



ICEBREAKER

**MOTION CONTROL AND MEASURING SOLUTIONS
DEVELOPED FOR EVEN THE HARSHTEST CONDITIONS**

Hoppe Marine offers proven system solutions tailored to the extreme operating conditions of icebreakers. With seven decades of experience in precision fluid management and motion control, our technologies ensure maximum safety, efficiency, and comfort — even in the harshest environments. Hoppe systems provide uncompromising performance for ice-class vessels

BLOWER ANTI-HEELING WITH ICE HEELING

- Use of compressed air for induced heel motion from starboard to portside through controlled ballast water compensation
- Flow rates up to 4,500 m³/h per blower, multiple possible
- Reduced hull friction by efficient heeling motion
- Minimized risk of getting stuck in ice ridges or heavy multi-year ice
- Enhanced capability for independent ice operation

ROLL DAMPING

Choose between two proven solutions for optimal roll damping performance:

- FLUME: Low-maintenance box-shaped tank with adjustable water level for optimal performance
- U-Tank Roll Damping: Space-efficient U-shaped tank with cross duct, dual use as roll damping tank (open water) and heeling tank (ice) when combined with blower anti-heeling system
- Roll damping effective at any vessel speed - ideal for icebreakers in open water
- Increases crew safety, comfort and operational efficiency by reducing roll motions and accelerations
- Supports safer working conditions and protects sensitive equipment

VALVE REMOTE CONTROL

- Reliable remote operation of ballast, bilge, fuel, and liquid cargo systems in demanding ice conditions
- Highest redundancy functionality for maximum operational safety – as required for Safe-Return-to-Port
- Compact smart bus technology reduces cabling effort and increases system robustness and minimum down time of system
- Vibration-tested - ideal for all ice-going vessels.

MIoT PERFORMANCE MONITORING

- Seamless data acquisition and high-performance database by capturing critical nautical and machinery data with multi-vendor integration
- Operational Safety: Trusted data quality by automatic validation and expert service ensure reliable decisions in extreme polar conditions
- Performance monitoring to optimize propulsion, fuel efficiency, and voyage safety even in heavy ice
- Crew & Fleet Connect: intuitive web app and cyber-secure ship-to-shore link for live data with highest standards for safe polar operations
- Open and scalable architecture for unlimited integration with partner systems, from voyage optimization to hull performance



Michael Paik - Counsel

