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
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

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<th>Specification</th>
<th>Details</th>
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<tr>
<td>Allowable Ambient Temperature</td>
<td>0°C to 50°C</td>
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<tr>
<td>Power Supply</td>
<td>220 to 240V AC internally from motor starter cabinet</td>
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<td>Arrangement</td>
<td>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.</td>
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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, Offshore, Oil and Gas control systems, with a sales and service support office network that spans Asia and Europe. We are constantly raising the bar in quality and technological creativity, backed by international accreditations by various marine classification bodies, including ISO 9001:2000 by ABS. Nordic Flow Control’s ship automation and navigation solution, encompassing Valve Remote Control, Tank Gauging and Anti-Heeling systems, will meet your vessel automation needs.

As a testament to our commitment to business excellence and an endorsement of our product quality, customer care management and delivery promise, Nordic Flow Control was ranked in the Enterprise 50 (E50) Awards for the year 2009. First established in 1995, the E50 Awards recognise the contributions that local, privately-held companies have made in economic development at home and abroad. Jointly organised by The Business Times in collaboration with KPMG in Singapore and supported by the Infocomm Development Authority of Singapore, International Enterprise Singapore and SPRING Singapore, the Awards rank the top 50 enterprises in Singapore based on a set of performance indicators, and qualitative factors such as business model and innovations, management ideals and governance, knowledge initiatives, market branding and presence, and liquidity and risk management.