatta in Falmouth, The Pendennis Cup and The Superyacht Cup in Cowes.

The 'must-see' event for 2012 will undoubtedly be the Olympic Games' sailing competitions, set to get underway in August at the Weymouth & Portland National Sailing Academy, situated on the finest small boat sailing waters in northern Europe.



The Pendennis Cup

“We welcome more and more vessels to UK waters and events like the Pendennis Cup and the 2012 Games superyacht regatta programme provide exciting opportunities for yacht owners”

Toby Allies, Pendennis

Case study 2012 ambition

The first of the 2012 Games venues to be completed, The Weymouth and Portland National Sailing Academy (WPNSA) on the south coast, was developed to take advantage of what are recognised as some of the best small boat sailing waters on the planet. The combination of clean winds, sheltered waters and weak tides in the area is unique and this new World Class facility set in the centre of the Jurassic Coast, the only Natural World Heritage Site on the UK mainland, provides an unrivalled venue for training and sailing competitions.

The multisport venue is already making a significant contribution to the economy of the area with Dorset County Council calculating that, annually, over £10 million is being generated in the local economy, along with over 180 full time equivalent jobs. Shore facilities at the site include 50 metres of slipway accessible at all states of wind and tide, onsite sailing and windsurfing schools, an in-house race management team, parking for 600 dinghies and 25 protected marina berths, as well as yacht hoisting and crane facilities.

Since its completion at the end of 2008, WPNSA has established a strong sailing community that harbours up-and-coming talent whilst also encouraging newcomers to the sport. Sailing legend Ben Ainslie CBE and triple gold medallist, is the director of the academy and the man at the helm, of what is fast becoming a world class venue for onshore and marine sporting events that promises to establish a legacy way beyond the Games.



Triple jump gold medalist Jonathan Edwards with Paul Goodison, gold medalist in the Laser class at Beijing 2008 and local Portland boy, Adam Greaves

A keen sense of the sea and the importance of sea-worthiness has turned this island nation of shipbuilders in to the envy of the marine world

World Beaters



Sunseeker's Predator 60, the 40-knot speedster is as much about performance as it is about comfort



Their names are a by-word for quality, style and integrity, UK boatbuilders have garnered reputations that resonate throughout the marine world. Seminal marques such as Sunseeker, Fairline, Princess, Pendennis and Oyster Yachts, as well as distinguished smaller players like Northshore Yachts, Cornish Crabbers, Broom, Fairlie Restorations Ltd and Discovery Yachts, have set the highest-possible watermark when it comes to quality construction, design and sea-worthiness.

From its humble beginning as a distributor of Scandinavian and US-built boats in the late 1960s, Sunseeker, or Poole Power Boats as it was known then, has since become one of the world's best-known boat brands, synonymous with sharp styling and even sharper performance. Today Sunseeker employs 2,300 at its facilities in Poole and builds an extensive range that comprises its Manhattan flybridges 52-70ft, its Portofino 47 and 48 sports cruisers, its performance range of Predators 43-130ft, and its Yacht series 80ft-151ft. Sunseekers' striking looks have won them a host of A-list celebrity fans and in recent years the brand's profile has been further elevated as motoryacht of choice for James Bond and his various foe in the eponymous movie franchise.

Vision and investment

Sunseeker's distinctive styling is testimony not only to the vision of its founder Robert Braithwaite who after 40 years, retains a hands-on role as the company's president, but also to its continuing investment in design technologies. Computer Aided Design (CAD) allows designers and naval architects to juggle at will with sheer lines and flybridge profiles, configure spaces until the ergonomics are right, play with the quality of light, and even experiment with the texture of the soft furnishings, whilst Computational Fluid Dynamics (CFD) allows the designers to experiment with variations of hull shape, length, beam and deadrise angle before a single mould is made or five-axis milling machine programmed. It's the dedication to creating the right product perfectly honed to desires and needs of a demanding clientele that underscores the UK's boatbuilding industry.

"It's about evolutionary rather than revolutionary design," says Derek Carter, managing director of Northampton-based Fairline boats, when asked what defines British boatbuilding. "It's about relevant innovation," he adds, highlighting the word 'relevant' – "there's a lot of frivolous innovation out there. British boats are designed to be used. This goes for Fairline too – there's a practicality about the approach that always keeps the user in mind."

Fairline, which was founded in 1967 and builds a range of 16 Phantom, Targa and Squadron flybridge and cruiser models 38ft-78ft, has set itself the target of delivering at least three technologically advanced models a year – no less than four new models 50-80ft are planned before the end of 2011. The ambitious production schedule is only possible thanks to the latest CNC technology the yard now employs, drastically reducing its 'drawing board to sea trials' period from 36 months to just 14.

"It's the dependability of the engineering and the design and execution thereof, that all together make up the residual value of the Fairline product so that it remains a strong investment even in a challenging marketplace," Carter maintains.

Cont >>>



"British boats are designed to be used... there's a practicality about the approach that always keeps the user in mind"

Derek Carter, Fairline



Fairline's Targa 58 Gran Turismo

The UK's second largest boatbuilder Princess Yachts has earned itself an enviable reputation since it started building boats in 1965. World renowned for its successful flybridge and V-Class motoryachts from 42-95ft, the Plymouth-based operation took the decision to add 100ft-plus superyachts to its portfolio in 2010 and has not looked back since.

Better by design

Central to the builder's success has been its holistic methodology – a 'three-pronged' multi-disciplinary approach that combines bespoke training for its staff, components expertise and a rigid adherence to quality control. "That embodies everything that we do," says Julian Spooning who heads up the composite projects team. "There's a consistent technical drive to increase quality, reduce the environmental impact of our products and to cut the weight of our boats in a cost neutral or lower cost way for the consumer." Princess

holds a coveted ISO 14001 certification for its environmental management and sustainability and remains at the forefront of resin infusion and closed moulded technology. The company continues to work closely with experts at Bombardier Aerospace in a joint venture sponsored by a UK government business development agency: "It's very much a two-way dialogue with the aeronautical industry about composite development" says Spooning, a relationship that bears testimony to the boatbuilder's technological prowess beyond the maritime sector.

Such engineering DNA is traceable throughout the UK boatbuilding sector. It's perhaps best defined as a practical know-how, coupled with design flair, underpinned with an endemic respect for the sea: "The sea keeping qualities of British boats are paramount," says Fairline's Derek Carter. "On the sea you're dealing with peoples' lives. British boats are all about delivering what they're supposed to do."



Case study

Sealine

High volume disciplines in a niche world, one of Europe's largest production boatbuilders, Sealine has revolutionized the boatbuilding process to ensure maximum efficiencies and the shortest time to market for its distinctively-styled range of sportsboats and flybridge cruisers 35-60ft.

The Kidderminster-based firm has taken the automotive industry as its inspiration, transforming what was once a traditional boat production operation to utilize systems more in keeping with a car assembly line. "Boatbuilding used to rely on a series of processes that would begin with some sketches of a boat. From there a hull and deck plug would be manufactured, from which a first hull would be produced. Then the

tooling would be made for the various parts to fit inside," explains Nick Swift, Sealine's product development and engineering director. The system works OK for a low volume business but Sealine was convinced it could do better. "We embraced what is called Concurrent engineering," says Swift. Using the latest CAD (Computer Aided Design) software has enabled Sealine to design every component of its new boats upfront – including the deck, hull and interiors and tooling, all of which it puts into production at the same time. "We can also plan for what the assembly line will look like and lay out the plant accordingly. It means we can get models out much faster – about 50 per cent quicker than the traditional manufacturing method -

to run the business more efficiently" Swift says. The boatbuilder is also utilizing the common platform principles used by the automotive sector – Many of its latest models use the same layouts and tooling and have near identical forward cabins. The only difference being the length, spec and look of the interior trim. The benefits to the end user are numerous. Not only do they get the latest, most technologically advanced product sooner but they also, like the motorists of today, benefit from assured quality levels associated with the use of tried and tested generic component parts. "British manufacturing is thriving," says Swift. "We're at the cutting edge of technology producing innovative, quality niche products – that's what Sealine is about."



A Fine Art Degree prior to becoming a boatbuilder helped Sean develop the aesthetic eye that ensures every Spirit that leaves the yard is a work of art

UK boatbuilder Spirit Yachts is using the latest materials and production methods to create classics with a truly modern appeal



Heart & Soul

“We wanted to build something with all the elegance of the yachts from the 1930s but eradicate all the problems with owning one – a truly modern product that didn’t leak and weigh hundreds of tonnes!”

Sean McMillan, Spirit Yachts

“The best of the traditional allied to the very best of the modern in a superbly crafted product” is how Sean McMillan, founder of Spirit Yachts, defines the breathtakingly beautiful yachts he and his team have been building in Ipswich on England’s east coast since 1992. The elegant lines of the boats hark back to the 1930s and the heyday of yachting, but beneath the teak deck and varnish beats a very modern heart. Spirit Yachts leads the world in wood/epoxy construction – a material that pound for pound is stronger and lighter than carbon fibre – helping to transform those elegant slips of a bygone age, into modern day racers with power to weight ratios far in advance of any other sailing vessel on the water. “Our 46 footer weighs 4.5 tonnes, and half of that is in the keel,” says Sean. “Our 100 footer weighs in at around 50 tonnes, no one’s ever been able to do that before. A really good equivalent in carbon fibre would be getting on for 70 tonnes! We really are pushing the boundaries.” Couple with that an interior of hand carved mahogany and opulent leather upholstery and it’s easy to see why Spirit Yachts describes itself as the Aston Martin of the waves. “We are the best in the world at what we do” says Sean.

It was the need for more durable rescue boats in the UK that spurred the development of the world's first Rigid Inflatable Boat (RIB) more than 45 years ago. Today the UK has turned RIB manufacture into a fine art

British Born and Bred



The first RIB to be developed back in the early 1960s, the Atlantic 21 went on to serve for the RNLI for another 30 years

The pioneering work in developing the early RIBs and the challenging waters around the British Isles has meant that today British RIB building is second to none. A vibrant RIB racing scene has grown up around the UK industry and has become a fertile ground for the development of high speed and reliable RIBs, experience that has filtered down to both the leisure market and the para-military and military markets where high performance is an increasing requirement. Scorpion RIBs in Lymington are pioneers in building some of the largest RIBs on the market complete with cabins to cater for the serious RIB cruising market – another is Ribcraft – a long established builder now focusing on the serious leisure user as well as the commercial markets. In every sector of the industry UK firms lead the pack. Along with Avon, Williams Performance Tenders has made the burgeoning yacht tender market its own with its comprehensive range of jet powered tenders 2.85m-5.05m. “We’re an engineering company at heart,” says William’s John Hornby. “We’ve developed our drive system specifically, matching the drive train to the engine output to get optimum performance,” he says, extolling the can-do attitude that resonates throughout the sector. The technological know-how means Williams’ tenders are some of the most manoeuvrable on the market – they can turn 360 degrees in a boat length, whilst its unique propulsion system forgoes the need for a propeller making it a potentially safer option for transporting guests to and from yachts.

Attention to detail

As the demand for larger tenders for superyachts has developed, builders such as Pascoe International and Custom Tenders, have started to specialise in highly customised designs. A newcomer into this sector is RIB-X who have based their tender designs on long experience in the military and commercial markets developing a number of new concepts including the ability to build inflatable tubes in shapes that are not round so that they can add considerably to the styling. “We’re extolling the virtues of British engineering excellence,” says RIB-X’s owner Colin Baldwin. “From the RIB and hull design, the tube fabric and shape and interior layout – no one else in the world does what we do the way we do it. If it’s physically possible then we can built it!”

Such inventiveness and attention to detail defines the UK’s RIB industry and is why 45 years on it continues to leave the competition in its wake. It was the simple need to improve the durability of the inflatable rescue boats being used by the Royal National Lifeboat Institution (RNLI), which prompted the development of the first RIB in the 1960s. With the inflatable boats of the day being operated over rough beaches it wasn’t long before their fabric bottoms would deteriorate. Initial changes involved replacing the bottoms with plywood, but the flat wood hull structure lacked sufficient strength. Designers set about changing the hull shape to a deep ‘V’ giving the structure the longitudinal strength required and the RIB as we know it today, was born.

That first RIB was developed into the highly successful Atlantic 21 that went on to serve the



Top: Work underway at the RIB-X factory
Middle: Avon’s 320 jet inflatable
Bottom: Ribcraft, a long established builder now focusing on the serious leisure market

RNLI for over 30 years and it also paved the way for the development of commercial RIBs. One of the early pioneers of commercial RIB development was Avon Inflatables who has now gone on to become world leaders in RIB design and development. Avon RIBs are widely used in the leisure market and have been adopted as standard rescue and workboats by a number of navies around the world.

Another early builder was Delta, who pioneered a unique style of RIB with a higher bow to improve the seaworthiness. Delta initially built RIBs for divers but the quality and design of their products soon attracted the attention of police and other para-military operators. The Delta RIBs are widely used in the offshore oil industry and this company was chosen to build some of the largest RIB rescue boats ever to operate in the challenging North Sea offshore oil arena. Fellow UK firm MST (Marine Specialised Technology) now builds RIB rescue boats for the German lifeboat organisation, whilst Henshaw Inflatables in Somerset is widely acknowledged as the leading manufacturer of inflatable tubes/collars to RIB builders both in the UK and throughout the world.



British design is renowned the world over, but just what makes British design special and why does the island continue to hold such influence in the boat design world?

Between the Lines

Since the influential yacht designer Jon Bannenberg moved to London in the 1950s, the UK has become arguably the world's most fertile ground for yacht designers and naval architects to seed and develop. Bannenberg's legacy – freeing the initial design of yachts from the technicalities of naval architecture – inspired a generation of British designers that came to the fore in the 1970s and '80s. Names that are now part of boating's vernacular – Terry Disdale, Andrew Winch and Ken Freivokh and naval architects like Ed Dubois, Tony Castro, Rob Humphreys and Bill Dixon – all who are indebted to Bannenberg and have gone on to inspire the next generation of UK design talent: "British design has blossomed as the industry has," confirms Bill Dixon of Dixon Yacht Design. **Cont >>>**



Design Unlimited's interior for Aura represents a judicious blend of style, practicality and comfort, a classic contemporary experience that is simple and not contrived



A 52m composite motoryacht from the Dixon Yacht Design. The yacht is designed to be a long distance, fuel efficient cruiser, the “antithesis of the regular tri-deck superyacht” says Bill Dixon



“It’s a family tree,” echoes Mark Tucker, a former associate of Ken Freivokh’s and since 2000, the man behind Design Unlimited. “I used to work for Camper & Nicholsons and they were all in-house designers, with John Munford carrying out some of the interior work. The people that worked with the likes of Munford and Bannenberg branched out and the next generation of designers were born, and from them the likes of design teams such Rhoades Young and Redman Whiteley Dixon. It’s become a defined route through.”

As well as superyacht projects, Design Unlimited is working closely with Sunseeker on its interiors as well as with German yacht builder Hanse Group and its portfolio of Hanse, Fjord and Moody brands. Tucker says Design Unlimited’s focus is a truly international one: “We have a global approach. For instance a boat we’re working on at the moment has a very Asian feel to it. We have to listen to the individual, to not force a style on them.” Tucker refers to Dixon, Disdale, Castro and friends as the ‘London generation’ highlighting the importance of the nation’s capital on the design world.

London calling

“It’s the best place to position oneself in terms of communications,” says Bill Dixon whose Southampton offices are within striking distance of the capital. “More importantly the clients come to London, they don’t seem to drop off in other European cities in quite the same way.”

According to Dixon those clients are starting to ask for more environmentally friendly design solutions for their yachts as well as witnessing an increase in performance sailing yachts with composite rigs and rigging. Customers are starting to stand up and take



“British design has blossomed as the industry has”

Bill Dixon, Dixon Yacht Designs

“We always look to take the design to the ultimate level and then pare it back”

Sally Johansson, Bjorn Johansson Design



note of the 'green' aspect, says Tucker, but the core disciplines of yacht design remain as important as ever – keeping draughts to a minimum whilst providing as much space inside as possible.

“We always look to take the design to the ultimate level and then pare it back,” says Sally Johansson of Bjorn Johansson Design describing the Isle of Wight-based company’s own design ethos. “But we’re always conscious of what the owner is after – we don’t want to create a specific ‘look’, but be able to develop different styles particular to each client.”

Bjorn Johansson Design made its name back in 2003 with its Mirage concept, a design vision that jettisoned the international designer into the limelight and was to set the standard for its future work: “When Mirage first came out some people thought it was a step too far, but now it’s very much the norm,” she says, highlighting the firm’s continual striving to present fresh, innovative and exciting designs.

“British design is renowned across the board, not just in the boating sector” she maintains – even big name UK designers and architects from outside the industry are getting in on the act. Terence Conran’s design studio is working closely with Sealine (see case study), while YachtPlus’ striking 40 Signature superyacht series came from the drawing board of world-renowned architect Norman Foster.

Why the British success? “It’s difficult to say,” says Sally Johansson but you only have to look at the car industry, product design, even advertising and marketing, the UK is streets ahead of most other countries.”

“We’re so fortunate to have the older generation of yacht designers – all their experience and originality and now we have the new generation making themselves seen. It does seem to be a real strength of this country.”

Case study

Space: ‘One of life’s greatest luxuries’

“I have always had a special love of boats and ships, with childhood memories of helping grandfather Thirlby Pearce with the nets on his fishing boat,” says Sebastian Conran who heads up the Studio Conran, the design team tasked with developing a new look and feel for the interior of Sealine’s flagship T60 Aura.

“He started life as a Master Mariner, coming from a long line of seafaring folk hailing from Mevagissey in Cornwall, so perhaps my love of boats is in the blood. My father, Terence Conran, once said that ‘Space is one of life’s greatest luxuries’, and where better to experience this luxury than on the open ocean, in the Sealine T60 Aura, the spacious, high performance motor-yacht born out of a collaboration between Sealine and Studio Conran design teams.

“We worked closely with the Sealine design team on the new T60 Aura, and used every technique we know to make the Aura feel special and spacious - the very best of modern interior design. Conran has a diverse international



Sebastian Conran and the Studio Conran design team

portfolio of design work, including interiors for Concorde, premium compact cars and Yotel compact hotel cabins, as well as the stylish apartments and restaurants we are better known for.

The interior of any motor yacht presents a unique challenge for the designer. It is a rare environment, in which performance, safety and practicality are equally as important as luxury and aesthetic beauty.”

A unique combination of engineering know-how, dogged determinism, innovative spirit and a respect for tradition means British manufacturing has earned itself an enviable reputation over the years. The following companies are just a handful of the UK firms advancing the industry in their own right

Making Waves

Driving ambition

After more than 100 years in the business, Bruntons, the Essex-based propeller manufacturer continues to innovate.

Its Autoprop and Varifold folding propellers have become industry benchmarks earning Bruntons the reputation as one of the world's foremost propeller manufacturers. Having been in the business for over a century its engineering pedigree is undisputed – the Autoprop's unique auto pitching capability was conceived in the early 1990s and was considered such a huge step forward in yacht propulsion that early prototypes are on permanent display at the Science Museum in London.

Today's Autoprop is a tried and tested propeller, in use the world over, including on commercial charter yachts in the testing conditions of Antarctica.

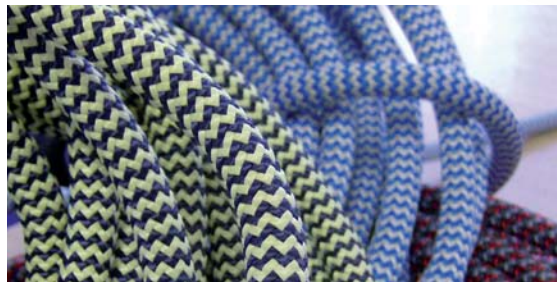
"Varifold has been developed to a point where it can smoothly and quietly propel yachts with engines in excess of 750hp; an increasing requirement as more and more superyachts appear with large engines fitted into structures using light but strong modern materials, less able to dampen vibration and noise from less 'sympathetic' propellers," says Bruntons' David Sheppard. Development continues, with 1,000hp the next target in Bruntons' design team's sights. Varifold is believed to be the only folding propeller in the world capable of giving excellent performance with such powerful engines.

While Varifold has been grabbing the limelight for some years attention has recently swung back to the unique Autoprop, whose ability to alter its pitch, depending on wind and sea conditions, attracted the attention of founder members of the EEC funded Hybrid Marine (HYMAR) Project. HYMAR aims to produce a hybrid diesel electric power system for smaller craft that really works.

A version of the Autoprop is being developed for the project to maximise the prop's thrust delivery under electric power, and to provide regeneration capabilities when sailing.



**Bruntons Autoprop
Feathered propeller**



Core credentials

With over 40 years experience in synthetic rope and braided cord manufacture, English Braids says its quality of product and service as well as stocking levels that set it apart from the competition. "The addition of Dyneema SK90 fibre being utilized in our 12 strand cores have given our Grand Prix range a 20% increase in performance due to the increased tenacity and reduced stretch. This and the use of other mixed aramids in the covers have created a range of products second to none," claims marine sales manager, Anto Stopps. The passion for British manufacturing has always been at the heart of the operation with its focus on quality making English Braids one of the best known names in the yacht market. "We're very conscious of quality control, that's why we make everything in the UK under ISO banners," says Stopps.



Clear vision

Cutting edge technology is helping Trend Marine stay ahead of the pack.

Europe's largest producer of marine glazing solutions Trend Marine helped transform the look of the yacht industry a decade ago when it pioneered the manufacture of curved glass for use onboard boats. Taking a leaf from the automotive industry Trend's cutting edge digital glass printing technology enabled it to answer the call from yacht designers and boatbuilders eager for curved glass solutions for front windows and aft-saloon patio doors. State-of-the-art glass printer technology and a specialist team of 3D CAD design engineers have given the Great Yarmouth firm a critical advantage in what is traditionally a low volume business.

"We don't have to wait to have a tool made to print the frit (the blackout border round the edge which prevents the adhesive being attacked by UV light) but can generate the necessary CAD file very quickly thus reducing cost," says Trend's technical director Robin Thatcher "and when manufacturing the glass you can produce individual pieces without compromise because there is no need to clean ink off a tool." The company also has the ability to pressure test its glass to ensure its integrity.

Though the use of curved glass is ubiquitous in the industry now, Trend remains one step ahead of competitors continuing to take inspiration from the car industry whilst working closely with boatbuilders and designers around the world to offer increasingly innovative solutions. "Customers want larger pieces of glasses and more and more complex shapes," he says, confident that Trend is more than up to that challenge: "We're on the leading edge, no question about it."



Flushed with success

Take a close look on pretty much any production boat – not too mention Volvo, Vendée and America's Cup boats – and there's a good chance you'll find hardware with the Lewmar brand somewhere onboard. The Lewmar name dates back to 1950 and since then its been pioneering new winches, windlasses and hatches, maximising its manufacturing efficiencies to bring top end products to the mass market. Its flush hatch is just one example of its ability to bring superyacht style at a fraction of the cost, to OEM builders.



Tradition meets the future

A refreshingly old fashioned approach to manufacturing state-of-the-art products sets Cooney Marine apart.

Little more than an after-thought for many boat owners, for Cooney Marine, davits and stainless steel deck hardware are a way of life. Established in 1969 the company has made the tender cranes on the sterns of boats its speciality, channelling all its engineering know-how into manufacturing the best systems money can buy. "People tend not to think about the levels of engineering that go in to manufacturing a davit," says the company's operations director Andy Sims. "We view it as a crane and when we design a product we always factor in a significant safety factor. For instance, our davit for lifting a 300 kilo tender is designed to hold 900 kilos."

Cooney was one of the first companies to embrace 3D design back in 1997 and today it continues to invest in the latest technologies to execute the high degree of 'upfront' engineering it carries out before one of its products leaves the drawing board. "We run tests on structural integrity with computer generated stress analysis before we digitise the product and send it to the laser cutter. Then we start the welding, after which we use die penetrant on the welds to check for cracks and fissures to ensure the unit's structurally sound. "All assembly is carried out at Cooney's Northamptonshire facility where it also manufactures its own gearboxes: "Doing everything in house means we have the confidence that the product will do the job it needs to do." That confidence is backed up by a five-year warranty. "If you buy a Cooney product you get the support," says Sims. "We produce a premium product that will last the lifetime of the boat," he says. As for manufacturing in the Far East, Sims says Cooney Marine has an old fashioned approach: "We're a family-owned British company. We like to control what we do – the engineering and the quality, the whole package. With our products you know where they've come from."

It might have earned its spurs in the high-octane world of top flight motor racing, but Falcon Special Projects' innovative engineering solutions are transforming the marine sector

Performance Driven



Duncan McRobbie using an interactive screen/tablet with Catia - the benchmark in hi-end CAD software as used by most F1 teams.

When boatbuilder Fairline challenged motor racing engineer Duncan McRobbie and his team at Falcon Special Projects, to come up with a sliding roof design, little did McRobbie realise it would revolutionise not only the boat, but his own business too. McRobbie, business partner Geoff Kipling and the Falcon team worked on the project for 12 months, in the end coming up with a design that was lighter, easier to fit and fulfilled the efficiency brief to the full. It started a productive relationship with the UK boatbuilder that led the Falcon team to develop a radical new window and portlight system for its Targa 58. McRobbie, (a former engineering director at Lola Cars) and Falcon have been in talks with other UK builders such as Oyster Marine, meaning today Falcon's team of engineers are as busy developing marine solutions as they are fine tuning products for the race track.

"The motor racing world is totally performance driven," says McRobbie. "The boat world is just as sophisticated but in a different way. There's a creature comfort aspect and we have to get the highest value from the least cost. In motor racing it was all down to lap times. Championships are usually won in the design and R&D phase, months before the first race. The more time you have to perfect and hone the design the faster and more reliable it will be. However, in the marine sector, our philosophy is to give equal importance to form and function and we use our techniques and tools to deliver stylish 'signature' products which perform every bit as good as they look."

Cradle-to-grave

Falcon prides itself on what it terms a 'cradle-to-grave' approach to its product development and a diligence born of the exacting standards of top level motor racing:

"Motorsport teaches you to be inquisitive, resourceful, resilient, tenacious, and above all, relentless," McRobbie says. "It enables us to work under extreme pressure, whilst paying great attention to detail, yet still be able to deliver complete solutions to specification, on time and on budget – qualities that are very attractive to marine manufacturers who are striving to bring more new boats to market in the shortest time and most cost-effective manner."

Falcon's team of engineers relies on the very best tools, software, hardware and communications, in order to deliver reliable cost-effective turnkey solutions to extremely time compressed unforgiving schedules.

"Typically, the success of a design is determined by fully understanding the objectives followed by the quality of effort spent in the early stages of design, from initial concept through analysis to R&D," McRobbie explains. "The more efficient we are at inputting concepts and data in to the digital environment, the more time we have to tease out potential pitfalls, to counter unplanned compromises and evolve the design to its simplest most elegant conclusion. Motorsport has developed excellent fast-track design and development techniques with an infrastructure which allows for great flexibility."

Meticulous approach

Evidence of that meticulous approach can be found in the hull of Fairline's Targa 58 that features six opening and four bonded-in windows and portlight assemblies that fit flush in the middle of the structural pieces of glass. That system took Falcon three years of painstaking development work and it has plans to take the idea even further.

"There's been a little bit of static design in the industry for a number of years," says McRobbie, "We think it's time to do something a bit more sexy – take some quantum leaps to shake things up. We're a little bit mischievous in that sense I guess. Bringing in some new ideas, new ways of thinking to the way doors slide, windows and roofs close. We've raised the bar in electro-mechanical systems and pushed the boundaries of structural hull window design three times in three years. Each time reducing weight, manufacturing and installation costs yet improving form and function. Our best design will always be the next one, which fuels our passion for constantly pushing the limits."

Cornwall-based company Triskel Marine has turned collecting data on the movement of the sea, into an essential environmental tool

Green Machine



The DataBuoy deployed in Poole harbour monitoring water quality over the oyster beds



Ken (left) and Kevin Wittamore picking up the Seawork Spirit of Innovation Award

Utilising years of electronics hardware development, custom software and marine engineering know-how, Ken and Kevin Wittamore and their company Triskel Marine, are on the front line in the ongoing battle to protect the environment.

Founded in 2003 by former Royal Navy trained engineer Ken and his son-in-law Kevin, Triskel Marine first channelled its expertise into developing tools to predict the spread of oil spills and pollutants, and has over the years become an authority in processing information from sensors positioned on buoys: “We manage that data, put it into a coherent stream, compress it and transmit it,” Ken Wittamore explains. The company’s DataBuoy is an award winning, tough, easily deployed, lightweight and completely autonomous buoy with multiple inputs to support a wide range of different wind, wave and current sensors.

There’s no limit to the number of buoys that can be deployed simultaneously and each is individually accessible via a website. The buoys, which can be configured for use in water as shallow as 0.5m, are fitted with GPS, battery monitoring and solar panels as standard, with weather reporting, on board data logging and navigation lights as additional services. The buoys can also be used to study wind driven surface currents, water speed and direction, and link this data to weather information to provide a real-time meteorological feed. Such information is vital to sea users, particularly for anchoring big ships, and for providing a crucial tool in predicting the spread of oil spills.

“We wanted to help planners get the right response to tackling spills on a day by day basis so they could target their response most effectively.”

Versatile approach

Today much of Triskel’s work is aimed at monitoring the impact of dredging in harbours – with its Databuoys monitoring the drift of dredge blooms. “In that way we can protect vulnerable sites, such as oyster beds,” says Wittamore. If a bloom appears to be threatening a designated site, the DataBuoy will automatically send a warning email to the dredger captain and harbour authority, alerting them to the danger.

The company, which designs and develops the entire DataBuoy in-house – from the data collecting equipment to the web and user interface that enables data to be sent in real time – has the skills base to remain versatile. As well as environmental survey projects it was recently tasked with developing a guidance system for a blind dinghy sailor. “It’s all basically the same technology,” says Wittamore. “It’s about collecting marine data, processing it and transmitting it.”

“As well as environmental survey projects it was recently tasked with developing a guidance system for a blind dinghy sailor”

Ken Wittamore, Triskel Marine

The UK is home to a vast array of colleges, training centres and universities offering a diverse range of leisure marine related qualifications coveted by students and employers the world over

Top of the Class



Raw talent is one thing, harnessing that ability is a skill in itself. Southampton Solent University (SSU) is one of a number of UK educational establishments that have become masters in honing marine industry talent. For more than 40 years the University has maintained its position as one of the world's premier yacht design education institutions, attracting students from across the globe.

According to Stephen Wallis, programme leader of the Yacht Engineering Group, over 70 per cent of its students are from outside the UK, coming from Europe and the US, attracted by the top rate facilities, teaching staff and the uniquely tailored approach of its courses. In contrast with many other maritime courses, SSU's degrees specifically target the smaller, pleasure boat sector (6m–100m), rather than commercial and naval shipping.

"We offer a course in yacht design and one in production and surveying, very much focused on what yacht and small boatbuilders require from graduates," says Wallis. The production course offers a greater emphasis towards materials testing, composites and machinery systems, while the design modules are more practical involving a high degree of CAD work. Though theory does form an integral part of its courses, there is a definite emphasis on practical application. "It's not just about drawing boats with various computer packages, but using software for the myriad of calculations needed for things like keel and rudder design, propeller and engine performance, structural designs," he says.

"We have to keep one step ahead of what's happening in the industry – the developments in SCRIMP processes and lean management for instance," Wallis says. There's also a constant push to provide hands-on experience in the use of the most modern materials such as Pre-pregs and epoxy composites as well as those materials more widely used like GRP and polyester. State-of-the-art facilities at the university include a water stability tank to teach the fundamentals about boat design, a FRP

composite workshop for advanced composite building, including wet-lay vacuum bagging and resin infusing, as well as a full-equipped materials testing lab. There's also a 60m long towing tank suitable for evaluating hydrodynamic lift and drag components for small craft using scale models up to 2m. To date SSU estimates that more than 1,700 of its graduates, at degree and diploma level, are currently working in the industry worldwide.

Global appeal

"UK qualifications are particularly prized by overseas companies and students," claims Alex Whatley, the curriculum area manager for marine technology at Falmouth Marine School, a subsidiary of Cornwall College. "Engineering type subjects have been something the UK has been specialising in for a long time and we're considered very good at it," he says.

It's perhaps the reason why larger institutions such as the universities of Southampton and Newcastle offer validated courses overseas to provide students from across the world with much coveted UK qualifications. "We have students from Europe and the Far East on Falmouth's courses every year, this year we have pupils from Malaysia, Turkey and China," says Whatley, all of them attracted by the specialist courses the School provides in boatbuilding, marine engineering, leisure and watersports, and marine sciences. Currently over 93 per cent of its pupils are achieving pass grades or better, but Whatley says remaining responsive to the industry is key: "We offer wide and varied courses. Being up to speed with the latest composites is vital, but so is having students who know woodworking and joinery, metal work and engineering. That's what the industry is after. "It's also about offering a wide array of specialist courses at varying levels, from pre-GCSE (16 years) to post graduate, and vitally, for the students, offering skills that are transferable.

"Our teaching is about traditionally transferable engineering skills but set within a marine context. And it's not just about full-time courses or apprenticeships. It's about making sure we are continually going to industry to ask, 'what do you need in five months, what do you need in a year, and what will you need in five years', that's how we keep competitive in the world market."

"UK qualifications are particularly prized by overseas companies and students"

Alex Whatley, Falmouth Marine School

Musto, Henri-Lloyd and Gill have become the labels of choice for yacht racing pros and weekend sailors alike

Dressed for Success



“The UK has traditionally always had a particular strength in textile manufacturing,” says Nick Gill, who founded the eponymous yacht clothing manufacturer in 1975. “That combined with our passion for sailing and extensive coastline, not to mention temperate weather, and it’s easy to see why three of the leading brands were founded and developed here,” he adds citing his compatriot clothing manufacturers Henri-Lloyd and Musto, which between them dominate the global market for high specification sailing gear. Today Gill prides itself on targeting specifically the technical sailing market – “It’s where our DNA is” says Gill.

Henri-Lloyd and Musto have diversified over the years and have become respected brands beyond the marine sector, the former successfully branching out into high street fashion, the second using its technical expertise to earn itself a revered reputation as clothing supplier to the equestrian world. All three continue to innovate. Henri-Lloyd, founded in 1963 by Henri Strzelecki MBE, has established over five decades a formidable global reputation for quality in sailing clothing. From the early days working from a converted chapel in Manchester, the company pioneered technologies such as the 1960s Bri-Nylon, the hand taping of seams for waterproof integrity and strength, the first integral safety harness, use of Velcro in clothing and with the Swiss based company Riri, the world’s first non-corrosive zips. More recently it unveiled its Blue Eco Jacket, a recyclable jacket made from recycled materials, becoming the first international marine clothing company to engage in what it described as an ‘infinite recycling programme’. Under its ‘infinite-loop’ system, customers can return worn-out Blue Eco products to Henri-Lloyd for recycling. The recycled raw material is then converted into new, highly durable polyester fibres and engineered into fabric that is used for the manufacture of new Blue Eco products.

What unites all three brands is their founders’ passion for and understanding of the sea. Musto has been equipping world-class sailors since the early 1970s having built a reputation on creating quality, innovative and performance-driven clothing to meet sailors’ needs, even in the most extreme conditions.

Founder Keith Musto’s strict regime of design, training and testing led to him becoming a medal winner at the Tokyo Olympic Games in 1964. He returned to apply this same philosophy to Musto clothing and combined his intimate understanding of the sport with technical engineering skills and modern fabric technology. Keith’s son and company CEO Nigel Musto says: “We pride ourselves on the fact that our products have been developed in close partnership with elite sailors such as Ellen MacArthur, Pete Goss and more recently with Skandia Team GBR, the British sailing team in the Olympic and Paralympic classes. It ensures that our garments are fit for the job.”

“Henri-Lloyd has been pioneering the development of fabrics, garment design and product development for over 45 years, but the launch of the Blue Eco Range, was a great testament to the outstanding work of our design and development team who continue to push the boundaries of innovation”

Paul Strzelecki, Henri-Lloyd

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