



# Next Generation

Oil-Free Rotary Screw  
Compressed Air Systems

Nirvana 90-160kW  
Sierra 90-160kW



ISO 8573  
Class 0  
Oil-Free Air

## Your Trusted Partner in Compressed Air

Ingersoll Rand's cutting-edge compressed air systems significantly promote the development of your business by increasing productivity, reducing operating cost and extending the service life of equipment.

No matter the industry or application, you can count on Ingersoll Rand as a trusted partner for oil-free compressed air technologies and services. By focusing on you and your business, we provide collaborative solutions that make you successful, offering a total system approach to maximize efficiency and performance.

## Adopting a Systematic Approach

Ingersoll Rand doesn't just provide compressed air for your facility. We optimize total cost of ownership (TCO) through a systematic approach and employ more cutting-edge air compression technologies to provide reliability throughout the life cycle from design to equipment renewal.

Our extensive experience and global expertise will enable your business to benefit from working with Ingersoll Rand, such as ensuring reliability, reducing maintenance costs, simplifying repairs and optimizing systems.

## Let's move on hand in hand

Our system solutions may help you minimize the operating costs throughout the life cycle.



# Why Choose Our World-Class Oil-Free Rotary Screw Compressed Air System?

You need a reliable, cost-effective solution that complies with the most stringent air quality standards, features industry-leading energy efficiency and is backed by global IoT. That's what you get with our oil-free rotary screw air compressors.

## Improve Efficiency and Air Flow

Advanced air compressor air-end and drive component design provide world-class specific power and improved air flow, resulting in reduced energy consumption.

## Improve Reliability

Every component in our oil-free compressor system supports maximum reliability for increased productivity, longer equipment life, lower operating costs and higher profitability.

## Enhance Environmental Adaptability

Our oil-free compressors demonstrate excellent adaptability and can be used in a wide range of diverse application environments. Customized operating standards for various environmental conditions and optional design features, ensuring reliable operation whether indoors or outdoors, in extreme temperatures or harsh environments.

## Reduce Total Cost of Ownership

Intuitive microprocessor controls, easy serviceability and long-life consumables significantly reduce operating, maintenance and service costs over the lifetime of your compressed air system.



### ISO 8573-1 Air Quality Class

Quality Class	Oil & Oil Vapor mg/m <sup>3</sup>
0	< 0.01
1	0.01
2	0.1
3	1
4	5

Class 0 is the most stringent air class defined by ISO 8573, part 1. Our oil-free compressors are certified Class 0 for no oil content by TÜV to ensure your air quality exceeds specifications.

## Oil-Free Compressors Designed for Your Application



### Food and Beverage

Product transportation, storage, packing, filling, capping, cooling, coating, cleaning, fermentation and PET blow molding



### Pharmaceuticals

Tablet production, coating, mixing, fixation, product filling, packaging, bottling and aseptic application



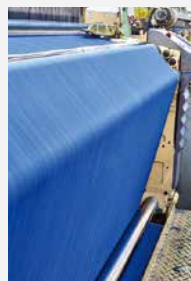
### Electronics

PCB cleaning after production completion, pneumatic component transmission and precision machining



### Chemicals

Process air, pneumatic valves, control cylinders, gas separation, pneumatic conveying and inert gas protection



### Textile

Pneumatic valve, cylinder control, air jet loom, spinning frame, sewing machine and dust gun



### Public Utility

Instrument air, pneumatic valves, control cylinders, fuel purge, reserve air, fuel atomization and air engine

## New Generation Host Module

- The newly designed advanced modular airend has a better line design, significantly improving efficiency and achieving better air flow coverage.
- The efficient jacket cooling design reduces the airend temperature and effectively improves the airend energy efficiency.
- The second-stage rotor adopts a stainless steel design, which is suitable for high-temperature operating environments and greatly increases the rotor life.



## UltraCoat Super Coatings

- The rotor and base frame surfaces are treated with Ingersoll Rand UltraCoat. After mechanical and chemical treatments, the coating is extremely thin and firmly adheres to the rotor and base frame surfaces.
- The rotor surface is shot peened to increase the roughness, and then the organic high-temperature resin is embedded in the MoS<sub>2</sub> molecular resin to mechanically embed it in the rough surface. It is durable, anti-oxidation and not easy to break.
- Compared with other coatings, UltraCoat has a longer life and can save 10% of the energy consumption.



## Nirvana Triple Tube Parallel Pre-Cooled Tubes

- Distribute compressed air to three separate pipes to reduce pressure loss and balance heat load.
- Avoid using precoolers, greatly reduce exhaust temperature entering aftercooler, and greatly extend aftercooler service life.
- Air-cooled Nirvana oil-free screw compressors use high-efficiency centrifugal fans to ensure CTD (Cold Temperature Differential) and reduce noise.





## Hybrid permanent magnet motor

- The stator coil and permanent magnet rotor of the hybrid permanent magnet motor generate strong electromagnetic force, driving the motor shaft to rotate at different speeds.
- The motor shaft directly drives the direct-connected host male rotor without coupling, reducing the efficiency loss of the transmission part.
- Permanent magnet synchronous motor, excellent protection level IP55, motor energy efficiency IE4 (and energy efficiency can be maintained at IE4 at any speed); with unlimited start and stop function, automatic shutdown at low speed, no unloading process

## High-efficiency intake valves

- Ingersoll Rand's high-efficiency intake valve uses an advanced hydraulic adjustment mechanism to replace the pneumatic adjustment mechanism, which avoids the regular replacement of pneumatic components and reduces unnecessary downtime and maintenance costs.
- It controls loading/unloading through an intake and exhaust combination valve. When loading, the butterfly valve is fully open and the exhaust valve is closed at the same time; when unloading, the butterfly valve is closed, the hydraulic cylinder returns to its original position, and the exhaust valve is driven to open and exhaust.

## Advanced intelligent control system

- The Luminance series intelligent controller features an intuitive user interface and enhanced control, functionality, and remote access using a common web browser. It can achieve sequential control of 4 compressors without the need for additional hardware, thereby improving efficiency and achieving stable pressure. Built-in Internet of Things (IoT) function connects to the HELIX™ platform to provide real-time attention and protection of the unit to achieve peak productivity.



## Model Parameters

Model	Pressure bar	Capacity m <sup>3</sup> /min	Power kW	Weight kg	Dimensions (L x W x H) mm
Fixed frequency					
SL90e A	7	16.5	90	3384	2547 x 1822 x 2436
SM90e A	8	14.6	90	3384	2547 x 1822 x 2436
SH90e A	10	14	90	3384	2547 x 1822 x 2436
SL90e W	7	16.5	90	3272	2547 x 1822 x 2137
SM90e W	8	14.6	90	3272	2547 x 1822 x 2137
SH90e W	10	14	90	3272	2547 x 1822 x 2137
SL110e A	7	20.1	110	3384	2547 x 1822 x 2436
SM110e A	8	18.2	110	3384	2547 x 1822 x 2436
SH110e A	10	16.5	110	3384	2547 x 1822 x 2436
SL110e W	7	20.1	110	3272	2547 x 1822 x 2137
SM110e W	8	18.2	110	3272	2547 x 1822 x 2137
SH110e W	10	16.5	110	3272	2547 x 1822 x 2137
SL132e A	7	23.7	132	3589	2547 x 1822 x 2436
SM132e A	8	21.8	132	3589	2547 x 1822 x 2436
SH132e A	10	20.1	132	3589	2547 x 1822 x 2436
SL132e W	7	23.7	132	3477	2547 x 1822 x 2137
SM132e W	8	21.8	132	3477	2547 x 1822 x 2137
SH132e W	10	20.1	132	3477	2547 x 1822 x 2137
SL160e A	7	27.8	160	3589	2547 x 1822 x 2436
SM160e A	8	25.9	160	3589	2547 x 1822 x 2436
SH160e A	10	23.7	160	3589	2547 x 1822 x 2436
SL160e W	7	27.8	160	3477	2547 x 1822 x 2137
SM160e W	8	25.9	160	3477	2547 x 1822 x 2137
SH160e W	10	23.7	160	3477	2547 x 1822 x 2137

Model	Nominal Pressure bar	Pressure Range bar	Maximum Capacity m <sup>3</sup> /min	Power kW	Weight kg	Dimensions (L x W x H) mm
VSD						
IRN90e A	10	4-10	19.8	90	2805	2547 x 1822 x 2436
IRN110e A	10	4-10	21.0	110	2805	2547 x 1822 x 2436
IRN132e A	10	4-10	26.8	132	2874	2547 x 1822 x 2436
IRN160e A	10	4-10	28.4	160	2874	2547 x 1822 x 2436
IRN90e W	10	4-10	19.8	90	2700	2547 x 1822 x 2137
IRN110e W	10	4-10	21.0	110	2700	2547 x 1822 x 2137
IRN132e W	10	4-10	26.8	132	2762	2547 x 1822 x 2137
IRN160e W	10	4-10	28.4	160	2762	2547 x 1822 x 2137

Moisture and contaminants in compressed air can cause serious equipment operation problems, such as rust, scaling, and pipe clogging, which can lead to product damage or even shutdown. Using our air treatment equipment as an integral component of your compressed air system will help improve productivity, system efficiency and product or process quality.

## Desiccant Dryer

When the dew point requirement is very low, it is necessary to choose desiccant dryers to provide high-quality air and prevent possible freezing. Depending on your different needs to reduce initial investment cost or reduce energy cost, you can choose from compression heating, no heating, external heating or blower heating desiccant dryer.

### Features of desiccant dryer

- Provides reliable  $-40^{\circ}\text{C}$  pressure dew point in most operating conditions
- High-strength desiccant and durable valves
- Low-pressure drop design saves energy
- Advanced controller, easy to use and maximize uptime



### D-ILRi/IERi Heatless / Heat Regenerative Desiccant Dryers

D-ILRi and D-IERi desiccant dryers adopt heatless and heat processes, along with dual drying towers and valve control, for high efficiency compressed air after-treatment and excellent product reliability.



### HCD Compression Heated Desiccant Dryer

HCD series heat-of-compression dryers provide moisture-free air and virtually consume no energy by recovering excess heat generated from the compression process.



### IRDR Drum Desiccant Dryer

Compared to traditional switching operation, IRDR Drum Desiccant Dryer guarantees the constant provision of dry compressed air. Thanks to its zero gas consumption design, it can achieve high efficiency production, low carbon emission and lower operating cost for the plant.



### D-IBRi Blower Heated Desiccant Dryer

D-IBRi series desiccant dryers utilize the principle of blower heating to achieve efficient compressed air drying. This significantly reduces compressed air loss and saves energy.

## Refrigerated Dryer

Our cost-effective refrigerated dryers provide clean, dry air for most industrial applications.

### Features of refrigerated dryer

- Dew point as low as  $7^{\circ}\text{C}$ , in compliance with ISO Grade-4 requirements
- Non-corrosive heat exchanger design to achieve reliable operation
- Intuitive microprocessor control to simplify operation
- Compact design for easy maintenance



### S-Series refrigerated dryers

## Filter

F-Series compressed air filters effectively reduce contaminants in the air system to protect critical processes and valuable instrumentation and equipment.



### F-series filter

## 8000-Hour Polyether Products

- Exceptional cleaning properties effectively prevent issues with sludge and carbon deposits.
- Superior high-temperature stability for adaptability to more operating conditions and longer service life.
- Good heat transfer properties for better cooling effects.
- Outstanding rust prevention properties for better protection of compressor components.



## Ingersoll Rand Parts and Service

Air compressor units that operate under high temperature and pressure loads for extended periods gradually lose their working capacity due to various stresses, wear, and chemical corrosion. Using Ingersoll Rand parts and periodic professional maintenance helps eliminate operational risks, maintain their excellent working performance, and keep them running at peak efficiency. Ingersoll Rand compressor parts possess superior quality and performance that many other brands cannot match.

## Maintenance and Service Kits

Periodic Maintenance Kits: Oil filters, air filters, and other consumable parts and wear parts  
2000 h/ 4000 h  
8000 h/16000 h

Service Maintenance Kits: Regular maintenance service components for parts such as valves and coolers

### Save Money

The price of the maintenance kits is lower than the sum of individual part prices

### Save Worry

One-time budget price  
One-stop service  
Know the maintenance budget in advance

### Save Effort

One part number, quick operation, improve work and production efficiency, and reduce waiting time before service



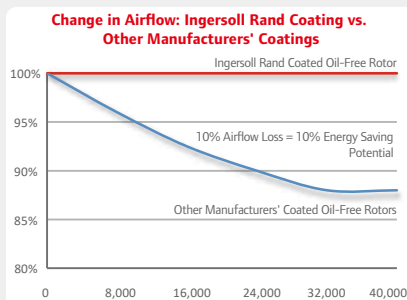
The maintenance and service kits include all the parts needed for one service maintenance

## Energy Saving Reman Business

### Airend Reman

#### Advantages of Oil-Free Screw Airend Reman

Professional reman centers, genuine original parts  
High-efficiency and reliable coatings, new machine factory standards.



### Motor Reman

#### Motor Overhaul

- Professional repair facilities
- Authoritative testing
- Comprehensive service
- High reliability

#### Energy Saving Motor Exchange

- Original factory manufacturing
- "Zero wait" delivery time
- Reduced operating costs
- Convenient on-site exchange







**CARE** SERVICES PROGRAM

## Comprehensive Protection All Your Investments Are Worthwhile

- ✓ Ensure your needs are prioritized
- ✓ Improve equipment operational efficiency and extend lifecycle
- ✓ Enjoy hassle-free spare parts purchasing and after-sales service
- ✓ Tailored service agreements



### Each of Our Maintenance Programs offers Significant Benefits, Including:

- Genuine OEM parts eliminate exposure to unnecessary equipment wear and tear, reducing downtime
- Rapid response, because as an Ingersoll Rand service program customer, you are our top priority
- Optimized services for your specific operation that are structured to lower electricity consumption
- Early detection and predictability that eliminates surprises and unwanted costs
- Automated shipment or scheduling reminders prevent overlooking or under-maintaining equipment
- Equipment that lasts longer and runs better by replacing the right parts at the right time
- Premium monitoring via the Helix™ Connected Platform to maximize productivity

### IT ALL ADDS UP TO PEACE OF MIND



#### Lower Cost of Ownership

Our service programs provide the most cost-effective solutions based on a customized maintenance strategy.



#### Quality Results

Ingersoll Rand factory-trained service technicians are backed by more than 160 years of industry experience.



#### Increased Uptime

Service programs help decrease unplanned downtime and costly production interruptions.



#### Efficient Energy Use

Peak system efficiency is achieved through properly performed maintenance and inspection.



#### Peace of Mind

Our world-class services will help you achieve the results you need, while you focus on what's important to your business.

# PRODUCTIVITY ENHANCEMENTS

## **HELIX™** Deep Insights into reliability

**Productivity is reduced by air loss caused by ongoing inefficiencies as well emergencies in your facility. Use our Helix™ Connected Platform to meet long term sustainability goals and our rental services to minimize short term production loss.**

Developed to give you essential visibility into day-to-day operational intelligence that maximizes your uptime and peace of mind, the Helix™ Connected Platform from Ingersoll Rand offers real-time data monitoring for your compressed air system.

Advanced sensor technology inside the compressor sends data on a regular basis to our cloud-based platform. This data gives you a clear view into the functionality and health of your compressor, and is easily accessible around-the-clock from your PC, tablet or smartphone. With a range of connectivity service offerings available, Helix™ monitoring can be tailored to meet your specific operational needs.

- Deep insights for preventive maintenance, efficient repair work, and detailed analysis of equipment performance over time
- Diagnostic reporting that help maintenance teams keep your compressor operating at peak performance and reduce downtime
- Continuous real-time operating data available anytime, anywhere
- Maintenance notifications that help ensure reliability and extend equipment life



Emergencies, maintenance and persistent inefficiencies in your plant can lead to air losses, thus reducing productivity. Our integrated products and services can reduce short-term production losses and achieve long-term sustainable development goals.

## Reduce your operation costs

To optimize your total cost of ownership, you need to look beyond air compressors. Here are some other ways that Ingersoll Rand can help you reduce your energy and equipment costs:



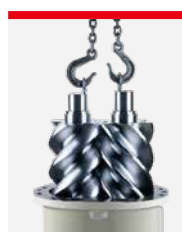
### iR5500 controller

Variable-speed energy conservation system adopts variable speed control technology, and the exhaust volume of compressor can be perfectly combined with the gas consumption volume of user, thus avoiding the rated power loss of air compressor caused by frequent loading and unloading.



### Heat recovery system

Throughout your plant, the heat generated during air compression can be recycled and used for a variety of different purposes.



### Airend re-manufacturing

We can provide professional, fast and reliable re-manufacturing service for your long-operating air compressor or internal airend and other parts, prolong the service life of your compressor, improve the operation efficiency, and reduce the unexpected shutdown caused by the failure of air compressor.

## Performance assessment service



**Electronic assessment**



**Air leakage assessment**



**System assessment**

By identifying, analyzing and rectifying the problems in your complete compressed air system - our global service team can use big data analytics to uncover root causes, and recommend cost-effective solutions to increase your profits and reduce your total operating costs.

## System automation

System assessments usually identify the wastes resulting from a lack of appropriate controls. Our complete system automation solution can reduce energy costs and stabilizes pressure.





Ingersoll Rand Inc. (NYSE:IR), driven by an entrepreneurial spirit and ownership mindset, is dedicated to Making Life Better for our employees, customers, shareholders, and planet. Customers lean on us for exceptional performance and durability in mission-critical flow creation and industrial solutions. Supported by over 80+ respected brands, our products and services excel in very complex and harsh conditions. Our employees develop customers for life through their daily commitment to expertise, productivity, and efficiency. For more information, visit [www.IRco.com](http://www.IRco.com).



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