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Potable Water System - Ring Main 2

The Divex Potable Water System for Ring Main supply is designed to provide hot and cold water for toilets, showers and basins in a Saturation Diving System. Two Potable Water machines coupled to hot and cold ring mains work automatically once set-up and started. System will provide 100% redundancy.

The PWS-RM 2 Potable Water Supply Skid is designed to provide a Ring Main supply of hot and cold potable water for domestic use in large saturation diving systems.

Optional High Consumer Demand Configuration: the PWS- RM 2 may be configured for medium or high potable water demand applications.

Medium demand applications up to 60 litres/minute: for applications where peak demand does not exceed 60 litres/minute, it is recommended that the PWS- RM1 Potable Water Supply is configured as a single unit to deliver a variable supply of 0 to 60 litres/minute of hot and cold potable water.

High demand applications up to 120 litres/minute: for large dive systems where peak demand may be as high as 120 litres/minute, it is recommended that two PWS- RM1 Potable Water Supply skids are configured in a master/slave arrangement. In this configuration, the slave unit supplements the output of the master unit as required.

The slave unit's pump start/stop pressure set-points are set at 5 bar below the start/stop set-points of the master unit. Customer demand will cause the Ring Main pressure to decrease. The Accumulator will compensate for the initial pressure drop.

When pressure decreases to 35 bar, the master unit's pump starts up and begins pumping. If ring main pressure continues to decrease, the slave unit's pump is automatically started when the pressure drops to 30 bar. It then supplements the delivery of the master unit until such time as Ring Main pressure increases to 38 bar (within the master unit's set-points), where upon the slave unit's pump shuts down and the master unit continues as required.

- Single 60 litre/minute Positive displacement pump, driven by a variable speed drive to maintain system pressure.
- Three off, 6 kW controlled fluid heating elements mounted in a 150 litre, 45 bar pressure vessel.
- Single electrical control panel.

Principle of Operation:

1. Potable water entering the skid is filtered to 5 µm and UV sterilised before being fed to the pump.
2. The pump boosts the pressure to 45 bar at a maximum rate of 60 litre/min, the actual pumped flow will depend on demand and will be controlled by the Variable Speed Drive.
3. After the pump, the water is split into hot and cold streams as well as to a 12 litre (4 litres x 3) accumulator assembly.
4. The hot water stream is heated and controlled to 55°C in the high-pressure heater tank and then fed into the hot water ring main.
5. The system is designed in such a way as to create a thermosyphon effect in the hot water ring main where cooler hot water returns to the skid for reheating which will keep the ring main warm at all times.
6. The cold water is piped directly into the cold water ring main.

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The Positive Displacement Pump is equipped with the following main components:

- Variable Speed Drive (VSD).
- 4 litre x 3 Accumulator assembly.
- Filter and UV steriliser for the water supply.
- Pressure sensor with feedback to the VSD.
- Relief valve capable of taking the full 60 litre/min.

The Heating Circuit is equipped with the following main components:

- 150 ltr, 45 bar water heating tank.
- 3 x 6 kW immersion heaters.
- Process temperature controller, factory set at 55°C.
- Safety temperature controller, factory set at 75°C.
- Digital temperature indicator, with remote display connection.
- Float switch, set to isolate power to the heating elements in the event of low water in tank.

Specification

Pump (1 off)	CAT Type 1540E
Voltage	440V; 60Hz; 3 Phase
Variable Speed Drive	Micro Master 440 Siemens 7.5kW
Head (max)	45 bar
Flow	60 litres / minute (max)
Heater (3 off)	3" Watlow Process Heater
Voltage	440V; 60Hz; 3 Phase
Power	6 kW each
Control Temperature Setting :	55°C
Safety Temperature Controller Setting	75°C
Heated Tank Volume	150 litres
Fluid	Potable water
Fluid Inlet / Outlet Connections	1 NPT female (located on side of frame)
Power Requirement	440V; 60Hz; 3 Phase; 35A
Heating Capacity	18 kW
Frame Construction	Welded grade 316 stainless steel
Tank Construction	Welded 316L, built to ASME VIII DIV 1
Unit Dimensions	
Length	1625mm
Width	1100mm
Height	1650mm
Weight (dry)	750 kg

Potable Water System - Ring Main 2
Order Code PWS100AA

Potable Water System - Ring Main 2 (DNV & Lloyds approved)
Order Code PWS100BA

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