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**ASAUTOMECH**  
SOLUTIONS



# Water treatment plant

**ASAutoMech Solutions (PTY) Ltd.**

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Applying the highest standards of Engineering through...  
***EXPERTISE, QUALITY & SERVICE***





# Water treatment plant

Water Filtration, Purification & Preparation Plants

We engineer and develop equipment and systems for

## **INDUSTRIAL SOLUTIONS**

in the Advanced Water Treatment, Mining Reagent Systems, and Food Processing Industries





# Water & the future

AS AutoMech Solutions has expanded its range of products and services significantly over the past 24 months putting much more emphasis on Water. This includes the treatment of water for human consumption and other related requirements as well as treating water after usage by humans, mines and other industrial applications. Technology used varies from conventional Settlers, DAF units, or a wide variety of membrane technology and in some cases micro and bacterial organisms.

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# Application

Several membrane technologies such as UF, MF, RO and CEDI is applied either on its own or in specific applications in complimenting each other.

## Reverse osmosis - RO

Reverse osmosis is used for the production of demineralized water. Water is transported across a semi-permeable membrane under high pressure, leaving a product that consists mainly of water and a concentrate containing most other components such as minerals, unwanted residues and dissolved salts. This efficiency has made reverse osmosis the primary method of water purification, often being used in combination with other methods, as a final treatment.





## Reverse osmosis - effective in the:

- Production of demineralised water for pharmaceutical applications
- Preparation of ultra-pure water
- Water recovery and reuse by removal of dissolved salts
- Drinking water production
- Boiler feed water treatment
- Bottled mineral water followed by remineralisation
- Desalination for sea-and brackish water for potable use



# Micro & Ultra Filtration - MF & UF

Micro and Ultrafiltration is a membrane filtration process and provides an alternative to conventional pre-treatment. In this method water is only pre-filtered with a common screen filter before being filtered at high pressure through a membrane, separating the water from contaminants within it. Ultrafiltration (UF) is a cross-flow process similar to Reverse Osmosis (RO). A pressurised feed stream flows parallel to a porous membrane filtration surface. A pressure differential forces water through the membrane. The membrane rejects particulates, organics, microbes, pyrogens, and other contaminants that are too large to pass through the membrane. Ultrafiltration can be used on its own for water purification or as a pre-treatment for reverse osmosis.







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## Further Alternative Options & Technologies Available

Continuous electro-deionisation is the removal of ions from water by using electrodes (cathode and anode) to attract the ions in the water through selective permeable membranes and ion exchange resins, thus removing the cations and anions from the feed compartment.



# CEDI is used in:

- Production of USP (United States Pharmacopeia) grade water for Pharmaceutical applications
- Production of feed to WFI (Water for Injection) Distillation plants
- Polishing step in boiler feed water production
- Microelectronics / Semiconductor makeup and rinse waters







## Typical applications include:

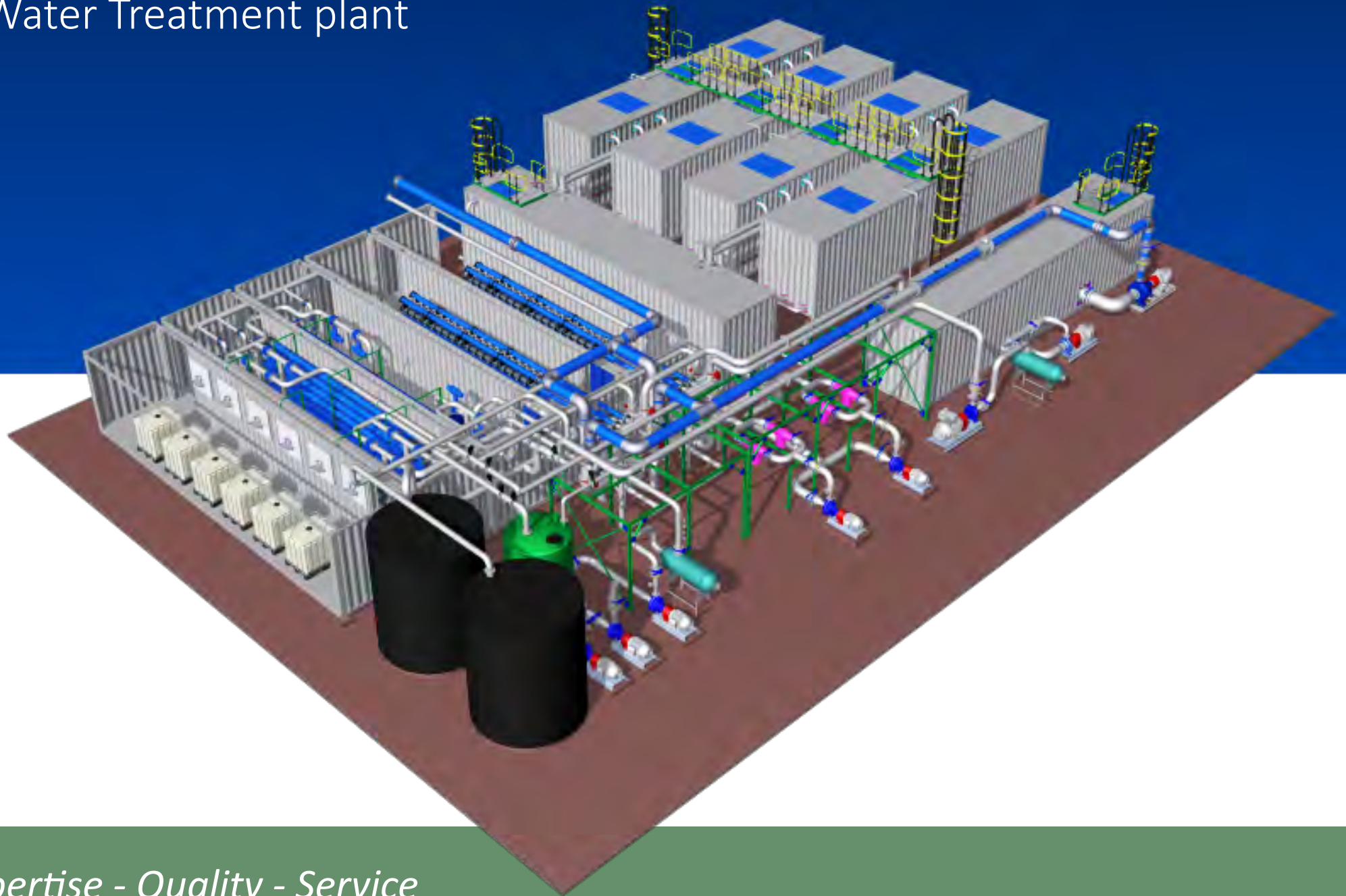
- RO and NF pre-treatment
- Industrial and municipal wastewater reclamation
- Ultra-pure water production
- Seawater desalination
- Ion-exchange pre-treatment
- Potable water production
- Industrial wastewater treatment for discharge
- Resource recovery from industrial waste streams
- Ground water treatment for industrial or municipal use
- Surface water treatment for industrial or municipal use
- Seawater reverse osmosis pre-treatment
- Industrial water treatment effluent reclamation
- Municipal or sewage treatment effluent reclamation
- Reuse (water recycling)

# Projects

AS Automation Solutions has successfully designed, engineered, fabricated and automated several UF, MF,RO and other similar plants ranging from 10M<sup>3</sup>/Hr right up to the latest Ahavo 120M<sup>3</sup>/hr RO plants. Again as with all our other projects, our strength lies in a one stop Turnkey Solutions, with all aspects from drafting to quality engineering right up to shop commissioned and tested plants being shipped Internationally supporting our many customers.

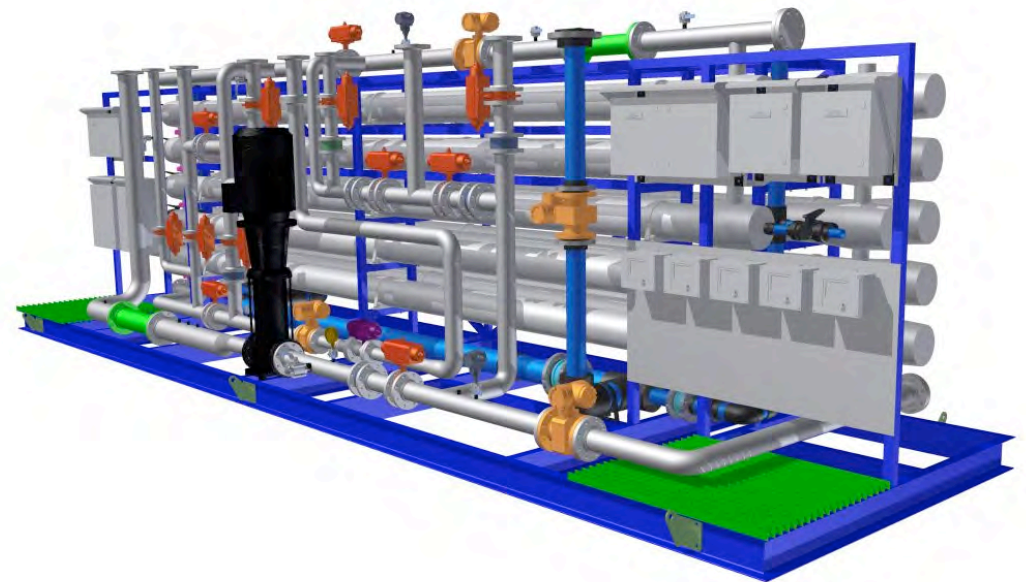
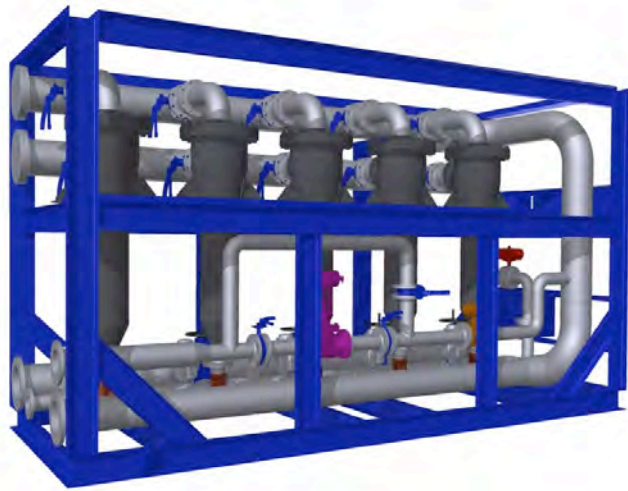


# Water Treatment plant



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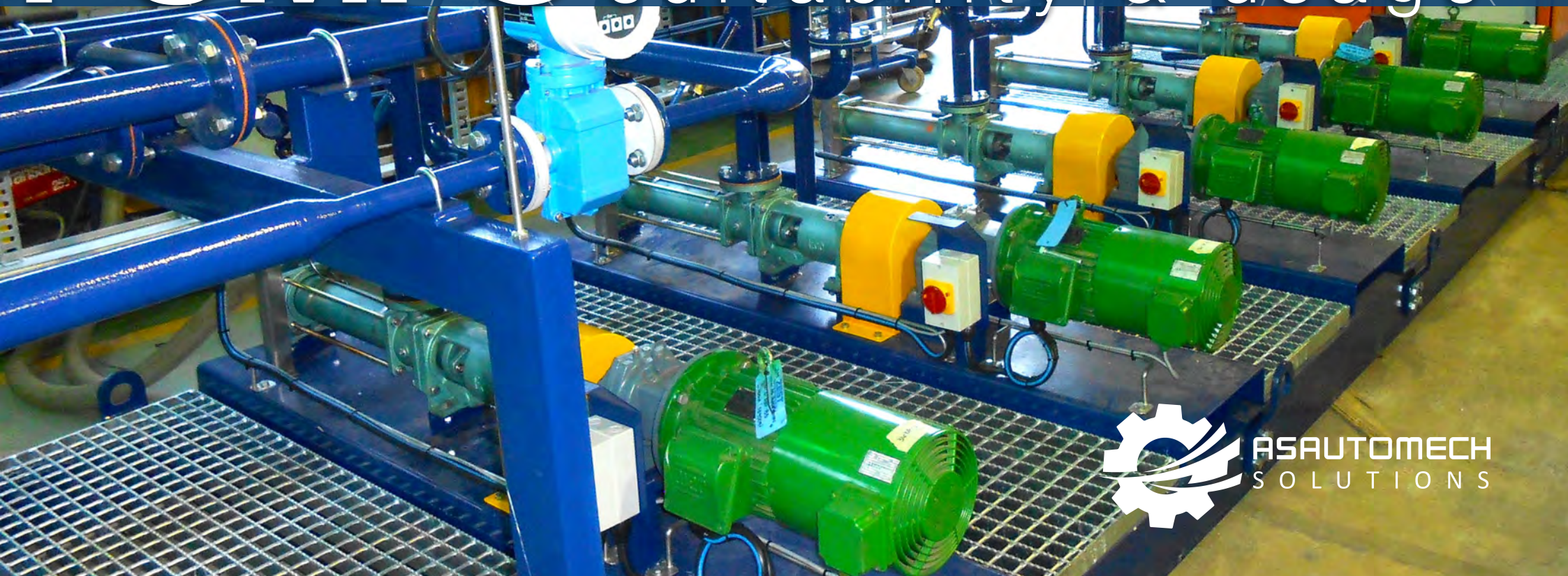




Extremely well suited for remote areas on the African continent



# PUMPS suitability & usage



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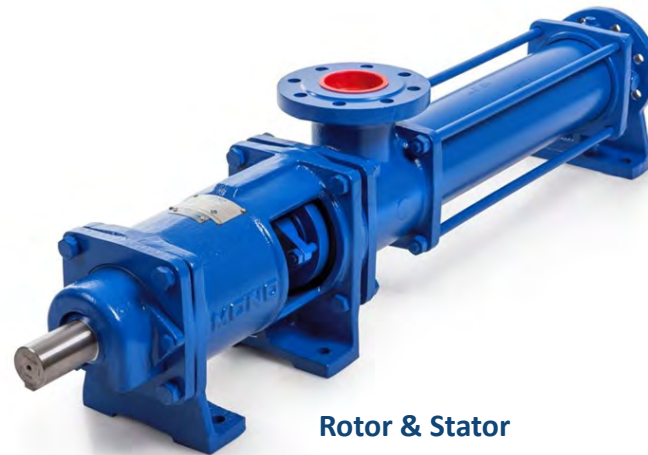


# Pump Models

Various pump types and models are available to compliment our units based on the application and process requirements. We do not have close alliances with any particular manufacturer or make but will always select known brands with reputable products.



Peristaltic



Rotor & Stator



Diaphragm





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