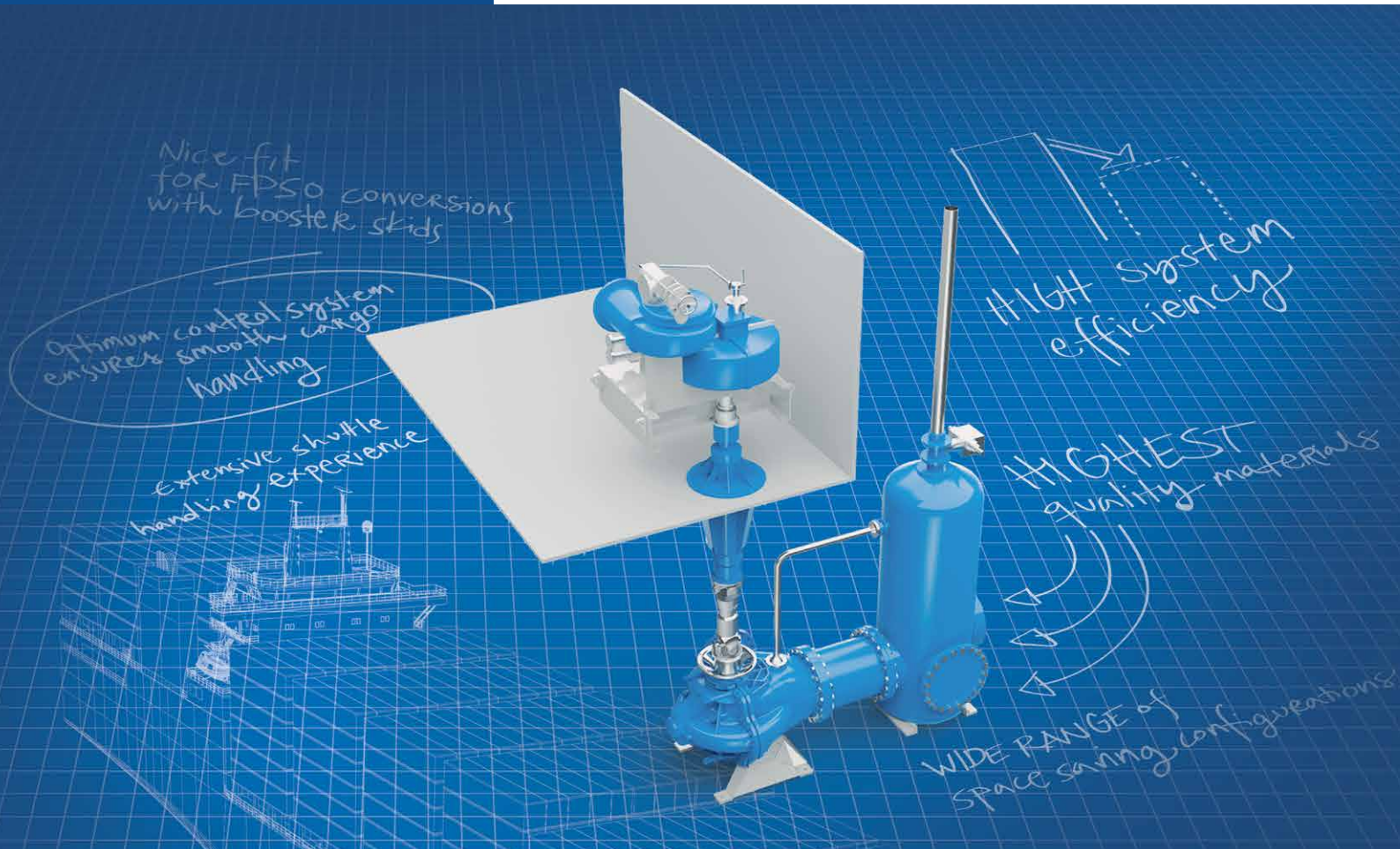


PUMP ROOM SYSTEMS



COMPACT DESIGN, HIGH EFFICIENCY

We are proud of our heritage because it is built on the most respected brands in the history of the industry.

We are sure of our capabilities because it is backed by decades of research and engineering.

We believe in our technology because it has an unrivalled performance pedigree.

We depend on our people because their excellence is integral to our success.

We aim to be the most respected and trusted supplier of pump technology in the world.

Every square meter of space on your vessel is precious – which is why Hamworthy Pumps fully integrated pump room systems are renowned as some of the most compact in the world.

Our cargo pumping systems are trusted by many ship owners because of our unique blend of quality and reliability, coupled with an ongoing research and development programme to accomplish all the expectations in the market.

With more than 100 years in pump business, we have extensive experience with shuttle tankers where efficient offloading is particularly important. Pump room systems are used for tanker conversions to FPSO or FSO that may include deck mounted cargo booster pumps. Our control systems utilize latest innovations in electric signal, PLC based

controls to monitor and control your processes automatically or manually from cargo control room, engine control room, at the bridge, or locally from engine room near the drivers.

Whatever you need from your pump room systems, talk to Hamworthy Pumps.

Typical scope of supply:

- Cargo pumps
- Ballast pumps
- Drivers – steam, electric or diesel-based
- Steam condensers
- Stripping systems
- Stripping pump
- Tank cleaning pump
- Bilge pump
- Transmission/deck seal units
- Valves/actuators
- Control and monitoring systems

PUMP ROOM SYSTEMS - KEY COMPONENTS



CB CARGO AND CRUDE OIL WASHING (COW) PUMPS

- Crude oil and oil products pumped at nominal heads, capacities from 400 to 6500 m³/h in vertical or horizontal orientations.
- Exceptionally compact design, multiple nozzle configurations.
- Trouble-free operation-carefully balanced rotary elements, pumps with double seals, barrier fluid and leakage detection.

CA BALLAST PUMPS

- Sea water pumped at nominal heads, capacities from 400 to 6500 m³/h in vertical or horizontal orientations.
- Compact semi axial flow design for large capacities at lower heads, multiple nozzle configurations.

GAS TIGHT POWER TRANSMISSIONS

TV and TH transmissions designed for maximum safety and reliability. Built-in flexibility to compensate for structural variations. Gas-tight sealing units protect engine room from hazardous gasses.

DRIVERS

Located in the engine room – horizontal or vertical orientation of steam turbines, electric motors or direct diesel engine drives.

STRIPPING PUMP

Electrically driven screw type for stripping pipelines, cargo pumps and separators only.

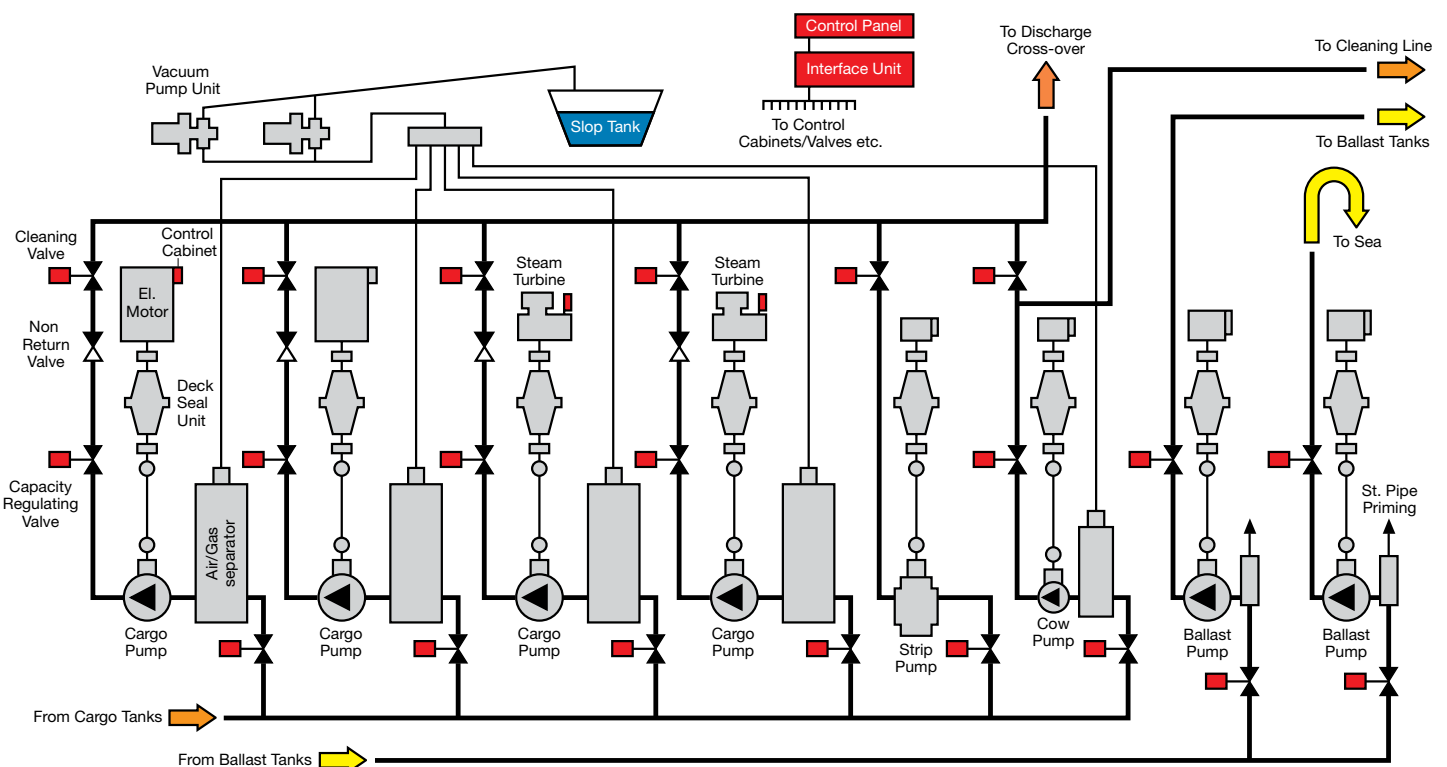
THE CONTROL SYSTEM

PLC based all electric control system for control and monitoring of all functions required for the scope within our system supplied.

We also provide remote valve control system solutions where all cargo and ballast valves with actuators are included in addition to the required hydraulic power pack and solenoid rack.

Our control system can integrate optional functions like load calculator and level gauging system upon request.

TYPICAL CARGO/BALLAST PUMPING SYSTEM



AN UNRIVALLED MIX OF ADVANTAGES



MULTIPLE ARRANGEMENT OPTIONS

Electrically driven VSD/VFD operated horizontal and vertical installations. Steam turbine driven horizontal and vertical installations. Direct diesel driven horizontal or vertical installations. Direct dual function diesel driven horizontal installation where diesel engine also acts as the generator set.

DESIGNED FOR ULTIMATE RELIABILITY

Robust construction, pumps designed for high efficiency and fully reliable performance.

AUTOMATED CONTROL SYSTEM

Smooth operation of cargo handling.

EXCEPTIONALLY EASY MAINTENANCE

All wearing parts easily accessible, can be replaced without gas freeing the vessel. Maintenance-friendly cargo control systems.

HIGH GRADE MATERIALS

Including nodular cast iron / stainless steel / Ni-Al-bronze / Duplex and Super Duplex.

COMPLETE THROUGH LIFE SUPPORT

With worldwide support and service we are well placed to offer you effective maintenance back-up on your Hamworthy pumping system.

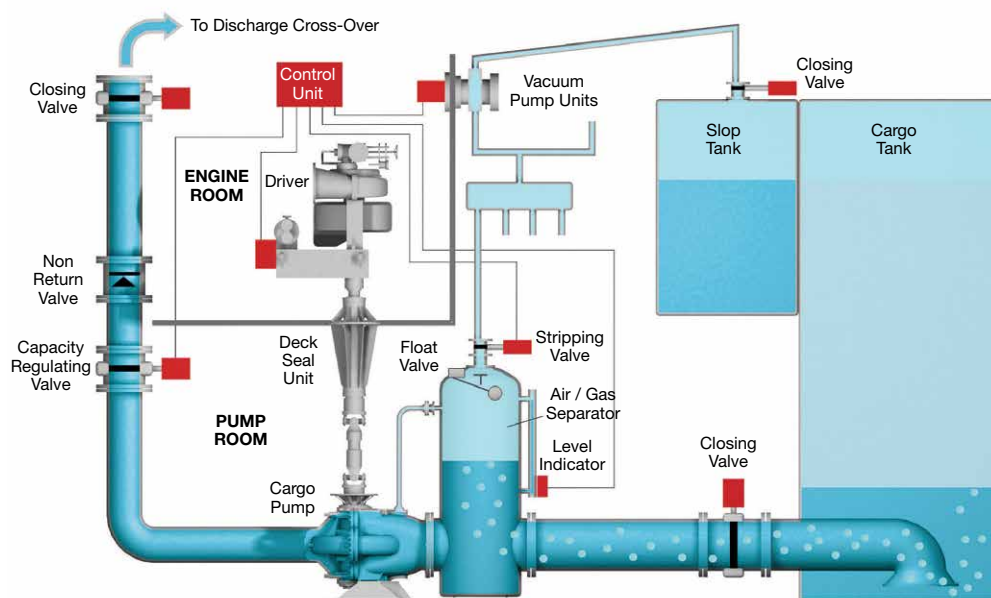
From installation to in-service operation Hamworthy pumps are backed up by dedicated engineers to ensure you have complete through-life security and support.

STRIPPING SYSTEMS

PA Priming and capacity regulating system convert any centrifugal pump into a self-primed unit for optimal discharge capacity and stripping performances to reduce total discharge time to an absolute minimum.

The main components are air/gas separators with built-in strainers, vacuum pump units, capacity regulating valves and the latest within PLC based all electric control units.

STRIPPING SYSTEM SCHEMATIC



EXPERIENCE AND SUCCESSES



FPSO P63 FOR THE PAPA TERRA FIELD

Scope of supply: a cargo pump room system with deck mounted booster stations, firewater pump system consisting of two mechanical hydraulic skids and one mechanical skid, and a cargo offloading system and four large pumps making up the sea-water lift package.

Shipowner.....BW Offshore
Shipyard.....Cosco Dalian, China



CARMEN KNUTSEN

Scope of supply: 3 x steam turbine driven cargo pumps with a total unloading capacity of 12.000 m³/h including our unique stripping and capacity regulating system + 2 x electrically driven ballast pumps, all cast in superior Ni-Al-Bronze material at our own foundry.

Shipowner Knutsen OAS Shipping
Shipyard HHI, South Korea



YANGTZE PEARL

Scope of supply: 3 x steam turbine driven cargo pumps in superior Ni-Al-Bronze material with capacity of 5500 m³/h against 150 mlc,

2 x ballast pumps, 1 stripping pump, automatic stripping and capacity regulating system including hydraulic actuated valves and solenoid rack, PLC based electric state of the art control and monitoring system.

Shipowner.....Nanjing Tanker Co
Shipyard.....Bohai Shipyard, China

SERVICES

Hamworthy Pumps offer expertise, proximity and responsiveness for all our customers in the most environmentally sound way.

Our Services & Support solutions range from basic support, installation and commissioning, performance optimization, upgrades and conversions to service projects and agreements focusing on overall equipment performance and asset management.

We always provide first class technical, spares and services support to our customer wherever they are around the world. In addition, we are well supported by agent representatives in all major shipping locations.



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