

becker marine systems



Photo © Skipskompetanse.no

BECKER FLAP RUDDER FOR FISHING VESSELS

Throughout Becker Marine Systems' history, fishing fleets have always been an important market segment with hundreds of fishing vessels having been equipped with Becker Flap Rudders.

The rudder is an integral part of the propulsion package. Taking into account the needs and requirements of modern fishing vessels, it is crucial to finding the right rudder design. The manoeuvring performance required for successful fishing operations can only be achieved with a well-designed and customised flap rudder solution.

During commercial fishing operations the vessel must maintain a specific course at low speed in all types of weather conditions. Strong currents, gusts and waves may affect the ship's ability to keep course, requiring a rudder with improved lift capacity at lower speeds to ensure a good catch.

From its expertise in rudder design and following numerous fruitful discussions with fishing operators, Becker Marine Systems resolved to develop a rudder profile specialised for fishing vessels.



Manoeuvring
Systems



Energy-Saving
Devices



Alternative
Energies

www.becker-marine-systems.com



ENHANCED MANOEUVRABILITY

The new specialised rudder profile is intended to combine excellent manoeuvring performance at lower speeds and a stall delay, with no adverse impact on propulsion performance. Improved manoeuvring performance means that smaller rudder angles and fewer rudder movements are needed to keep the vessel on course. Fewer movements also means less noise, another factor vital to some fishing operations.

IBMV, a Becker subsidiary specialising in CFD analysis, conducted an extensive study to develop the new profile with the required enhancements outlined above. During the development process involving hundreds of CFD iterations, a variety of profile shapes were analysed, resulting in the new profile design.

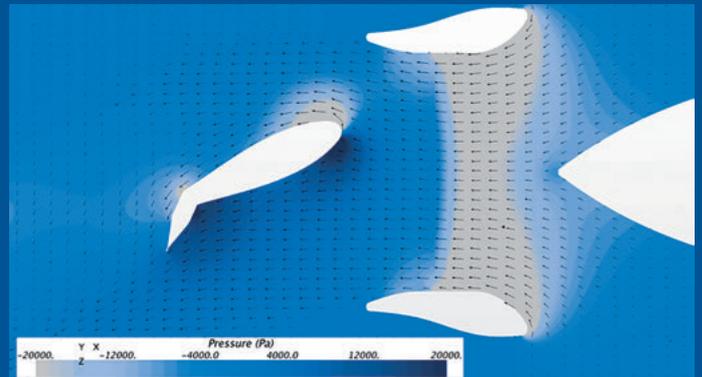
The new profile design provides approx. 25% greater maximum lift at lower speeds. The stall effect was also reduced, increasing lift at higher rudder angles. Both improvements were made without affecting propulsion performance.

Over the past several years, Becker has also made continuous improvements to the details of Becker's flap rudder. These include bearing materials and part of the linkage system, resulting in lower wear and tear. Becker now employs only high pressure polymer bearing materials for their rudder solutions – none of which necessitate additional lubrication – allowing Becker to deliver rudder systems which work without grease. This may be an important factor towards fulfilling the US Coast Guard's VGP requirements or simply avoiding the costs associated with expensive bio-degradable grease.

With its new profile design and improved materials, Becker offers the perfect rudder solution for the fishing vessel of today.



Photo © O'Hara Corporation



Pressure distribution resulting from CFD analysis.
New Becker Flap Rudder profile – 25° rudder angle at 2.5 kn

ADVANTAGES:

- Increased rudder forces during fishing operation
- Reduced underwater noise
- Lower wear and tear
- Environmentally-friendly material



XVII

