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HOW AIR WORKS

Authorized Distributor of
 **Ingersoll Rand**

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How Air Works

At Ingersoll Rand, we carefully listen to our customers and that is why we are the right partner for you.



Our Heritage

We have been inspiring progress from the very beginning. Our story goes back 144 years ago to 1871 when Simon Ingersoll patented his steam-powered rock drill. Soon after in 1905, the Ingersoll-Sargent Rock Drill Company merged with the Rand Drill Company. We grew alongside a great nation, carving the face of Mount Rushmore and building mighty landmarks like the Panama Canal and Hoover Dam. Today, Ingersoll Rand employs approximately 40,000 people in more than 60 countries around the world and is a \$13 billion global business committed to creating a world of sustainable progress and enduring results.



Our Locations



Americas
8 Manufacturing Sites
 Southern Pines, USA
 Mocksville, USA
 Campbellsville, USA
 West Chester, USA
 Curitiba, Brazil



scan or click



**Europe, Middle East,
 India & Africa**
8 Manufacturing Sites
 Unicov, Czech Republic
 Oberhausen, Germany
 Vignate, Italy
 Naroda, India
 Wasquehal, France
 Fogliano, Italy



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Asia Pacific
5 Manufacturing Sites
 Shanghai, China
 Wuijiang, China
 Nanjing, China



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Global
3 Distribution Centers
 Charlotte, USA
 Genk, Belgium
 Singapore, Singapore



Applications and Vertical Markets

Here are some of the markets Ingersoll Rand **AIR** is of value:



total **Cost** of ownership

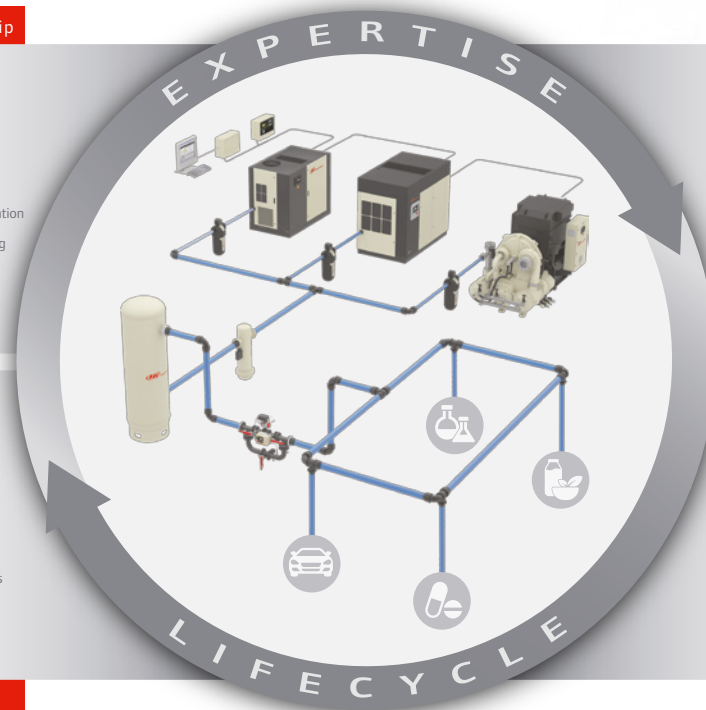


- Lifecycle cost planning
- System application & configuration
- System design and engineering
- Fixed cost service agreements
- Risk transfer



- System optimization
- Advanced system control
- Air distribution configurations
- Performance upgrades
- System leak assessments

Efficiency



Availability



- Global technical support
- Comprehensive services
- 24/7 service availability
- Factory-certified technicians
- Rental solutions



- System health monitoring
- Genuine replacement parts
- System assessments
- Service technology tools
- System risk analysis

Reliability

Design • Install • Commission • Operate • Maintain • Extend





Oil-Flooded Compressors

Ingersoll Rand oil-flooded air compressors offer the very best of time-proven designs and technologies with new, advanced features that ensure the highest levels of reliability, efficiency and productivity available.

Key benefits:

- Lower life cycle costs through increased efficiency and extended service intervals;
- 150 years of market leading reliable design solutions to fit any application;
- Built-in compressor monitoring providing the peace of mind that allows our customers to focus on their primary business objectives.

Why choose Ingersoll Rand Air oil-flooded compressors?

- Ingersoll Rand has the experience and knowledge to provide you with the ideal air compressor solutions for your business. Our air compressors are made with superior components and backed by our worldwide parts and service organization, providing the support you need to keep your business running.

Overview:

Reciprocating Compressors	9
Rotary Screw Compressors <i>Total Air System (TAS)</i>	15
Rotary Screw Compressors <i>Oil-Flooded Small</i>	16
Rotary Screw Compressors <i>Oil-Flooded Medium</i>	17
Rotary Screw Compressors <i>Oil-Flooded Large</i>	20



scan or click

Reciprocating Compressors

1.1
7.5

P-series (PD, PB)

Compact and portable:

E.g. for hobby crafts persons and handymen. Our portable PD-reciprocating compressors with direct drive supply between 1.1 kW and 7.5 kW;

High performance:

The PB-reciprocating compressors with belt drive generate up to 3 kW as portable and from 4 kW to 7.5 kW as stationary equipment. Designed for intermittent duty operations such as wood work, paint shop, carpentry, roofing or general maintenance requirements.

The belt drive compressors made of cast iron cylinders include a balanced belt wheel for smoother running. All models are powered by TEFV motors.

Various receiver sizes are available in all models.



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
PD	8	0.19 - 0.23	1.1 - 1.5
PB portable	10	0.25 - 0.40	1.5 - 3.0
PB stationary	10	0.60 - 0.912	4.0 - 7.5

Reciprocating Compressors

1.5

7.5

Silenced or Petrol Engine (PS, PP)

Quieter:

Reduced noise levels between 63 and 69 dB(A) are achieved by having sound-absorbing covering panels and the elimination of any unwanted vibrations. There are hardly any restrictions with respect to compressor location in light industrial applications. As an option, we offer you a star delta starter (4 to 7.5 kW) and integrated refrigeration dryer (5.5 & 7.5 kW) for optimised compressed air production and quality;

Portable petrol engine:

Perfect for locations without electrical power supply, such as agriculture, construction industry or even leisure industry. Large all terrain tyres and a wide track gauge facilitate the movement of the compressor on uneven ground and harsh environments.



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
PS	10	0.25 - 0.912	1.5 - 7.5
PP	10	0.50 - 0.67	4.0 - 6.7

Improving air quality and reducing operating cost is key to your business. That is why Ingersoll Rand offers refrigerant dryers, filters and lubricants specifically developed for our reciprocating compressors. We offer custom advice and complete solutions tailored to your needs.

Reciprocating Compressors

2.2

22

Type 30 Series (T30)

Two-stage, oil lubricated:

For demanding workshop and industrial applications, such as car repair and body shops, in machine repair and construction industry, in car wash installations or assembly lines;

The Value Package:

Provides an economic and dependable solution, ideally suited for commercial, automotive and light industrial applications;

The Premium Package:

Enhances durability and performance by offering an air-cooled after cooler, low oil level switch and an auto condensate drain (on receiver mounted units). A perfect solution for manufacturing and more heavy duty industrial applications. Various receiver sizes are available in all models.



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
Type 30 Value	11 - 14	0.29 - 2.960	2.2 - 22.0
Type 30 Premium	11 - 14	0.29 - 2.960	2.2 - 22.0

Reciprocating Compressors

2.2
15

T30 High Pressure, Oil-Free, Not Lubricated and Vacuum

High pressure:

Refueling stations, beverage companies, power plants and engine-start equipment use reciprocating compressors that are installed on a base frame which provide unbelievable pressure up to 340 bar(g);

Not lubricated:

Textile, packaging and chemical industries use oil-free T30 compressors not lubricated by PTFE and the additional rings cooling the compression section;

Vacuum:

Developed for vacuum applications in food processing, in treatment plants, vacuum cleaning systems and printing industry.

In these types, a maximum vacuum up to 99% (10-2 bar (g)(a)) is possible.



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Series	bar (g)	Capacity m ³ /min	Power kW
High pressure	35 - 345	0.211 - 1.47	2.2 - 15.0
Non-lubricated /Oil-free	6.9 - 8.6	0.23 - 2.00	1.5 - 15.0
Vacuum	97.0 - 99.2 (a)	0.255 - 2.80	1.5 - 7.5

PET-Compressed Air Systems Reciprocating Compressors

242

540

Four-stage compression:

Thanks to its four-stage compression concept (as compared to the traditional three-stage compression) PETStar®4 wins over reciprocating compressors in its durability, high reliability, long maintenance interval as well as low energy intake.

- Three-step capacity control (0%-50%-100%) matches energy consumption with demand;
- Advanced CMC-Series compressor controller proactively monitors critical parameters to ensure efficient operation;
- IP55 motor with star/delta starters as standard;
- 100% oil-free, water-cooled design;
- Low vibrations through four-stage design with double-acting pistons;
- Piston rings and packing rated for 16,000 operating hours;
- Additional monitoring devices such as wear indicators available;
- Anticorrosion coating on all system air piping;
- Extra-long life valves;
- Air Recovery System option by re-injection of air at the 3rd stage inlet/ suction to achieve up to 50% energy saving during air recovery mode.



Series	bar (g)	Capacity m ³ /min	Power kW
PS4-1500 - 3300	up to 40	26.0 – 57.3	242 - 540

Standard Pressure Compressor With Primary Booster

The Ingersoll Rand primary booster system

takes advantage of a modular approach: the standard pressure compressor provides the complete compressed air requirement for high and low compressed air systems. The downstream boosters use this pre-pressure to raise the required complete or partial air volume to the pressure level required in the high pressure network.

- System capacity can be added independently to each circuit allowing for modular expansion;
- Over-sizing of standard compressors is an efficient procedure to supply compressed air for the operation;
- Standard dryers supply dry compressed air for low and high pressure networks.



Series	bar (g)	Capacity m ³ /min	Power kW
PSPB-800 - 3900	40	as required	as required



Rotary Screw Compressors *Total Air System (TAS)*

Total Air System (TAS)

TAS provides clean, dry air in an integrated package

- Coalescence filter as standard facilities and integrated;
- Refrigerant dryer provides compressed air as per ISO quality class 1-4-2 up to 38°C (100°F);
- Patented 3-in-1 heat exchanger with low pressure drop ensures higher reliability and efficiency;
- Minimal installation costs, as well as central maintenance and monitoring.



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to watch
video

i Efficiency for constant demand

ie Premium efficiency for
constant demand

n Efficiency for variable demand

ne Premium efficiency for
variable demand

Rotary Screw Compressors *Oil-Flooded - Small*

R/UP-Range/R-Series/VSD

Cost effective, quiet, efficient:

Rotary screw compressors distinguish themselves through their smoothness because the rotational movement essentially causes fewer vibrations than the pumping movement of a piston. The ideal choice for automobile industry, paint shops, manufacturing department and general light industrial applications. Without compressed air refrigerant dryer and with Total Air System;

Compact and easy to maintain:

Thanks to the small dimensions of the compressor, the compressors can be set-up in almost any environment. For routine check-up, the unit cover can easily be removed in order to reach the part to be serviced.


2.2
30


scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
R2, 2iU-R5iU	4.5 - 10.0	0.24 - 0.62	2.2 - 5.5
R5.5i - R11i	7.5 - 14	0.48 - 1.63	5.5 - 11
R5.5i TAS - R11i TAS	7.0 - 13.5	0.48 - 1.63	5.5 - 11
R5.5n - R11n	7.0 - 10.0	0.22 - 1.65	5.5 - 11
R5.5n TAS - R11n TAS	7.0 - 9.5	0.22 - 1.60	5.5 - 11
VSD	8.0 - 10.0	0.48 - 4.56	5.5 - 30

Rotary Screw Compressors *Oil-Flooded - Small & Medium*

R-Series

Constant or variable:

The reliable small and medium rotary screw compressors from Ingersoll Rand are more than integrated compressed air systems; they are complete compressed air solutions.

- Maximum operational flexibility to fulfil the requirements of your site;
- Available with fixed or variable speed, on request;
- Near-silent operation with a sound level of only 69 dB (A);
- High-efficient operation results in energy savings of up to 35%;
- Optional Total Air System (TAS) offers high quality filtered and dried air in an integrated package;
- Low energy consumption in start-up, full load and partial load condition;
- Inherent reliability by the elimination of wear parts and uncomplicated design.



N Nirvana VSD
EFFICIENCY
Premium
EFFICIENCY

30

45



scan or click
for 30-37 kW Range



scan or click
for 45 kW Range

Series	bar (g)	Capacity m ³ /min	Power kW
Small			
R30i - R37ie	7.5 - 14.0	3.90 - 6.46	30 - 37
R30i - R37ie TAS	7.0 - 13.5	3.90 - 6.46	30 - 37
R30n - R37ne	7.0 - 10.0	1.64 - 6.63	30 - 37
R30n - R37ne TAS	7.0 - 9.5	1.64 - 6.43	30 - 37
Medium			
R45i	7.5 - 14.0	5.80 - 7.59	45
R45i TAS	7.5 - 13.5	5.80 - 7.59	45
R45n	7.0 - 10.0	1.64 - 7.42	45
R45n TAS	7.0 - 9.5	1.64 - 7.39	45

Rotary Screw Compressors *Oil-Flooded - Medium*

55

75

R-Series (Oil-Flooded)

It is your decision:

Our optimised, energy efficient systems offer a combination of performance and utility that correspond to your special requirements;

Standard high-efficient dryer components:

Including coalescence filter and integrated refrigerant dryer that provide air as per ISO class 1-4-2 up to 38°C (100°F);

Patented 3-in-1-heat exchanger:

High reliability and efficiency thanks to low pressure drop;

Sequential cooling system:

Considerable improvement of performance and maintainability with greatly reduced noise levels.



n Nirvana VSD
EFFICIENCY



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
R55i	7.5 - 14.0	6.51 - 10.19	55
R55i TAS	7.0 - 13.5	6.51 - 10.19	55
R55n	7.0 - 10.0	3.23 - 10.53	55
R55n TAS	7.0 - 9.5	3.23 - 10.11	55
R75i	7.5 - 14.0	8.83 - 13.34	75
R75i TAS	7.0 - 13.5	8.83 - 13.34	75
R75n	7.0 - 10.0	3.23 - 13.56	75
R75n TAS	7.0 - 9.5	3.23 - 12.94	75

Rotary Screw Compressors *Oil-Flooded - Medium*

90

160

R-Series

Protection by Progressive Adaptive Control (PAC):

Continuous monitoring and adjustment of important operating parameters prevent unforeseen downtimes. Complete, integrated, leak-free design;

Sequential cooling system:

Considerable improvement of performance and maintainability with greatly reduced noise levels;

Fault-free operation:

Longer hours of operation due to properties such as two-stage filtration, easy maintenance and high-quality Ingersoll Rand long-term coolants;

Xe-Series control system:

An intuitive, high-resolution colour display with internet access and controller.



Nirvana VSD
EFFICIENCY
Premium
EFFICIENCY



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
R90i, ie, n, ne	7.0 - 14.0	8.47 - 18.72	90
R110i, ie, n, ne	7.0 - 14.0	8.47 - 22.96	110
R132i, ie, n, ne	7.0 - 14.0	8.47 - 27.24	132
R160i, ie, n, ne	7.0 - 14.0	8.47 - 32.05	160

Rotary Screw Compressors *Oil-Flooded - Large*

190

225



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VSD Nirvana Rotary Screw Compressor, 2-staged

Nirvana 190-225 kW rotary screw air compressors offer the very best of time-proven designs and technologies with new, advanced features that ensure the highest levels of reliability, efficiency and productivity available in their class today.

Features:

- Premium two-stage airend that delivers 11-15% more air than a single-stage compressor with no additional power;
- HPM motor that produces more air across a wider operating range with no increase in power consumption and allows for unlimited starts/stops;
- Xe-Controller: intuitive interface, high-resolution colour display with web-enabled communication and operation;
- Leak-free SAE O-Rings;
- Long-life lubricant: up to 8,000 hours between change.



n Nirvana VSD
EFFICIENCY
Premium
EFFICIENCY

Series	bar (g)	Capacity m ³ /min	Power kW
R190ne	7.0 - 10.0	17.87 - 39.08	190
R225ne	7.0 - 10.0	18.70 - 46.01	225

Rotary Screw Compressors *Oil-Flooded - Large*

200

350

SSR/M Series

Unique maintenance-free drive system:

Reliable, flexible and easy to use the SSR / M Series compressors combine our time-proven two-stage airend with a package design centered around reliability to ensure nothing but the maximum in customer productivity.

Features:

- Xe-Controller: intuitive interface, high-resolution colour display with web-enabled communication and operation;
- A lower compression ratio in each stage leads to reduced bearing loads and longer airend life;
- Operates without any problem at ambient temperatures up to 46°C;
- Integral gearing layout for problem-free operation;
- Long life lubricant: up to 8,000 hours between change.



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Series	bar (g)	Capacity m ³ /min	Power kW
M200-2S	7.5 - 14	28.6 - 41.5	200
M250-2S	7.5 - 14	36.4 - 49.2	250
M300-2S	7.5 - 14	44.3 - 60.2	300
M350-2S	7.5 - 14	50.2 - 69.2	350

Rotary Screw Compressors *Oil-Flooded - Large*

90

160

Marine Air Compressor

Specially developed:

For the rough environment of the marine industry. Can be cooled using sea water ;

Engineered to operate under high ambient conditions with up to 50°C;

Lean design:

Reduced by 28% to 95 x 295 cm enables a quick installation;

Higher capacity, greater efficiency:

Ensures a complete, integrated, leak-free construction;

Reliable and robust:

Efficient, maintenance-friendly and quieter;

Two-stage filtration:

This maintenance-friendly construction along with the use of premium lubricants increases durability;

Xe-Controller:

Intuitive interface, high-resolution colour display with web-enabled communication and operation.



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Series	bar (g)	Capacity m ³ /min	Power kW
R90 - R160i	6.5 - 8.5	16.4 - 29.2	90 - 160

Oil-Free Compressors

Ingersoll Rand offers a wide portfolio of oil-free products that will adapt to your industry and application. From the industry that requires large volumes of flow, to the industries with a fluctuating demand that requires the use of the Nirvana oil-free VSD compressor, Ingersoll Rand will assess and propose the best oil-free solution for your needs. Ingersoll Rand will offer his expertise also for the low pressure application.

Key benefits:

- Increasing the productivity of your installation, with optimized compressed air solutions adapted and designed to match the needs of our customers;
- Peace of mind – zero risk of contamination of your final product;
- Robustness and reliability for harsh environments thanks to trusted and world class suppliers and the use of the highest quality materials.

Why choose Ingersoll Rand Air oil-free compressors?

History, expertise and dedication to serve our customers is the reason why companies like Nestle, Heineken, Saint Gobain or TE Connectivity choose Ingersoll Rand oil-free products.

Overview:

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Oil-Free Screw Compressors	26



scan or click
for information
on benefits of
Oil-Free

Over 100 Years of Oil-Free Innovation

For more than 100 years, Ingersoll Rand has inspired progress by driving innovation with revolutionary technology — creating new standards for how the world gets work done. We introduced our first oil-free compressor in 1912, and over the decades we have continued to develop rugged, reliable, industry-leading compressor technologies. Ingersoll Rand is the technology leader in oil-free compressed air not only because we develop class-leading products, but also because we know our customers' industries, understand the demands placed on productivity and quality, and then offer highly engineered system solutions that make sense. No matter what your product, process, or location, Ingersoll Rand has the expertise, the oil-free technology, and the unmatched service to meet your needs.



Ingersoll Rand becomes publicly traded company on NYSE



Technologically advanced oil-free reciprocating compressor goes to market



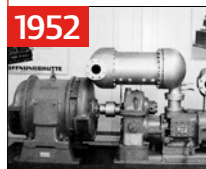
First packaged centrifugal compressor is introduced (current model shown)



Ingersoll Rand offers industry's first true variable-speed drive, oil-free compressor featuring HPM® motor technology



Ingersoll Rand pioneers oil-free centrifugal compressor technology



The world's first oil-free rotary compressor is introduced



The 37 – 300 kW packaged rotary-screw compressor introduced featuring Intellisys™, UltraCoat® rotor protectant, and 46°C design



Why Choose an Oil-Free Compressor?

Quality is not an option, it is essential:

- **Oil-free air... for regulatory compliance**

Strict legislation exists in many countries controlling the use of compressed air in sensitive industries such as Food & Beverage or Pharmaceutical;

- **Oil-free air... for peace of mind**

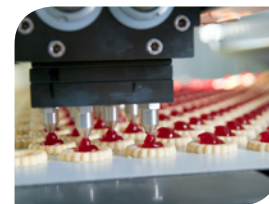
The use of an oil-free Class 0 certified compressor guarantees contamination-free air and ensures your total peace of mind;

- **Oil-free air... for reliability and productivity**

Top quality air (oil-free Class 0 air & -40°C PDP) protects sensitive downstream equipment, for reliability, low maintenance and long life.

Reduced cost of ownership:

- Compressed air solutions using oil-free technology optimize productivity in your operation;
- Thanks to our patented rotor coating (UltraCoat®), compressor efficiency and reliability are assured throughout their working life;
- Active carbon filters are not required, eliminating the waste of energy in pressure drop;
- Maintenance (CARE agreements);
- Our equipment is designed specifically to make maintenance easy by providing clear access to consumable components. In addition, our long life Ultracoolant lubricant extends service intervals to 8,000 hours.





Oil-Free Rotary Screw Compressors

At Ingersoll Rand, our compressors are designed and built to meet the needs of the most demanding industrial applications. With products that mitigate risk and ensure delivery of the highest quality air, you know you will be getting the most dependable and optimized solution for your business. All Ingersoll Rand oil-free rotary screw compressors are ISO8573-1 (2010) Class 0 certified.



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for information
on benefits of
Oil-Free

The industry standard:

- Ingersoll Rand oil-free rotary screw compressors have been the industry standard for over 20 years. Constant innovation driven by a deep understanding of our customers' businesses has maintained this leadership position;
- The introduction of the Sierra oil-free rotary screw compressor established new levels of reliability and durability. This was achieved by insistence on the best quality materials from world class suppliers. Subsequently, the Nirvana oil-free rotary screw compressor introduced the concept of Variable Speed combined with unlimited flexibility and the highest efficiency. The Nirvana has an unparalleled reputation for its ability to maximise productivity.

Key features and benefits:

- The Xe-145 controller is web-enabled and has an intuitive colour display for ease of use;
- All Ingersoll Rand compressor components are designed to perform in the harshest and most demanding environments up to 46°C, extending the lifetime and reliability of critical components;
- UltraCoat® advanced rotor protection ensures compressors remain efficient and reliable throughout their working life;
- 100% oil-free air is guaranteed with exceptionally robust components including inlet valves, stainless steel vented seals and stainless steel in cold side of piping.

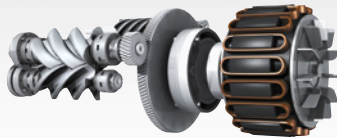
Nirvana Oil-Free Rotary Screw Series: Features & Benefits

Built to save energy:

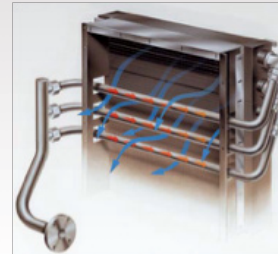
- UltraCoat® – the use of this patented and unique coating in the rotors ensures continued efficiency and reliability during the lifetime of the compressors;
- HPM – unlimited starts and stops and top class efficiency. No motor bearings, shaft seals or couplings required, makes it a maintenance-free motor, resulting in lower cost of ownership;
- Cooler arrangement – three-in-one modular design with pre-cooling, ensuring the most efficient cooling system;
- Flexibility – the electronic gearing used in the Nirvana oil-free rotary screw air compressor allows you to use a single compressor for different pressures and speeds; a feature required for the optimization during the lifetime of your installation.



UltraCoat®



HPM



Cooler arrangement



Flexibility

Nirvana Oil-Free Rotary Screw Series

37

160

Nirvana Oil-Free Rotary Screw Series – VSD Compressors

Oil-free, HPM-motor, speed controlled:

The combination of the modular frequency converter and the Hybrid Permanent Magnet™ – motor and the Ingersoll Rand oil-free compressor module makes this product a reference in Efficiency and Reliability.

Scope of supply:

- Intensive use of stainless steel for critical components. Stainless steel dual vented seals ensure the 100% oil-free air, rotors in the high pressure stage and the cold side of the air path;
- Continuous monitoring and on-board diagnosis, easily accessible on our Xe-145 microprocessor controller;
- Softstarting with low inrush currents below nominal current;
- Monitored cooling system optimizing the power consumption;
- Ultracoolant – long life lubricant with 8.000 hours change interval;
- Air and water cooled versions;
- 46°C maximum ambient temperature by design for a longer life components.



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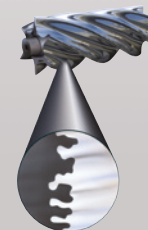
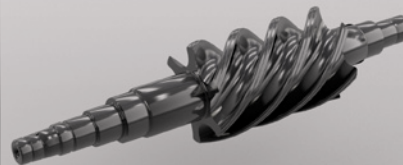
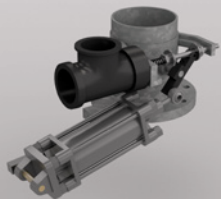
Series	bar (g)	Capacity m ³ /min	Power kW
IRN 50Hz	7 - 10	4.5 - 24.4	37 - 160
IRN 60Hz	7 - 10	4.5 - 23.1	37 - 160



Sierra Oil-Free Rotary Screw Series

The reliable workhorse:

- Safe, continuous and efficient operations in all critical industries thanks to the oil-free Class 0 design;
- TEFC motors: IE3;
- Hydraulic inlet valve: robust design with high quality materials and hydraulic actuated, to avoid the use of pneumatic valves that can fail due to corrosion;
- Gear driven with integrated oil pump;
- UltraCoat® and stainless steel – the use of this patented and unique coating in combination with the use of stainless steel as material for the rotors in the high pressure stage, ensures continued efficiency and reliability during the lifetime of the compressors;
- Stainless steel robust piping on the cold side to ensure a corrosion free air path.



Sierra Oil-Free Rotary Screw Series

37

315

SIERRA (SL/SM/SH – L/H/HH)

Oil-free, ISO certified, air or water cooled:

The Sierra compressors are ISO8573-1:2010 Class 0 certified, efficient, robust and reliable by design. Sierra compressors are the “reliable workhorse” that ensures the productivity of your business.

Scope of supply:

- Intensive use of stainless steel for critical components. Stainless steel dual vented seals ensure 100% oil-free air, rotors in high pressure stage and cold side of the air path;
- Continuous monitoring and on-board diagnosis, easily accessible on our Xe-145 microprocessor controller;
- Ultracoolant – long life lubricant with 8.000 hours change interval;
- Air and water cooled versions;
- 46°C maximum ambient temperature by design for a longer life component.



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
SL/SM/SH 50Hz	7 - 10	5.1 - 45.3	37 - 300
L/H/HH 60Hz	7 - 10	5.1 - 45.3	37 - 315



L-Series Low Pressure Oil-Free Rotary Screw Compressors

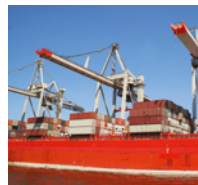
The history and tradition continues – the L-Series is the evolution of the world-class known Sierra compressors that ensure a safe, continuous and efficient operation in all critical industries thanks to the oil-free Class 0 design.

Plug&Play philosophy with options to serve the needs of each of the different Low Pressure applications.



Food & Beverage

- Oil-free compressors that deliver no oil into the air stream and minimise microbial content through high-temperature compression reduce contamination risk for food & beverage manufacturers.



Marine

- Pneumatic bulk loading;
- Ballast pressurization.



(Petro-)Chemical

- Regulatory procedures require 100% quality air built into the process.



Pharma

- The highly regulated pharmaceutical industry requires 100% total quality built into manufacturing processes. Compressed air quality must be validated as part of GMP.



Cement and Minerals

- Portland cement transport in cement plants.



Glass

- Compressed air quality must be of the highest purity to minimize risk of production interruption.

Low Pressure Oil-Free Rotary Screw Compressors

37

110

Oil-free class 0, low pressure, plug&play flexibility:

- Purpose-designed for pneumatic conveying;
- Plug&Play flexibility to meet the needs of specific applications.

Scope of supply:

- Critical components built from stainless steel including dual-vented seals to ensure 100% oil-free air;
- Rotors in the high pressure stage and the cold side of the air path;
- Flexible and user-friendly regulation modes (ON/OFF, modulation or VSD) to suit application needs;
- Long life Ultracoolant lubricant enables 8000 hours service intervals;
- Air cooled version with optional aftercooler and moisture separator;
- 46°C maximum ambient temperature for dependability and long life.



scan or click

Series	bar (g)	Capacity m ³ /min	Power kW
LCD09i/n	1.5 - 3.5	10.6/19.1	37/75
LCD14i/n	1.5 - 3.5	19.9/26.5	55/110

Oil-Free Centrifugal Compressors

Ingersoll Rand is the worldwide leader in centrifugal technology. Since more than one century we have been designing and manufacturing centrifugal compressors to meet the most stringent industry requirements. These design capabilities led to the creation of the market leading Centac® product line in 1968. And with over 22,000 Centac® compressors installed all over the world, Ingersoll Rand has the widest centrifugal oil-free installed base in the marketplace.

With their “simplicity-by-design” Centac® compressors are designed for applications where reliability, productivity and efficiency are essential and help eliminate plants inefficiencies and increase your bottom line delivering ISO 8573-1 Class 0 certified oil-free air while reducing total lifecycle costs.

Overview:

Oil-Free Centrifugal Compressors	33
API and Engineered Packages	35



scan or click
for information
on benefits of
Oil-Free



scan or click
for Oil-Free
Centrifugal
Compressors



Centac® Compressors for Air and Nitrogen

Features and benefits:

- Fully-tested and ready-to-install package with easy access to all critical components reduces and simplifies installation and maintenance operations;
- Advanced CFD aero component design and high-performance low-pressure drop cooling system minimize losses and maximize compressor efficiency and turndown range;
- Long-life uniformly hardened gears provide extreme reliability and minimize downtime;
- Hydrodynamic non-contact bearings offer virtually unlimited life and maximum efficiency with 2-3 times the lifespan of traditional bearings;
- Fully floating, non-contact carbon ring seals minimize air leakage and prevent oil from migrating into the compressed air stream; single-piece seal construction provides significantly better performance than other technologies, saving valuable compressed air;
- The integral cooler design helps the compressor keep a compact footprint;
- Built-in constant pressure or auto-dual control logics ensure system reliability by precisely managing discharge pressure and optimizing energy consumption in all operating conditions;
- The controller's intuitive, high-resolution color display makes critical information quick and easy to find. Web-enabled communication with email notification of alarms and trips allows you to maintain optimal operation automatically and to access to your compressor from virtually anywhere;
- The Xe-Series controller uses the latest control algorithms to help lower energy consumption. Built-in Energy Smart Set point (ESS) adjusts settings to balance and share loads between multiple compressors in the same system, reducing bypassed air and saving energy.

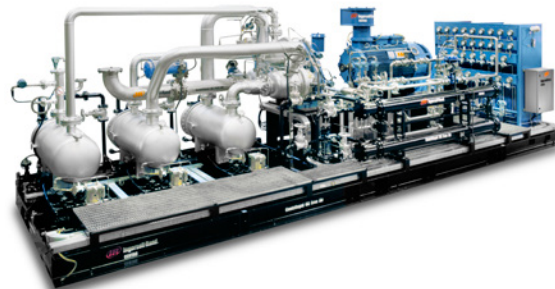


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API and Engineered Packages

Centac® engineered process packages are also available to meet the stringent requirements of Oil&Gas customers and API standards.



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Centac® Compressors Range Overview

Low Pressure				
Model	bar (g)	Capacity m ³ /min	Power kW	Dimensions (LxWxH)
CH4	1.5 - 2	25 - 40	30 - 110	2500 x 1800 x 2200
CH5	1 - 2	42 - 80	130 - 270	2600 x 1800 x 2200
CH6	1 - 2	90 - 160	170 - 430	2600 x 1800 x 2200
2CII - DF	1.5 - 2	180 - 280	500 - 800	5100 x 2100 x 2200
Standard Pressure				
Model	bar (g)	Capacity m ³ /min	Power kW	Dimensions (LxWxH)
CV1	6 - 10.5	25 - 40	170 - 270	2800 x 1600 x 2100
C400	3 - 8.5	45 - 65	200 - 480	3000 x 1600 x 2100
C700/CC700	3 - 10.5	55 - 115	270 - 700	3500 x 1800 x 2400
C800	3 - 13	65 - 150	350 - 950	3700 x 2300 x 2500
C1000	3 - 10.5	135 - 220	600 - 1300	4300 x 2200 x 2700
3ACII	3 - 10.5	170 - 255	850 - 1900	500 x 2700 x 2300
C3000	3 - 10.5	270 - 450	1200 - 2600	7100 x 3100 x 3000
5CII	3 - 10.5	350 - 800	1800 - 4500	7500 x 3400 x 3000
High Pressure				
Model	bar (g)	Capacity m ³ /min	Power kW	Dimensions (LxWxH)
C750	30 - 42	50 - 60	650 - 750	440 x 2600 x 1900
2CII	11 - 24	90 - 140	800 - 1200	4600 x 2100 x 2200
3CI	11 - 24	170 - 255	600 - 2000	6000 x 2500 x 2600
4CI	11 - 24	255 - 425	1100 - 3400	6500 x 3000 x 3100

Available pressures may vary by model.

Dimensions are for standard units and may vary with scope and options.

Blowers

With over a century of experience, the Ingersoll Rand HIBON group brings a world-class range of air blowers and compressors to market. This equipment is used to provide air/gas volumes at varying pressures above atmospheric, as well as for vacuum applications.

At Ingersoll Rand HIBON we want our customers to benefit from the know-how and responsiveness of an established and proven multinational organization. Quality is our priority, delivered globally through our expert personnel and high performance products. The design, manufacture and maintenance of our blowers and compressors are fully ISO 9001 certified.

Our principal aims are reducing noise emissions and power consumption, increasing ease of maintenance and delivering measurable improvements in productivity. Continuous innovation is our goal, meaning we can offer state of the art solutions perfectly tailored to the market. The knowledge we have accumulated ensures that our entire range of blowers benefits from the latest technological innovations, guaranteeing the user an optimised solution.

Overview

Standard Blowers	38
Process Positive Displacement Blowers	39
Dry Vacuum Blower Packages	40



scan or click

Standard Blowers

Positive Displacement Blowers

NX range used to provide air volumes at varying pressures above atmospheric, and for vacuum duties.

- Flow from 100 m³/h up to 13 000 m³/h;
- Pressure up to 1 bar(g). — Vacuum up to 500 mbar(g).

The choice and design of each accessory of **SILENTFLOW packages** have been specifically designed to provide equipment that meets environmental requirements.

- Package is totally CE compliant and silencers are EPD compliant;
- Environmentally acoustic treatment in accordance with current standards;
- Plug&Play design, factory assembled package.

Applications: Pneumatic conveying, fluidisation, combustion air, gas compression, biological aeration.

Multi-Stage Centrifugal Blowers

Multi-stage blowers are ideally suited for operations where a variable flow at constant pressure is required.

- Flow 850 m³/h up to 40 000 m³/h;
- Pressure up to 1,1 bar(g). — Vacuum up to 500 mbar(g).

Performer and high performance series

Applications: biological aeration, flotation air, fly ash conveying, neutralisation tank air, filter scouring, oxidation air, flue gas desulphurisation, carbon black production.



NX range



SILENTFLOW



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for NX Range



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for SILENTFLOW



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for SME



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for V-Centrif



SME



V-Centrif

Multi-stage centrifugal blowers



Process Positive Displacement Blowers

Wide range of solutions for the transfer of all gas mixtures whether hazardous, harmful or explosive: N_2 , Ar, CH_4 , He, H_2 , O_2
A solution adapted to your applications providing gas volumes at various pressures and vacuum level.

- Flow from 60 to 13 000 m³/h / -500 mbar to 1000 mbar(g).

NXS Series for neutral gases

SVV/SVH Series for steam mechanical compression

SNP Series for dangerous gases

SN.ie Series - water injection blowers—vacuum up to -600 mbar

Available in ATEX package or BSF Biogas package

Applications:

- Pneumatic conveying of polyethylene;
- Biogas recovery;
- Degasing;
- Furnace cooling;
- Gas recycling;
- Mechanical steam compression;
- Transfer of oxygen;
- Evaporation process.



SNP



NXS



Process Package



SVV/SVH



scan or click
for Positive
Displacement Blowers



scan or click
for SNP



scan or click
for NXS



scan or click
for SVV/SVH

Dry Vacuum Blower Packages

VP Series:

Thanks to the air injection design, this solution can achieve vacuum level up to 100 mbar(g) abs.

The vacuum package does not need water or oil to run. All the parts in contact with the gas are dry avoiding retro diffusion into the process.

- Flow from 100 to 9 700m³/h

Applications:

- Vacuum centralised cleaning;
- Liquid/solid separation;
- Pneumatic conveying;
- Plastic extrusion;
- Pick & Place;
- Drying and more.



Range	VP5	VP10	VP20	VP22	VP40	VP60	VP70
Flow (m ³ /h)	1000	1900	2800	4600	6500	7800	9700
Ultimate pressure (mbar)	150	150	150	150	150	150	150



scan or click
for VSF



scan or click
for VP - High
Vacuum Package



Air Treatment

Air quality can have a significant impact on compressed air systems. Properly treated compressed air, associated with the right air dryer, will improve productivity, system efficiency and product or process quality. By choosing an Ingersoll Rand air dryer, filter or PolySep, you are buying high quality air treatment products that will enhance your entire air compressor system.

Key benefits:

- Ingersoll Rand desiccant and refrigerated dryers provide reliable and economical operation while delivering moisture-free air.
- Ingersoll Rand's air filters provide superior air quality to almost every compressed air application in the industry.

Why choose Ingersoll Rand Air treatment?

Ingersoll Rand offers the widest selection of air treatment products and application knowledge to protect your investment and compressed air system. Using Ingersoll Rand air treatment products will extend the life of your pneumatic equipment, which will operate faster and smoother.

This will also allow you to improve productivity by reducing downtime, maintenance costs and parts.

Manufacturing costs and total cost of ownership will be reduced to the minimum.

Overview:

Compressed Air Preparation - Filter	42
Compressed Air Preparation - PolySep	44
Compressed Air Preparation - Dryer	45



scan or click

Compressed Air Preparation – Filter *High Pressure and High Temperature Filtration*

HDP/HDT

Perfectly tailor-made for your requirements:

The conventional filtration takes place at temperatures of up to 80°C and pressure of 16 bar(g). However, temperatures of 200°C and pressure of up to 40 bar(g) can be present in the high-performance filtration.

Ingersoll Rand's high-performance filter offers you the usual compressed air quality - for a highly efficient particle separation and a low pressure drop. The reinforced, sturdy casings of our high-performance filter offer the highest reliability even under the most challenging environmental conditions.



scan or click

Series	m ³ /min at 7 bar (g)	m ³ /min at 40 bar (g)	Class
F0150I - F2700I HDP	2.5 - 45	12.5 - 225	A/D/G/H
F024I - F2700I HDT	0.4 - 45		D/G/H
F2800I - F31000I HDT	46.7 - 516.7		D/G/H

Compressed Air Preparation – Filter *Dust, All-Purpose and High-Performance Filter*

F-Series

Better quality, higher efficiency and better options

- The patented double display shows differential pressure loss and operating efficiency;
- Patented inlet valve with smooth boring minimises turbulence and pressure loss;
- The precision casing made of die-cast aluminium withstands temperatures up to 80°C and a maximum operating pressure of 17 bar(g);
- The inner and outer sides have a proprietary coating for protection against corrosion;
- The filter cartridge made of stainless steel mesh withstands high differential pressures;
- The tank design without contact with the filter cartridge simplifies the filter cartridge exchange;
- Timelines show the time of the filter cartridge exchange (Class A only);
- Floating outlet made of industry brass releases the accumulated condensate and oil in a reliable manner;
- Deep pleated filter medium reduces the air flow speed for maximum filtration efficiency and minimum pressure drop;
- The efficient drainage layer improves pearling of fluidity and increases chemical compatibility of filters;
- A simple visual alignment of filter head and filter tank guarantees the correct arrangement of components and contributes to greater safety.



scan or click

Series	m ³ /min at 7 bar (g)	Class
FA30 - FA2700 I	0.48 - 45.31	A/G/H/D

Compressed Air Preparation – PolySep *Oil Water Separator*

PSG-Series

Condensate management:

The key to the unrivalled performance of PolySep oil water separator is our unique, specially coated zeolite adsorption media. This proprietary filtration media effectively separates and permanently adsorbs virtually all lubricants, including highly emulsified lubricants like polyglycols, the most difficult lubricants to separate. Competitive systems simply cannot handle polyglycols without requiring expensive, oversized separators. From mineral oils, PAOs and polyol esters to diesters and polyglycols, the PolySep oil water separator provides the broadest range of performance and efficiency.

- Environment friendly;
- This proven technology makes a wide range of coolants unnecessary;
- Large inlet diffuser allows connection of up to 3 compressors to the unit;
- Easy to maintain;
- Few moving parts;
- Easy to access components.



scan or click

Series	Inlet/Outlet (mm)	Water flow max (l/h)	Oil absorption max. (kg)
PSG-7 - PSGK-180	12.7 - 19	1.9 - 14.8	1.4 - 58.1

Compressed Air Preparation - Dryer *Compressed Air - Refrigerant Dryer (Unregulated)*

D-IN/D-IT

Cool, dry air:

Constant pressure dew point of 3°C to 10°C.

The unregulated design ensures a reliable and economic operation and thereby leads to moisture-free air.

- Stainless steel heat exchanger;
- Constant dew point regulation at all times ensures dry air;
- User-friendly, modern microprocessor;
- Environmentally-friendly refrigerant.



scan or click

Series	Ambient temperature min/max	Capacity 3°C PDP m ³ /min	Refrigerant
D12IN-A - D480IN-A	2°C/50°C	0.16 - 6.4	R134a & R407c
D600IN-A - D23000IN-A	2°C/50°C	10 - 383	R407c
D600IN-W/SW to D26600IN-W/SW ¹	2°C/50°C	10 - 444	R407c
D25IT-A to D170IT-A ²	2°C/50°C	0.42 - 2.83	R134a
D54IN-HP - D660IN-HP ³	2°C/50°C	0.72 - 10	R134a

¹Water/Sea water cooled ²High temperature ³High pressure (40 bar(g))

Compressed Air Preparation - Dryer *Compressed Air Refrigerant Dryer (Air and Water-cooled)*

D-EC

Cool, dry air:

- Patented, energy-saving heat exchanger;
- Lowest pressure loss in the sector;
- All energy-saving display values on the control panel;
- Storing cold energy as thermal mass reduces the dryer compressor's running time;
- High-quality air with a dew point as per ISO Class 4;
- Electronic, no-loss drain prevents compressed air loss;
- Refrigerant R134a and R407c reduce energy consumption;
- Compact size;
- Simplified circuit design enables the discontinuation of thermal expansion valves and fan control switches;
- Glycol allowed in the plant;
- 5-year guarantee with PackageCARE.



scan or click

Series	Ambient temperature max	Capacity 3°C PDP m³/min	Refrigerant
D42ec - D5400ec ⁴	2°C/50°C	0.56 - 90	R134a & R407c

⁴ Thermal Mass™ Evolution

Compressed Air Preparation - Dryer *Cold and Warm Regenerating Adsorption Dryer*

D-IL/D-IB

Ingersoll Rand's cold regenerating adsorption dryer - designed for easy access, maximum efficiency and long service life - are delivered in a modern flat casing.

- Low profile design for easy maintenance;
- Design with low pressure loss;
- Default pre-filter and after-filter system;
- User-friendly, modern microprocessor;
- Oil-free valves for problem-free operation.

Modular:

- Low noise level - 75 dB(A);
- Design with low pressure loss;
- Default pre-filter and after-filter system;
- Compact design;
- Highly efficient design.



scan or click
for Heatless
Desiccant Dryers



scan or click
for Heated
Desiccant Dryers

Series	Inlet temp. (max.)	Capacity 3°C PDP m ³ /min	Pressure dew point
Modular D5IM to D299IM	50°C	0.08 - 4.98	-40°C to -70°C
Heatless D160IL to D3300IL	50°C	2.66 - 55	-40°C to -70°C
Heated Blower D500IB to D14900IB	50°C	8.33 - 248.33	-40°C

Compressed Air Preparation - Dryer *Adsorption Dryer With Compressor Energy Recovery*

HOC

Performance:

HOC dryers from Ingersoll Rand provide consistently clean compressed air for critical applications.

- Qualitative high-quality compressed air for different application areas;
- The optionally available smart control allows a pressure dew point of -40°C for 0% to 100% load;
- Unique design with two coolers minimises dew point and temperature fluctuations;
- Optionally, an HOC dryer can be operated with several compressors. This results in reduced space requirements and installation costs.



scan or click
for Compressed Air
Preparation-Dryer

Series	Capacity 3°C PDP m^3/min	Pressure dew point
D420 - D3680 EH (S/A)	7 - 61.33	$< -40^{\circ}\text{C}$
H8 H170	20 - 279	$< -52^{\circ}\text{C}$
HC7 HC166	23 - 395	-40°C

Parts & Accessories

Genuine parts are designed and developed by Ingersoll Rand to best fit to your expectations.

Remember, you selected Ingersoll Rand for our unbeatable compressor performance!

To keep your assets in optimal condition, only genuine parts can guarantee the quality you expect.

The new line of Xe-Series compressor controllers from Ingersoll Rand utilizes algorithms and parallel processors to enable operators to obtain lower energy consumption and higher performance out of their compressed air systems.

The Xe-Series controller's intuitive, high-resolution color display improves productivity by making important compressor information quick and easy to find and feature useful timers to track maintenance intervals, deliver compressor information and analytics and enable LED alerts notifying users when maintenance is necessary to help optimize care of your investment.

The controller also posts information that users can access on a local web page. It can even send email notifications when it detects a problem.

The easy-to-install leak-free Ingersoll Rand SimplAir® EPL (Easy Pipe Line) system is your alternative to costly, labor-intensive steel pipe distribution systems for air, inert gas and vacuum lines. It leverages more than a century of Ingersoll Rand compressed air experience for streamlined installation, uncompromised reliable performance, effortless maintenance, flexibility for future needs, and maximum energy efficiency at the lowest total cost.

Overview:

Controllers	50
SimplAir® EPL (Easy Pipe Line)	56



Xe-Series Rotary Controllers *(Xe-90M and Xe-145M)*

A Controller that Improves Productivity

Important compressor information is easy to find, thanks to the Xe-Series controller's intuitive, high resolution color display (available in 3.5"/8.9 cm or 5.7"/14.5 cm). The controller features useful timers, compressor information and LED alerts that indicate when maintenance is necessary to help optimize care of your investment. The controller also posts information that users can access on a local web page. It even sends email notifications when it detects a problem. The Xe-Series utilizes the most advanced control algorithms to provide the lowest energy consumption and best reliability in every situation. Achieving best-in-class performance is very important at Ingersoll Rand.

Features and Benefits:

- Web connectivity: Ethernet port to support web-enabled tablets, computers and mobile devices;
- Integral sequencer allows control of up to 4 Manhattan controllers for the best energy efficiency;
- Proactive Adaptive Control (PAC) software, which continuously monitors key operations such as filter condition, incoming power and fan speed, and adapts system parameters to help maximize uptime;
- Sort and filter more than 250 events in the event log;
- On controller and web-pages graphing and trending (only Xe-145M);
- Receive email notifications for alarms;
- Schedule equipment maintenance;
- Track facility inspections in the integrated inspection log;
- Direct communication to a Distributed Control System (DCS), Ingersoll Rand's Xi-Series System Controls.

Specifications:

- The controllers feature a high-resolution color display available in two sizes, 3.5 inches or 5.7 inches;
- Ethernet port, USB port and Modbus RS-485 built-in;
- An integrated secure digital card records the last 30 days of all critical parameters;
- 30 languages built-in.



scan or click



Xe-Series Centrifugal Controllers *(Xe-145F)*

A Controller Like No Other

The Xe-145F Series controller's intuitive, high-resolution color display improves productivity by making important compressor information quick and easy to find. The controller also posts information that users can access on a local web page. It can even send email notifications when it detects a problem. Achieving best-in-class efficiency is very important at Ingersoll Rand. Xe-145F Series controls utilize the latest control algorithms to provide the lowest energy consumption in every situation. Built-in control logic ensures system reliability by precisely managing discharge pressure, while maximizing throttle range. The controller features useful timers, compressor information and alerts that indicate when maintenance is necessary to help optimize care of your investment.

Features and Benefits:

- Web-enabled communication;
- Start/stop/set under load/relieve and parameter review remotely possible;
- Energy Smart Set point (ESS) – anti-blow off integral software for best efficiency and energy savings;
- E-mail notification by alarms and tripping processes;
- Integrated performance reports and visual trend display with automated inspection protocols;
- Direct communication with a Distributed Control System (DCS) and to Ingersoll Rand IMMC and ASC system controllers;
- Ethernet connection for communication and control via tablets, computer or mobile devices;
- Seamless connection with IMMC and ASC systems controls;
- Constant pressure control – continuously and accurately maintains the outlet pressure in order to respond to sudden changes, if required;
- Auto dual control – for greater energy savings in partial load operation.

Specifications:

- The controllers feature a high-resolution 5.7 inches color display;
- Ethernet port, USB port and Modbus RS-485 built-in;
- An integrated secure digital card records the last 30 days of all critical parameters;
- 30 languages built-in.



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System Controllers - Rotary X-Series

Ingersoll Rand X-Series system automation eliminates waste by managing up to twelve positive displacement compressors simultaneously. This includes compressors of different capacities, different types (fixed speed, variable speed and variable capacity), and in any combination or configuration. Through advanced control functionality and universal connectivity, the X-Series system automation products will work with your existing compressors, from Ingersoll Rand or any manufacturer, to improve operating efficiency, reduce energy costs and eliminate waste!

Features and Benefits:

- Operate compressors only as needed, bringing standby compressors on-line incrementally during periods of peak demand;
- Manage the compressed air system at your minimum required pressure without compromising air supply reliability;
- Dynamically match the most energy efficient compressor or combination of compressors with compressed air demand;
- Operate one or more variable-speed compressors to minimize wasted energy due to unloaded compressor run-on time or short cycle operation;
- Single-point or multi-point pressure control;
- Programmable process, schedule and pressure profile;
- Priority sequence control and programmable pressure profile tables;
- Anti-cycling control;
- Standby and pre-filling functionality;
- Restart after power failure;
- Zone control function;
- Auxiliary inputs/outputs for monitoring and control.

Technical specifications:

- Control of maximum 12 rotary screw-type or reciprocating compressors;
- Control of Manhattan, Intellisys, non-Intellisys & competitive rotary screw and reciprocating compressors;
- Control of up to 3 systems pressure inputs;
- NEMA 12 / IP54 casing;
- 50/60 Hz as standard.



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Visualization Module (Vx)

On top of this set of premium system controls, Ingersoll Rand X-Series system automation now offers a window into your compressed air system with the introduction of system visualization.

The VX module enables remote easy viewing and managing of customers' compressed air system on a user's PC. No special software is required, other than a standard web browser: add a VX module to any X8I or X12I network, complete some basic configuration, connect to a Local Area Network (LAN) and go watch the compressed air system live.

With system visualization, users can monitor critical system and equipment parameters, drill down to individual compressors to view operational status and receive alarm and alert messages.

Depending on security level, users can also configure pressure control set points, compressor sequence and schedule, select compressor priorities, as well as some special remote control functionality, all from a connected PC.

Features and Benefits:

- System status and control;
- System performance monitoring/ reporting;
- Equipment status monitoring;
- Equipment maintenance scheduler;
- Graphing and trending tools;
- Reporting tools;
- Configurable event logs;
- Warning and alarm monitoring;
- E-mail messaging;
- Fully field configurable.



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Centrifugal System Controllers

Maximize energy savings and reliability: for best system efficiency and management, Ingersoll Rand offers two centrifugal system control options. You can choose Integrated Multiple Machine Control (IMMC) or Air System Control (ASC). Regardless of which option best fits your needs, Ingersoll Rand's advanced software provides you with connectivity and control that delivers improved reliability and efficiency as well as significant energy savings.

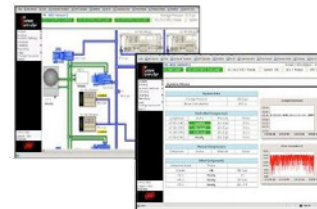
1. IMMC (Integrated Multi-Machine Controller):

The IMMC software enables networked control of up to six centrifugal compressors equipped with the Xe-145F controller. IMMC gives you the ability to sequence your compressors automatically, minimize the number of machines operating at any given time, and assign multiple pressure schedules for optimum efficiency and best productivity.

2. ASC (Air System Controller):

The Air System Controller (ASC) is a system automation product that was specially developed for complex compressed air systems. The main objective of ASC is data acquisition and data display for condition monitoring and energy management as well as for optimising control and compressed air systems.

- Graphical interface integration of the complete compressed air system – summary, setup and equipment-specific screen sets as well as object-oriented graphics and dynamic icons;
- Energy management for centrifugal compressors with Ingersoll Rand controls;
- Graphing and trending tools – data can be exported;
- Real-time scheduling tool enables virtually unlimited sequence change and compressor set operational combinations;
- Optional advanced logic tool that features field-configurable control actions based on actual system events;
- Remote monitoring and communications – monitor and control from anywhere at any time and get real time data;
- Information management through report generator and an alarm/trip and event log with date, time and user stamp;
- Optional remote notification of equipment alarm or shutdown allows a faster response time for correction to avoid air upsets;
- Full system support – instruction manuals and drawings as well as onsite or factory training available.



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Compressed Air Control and Automation *Capacities and Pressure Control*

IntelliFlow

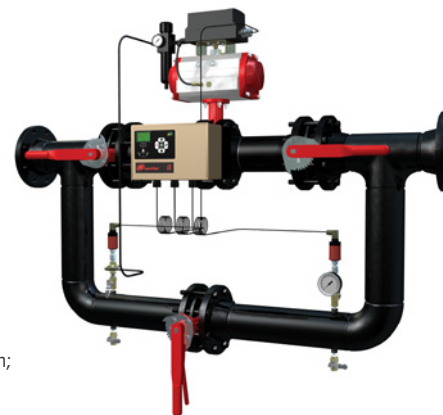
The Ingersoll Rand IntelliFlow pressure regulator can reduce the total compressed air consumption in a properly designed compressed air system. It enables an efficient compressor control and provides a linear pressure for production.

Features:

- High volume and low pressure loss design;
- Electronic PID control of valve position;
- Mounted controller with digital interface;
- Mounted pressure sensor;
- 3-valve bypass;
- Taps and gages for system audit instrumentation.

Technical specifications:

- Maximum pressure: 150 psig (10 bar(g));
- Max. temperature: 65°C;
- Flange/valve sizes: 2-8" (50-200 mm);
- Max. flow capacity: 850-15900 cfm (24-450 m³/min);
- 1 psig (0.07 bar(g)) pressure loss in the fully open valve position;
- Control of +/- 1 psi (0.07 bar(g)) with proper storing;
- NEMA 12 / IP54 casing;
- 50/60 Hz as standard.



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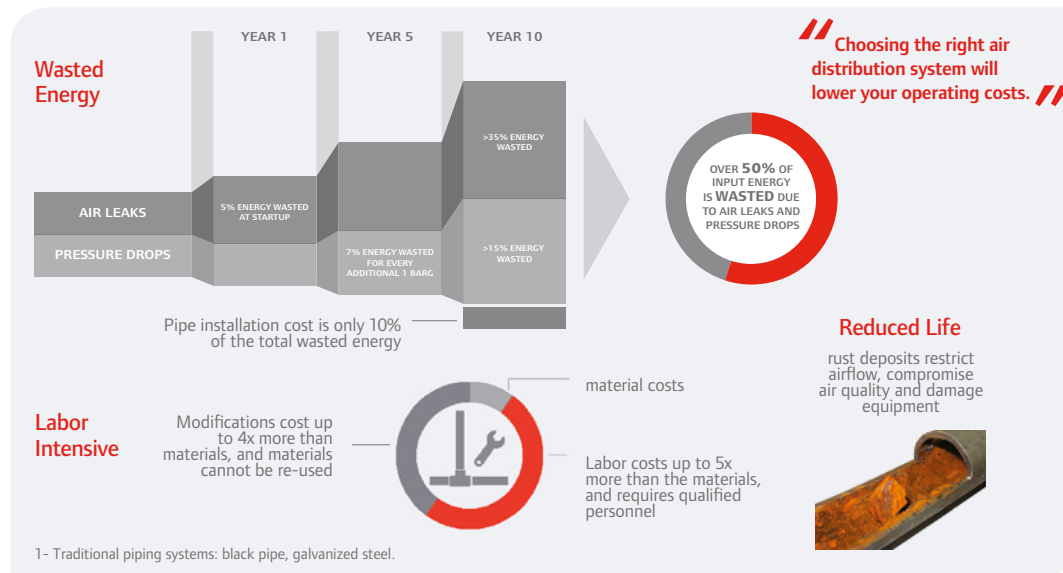
SimplAir® EPL (Easy Pipe Line): *Are You Spending Too Much To Transport Air?*

The total expense of distributing air from your compressors to its point of use involves more than just the cost of piping. It also includes labor-intensive installation (typically 5 times as much as the material costs), wasted energy from leak-prone systems (up to 20% to 30% after 10 years from start up), and increased energy consumption to compensate for pressure drops (7% for every 1 bar(g) drop). In addition, with subsequent repairs or system upgrades costing 4 times as much as the material costs installation, it is easy to see how such hidden expenses can negatively impact your total cost of ownership.



scan or click

Traditional¹ piping costs more...





SimplAir® EPL: *The Efficient Alternative To Traditional Piping*

The easy-to-install leak-free Ingersoll Rand SimplAir® EPL (Easy Pipe Line) system is your alternative to costly, labor-intensive steel pipe distribution systems for air, inert gas and vacuum lines. It leverages more than a century of Ingersoll Rand compressed air experience for streamlined installation, uncompromised reliable performance, effortless maintenance, flexibility for future needs, and maximum energy efficiency at the lowest total cost.

Easier installation

- No special tools needed;
- Easy, safe installation;
- Patented quick-fit locking system;
- Up to 60% less assembly time required than traditional piping;
- 15% less assembly time required than alternative competitive modular piping systems;
- SimplAir® EPL is compatible with existing piping systems and equipment;
- Fully tested and certified to 97/23/EC and ASME B31.3 standards.

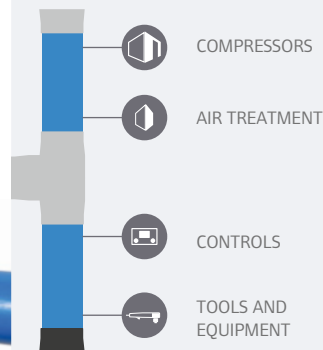
Lower total cost

- Low initial investment;
- Fully customizable and great configuration flexibility;
- Low energy waste system, due to leak-free and low pressure drop design;
- Less maintenance – up to 40% less labor and material costs than steel piping systems;
- Corrosion-resistant to prevent contaminants and pressure losses;
- Reusable parts for easy updates and modifications;
- 10-year warranty.



The ultimate link to efficiency

Leak-free SimplAir® EPL distribution systems are your most efficient choice for linking all aspects of Ingersoll Rand air system expertise – from highly efficient air compressor, air treatment, controls and tools and equipment to reliable performance.



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Services

Ingersoll Rand is built around superior solutions and top class care. We take pride in supporting our customers with managing their asset reliability, productivity and efficiency in the best possible way. We do this with a strong team of people who understand the added value to customers.

Trained on an ongoing basis, our technicians attend world-class training programs delivered at training centers in Praha and Vignate by experts who are committed to this permanent challenge. Our well-planned services organization will ensure you benefit from the right service at the right time.

- Certified technicians;
- 30 000+ parts/numbers on stock;
- Highly trained back office team;
- Well-planned service organization for maintenance and overhauls at a time most convenient for you.

Our CARE programs range from basic maintenance right up to all-in programs. They consist of PlannedCARE, SelectCARE and PackageCARE to ensure you always have access to the services you need.

Should you require further capacity or wish for a major overhaul to be performed, Ingersoll Rand is on hand to help: our rental business is there to support you.

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Services Network

Here at Ingersoll Rand our goal is to be the leader in our industry, by providing top class customer service and building real relationships with each of our customers.

We are pleased to offer:

- 1400+ certified technicians for distribution and direct;
- EMEIA coverage in 50+ countries;
- Highly skilled technicians who are consistently trained on an ongoing basis;
- Support with the right tools and documentation (iPad supported).

With a view to improving your satisfaction further, Ingersoll Rand has implemented a new FSMS - Field Service Management System. Thanks to this new system, we now have a clearer view of our service activities and of your expectations. This new system allows us to follow up in the most effective way to various triggers, such as response time, resolution time and first trip resolution etc.

We have also taken steps to vastly improve our processes in order to further meet your expectations. We can now, for example, improve your training plan, or recommend that a stock level is aligned with your needs.



System Assessment / Audit

It is not uncommon during research to hear of reports that may infer symptoms or problems. However, this can lead to a reaction based on prior experiences and can result in an emotional purchase. Management decisions should be based on data only and not emotions or opinions. Ingersoll Rand eliminates the guesswork by providing proven air system auditing services that not only ensure air system efficiency, but lower operating costs to improve bottom line profits.

In cases where production wants to add air using equipment, you will be able to determine the impact of your air system. Often, changes on the demand side of the system can affect the supply side adversely. This can result in increased expense associated to compressed air. Our compressed air audits are designed for optimisation of capital spending.

Ingersoll Rand Audit and Assessment Services:

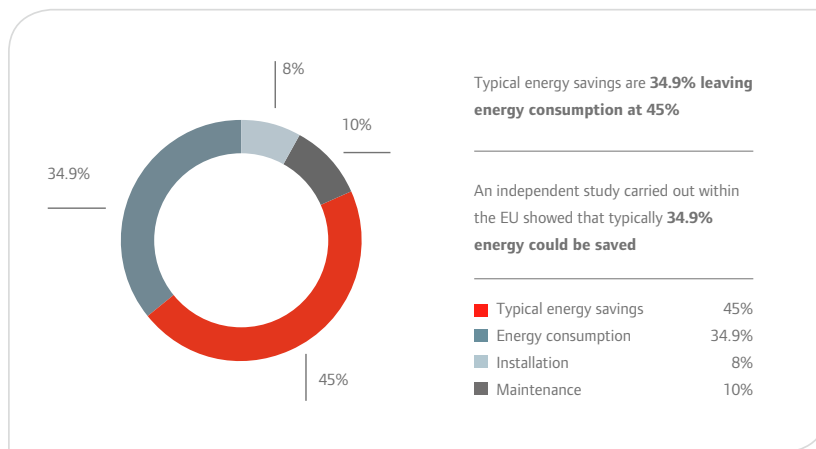
- Intellisurvey opportunity assessment;
- Intrusive flow measurement;
- Compressed air leakage scoping audits;
- Gas and air leak management;
- Written scheme of examination;
- Pressure system testing and examination.



scan or click
for Audit Services



scan or click
for Assessment Services



PackageCARE

No matter where your facility is located, Ingersoll Rand is committed to serving you 24 hours a day, 7 days a week, available to support you with innovative and cost-effective service solutions that will keep you running at peak performance.

Let Ingersoll Rand handle the pressures and responsibilities of managing a compressed air system with our signature service contract.



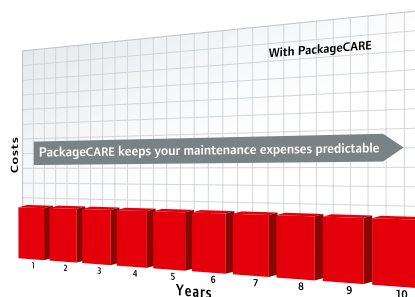
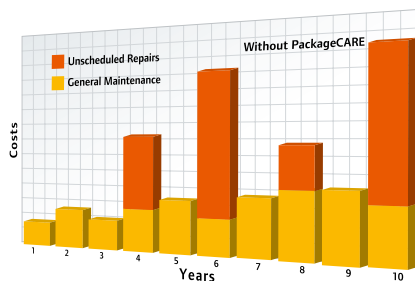
PackageCARE



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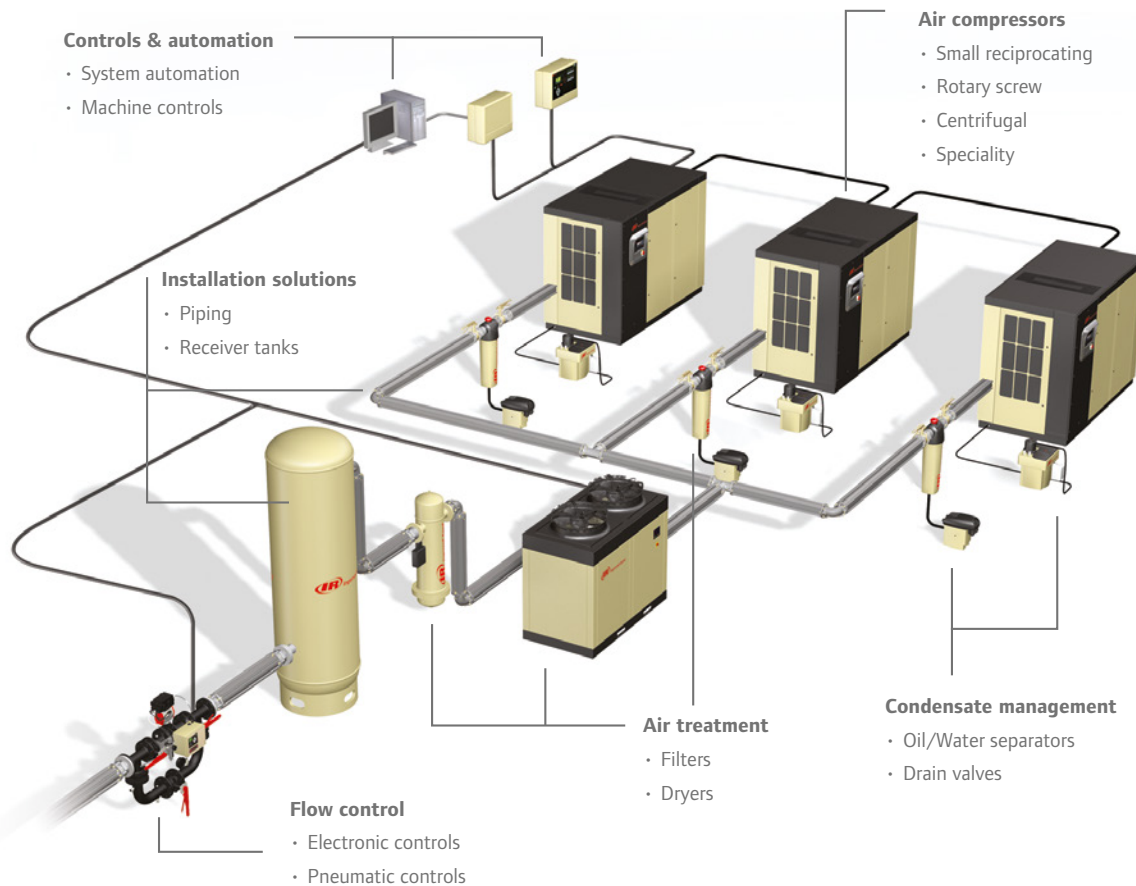
With PackageCARE, you can:

- Control costs and keep your equipment running at peak efficiency;
- Protect yourself from all repair and replacement expenses over the life of the agreement;
- Maintain or improve the operational efficiency of any compressor, regardless of age, make or model.





Count on Ingersoll Rand PackageCARE for all your air system requirements





SelectCARE

SelectCARE:

Is a warranty based service program which was developed to deliver piece of mind to our customers. Advanced in-depth diagnostics analysis ensure running and services efficiencies.

Cost assurance:

You can still depend on efficient and reliable performance -at a fixed annual rate- for the full duration of your contract.

Total coverage:

Your annual payment will still cover all costs - 24 hours a day, 7 days a week. There are no hidden extras.

Minimized risk:

Your well-maintained system, operating at optimal efficiency and maximum reliability, will continue to protect against unexpected downtime.

**SelectCARE**

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Rental Services

Ingersoll Rand offers a wide range of air compressors and air treatment equipment for rent. Our service is designed to keep your production and critical processes up and running at any time, under any circumstances.



Emergencies If your air compressor goes down unexpectedly, Ingersoll Rand can help get your facility operational while the issues with your current system are addressed. Our rental compressors can help minimize or even avoid the costs and setbacks connected with unscheduled repairs.



Planned Maintenance If you are planning maintenance on your current system, or if you are installing new equipment, a temporary compressed air solution can keep you operational.



Budget Delays Capital equipment budgets continue to shrink. A rental from Ingersoll Rand can allow for funds from your operating budget to accomplish the same objective, giving you the ability to continue your business operations while you take the time to find the best permanent solution.



Seasonal Demand Special circumstances may require additional demand beyond your facility's existing compressed air capacity. Temporary supplemental equipment can cost-effectively fulfill these requirements.



RENT WITH CONFIDENCE

- ✓ Oil-free and oil-flooded air compressors
- ✓ Refrigerated and desiccant dryers
- ✓ Short and long-term rentals
- ✓ Fast, knowledgeable service
- ✓ Highest reliability
- ✓ Easy installation

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Ingersoll Rand (NYSE:Ingersoll Rand) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a \$13 billion global business committed to a world of sustainable progress and enduring results.



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