DESALIA WATER

COMPANY PROFILE

2023

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1. Introduction

For more than 30 years, the European water industry has developed cost-effective and sustainable solutions using reverse osmosis desalination technology as a strategy for addressing the countries' water resource challenges. During this period, an industry has evolved, establishing companies that have accumulated a wealth of knowledge and experience in the research, design, construction, operation and maintenance of desalination plants. DESALIA WATER has participated in this market and Europe is now acknowledged as leading the world in the field of membrane desalination, with more than 95 % of the European's desalination capacity provided through advanced membrane technology.

DESALIA WATER has been recognised as one of the leading companies in the use of seawater RO desalination and has an on-going commitment to developing this technology, through which it has earned the trust and confidence from both the clients and suppliers at international levels.

DESALIA WATER is dedicated to its clients with the benefit of our global experience through tailored and reliable solutions for public and private applications. More specifically, in the field of seawater desalination, we have a portfolio of more than 40 desalination plants with a total installed capacity of more than 500.000 m3/d. This experience reinforces the strength of our knowledge and expertise in this field, which has allowed us to enter into the Built Own and Operate projects (BOO).

Our knowledge and experience in operation and maintenance of desalination plants has given us an intimate understanding of process performance, membrane fouling and optimization techniques. This unique capability extends through each phase of the project lifecycle allowing us to minimize whole life costs of facilities, and to construct and operate plants at an optimum total water cost.

It is noteworthy that DESALIA WATER is a Spanish desalination company with project experience in different countries providing in-depth knowledge allowing to tailor-fit its designs well to local market requirements.

Some of our projects are already in operation in countries like **Spain, Egypt, Oman, Cape Verde, Qatar and Persian Gulf**, and actually with executing projects in Spain and MENA countries.

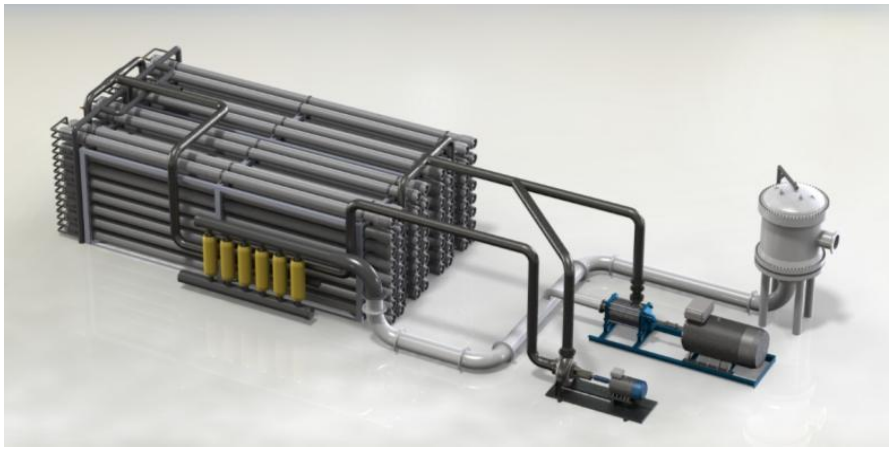
2. Our services

Based on more than 25 years of experience in Sea Water Desalination, in reverse osmosis, we can offer different services to our clients.
Our Engineering and Technical Services, include the following:

- Feasibility Studies
- Technical Due diligences and audits
- Tender Documents preparation
- Basic design and RFQ documents
- Basic Process Engineering
- Detailed Engineering for Construction
- Technical Reports for Arbitration
- Site supervision
- Operation follow up
- Plant performance optimization
- Specific incidences reports

Our **Contracting services** provide the following:

- Detailed Engineering for Construction
- Procurement management and supply
- Manufacturing
- Turnkey solutions under EP, EPC or BOO models
- Start-up and Commissioning services



3. Design optimization and innovation

DESALIA WATER has developed an extensive knowledge in membrane technology, which enables the company to achieve a highly regarded position in the industry as a specialist in SWRO desalination. DESALIA's research and development (R&D) programmes continue to develop solutions and opportunities.
DESALIAWATER´s engineers are in a position to challenge any requirement of the customers providing the most advanced design and minimizing the erection time through the compact design and the pre-assemble concept l where plants are manufactured. The pre-assemble of the RO skids and the testing at our facilities get important savings during the construction at site.
All our plants are designed to be shipped within standardized containers to any part of the world either in a single module or in multiple ones, which simplify the construction at the site location resulting in a very short delivery time.

From complete containerized plants of between 500 m3/day capacity and 10,000 m3/day production DESALIA WATER is able to design, manufacture, pre-assembly, assembly at site and commissioning the plant in one of the most reduced delivery periods thanks to its optimized design and manufacturing experience.

Our plants in skid mounted units and containers, are providing drinking water for more than 500,000 people in countries like Egypt, Spain, and Oman. Desalia Water has designed a 1000 m3/day plant in two standard 40 ft container to be easily transported from one location to another with no major civil works requirement.

Containerized SWRO plant 800 m3/d capacity

As part of the vision to improve our service to our clients, DESALIA WATER has set an ambitious R&D program signing cooperation agreements with international companies to develop new technologies that could improve the treatment processes. Fields like new materials or energy recovery systems are part of the future of the technology that DESALIA WATER intends to embrace.

4. Manufacturing facilities & Quality

Desalia Water manufactures in Spain all the preassembled skids guaranteeing the highest quality standards.

DESALIA WATER´s staff is able to challenge any design adapted to the local requirements and consider the specific characteristics of each desalination plant. From the design, up to the factory test, our plants are completely made in Europe following the highest quality standards in the desalination industry.

Quality standards

Because of the importance of the quality as a way to guarantee the customer´s satisfaction, DESALIA WATER has implemented the ISO 9001:2015 standard into the design and the manufacturing processes.

BUREAU VERITAS Certification

Certificación
Certification
Bureau Veritas Certification

Certifica que las actividades realizadas por:
certifies that the activities carry out by:

DESALIA WATER, S.L

PLAZA SAN FRANCISCO Nº 1 1º, 30201, CARTAGENA, MURCIA

indicadas a continuación, están cubiertas por la certificación concedida a la organización **GRUPO ML** conforme a los requisitos de la norma: *referenced below, are covered by the certification awarded to the organization* **GRUPO ML** *in accordance with the requirements of standard:*

NORMA / *STANDARD*

ISO 9001:2015

Alcance específico de certificación:
Specific scope of certification

COMERCIALIZACIÓN Y FABRICACIÓN DE PLANTAS DESALADORAS.

COMMERCIALIZATION AND CONSTRUCTION OF DESALATION PLANTS.

Número del certificado: *Certificate Number*	**ES096157-A-1**	Directora de Certificación: *Certification Manager:*
Aprobación original : *Original approval date :*	**13/08/2018**	
Certificado en vigor: *Effective date:*	**13/08/2018**	
Caducidad del certificado: *Certificate expiration date:*	**18/05/2019**	

La existencia y validez del presente certificado están supeditadas a las del certificado principal nº **ES096157-1**
The existence and validity of this certificate depend on those indicated in the main certificate nº **ES096157-1**

Entidad de Certificación / Certification Body: Bureau Veritas Iberia S.L.
C/ Valportillo Primera 22-24, Edificio Caoba, Pol. Ind. La Granja, 28108 Alcobendas - Madrid, Spain

ENAC CERTIFICACIÓN Nº 04/C-SC004

Project	Location	Contract type	(m3/day)	Year
Torrevieja SWRO Expansion	Europe	E	360000	2020
Umm Al Houl IWPP (*)	Middle East	TA	282000	2019
Valdelentisco SWRO Expansion	Europe	E	240000	2022
Aguilas SWRO Expansion	Europe	E	220000	2019
Kangan Petro Refinery SWRO Phase II	Middle East	EP	90000	2021
Oropesa SWRO Plant	Europe	TA	48000	2018
Comunidad Regantes Riegos Levante Margen Izq.	Europe	E	45000	2021
Kangan Petro Refinery SWRO Phase I	Middle East	EP	35000	2017
Zin International Trading	Asia	E	30000	2021
Comunidad de Regantes Arco Sur UF	Europe	EPC	30000	2012
Kangan Petro Refinery SWRO Phase III	Middle East	EP	30000	2022
Remela	Africa	EPC	24000	2014
Bagoush	Africa	EPC	24000	2011
Thane Municipality	Asia	E	20000	2018
ERC - Africaian Resorts Company	Africa	EP	14000	2008
MONTAZAH Water Desalination	Africa	EPC	6000	2009
Armament Authority. Ministry of Defence (8 Units)	Africa	EPC	6000	2013
MAJIS SAOC BOO Project Extension	Middle East	BOO	3000	2016
MAJIS SAOC BOO Project	Middle East	BOO	3000	2013
BONNYSA	Europe	TA	3000	2021
GRAND Group	Africa	EPC	1400	2009
EMAK - Coral Beach	Africa	EPC	1400	2007
BLUE BAY Resort	Africa	EPC	1150	2006
Mohkran Fast Water SWRO	Middle East	EPC	1000	2019
KPRC Fast Water SWRO	Middle East	EPC	1000	2018
GRAND Group	Africa	EPC	1000	2009
REVIERA Resorts	Africa	EPC	1000	2008
DANA BEACH Resorts	Africa	EPC	1000	2004
Containerized SWRO unit	Africa	EPC	1000	2011
MAIO SWRO Solar Plant	Africa	EPC	760	2020
SHAMS SAFAGA Resort	Africa	EPC	750	2006
GRAND Resort	Africa	EPC	750	2005
RADAMIS Resort	Africa	EPC	700	2009

Project	Location	Contract type	(m3/day)	Year
ALF LEILA Resort II	Africa	EPC	700	2008
GRAND MAKADY Resort IIII	Africa	EPC	700	2008
ALBATROS Resort II	Africa	EPC	700	2008
BEACH ALBATROS Hotel II	Africa	EPC	700	2008
ALBATROS Resort I	Africa	EPC	700	2007
ALF LEILA Resort I	Africa	EPC	700	2007
GRAND MAKADY Resort III	Africa	EPC	700	2006
GRAND MAKADY Resort II	Africa	EPC	700	2005
BEACH ALBATROS Hotel I	Africa	EPC	700	2005
GRAND MAKADY Resort I	Africa	EPC	700	2004
NAKHEEL Sunrise resort	Africa	EPC	500	2009
GHANAZ Resort	Africa	EPC	500	2008
MARINA BANYIAS Resort	Africa	EPC	500	2008
	TA: Consultancy Services E: Engineering EP: Engineering and Procurement			
	EPC: Engineering, Procurement and Construction			

5. Main EPC references

6.1. Large Plants

Kangan Petro Refinery Overview

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This plant is actually under construction in the Persian Gulf. Desalia Water supplies the Engineering and Procurement of the RO racks, High Pressure pumps and Energy Recovery Systems for a desalination plant with a two-pass system assembled in the same skid.
The plant is designed with two pass RO to produce water with less than 15 ppm suitable for industrial use for a Petrochemical Complex. The plant is equipped with 12 racks of 8750 m3/day each with the two pass in the same rack. All the racks are manufactured and tested in Spain shortening the erection time on site and controlling the quality of the high-pressure piping manufacturing.

We have engineered all the HP side from the HPP to the RO racks and built and tested in Spain within the highest quality standards applicable to the Petrochemical industries. The design concept of each rack under “plug and play model” with 4 skids allows an easy installation at side, not needing any local welding at site.

6.2. Bogoush-Matrouh Overview

The Armament Authority of the Egyptian Army developed Bagoush Desalination SWRO plant. The project was awarded to Desalia in November 2011 and completed by June 2013. The plant is in operation producing 24,000 m3 per day avoiding water restrictions to the population of the coastal areas between Matrouh and Alexandria in the Mediterranean coast of Egypt. Desalia has executed the Turnkey project in 18 months and is operating the plant for a 5-year period. The plant is feeding through a 680-m long open intake and the discharge through 500 m disposal lines both in HDPE.

In addition to the self-cleaning band screens, band screens,24 multimedia filters and 5 micro cartridge filters complete the pre-treatment.
Four RO skids of 6000 m3 per day capacity equipped with 6 PX each are the base of the desalination process, including a post treatment re-mineralization by calcite filters.

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6.3. Montazah- Overview

Each of the two phases of the desalination facilities at Montazah were awarded by the client to DESALIA through a competitive tender process. The scope of the award included design and build, plus the operation and maintenance of the facilities for a 5-year period.
Phase I was awarded to DESALIA during 2007 and became operational in 2008. Phase II was awarded in 2008 and was operational within 12 months (early 2009) and in-line with the client's demands.
DW designed, built and commissioned the remineralisation system with limestone filters consisting in five filters of 6000 m3/d each up flow stream.

The assessment process to award the contract for Muntazah was a traditional competitive tender process, with key appraisal measures including:

- Successful seawater reverse osmosis track record;
- Ability to achieve design, construction, commission and operations target dates;
- Knowledge of and access to best practices;
- Compliance record in relation to quality and regulatory aspects;
- Robust approach to environmental stewardship and sustainability;
- Extensive technical capability;
- Demonstrable track record of achieving target capital cost; and
- Achieving target operational costs.

The main factor for being awarded this project was the proven success achieved on other plants, combined with a robust design and the best price.


We were successful in securing phase II of the project, similar as detailed above but greater emphasis was given to the requirement to move rapidly from the award of the contract through to becoming fully operational.

6.4 ERC- Overview

Phase I was awarded to DESALIA during 2008 and became operational in 2009. Phase II was awarded in 2009 and was operational within 12 months (early 2010) and in-line with the client's demands.

6.5 Summary of Projects

Each phase of the projects presented technical, environmental and stakeholder issues. Our experience and expertise not only helped us to address the immediate issues but to implement solutions based on our sound knowledge and our continued learning, for the benefit of the client and the region's stakeholders in future projects.

Key features of the above desalination projects are summarised below:

- Taking the lead role in the main process design
- Manufactured and preassembled concept
- The achievement of target outturn costs;
- Energy optimisation contributing to beating the client's operational target cost;
- Design in a record time of 3 to 4 months;
- Construction completed in an impressive short time;
- Tailored solution implemented to comply with challenging environmental conditions;

6. Plant Fact Sheets

7.1. Engineering projects

Our company is executing the engineering contracts for the expansion of the 3 largest SWRO plants in Europe for a total capacity of more than 750.000 m3/day (Aguilas, Torrevieja and Valdelentisco) for Aguas de las Cuencas Mediterraneas, Acuamed.

<table>
<tr><th colspan="5">AGUILAS SWRO PLANT EXPANSION</th></tr>
<tr><td colspan="2">Plant capacity:
240.000 m3/d
Rack size:
18.000 m3/d
Execution period:
2019-2020</td><td colspan="2">Client name:
ACUAMED
Location:
Murcia (Spain)</td><td>  </td></tr>
<tr><td colspan="5">Detailed engineering for construction of 240 MLD plant</td></tr>
<tr><td rowspan="2">Stages</td><td>Design</td><td>Construction</td><td>Commissioning</td><td>Operations & Maintenance</td></tr>
<tr><td>6 MONTHS</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Key Role:</td><td colspan="3">Engineering</td></tr>
<tr><td colspan="2">Responsibilities:</td><td colspan="3">• Basic and detailed engineering
• Feasibility study for plant expansion
• Detailed process and engineering design
• Remineralisation process
• Mechanical and Electrical</td></tr>
<tr><td colspan="2"></td><td colspan="3">Plant is actually in operation</td></tr>
<tr><td colspan="2"></td><td colspan="3">   </td></tr>
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7.2. Engineering Procurement and Construction

Below are some examples of projects executed under the EPC model

REMELA DESALINATION PLANT		
Plant capacity: 24.000 m3/d *Rack size:* 6.000 m3/d *Construction period:* 2014-2016	*Client name:* Water Department Egyptian Army *Location:* Matrouh (Egypt)	

A challenge construction period of just 20 months

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	2 MONTHS	16 MONTHS	6 WEEKS	1 YEARS

Key Role:	EPC + O&M contractor
Responsibilities:	• Main Contractor • Turnkey project including marine and civil works • Detailed process and engineering design including remineralization process • Construction • Commissioning • Operation for 1 years
	Plant is actually in operation
	 

ARCO SUR MAR MENOR ULTRAFILTRATION PLANT

Plant capacity: 30.000 m3/d *Rack size:* 5.000 m3/d *Construction period:* 2012-2013	*Client name:* C.R. Arco Sur *Location:* Cartagena Spain	

With 30,000 m3/d, Arco Sur UF plant is the largest Ultrafiltration plant using Pentair modules in Spain for tertiary treatment

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	3 MONTHS	6 MONTHS	4 WEEKS	

Key Role:	EC contractor
Responsibilities:	• Detailed process and engineering design • Manufacturing • Erection at site • Commissioning
	Plant is under operation since January 2013
	 

MAJIS DESALINATION PLANT		
Plant capacity: 3.000 m3/d *Rack size:* 800 m3/d *Construction period:* 2013-2014	*Client name:* Majis Industrial Services, SAOC *Location:* Sohar (Oman)	

A challenge construction period of just 5 months

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	2 MONTHS	5 MONTHS	3 WEEKS	3 YEARS

Key Role:	Built, Own and Operation
Responsibilities:	• Main Contractor • Turnkey project • Detailed process and engineering design • Construction • Commissioning • Operation for 3 years
	Plant is under operation since May 2014
	 

EGYPTIAN RESORTS COMPANY		
Plant capacity: 22.000 m3/d *Construction period:* 2007-2008	*Client name:* ERC *Location:* Hurghada, Egypt	
At 22,000 m3/d,ERC desalination plant is the largest in Egypt for a private customer		

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	3 MONTHS	8 MONTHS	3 WEEKS	

Key Role:	EPC contractor
Responsibilities:	• Detailed process and engineering design • Manufacturing and site erection • Training • Commissioning
Stakeholder Liaison:	• Weekly report during the O&M phase indicating the quality and quantity of the product water • Regular periodic meetings
Environmental Compliance:	• The plant will comply with Environment Impact Report and obtained approval by the EPA • Monitoring of sea water intake and brine discharge will be done to assess no adverse effects to the local environment

MONTAZAH DESALINATION PLANT		
Plant capacity: 18.000 m3/d *Rack size:* 6.000 m3/d *Construction period:* 2007-2008	*Client name:* Montazah *Location:* Sharm el Sheik	
At 18,000 m3/d, Montazah desalination plant is the largest in operation in Sharm el Sheik		

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	4 MONTHS	12 MONTHS	4 WEEKS	

Key Role:	EPC contractor
Responsibilities:	• Detailed process and engineering design • Construction • Commissioning
Stakeholder Liaison:	• During the EPC phase a client nominated project director will be on site to deliver a technical assistance • The client approves the construction and design of the plant
Environmental Compliance:	• Formal acceptance by EPA and coastal authorities on scheduled inspections • The plant will comply with Environment Impact Report and obtained approval by the EPA • Monitoring of sea water intake and brine discharge will be done to assess no adverse effects to the local environment
O&M Record	• NA

MOKRAN FAST WATER		
Plant capacity: 1000 m3/d *Construction period:* 2019	*Client name:* Mokran Agr. & Ind. Co. *Location:* Bandar Abbas (Iran)	
This plant supplies desalinated water for irrigation and drinking purposes for a private customer		

Stages	**Design**	**Construction**	**Commissioning**	**Operation & Maintenance**
	3 MONTHS	8 MONTHS	3 WEEKS	
Key Role:	EPC			
Responsibilities:	• Detailed process and engineering design • Construction • Commissioning			
	 			

ORIENTAL COAST		
Plant capacity: 4.000 m3/d First phase: 10.000 m3/d *Construction period:* 2007-2008	*Client name:* Oriental Coast *Location:* Hurghda, Egypt	

The lowest energy consumption with minimum investment

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	3 MONTHS	9 MONTHS	4 WEEKS	

Key Role:	EPC contractor
Responsibilities:	• Detailed process and engineering design • Construction • Commissioning
Stakeholder Liaison:	• Weekly report during the O&M phase indicating the quality and quantity of the product water • Regular periodic meetings
Environmental Compliance:	• Monitoring of sea water intake and brine discharge will be done to assess no adverse effects to the local environment • Minimum impact during construction period

MAIO ISLAND		
Plant capacity: 760 m3/d *Construction period:* 2020	*Client name:* AEM *Location:* Cape Verde	

The lowest energy consumption with minimum investment

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	2 MONTHS	4 MONTHS	4 WEEKS	
Key Role:	EPC contractor			
Responsibilities:	• Detailed process and engineering design • Construction • Commissioning			
Features	• Solar Powered plant			

7.3. Engineering Procurement and Supervision of Construction and Commissioning
Below are some examples of projects executed under the EPS model

KANGAN PETRO REFINING COMPANY		
Plant capacity: 35.000 m3/d *Rack size:* 8.750 m3/d *Construction period:* 2017-2018	*Client name:* Kangan Petro Refining Company *Location:* Bandar Abbas (Iran)	

EP for HPP, ERD and RO package

Stages	**Design**	**Construction**	**Commissioning**	**Operations & Maintenance**
	3 MONTHS	8 MONTHS	7 WEEKS	

Key Role:	EP contractor
Responsibilities:	• Main Contractor for HPP, ERD and RO • Turnkey project including manufacturing and installation supervision • Detailed process and engineering design • Manufacturing • Commissioning • Operation supervision
	Plant is actually at start up
	 

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