Ingersoll Rand

SUSTAINABLE HEAT RECOVERY

Systems for oil-free compressors

ISO 8573 Class 0 Oil-Free Air

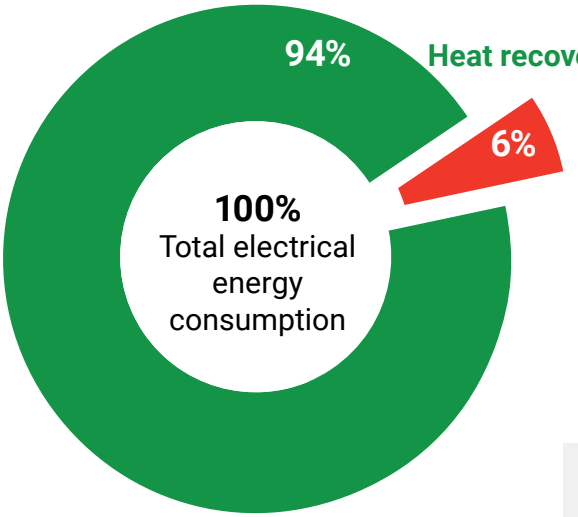


Save Money and reduce your Carbon Footprint

Turn waste heat to your advantage

Heat recovery potential

Under ideal circumstances up to 94% of the waste heat can be recovered for re-use.



Non-recoverable heat

2% heat radiated from the compressor

4% heat remaining in the compressed air

Example

- 160 kW oil free compressor
- 8.000 operating hours per year

➜ Theoretic heat recovery potential of approx. 1.200 MWh!!

- Substitution of a gas boiler
- Gas price of 10 ct/kWh

➜ Theoretic saving potential of approx. 120.000€ each year!!



It's critically important that we focus on energy now and in the future:

Energy prices will almost certainly continue to increase

Concerns for the **environment** and **sustainable development** are growing

Compressed air is considered expensive, but alternative electric tools are not necessarily cheaper options, if you consider that you can re-use the **heat to save energy somewhere** else in your facility

Countries and industries face **stringent targets** to reduce carbon dioxide emissions

Turn this waste heat to your advantage: recovering it will allow you to save huge amounts of energy, cut CO_2 emissions and improve operating costs.

Why heat Recovery

It is a thermodynamic fact that around 94% of the energy needed to run a compressor gets converted to heat.

Without heat recovery, this heat is directly blown into the atmosphere.

The heat generated during compression is paid for as part of the process, then it creates additional costs as this heat needs to be removed by cooling fans or by the use of water. At the same time, most companies consume a lot of energy and money to generate hot process water, space heating or preheat water for steam generation.

Given that compressed air systems account for 10% of all electricity used in industry, and energy is the largest single lifecycle cost of a compressor, it makes sense to recover this heat, save energy and reduce costs.

Give your compressed air system an efficiency upgrade

With a heat recovery system from Ingersoll Rand, the heat generated by the compressor can be re-used, providing the following **BENEFITS**:

Significant savings in energy costs

✓ Extremely short payback time – typically less than a year

✓ Lower CO_2 emissions

✓ Turnkey solutions

✓ Easy installation and operation

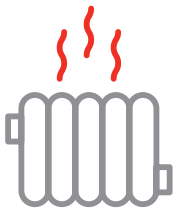
✓ Small footprint

✓ No impact on the compressed air supply

✓ High reliability



Hot Water



Space-heating



Industrial Process Heat



Pre-heating for steam generation

Different Oil-Free Heat Recovery Solutions

E75-160ne and ES55-110ne

The E75-160ne and ES55-110ne compressor range offers various heat recovery options to accommodate individual customer needs. The water-cooled models can for example be delivered with just a preparation for external heat recovery, with an additional control of the cooling water outlet temperature (Heat recovery+) or with Turnkey Heat Recovery Box, an absolute turnkey solution that includes all main components needed in a heat recovery system.



Absolutely unique is the integrated heat recovery option for the air-cooled version of E75-160ne and ES55-110ne. In fact, E75-160ne and ES55-110ne is the first and only air-cooled oil-free compressor on the market with optional heat recovery, providing usable water temperatures up to 85°C. It's a turnkey solution with all required components included in the compressor package. This means no additional footprint, no complex installation and thousands of Euros of potential savings every year.

	Water-cooled			Air-cooled
	Preparation for external heat recovery*	Heat recovery+	Turnkey Heat Recovery Box	Integrated Heat recovery
Internal thermal management to achieve cooling water outlet temperatures up to 90°C	●			●
Control of the cooling water outlet temperature		●	●	●
Control of the heat recovery temperature on customer side			○	
Control of backup cooling water flow			○	●**
Heat exchanger for heating the customer's water			●	●
Backup heat exchanger			●	●
Visualization of the current and accumulated heat recovered			●	●
Water pump			●	●
Compressed air aftercooler	○***	○***	○***	○***

● Standard Option ○ Optional Add-on

* For the E75-160ne and ES55-110ne, this option is part of the standard scope of supply

** The two radial fans of the air-cooled E75-160ne and ES55-110ne serve as additional / emergency coolers if necessary

*** In many cases the E75-160ne and ES55-110ne already have a sufficiently low air discharge temperature, so an external aftercooler will not be needed

Request a Quote



Turnkey Heat Recovery Box, a turnkey heat recovery system for oil-free compressors



Scope of supply

- Heat recovery heat exchanger to heat up your usable water
- Backup heat exchanger, operated in times when the heat demand is not sufficient to cool down the cooling water to the requested max. inlet temperature for the compressor
- Speed regulated pump to control the cooling water temperature before the heat recovery heat exchanger
- Intuitive coloured touch screen controller providing a quick and comprehensive performance overview, including visualisation of current and cumulated recovered heat

Broad range of further options:

- Electrical valve kit 1: To control the water outlet temperature on the customer side of the heat recovery heat exchanger
- Electrical valve kit 2: To control the external cooling water flow through the backup cooler in order to reduce water consumption when the backup cooler is not needed
- Additional backup pump
- Connecting kit comprising ball valves and adapters from Victaulic to 1” internal threads for all water connections
- Compressed air aftercooler (provided loosely. The E-max box as a standard includes inlet and outlet connections for the aftercooler’s cooling water)

U-Cooler / E-Cooler – a perfect extension for Turnkey Heat Recovery Box

Highly efficient V-shaped cooling module for trouble-free waste heat removal from the E75-160ne and ES55-110ne cooling cycle. A complete package of cooling module, pump station and control integrated into the compressor. Easy to install, easy to operate and virtually maintenance-free.



Request a Quote



Desiccant Dryers

Desiccant dryers offer very low dew points and prevent potential freeze-up. Depending on whether you require lower initial capital costs, or lower energy use, choose from heat-of-compression (HOC), heatless or heated blower desiccant models.



Subfreezing Dryers

The SF is the only regenerative refrigerated dryer that combines the subfreezing pressure dew point (PDP) of a desiccant dryer, with the low operating and energy costs of a refrigerated dryer.



Refrigerated Dryers

Our cost-effective refrigerated dryers provide clean, dry air for most industrial applications. Choose efficient cycling dryers to maximise energy savings or non-cycling dryers for a lower initial cost.

Find the Right Dryer for Your Application

Parts & Accessories

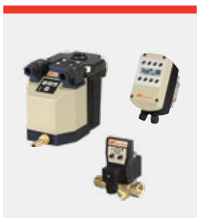
See our Entire Portfolio of Genuine OEM Parts

A compressed air system is a significant investment. You expect consistently reliable, clean, dry air at the lowest possible operating cost. Choose our genuine parts and accessories along with our installation solutions to ensure that your compressor is running efficiently and productively.



F-Series In-Line Filters

Our advanced compressed air filters reduce contamination in your air stream to help protect finished goods, critical processes and valuable equipment.



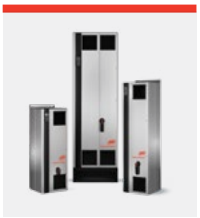
Heavy-Duty No-Loss Drains

No-loss drains are the most reliable, durable and energy-efficient way to remove condensate from air compressors and system components.



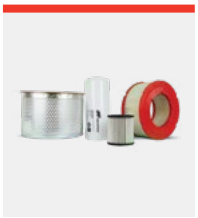
Power Management

Lower your cost with our power management solutions, including disconnects, line reactors, fuses and transformers.



Bolt-on Variable Frequency Drives

External bolt-on VFD retrofits match your compressor's output to the exact capacity required by varying main drive motor speed.



Filters

Ingersoll Rand provides the highest-quality OEM filters for preventative maintenance that eliminate the risk of using will-fit parts.



OEM Replacement Parts

We have the genuine OEM parts you need with inventories maintained in strategic locations around the world.

Installation Solutions

We offer a complete range of products and services in compressed air system installation, integration and commissioning. Regardless of the size and scope of the job, Ingersoll Rand has the capability to manage your project from start to finish.



Project Management

Fully integrated services managed by experts that ensure efficient operation



SimplAir® Piping Systems

Durable aluminium piping and “quick-connect” fittings enable easy installation



Air System Accessories

Everything you need to deliver clean, dry air from the compressor to point of use

Maintenance Services

Ensure reliability for the life of your compressed air equipment with our comprehensive maintenance programs. At Ingersoll Rand, we have one goal—to earn the right to be your trusted partner.

CARE SERVICES PROGRAM

Maintenance Program Advantages

Compressed air is critical to your operation. A proper maintenance strategy is crucial to avoiding unplanned, unbudgeted downtime and production interruptions. By choosing an Ingersoll Rand compressor maintenance agreement, you are investing in your future with a trusted partner.

Depending on your oil-free rotary screw compressor system we can customise a service program that best fits your needs. Our suite of CARE compressor maintenance programs range from total risk transfer of your equipment to Ingersoll Rand to more basic program for parts and services only, providing flexible solutions for the life of your compressed air system.

		Preferred OEM Parts Pricing	Equipment Inspection & Diagnostics	Scheduled Maintenance Service	Operational Risk Transfer
Package CARE™	A fixed cost, no surprises service agreement designed to eliminate the inconvenience associated with maintaining and servicing your compressed air system.	✓	✓	✓	✓
Planned CARE™	A cost-effective plan for scheduling and executing all required compressed air equipment services over the course of a year.	✓	✓	✓	
Parts CARE™	A service program that includes automated shipments of, or reminders to, deliver OEM parts at an agreed upon price, to keep the compressor operating as efficiently as possible.	✓			

Request a Quote

About Ingersoll Rand Inc.
Ingersoll Rand Inc. (NYSE:IR), driven by an entrepreneurial spirit and ownership mindset, is dedicated to helping make life better for our employees, customers and communities. Customers lean on us for our technology-driven excellence in mission-critical flow creation and industrial solutions across 40+ respected brands where our products and services excel in the most complex and harsh conditions. Our employees develop customers for life through their daily commitment to expertise, productivity and efficiency. For more information, visit www.IRCO.com.

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