



# Power Generation

Engineered Air Solutions



**Engineering Project Solutions**

# Engineering Project Solutions

## The global compressed packages air provider

Based on the extensive experience we have built-up with EPC companies, we have the capacity to carry out complex projects for our customers with bespoke and custom requirements. Whatever details matter to you, Ingersoll Rand machines are designed to meet your needs exactly. Engineered specifically for a wide of industries, our equipment is built to offer you maximum efficiency, reliability and uptime.

### Flexible Solutions

With total flexibility, we custom design engineered compressed air systems and solutions. Our compressors, dryers, and nitrogen generation packages are engineered for rigorous and non-stop operation demands.

We are a leading global business provider of customized 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 Services and Support

Reliable and responsive after-sales service is an integral part of Ingersoll Rand Engineering Project Solutions' business philosophy. Our technicians will travel to customers located all over the world to ensure a correct plant installation, commissioning, and start-up. Today, Ingersoll Rand is known globally for its excellent 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 caring for our customers, around the world and around the clock.

With innovative products and services, the Ingersoll Rand Engineering Project Solutions team is committed to helping customers enhance even their most technical requirements. Moreover, we make decades of knowledge and expertise gained from working on complex EPC projects are made available to each and every EPC contractor and end-user via our group's global network.

This wide experience, know-how, and expertise, coupled with Ingersoll Rand's worldwide service organization, ensure that all products operate at the maximum performance at all times and provide maximum availability. As one of the world's largest manufacturers of engineered air compressors, air treatment, and nitrogen packages, Ingersoll Rand is represented around the world by a comprehensive network of branches, as well as authorised partners in over 50 countries.

## References

Engineering Project solutions has supplied its special packages for nitrogen or instrument air to many renowned global international EPC contractors and engineering companies in power generation, also in other industries like oil & gas, chemical, water treatment, and mining industries.

We have supplied more than 600 customized projects over the last 10 years.

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



# A long tradition in power generation

With more than a century of applications experience and a range of products that cover every major air technology, we can advise on, design, and supply the right machine for your power generation plant.

We help you maximize your operational efficiency and profitability with air compressors, for all of your critical applications; and can help to extend the longevity of critical power generation equipment by reducing downtime and the need for maintenance.



Application	Description	Compressor	Nitrogen Generation	Blower
Instrument and plant Air	The instrument air system is an important support system in any power generation plant.	●		
Control valves	Air operated valves and cylinders are used in production areas.	●		
Conveying	Compressed air is mixed with products to enable easier material handling and conveying.	●		
Pneumatic conveying and Handling	Pneumatic conveying for fly ash, waste, mill rejects, limestone and gypsum	●		●
Filtration cleaning	Compressed air is used for reverse air jet purging to keep filters clean while extending lifetime and reducing downtime.	●		
Raw Material Handling	Compressed air is mixed with products to accelerate the drying process.	●		
Starting Air	Compressed air is used to provide the initial rotation to start large diesel and gas turbine engines.	●		
Corrosion control	Nitrogen is used to protect against corrosion in power plant equipment and is considered the perfect green solution.		●	
Purging	In this application, the compressed air is used to clean. Also nitrogen can be used to clean in order to avoid corrosion, to purge ammonia or natural gas	●		
Bed combustion fluidization	The circulating fluidized bed technique allows to burn highly sulphurated products while respecting a low emission rate of issue of sulfur and nitrogen oxides in the fireplace. The fluidisation air of the outlet beds, siphons and ashes coolers is supplied by positive displacement blowers.			●
Evacuation condenser	Condenser exhausting involves the removal of air and other non-condensable gases from the steam space of power plant condensers.			●
Flue gas desulphurisation	To guarantee uninterrupted pollution control and make sure these plants are up and running continuously, the used compressed air solution needs to be highly reliable and energy efficient.	●		●
Sealing Gas (nitrogen)	Nitrogen preserves these vital components when they are not in use and ultimately improve the overall efficiency of your power plant. Nitrogen helps to improve the overall efficiency of your power plant.		●	

# Ingersoll Rand Turnkey Installations

Ingersoll Rand offers turnkey air and nitrogen installations to the Engineering, Procurement and Construction (EPC) and engineering companies. We provide a complete solution based on the strictest technical requirements. Every machine can be tailored to the particular needs of each customer, ensuring that we deliver equipment and solutions that fit the brief perfectly.

## Designed for customer technical requirements

At Ingersoll Rand we know that every customer has unique necessities. Every machine can therefore reflect the particular requirement of each customer. Ingersoll Rand Air and Nitrogen Packages are also designed to operate in harsh environments. Our equipment is engineered to face the most extreme ambient temperatures and extreme environmental conditions.



### Modifications

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)
- Coolers Design and Materials (Sea Water Cooling)
- Inlet Filters for Ambient Desert Conditions
- Air Ducts & Heaters for Low Ambient Temperatures
- Stainless Steel Canopies
- API 618, API 619 And API 672 Compliant Equipment

### Customized Installations

Ingersoll Rand can custom design and manufacture your equipment package to include a range of extra's, including structural bedplates, machinery mounting pads, piping, tubing, electrical wiring, instrumentation, and controls. The different installation types are custom designed in accordance with customer specifications and applicable ISO/API standards, as well as compliance to all major international codes and standards.

Types:

- Shelter
- Skid
- Supply of system components



### Comfortable even when hot

The compressor packages are designed to operate in temperatures of up to 55°C, working under strenuous conditions either outdoor or indoor, refineries, deserts and sandy environments.

These compressors are built to withstand the most extreme temperatures, and so designed to work in challenging environments.



### Quality

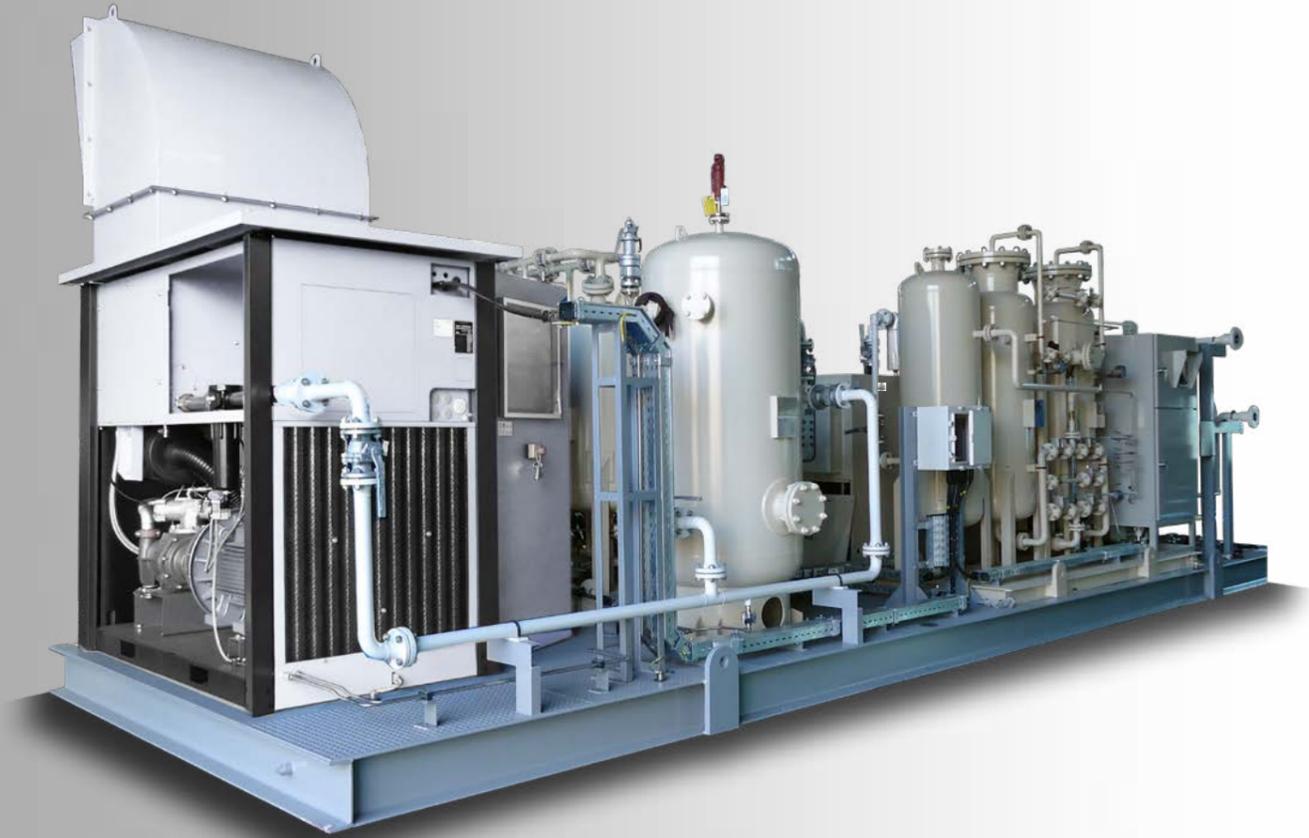
All activities within our company comply with strict procedures governed by our certified quality management system, which is regularly updated and optimized.

Our qualified engineers work according to the most stringent quality standards. Before packing and shipment, all our equipment packages are thoroughly tested. We can also do so in the presence of the customer, if required.

[Request a Quote!](#)

# Air Compressor Packages

The majority of our air compressor packages are custom built and shipped with all components.



## Engineered-to-Order Packages

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



### Rotary Screw Compressors

Our lubricated and oil-free rotary screw compressors incorporate the very latest technological advances and guarantee a continuous supply of high quality compressed air. The screw compression element is designed and manufactured in-house, using the latest CNC rotor grinding machinery.

- Flow rate: up to 3,000 m<sup>3</sup>/hr (FAD) (aircooled) / 5,000 m<sup>3</sup>/hr (FAD) (watercooled)
- Operating Pressure: up to 10.5 (Oil free) / 13 (Oil injection)
- Power: up to 400 kW (aircooled) 670 kW (watercooled)

### Reciprocating Compressors

Our reciprocating compressor packages are known for their excellent energy efficiency, and we have consolidated and at the same time consistently developed this proven technology, maintaining its cutting edge, high-quality, robust construction along and excellent efficiency. The result is an improved Return On Investment (ROI) and shorter payback time.

- Flow rate: 3 - 5028 m<sup>3</sup>/h
- Operating Pressure: 2-90 barg
- Power: up to 550 kW



### Centrifugal Compressors

Integrally geared centrifugal compressors represent the latest technology to deliver higher flows for relatively constant air demands. They are highly efficient and cost-effective when compared to other technologies.

- Flow rate: 1600 ~ 28,000 cfm
- Operating Pressure: 3 to 42 barg
- Power: up to 4,5 MW

### High Pressure

High pressure air compressors supply the world's major industries. Our products utilise the leading high pressure compressor technology to provide solutions to a wide range of global industries.

- Flow rate: 3-1128 m<sup>3</sup>/hr
- Flow rate: 50-414 barg
- Power: up to 250 kW

# Air Treatment Packages

Our compressed air system utilise the latest technology to provide energy efficient solutions with low life cycle costs. Air purity meets in international standards and can only be achieved with filtration, water separation and drying. The use of clean dry compressed air ensures high levels of reliability, and guarantees that quality standards are met and can reduce production costs.



## Meet the Quality Requirements

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.



### Adsorption Air Dryer Packages

Adsorption compressed air dryers are designed to remove moisture by passing air over a regenerative desiccant material, which attracts and retains the water vapour molecules. The term pressure dew point refers to the temperature at which water condensation will occur, a typical pressure dew point specified for an adsorption dryer is  $-40^{\circ}\text{C}$  which prevents corrosion and inhibits the growth of microorganisms.

- Flow rate: as per requirement
- Operating Temp./Pressure: up to  $60\text{ deg.C}$  / 13 barg
- Dew point (PDP):  $-40\text{ def.C}$  (heatless) /  $-70\text{ deg.C}$  (heater)



### Filters

The quality and reliability of compressed air filtration is paramount to the ongoing fight against problems caused through contamination entering the air system. Our filter range has been constantly innovated and has become a leading technology, providing the exact balance between air quality, energy efficiency and low lifetime costs.



### Refrigerant Air Dryer Packages

Refrigerant dryers are the most common type of drier technology used by many industries. As the name suggests, heat exchangers are used to cool compressed air which will condense the bulk amount of water vapour within the air. Once the compressed air is cooled and water is removed, the air is reheated to approximately room temperature to ensure no more vapour forms within the pipe system.

- Flow rate: 4.9 to  $5028\text{ m}^3/\text{hr}$
- Operating Pressure: 2.5 to 16 barg
- Power: up to 325 kW



### Hybrid combination dryers

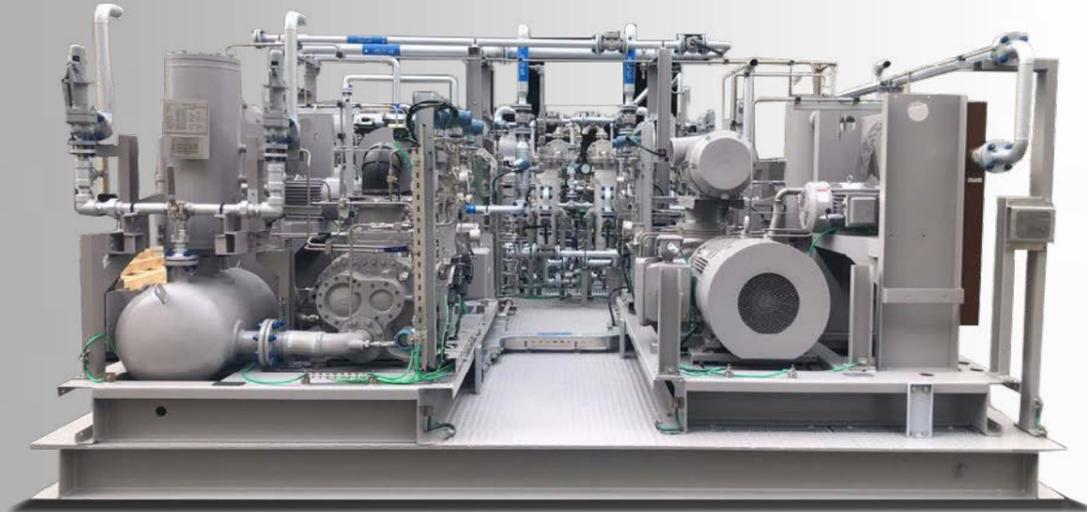
Hybrid compressed air dryers from combined refrigerant and adsorption dryer technology. This unique combination of technology offers higher quality air and lower energy consumption compared to traditional heatless and heat regenerative adsorption dryer technology.

- Flow rate: 4.9 to  $5028\text{ m}^3/\text{hr}$
- Operating Pressure: 2.5 to 16 barg
- Power: up to 325 kW

[Request a Quote!](#)

# 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.



# Blower System

Ash Handling Blower Systems are used in thermal power plants. Pressurized pneumatic ash handling system are most often used for conveying ash over long distances. Such systems are also useful applied when ash is to be delivered to multiple interim storage of load out stations



## Highest purity up to 99.9 %

Our custom-designed nitrogen generation packages are mainly supplied for applications in the oil & gas, power generation, chemical, and mining industries. Our experience covers installations at desert or arctic ambient conditions, as well as in classified areas.



### PSA System Packages

PSA (pressure swing adsorption) is a technology for used for air separation to enable the creation of a continuous stream of nitrogen by means of air filtration. Ingersoll Rand nitrogen generators use Pressure Swing Adsorption (PSA) technology to separate nitrogen molecules from other molecules found in compressed air. Our modular concept offers greater flexibility.

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



### Membrane System Packages

Membrane Nitrogen Generation Systems consist of fibrous membrane modules arranged in a convenient housing equipped with a control system and integral filtration. High quality compressed air can be separated by means of membranes. Dried and cleaned compressed air (<+5°C pdp) that enters these fiber walls is filtered of water vapor, CO<sub>2</sub>, and oxygen.

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



### Ash Handling Blower System for Thermal Power Plant

Pressurized pneumatic ash handling system are most often used for conveying ash over long distances. An upstream mechanical blower creates a flow of conveying air. Ash is transferred from collection hoppers to the conveying pipeline on a programmed cycle with the use of rotary ailock feeders of double dump gate airlock valves.

• Flow rate: ~ 44,000 m <sup>3</sup> /hr
• Operating Pressure: ~ 1.2 barg
• Power: 620 kW



### Benefits at a glance

- Intelligent digital monitoring standard with the AirSmart controller
- Quiet sound levels as low as 60 dBA
- Innovative removable discharge silencer provides package integrity and end-user flexibility
- Quality and dependable PD Blower in every IQ package

## 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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[www.IRco.com](http://www.IRco.com)

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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