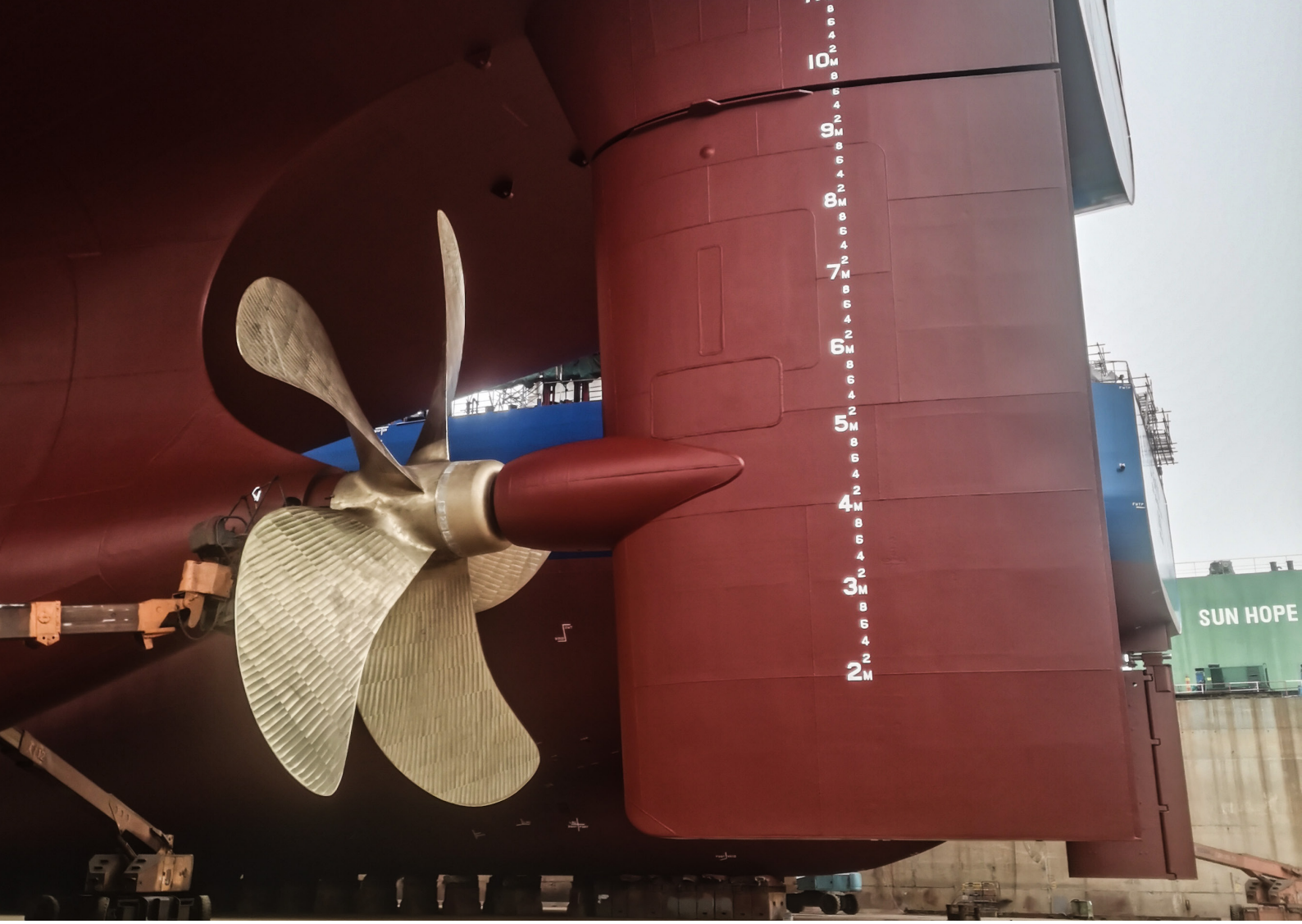
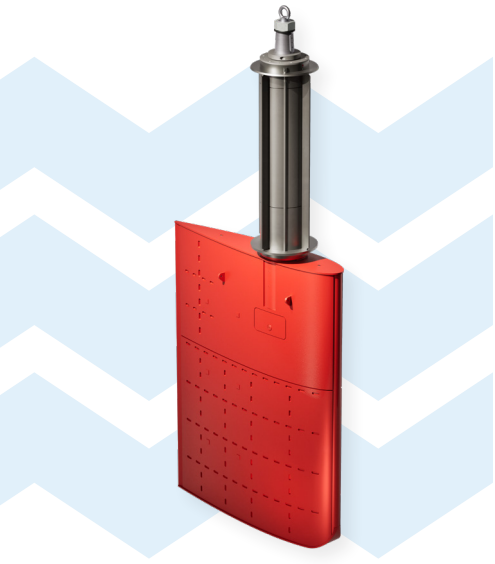


Seagoing rudder systems

INNOVATION TO NAVIGATE YOUR VESSEL

DAMEN
MARINE COMPONENTS





Atlantic Rudder

The absence of moving parts significantly increases a rudder's lifespan. This Atlantic rudder is known for its low drag and low vibrations.

The slim profile of this full spade rudder ensures minimal resistance, especially for high-speed vessels. This rudder type is frequently designed and produced together with our energy saving devices, such as the Silent Bulb and Asymmetric Rudder Technology (ART™). To create a high-efficiency rudder.

DMC's rudder systems comply with all classification societies. Each rudder profile can be custom-built to match specific vessel requirements.

KEY FEATURES

- Minimal resistance
- Excellent course-keeping
- Custom-built to fit vessel hull
- Optimal performance on straight-ahead journeys

ESPECIALLY SUITED FOR

- Container vessels
- General cargo vessels
- Navy vessels: patrol, frigates, corvettes

OPTIONAL FEATURES

- Silent Bulb
- Rudder trunk extension into rudder blade
- Asymmetric Rudder Technology (ART™)

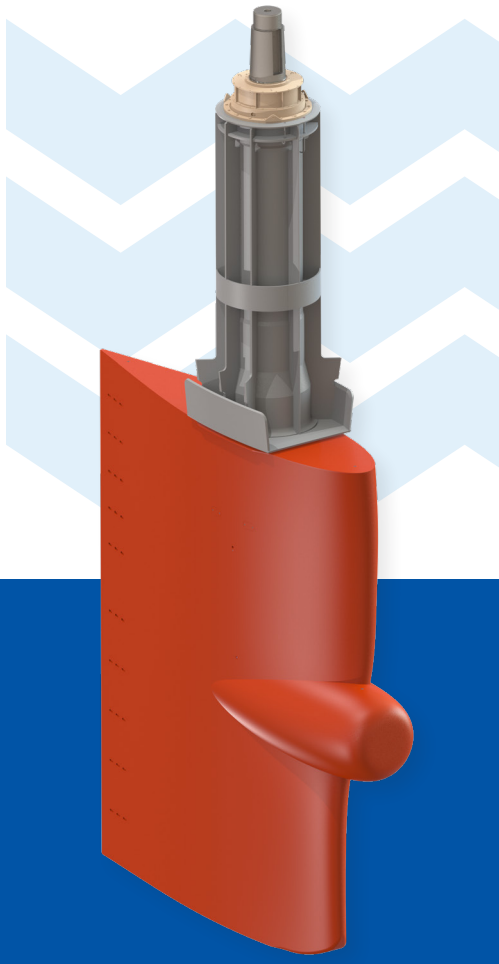
Asymmetric Rudder Technology (ART™)

ART™ offers high propulsive efficiency and fuel savings by twisting the leading and trailing edges of the rudder. It achieves this by allowing a shock-free inflow of the propeller wake onto the rudder. The result is improved recovery of rotational energy from the swirl in the propeller wake, which would be simply lost otherwise.

The profile above and below the centreline of the propeller is specifically modified to counter the rotation effects of the propeller slipstream.

ART™ technology is available in a Z- or S-shape. It is frequently combined with DMC's Atlantic Rudders, Barke® Flap Rudders, or Timon Flap Rudders.

ART™ technology and the Rudder Bulb transform a standard rudder into a High Efficiency Rudder, enhancing hydrodynamics and performance.



KEY FEATURES

- Smoothening water inflow
- Reduces cavitation and resistance
- Increases rudder efficiency (approx. 3.5% compared to a conventional rudder, up to 8% as retrofit)

SUITED FOR

- Every seagoing vessel and can be combined with Atlantic Rudders, Barke® Flap Rudders, or Timon Flap Rudders

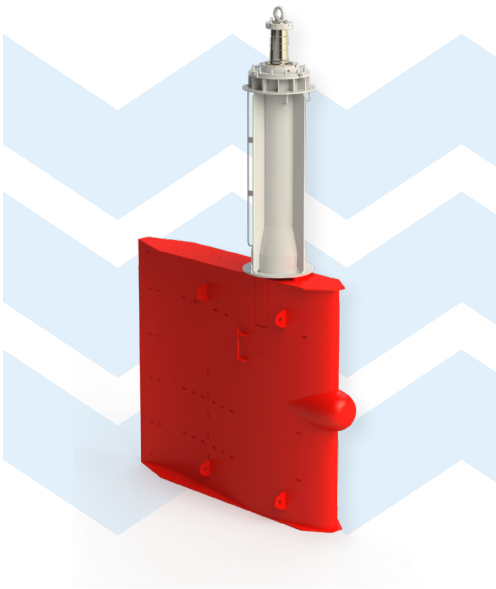
Master Fishtail Rudder

The Master Fishtail Rudder has a specially designed fishtail profile. This rudder is a great option for vessels operating in shallow waters. With rudder angles up to 65º, it allows for a high lift.

The design of this fishtail rudder can be optimised to suit a wide range of vessels.

The rudder is best suited for vessels (inland or seagoing) of all sizes that travel short distances and require high manoeuvrability.

The Master Fishtail Rudder offers very good manoeuvring performance, and is often combined with a rudder bulb.



KEY FEATURES

- High lift rudder
- Rudder angles up to 65°
- Reliable robust design
- Designed without movable parts

ESPECIALLY SUITED FOR

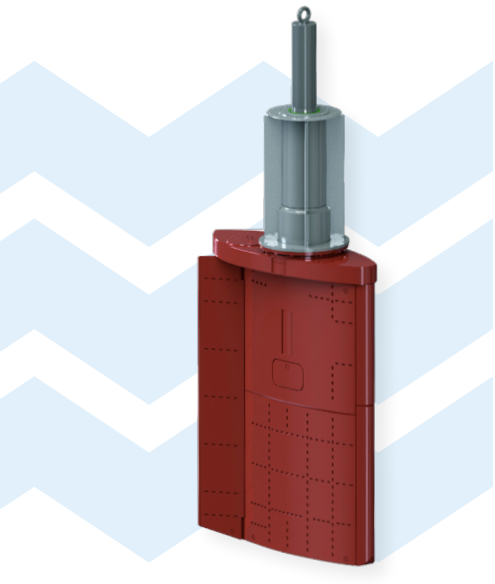
- Tugs
- Dredgers
- Pushers / ATBs
- Fishing vessels
- Short sea multi-purpose vessels
- Offshore vessels (AHTS, OSV and PSV)

OPTIONAL FEATURES

- Silent Bulb

Flap rudders





Barke® Flap Rudder

The Barke® flap rudder is the solution for any vessel requiring high manoeuvrability combined with proven fuel savings. With its rotating flap, the rudder generates high lift forces at large angles and low drag at small rudder angles.

The flap mechanism of the Barke® flap rudder is protected in a closed linkage system. This guarantees high durability and eliminates the risk of ingress of sand, ice, and floating objects. The design of the linkage system reduces vibration and noise.

To achieve maximum safety, the Barke® flap rudder has an overload protection, which prevents mechanical damages and inoperability. This reliable rudder system performs best during challenging manoeuvring situations.

Next to the Silent Bulb and ART™ feature, heel bearing support is also an optional feature.

KEY FEATURES

- 45º rudder + 55º flap = total 100º angle
- High lift & low drag
- Closed linkage system

ESPECIALLY SUITED FOR

- Tugs / ATBs
- ConRo and RoRo vessels
- Dredgers and fishing vessels
- Oceanographic and research vessels
- Ferries, yachts and passenger vessels

OPTIONAL FEATURES

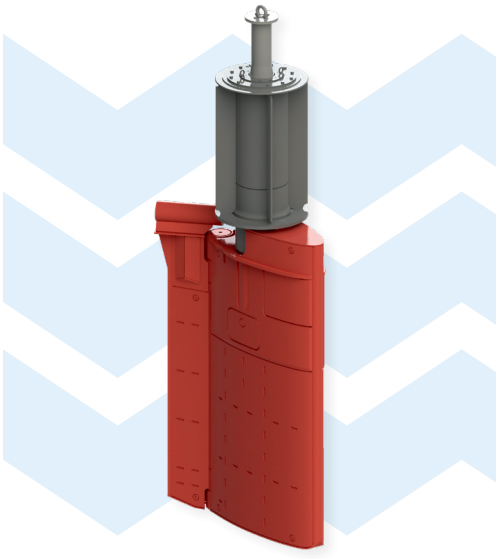
- Silent Bulb
- Asymmetric Rudder Technology (ART™)
- Heel bearing support

Timon Flap Rudder

The Timon rudder is known for its excellent manoeuvring and course-keeping performance. This rudder has an open flap linkage mechanism and side bar flap system with a 90-degree angle. It is available in a wide range of sizes, making it the ideal rudder for larger vessels, such as offshore and container vessels.

The Timon flap rudder has two optional features. The first one is a heel bearing support, often used on fishing vessels.

The second one is a possible rudder trunk extension. By extending the trunk into the rudder blade, the lower neck bearing is positioned closer to the force's centre, allowing for the construction of larger rudders. This feature effectively mitigates stresses resulting from bending in the rudder trunk and stock while reducing reaction forces in the neck and carrier bearing.



KEY FEATURES

- 90° flap angle
- Wide range of sizes
- Open linkage system
- Low noise and vibration levels

ESPECIALLY SUITED FOR

- Offshore DP vessels
- Fishery
- Ferries
- Offshore
- Ro-Ro
- Container vessels

OPTIONAL FEATURES

- Silent Bulb
- Asymmetric Rudder Technology (ART™)
- Rudder trunk extension into rudder blade
- Heel bearing support

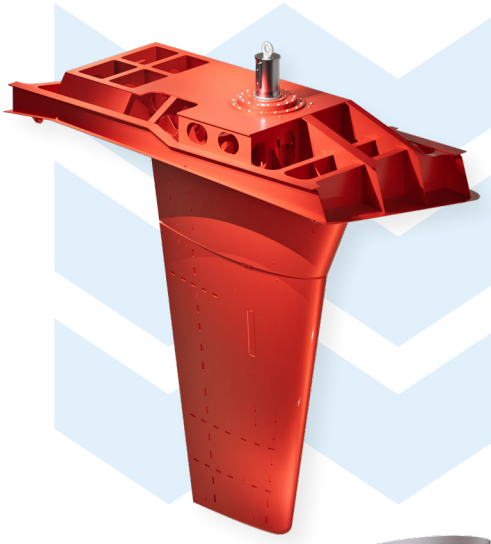


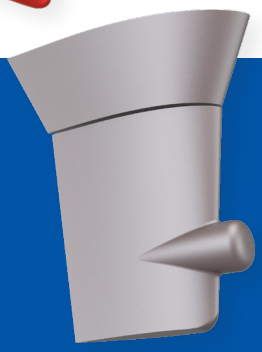
Custom-built rudders for naval vessels

At DMC performance is engineered into every custom-built rudder we deliver for naval vessels. Our in-house hydrodynamic expertise, advanced simulation capabilities and extensive production know-how enable us to develop highly optimised rudder systems tailored precisely to each hull form and operational profile.

From logistic support ships to specialised anti-submarine warfare platforms, our rudders are designed to maximise manoeuvrability, directional stability and propulsion efficiency under the most demanding conditions. We combine asymmetric profiles, integrated energy saving devices and shock-resistant constructions to meet the highest naval standards.

Working in close partnership with shipyards and defence authorities, DMC ensures that every rudder solution delivers measurable gains in efficiency, reliability and acoustic performance.





SHOCK PROOF RUDDER

- Designed to withstand exteme shocks
- Asymmetric leading edge (ART™) to counter the rotation effects of the propeller slipstream
- Best suited for combat ships to survive load impact

ATLANTIC RUDDER

- Minimal resistance
- Custom-built to fit each vessel design
- Best suited for high-speed vessels



Custom-built rudders for yachts

Every superyacht deserves steering systems that match its elegance, performance, and precision. At DMC, our custom-built rudders are meticulously engineered for each yacht's unique design, ensuring flawless handling and responsiveness.

From sleek luxury sailing yachts to award winning megayachts, our bespoke rudders combine superior hydrodynamics with reliable, smooth steering. Each component is crafted to meet the exacting standards of the yacht industry, enhancing manoeuvrability, comfort, and safety at sea. With decades of experience supplying prestigious yachts worldwide, we ensure that your yacht not only performs impeccably but also delivers the ultimate experience on every voyage.

KEY FEATURES

- Minimal resistance
- Excellent course-keeping
- Low drag and low vibrations
- Custom-built to fit each vessel hull

Additional features

Optima DUCT

The Optima DUCT is a pre-swirl Energy Saving Device (ESD) designed to improve propeller performance and reduce fuel consumption. Mounted in front of the propeller, the Optima DUCT optimises the flow of the water before it reaches the blades of the propeller. This leads to smoother propulsion, lower energy losses, and measurable fuel savings.

Every vessel's propeller operates in a non-uniform wake flow – water moves unevenly across the propeller disc. DMC's Optima DUCT corrects this imbalance by redirecting the flow ahead of the propeller, ensuring that each blade operates under more uniform conditions.

This reduces rotational losses and increases thrust, allowing vessels to achieve the same speed with up to 6% less energy.

In short:
More thrust. Greater efficiency. Less fuel.

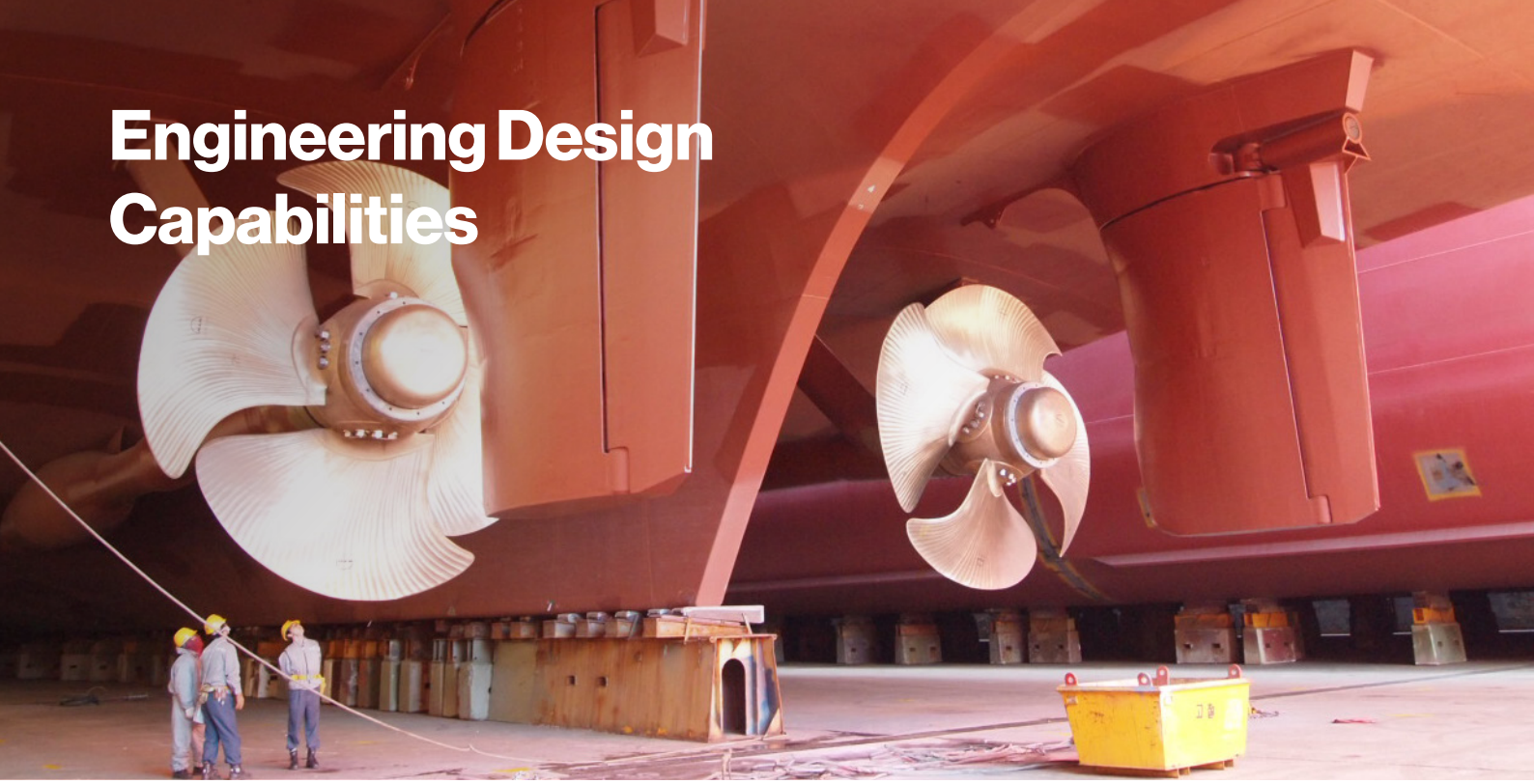


KEY FEATURES

- Impoved propulsion efficiency
- Increased fuel savings
- Reduced CO_2 emissions
- Suitable for newbuilds and retrofits

ESPECIALLY SUITED FOR

- Seagoing transport vessels like tankers and dry bulk carriers



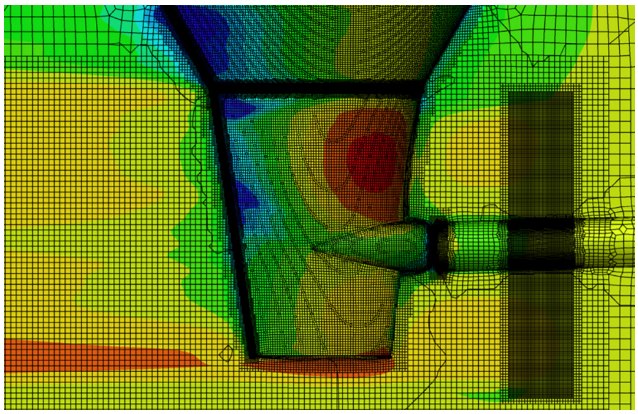
Engineering Design Capabilities

Engineered for optimal performance

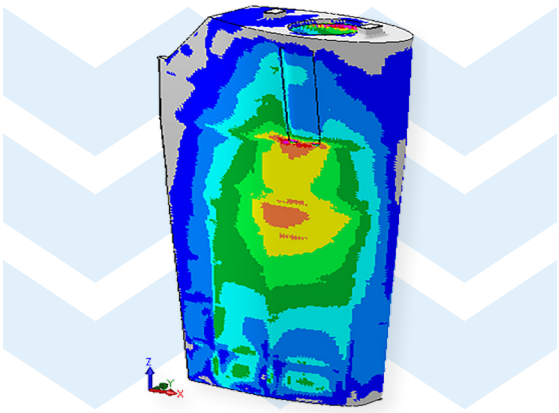
At DMC, we believe that a rudder is more than just a steering device - it is a critical element that defines a vessel's handling, safety, and efficiency. That's why every rudder system we deliver is custom-engineered using the latest computational techniques.

For new designs or on customer request, we apply advanced techniques such as Computational Fluid Dynamics (CFD) and the Finite Element Method (FEM). CFD allows us to analyse the water flow around the rudder, reducing drag and maximising hydrodynamic efficiency for smooth, responsive steering. FEM ensures structural integrity under the most demanding loads, providing strength, durability, and reliability without compromising performance.

By integrating these tools when required, we create rudder systems that deliver exceptional manoeuvrability, superior handling, and long-term reliability.



RANS simulations to verify rudder performance



FEM stress check rudder

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