

# innovations

Focusing on innovation in the global cruise industry

## Dutch designs at the forefront of style



**Special Report**  
International Cruise Ship Industry

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Dutch synthetic products and systems company, Bolidt, has come a long way since it was founded in 1964 by two people who were involved in steel and concrete.

Now employing 450 people with offices in Miami and Shanghai, arguably the highlight for the company will come this October when the Bolidt Innovation Centre is officially opened and joins what is now known as the Bolidt Campus, located at Hendrik-Ido-Ambacht upriver from Rotterdam.

About seven years ago, the company took a look at what it saw as the future and decided to design and build a centre having a central theme of collaborative product development together with a testing hub that will take flooring and decking design using synthetic materials to a new level, the company said during a visit to the new building by ICSI.

According to current CEO, Rientz Willem Bol. “We have always invested in innovation. If you don’t think about the future, you will not have one.”

In a preamble about the centre, Bol said that innovation is “part of Bolidt’s DNA” as a company, determining its approach to sustainability, hygiene, safety, energy & data, and design.

For example, the company claimed to have anticipated demand for more sustainable products from the cruise sector by becoming the first supplier to replace the traditional teak decking with the synthetic patented Bolideck Future Teak.

The 15 m-high Innovation Centre’s structure features a partly transparent shell, which is enhanced by the extensive use of interior glass to create a sense of openness and collaboration that will be core to the centre’s work.



*Bolidt's innovative R&D facility within the new centre*



*Jacco van Overbeek, Bolidt's Maritime Division Director*

On entry, visitors pass through a glass gallery, offering a view of a large exhibition floor where materials are tested. Using a transparent lift, they will then ascend to an open rooftop terrace where Bolidt outdoor applications are on display.

Visitors will be able to interact with exhibits and will be invited to a virtual reality experience of looking over the shoulders of Bolidt employees as they work. They can investigate the augmented reality applications that are already part of Bolidt’s innovation. In addition, considerable thought has gone into creating ‘triggers’ that will start interesting conversations, the company said.

## Climate chamber

An advanced climate chamber and accelerated weathering laboratory to test materials in harsh and extreme environments, has also been included in the centre. Jacco van Overbeek, Bolidt Maritime Division Director, explained. “We are working on a number of Polar and expedition cruise vessel projects at the moment and these facilities will be put to good use developing materials that meet the needs of shipowners and passengers on board.”

The testing of materials is undertaken in simulated weather conditions to gauge corrosion in very cold up to very warm humid conditions (-70 to + 350 deg C). For instance, Bolidt works in the hot and humid Singapore shipyards, in which several cruise ship refurbishment projects are handled. The material’s bending moments

are also tested as is compression testing of up to 25,000 kg of pressure and severe impact testing.

Ultra-violet light tests are also undertaken in the centre. For example, the R&D department has found that energy can be saved on a LED walkway on deck when the light follows a person with sensors placed under the decking. Noise and vibration is also tested on the decking and flooring panels.

All of the tests aimed at shipboard materials are IMO approved with DNV GL and the German BSH. The equipment used to test the materials has been made specifically for the tasks to be undertaken.

Other buildings on the same site, the Bolidt Campus, include a logistics and product warehouse area and a pre-fabrication production facility. The warehouse is 12 m in height and has around 2,500 pallet spaces available.

By having its own warehouse, Bolidt can save money, van Overbeek claimed, instead of having a facility in Rotterdam's vast port area. Cruise ship operators, shipyards, etc are able to pick up material from the warehouse, as necessary or have it delivered.

To ensure quality, once gaining an order, the company will take care of everything from the design, manufacture, transportation and installation on board ship using its own people,

hence the need for a pre-fabrication facility, a warehouse and logistics centre. The latter organises material shipment to a shipyard, a vessel or elsewhere anywhere in the world.

In the cruise industry, Bolidt has built up a reputation for its interior flooring and exterior decking and has worked on many newbuilding and refurbishment projects in major shipyards worldwide. Cruise ship orders originate from the shipyards, owner/operator preference and the vessel designers, both exterior and interior.

Cruise ship's balcony deckings are offered in collaboration with other companies who will design and fit the units. Here, the company has introduced the patented Bolidt Smart Balcony, which is a deck system suitable for refurbishment projects. The company claimed that Bolidt specialists or the crew can install the system in just 15 minutes.

Recent cruise ship projects have included the world's first Ferrari race-track at sea fitted on board NCL's 'Norwegian Joy', and glow-in-the-dark decking that harvests and stores solar energy and flooring with embedded LED lighting.

RCCL's giant 'Symphony of the Seas' features 20,000 sq m of Bolidt materials. The exterior decks, staircase steps and benches were made of Bolideck Future Teak. For the public areas and the deck finish above the cabins, Bolideck Select Soft was chosen, while the Abyss Arrival on Deck 6 featured Bolideck Glow.



*Bolidt race track*

Working with WKK Architects, Bolidt installed several features on the 'Celebrity Edge'. This vessel was designed entirely in 3D, resulting in new hitherto unknown design options, Bolidt said.

## Outward looking

She was designed as an outward looking cruise ship and included a platform fitted on the side of the ship, dubbed 'Magic Carpet'. It is adjustable in height and is fitted with what is described as luxurious furniture, a bar and a live music stage.

For each application on board 'Celebrity Edge', Bolidt advised which synthetic systems could be used, taking into consideration wear resistance, maintenance, cleaning and acoustic insulation. Bolidt Bolideck Future Teak was used on decks, balconies, in public interior spaces and the 'Magic Carpet'.

In addition, Bolideck Select was chosen for the passenger boarding area and Bolideck Select Soft was installed on the balcony cabins. The anti-slip properties of this flooring was also used for the running track on board.

Another order was recently received from MV Werften to supply lightweight material for two 'Global' class cruise ships building for Genting.

Bolidt is now involved as part of the design team in all three of the shipyards on the Baltic coast - Rostock, Wismar and Stralsund - and now has long term contracts with MV Werften for the 'Endeavour' and 'Global' class ships.

Recently, King Willem-Alexander and Queen Maxima of the Netherlands witnessed the contract signing at MV Werften's Rostock shipyard. The agreement, formalised during a trade delegation visit, calls for Bolidt to supply



*Celebrity Edge- Magic Carpet*

17,000 sq m of its synthetic systems to the first 'Global' class cruise ship for Hong Kong-based Genting Group's Dream Cruises, which is already under construction.

Installations will include Bolideck Future Teak and Bolideck Select Soft. Upon her delivery in 2021, the whole of the new ship's outside areas will feature Bolidt ship deck solutions, including the running track and all of the entertainment park areas.

At 342 m in length, and incorporating 2,500 suites and cabins, the 204,000 gt 'Global' class vessel was designed from the keel upwards for the Asian market, with public areas designed for different types of activity and a range of advanced technology solutions incorporated. The vessel is being built in two parts at Wismar and Rostock.

This was the second contract that Bolidt has won for Genting vessels under construction at MV Werften, as work is well advanced on a polar class expedition yacht, 'Crystal Endeavour', which is being built at the Stralsund yard.

Again all the outside decking, including the running track, is being supplied by Bolidt, with Bolideck Future Teak and Bolideck Select Soft featuring prominently. All of the decking materials for this 20,000 gt, 200 guest capacity vessel will be delivered by Bolidt before the end of this year, with the ship due for delivery to the Genting Group in early 2020.

## Refurbishments

Refit/refurbishment projects have proved to be lucrative business down the years, as much of the decking and flooring will need replacing, due to wear and tear and any new spaces created during a refurbishment project.

van Overbeek said that the recent refurbishment programmes on 'Allure of the Seas' and 'Oasis of the Seas' was of more value to the company than their original newbuilding work.

Expedition ships are also becoming an interesting market, ICSI was told with new shipyards not known for their cruise ship expertise becoming involved. For example, Bolidt is involved with the first Sunstone vessel to be delivered from a Chinese yard.

The company also fitted decking on the Hurtigruten's recently delivered hybrid powered 'Roald Amundsen' and is outfitting her sister

'Fridtjof Nansen'. In addition, two Lindblad/ National Geographic vessels, two Hapag-Lloyd vessels, three Ritz Carlton luxury cruise yachts, plus Mystic Cruises' 'World Explorer' are being fitted with Bolidt products.

To meet the harsh Polar conditions, specialist products were designed in Bolidt's R&D department, such as heated deck systems and special surface treatments that are resistant to extremely low temperatures.

Celebrity's Galapagos Island expedition vessel 'Celebrity Flora' was built in a local Dutch yard De Hoop where Bolidt fitted a tile flooring design, which was claimed to be completely smooth and with safety in mind.

Ferries are another passenger carrying type being exploited, as more ferry operators are looking to upgrade their vessels

Most of the products are polyurethane based with different ingredients depending on the hardness, softness and the fire regulations needed for any given project. One of the prime objectives is to protect a vessel's steelwork from corroding, as well as look aesthetically pleasing in the design.

## YSA Design

One of the design companies that Bolidt works closely with is Oslo-based YSA Design.

Partner and Chairman Trond Sigurdson said that the company has been involved with the cruise ship sector for over 30 years and two years ago went through a restructuring programme, which involved the hiring of new talented designers for both exterior and interior ship designs.

Sigurdson explained that YSA looks at ship design holistically by seeing a vessel as a town or village. The idea is to create a smooth flow of people throughout the ship with tailor made spaces to fit the owners' profile. "We work hard to create spaces on board," he said, adding that one of the tasks was to create small alcoves to break down the size of the spaces available for the number of people on board.

YSA undertakes a long analysis programme taking into account guest's reaction.

He said that the company had recently started work on the third in the series of HAL newbuildings, the 'Ryndam'. She will follow the 'Koningsdam' and 'Nieuw Statendam' out of Fincantieri, both of which feature YSA and Bolidt ideas.

Several refurbishment projects have been completed, including cruise ships for HAL ('Eurodam'), Oceania ('Marina'), Costa ('Costa Serena') and Disney ('Disney Magic'), among others.

## Bolidt's patented decking systems for cruise ships

**Bolideck 525** - Comfortable, walk friendly with a matt surface and uniform colour scheme.

**Bolideck 525 Deco** - Flow-applied deck finish uses a combination sprinkled flakes and a principal colour.

**Bolideck 525TF** - Development of 525 has a special texture. Concave transitions to the walls make the system waterproof and offer optimal hygiene.

**Bolideck Select Hard** - Luxurious deck finishing system suitable for helidecks and heavier mechanical loads.

**Bolideck Future Teak** - New synthetic decking system which has a realistic feel and look of real teak.

**Bolideck FiftyFifty** - Decking system that uses the combination of two related colours.

**Bolideck Jewel** - Has a mother-of-pearl colour effect.

**Bolideck Print** - Decking in which printed images (photography) can be seen.

**Bolideck Sensation** - Gives the architect near endless possibilities in floor design.

**Bolideck 700** - High impact and shock resistant decking system.

**Bolideck 700 RF** - Robust and slip resistant and withstands high mechanical loads.

**Bolideck A60** - Fire-insulating lightweight floating floor.

**Bolidt Galleydeck** - As the name suggests specifically designed for the galley.

**Bolidt Helideck** - Most suitable for helicopter landing platforms.

**Bolideck 1580** - Chemical resistant flexible system with specially selected aggregates.

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