E-series Oil-Free Screw Air Compressor Systems

355-500 kW

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.

Ingersoll Rand is a trusted partner for oil-free compressed air technology and service, regardless of industries or applications. By focusing on you and your business, we provide collaborative solutions for your success, while offering a holistic and systematic 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.

Highlighting high-quality air

Air quality plays a decisive role in many cases. The presence of solids, condensates, oils and oil vapors in compressed air systems can cause downtime, product damage, product recalls and even damage to brand reputations, or worse, to consumer interests and product credibility.

Reduce life-cycle costs

Oil-free systems have higher initial costs, but lower life-cycle operating and maintenance costs optimize total cost of ownership while maintaining high air quality.

Improve reliability

Reliable product and system designs can provide quality air, protect sensitive downstream gas installations, reduce maintenance and extend equipment life.

Improve productivity

Using a certified oil-free Grade-0 compressor can ensure zero air pollution and eliminate the risk of product damage and waste.

Improve maintainability

Taking the convenience of maintenance as the starting point of design, improve the convenience of on-site consumables replacement.

ISO 8573 Class 0 Oil-Free Air

ISO 8573-1 Air quality grade

Quality vapor grade	Oil and oil mg/m3
0	< 0.01
1	0.01
2	0.1
3	1
4	5

Oil-free Grade-0 is the most stringent air grade as defined in Part 1 of ISO 8573. Our oil-free compressors are of TUV certified Grade-0 and contain no oils, thus ensuring air quality beyond specification requirements.

Application of oil-free compressors

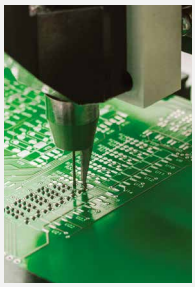
Ingersoll Rand offers a wide range of reliable oil-free products that will meet the needs of different industries and applications. We will assess and recommend more suitable oil-free solutions to improve the productivity of equipment, thus providing the ideal product with zero pollution risk.

Food and beverage

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

Pharmaceutics

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



Electronics

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

Chemical industry

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

Textile industry

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

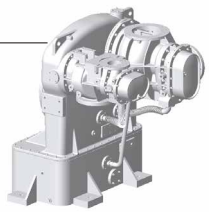
Air compressor

Energy-efficient

Energy consumption accounts for a large part of the total cost of air compressor. Our team of experienced engineers uses advanced computer modeling techniques to design and develop compressors with greater flow, enabling reliable operation and helping you increase profits.

What factors make our oil-free screw compressor stand out?

High-performance design



Larger capacity

Our proven airends and unique * design modules, combined with fully cooled and efficient motors, enable high air flow levels with better market performance for both fixed and variable speed drives.

Better cooling capacity

Our compressor system is specifically designed to operate at 46°C, which is superior to most designs that are only suitable at 40° C. The optimized design of the internal structure of the machine enables the air flow to achieve hot-cold partition. Multiple cooling components have patented design and excellent cooling capacity, which ensure trouble-free operation of the unit at higher temperatures and improve operation efficiency.

High reliability

Robust and durable parts

Using unique UltraCoat technologies, time-tested reliable airends, optimized bearing design, robust motor design, stainless steel hot-end pipelines, venturi pipes designed with special technique *, and exhaust noise reduction structures designed with special technique *, jointly achieving the reliability throughout the life cycle.

Reliable and rigorous design

V-Shield ™ leak-free PTFE stainless steel braided pipes and O-ring end-face seals, self-distributable cooling waterway without valve, floating high-temperature pipeline connection designed with special technique *, and hydraulic inlet valve designed with special technique * enable make the whole machine to have excellent sealing effect and significantly reduce the risk of leakage.

More convenient maintenance

The unit has a smart design, many parts are equipped with lifting rings, the air intake filter and water collector are design with special technique *, and all components can be easily assessed, loaded and unloaded, and maintained.

The universal design of the same series with various models greatly reduces the difficulty of maintenance. Consumables and wearing parts are very durable, extending the maintenance interval.

Flexible design options

Our compressors offer food-grade coolants, high-temperature options, high dust filtration and hard water coolers adapted to harsh environments, heat discharge and efficient heat recovery options, which can meet your multiple application needs.

*: With patents pending

E-series oil-free screw air compressor 355-500kW

Ingersoll Rand E355-500KW two-stage oil-free screw air compressor has inherent product advantages and excellent air flow up to 12% higher than similar products in the market. High-performance design with 11 special techniques * and reliable and durable components ensure uninterrupted output of oil-free compressed air, and the reliability and easy maintenance are also worthy of your trust.

In the case of constant gas demand, you may choose our fixed-speed oil-free compressors; and in the case of fluctuating gas demand, you may choose variable speed drive (VSD) to meet the gas demand in a more energy-saving way.

Two-stage and double VSD advantage

VSD adopts two-stage and double variable-speed technology. The primary and the secondary compressor airend are controlled by two variable-speed motors respectively to ensure that the airend at each stage has ideal efficiency.

The two-stage and double variable-speed logic using special technique *achieves accurate revolving speed control and matching, as well as better speed range and operation performance.

The two-stage and double variable-speed technique ensures higher compression transmission efficiency, more convenient maintenance, and more stable pressure.

Advanced compressor control

The Luminance-series of intelligent controllers feature an intuitive user interface and enhanced control, functionality, and remote access with commonly used Web browsers. Sequential control of four compressors can be achieved without the need for additional hardware, thus resulting in improved efficiency and stable pressure.

The built-in Internet of Things (IoT) function connects to HELIX™ platform for real-time monitoring and protection of the unit, thus achieving peak productivity.

Special design

11 unique techniques *, reflecting Ingersoll Rand's strong design capability, helping the unit achieve excellent performance and ideal efficiency, more convenient maintenance and low-speed vibration for better performance.

*: With patents pending

Air compressor

24 Stable operation

How do we achieve reliability for each component?

Rotor performance - key to the reliable operation of compressor

The compressor rotor bears operating pressure. Over time, their coating surfaces may wear away, making rotors increasingly vulnerable to impurities in compressed air and temperature fluctuations.

Ingersoll Rand solves this problem with UltraCoat™. UltraCoat™ is an advanced rotor and housing protection process with excellent adhesion and high-temperature resistance, providing you with extremely durable coatings.

Typical problems of oil-free rotor coatings

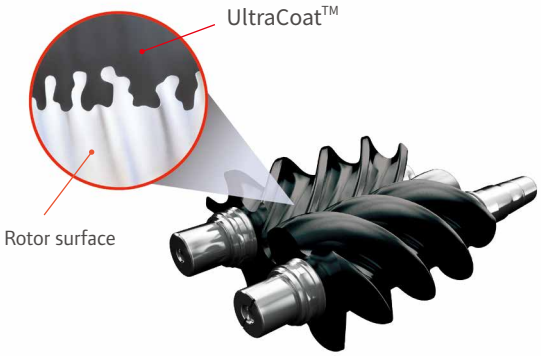
Rotor coating wear	Steel rotor corrosion	Damage caused
		
The contaminants cause the coating to wear away, leaving many micro-cavities on the surface of the rotor.	**For competitors' products, once the coating is worn and peeled off, the carbon steel rotors used will be corroded.**	**The rotor will have rust and pitting, damaging the rotor, reducing operating efficiency and possibly even causing compressor failure.**

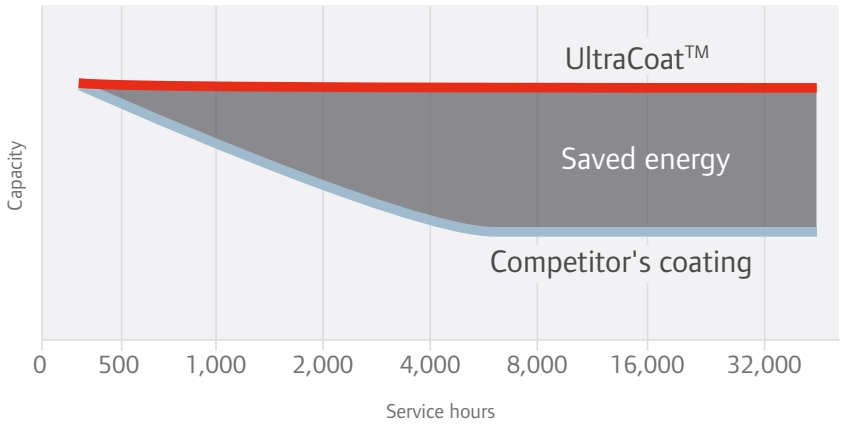
UltraCoat™—Save energy and prolong service life

Ultracoat™ is made from specially designed MoS_2 (Molybdenum disulfide) blends that create a stronger chemical and mechanical adhesive force on the rotor surface.

This special design provides the precision and lubricity required for the endurance of compressor screw rotor for a long time.

Combined with a secondary stainless steel rotor, UltraCoat™ significantly improves performance reliability and air quality, extends rotor life and service time, and reduces energy costs.





Optimize your requirements

The optimal collocation of motor and airend accurately meets the performance required by your operation and budget.

i **Fixed-speed model:** fixed-speed compressor and reliable and efficient induction motor

n **Variable-speed model:** variable-speed compressor and efficient double-speed motor

It can work in almost any environments

Optional scheme	i	n
▶ PORO power off and restart	●	●
▶ Motor phase monitor	●	
▶ Soft start	●	
▶ Food-grade coolant option	●	●
▶ High dust filtration	●	●
▶ High-temperature option (up to 55°C)*	●	
▶ Cooler option suitable for hard water	●	●
▶ Thermal exhaust - No after-cooling option	●	●
▶ Efficient heat recovery system ERS READY	●	●
▶ No-loss drains	●	●
▶ lifting plate	●	●

* High-temperature option: not applicable to 500kW

i –Fixed-speed-50HZ *

Model	Max. pressure barg	Rated power kW	Gas displacement (FAD) m3/min	Dimensions (mm) (L x W x H)	Weight kg
E355i-W7.5	7.5	355	62.0	4488 X 2206 X 2430**	9514
E355i-W8.5	8.5	355	58.5		9514
E400i-W7.5	7.5	400	69.0		10509
E400i-W8.5	8.5	400	65.0		10509
E400i-W10.2	10.2	400	58.4		10509
E450i-W7.5	7.5	450	76.9		10639
E450i-W8.5	8.5	450	72.5		10639
E450i-W10.2	10.2	450	66.2		10639
E500i-W7.5	7.5	500	84.2		10814
E500i-W8.5	8.5	500	80.1		10814
E500i-W10.2	10.2	500	73.4		10814

*This model only provides 50HZ

** If it is 6KV, 10KV TEFC machine, the overall size is different from ODP machine, the length will be 210mm more

n –Variable-speed-50/60HZ*

Model	Max. pressure barg	Rated power kW	Gas displacement (FAD) m3/min	Dimensions (mm) (L x W x H)	Weight kg
E355nx-W10.2	4-10	355	62.0	4913 X 2211 X 2430	12458
E400n-W10.2	4-10	400	69.0		12523
E450n-W10.2	4-10	450	76.9		12548
E500n-W10.2	4-10	500	81.0		12558

*For 50/60HZ, please ask your local sales representative

Air compressor

24 Stable operation

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.

HOC dryer: better performance and lower energy consumption

HOC dryers provide water-free air by recycling excess heat from the compression process, while consuming almost no energy.

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 (HOC), no heating, external heating or blast heating desiccant dryer.

Features of desiccant dryer

- Reliable -40°C (-40°F) pressure dew point under most operating conditions
- High-strength desiccant and durable valve
- Low pressure-drop design saves energy
- Advanced microprocessor control, easy to use and maximizing the extension of service time

Refrigerated dryer

Our cost-effective refrigerated dryers provide clean, dry air for most industrial applications. You choose different circulation dryers to reduce energy consumption, or choose non-circulation dryers to reduce initial costs.

Features of refrigerated dryer

- Dew point as low as 3°C (38°F), 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.

Highly cost-effective operation

In many industrial applications, refrigerated dryers are chosen to reduce investment, operation and maintenance costs.

zero gas consumption + micro power consumption

With guaranteed reliability, the dryer minimizes the water content of compressed air, thus preventing contamination of the final product by the compressed air, and enhancing the accepted product percentage*

IRDR Compression Heat Rotary Desiccant Air Dryer

Compared to traditional switching operation, IRDR series compression heat rotary desiccant air 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, thus enabling visualization of whole-process energy saving, while reducing the trouble of wearing parts and improving the production efficiency for our customers.

Features of IRDR Compression Heat Rotary Desiccant Air Dryer

- Energy saving, smooth air flow, small pressure loss, low dew point
- Continuous and efficient single-tower purification for ideal adsorption effect
- No electric or pneumatic switching valve and no wearing parts for lower maintenance costs
- Environmental-friendly product design for low dust and noise level (below 50 dB)

*It is currently only available in China.

Oil-free parts and accessories

Cooperation extension

Compressed air systems are a major investment. You expect continuous reliable, clean, dry air at lower operating costs. Choosing our original parts and accessories may ensure that your compressor runs efficiently and increases productivity.

F-series pipeline filter

Our advanced compressed air filter reduces the pollution in the air flow, which helps protect the finished products, key technologies and valuable equipment.

No-loss drains

Zero-loss electronic and pneumatic drainage is a reliable, durable and efficient means of removing condensates from the compressed air system.

Power supply management

Our power supply management solution can reduce your ownership costs, including circuit breakers, fuse protectors and transformers.

Air storage tank

We offer horizontal and vertical air storage tanks specially designed for external air storage and made of durable steel.

Filter components

Ingersoll Rand provides high-quality original filter components and elements, eliminating the risk of non-original spare parts through preventive maintenance.

Pure original parts

We have the original parts you need, which are in large inventory in the major markets around the world.

Installation solution

Ingersoll Rand is a specialist in compressed air systems, providing you with a full range of products and services from design, installation, integration and commissioning of compressed air systems.

Project management service

Comprehensive and integrated services, managed by experts, ensure efficient operation.

SimplAir® pipeline system

Durable alloy aluminum piping and "quick connect" joints for easy installation.

Maintenance service

Our CARE service program may ensure reliability throughout the life cycle of your compressed air equipment. CARE has only one goal, i.e., to become your trusted partner.

PackageCARE™
We Protect You

Comprehensive protection and eliminating risks

PackageCARE™ provides highly cost-effective asset management value by transferring operational risk to Ingersoll Rand. We are responsible for regular maintenance and employ prediction and analysis tools to help you prevent unexpected production disruptions.

Preventive and predictive

PackageCARE™ is proactive and forward-looking. Other companies replace parts only when they fail.

No Extra Cost

We are committed to the stable operation of the equipment without any extra charges.

Reliable pricing

During the contract period, parts and labor prices are not affected by human and environmental factors, without the risk of price increases.

Risk transfer

Ordinary extended warranty agreements usually cover material and workmanship defects, while specifically excluding wear and tear, corrosion, etc. PackageCARE ™ covers all.

No small prints

Most extended warranty agreements have small prints that give the company the opportunity to reject claims. In addition, certain aspects of maintenance are not included, such as consumables or travel. PackageCARE ™ has no such small prints.

No paperwork required

During the contract period, no additional purchase orders or other approval processes will be required, and we will provide one-stop service.

No accident

Most extended warranty agreements require attribution of liability, while our PackageCARE ™ does not shy away from responsibility.

Flexibility

PackageCARE ™ is more flexible than extended warranty agreements. You can add an older equipment, dryer and filter, or include a rented compressor.

ALL THIS MAKES YOU FEEL AT EASE.

Lower TCO

CARE service programs provide the most cost-effective solutions based on your customized maintenance strategy.

Quality Results

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

Increased Uptime

Our CARE 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.

Cooperation extension

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.

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