



# Water Industry

Engineered Compressed Air Solutions



**Engineering Project Solutions**

# Engineering Project Solutions

## The global compressed air package provider

Using the extensive experience that we have gained by working with EPC companies, Ingersoll Rand has developed the capacity to carry our complex projects that are tailored to our customers requirements. Whatever details matter to you, Ingersoll Rand can design a solution to meet your exacting needs. Engineered for performance, our range of equipment is built to provide maximum efficiency, reliability, and uptime.

### Flexible Solutions

Our custom designed compressed air systems and solutions offer total flexibility. Our compressors, dryers, and nitrogen generation packages are engineered to meet the rigorous, non-stop demands of your operation.

We are a leading global business provider, offering custom products to satisfy a range of customer needs, based on:



Solutions			
Market to Order (MTO)	Engineering to Order (ETO)	Special Configurations	Project Lifecycle Support (PLS)
<ul style="list-style-type: none"> <li>Machine modifications</li> <li>Special motors &amp; Starters</li> <li>Full Project Management</li> <li>Full Documentation</li> </ul>	<ul style="list-style-type: none"> <li>Special piping &amp; materials</li> <li>Special instrumentation</li> <li>PLC Control Systems</li> <li>Full Project Management</li> <li>Full Documentation</li> </ul>	<ul style="list-style-type: none"> <li>Turn Key Projects</li> <li>Container solutions</li> <li>Skid solutions</li> <li>Compressed Air and N2 plants</li> </ul>	<ul style="list-style-type: none"> <li>Design</li> <li>Project Management Including documentation to customer requirements</li> <li>Commissioning &amp; start up</li> <li>Aftermarket</li> <li>PLC Control Systems</li> </ul>

International Standards		
API	ATEX	IECEX
 <ul style="list-style-type: none"> <li>API 618</li> <li>API 619</li> <li>API 672</li> </ul>		

### Total Aftermarket Service and Support

Reliable and responsive after-sales service is an integral part of our business philosophy. Ingersoll Rand's Engineering Project Solutions expert technicians are able to travel to customers all over the world to ensure the correct installation, commissioning, and start-up of your solution.

Today, Ingersoll Rand is globally renowned for its comprehensive, class leading service and support, including:

- Turn-key customer support agreements
- Free extended warranty programs
- Worldwide service network
- Equipment audits & analysis
- Factory-trained service engineers
- Recommended spare parts

## We are Global

We are committed to providing our global customer base with around the clock care and support.

With innovative products and services, Ingersoll Rand's Engineering Project Solutions team works with our customers to solve even the toughest technical challenges. Via our group's global network, we make sure that the decades of knowledge and expertise gained working on complex EPC projects is made available to each and every EPC contractor and end-user working on your project.

We combine this experience and know-how with our worldwide service organization to ensure that our products and solutions provide maximum performance and reliability at all times. As one of the world's largest manufacturers of engineered air compressors, air treatment, and nitrogen packages; Ingersoll Rand is represented by a comprehensive network branches and authorized partners in over 50 countries.

## References

Ingersoll Rand's Engineering Project Solutions has provided specialist, custom nitrogen and instrument air packages to international EPC contractors and engineering companies across a range of industries, including power generation, oil & gas, chemical, water treatment, and mining.

Over the last 10 years, we have supplied over 600 custom projects.

**Please ask for the latest version of our reference list.**

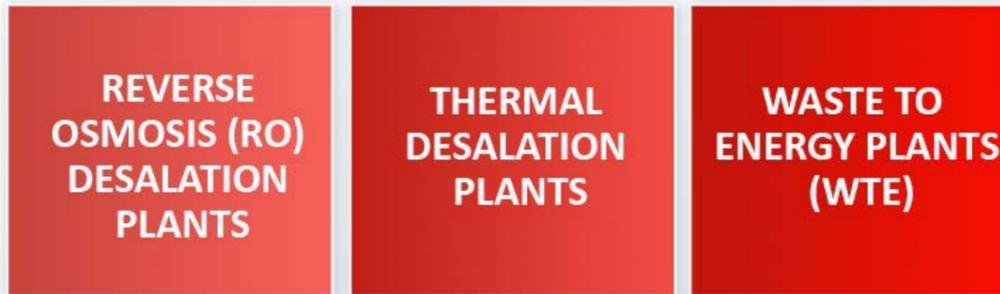


# Premium Solutions for Water Industry

With over a century of application experience, and a comprehensive portfolio of products that cover every major air technology; we can advise on, design, and supply the right equipment for your plant.

Ingersoll Rand has an application oriented approach. We work with you to gain a detailed understanding of your process, then provide a high performance solution to meet your demands. Ingersoll Rand air compressors and nitrogen generation units are designed for process-critical applications. We produce skid-mounted packages that offer a number of advantage for a wide range of applications, with strictest technical requirements.

Our complete packages can be designed to incorporate all the necessary drives, control and management systems, instruments, and ancillary processing equipment; ready for straightforward installation and commissioning.



## Global Air Solutions Provider for Water Plants

Application	Description
Instrument and plant Air	The instrument air system is an important support system in any enviromental plant.
Starting Air	Compressed air is used to provide the initial rotation to start large diesel and gas turbine engines.
Air separation	Compressed air is filtered via a membrane to generate clean gases.
Desalation	It is the process of removing dissolved salts from water, thus producing fresh water from seawater or brackish water. Compressed air is used for CO2 service, for air and for acid gases.
Landfill sites	Compressors are used for collecting the landfill gas from the gas connection of the landfill and increasing the pressure of the gas to a usable amount based on the customer's needs
Water purification and oxidization	Compressed air is released into water to stop stagnation.
Sewage plant	Compressed air is used to control sewage flow, and air oxidation of sewage tanks.
Air Conditioning	Compressed air is used for control systems to operate the opening and closing of control valves.
Digestion tanks	The digestion tanks in wastewater treatment plants are activated with oxygen by means of compressed air.
Wastewater purification-oxygenation of activated sludge tanks	Compressors supply the compression pressure required for maximum oxygen yield.



Air Compressor for Instrumen Air



Air Dryer for Starting Air



Nitrogen Generation for Purging of controls

## Benefits at a Glance

- Customised solutions
- ATEX certified
- Compact space-saving design
- Flexible modular design
- Low cost of ownership
- Proven high reliability
- Plug & Play Solutions
- Extreme ambient temperatures

# Ingersoll Rand Turnkey Installations

Ingersoll Rand offers turnkey air and nitrogen installations for EPC and engineering companies. Each machine is tailored to meet the strictest technical requirements and customer needs, ensuring that we deliver equipment and solutions that fit the brief perfectly, each and every time.

## Engineered-to-Order Packages

Our tailored air compressors are ready for operation, flexible, easy to integrate into any process, help minimize operating costs, and are prepared to face the strictest quality standards. Ingersoll Rand's Engineering Project Solutions is your single source solution provider for custom engineered systems.



## Air Compressors Packages

We offer a comprehensive portfolio of compress air solutions, covering all major technologies, including such as screw, reciprocating, vane and centrifugal air and gas compression. A wide variety of options can be customized to meet even the most demanding customer requirements: Outdoor Installation, HAT (55°C ambient temperature), MV Motors, ATEX Certified Motors, PLC Control Panels, Special Instrumentation, ATEX Certification (Zone 2), etc.

- Flow rate: up to 3,000 m<sup>3</sup>/hr (FAD) (aircooled) / 5028 m<sup>3</sup>/hr (FAD) (watercooled)
- Operating Pressure: up to 414 barg
- Power: up to 550 MW



## Air Dryer Packages

Utilizing the latest technologies, our compressed air systems provide an energy efficient solution with low life cycle costs. The use of clean, dry compressed air ensures high levels of reliability, and guarantees that quality standards are met and production costs are reduced. An efficient and smart air solution is more than a line of high-quality compressors. It is a combination of air generation, filtering, drying, condensation, and purification expertise and products. Our complete compressed air systems provide not only compression packages, but a full range of air treatment systems.

- Flow rate: 4.9 to 5028 m<sup>3</sup>/hr
- Operating Pressure: 2.5 to 16 barg
- Power: up to 325 kW



## Nitrogen Generation Packages

Whatever your nitrogen requirements, Ingersoll Rand packages are designed to meet your needs accurately. Our equipment is engineered for a wide range of industries and built to offer you maximum efficiency, reliability, and uptime. Our custom designed nitrogen generation packages cover a variety of applications in a range of industries. Our experience covers installations at range of ambient environments, including desert and arctic conditions, as well as classified areas.

N2 Flow Capacity	N2 Purity
Max. 2,000 Nm <sup>3</sup> /hr	95 - 99,9%

## Main Projects

### Water Project. Oman

Large scale water treatment plant that is based on Reverse Osmosis (RO) membrane technology, with a planned capacity of 113,650 m<sup>3</sup> of desalinated water per day during regular periods.

*Products provided: 2 Lubricated rotary screw compressors + 2 Oil-free two-stage Screw Compressors + 2 adsorption dryers + 2 refrigerant dryers + other ancillary equipment*

### Desalation Plant. Bahrain

An independent water and power project located in the Kingdom of Bahrain. Based on Combined Cycle Gas Turbine (CCGT) technology, the plant is projected to generate 1,500MW of power; in addition to 50MIGD of water using Sea Water Reverse Osmosis (SWRO) technology.

*Products provided: 4 Lubricated rotary screw compressors in 2 skid-mounted packages + other ancillary equipment*

### Water Treatment Plant. The Philippines

The treatment plant ensures clean, potable water by using a number of advanced technical treatment processes. These techniques include Dissolved Air Flotation (DAF), Biological Aerated Filter (BAF), Ultrafiltration (UF), Reverse Osmosis (RO) and disinfection; and in different stages through the process oxidation of particular compounds.

*Products provided: 5 Lubricated rotary screw compressors + 2 adsorption + other ancillary equipment*

### Desalation Plant. Djibouti

This seawater desalination plant improves quality of life for residents of Djibouti by supplying drinking water. The plant has an initial capacity of 22,500 m<sup>3</sup>/day, with civil engineering infrastructures designed to enable a future expansion to 45,000 m<sup>3</sup>/day.

*Products provided: 2 Lubricated rotary screw compressors in 1 skid-mounted package + 2 refrigeran dryers*

## About Ingersoll Rand Engineering Project Solutions

We are global business leader that provides tailored air compressors, air treatment, and nitrogen packages using extensive application expertise, and experience managing complex projects.

Our scope and know-how, combined with our ability to support our customers, has grown globally and allowed us to provide personalized service on a broad portfolio of complex projects. With total flexibility, we custom design and engineer our compressed air systems to provide the highest level of performance and reliability, to meet even the most rigorous and non-stop operational demands.

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About Ingersoll Rand Inc.

Ingersoll Rand Inc. (NYSE:IR), driven by an entrepreneurial spirit and ownership mindset, is dedicated to helping make life better for our employees, customers and communities. Customers lean on us for our technology-driven excellence in mission-critical flow creation and industrial solutions across 40+ respected brands where our products and services excel in the most complex and harsh conditions. Our employees develop customers for life through their daily commitment to expertise, productivity and efficiency.

We are committed to using environmentally conscious print practices.

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