



### AN EXCEPTIONAL PROJECT

At the end of 2014, while the number one river cruise company in Europe decides to initiate an extensive phase of fleet renewal and market development, a key meeting between Patrick Schmitter of Croisieurope and Thibaut Tincelin of the design agency SDI creates an enduring relationship between the two companies.

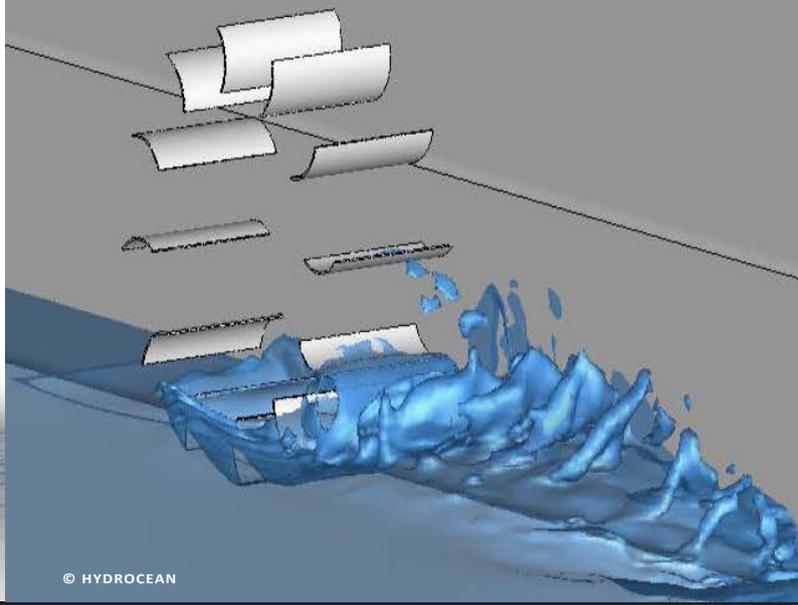
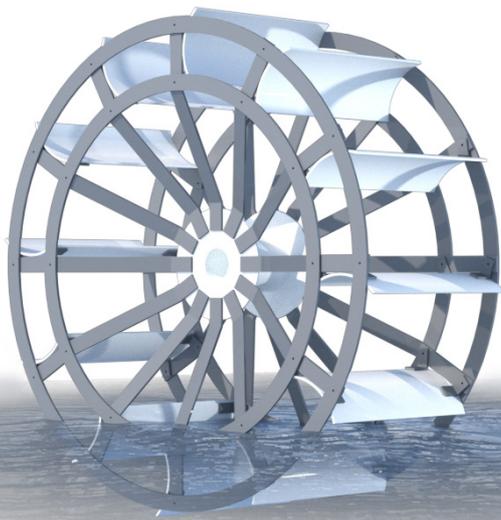
From the initial considerations for the future vessel, the MS Loire Princesse, initiated between the owner and Neopolia, the association of companies of the Pays de la Loire, the specifications of the ship was established: design and build, in just over a year, a ship with fifty cabins capable of navigating the Loire, the last wild river in Europe, up to the last passable limit just downstream of Angers, powered by reliable, efficient

Naval Architecture, Marine Engineering,  
Exterior Styling by Stirling Design,  
Ship ST & Arco Marine

Shipyard :	Mécasoud
Length overall :	88,80 m
Waterline length :	83,60 m
Overall breath :	15,30 m
Moulded breath :	10,80 m
Design draft :	0,80 m
Maximum air draft :	7,75 m
Minimum air draft :	5,30 m
Design Speed :	15 km/h
Propulsive Power :	2 X 500 Ch
Passenger capacity :	96



Le Rapide - Operated by the compagnie de navigation de la Basse-Loire in 1884 - 1888 between Nantes and St Nazaire



and historic means: The paddle wheel.

Based on these specifications, the SDI designers and engineers established within two weeks, the outline of a slender vessel, entirely encircled by balconies offering passengers a unique view of the river, and framing two side wheels. Patrick Schmitter CEO of Croisieurope is seduced by the reactivity and brilliance of this proposal. This project, with thoughtful reflection in advance by the management of Croisieurope, thus becomes an architectural, technical and industrial challenge for the companies of the Neopolia network who are entrusted with the design and construction of the vessel :

How to design and build a ship of nearly 90 meters long while limiting its draft to a maximum of 80 cm?

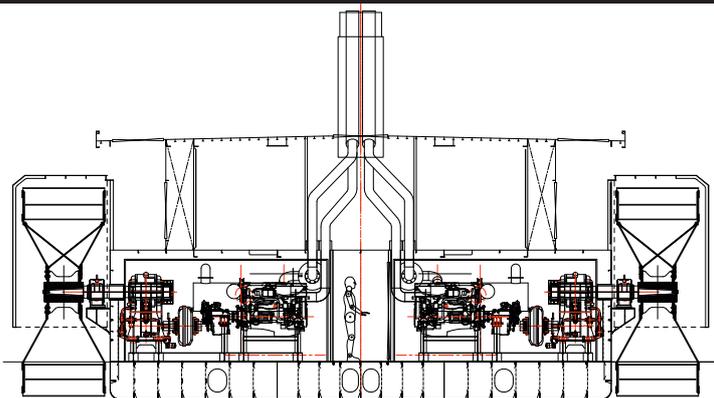
The propulsion system, the vessel's structure and the location of the public spaces are completely redesigned to offer passengers of the future vessel the same level of comfort as a traditional riverboat, in particular by providing special attention to sound insulation between passenger areas and the 4 engine rooms of the vessel.

The choice of aluminum instead of steel for the superstructure of the ship, the paddle wheels, passenger's balconies, ceiling beams, allows essential reduction in weight to ensure widest range of navigation possible up to Angers, even during low

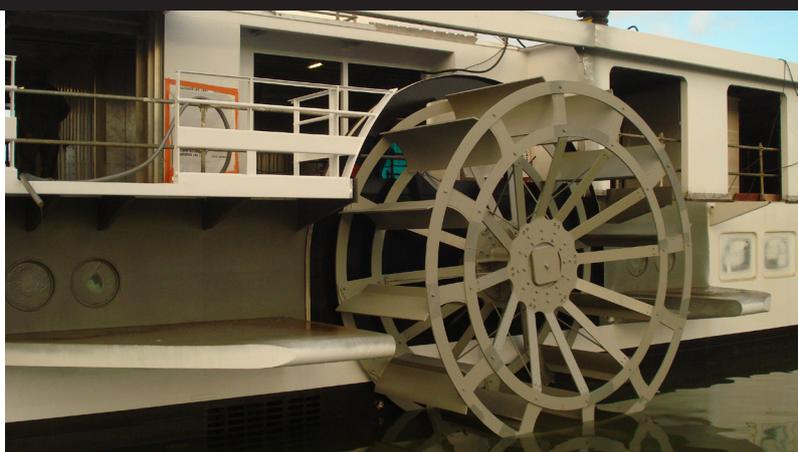
water periods on the Loire in the summer. Similarly the use of electrical power for heating and for maneuvering gear, and the use of anchor cables rather than chains are examples of the many choices which has permitted, gram by gram, to reduce the draft by about 40 centimeters compared with similar existing ships.

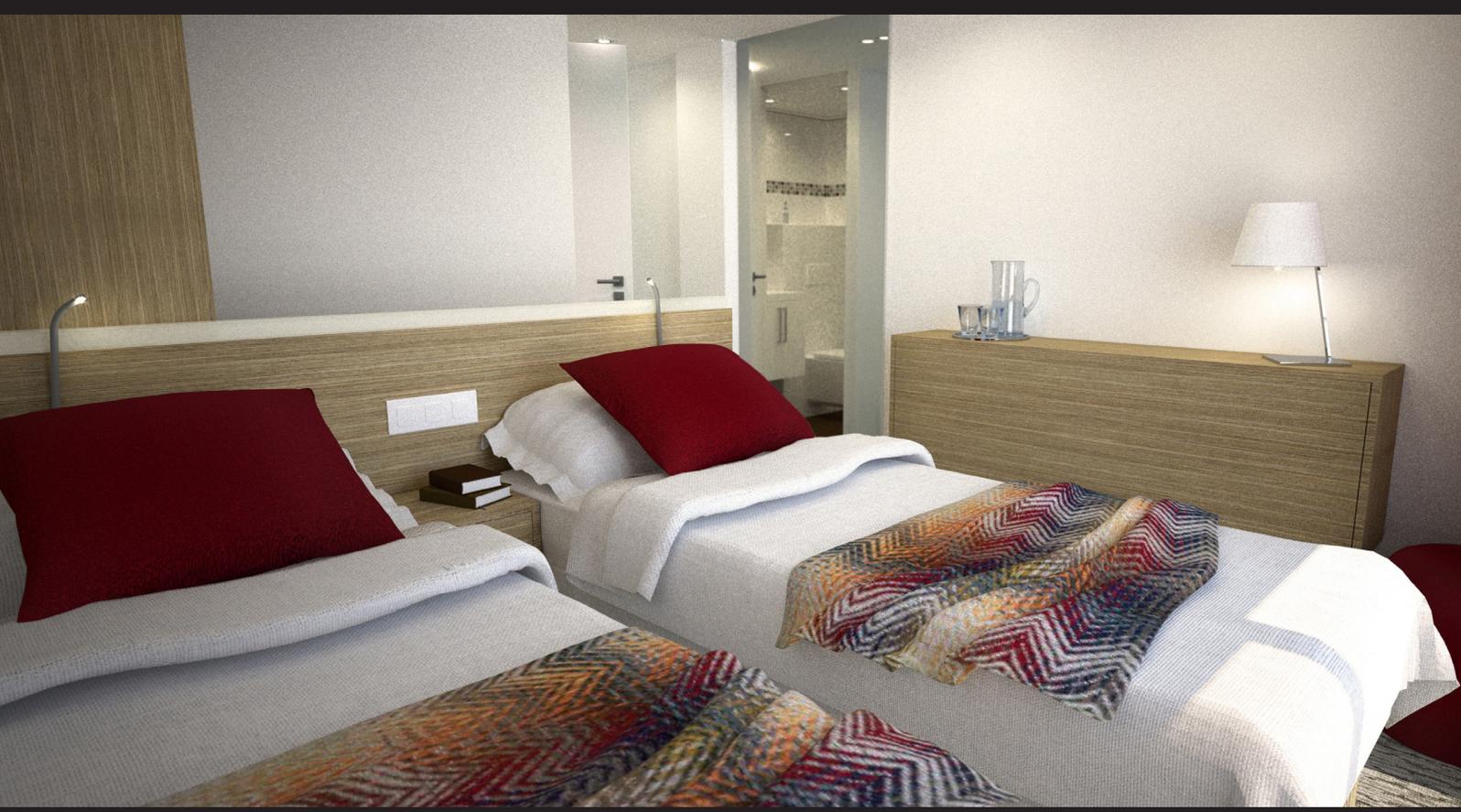
This reduction in draft was not possible without completely rethinking the propulsion system. If more performant propellers have gradually dethroned the paddle wheels since their invention in the nineteenth century, their use in shallow draft is problematic due to the limitation of their diameter, their fragility in case of impact, and risk of ventilation (air turbulence created by the propeller in shallow water). The paddle wheel thus represents the most attractive alternative for the propulsion of such a vessel. The pump jets installed in the front and rear of the ship are intended to assist the main propulsion of the paddle wheel during the maneuvering phase. Their low efficiency making them unsuitable for use as main propulsion.

Equipped with three different ways to maneuver: the paddle wheels, the pump jets and the rudders, the ship can safely navigate the narrow channel that moves upriver from Nantes to Bouchemaine.



Main engine room - Cross section





These technical aspects should not mask the special attention that was given to the exterior and interior design of the ship. The integration of technical, regulatory, and functional elements has been treated from the beginning of the project to provide strength and simplicity to: the passenger balconies, the paddle wheel, as well as the folding exhaust stack, the deck shelter, the deck railing etc... The traditional colors of CroisiEurope ships were revisited in order to advance the process of modernization begun with these new vessels. In record time, SDI achieved all ship design studies with the essential help of structural design offices ShipST (Lorient) and Arco Marine (Saint Nazaire), and the hydrodynamic study by HydrOcean (Nantes). In March 2015, three months after the start of the design studies, construction began in the workshops Mécasoud in Saint Nazaire.

#### **A CAREFULLY PLANNED INTERIOR**

The interior architecture was designed by Danièle Schmitter and Marine Giorgetti of CroisiEurope working closely with SDI. The passenger cabins are arranged with the beds facing the bay windows, offering views of the river.

This type of arrangement is inspired by high-end hotels, and will not leave the passengers indifferent. The ceiling mounted retractable TV screens, and the desks built into the headboards complement the innovations offered to the passengers.

The detailed 3D designs of the cabins and public areas allowed the careful design of passenger spaces, ergonomics, the choice of materials and colors.





## AGENCY SDI

Founded by designer Joel Brétécher in 1976, the Nantes based naval design firm became known for the unique design of the Ponant cruise ships designed by this former Pininfarina designer: the sailing vessel “Le Ponant” with unrivaled performance, the futuristic “Levant”, and the last four ships for the company, “Austral”, “Boréal”, the “Soléal” and finally the “Lyrial”, the latest in the series that will be inaugurated in April 2015 in Italy.

Taken over in 2006 by Thibaut Tincelin, this graduate of the French Polytechnique University and former naval architect with STX shipyards in Saint Nazaire, the design agency was reinforced to create a team of 8 people with diverse and valuable skills and profiles. In equal parts design agency and naval architectural office, SDI applies to passenger ships that which has for a longtime been successfully applied to the automotive world, the world of pleasure craft, the world of architecture: a close relationship between aesthetic design and technical engineering that ensures the conclusion of the project: the well-being of the passenger, the voyager, or the resident.

With strong links between actors in the industrial network Neopolia, SDI was able to diversify into the rail sector, participating in the ambitious renovation of the Corail and TGV trains for the SNCF.

Innovation, research and development, achieved through projects such as the MS Princess Loire is the reason to live for an agency like ours. We participate actively in two research projects with STX Shipyards of France in St Nazaire. These two collaborative projects consist firstly in the development of new cruise ship structure and architectures (Project NCT2) and the other, the development of efficient sailing cruise ships (Project SILENSEAS).



## A PROMISING FUTURE

MS Loire Princesse, the first born of a family of river cruise ships built in Saint Nazaire for Croisieurope, benefits from the many skills and naval resources found in the Nantes / Saint-Nazaire Basin. Continuing this development, the Elbe Princesse for Croisieurope, designed by SDI and intended for navigation on the Elbe between Berlin and Prague, is being assembled at Mécasoud. A third vessel, the RV Apsara, for the Mekong River Company, a subsidiary of Croisieurope, is on the drawing boards, mixing traditional and modern lines, so as to be able to request tenders from Vietnamese shipyards in the coming months and strengthen the fleet of four ships already in operation between Saigon and Siem Rep (Cambodia).

## SDI INVOLVED WITH THE MS LOIRE PRINCESSE

Thibaut Tincelin - Naval Architecture, Engineering, and propulsion  
Pierre-Yves Guilbaut - 3D design of the ship and propulsion  
Matthias Berthe - Naval Architecture  
Julien Anglade - Exterior Design  
Thierry Favreau - exterior design and interior architecture  
Camille Le Bigot - Interior Design & Renderings



**Thibaut Tincelin**  
Managing director

## STIRLING DESIGN INTERNATIONAL

Tel: +33 (0) 2 40 95 79 45  
Fax: +33 (0) 2 40 95 79 46  
Email : [tincelin@stirlingdesign.fr](mailto:tincelin@stirlingdesign.fr)  
Site Web : [www.stirlingdesign.fr](http://www.stirlingdesign.fr)