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Ice Queen

Perini Navi launched 55m *Galileo G* in July, which was the second Picchiotti Vitruvius motoryacht to hit the water. Like her predecessor, 50m *Exuma*, the explorer yacht was designed to accommodate her owner's very specific requirements. This time, the demanding brief was that the yacht should be able to navigate Canada's Northwest Passage. **Justin Ratcliffe** reports.

Much like *Galileo G* when she heads north to explore the frozen waters of the Canadian Arctic, Perini Navi was charting largely unknown territory when it announced in 2006 that it was going to build motoryachts. Many industry commentators (including the author of this article) were surprised, even sceptical, not least because neither builder nor the chosen designer, Philippe Briand, had built or designed a motoryacht before. In the event, the decision reflected the company's astute appreciation of the marketplace and it is remarkable that in today's uncertain economic climate it has been able to launch two Picchiotti Vitruvius yachts in the space of a year, with a third – a 73m flagship – due to splash in 2013 and others in the pipeline (see sidebar on page 140).

The key to the Vitruvius concept – and what seems to appeal most to forward-thinking owners – has been the so-called Briand Optimized Stretched (BOS®) Hull with its long waterline and relatively narrow beam. To all intents and purposes it is a sailing yacht hull with stabilisers, where volume and weight distribution are combined into a slippery hull form to maximise hydrodynamic efficiency.

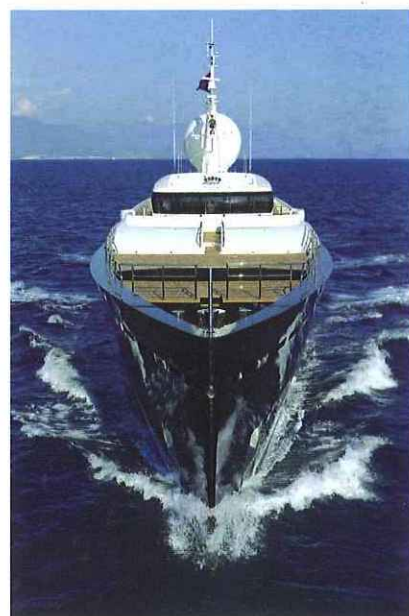
"Although this is an explorer yacht, we feel *Galileo G* retains many of the core Vitruvius values typical of a sailing boat," emphasised Perini Navi CEO Giancarlo Ragnetti during the presentation press conference in La Spezia. This, of course, was Philippe Briand's intention from the start: "For a long time large sailing yachts were looking to emulate

motoryachts," the French designer told *TSR* in London. "The Vitruvius series bucks that trend and makes a motoryacht more like a sailing yacht."

Exuma's fuel tanks were necessarily limited in size by the need to remain below the 500gt threshold and the owner's request for tender space for an amphibious vehicle and a small hovercraft. Nevertheless, the yacht still has an efficient range of 6,500nm at a cruising speed of 12 knots. At 725gt with around 50 per cent more interior volume, *Galileo G* suffered no such constraints and her caterpillar 3512c engines (1,174kW @ 1,800 rpm) and 152,000 litres of fuel – double the capacity of *Exuma* – provide a go-anywhere range of 9,000nm at cruising speed. Perini claims this represents a 25 per cent reduction in fuel consumption compared with a standard explorer of similar size.

In terms of exterior styling, *Galileo G* is recognisably a close relative of *Exuma*. Briand's signature curved windows on the upper deck remain, but the classic Perini blue hull and white superstructure have the effect of toning down the yacht's contemporary lines and making it look more traditional than it really is. The differences that can be spotted are mostly consequences of the yacht's specialised vocation. The most obvious example is the massive 3.65m radome sitting atop the bridge deck – not a pretty sight, but one required to house the hefty Seatel 9797 V-Sat (with its own dedicated AC system) for operation up to and beyond 70° N and S. The forward bulwarks have been

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subtly raised for added safety in high seas, which lends the bow a graceful sheer line that emphasises the hull's sailing yacht characteristics. There is also a solid-looking wave breaker bisecting the foredeck, which has been kept as flush and uncluttered as possible to prevent sea spray collecting around deck gear and freezing it solid. If sheet ice is allowed to form on deck, it could also adversely affect the yacht's righting moment.

Despite these exterior features, to the casual observer, *Galileo G* appears every inch a sleek and stylish motoryacht. What makes her different is mostly hidden from plain view within the hull structure and below the waterline. Again, these differences are directly linked to the contractual obligation to build a vessel able to transit the Northwest Passage during a brief four-week window at the end of August, which in turn required Ice Class compliance.

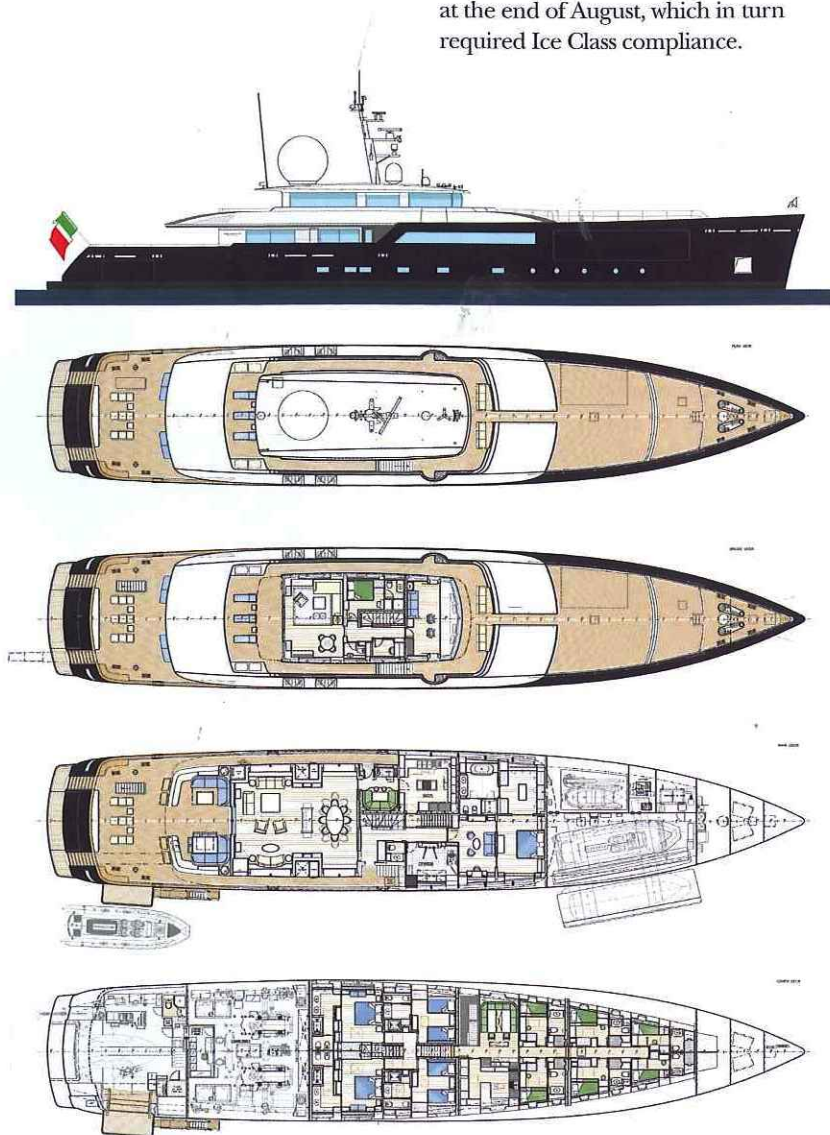
"It should be pointed out that *Galileo G* is not an ice breaker," said Burak Akgul, director of the Perini Istanbul-Yildiz yard in Turkey where the hull and superstructure were built. "instead, it is designed to negotiate 'first-year' as opposed to 'multi-year' ice." As such, the yacht is rated Ice Class 1B, the second lowest category under the Finnish-Baltic system. This is equivalent to ABS Class 3 and the Canadian Arctic Regulations Type C.

The project also complies with International Maritime Organisation (IMO) and Arctic Waters Pollution Prevention Act (AWPPA) rules for safety under sail and for prevention of marine pollution. (Akgul intimated that as *Galileo G* does not carry enough fuel, that is pollutant, under the Canadian system, it is arguable she is not technically required to be compliant – but that is a moot point and not one Perini felt inclined to pursue.)

"Over the 500gt threshold, building such a vessel in aluminium becomes very questionable from a common-sense perspective," continued Akgul. "The more cost-effective choice of material for the hull is AH high-tensile steel, as opposed to standard DH36 that can suffer from brittle fracture in freezing conditions." Perini is no stranger to steel construction and the last steel-hulled sailboat to leave the yard was 45m *Fivea* in 2010. Akgul went on to explain the yacht's Ice Class characteristics with reference to a series of in-build photographs of the hull structure:

"If you look at the hull, especially the bow section, you can see the size and frequency of the longitudinal stringers that are barely 20cm apart and create an ice belt around the vessel," he began. "The aft section is built to withstand up to 50 tonnes of pressure per square metre, but the bow can take up to 100 tonnes per square metre. What frankly surprised me was the stem plate, which is 40mm thick. If that thing so much as touches a dock, it will obliterate it. There's nothing getting in the way of that stem plate."

It wasn't, however, the hull construction that was the most challenging aspect of the build. What proved more complex



was the outfitting work done at the Picchiotti yard in La Spezia, where the team of technicians led by CEO Vanni Marchini had to design into *Galileo G* many unfamiliar systems that do not appear aboard a standard yacht.

"The anchor windlasses and mooring winches have heating elements inside them to eliminate condensation that might freeze," explained Marchini. "In some areas, the deck drains are also heated, as are the gaskets on exterior shell doors, deck hatches, the life-raft compartments, and the bridge windscreen. The water makers even have their own heat exchanger to warm the water to just above 5°C before it starts circulating. In other words, a whole series of considerations that had to be thought out and solved on paper first."

The 'winterisation' measures continue with a Condaria HVAC system that not only extracts moisture but also humidifies to compensate for the dry Arctic air; an IMO-approved DVZ Biomaster black- and grey-water-treatment system to reduce the bacteria count to comply with Canadian regulations; Nibral (nickel-bronze-aluminium) propellers from Detra with less skew than traditional props to make them less prone to damage; a retractable, ice-detecting Far Sounder connected to a 3D monitor on the bridge; ice knives on the rudders that have reinforced pintles; and an enormous 200kW Naiad Dynamics bow thruster, an essential piece of kit for avoiding ice floes that is still responsive in a fresh gale (there is a half-power option for more delicate manoeuvres in port to reduce the risk of taking out other boats).



Non-technical design features for cold-water cruising include the well-protected aft cockpit area that can be completely enclosed, and a docking platform off the starboard quarter with its own boarding ladder, so guests can embark and disembark the 9.5m the 9.5m hull-reinforced RIB tender in comfort and safety without risking the aft platform in a long ocean swell (with an aluminium hull, the RIB's inflatable tubes are made of a bullet-proof material developed by the US Navy). Considering all these specialist features, it is somewhat surprising that *Galileo G* looks as elegant on the water as she does and not like some of the Arctic vessels you're likely to see in the pages of *National Geographic*.

"Briand never designed the Vitruvius series with Ice Class in mind," agreed Akgul, "but it just so happens a lot of the design attributes are favourable to Ice Class compliance. One example is the flush deck; another is how the life rafts are incorporated into the cowling under the sat dome. So if you're >>

"Briand never designed the Vitruvius series with Ice Class in mind, but it just so happens a lot of the design attributes are favourable to Ice Class compliance."



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VITRUVIUS UPDATE

Following the launch of 55m *Galileo G* and construction moving ahead on the 73m in Istanbul, Perini has also been working on other models in the Vitruvius range.

A new arrival is a 44m (pictured right) for a potential client, developed from a previous 40m version. Some of the styling aspects have changed and most noticeably Briand's curved windows have been replaced with vertical glazing, but a fold-out balcony has been added in the separate dining area. The design remains, however, a spacious five-suite vessel at 430gt with room on the bridge deck for the master stateroom (the captain's cabin is relegated to the lower deck), a sundeck and a 7m tender in the garage – unusual for a yacht of this size.



"Design for its own sake doesn't provide the same results as we can achieve when working directly with a client on something more concrete," explained Akgul.

An imposing 95m Vitruvius is also in development in response to demand for a sub-3,000gt vessel. Thanks to the extended

waterline of the Briand hull, the design is 8m to 10m longer than a standard yet beamier yacht in its class. Both this and the 73m (pictured below) are equipped with diesel-electric azipod propulsion. Yildiz has the space to build the 95m on site as it is only marginally higher than the 73m. "But you know us Turks," quipped Akgul at the end of his presentation, "we're always ready to jack the roof of the shed up if we have to." With a 50m and 55m already launched,

a 73m in build and proposals for a 44m, 62m and 95m, Perini now has a Vitruvius model to suit a wide range of budgets and owner requirements.



The 50m *Exuma* model (pictured above) has also undergone a process of restyling to provide a more general-purpose yacht (but still below the 500gt threshold), in which the owner's suite and guest accommodation are housed on the main deck, leaving the lower deck free for crew and technical spaces. A sundeck arrangement has also been added.

The existent 62m model does not, according to Akgul, appear to have hit "the sweet spot" with owners and although the design remains on paper, Perini has preferred to push ahead with preliminaries of more promising projects.



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Much of the interior styling has also been transferred from *Vent d'Est* and perfectly subscribes to the brief for a 'gentleman's yacht'. Based on mahogany panelling and matching floors with wenge inserts to continue the exterior decking theme, the interior design is by Perini Navi's Bernardo Chichi in collaboration with the owner's residential architect Paolo Genta, who also consulted with designer Umberto Fossati.

"Paolo came to me for some advice because of my experience in the yachting industry," explained Fossati, who previously worked for Sanlorenzo at its Viareggio shipyard. "When we were asked to assist in September 2009, the yacht was one year into construction and we immediately had a meeting with the owner and the Perini team to take a look at a mock-up of a corner of the main salon they had built based on the interior of

Vent d'Est. We introduced some subtle changes, such as cleaning up the traditional boiserie to reflect more of a 30s' art deco feel. As always, it was not always easy for the owner to envisage the final outcome, but when we visited the yacht shortly before the launch he was very happy with the results, both with regard to the basic concept and the quality of the interior outfitting."

For reasons of privacy, the European owner has requested that photographs of the interior not be released, but as a result of the dark mahogany, the much larger volume of *Galileo G* in comparison with *Exuma* with its light oak and teak joinery is not immediately obvious. To alleviate what could have become a sombre ambience, colour accents are provided by large back-lit panels of the family's own underwater photographs of barracuda and a manta ray on the dining room bulkhead facing the main salon.

Other focal points are provided by a Damien Hirst-style whale's vertebra in a display case dividing the salon and dining areas and two wall-mounted narwhal tusks illuminated by overhead spotlights. The photography continues throughout the interior with each of the four guest cabins based on a personalised Africa, volcano, shark (for the children) and manta theme. In line with the owner's relaxed, family-oriented interior, there is also a breakfast room-come-pantry adjoining the galley on the main deck.

Perini Navi may be the leading builder of sailing yachts over 40m, but it is fair to say it is still a relative newcomer to the world of motoryachts with just two in the water. Bearing this in mind, delivering *Galileo G* on time, on budget and to Ice Class, is a textbook example of how careful research and consultation early on in the design phase pays dividends later on during the build process. If any of the myriad of technical details required to ensure safe and efficient cruising in Arctic conditions had been overlooked, it would have been very expensive and complex – if not impossible – to fit them retrospectively. The fact that Perini has managed to build an Ice Class vessel while remaining true to Philippe Briand's innovative styling and the Vitruvius ethos deserves a round of applause. ■

Images: Justin Ratcliffe and Giuliano Sargentini by courtesy of Perini Navi

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