

Your Trusted Partner For

Desalination Water Analysis



- Instrumentation
- Digital Solutions
- Consultancy
- Service
- Support



Be Right™

Your Partner for Seawater Desalination

Desalination plants are continuously trying to improve performance or efficiency. The major operational issues of today's desalination facilities involve day-to-day monitoring of the complete process and careful preventive maintenance.

With over 85 years of experience in water analysis, Hach® has developed deep expertise and understand your needs when it comes to ensuring the highest levels of water quality, consistency and safety through the complex challenges of the treatment process.

As water quality experts Hach offers a comprehensive process & lab analysis portfolio including services for desalination. We help you in all the challenges you may find on your process: uncontrolled deposition and clogging, organic or biofouling or membrane oxidation by chlorine, and make sure you get the optimum and disinfected drinking water quality, as well as the right solutions to provide digital data, remote monitoring and all managed within your software programs.

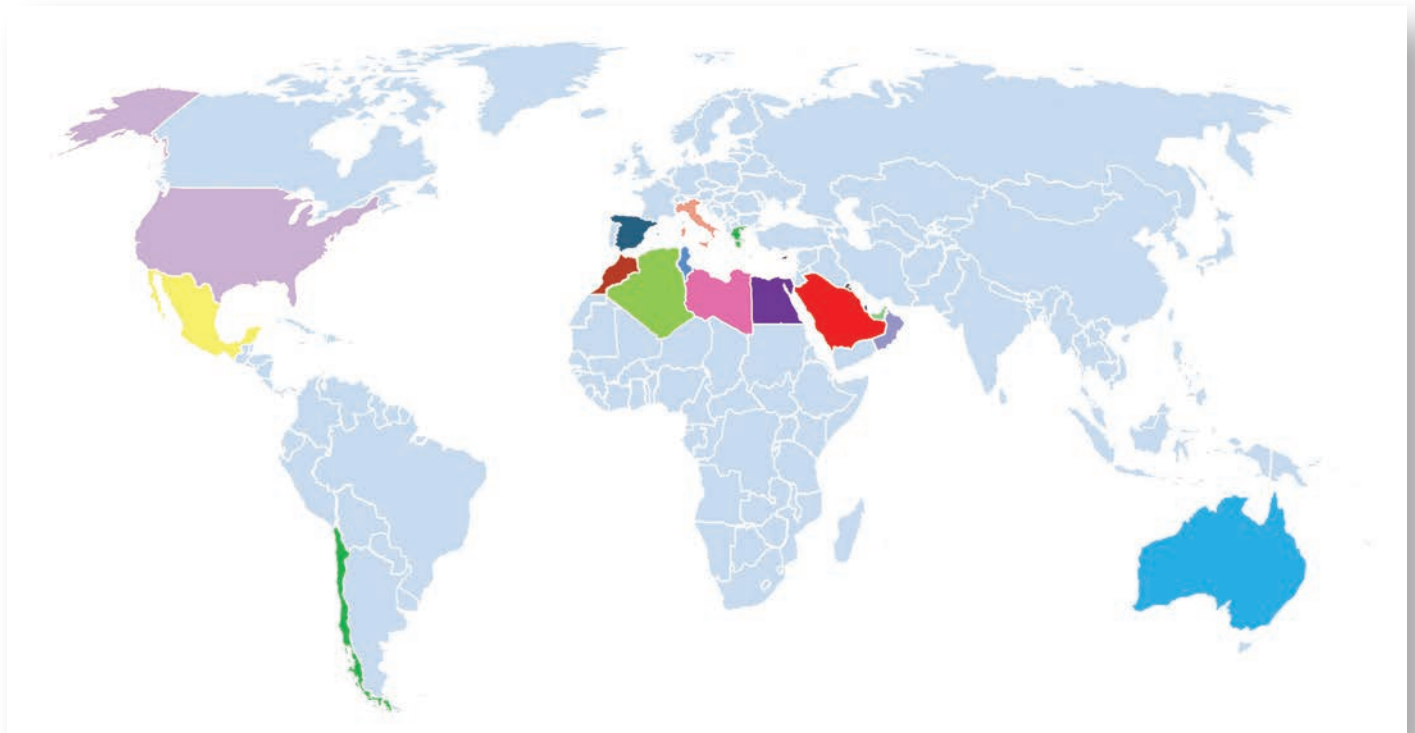
Our aim is to support you to improve your processes. For that purpose, we offer a professional tech support and service teams that will help you in all the steps of your process in order to get the best results.

With Hach, desalination plants can:

- Protect their asset by controlling the quality of the water they feed in their plant
- Minimise the loss of produced water
- Maximise the uptime of the plant
- Provide safe, potable water

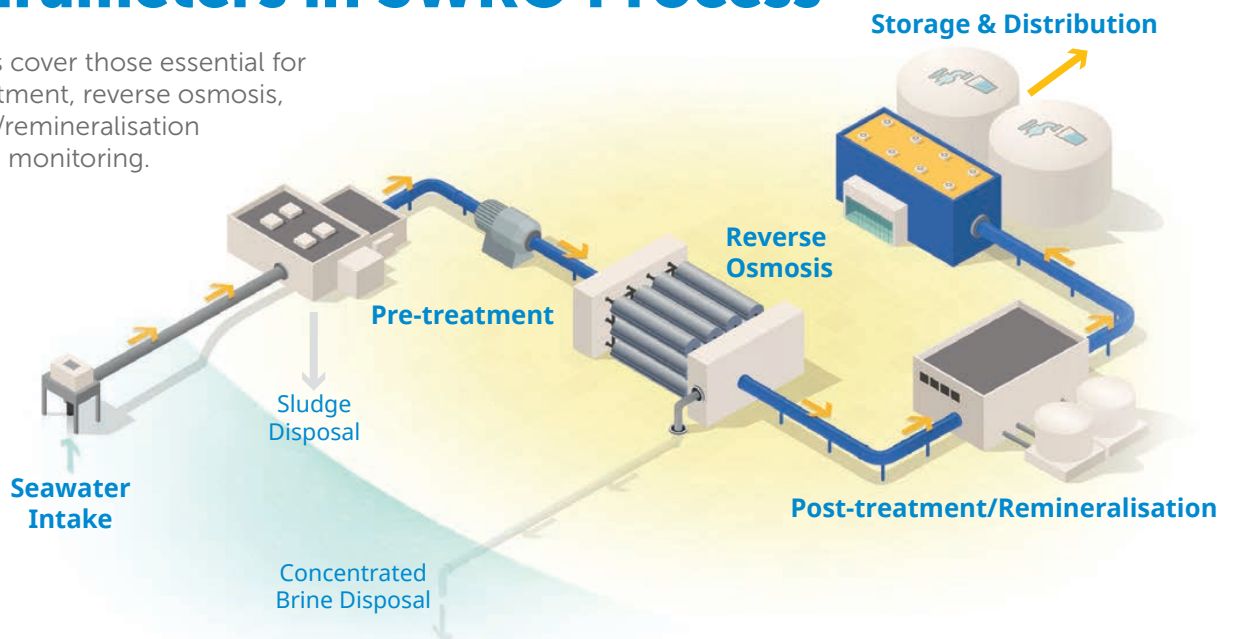
Global Presence

We have presence in more than 100 sites globally, in more than 15 countries, and wide experience in international projects worldwide.



Key Parameters in SWRO Process















Our parameters cover those essential for intake, pre-treatment, reverse osmosis, post-treatment/remineralisation and distribution monitoring.

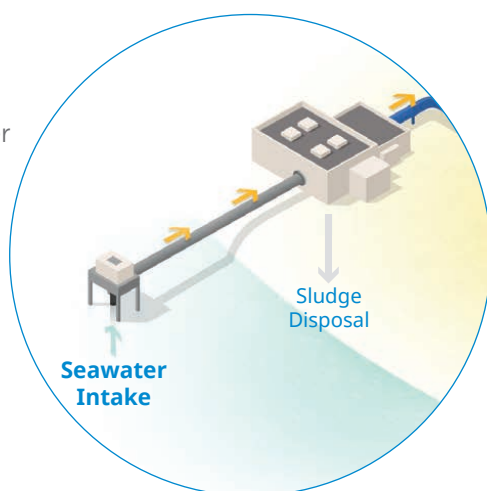


Sea Water Intake

Naturally occurring constituents in sea water are often present in such quantities that they require additional actions for removal in the desalination process, in order to meet quality requirements for human consumption. Unwanted residues or byproducts can result from the carryover of these constituents to the RO stage.

Parameters Relevant to Sea Water Intake



-   pH
-   Conductivity/TDS/Salinity
-  Suspended Solids
-   Turbidity
-   Chlorine
-   ORP
-  Oil in Water
-   Total Organic Carbon

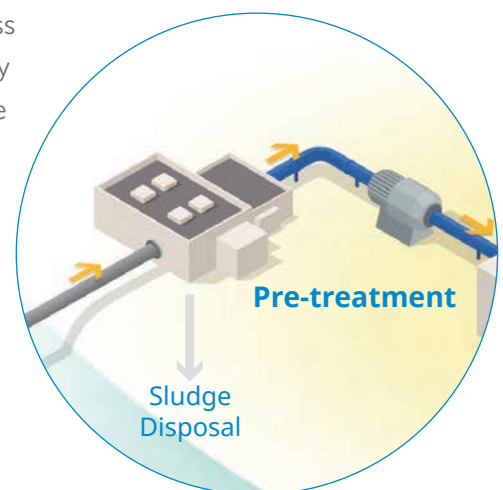


Pre-treatment

Feed water pre-treatment in desalination facilities is necessary to improve the quality of the feed water to the level of reliable operation of the RO membranes.

Parameters Relevant to Pre-treatment

-   pH
-   Conductivity/TDS/Salinity
-   Turbidity
-   Total Organic Carbon
-   Hardness
-   Alkalinity
-   Chlorine



 Laboratory solutions include simple, reliable and accurate tests that support quality and compliance decision making

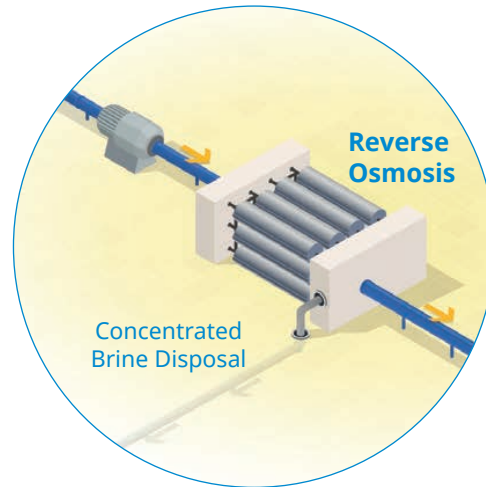
 Process solutions include online sensors that provide round-the-clock support for critical operational and process decision making.

Reverse Osmosis

Uncontrolled fouling or clogging of the membranes leads to increased maintenance, higher energy costs and a short membrane life. On-line monitoring of both chemical and biological key parameters allows you to take your process to the next level, while cutting back on unwanted expenses.

Parameters Relevant to Reverse Osmosis

-   Chlorine ULR
-   Conductivity High Range & Low Range
-   Turbidity ULR
-   Total Organic Carbon
-   Boron
-   Alkalinity
-   pH/ORP
-   Temperature
-  SDI (Silt Density Index)

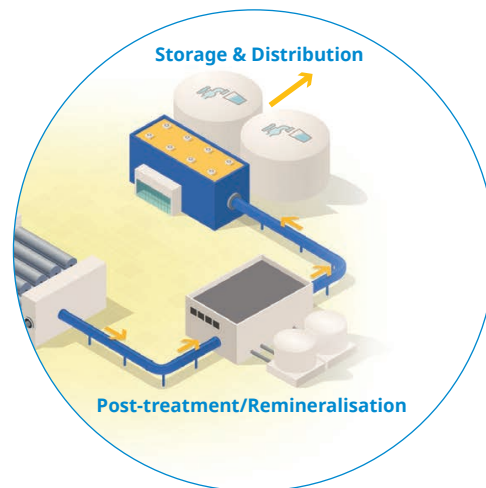


Post-treatment, Storage & Distribution

The quality of the distributed water is of paramount importance as it concerns human health. Drinking water quality criteria require often a large set of physicochemical and biological analyses which are conducted prior to distribution by the local authority.

Parameters Relevant to Post-treatment, Storage & Distribution

- | | |
|---|--|
|   pH |   Sodium |
|   Chloride |  Potassium |
|   Manganese |   Conductivity |
|   Iron |   Turbidity |
|   Fluoride |   Sulphate |
|   Aluminum |   Nitrate |
|   Hardness |   Phosphate |
|   Total Alkalinity |   Silica |
|   Boron |  ATP |
|   Chlorine |   LSI |
| |   TOC |



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 Process solutions include online sensors that provide round-the-clock support for critical operational and process decision making.

Lab Solutions

DR3900 VIS & DR6000 UV-VIS Spectrophotometers

Trace your sample from collection to preparation, sample analysis, to documentation.

- RFID technology
- Preprogrammed with desalination industry-specific methods
- Measures B, PO_4^{3-} , NO_3^- , H_3PO_3 , Cl⁻, Fe, Mn, Al, True Color, Cl Free and Total, NH_4^+ , TP, TN, TOC, COD, Ba, Si, etc.



TU52 & 2100Q Turbidimeters

Hach's newest instruments provide accurate, reliable results that gives you the confidence you expect from your turbidity measurements. Hach has introduced a breakthrough lab turbidity meter TU52 for drinking water and other clean water applications.

Hach 2100Q / 2100Q IS Portable Turbidimeter offers unsurpassed ease of use and accuracy in turbidity measurement.

DR900 & DR300 Colorimeters

DR900 is a multi-parameter handheld water testing with over 90 colorimetric parameters for use in the most demanding field environments.

DR300 is the most robust monoparameter solution for the field.



Clarus Enabled

Clarus Enabled



HQ Meters & Intellical Probes

We offer a range of probes for routine desalination applications: pH, ORP, Conductivity, TDS, Salinity, etc.

- Intuitive user interface

AT1000 Automatic Titrator

Now anyone in the laboratory can perform Potentiometric Titrations that deliver fast, accurate and reliable results.

- One-touch automation
- Pre-set application packs
- Ready-to-use straight from the box



Reagents

Hach offers a wide range of LCK Cuvette tests and other Hach methods for desalination industry.

Measures B, PO_4^{3-} , NO_3^- , H_3PO_3 , Cl⁻, Fe, Mn, Al, True Color, Cl Free and Total, NH_4^+ , TP, TN, TOC, COD, Ba, Si, etc..



Process Solutions

EZ Series

The new EZ Series online analysers cover the most important parameters for the desalination industry.

Featured Product: EZ1000/2000 Parameters: **Boron**, Al, Fe, Mn, Cl₂

EZ4000 Parameters: Alkalinity, Hardness, Chloride

EZ5000 Parameters: Alkalinity & Hardness in one analyser, **LSI**

EZ7xxx Parameters: TOC/COD/TP/TN

EZ3000 Parameters: Fluoride, Chloride

EZ7300 Parameters: ATP



BioTector TOC Analysers

BioTector analysers eliminate build-up issues from salts and can thus accommodate higher salt concentration relative to other analysers. Extended ranges starting as low as 20,000 ppm in intake to few ppb in permeate.

B7000 Application: Intake/Influent

B3500 Application: Low and Ultra-low ranges in Permeate/DW

Disinfection

CL17sc and CL17 ULR Cl₂ colorimetric analysers up to 10 ppb LOD

Amperometric Chlorine Probes

CL10, 9184 Free Chlorine Analysers

9185 and 9187 Ozone and Chlorine Dioxide



Turbidity

Ultraturb Seawater sc

Intake/Pretreatment
Salt resistant up to 65 g/l 0-1000 NTU

TU53/TU54 sc series

High precision 360° laser turbidimeter for Permeate/DW



Suspended Solids/Turbidity

For a wide range of applications and measuring ranges.

Solitax sc Family Plastic and Stainless Steel

TSS sc Family Titanium and Stainless Steel

Oil and Hydrocarbons

PAH 500 for desalination applications



Electrochemistry

pH and ORP Differential

pHD/ORPD

Conductivity (inductive) - 37XX

Intake/Brine/Pre-treatment

Conductivity (contacting) - 83XX

Permeate/Drinking Water

LDO seawater sc

Dissolved Oxygen (luminescent)



Samplers

AWRS

(All Weather Resistant)

AS950 Portable

Bühler Vacuum



Panel & Shelter Solutions

Hach offers complete panel solutions for instruments, size optimised and standard configurable, as well as sample preconditioning panels for prefiltration & dilution.



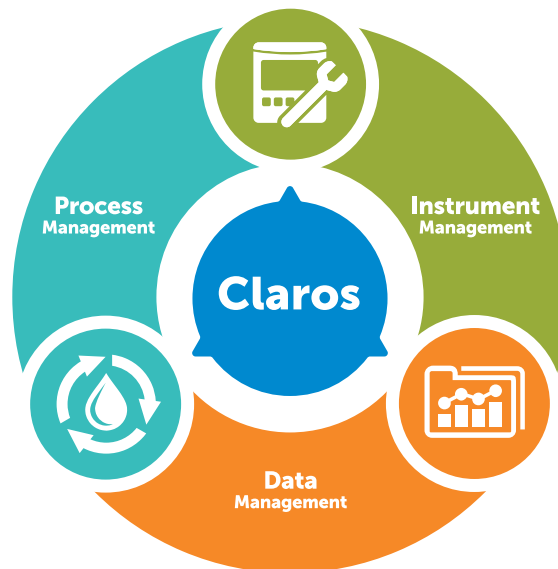
Weather and corrosion resistant cabinets for analysers and sensors.

Customised solutions.

Digital Solutions: Claros

RTC— Real Time Control

- Reduce Permit Risk
- Intensify Treatment
- Reduce Opex
- Modules Available for Desalination:
 - Dissolved Air Flotation(DAF)
 - Chlor/Dechlor
 - Chemical Dosing



MSM— Data Anytime, Anywhere

- Easier Calibration / Maintenance
- Maintenance Accountability
- Remote Access to Data & Metadata
- Maximise instrument Up-time

Claros Data Management (Collect)

- Aggregation of Data = New Insights into Your Permit Risk and Plant Efficiency

Note: Not available for all countries. Check availability with your Hach representative.

For more information about Hach Solutions for the Desalination Industry, please contact your Hach representative, or visit:

hach.com/industries/desalination



Be Right™

Service & Support



Hach Support Online (HSO) pools more than 85 years of water analysis knowledge into a powerful global community. Flowing directly into our customer and technical support teams, this dynamic resource delivers real-time answers, user-friendly search tools, multiple types of content, and easy ways to connect with Hach experts. With HSO, you get the information you need and, together, we can power progress for people around the world.



Hach Training Center provides relevant, hands-on training to your team, giving them the experience they need to master various theories and techniques—and produce results you can trust for quality assurance, environmental safety, and regulatory compliance. Hach experts offer a large course catalogue of workshop training, personalised training, and digital learning designed to increase proficiency and confidence for plant operators, instrument & field technicians, laboratory personnel, and plant managers & supervisors.



Hach ServicePlus Programs have been developed to help solve your maintenance and support problems. Whether it's a lack of resources or skills, an instrument that is down, compliance concerns, or the need for a predictable budget, we have programs to fit the unique challenges you face in your organisation.