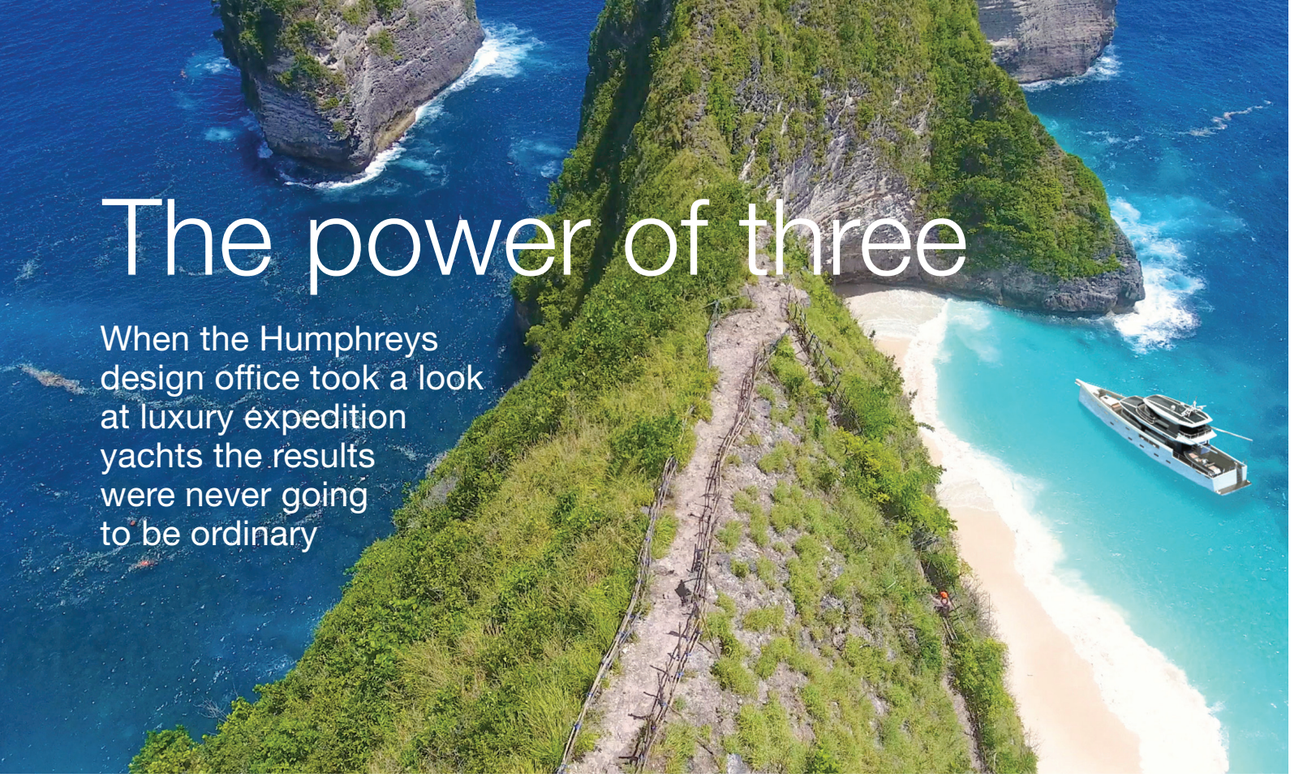

The power of three

When the Humphreys design office took a look at luxury expedition yachts the results were never going to be ordinary

In the world of long-distance cruising, adventure has become a big deal. Driven by a new breed of long-legged, self-sufficient, go-anywhere blue water cruising yachts, new corners of the world have become a reality for those who are inclined to think big.

There are some that see this as just the start. Arksen is taking the adventure concept even further with a range of innovative boats that raise the bar in the technology stakes and provide a more efficient, affordable and sustainable way of embarking on a long-distance cruise.

Their three new designs are more than just a new product range in the busy powerboat world. Instead, Arksen has introduced novel and imaginative ways of encouraging owners and crews to make more use of their vessels by helping to contribute to a greater understanding of the planet. A bold claim perhaps, but the ideas behind the new project go way beyond conventional thinking.

On the face of it, the range – which includes 70, 85 and 100ft models – might look more like an exercise in styling than a fundamental step forward. The clues as to what makes this new range so different lie in some of the key details. For example, a modest beam, a plumb bow and a long, sweeping hard chine may look good, but these are design details that provide an efficient, easily driven and stable hull form that lends itself well to the long-legged performance that it is designed for.

The enclosed flybridge offers panoramic views whether under way or at rest and provides absolute protection from the elements in prestigious surroundings. Yet the interiors are also designed to deliver the perfect platform for a variety of roles from filming or research work, to luxurious family cruising. There's plenty of recycling to be found on board too. These are eco-conscious boats with only the most durable and environmentally friendly products and fabrics used.

Delivering the scope for such a wide range of roles in the layout and look below decks has been achieved by Design Unlimited, an innovative yacht design studio with a global reputation for exceptional interior design. But the Arksen range is about far more than simply good looks and practicalities. Humphreys Yacht Design, responsible not only for the lines, but for the exterior styling too, takes leisure motor yachting into genuinely new territory where sustainability and efficiency are at the heart of the programme.

'If there is one aspect that permeates all our designs, it is a focus on optimising efficiency and the Arksen project is no different,' says designer Tom Humphreys. 'Every increment in improved efficiency lowers fuel consumption, extends the cruising range, lessens pollution and reduces environmental impact, shortens potential passage times, and minimises running costs.

'Paradoxically, improvements in performance have more effect on fast displacement vessels like the Arksen range than they do on high-speed planing craft. This is because displacement motorboats are normally confined to single-figure cruising speeds, but the Arksen vessels are designed to break through this archetypal displacement threshold and cruise happily in the low teens, and in the right conditions they are able to surf downwind at far higher speeds.'

Straight-line performance and consumption are only part of the equation, however. With an overall objective to create a range of motor yachts that are capable of cruising the world, achieving this meant that the designs needed to have three key features in particular: excellent sea-keeping characteristics, comfort and efficiency.

The new generation of yachts also needed to be robust and reliable while delivering a high level of sustainability. To achieve this there are a variety of highly efficient hybrid power configurations including diesel/electric and solar-powered systems available, which also include options for either parallel or serial integration. The numbers make for impressive reading.

Currently in build at The Wight Shipyard Company on the Isle of Wight, the first boat to be launched will be the Arksen 85. She, like all of Arken's proposed models, will have extensive solar capabilities sufficient for a slow cruise of around 3kts indefinitely on solar power alone. Naturally, in most circumstances a higher cruising speed would be required and at 7kts in a calm sea, the 85 requires just 32kW of power. At the top end of her performance she will be capable of average cruising speeds of 11-12kts with a top speed of 14kts.

***Above*: Arksen's brand new range of super-sustainable motor yachts is designed to enable adventurous owners to explore the remote parts of the world's oceans in great style and comfort, with the maximum possible autonomy from shore facilities. These ocean-going expedition yachts are not just impressively capable passage-makers, they're also remarkably efficient. There's a range of three models from 70ft to 100ft**

When it comes to the Arksen 85's range, using the solar and hybrid system she is expected to be capable of 4,800 miles at 10kts and over 10,000 miles at 5kts. And the benefits don't end there.

'With three generators powering two sets of batteries along with the solar power capabilities, the hybrid power plant also provides a great deal of redundancy,' explains Arksen's technical director Jim Mair. 'It's an essential feature aboard a go-anywhere cruiser.'

Running three 200kW variable speed generators using Hyundai SeasAll D270 engines feeding a 160kWh energy storage system that comprises two 80kWh Li-ion batteries, the power output can be closely tied to demand.

''With conventional systems, generators have to run at high speeds even with a modest demand. The Arksen hybrid system allows generator speed to vary with demand, which is more efficient and often much quieter,' Mair continues.

Using a pair of 250kW permanent magnet propulsion motors to drive twin propeller shafts certainly helps here. 'Another advantage of this system, especially in the context of exploration cruising, is the ability to run silently with zero emissions for prolonged periods of time,' he says. 'And when the vessel is operating in coastal areas, charging can be provided using shore power.'

***Top*: long-range zero-emission cruising capability is a key feature of these vessels, which are designed to explore the high latitudes without causing any harm to these regions' fragile ecosystems. Solar power provides part of the energy needed for propulsion, with the rest delivered by diesel-electric generators. *Above*: the top deck of the Arksen 85 is a luxurious skylounge that offers panoramic views, with a state-of-the-art electronic command centre**

Another of the innovative features that will be incorporated into all models in the Arksen range is the vessel's autonomous control systems. From dynamic positioning for holding station in areas where it is not possible or desirable to set an anchor, to joystick docking and remote systems monitoring, the new range of yachts will take advantage of the latest technologies. In addition, through the Arksen Ark-Control system that the company is developing, full remote control will be possible, a feature that will be used for a variety of applications including research and vessel delivery.

Aside from the impressive design and technology that lies at the heart of the new range, research also plays a key role. In setting up Arksen, entrepreneur and investor Jasper Smith, whose background lies in the games and tech industry, wanted to create a range of vessels that would contribute to the work of the Arksen Foundation.

A committed and self-confessed adventurer both at sea and on land, Smith's not-for-profit organisation provides project funding to support cutting-edge scientific research. Creating innovative media to inspire a greater understanding of the beauty, complexity and fragility of the ocean ecosystem and its interfaces with the land around it is also a part of the mission.

'We set out to create a great company, one that could have a profound impact on the lives of the owners of our vessels and that could actively contribute to a better understanding of the oceans,' he explains. 'By building offshore vessels that are designed to withstand the harshest ocean conditions and that incorporate autonomy, hybrid propulsion and "always on" critical systems monitoring, we are at the forefront of a revolution, pioneering technologies that will become the foundation of the future marine industry.'

Smith's vision goes even further. All Arksen owners will also join the Foundation and pledge to donate 10 per cent of their vessels' annual sea time to projects that the Foundation supports. This will allow scientists, explorers, filmmakers, journalists, photographers, artists and athletes access to a fleet of vessels from which to run their projects.

As a further indication of the working brief for these boats, every Arksen vessel is fitted with a modular and flexible monitoring system to analyse water quality continuously. This includes a flow-through system, like the ones that are often seen on ferries, to automatically feed back data readings to institutions around the world, to provide live information on water conditions.

There are also some additional incentives to help owners make full use of their vessels through the Arksen Explorers' Club, which provides assistance with curated expeditions around the world.

And for those looking to go even further, Arksen Signature Adventures provides a range of trips inspired by some of the world's greatest Arctic and ocean explorers such as Fridtjof Nansen, Jacques Cousteau, Thor Hyerdahl and Bill Tilman.

The range of three immaculately presented motor yachts may look like the start of a new style in offshore powerboating, but the reality is that they represent a much greater step into the future. It's a future that provides a real purpose for deep water cruising and looks set to deliver impressive results.

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