



Incorporated in 1998, Nordic Flow Control started out as a service agent. Through vision and determination, we have forged ahead to become a global manufacturer and system integration solutions provider for Marine, Oil and Gas control systems, with a sales and support network that spans Asia and Europe.

To stay ahead of the competition, we are constantly raising the bar in quality and technological creativity. Nordic Flow Control's Integrated Control and Management Systems, will meet any vessel automation needs. From production to installation, our professional and experienced engineers will be there every step of the process to ensure customers get the most reliable, user-friendly and technologically advanced control systems that perform above their expectations

Backed by international accreditations from various marine classification bodies, including ISO 9001:2000 by ABS, Nordic Flow Control's one-stop integrated solution has been installed in hundreds of vessels and drilling rigs across the globe. Made from the toughest materials and able to withstand the most demanding of marine and offshore situations, our growing reference list bears testament to the reliability of our systems.

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As our products are constantly undergoing development and improvements, design specifications are subject to change. Please contact our sales representatives for latest information.

Anti-Heeling System

Reliable And Consistent Solutions That Make A Difference

OVERVIEW

Nordic Flow Control's Anti-Heeling System is backed by years of tried and tested research and engineering experience in the field of measurement.

The Anti-Heeling System enables continuous loading or unloading for vessels in a reduced amount of time. Operating in either automatic or manual mode, the heeling compensation is achieved by the continual measurement of the heeling angle, shifting water transversely between a pair of anti-heeling tanks, in reaction to the heeling angle and the water level signals in them. The START/STOP threshold angles are adjustable via a function-key on a control panel, with a display indicating alarm messages.

The Anti-Heeling System is separate from the Ballast System, but uses the ballast pump for anti-heeling operations, which is toggled by a changeover switch. When the system is in automatic mode, it takes control of the ballast pump and the respective valves to control the water flow. When in manual mode, the system is completely operator-dependent.

As a safety feature, the pump will stop immediately when the maximum or minimum preset value of the water level and the maximum preset list degree in the anti-heeling tanks is reached. In such cases, only manual transfer of water against the heel direction to upright the vessel is possible.

Nordic Flow Control is able to provide anti-heeling solutions using more than two tanks. Vessels of different sizes and tonnage will require different water capacity to balance the vessel. We are able to customise the number of pumps and tanks needed to suit your needs. With more tanks, anti-heeling operation is achieved more effectively.

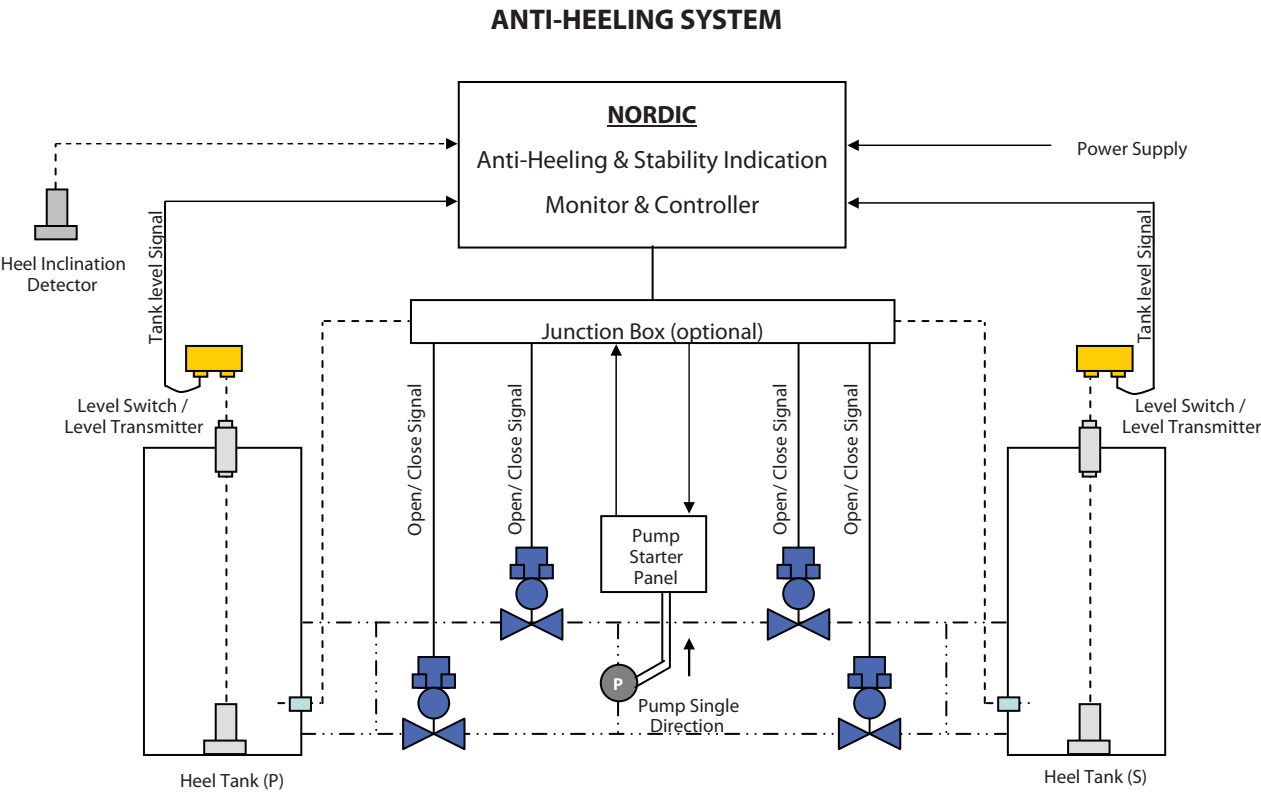
BENEFITS

- Marine approval
- Standard design
- Cost effective solution
- User-friendly and user-adjustable functions
- Customisable specifications per end user requirements

APPLICATIONS

- Container Ships
- RORO Vessels
- Bulk Carriers

ANTI-HEELING SYSTEM OVERVIEW



PROCESSING CABINET

The Anti-Heeling System comes with a Processing Cabinet that contains all necessary electronic and electrical equipment. The parts are assembled on a mounting plate for installation inside the Cargo Control Room (CCR), in a vertical position, preferably athwart ship.

Features

- Permanent indication of input and output signals
- Common alarm
- Pump START/STOP and valve OPEN/CLOSE interface
- High and low level alarm
- Operator interface (a display unit)
- Automatic or manual operation
- Adjustable response threshold
- Heeling angle indication
- Adjustable heeling angle alarm
- Engine alarm
- Pump stop at high and low water level
- Permanent measurement of water levels in heeling tanks
- Installation on top of tanks
- IP65
- Option for IS version
- Option for radar sensor and level switches

Functions

- Operate ballast pumps
- Operate actuated control valves

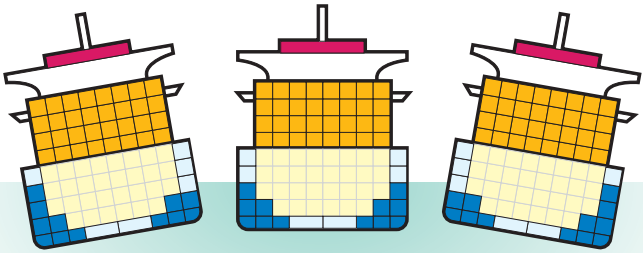
PROCESSING CABINET COMPONENTS

1. Control Unit

- Integrated keys for input of system, adjustments and data feed-in
- Push-buttons for system operation, adjustments, emergency stop and lamp test
- Display of modes, warnings, alarms, system adjustments and analogue heeling angle
- Menu guidance
- LCD display
- Indication lamps
- Audible alarm panel with mimic diagram
- Tank level indication (bar graph)
- Soft-key functions for Anti-Heeling Mode:
 - Anti-heeling AUTO/MANUAL modes
 - Water to port, water to starboard
 - START/STOP threshold adjustment
 - Heeling angle warning adjustment
 - Pump repetitions time adjustment

2. Programmable Logical Controllers (PLC)

- For communications, control and monitoring



TECHNICAL SPECIFICATIONS

Allowable Ambient Temperature	0°C to 50°C
Power Supply	220 to 240V AC internally from motor starter cabinet
Arrangement	The Processing Cabinet must be mounted vertically and preferably athwart ship due to the installation of the heeling angle sensor inside. The mounting direction with respect to the ship's centre line is arbitrary. Due to the shock sensitivity of the components in the Processing Cabinet, it should be mounted at a place where vibrations of minor intensity occur, usually in the Cargo Control Room (CCR) or Bridge Control Room.