



Photo by Arie Jonkman, the Netherlands

Founded by the same owners as Scenic Tours of Australia, Emerald Waterways is a new river cruise line, designed to sail the European waterways. The cruise line officially began operations in April 2014 with the launch of the *Emerald Sky*, to be followed by the *Emerald Star* three weeks later. Until recently, to fulfill their European tour requirements, the owners have chartered additional vessels (from Lüftner among others) under a different company name. The fleet expansions are intended to operate alongside Scenic Tours' existing river cruise products.

While chartering vessels from other river cruise providers, they discovered *Amadeus Silver*, built by Shipyard De Hoop, which they operated for a complete season to their full satisfaction. This positive experience led the owners to De Hoop to design and build the first two luxury 135 metre river cruise vessels (yn 462 and 464) for their newly established company, Emerald Waterways. At the same time, these Australian owners ordered a specially designed 110 metre vessel (yn 463) for their Scenic Tours programme on the river Seine in France.

Emerald Sky (and *Emerald Star*) features 92 cabins and has capacity to host a total of 182 passengers. The vessel is outfitted with

'grand' luxury suites, 'junior' luxury suites and staterooms, all of which are among the largest in the river cruise market. Most of the cabins include a balcony, which can be closed and separated from the living area. This up-market cruise concept will debut a revolutionary multi-functional area at the rear of the ship. During the day, this area is characterised by a luxury pool with a 'health plaza' and/or offers facilities for entertaining small parties for intimate lunches etcetera. By night it will convert to a cinema, with seating for over 30 people, or a dance floor.

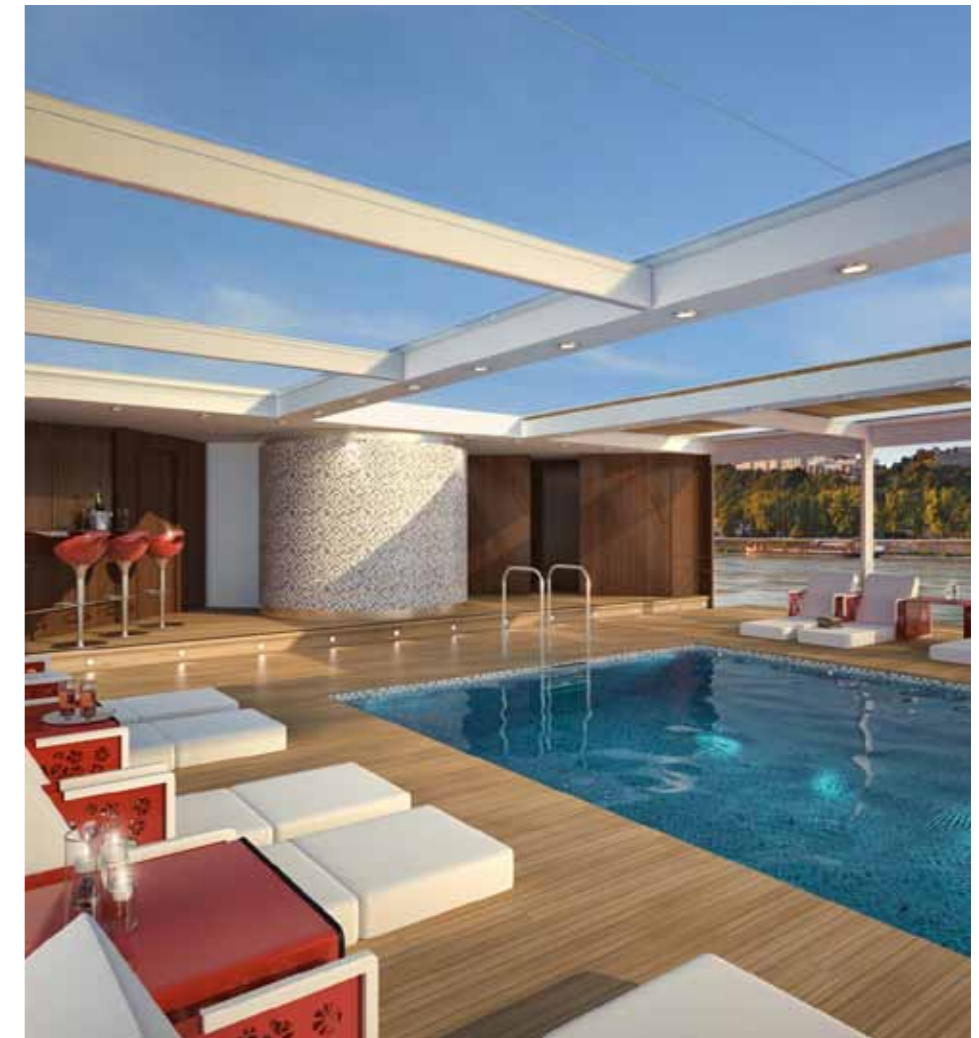
The recent naming ceremony, held in Amsterdam, was performed by British style icon Twiggy. Twiggy, nickname of Lesley Lawson

EMERALD SKY

A SEMI-PRECIOUS GEMSTONE OF RARE BEAUTY

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Builder	Shipyard De Hoop, Lobith, the Netherlands
Owner	Emerald Waterways, Manchester, United Kingdom
Principal particulars	
Length o.a.	135.00 m
Breadth o.a.	11.45 m
Breadth mid.	11.10 m
Depth	3.25 m
Draught, operational	1.45 m
Draught, ballast	2.10 m
Air draught (at T = 2.10 m)	6.00 m
Speed, service	22 km/hr
Passenger accommodation	
Owner's One-bedroom Suites	4 x 2 persons
Grand Balcony Suites	8 x 2 persons
Panorama Balcony Suites	60 x 2 persons
Staterooms	18 x 2 persons
	2 x 1 person
Total of double berth cabins	90
Total of single berth cabins	2
Cabins, suitable for disabled	1
Total passenger capacity	182 persons
Crew accommodation	
Double berth cabins	26 x 2 persons
Single berth cabins	4 x 1 person
Tank capacities	
Fuel oil	105 m ³
Fresh water	230 m ³
Ballast water	900 m ³
Power	
Main propulsion drives	2 x 746 kW
Jet bow thruster	1 x 350 kW
Main generators	2 x 500 kVA
Emergency generator	1 x 156 kVA



* The multi-functional area on aft Horizon deck boasts a heated swimming pool during the day

(born Hornby) was an English model, actress and singer in the mid-1960s. Being the world's first supermodel, Twiggy set the benchmark for those who followed. When describing her, like describing the *Emerald Sky*, words like iconic, trendsetter, chic and stylish spring to mind. This is the reason for the ship's owners asking her to perform the honors. Immediately after the naming ceremony the vessel went into service, cruising the rivers between Amsterdam and the Black Sea for the entire season.

The basic design - a quiet full three-deck lay-out

As stated above, the initial design of *Emerald Sky* was based on *Amadeus Silver*. However,

during the design evolution, this concept was increasingly translated into the Scenic/ Emerald cruise line philosophy and a more customised and unique vessel was thus created, incorporating above interior features.

Unlike the more traditional river cruise vessels, built according to the 2.5 deck lay-out, this 135 metre series, starting with *Amadeus Silver* and now the Emerald series, feature a full three-deck lay-out. This resulted in a considerable increase in interior space and effective floor area. As stated above, the vessel will be used on the rivers Rhine and Danube, from Amsterdam to the Black Sea, restricting the air draught to six metres to allow safe passage under bridges. On

traditional '2.5-deck' designs this was achieved with water ballast, a partially retractable wheelhouse and hinged masts only, as the lower 'half-deck' height of the forward part of the top deck allowed for this. With the '135 metre/three-full-deck' design, the wheelhouse can be fully retracted, whilst the handrails and sun awnings can be completely hinged down, when passing under height restrictions. In ballast condition, with a draught of 2.1 metres, the air draught can be reduced to just six metres. The effect of the three 'full decks' shows in the interior design, where an additional 500 square metres space becomes available below (main) deck, which is primarily used for increasing the sizes of the passenger spaces.



De Hoop slipway facilities, for vessels up to 200 metres length, offering all disciplines to build a complete ship

The requirements for low sound and vibration levels for this type of vessel are very strict. This, combined with the fact that the more luxurious passenger spaces are located above or in the vicinity of the propulsion and engine spaces aft, demanded extra measures. For this reason the aft superstructure above Horizon deck is placed on gas-filled dampers, completely isolated from the hull and the rest of the superstructure. The steel shell around the pool sits on the longitudinal separation bulkhead between the port and starboard side aft engine compartment and forms the separation between the hull's technical spaces and the public passenger spaces above.

State of the art: innovations and techniques

Whilst the vessel looks refreshingly modern on the outside, this is also reflected on the inside and under water. Its propulsion system features recessed and ducted thrusters, which, combined with the refined and optimised hull shape, is very fuel-efficient.

Another novel innovation is the design of the climate control system, using a special means for transporting hot and cold air. This is unique in that the corridors themselves are used as the air ducting at low speed. This has many advantages over more conventional systems, which employ air travelling at high speed through dedicated ducts. Ducts are for example difficult to clean and thus present a potential health hazard by being able to spread bacteria through the ship. The removal of the ducts allows for higher ceilings and less maintenance. Finally high speeds generate noise, which is virtually non-existent in this low-speed system. Innovations like this

"I want to ride my bicycle..."

increase the level of comfort of passengers and crew on board.

Furthermore, state-of-the-art audio systems have been installed in the public areas, whilst entertainment-on-demand, full WiFi and a GPS tracking system are available in the cabins. Evidently iPod/tablet capability is provided for every passenger.

Passenger accommodation

The Emerald fleet of ships will benchmark a sophisticated design, spaciousness and first-class interior fixtures and fittings. Whilst the basic design principles (low fuel consumption and environmentally friendly) are maintained, the business ethos of Emerald Waterways aims at a more mid- to upper-class clientele. The interior styling was developed and designed in close collaboration with the owner's wife.

The four 30 square metre 'Owner's One-bedroom Suites' have a bedroom, which closes off from the rest of the cabin, and a comfortable separate lounge area. The cabins feature full-height panoramic windows, a walk-in wardrobe and a spacious bathroom with separate toilet, double washbasins and shower. The area of these cabins

* The 'Owner's One-bedroom Suites' have a bedroom and a comfortable separate lounge area



is 1.5 times the size of an average comparable level/class cabin of other river cruise lines.

All other suites have a combined bedroom and lounge area. The eight Grand Balcony Suites of 20 square metres on horizon deck, opposite to the Owner's Suites, boast a large wardrobe and comfortable bathroom with a single washbasin, separate toilet and shower.

The Panorama Balcony Suites of 17 square metres can be found on the Horizon deck aft, as well as on the Vista deck. There are 60 of these cabins in total, with the same facilities as the larger Grand Balcony Suites.

All of the suites have accessible seating on private exterior balconies with electrically operated vertically sliding (upper) glass panels, making the balconies attractive in both warm and cooler weather. With the panels raised, thus closed, the balcony is transformed into a conservatory. The balconies are separated from the cabin with a second set of large floor-to-ceiling glass folding doors. The extra space in these cabins, when compared to other cruise lines, is achieved because the cabins stretch deeper into the vessel from the ships side.



* The terrace on forward Horizon deck is shielded against wind by transparent screens and has a sun-awning overhead

The 20 staterooms are on Riviera deck and vary in size: the 18 double berth cabins have an area of 15 square metres and two single berth cabins measure twelve square metres. All staterooms feature fixed windows instead of balconies and the same high quality facilities as all other cabins.

Public spaces

To meet the high standards of the design features and details that evolved from the interior design sessions with the owner's wife, many challenges had to be overcome. The large open spaces of the atrium, the glass stairs, the two enormous tv-screens, the adjustable swimming pool floor, the cinema arrangement and the many folding and sliding doors and glass panels all required quite a lot of in-depth detail engineering. However the result is unique and worth all the efforts.

Emerald Waterways has embraced the trend of an asymmetric entrance and reception area. This feature is unique to the latest Lüftner vessels as well as all Emerald vessels and not found on other inland cruise vessels in general. An enormous paneled mirror wall, the glass stairs and mirrors either side of the deck openings, dominate the three-deck atrium. With a height of almost eight metres, the combination of these reflecting surfaces give the entrance a modern fashionable grandeur.

When then describing the public spaces from top to bottom: the top of the vessel features the sun deck with deck-chairs, a bar, mini-golf putting green, chess board and walking track. One deck lower, the aft Horizon deck is home to a full-width multi-functional space centred around a well-furnished bar. Boasting a heated, six by four metre, swimming pool during the day, in the evening the adjustable swimming pool floor is raised above the pool water level and a cinema annex dancing hall appears. The pool area has a sliding sunroof overhead and conservatory style full-height windows and glass ceilings in the sides.

The forward area of Horizon deck is provided with the Horizon Bar and Lounge, complemented with the spacious terrace on the far end. The inside bar and lounge area is multi-functional and can easily be separated into smaller spaces with integrated partition walls. The lounge area allows for casual dining, featuring a trendy sushi bar. The terrace is shielded against wind by transparent screens and has a sun-awning overhead.

A fitness studio and massage therapy room can be found aft on the Vista deck. Amidships, on this same deck, we find the entrances on port as well as starboard side, where people board the vessel. Furthermore, this part of the vessel is home to the reception area with the tour manager's desk, the main staircase, elevator and souvenir shop. The forward part of this deck is reserved for the Reflections restaurant, accommodating 182 passengers at any time. To port side forward is a bicycle storage with e-bikes to facilitate passengers wishing to explore the various towns they visit by muscle power.

* By night, the multi-functional area on aft Horizon deck will convert to a cinema or a dance floor



"Bright and shiny interior - glass, gloss and mirrors"

On the lowest level, Riviera deck, aft of the crew accommodation are a laundry and linen room over the full-width of the vessel. The remaining aft part of this deck accommodates the 56 crew members with their own dedicated mess/dayroom. Port side of the main staircase is home to a beauty parlour and hairdresser.

Technical spaces and catering facilities

The engine room is located all the way aft and is protected with a gas fire extinguishing system (FM200). Forward of the engine room is a technical space, the bulk of which is occupied by a sewage treatment plant, chiller units and ballast pumps. The laundry and linen store separates the aft technical spaces from the crew accommodation on Riviera deck.

The pumps, accumulators and bottles for the fire fighting and sprinkler system for the accommodation, a traditional low-pressure 'wet' sprinkler system, occupy a technical space just forward of amidships on the starboard side. For provisioning, two shell doors are provided on either side of Vista deck near the bow above the galley. The galley itself is a capacious space with a separate scullery, hot and cold food preparation area and patisserie.

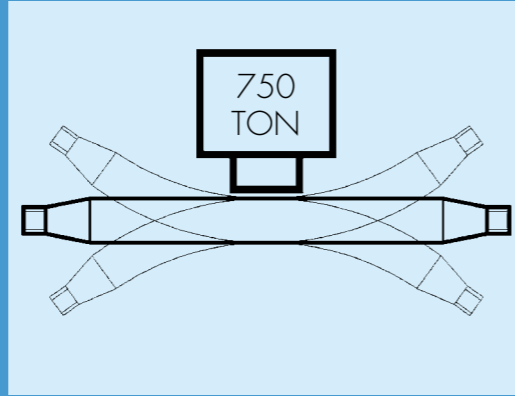
Deck lay-out

A small tender boat for the crew is located on the aft mooring deck (Vista deck) on a cradle. The crane, mounted above, can deploy and recover the tender. Furthermore this aft deck, as well as the fore deck, is outfitted with the regular bollards and mooring/anchor winches. On both sides of the vessel, above the entrances, davits are fitted for lowering and lifting the gangway.



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Fotograaf: Arie Jonkman
 Shipyard De Hoop

We wish the crew and passengers
 of **mps Emerald Sky** a safe voyage

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Propulsion and power systems

The *Emerald Sky* features a hull form designed for maximum efficiency. When complemented with a well thought-out propulsion system, the result is low fuel consumption and reduced exhaust emission levels.

As a result, using the two Caterpillar C32 ACERT main engines, rated at 746 kW, the ship can achieve a service speed of 22 km/h (twelve knots). The engines directly drive two Veth Z-drives with contra-rotating propellers. These main thrusters are recessed, limiting the minimum operational draught to only 1.45 metres and allowing the vessel to cruise most European rivers where the water depths are often critical. The water-cooled exhausts lines leave the ship through the transom by means of Venturi nozzles. This assembly accelerates the exhaust gases to avoid nasty smells and 'smog' on the aft deck, whilst at the same time reducing noise levels.

The bow thruster of 350 kW, a Veth 4K-1200, is shaft-driven by a C18 diesel engine from Caterpillar. This thruster is a jet-type, utilising four outlet ports, arranged two fore and aft, and two thwardships in a cruciform arrangement allowing for 360° of thrust at a minimum immersion. This Veth system can be used for steering and emergency brake or propulsion purposes, which is a fundamental requirement in the areas where the vessel operates. Furthermore, in being shaft driven, this arrangement allows for the installation of a shaft generator capable of providing 450 kVA. In the aft engine room we find two more Caterpillar C18 generator sets, each providing 500 kVA. The presence of the shaft generator at the forward end of the vessel allows for a complete shutdown of the aft engine room during the night, when moored along a quayside, guaranteeing even less engine noise with lower exhaust emission. The emergency



Photo by Arie Jonkman, the Netherlands

diesel generator, a 156 kVA C6.6 from Caterpillar, is also housed in the bow thruster room.

Conclusion

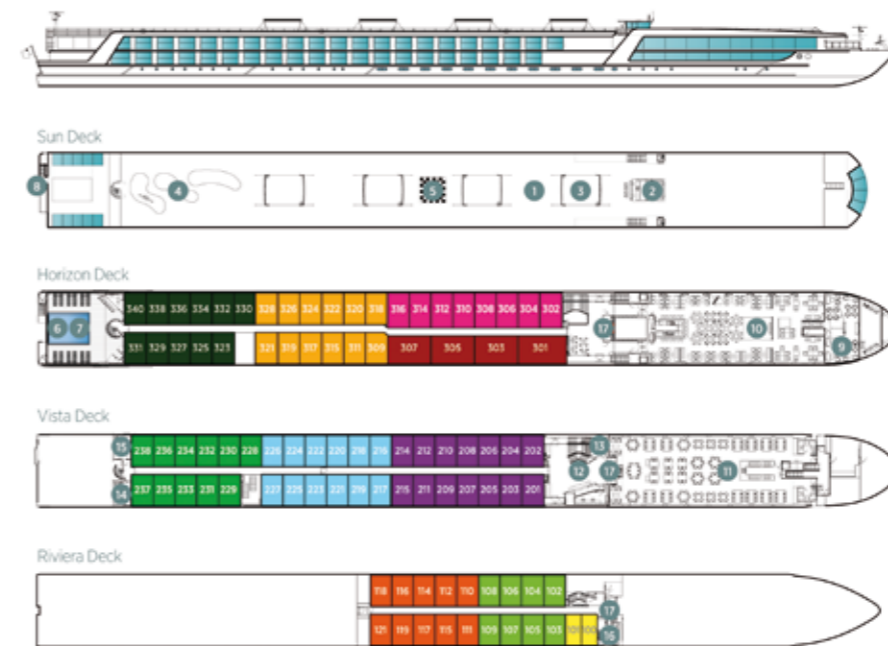
Emerald Sky and *Emerald Star* are another addition to the already impressive track record of Shipyard De Hoop. With these ships Shipyard De Hoop has set a new standard for quality and innovation. It does not stop here though and neither restricts De Hoop to only building river cruise vessels. For the next three years the order book of both De Hoop facilities is filled with the new building of 24 vessels of various types. This must be a positive signal to the Dutch maritime industry.

Tom Oomkens

* Renders by Art-Line Interior Design

Subcontractors and suppliers of equipment fitted on board the Emerald Sky & Emerald Star - YN 462 & 464

- Alphatron Marine, Rotterdam : JMA river radar; MF line control panels
- Axces, Tholen : silencers
- Beerens, Werkendam : masts
- Bruynzeel, Zaandam : acoustic louvers
- Deba Marine, Tolkamer : MOB boat
- Dijvler, Hardinxveld-Giessendam : anchor winch
- Distrimex Pompen & Service, Doetinchem : boosterset and pumps
- Droste Elektro, Tolkamer : electrical installation
- Duijvelaar Pompen, Alphen aan de Rijn : booster; hydrofoorset
- Econosto Nederland, Rotterdam : valves
- ECC, Ede : preservation
- Evva, Bad Fischau, Austria : doors and mortise
- Flowgrill, Zevenaar : grids and panels
- Grunbach, Baarn : elevator
- Gevier Dales, Doetinchem : sanitary
- Hatenboer, Schiedam : freshwater hydrophore and treatment equipment
- Heuff Zwambaden & Wellness, Didam : swimming pool
- Intech Marine Netherlands, Rotterdam : HVAC; sprinkler system
- Iskali Bedrijfskoeling, Ede : cooling stores
- Inducon, Beilen : movable floor
- Kieboom-Werkendam, Werkendam : helmsman's seat
- Kramp Nederland, Varsveld : hydraulic powerpacks
- Liemers Brandbeveiliging, Lobith : safety equipment
- Laser Tech Holland, Werkendam : safety signs / safety plans
- MarteQ, Rotterdam : gangway
- Martin Systems, Warin, Germany : advance waste water treatment system
- Metos, Amsterdam/Ruurlo : galley equipment
- Miele Nederland, Vianen : washing machine and dryer
- Minimax, Rotterdam : FM200 fire extinguisher system
- Nicoverken, Schiedam : fittings
- NRF Nederland, Mill : coolers
- Nelfen Deurtechniek, Van, Oosterhout : automatic revolving door
- Pon Power, Papendrecht : Caterpillar main engine
- Polson, Alblasdendam : rubber fenders
- PPG Marine & Protective Coating, Uithoorn : coatings
- Raab Karcher, Tiel : pool tiles
- Reikon, Spijkenisse : Azcue pumps and Ueberall UV sterilizer
- Rubber Design, Heerjansdam : flexible suspensions
- Rijk De, Magazijnrichtingen, Bleiswijk : shelving
- Sunshine, Stadllohn, Germany : sliding roof
- Sun, Bemmel : stainless steel railing and fences
- Theunissen Technical Trading, Malden : Vingtor communication system
- Trinox, Hardinxveld-Giessendam : interior doors; modular bulkheads; Solvolan floors
- Wijk Werkendam, Van, Werkendam : davit for MOB/rescueboat
- Verbaten Marcel, Didam : glasmazaiek
- VDI Isolatie, Ridderkerk : insulation
- Veth Propulsion, Papendrecht : Veth Jet bow thrusters; Veth Z contra-rotating drives
- Verhagen IT, Lobith : satcom and internet management
- Visser, Duiven : mirrors, glass and glass sliding doors
- Wessels, Haren, Germany : wheelhouse interior
- Weingarten, Herschbach, Germany : grass carpet
- Wetcab, Gdansk, Poland : sanitary units/cabins
- Wijmoco, Huissen : sliding doors
- Wimel, Assen : Eagle watertight sliding doors
- Wortelboer, Rotterdam : anchor; chains and steel wire



For "Emerald Sky & Emerald Star" we delivered all engine room pumps.



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