

FRAMO ANTI-HEELING PUMPING SYSTEM

In-Line Reversible Pump



Independent and reliable

Founded in 1938

We at Framo AS take a long term view on customer relations. We shall actively cooperate with our customers, be someone to trust, with experience and competence. Through continuous research and development we are preparing for tomorrow. Framo AS is a part of Alfa Laval and is the centre of marine pumping systems within the Alfa Laval group.



Contents

- 3 Independent and reliable
- 4 Framo Anti-Heeling Pumping System
- 6 In-Line reversible pump
- 6 Technical data
- 7 Performance diagram

Independent and reliable

An anti-heeling pumping system for loading and unloading operations on various vessels. To safeguard efficient operation, the Framo anti-heeling system responds instantly to variations in load conditions.

- Cruise vessels
- Ro-Ro
- Ro-Pax
- Container vessels
- Ferries
- OSV



Framo Anti-Heeling Pumping System

System design

The system is operated automatically if the heeling angle exceeds a set value and continues until the vessel returns to a preset position.

The Framo anti-heeling pump will start only after the valve has left the closed position, thus eliminating pumping against a closed valve.

For maximum safety the valve closes automatically if the pump has not started within a few seconds after the signal is given from the inclinometer. This prevents water from flowing between heeling tanks when the pump is not in operation.

The Framo anti-heeling pump is of the in-line reversible propeller type, designed for maximum capacity in both directions. Only one crossover pipe between the heeling tanks is thus required. Low weight and compact design simplifies the installation.

A mechanical type shaft seal and a vented cofferdam with leakage detection system prevents water from entering the gear lubricating oil.

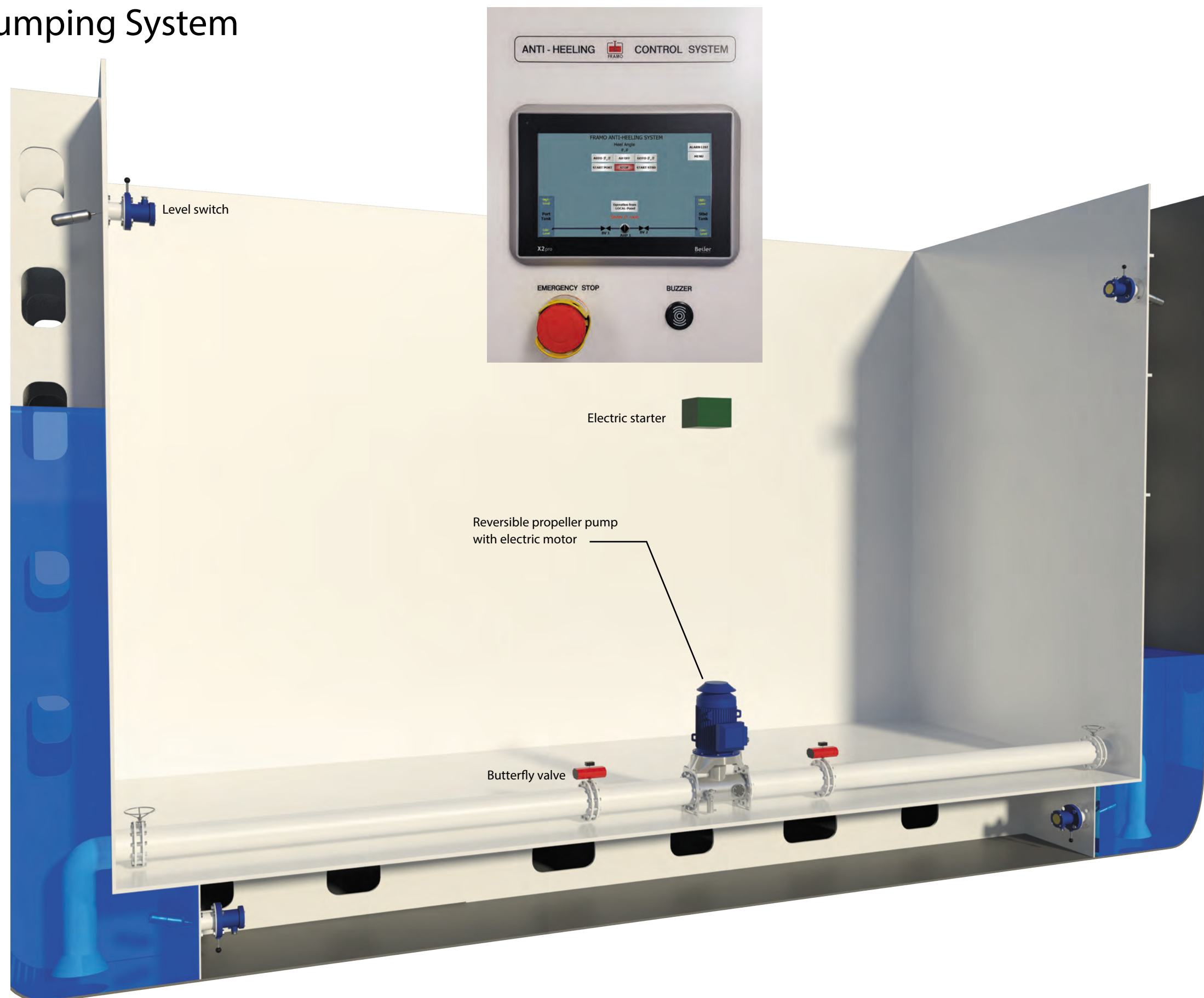
Operation

Heeling compensation is provided automatically by continuous measurement of heeling angle, given by a signal from the inclinometer to an analogue input module in the control cabinet.

The system is operated from the control panel, but can also be interfaced by ModBus to the vessel IAS for remote operation.

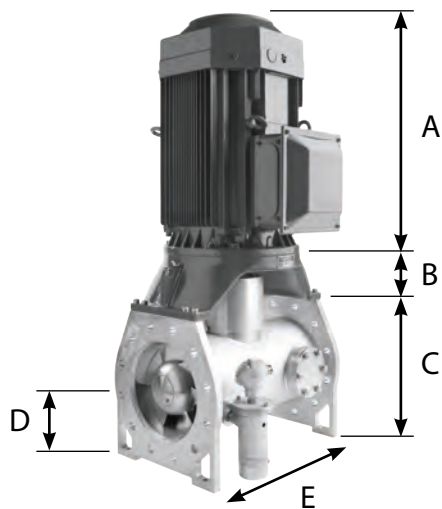
To compensate for extensive heeling moment, pre-heeling can be carried out. In systems with multiple pumps, automatic start delay can be implemented in order to avoid heavy starting current.

All settings can easily be changed on the control panel.



In-Line Reversible Pump

The Framo anti-heeling pump is of the in-line reversible propeller type, designed for maximum capacity in both directions.



	250	300	400
A	See pump spec.		
B	157	188	169
C	415	469	586
D	215	240	300
E	550	700	800

Simple and reliable design

The Framo Anti-Heeling Pumping System is approved by all international classification societies.

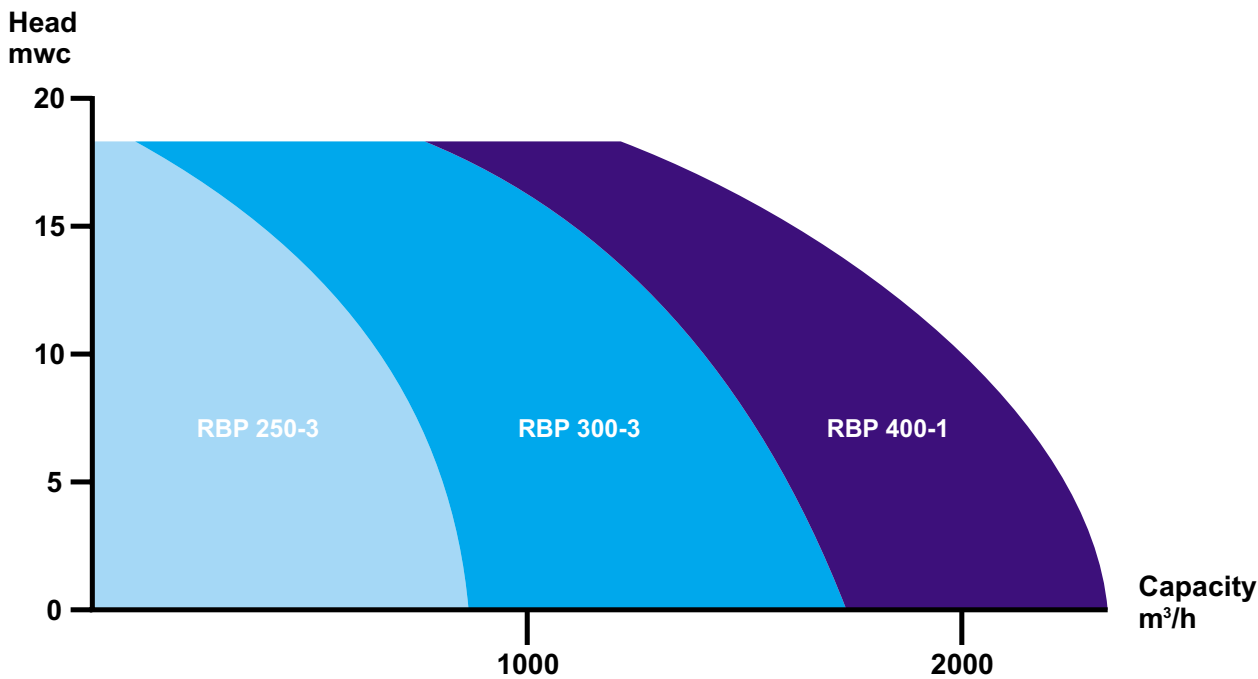
It is recognised by major ship owners and yards as a quality product.

The Framo Anti-Heeling Pumping System is in service in more than 3.000 vessels worldwide.

The pump unit is cathodic protected by a zinc-anode.

The Framo reversible propeller pump is supplied in three sizes, DN250, DN300 and DN400, with capacities ranging from approx. 200 m³/h to 2.200m³/h.

Performance Diagram





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