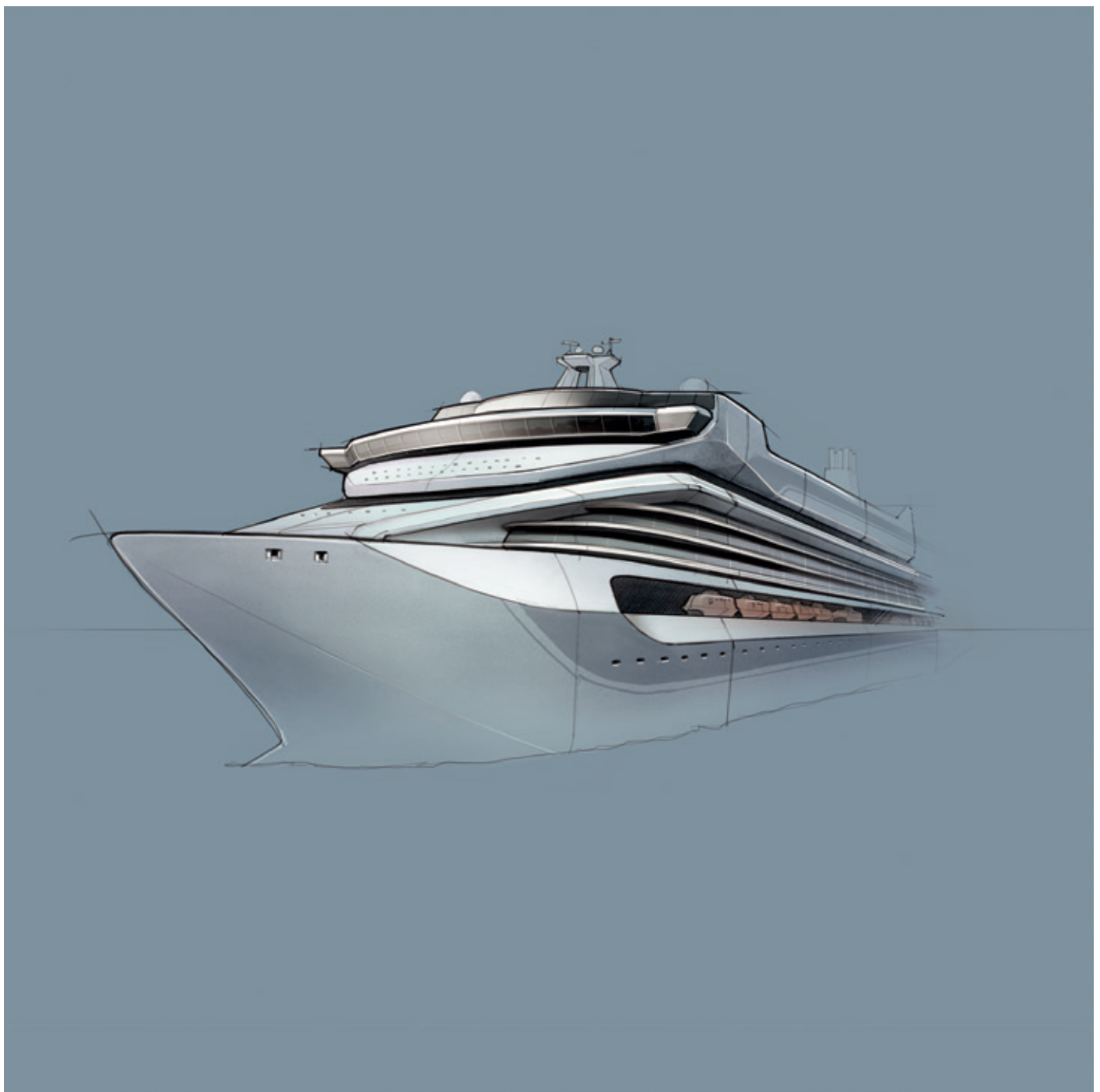




## Enlightened aluminium solutions for Marine



# Meet a global leader

Hydro's dedicated marine team is specialized in developing profiles to create innovative solutions for the marine industry.

We provide you with non-corrosive value-added extrusions and turnkey solutions for low maintenance and lightweight design, that help you to meet and exceed the challenges of harsh environments.

Aluminium extrusions offer the potential to achieve designs that are durable, high in strength and light in weight. Further more Aluminium is non-combustible.

It has better fire protection capabilities than carbon fiber, which has flammable resins in it.

At Hydro we share our extensive knowledge of aluminium extrusion technology, Friction Stir Welding (FSW) and other techniques with the marine industry to achieve weight and production savings which improve performance, enhance quality and increase cost efficiency.

Our experienced engineers and industry-trained specialists will be delighted to discuss your needs and applications for your projects - nevertheless if it is machined, pre-assembled or finished components you are looking for.

We explain the wider benefits of using aluminium extruded solutions and provide you with design and engineering support.



Extruded Solutions locations

The future is made of aluminium – that's what we believe in at Hydro and that's why we invest all our vigor and commitment to create innovative solutions that make a difference to our customers.

Hydro is a fully integrated aluminium company with 35,000 employees in 40 countries on all continents, combining local expertise, worldwide reach and unmatched capabilities in R&D.

In addition to production of primary aluminium, extruded and rolled products and recycling, Hydro also extracts bauxite, refines alumina and generates energy to be the only 360° company of the global aluminium industry.

# We add value to your marine constructions



## **Extruded Aluminium – the lightweight material with many benefits**

As well as offering a lightweight alternative to steel, aluminium is durable, strong and highly corrosion resistant. It's also very versatile, adapts easily into any design, and offers a smooth surface finish.

In areas where special fire classes, such as A60 are required, Hydro applies protective materials, including mineral wool or ceramic fibers.

We assess each project to provide the most appropriate solution to specific needs – and even with additional insulation, the weight saving of the aluminium solution is easily in the range of 30% to 50% compared to steel.

## **Low maintenance aluminium: perfect for the marine environment**

Hydro develops aluminium solutions specifically to meet the challenges of marine construction.

We work with clients to create and supply machined, preassembled and finished components to their precise requirements, using our extrusion technology and proven welding techniques.

Significantly lighter than steel, but without sacrificing strength,

aluminium can also improve structural quality and efficiency of a vessel. It can cope with heavy loads and hostile environments, and the unique qualities of extruded component design provide exceptionally high torsion resistance.

## **Designed to protect, and keep protecting**

Aluminium forms a natural oxide layer that protects the material from corrosion, and can be further enhanced by adding surface treatment.

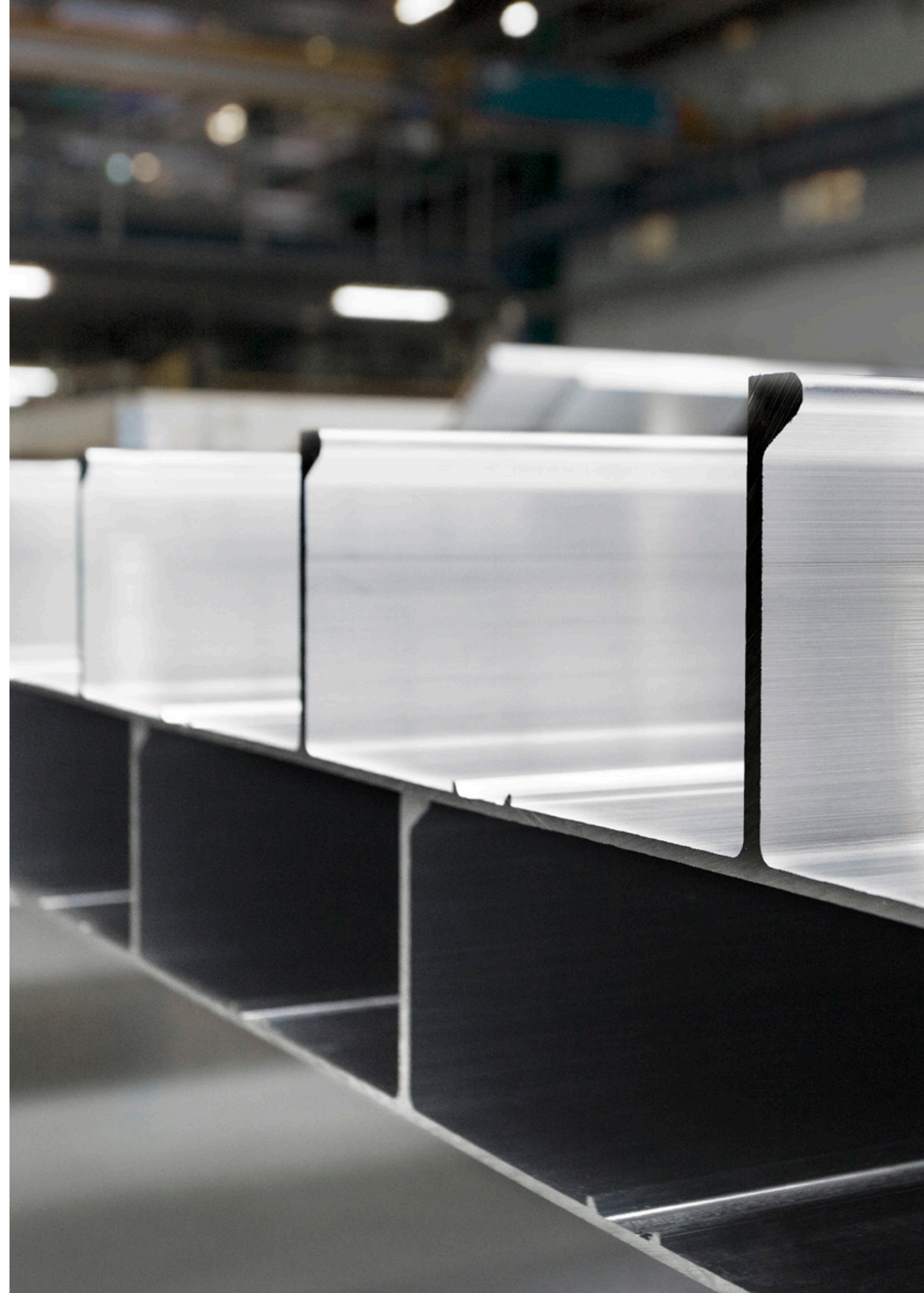
To meet the specific demands of the harsh environment Hydro is continuously enhancing its portfolio of marine alloys.

## **Friction Stir Welding (FSW) for deck panels & components**

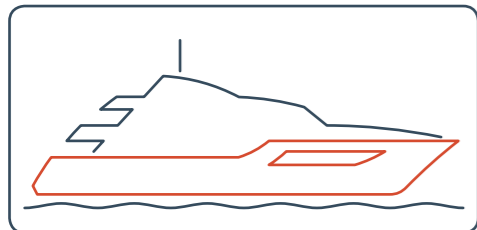
We friction stir weld (FSW) and machine some of the longest and widest aluminium panels in the world, and join them into larger panels, without sacrificing strength, yet maintaining superior tolerances. FSW joins flush metal surfaces through the effects of a rotary tool, pressure and a temperature far below the 660°C needed for MIG welding.

No filling is needed, and FSW provides better properties and less heat deformation than other forms of welding.

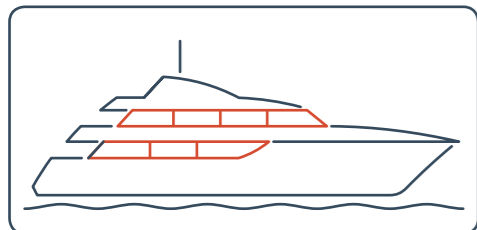
**With us, aluminium is the lighter, brighter alternative.**



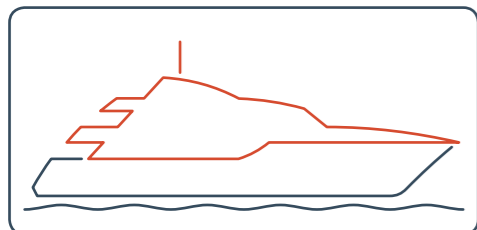
# More than just an aluminium profile ...



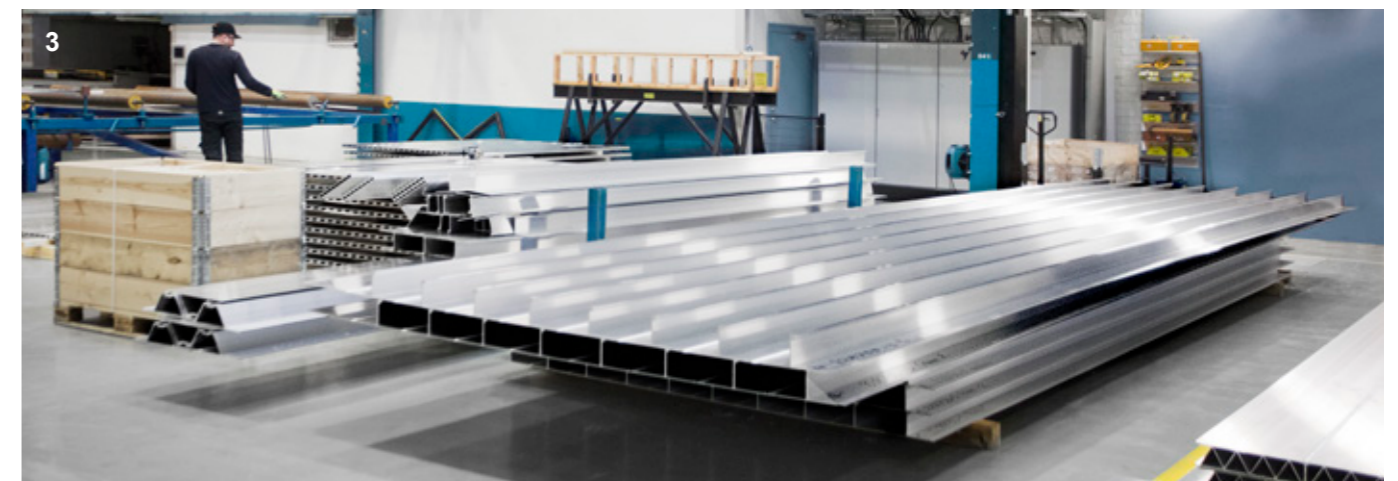
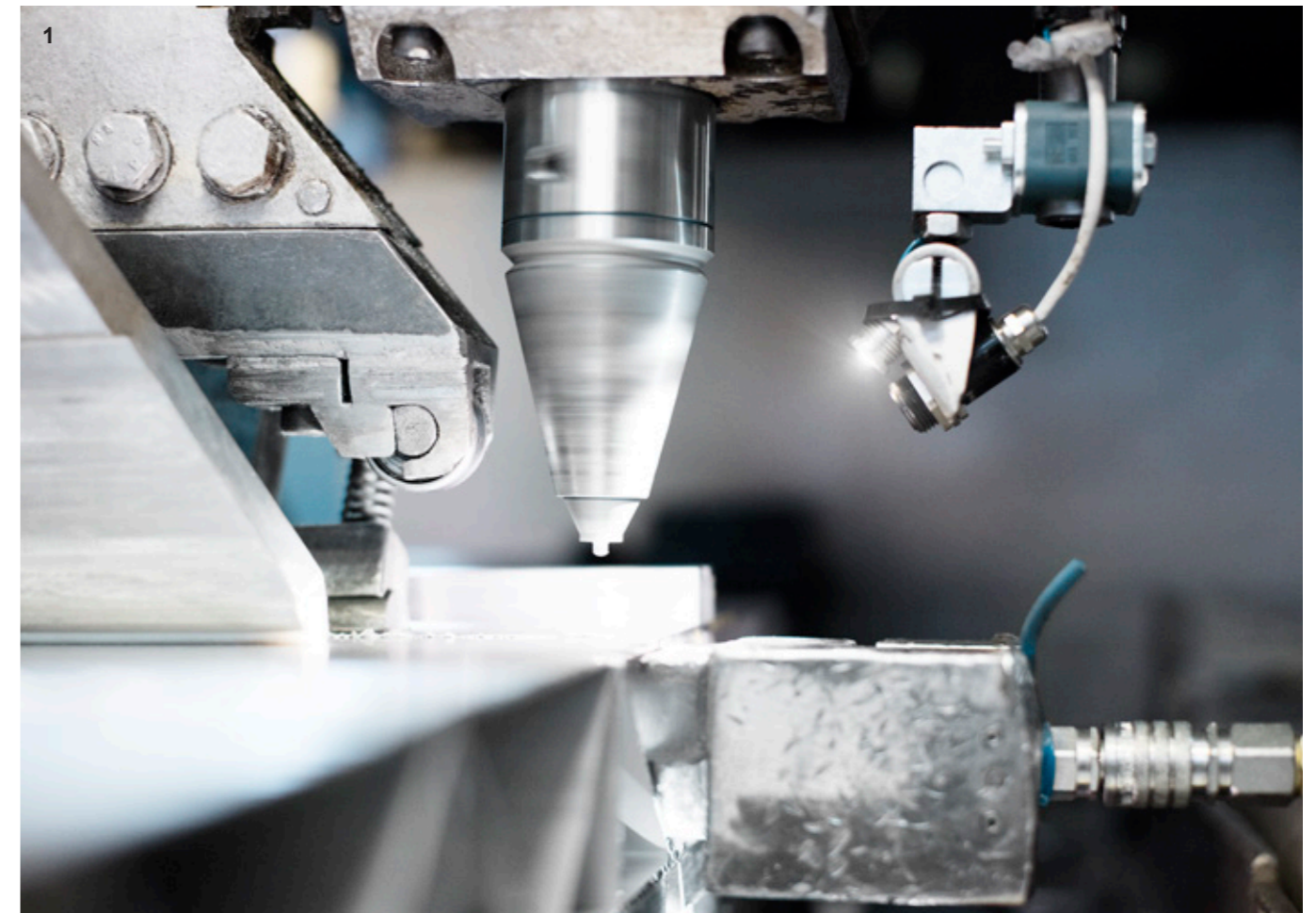
**1 Hull**  
Large friction stir welded hull panels reduce cost, weight and project time



**2 Decks**  
Fully completed deck panels are ready for installation upon delivery



**3 Superstructures**  
Our joint design development programs help satisfy any product requirement





*We are aluminium*

Get in touch with us for more information  
or a detailed offer.  
Please find your contact at

[hydroextrusions.com/marine](http://hydroextrusions.com/marine)

[shapesbyhydro.com](http://shapesbyhydro.com)



[twitter.com/NorskHydroASA](https://twitter.com/NorskHydroASA)



[facebook.com/norskhydroasa/](https://facebook.com/norskhydroasa/)



[linkedin.com/company/norsk-hydro](https://linkedin.com/company/norsk-hydro)

Hydro is a fully integrated aluminium company with 35,000 employees in 40 countries on all continents, combining local expertise, worldwide reach and unmatched capabilities in R&D. In addition to production of primary aluminium, rolled and extruded products and recycling, Hydro also extracts bauxite, refines alumina and generates energy to be the only 360° company of the global aluminium industry. Hydro is present within all market segments for aluminium, with sales and trading activities throughout the value chain serving more than 30,000 customers. Based in Norway and rooted in more than a century of experience in renewable energy, technology and innovation, Hydro is committed to strengthening the viability of its customers and communities, shaping a sustainable future through innovative aluminium solutions.