

UAT™ MEMBRANE FILTRATION SYSTEMS

UAT™ membrane filtration solutions are designed to be reliable in tough environments, ensuring a secure and safe source of clean potable water for the demanding offshore marine industrial sector

Seawater Desalination Systems: Offshore and Marine

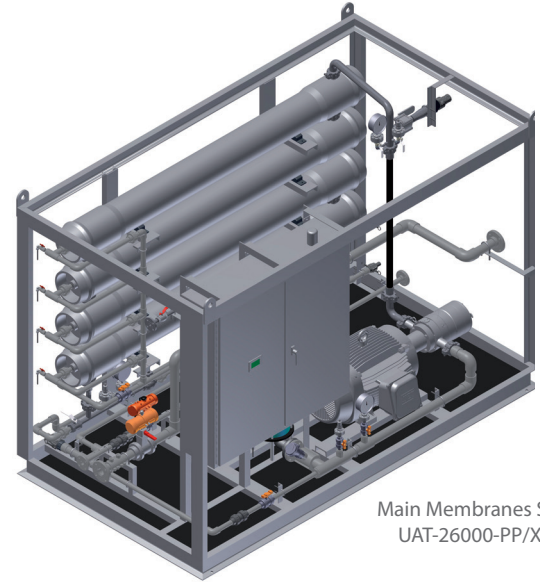
UAT™ Pure Pro seawater desalination membrane filtration systems from De Nora Water Technologies are ideal for offshore oil and gas applications. The standard output capacities range from 2,000 GPD to 26,000 GPD (7,570 LPD to 98,410 LPD) and effectively produce fresh treated potable water, free of particulate matter or contaminants from a seawater source. Higher output capacities and custom configurations are available on a project to project basis.



For more information on UTA™ Membrane Filtration Systems visit www.denora.com

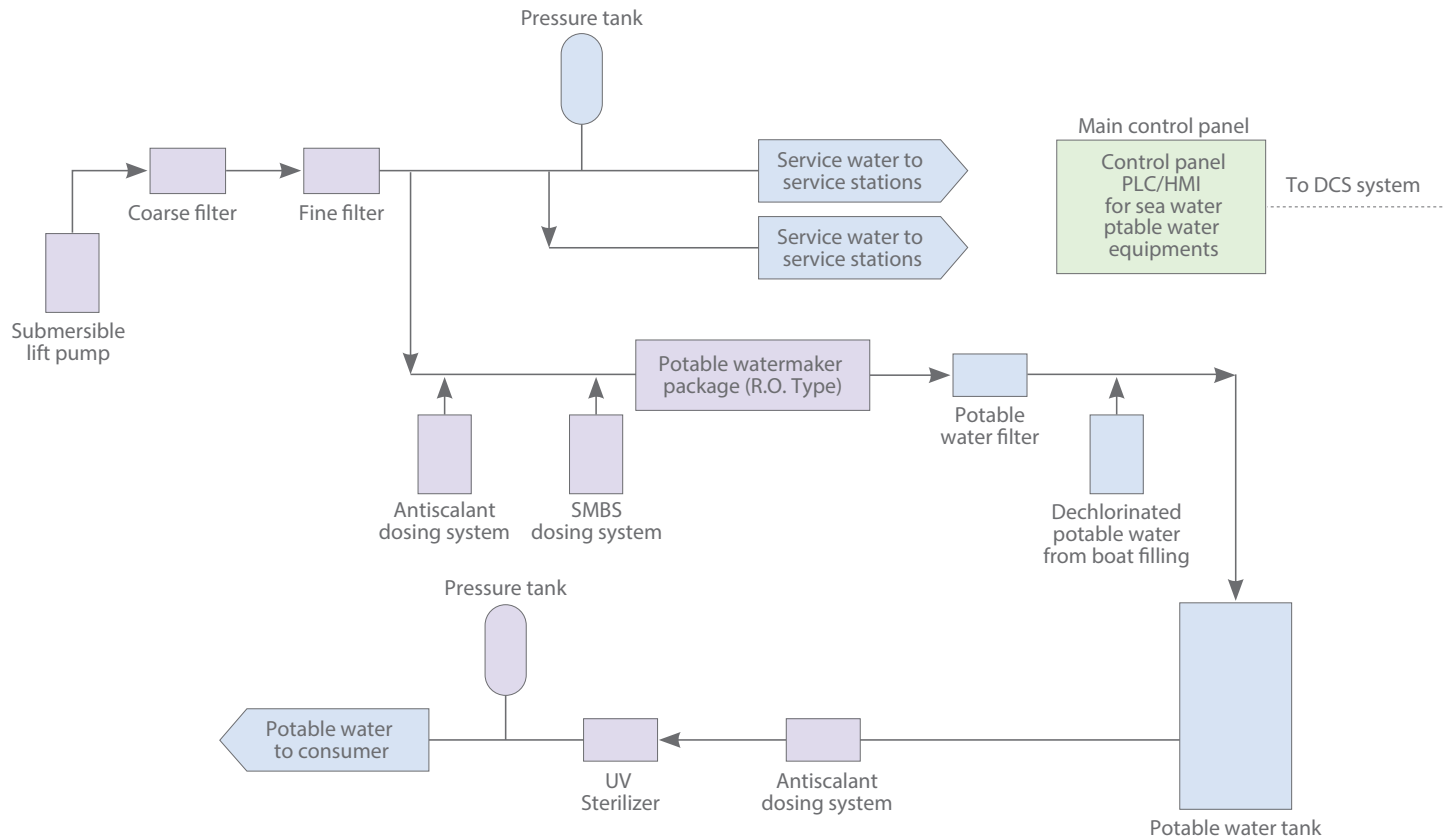
We Understand Saltwater Desalination

The cost-effective, efficient and easy-to-operate UAT™ Pure Pro systems are built to withstand offshore and marine environments. The systems always provide a source of fresh water — whenever and wherever it's needed. Systems feature corrosion resistant components, flexible control features in addition to standard features.



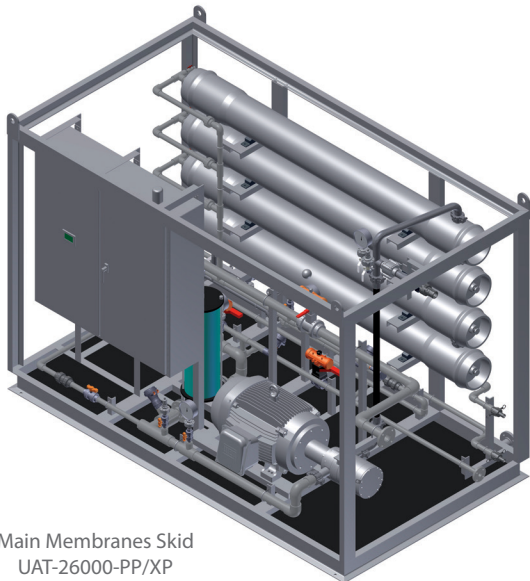
Main Membranes Skid
UAT-26000-PP/XP

We can supply all stages of an offshore potable water treatment system.



UAT™ Advantages

- UAT™ Pure Pro systems deliver a reliable and clean source of drinking water as well as water for equipment wash down, engine cooling, boiler makeup feed and other requirements.
- Systems meet requirements of a classified area. (Class 1 Div. 2, T3)
- Rugged design offers peace of mind and secure operation in harsh environments
- Meets the design standards of many oil and gas operating companies
- Cost effective and easy to operate design
- Small footprint is ideally suited for retrofits and new installations
- Maximum corrosion resistance including
 - 2205 Duplex Stainless Steel High Pressure Piping
 - 2205 Duplex and 2507 Super Duplex Stainless Steel compact high pressure pumps
- Conservative design delivers high energy efficiency and minimal service requirements
- Variable Frequency Drive (VFD) for the high pressure motor reduces amperage requirements at start-up, extends the life of the high pressure pump and maximizes energy savings
- State of the art fully automatic Digital Control System with communications capability for remote monitoring:
 - Heavy Duty Industrial Type with Allen Bradley Program Logic Control (PLC) and 6" Touch-Screen interface to Maximise operational life and performance. System incorporates service alerts and also starts & stops automatically based on level of water in the client's local product tank
- Built-in safety alarms and monitors with pressure transmitters ensure safe operation and proper monitoring
- Skid mounted on high quality carbon steel frame specially sandblasted and painted by electrically applied fuse coated paint
- Expert engineering & support with more than 25+ years' experience and 1,000 plus membrane filtration installations world-wide in various applications



Main Membranes Skid
UAT-26000-PP/XP

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Additional Optional Accessories

UAT™ Pure Pro systems are available with a range of factory supplied optional accessories

Reverse Osmosis Membrane Cleaning In Place (CIP)/Flushing system

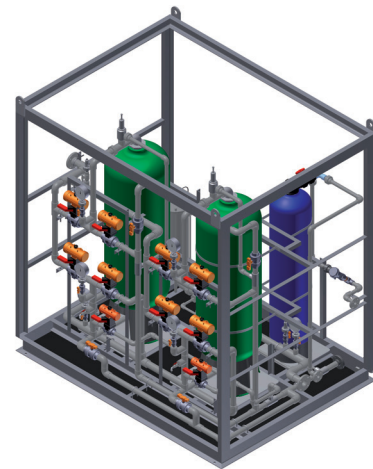
A pre-designed complete skid mounted heavy duty membrane cleaning and flushing system. The system offers a convenient membrane cleaning solution to maximize membrane life and bio-fouling.



CIP/Flushing System

Turbimax pre-treatment filter extends membrane life

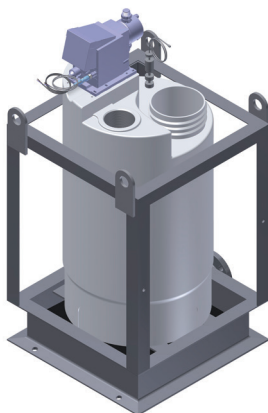
A unique low micron depth media filtration system to filter suspended solids (turbidity) down to 8-10 microns. The automatic backwash and service operation is controlled by the PLC. The superior micron filter extends the 5 Micron prefilter cartridge life.



Multimedia filter

Chemical Dosage Systems for feed and product water

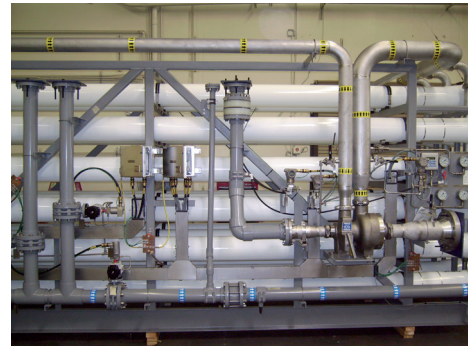
The dosage injection system is skid mounted and includes a chemical storage tank and a low level float safety feature. The system is used to control water parameters by injecting antiscalant to prevent premature RO membrane scaling and Sodium Metabisulfite to remove free chlorine.



Chemical Dosing System

Commissioning and Start-up:

De Nora Water Technologies works closely with end users to ensure the UAT™ Pure Pro seawater desalination systems are commissioned and delivered on time and to your requirements. We have in-house technicians and factory trained authorized technicians in various parts of the world.



We Understand Saltwater Desalination



Standard Seawater Desalination Solutions for Offshore Oil and Gas Applications

| Model Number | Permeate | | Feed | | Concentrate | | Recovery | Power | | Membrane | | | |
|--------------|----------|---------------------|-------|--------------------|-------------|--------------------|----------|-------|------|---------------|------|-------------------|----------------|
| | USGPD | m ³ /day | USGPM | m ³ /hr | USGPM | m ³ /hr | % | HP | kW | Model | Qty. | Total Active Area | |
| | | | | | | | | | | | | ft ² | m ² |
| UAT-2000-PP | 2,405 | 9 | 6.0 | 1.4 | 4.3 | 1.0 | 28 | 5.0 | 3.7 | SW30HRLE-4040 | 3 | 255 | 24 |
| UAT-2000-XP | | | | | | | | | | | | | |
| UAT-3000-PP | 3,168 | 12 | 7.9 | 1.8 | 5.7 | 1.3 | 28 | 7.5 | 5.6 | SW30HRLE-4040 | 4 | 340 | 32 |
| UAT-3000-XP | | | | | | | | | | | | | |
| UAT-4000-PP | 4,234 | 16 | 10.5 | 2.4 | 7.6 | 1.7 | 28 | 10 | 7.5 | SW30HRLE-4040 | 5 | 425 | 40 |
| UAT-4000-XP | | | | | | | | | | | | | |
| UAT-5000-PP | 5,040 | 19 | 10.9 | 2.5 | 7.4 | 1.7 | 32 | 10 | 7.5 | SW30HRLE-4040 | 6 | 510 | 47 |
| UAT-5000-XP | | | | | | | | | | | | | |
| UAT-6000-PP | 6,624 | 25 | 14.4 | 3.3 | 9.8 | 2.2 | 32 | 10 | 7.5 | SW30HRLE-4040 | 8 | 680 | 63 |
| UAT-6000-XP | | | | | | | | | | | | | |
| UAT-8000-PP | 8,064 | 31 | 26.1 | 5.9 | 20.5 | 4.7 | 22 | 20 | 14.9 | SW30HRLE-440i | 2 | 880 | 82 |
| UAT-8000-XP | | | | | | | | | | | | | |
| UAT-13000-PP | 13,205 | 50 | 29.6 | 6.7 | 20.4 | 4.6 | 31 | 25 | 18.6 | SW30HRLE-440i | 3 | 1320 | 123 |
| UAT-13000-XP | | | | | | | | | | | | | |
| UAT-16000-PP | 15,840 | 60 | 31.4 | 7.1 | 20.4 | 4.6 | 35 | 25 | 18.6 | SW30HRLE-440i | 4 | 1760 | 164 |
| UAT-16000-XP | | | | | | | | | | | | | |
| UAT-22000-PP | 22,464 | 85 | 43.3 | 9.8 | 37.7 | 8.6 | 36 | 30 | 22.4 | SW30HRLE-400i | 6 | 2400 | 222 |
| UAT-22000-XP | | | | | | | | | | | | | |
| UAT-26000-PP | 29,160 | 110 | 54 | 12.3 | 33.8 | 7.7 | 38 | 40 | 29.8 | SW30HRLE-400i | 8 | 3200 | 296 |
| UAT-26000-XP | | | | | | | | | | | | | |

1. Based on sea water feed TDS of 37,000-45,000 ppm (mg/L) and sea water temperature of 77°F (25°C). TDS Rejection: 99.5% Average.
2. Above Model numbers ending with "PP" are for "Non-Hazardous Classified Area installation".
3. Above Model numbers ending with "XP" are for Hazardous (Class 1, Div. 2, T3) Classified Area installation.
4. Specifications and features subject to change without notice.

| Model Number | Multimedia Filter Skid | | R.O. Membranes Skid | | Cip/Fresh Flush Skid | | Chemical Feed System | | Total Skid Weight | | | | | | | |
|--------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|-------------------|-----------------------|---------------|-----------------------|--------------|-----------------------|-------|-------|
| | Dimensions (L X W X H) | | Dimensions (L X W X H) | | Dimensions (L X W X H) | | Dimensions (L X W X H) | | (Shipping Weight) | | | | | | | |
| | Inch | Millimeter | Inch | Millimeter | Inch | Millimeter | Inch | Millimeter | Lbs | kg | | | | | | |
| UAT-2000-PP | 48 x 48 x 110 | 1,220 x 1,200 x 2,800 | 90 x 60 x 80 | 2,286 x 1,524 x 2,032 | 72 x 48 x 90 | 1,828 x 1,220 x 2,286 | 24 x 24 x 48 | 1,828 x 1,220 x 2,286 | 2,900 | 1,318 | | | | | | |
| UAT-2000-XP | | | | | | | | | 3,100 | 1,409 | | | | | | |
| UAT-3000-PP | | | | | | | | | 3,200 | 1,455 | | | | | | |
| UAT-3000-XP | | | | | | | | | 3,500 | 1,591 | | | | | | |
| UAT-4000-PP | | | | | | | | | 3,800 | 1,727 | | | | | | |
| UAT-4000-XP | | | | | | | | | 2,900 | 1,318 | | | | | | |
| UAT-5000-PP | | | 90 x 65 x 80 | 1,220 x 1,651 x 2,800 | 80 x 60 x 90 | 2,032 x 1,524 x 2,286 | | | 3,500 | 1,591 | | | | | | |
| UAT-5000-XP | | | | | | | | | 3,700 | 1,682 | | | | | | |
| UAT-6000-PP | | | | | | | | | 4,100 | 1,864 | | | | | | |
| UAT-6000-XP | | | | | | | | | 4,300 | 1,955 | | | | | | |
| UAT-8000-PP | | | | | | | | | 96 x 73 x 104 | 2,438 x 1,854 x 2,642 | 120 x 67 x 86 | 3,048 x 1,702 x 2,184 | 80 x 60 x 90 | 2,032 x 1,524 x 2,286 | 2,900 | 1,318 |
| UAT-8000-XP | | | | | | | | | | | | | | | 3,500 | 1,591 |
| UAT-13000-PP | 3,700 | 1,682 | | | | | | | | | | | | | | |
| UAT-13000-XP | 4,100 | 1,864 | | | | | | | | | | | | | | |
| UAT-16000-PP | 4,300 | 1,955 | | | | | | | | | | | | | | |
| UAT-16000-XP | | | | | | | | | | | | | | | | |
| UAT-22000-PP | | | | | | | | | | | | | | | | |
| UAT-22000-XP | | | | | | | | | | | | | | | | |
| UAT-26000-PP | | | | | | | | | | | | | | | | |
| UAT-26000-XP | | | | | | | | | | | | | | | | |



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