Ingersoll Rand®

ENGINEERED COMPRESSORS AND NITROGEN SYSTEMS FOR **POWER GENERATION INDUSTRY**

ENGINEERED SYSTEMS AND SERVICES:

ACHIEVE PROJECT EXCELLENCE WITH THE TRUSTED EXPERTISE OF INGERSOLL RAND'S DEDICATED CUSTOM AIR & GAS EXPERTS TEAM

REQUEST A QUOTE

Engineered Systems and Services
www.ingersollrand.com/air-compressor-systems

Welcome to Engineered Systems and Services (ESS)

Ingersoll Rand's Engineered Systems and Services (ESS) is dedicated business line to providing market-leading, **custom-engineered solutions.**

Formed from a merger of five renowned business units - Ingersoll Rand Air & Gas Solutions, Ingersoll Rand Engineering Project Solutions, Ingersoll Rand High Pressure, K. LUND Offshore and Blutek - Ingersoll Rand Engineered Systems and Services (ESS) leverages extensive experience to serve Engineering, Procurement, and Construction (EPCs) contractors and other firms in need of specialized engineering Services.

With a portfolio that includes state-of-the-art **air and gas compressors, dryers, nitrogen generators, and gas recovery Systems**, Ingersoll Rand Engineered Systems and Services (ESS) is committed to pioneering innovation and maintaining the highest standards of engineering excellence. We pride ourselves on managing intricate projects across the globe, employing cutting-edge technology to drive the success of our customers.

Our Commitment to Your Power Generation Project

Power Generation – A bright sustainable future
Population growth and rising living standards in developing countries demand a continuous, cost-effective, and eco-friendly energy supply. These imperatives are driving the power generation industry to undergo a substantial transformation today, influenced by technological progress, escalating environmental concerns, and the shifting patterns of energy consumption.

Looking to the future, the power generation industry is poised to continue its evolution towards a more sustainable, resilient, and decentralized system. Renewable energy is expected to become the dominant force due to declining costs and improved efficiency.

Your Trusted Partner in Power Generation
With extensive experience in managing and implementing custom-engineered air and gas packages for power generation plants, Ingersoll Rand Engineered Systems and Services (ESS) has acquired the expertise and capacity to ensure the success of our customers' projects.

With a proven track record of supplying hundreds of power generation projects with our screw and reciprocating compressor, air dryer, and nitrogen generator packages, we at Ingersoll Rand Engineered Systems and Services (ESS) have consistently designed, built, and commissioned custom compressed air and gas systems to EPC contractors and end-users across the globe.

Applications & Products

Our engineered-to-order air and gas solutions are available to all power generation plants across numerous applications. We have the expertise to customize our products to your specific application needs.

Application	Application Description
Instrument and Plant Air	The instrument air system is an important support system in any power generation plant.
Fuel Gas Boosting	Fuel gas boosters are used to raise the natural gas pipeline pressure to the inlet pressure required by the gas turbine
Control Valves	Air operated valves and cylinders are used in production areas.
Pneumatic Conveying and Handling	Pneumatic conveying for fly ash, waste, coal, 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.
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.
Blanketing	Nitrogen generators for blanketing of oxygen sensitive compounds (chemicals)
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.
De-watering Turbines	Compressed air is used for removing the excess moisture from the steam to improve the efficiency of the turbine and to prevent damage to the turbine blades
Governor Control	Compressors are used in systems that require pneumatic or hydraulic pressure to actuate the governor mechanism

Products		
Screw Air Compressors	Lubricated High Pressure Air Compressors	Nitrogen Boosters
Centrifugal Air Compressors	Oil-free Air Compressors	PSA Nitrogen Generators
Centrifugal Gas Compressors	Refrigerant Compresssed Air Dryer	Membrane Nitrogen Generators
Breathing Air Compressors	Adsorption Air Dryer	
Large Reciprocating Boosters	Hybrid Air Dryer	

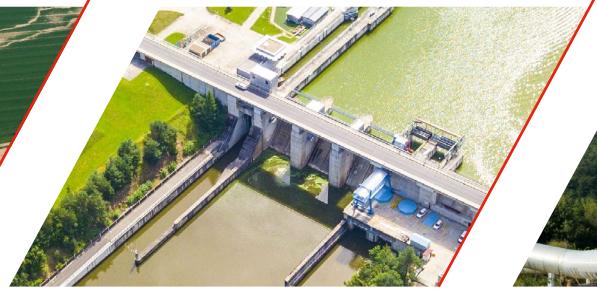
FIND OUT MORE DETAILS ABOUT OUR PRODUCTS
CLICK ON THE INTERACTIVE TABLE

Main Power Plant Types we Serve

COMBINED CYCLE
Power Plants

NUCLEAR
Power Plants

HYDROELECTRIC
Power Plants



RENEWABLE
Power Plants

THERMAL
Power Plants

COGENERATION
Power Plants

OTHERS

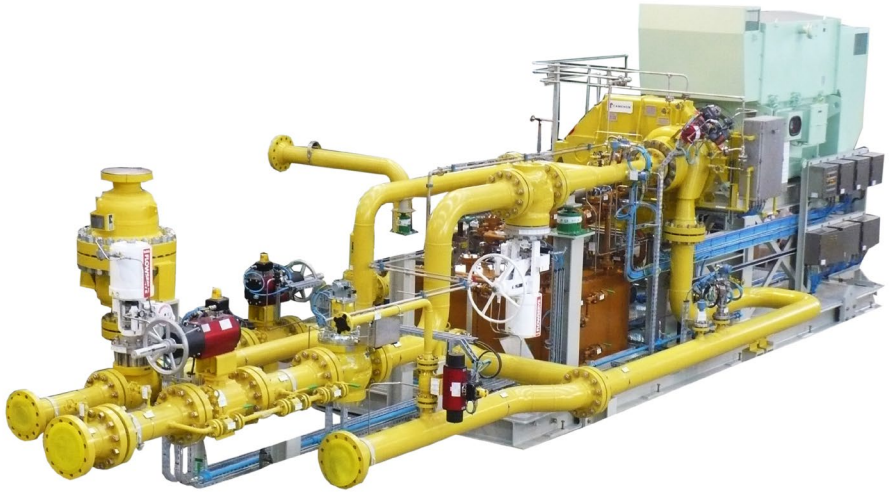
Main Applications Explanation

Instrument and Service Air Application

The term “Instrument Air” or “Service Air” refers to an extremely clean supply of compressed air. This air, is produced free from contaminates such as moisture & particulates. The air required to carry out this function comes from a compressed air system that is either integrated in the process unit or included in the plant utilities. Instrument Air and Service Air systems generally consist of compressors, dryers, filters, receivers, coolers, and control systems; some of which are play a critical role in maintaining plant operation and safety. In the Power Generation, or those facilities where process controls and sensitive pneumatic machinery are operated, the air quality supplied must meet air quality standards.

Fuel Gas Boosting

For natural gas-fired power plants, fuel gas boosters are used to raise the natural gas pipeline pressure to the inlet pressure required by the gas turbine. The fuel gas booster maintains a consistent suppy of fuel gas at a specified discharge pressure to the turbine generators. Ingersoll Rand’s centrifugal compression technology provides efficient, reliable fuel gas boosting and is capable of operating with most makes and models of natural gas-fired turbines.

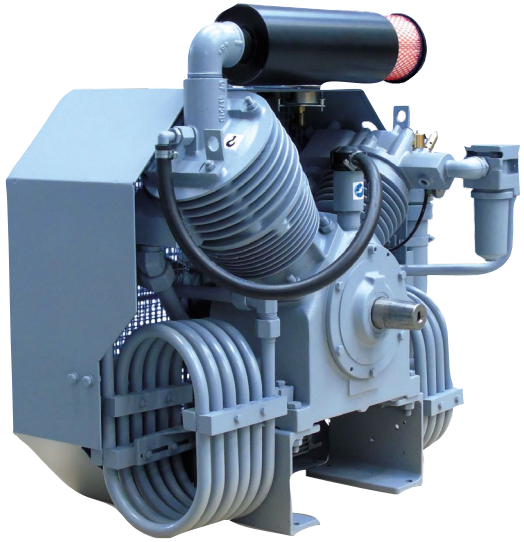


Main Applications Explanation

Engine Start

Implementing a high-pressure air start system is the right choice for many internal combustion engines, especially diesel engine applications. Small to medium-sized power plants require compressed air to initiate their engines at startup. The mechanism of choice for a starting air compressor is piston-based technology, because reaching the required high pressure levels is a challenge for rotary screw compressors.

Our high-pressure compressors are designed to offer maximum output with minimum size and weight—delivering performance and peace of mind for customers in demanding engine start needs, competitive environments, at sea, on land and underground.



De-watering Turbines

In steam power plants, the thermal energy contained in water vapor is harnessed to power a steam turbine, which in turn drives the generator. High-pressure compressors play a crucial role in the dewatering of steam turbines. Dewatering is a critical process because the presence of water can lead to inefficiencies, reduced turbine performance, and potential damage to the turbine's components. Ingersoll Rand compressors are used in applications that include tasks such as desulfurization, fuel residue removal, turbine cooling, and DENOX processes.

Our Engineered Air and Gas Solutions Benefits

The Ingersoll Rand range of compressors, air dryers, and nitrogen generators is highly engineered to meet the highest Power Generation industry application standards. Discover all the benefits when partnering with us:

MARKET EXPERTISE: Our custom-designed compressors have evolved over decades into a vast portfolio of EPC contractors and engineering companies. We are confident we can custom-tailor a solution to fit your specific needs.

MORE EFFICIENT: The shape and design of our Ingersoll Rand compressors minimize aerodynamic losses and optimize the flow of the air through the compressor.

MEETING GLOBAL STANDARDS - Our engineered air and gas packages are designed to meet the air and gas quality standards of the Power Generation industry.

HIGH FLEXIBILITY: Our flexibility in design allows us to custom-design compressors and packages to meet your specific requirements.

LOW MAINTENANCE & REDUCED COSTS: Ingersoll Rand engineered centrifugal compressors are designed with sufficient instruments to plan maintenance and reduce downtime. The goal is to save you time and money by providing worry-free operation of your equipment with simple maintenance

SUPPLYING THE BEST AIR QUALITY: We are committed to providing superior air quality for your power generation plant. For seamless performance, it is essential that instrument air used in power plants must be oil-free and moisture-free. The certified Class Zero air coming from our compressors and dryers will meet your air quality requirements.

FULL PROJECT MANAGEMENT SUPPORT: At Ingersoll Rand Engineered Systems and Services (ESS), we have a dedicated team of expert engineers who provide full project management support from the design phase, through construction, commissioning, and aftermarket service support.

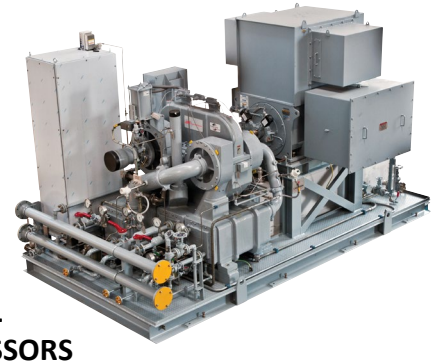
SERVICE SUPPORT: Ingersoll Rand offers a comprehensive line of maintenance packages and programs. We provide a range of support services, replacement parts, and support products to help our customers increase their return on investment, maximize safety and performance, and provide total peace of mind.

Our Power Generation Portfolio

SCREW AIR COMPRESSORS

Our lubricated and oil-free rotary screw compressors incorporate the very latest technological advances. Designed to operate in the most extreme temperatures, they are able to run between -47º to 55ºC. Benefiting from a compact design and an optimized footprint, they are easy to use and ready for plug-and-play operation.

READ MORE



CENTRIFUGAL AIR COMPRESSORS

Ingersoll Rand manufactures a complete line of fully packaged centrifugal compressors in a wide range of capacities and power ranges. The revolutionary MSG® and TURBO-AIR® centrifugal compressors offer advanced, state-of-the-art source of oil-free gas and air for power generation industry.

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CENTRIFUGAL GAS COMPRESSORS

Centrifugal gas compressors are crucial in power generation industry. Ingersoll Rand's portfolio of centrifugal gas compressors includes a broad spectrum of custom-engineered and pre-engineered products. Talk to an Ingersoll Rand expert to help you find the perfect centrifugal gas compressor.

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BREATHING AIR COMPRESSORS

Mako Breathing Air Compressors offer several different compressor models to meet your specific breathing air system need. They can be built to meet your demanding compressor needs Include our rugged Horizontal Breathing Air compressor packages, high-capacity Water-Cooled packages and our Mobile Breathing Air solutions.

READ MORE

LARGE RECIPROCATING BOOSTERS

Ingersoll Rand offers an extensive range of Large Reciprocating Compressors that are tailor made to exacting specifications for many process applications. Count on us to engineer specialized custom-built packages for your large reciprocating compressor needs.

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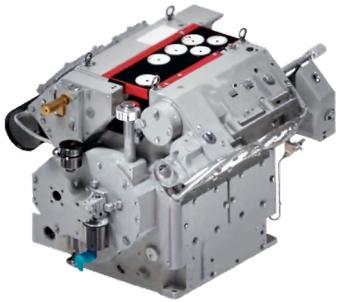
Our Power Generation Portfolio



LUBRICATED
HIGH PRESSURE AIR COMPRESSORS

Our piston compressor systems' highest-in-class reliability & flexibility make them an ideal equipment for very wide range of applications where a steady supply of compressed air or gas is needed. Our lubricated high pressure air compressors are the perfect partner for your compressed air and gas systems.

READ MORE

OIL-FREE
HIGH PRESSURE AIR COMPRESSORS

All of our high pressure reciprocating air compressors are designed to deliver outstanding levels of efficiency, quality, and output. We understand what matters. That's why our high pressure air compressors are built to offer you maximum reliability and uptime.

READ MORE

REFRIGERANT
COMPRESSED AIR DRYER

Ingersoll Rand is a leading provider of innovative compressed air dryer solutions designed to deliver exceptional performance and reliability. Our compressed air dryers help to improve equipment life, enhance system efficiency, and prevent product defects.

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ADSORPTION
AIR DRYER

With a robust and reliable design, desiccant dryers have been extensively tested and validated in real-world applications, ensuring consistent performance and minimizing downtime, which is critical for industries where production cannot be interrupted.

READ MORE

HYBRID
AIR DRYER

Hybrid combination of air dryers blends the best of both refrigerant and desiccant air-drying technologies. This innovative mix provides air dryers that produce higher quality air while using less energy.

READ MORE

Our Power Generation Portfolio

NITROGEN BOOSTERS

On-site nitrogen compressor is becoming increasingly popular, allowing operators to save money by eliminating the time and costs associated with storage and delivery, as well as the complexity of supply monitoring and demand planning.

READ MORE

PSA NITROGEN GENERATORS

PSA (Pressure Swing Adsorption) is a reliable technology for separating air into its components offering consistent and efficient performance. With maximum efficiency, optimizing energy consumption and reducing operating costs. Advanced control systems of nitrogen generator and its efficient adsorption processes contribute to their minimal environmental impact.

READ MORE

MEMBRANE NITROGEN GENERATORS

Ingersoll Rand's nitrogen membrane generators offer on-site nitrogen production using advanced membrane technology. These generators are reliable, compact, and low maintenance, making them a great choice for businesses needing nitrogen. The membrane generator's long lifespan offers a great return on investment.

READ MORE

A Dedicated Project Management Team for Your Peace of Mind

Our project management team has the know-how to assist you thanks to managing and implementing hundreds of power generation projects with other leading EPC (Engineering, Procurement and Construction) and engineering companies.

Our expert engineers and project managers **deliver on-time technical & quality documentation.** We know how to help our clients proceed smoothly throughout the entire process.

SUPPORT DURING THE WHOLE PROJECT

HIGHLY ENGINEERED TO TECHNICAL REQUIREMENTS

ALL DOCUMENTATION: P&ID, GENERAL ARRANGEMENT, SECTIONAL DRAWINGS AND 3D MODELLING

HONESTY AND TRANSPARENCY

Ingersoll Rand Engineered Systems and Services supports you throughout the your project lifecycle

EPC* (Engineering, Procurement and Construction) and OEM	Order	Installation, Commissioning & Start up	Aftermarket Services & Maintenance Programs
Design phase, Specifications & Product Customization	Project Management , Documentation, Quality Assurance		Global Presence & Local Support

Customer Stories

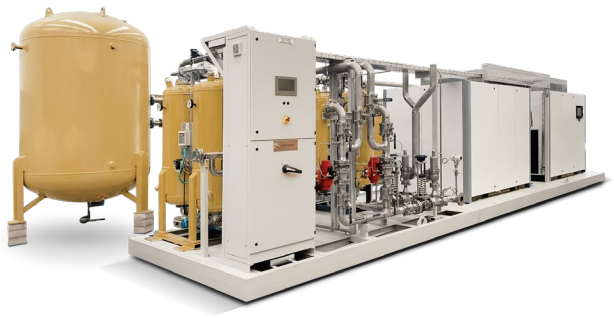
Plug & Play Air Skids Solution for Combined Cycle Power Plant

EPC Contractor: Global leader in power generation
End-user: National supplier of electricity
Product: 4 Oil-free compressors D110-10A / 4 Heatless adsorption dryers
Application: Instrument and Service Air
Location: Israel

CUSTOMER BENEFITS:

Instrument and service air with a reduced and optimized footprint.

A Plug & Play solution: Few terminal points to connect at site, facilitating easy installation and start-up.



Ingersoll Rand provides 'outstanding' success in a combined cycle power plant in Jamaica

EPC Contractor: Spanish EPC Contractor
End-user: National supplier of electricity
Product: 2 Oil-Free compressors (D75-10RS) and 2 adsorption dryers.
Other airtreatment accessories were included: air receivers, filters.
Application: Instrumental and plant air
Location: Jamaica

CUSTOMER BENEFITS:

Total customer installation protection against corrosion environment

Reduced consumption

Extended life of piping installation

Dryer optimizing use

High efficiency

Customer Stories

Custom-designed and engineered package for a power plant - OCGT (Open Cycle Gas Turbine Plant)

End-user: Italian electrical company
Product: 2 Oil Free Screw Compressors, 5 Desiccant Air Dryers
Application: Instrument Air
Location: Italy

CUSTOMER BENEFITS:

Maximum air treatment performance allows for the use of ambient air for regeneration, thus eliminating the loss of compressed air. Additionally, heating the air used for regeneration enhances moisture removal efficiency.

PED certification of the complete installation.

Easy installation due to complete piping assembly.

Flow control system for instrumentation package.

Engineered API 617 MSG Fuel Gas Booster Compressors for a Combined Cycle Power Plant Expansion Project

EPC Contractor: Italian EPC Contractor
End-user: Italian Power Plant owned by Czech Electricity Generation Company
Product: 2 API 617 1R1MSG-5 (1 stage) units (Power: 2 MW)
Application: Fuel Gas Boosting
Location: North Italy

CUSTOMER BENEFITS:

Compliance with API 617 and 614 Standards and High Engineering Customer Requirements.

Customized design and selection of construction materials to accommodate up to 30% hydrogen content in the natural gas blend.

Complete “plug and play” package solution with an extended scope of supply, including a recycle cooler, UCP with MMS, a noise enclosure, and a containerized nitrogen generation package for purging the gas seal on the compressor unit.

Local packaging solution in Italy to reduce lead times and optimize transportation to the project installation site

Advanced Aftermarket Services & Parts

We work to increase **profitability by minimizing downtime with minimal maintenance requirements and maximized equipment lifetime.**

We offer comprehensive portfolio of custom maintenance Services programs that include:

INSTALLATION AND COMMISSIONING

- Assembly Supervision
- Commissioning
- Site Training

SERVICES AGREEMENTS SCOPE

- Preventive Maintenance
- Breakdown & Repair
- Industrial Internet of Things (IIoT) EcoPlant™ cloud-based SaaS platform and Helix™ Connected Platform
- Field Services
- Redesigns & Upgrades
- Warranty Programs
- Inventory & Equipment Audits
- Genuine Spare Parts
- Customer Trainings

How to contact us

Website

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