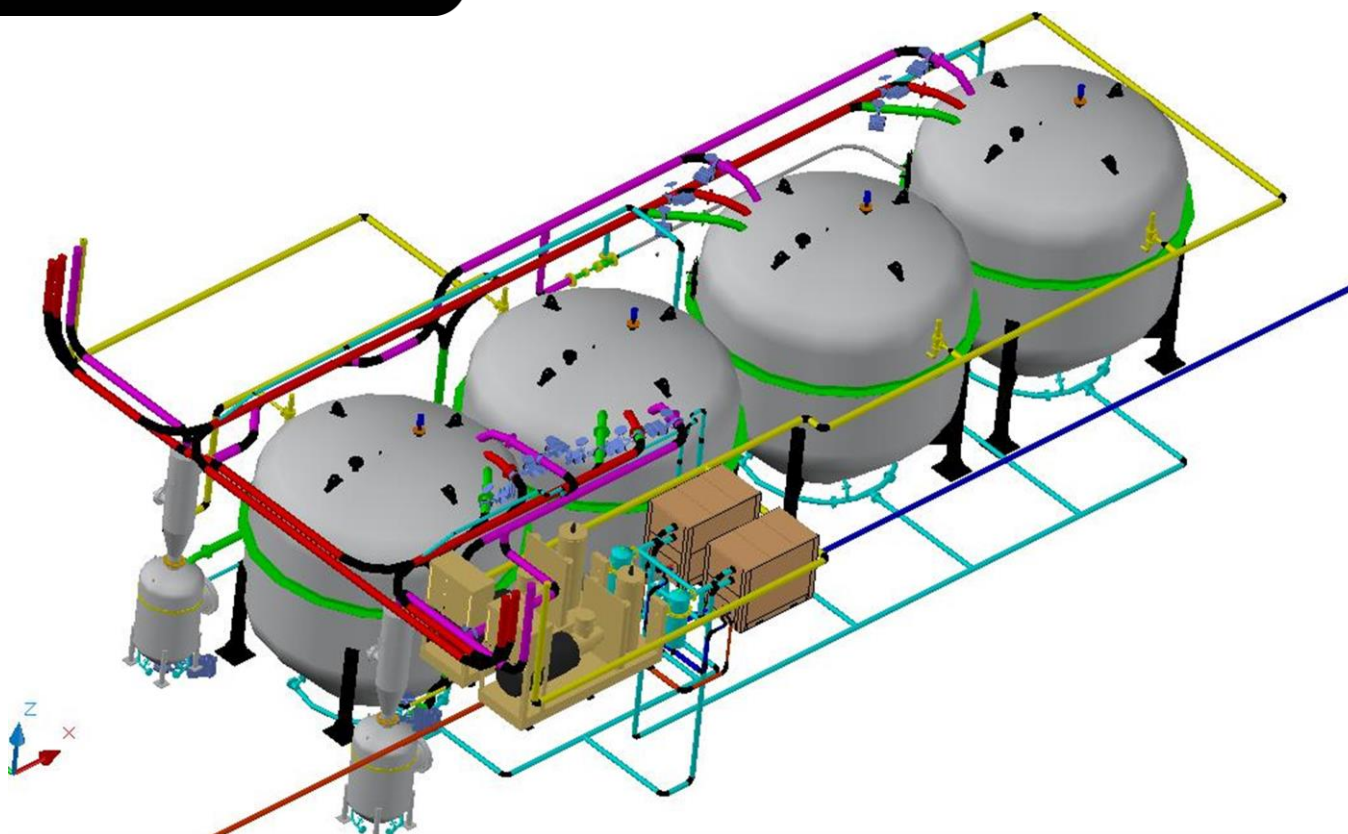


PARSON

MARINE EQUIPMENT

DRY BULK HANDLING SYSTEM



Parson Marine Equipment is established in Singapore since July 2005. Our team of engineers have more than 25 years of experiences in providing customised integrated dry and wet bulk handling system for offshore supply vessels. The brand name of Parson, currently owned by Mordec International Pte Ltd is known with the expertise in customising and integrating a wide range of systems adapted to meet the present clients sophisticated requirements. Our strength are specific expertness of bulk delivery efficiency, bulk quality maintenance and effective man-machine interface.



Parson Dry Bulk System is easy to operate and is projected to reduce maintenance to a minimum. The man-machine interface can also be integrated with other systems such as liquid mud, methanol system, cargo oil, fresh water and etc.

Components used for Parson Systems are generally globally recognised and with wide global agents establishment which able to provide fast spare part delivery and servicing. Which is one of the prime considerations of our selection of components to minimise down time wherever your vessel located?

According to the vessel requirement, the Parson system is specially engineered and customised to the client requirement. Besides giving advice to clients as to the most appropriate choice among the one of the most seamless system in the world, the Mordec technical department is able to research products ad hoc, projecting and creating answers to specific needs in the most extreme marine and offshore conditions.



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PARSON

MARINE EQUIPMENT



DRY BULK TANK

PARSON designs the bulk tanks according to client's requirement. Engineering takes special care of the material used, space management and pipeline arrangement to achieve optimum safe and effective loading and unloading operation.

Inside each bulk tank, the tank is fitted with PARSON special designed fluidization device which provide the best powder cargo to compressed air ratio which provide a effective cargo discharge with minimum cargo remains. PARSON has proven to exceed all design standards and has one of the most efficient and effective system in the world.



CONTROL SYSTEM

PARSON has one of the clearest and most simplified designs in the world which provide the clients with operation ease. Other systems such as Liquid Mud, Brine handling system and methanol can also be integrated into the control panel.

- Different systems available:
- MIMIC Panel
- PLC + Touch Screen
- Integration of control panel into ship entire control system
- Any combination of the above

AIR COMPRESSOR AND DRYER

PARSON adopted the most advance air compressor and drying components available in the market. The compressed air is the driven resource of the Dry Bulk Handling System. To avoid cargo moisture, PARSON compressed air must be firstly dried up by means of air dryer and cooler before discharging into the pipeline.

PARSON FEATURES

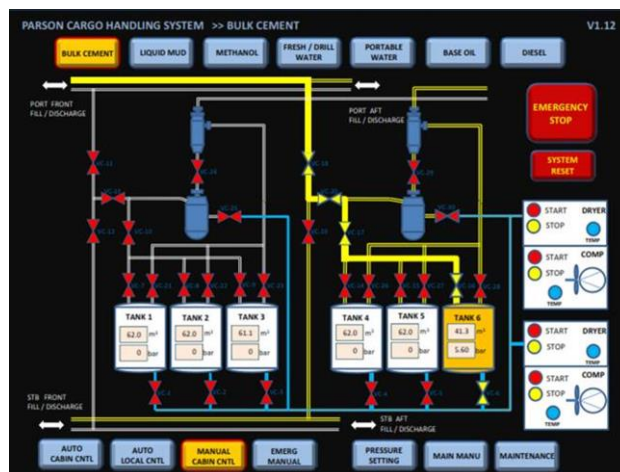
- Compact, portable for limited space
- Marine built purposed. Seawater cooling and vibration resistance provides high reliability
- Stable and reliable for long and continuous operation
- Low working life with low maintenance cost
- Global service network



DUST FILTER AND CONTAINER

PARSON integrates the function of Cyclone Dust Extracting, Filtering and Circulation Cleaning functions. The new design provides effective filtration and recycles cargo dust without additional space required.

The patented design meets international clean design standards using advance dust extracting and filtering technology and devices and has contributed greatly to the protection of air and marine environment.



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PARSON

MARINE EQUIPMENT

INTEGRATED CARGO CONTROL SYSTEM



WATER



PLC



METHANOL



CARGO OIL



LIQUID MUD



DRY BULK

Parson Cargo Control System integrates all dry and wet cargos to provide a centralised controlled delivery system for all the cargos on-board the offshore support vessel. The Parson Control System handles up to 22 different cargos and 5 discharge/filling operations concurrently.

Parson Cargo Control System jointly developed with major marine PLC and software providers such as ABB and Siemens. The PARSON control system simplified the operational complexity and minimises operator's training. Each system installed on board undergoes 1000 hours of test bench continuous program run-in to ensure all hardware and software conflicts are fully debugged. 100% redundancy on both hardware and software are basic set-up which ensures system-failsafe during the offshore operation.

FAIL-SAFE function is one of the feature built-in our system, the redundancy system both hardware and software provides a safe and interrupt free environment where operators efficiently and safely monitors and operates various cargo handling systems safely in the control centre such as wheel house or control room.

BENEFITS:

- Lowered manpower
- Minimum Training
- Easy maintenance
- Economical
- Safer Operations
- Operation efficiency



MORDEC INTERNATIONAL PTE LTD

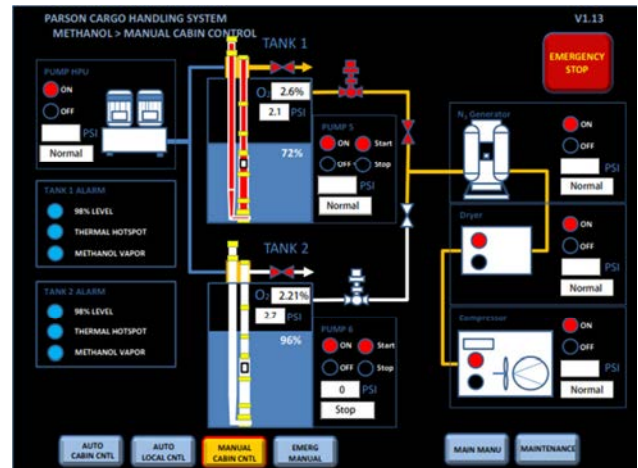
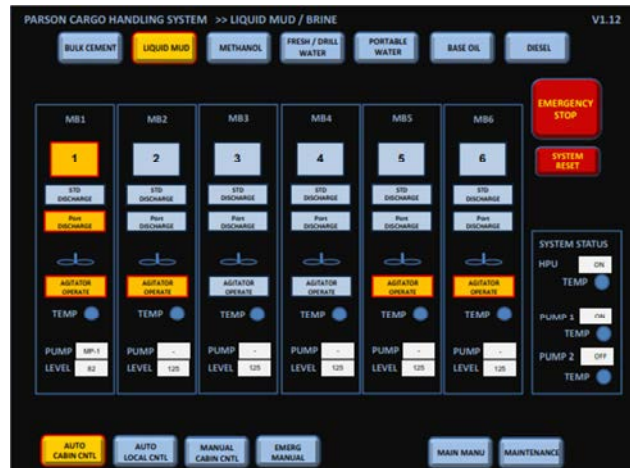
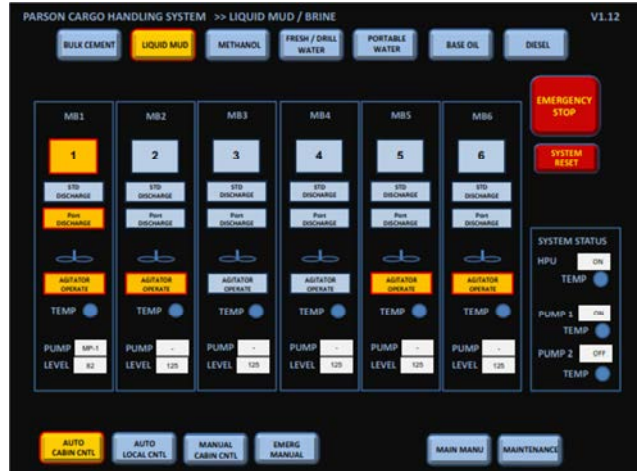
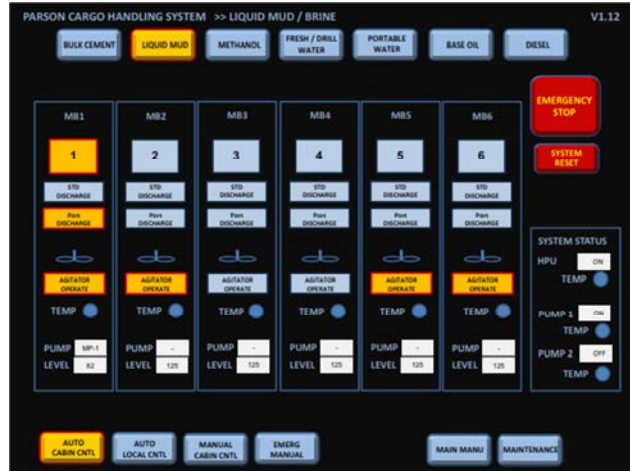
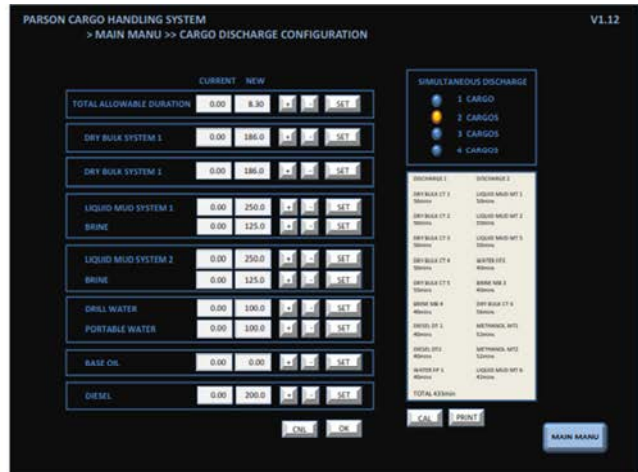
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PARSON

MARINE EQUIPMENT



PARSON CONTROL SYSTEM

- Maximum 22 cargos
- Maximum 5 cargo activities (Filling and Discharging)
- Monitoring filling and discharge volume
- Automatic and Manual Control
- Discharge sequence planning and computation
- Fault isolation
- Emergency Stop

STANDARD MODULES

- Dry Bulk Handling System
- Liquid Mud / Brine Handling System
- Base Oil / Cargo Oil Handling System
- Drill Water / Portable Water handling System
- Diesel Fuel Handling System
- Methanol Handling System
- Drill Cut Handling System (Under Development)

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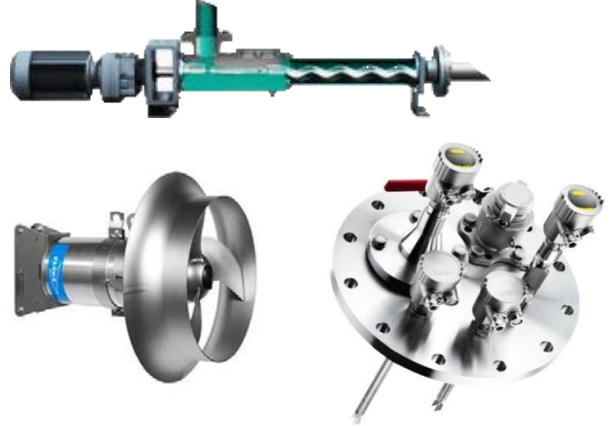
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PARSON

MARINE EQUIPMENT

LIQUID MUD HANDLING SYSTEM



The PARSON Engineering Team has been designing and producing Liquid Mud System for the offshore and marine clients as well as offering a wide range of services adapted to meet a variety of applications with specific expertness of drilling mud delivery efficiency, mud quality maintenance and effective man-machine interface.



PARSON Liquid Mud System is easy to operate and are projected to reduce maintenance to a minimum. The man-machine interface can also be integrated with other systems such as dry bulk and brine handling system.

Components used for PARSON systems are generally globally recognised with wide global agents establishment which able to provide fast spare part delivery and servicing. Which is one of the prime considerations of our selection of components to minimise down time wherever your vessel located?

According to the vessel requirement, the PARSON system is specially engineered and customised to the client requirement. Besides giving advice to clients as to the most appropriate choice among the one of the most seamless system in the world, the PARSON technical department is able to research products ad hoc, projecting and creating answers to specific needs in the most extreme marine conditions.



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PARSON

MARINE EQUIPMENT



MUD PUMP

PARSON mud pumps are specially engineered to provide high power, long distance and large capacity of mud transportation in severe weather and rough sea.

PARSON uses progressive cavity pump: NEMO pump from NETZSCH which has been proven effective in handle cargo with high density, high viscosity and of small particulars powerfully.

AGITATOR

PARSON provides either hydraulic or electrical driven agitator for mud system. Engineering includes "Computational Fluid Dynamics" analysis which add-on to PARSON complete effectiveness in handling liquid mud.

PARSON hydraulic-driven agitators provides low-rotation and high torque, it can keep mud cargo moving in large extent to prevent subsiding. Hydraulic-driven agitators are often used in tanks with large volume and irregular shape. PARSON electric-driven agitator is good at processing high density and high viscosity liquid mud. The special designed guiding ring can keep the liquid moving in high speed.

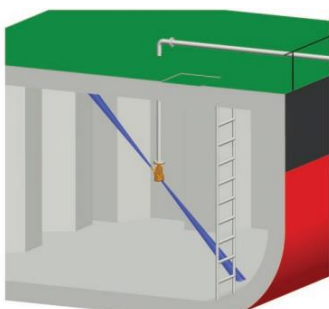


LEVEL INDICATING DEVICE

- Material specially for liquid mud: AISI 316L
- Anti-Vibration and meet offshore working condition
- Compact and easy for installation
- High accuracy, reading does not affect by cargo
- Stepless measurement, can interlock with other main equipment
- With local data display
- Able to integrate with entire ship cargo indicating system

INTEGRATED MUD CONTROL CABINET

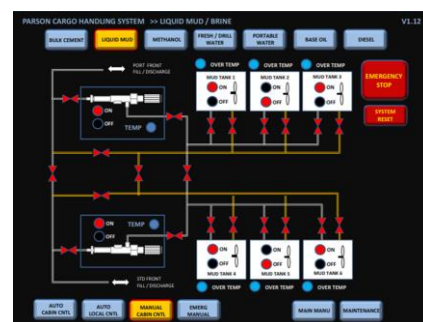
PARSON Integrated Control Cabinet integrates 10 distributed cabinets to centralise control and interlock with other equipment. The redundant control system design provides a larger scope of scalability and enables interlocking with the integrated Alarm System in the Marine Engine Room.



Tank Cleaning Equipment

PARSON cleaning equipment uses hot water with special detergent to wash tanks with oil-based mud. Method of water heating are engineered by PARSON according to the vessel systems.

PARSON water spray nozzle rotates vertically and horizontally within the tank to thoroughly washes every part of the tank. The cleaning system can also clean the cargo pipe lines by compressed air for next loading.



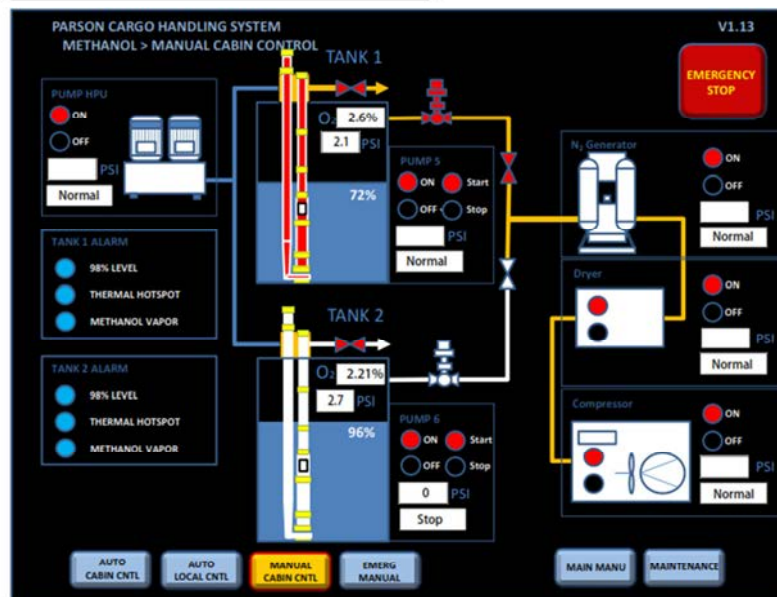
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SYSTEM CONTROL



NITROGEN GENERATION



VAPOUR CONTROL



METHANOL PUMP SYSTEM

PARSON Methanol Handling System is developed jointly with major marine engineering company and equipment suppliers. The system gone through detail engineering, simulation and actual flow control to ensure efficiency and methanol hazard are minimized.

PARSON Methanol System covers the entire operation: loading, transportation and discharge, each function requires detail process engineering to reduce methanol hazard such as fire and explosion. Safety is the primary consideration in methanol handling due to the extremely aggressive characteristic of the material. PARSON lowered the chance of methanol ignition through vapour and oxygen control. PARSON Methanol Systems consists of four (4) main functions



Sensors



SS316 Valve System



Dry Break Coupling



Gas Detector



Deck Low Expansion Foam Fire Fighting System



• **LOADING OPERATION (TANK SEALING)**

A process to reduce oxygen concentration within the methanol tanks and thus minimises methanol vapour ignition during tank loading.

• **TRANSPORT OPERATION (TANK BLANKETING)**

Apply high concentration nitrogen within the tank with adequate pressure to control nitrogen vapour level and emission.

• **DISCHARGE OPERATION (CARGO DELIVERY)**

Discharge of methanol requires special chemical resistance material pump systems. The pump discharge operation coordinates with other systems to control oxygen level within the tank and the methanol vapour emission.

• **FIRE PREVENTION AND FIGHTING**

PARSON adopted early warning and early detection for methanol fire and explosion by using proven technology such as vapour detector and thermal imaging system. In the event of methanol fire, low expansion foam system using alcohol-resistant aqueous film-forming foam for fire fighting.

PARSON

MARINE EQUIPMENT



SUBMERSIBLE METHANOL PUMP

PARSON deep well pumps transfer and discharge aggressive chemical cargo such as methanol with flash point below 60°C in LFL tanks. The pump are made of high grade stainless steel material and components such as hydraulic motor, bearing, seals are selected and built for long duration of operation with minimum maintenance.

PARSON FEATURES

- Hydraulic driven with major class certified
- Self-equipped stripping and washing function
- Sealed monitoring function
- Long working life and minimum maintenance
- Ideal for LFL cargo
- Wide selection range

PRESSURE & VACUUM RELIEF VALVE FLAME ARRESTOR

The pressure and vacuum relief valve purposes to provide safe pressure control within the methanol tank. It is recommended to configure a flame arrestor along the exhaust pipe line to eliminate any opportunity of vapour ignition or explosion.

PARSON applied pressure and vacuum relief valve are tested and proven both in term of reliability and durability. Each valve is tested at system level during integration stage prior deliver to our client for application.



NITROGEN GAS GENERATOR

PARSON adopts the proven PSA technology. Our system produces undisrupted and stable nitrogen up to 99.99% pure, compressed nitrogen at dew points to -50°C. PARSON Nitrogen generators are designed to continually transform compressed air into nitrogen at safe, regulated pressures for offshore vessels without operator attention.

PARSON FEATURES

- Complete system inclusive of prefilters, final filters and receiving tank
- Stable flow rate and pressure, disruption free system
- Compact, small foot print
- East to install and operate
- Integrated control system



CONTROL SYSTEM

PARSON has one of the clearest and most simplified designs in the world which fulfil the client's operation demands. Other systems such as Dry Bulk, Liquid Mud, Brine handling system can also be integrated into the control panel.

- Different systems available:
- MIMIC Panel
- PLC + Touch Screen
- Integration of control panel into ship entire control system



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1



2



3



4



Mud tanks cleaning is a major activities in offshore operation where the time and manpower resources have always been a challenge to vessel operators. PARSON automatic cleaning system reduces the risks and downtime of manual mud tank cleaning.



Mud tank cleaning is mandatory to avoid cross contamination when displacing one fluid with another. PASON Automatic Cleaning Systems is developed by Mordec and jointly with major equipment manufacturers and marine designer aims to shorten the tank cleaning processes efficiently and effectively. PARSON tank cleaning has achieved an average of 30minutes tank cleaning processes (per tank) and more: managing by only one person.

PARSON Mud Tank Cleaning System is equipped with pumps, heater, washing detergent machine and lastly water nozzle. This equipment is installed permanently in the vessel. The cleaning machine (nozzle) position are computed and installed dependent on the cleaning pattern and geometry of the tank.

During cleaning, special detergent/surfactant are used and mixed with hot water when injected into the cleaning machine. The cleaning nozzle with powerful water jet is mechanically driven by the pressured water cleans every inches inside the tank surface. The cleaning pattern can be regulated according to the tank design and cleaning requirement.

The last stage of the process is to transfer the slop to the waste tank using a specially designed slop pump. The slop is then discarded from the waste water tank onshore or other form waste management systems.

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FRESH WATER PUMP

PARSON uses high efficiency stainless steel centrifugal multistage pump to supply hot water for the tank cleaning. The high performance pump provides long duration of operation and properties is able to withstand the chemical used for the cleaning processes.

Beside hot water supply, the fresh water pump can also be used for hot water circulation and can be used as slop pump in the event of emergency.

HEAT EXCHANGER

Water heating is usually achieved by heat exchanger coupled with the fresh water pump. The heat exchangers provide direct and continuous heating to the water for cleaning.



PARSON WASHING DEVICE

PARSON washing device stored cleaning chemical such as surfactant and detergent for the cleaning operation. The system is operation friendly and flow can be adjusted according requirement.

SLOP CLEANING PUMP

The PARSON slop pump is used to transfer slop from mud tank to waste water tank or dedicated tank for temporary storage before discard onshore or other waste management system. Besides transferring slop, the slop pump can also act as pre-tank washing and work as tank washing pump. The slop pumps are also used to clean load and discharge pipe lines that carry liquid mud.



CLEANING NOZZLE

PARSON water spray nozzle rotates vertically and horizontally within the tank to thoroughly wash every part of the tank. The nozzle can be permanently installed within the tank or remain portable for other cleaning purposes. Made with SS316L material, the nozzle provides long lifespan and has been proven to be one of the most effective cleaning methods in the offshore industry.