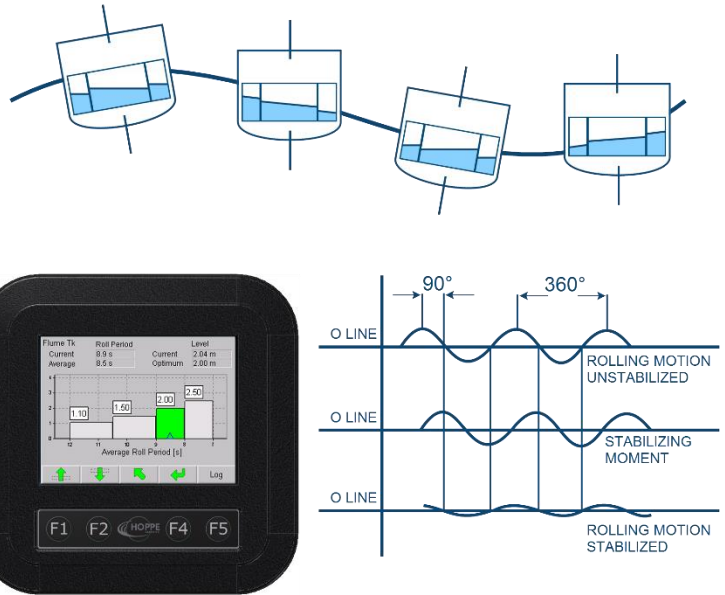


SYSTEM

The Hoppe FLUME® Roll Damping System is a type of roll damping system individually sized for each specific application. Number of tanks, proper dimensions, shape, location, internal structure and volume are varied to match each type of vessel and operating condition. When correctly designed, the liquid flow within the tank will naturally lag behind the resonant roll motion of the ship by 90°. This means the tank will create a stabilizing force directly opposing the forces created by the passing wave.

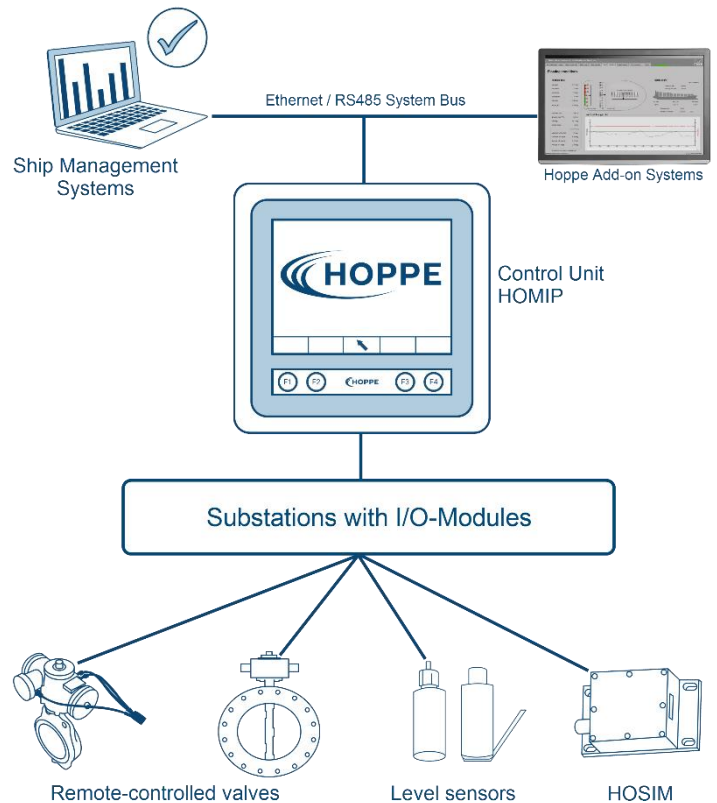
The FLUME® Stabilization System is a passive roll stabilizer. "Passive" due to the fact, that there are no moving parts necessary for its operation. By a change in the liquid level, the natural response period of the tank is adjusted to correspond to the roll period of the ship.

The optimum stabilizing effect occurs when this liquid motion is 90° behind the motion of the ship.



FACTS, FEATURES & DIMENSIONS

- Maintenance free (only little mechanical equipment needed)
- Significantly lower investment costs
- Works at any speed of the vessel (even at zero speed)
- No additional resistance to the vessel
- Flexible installation location. Can be arranged easily with other design requirements of the vessel
- Extending the window of operations
- Improving fuel consumption and thus reducing costs
- Boosting passenger comfort and cargo safety
- Simple operation and clear visualization via PC and Soft-PLC unit HOMIP
- Control and measuring devices are class type-approved



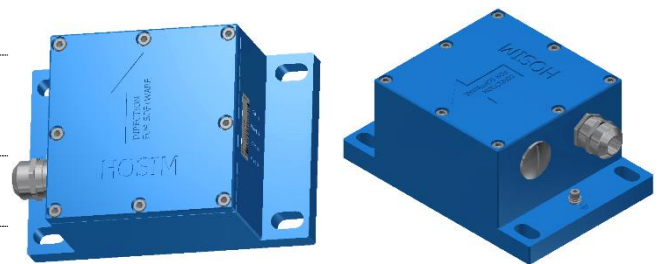
TECHNICAL DATA LEVEL SENSOR

Level sensor measuring range	0mbar – 4000mbar
Level sensor output signal	Analog 4...20mA, Bus signal RS485 half-duplex
Level sensor degree of protection	IP 68; submersible up to 10 bar



TECHNICAL DATA HOSIM 2

Measuring principle	Acceleration- and temperature-compensated position measurement
Roll/Pitch angle accuracy (static)	0.07° RMS
List/Trim angle accuracy (5 min. average)	0.09° RMS
Linear temperature influence (angles)	± 0.02°/°C
Interfaces	RS422, RS485, Ethernet
Housing and protection class	Aluminum, IP68



TECHNICAL DATA FAST DISCHARGE SYSTEM (ADD ON)

Working type	Double-acting, single-acting (various types, pneumatic and hydraulic)
Working locations	Dry, temporarily submerged
Valve range	DN50-DN500
Material	Aluminum (max. weight 18kg)
Functions	For tank arrangements above the water line to rapidly improve stability conditions in emergency situations



TECHNICAL DATA AUTOMATIC LEVEL CONTROL SYSTEM (ADD ON)

PLC supply voltage	24 VDC
PLC power consumption	15 W, approx. (30 W max.)
PLC Interfaces	2x Ethernet RJ 45 3x USB 2.0 (1x Device, 2x Host) 2x RS 422, 6x RS 485 2x CAN 500 kbit 1x SD/MMC-Card (up to 25 MB/s)
PLC operating temperature (max.)	+5°C to +55°C
Functions	Via the Hoppe soft-PLC "HOMIP 2" the ALC-system adjusts the liquid level in the tank automatically to the measured roll period via a designated pump

