



Refrigerated Air Dryers

1,000-19,200 scfm



TURBO-DRI Refrigerated Dryers

Ingersoll Rand's line of TURBO-DRI™ refrigerated dryers provide dew-point-controlled compressed air with reliable consistency you can count on. They provide the confidence you demand, while guarding against system corrosion and protecting downstream tools, instruments, products and processes at a low cost of ownership.

Clean, Dry Air in All Operating Conditions

Non-cycling models dry air reliably and affordably, with a minimal capital investment. The cycling model design adds a thermal mass storage tank that permits the refrigeration unit to shut down during low heat loads. This feature enables the cycling model to deliver long-term operational savings.

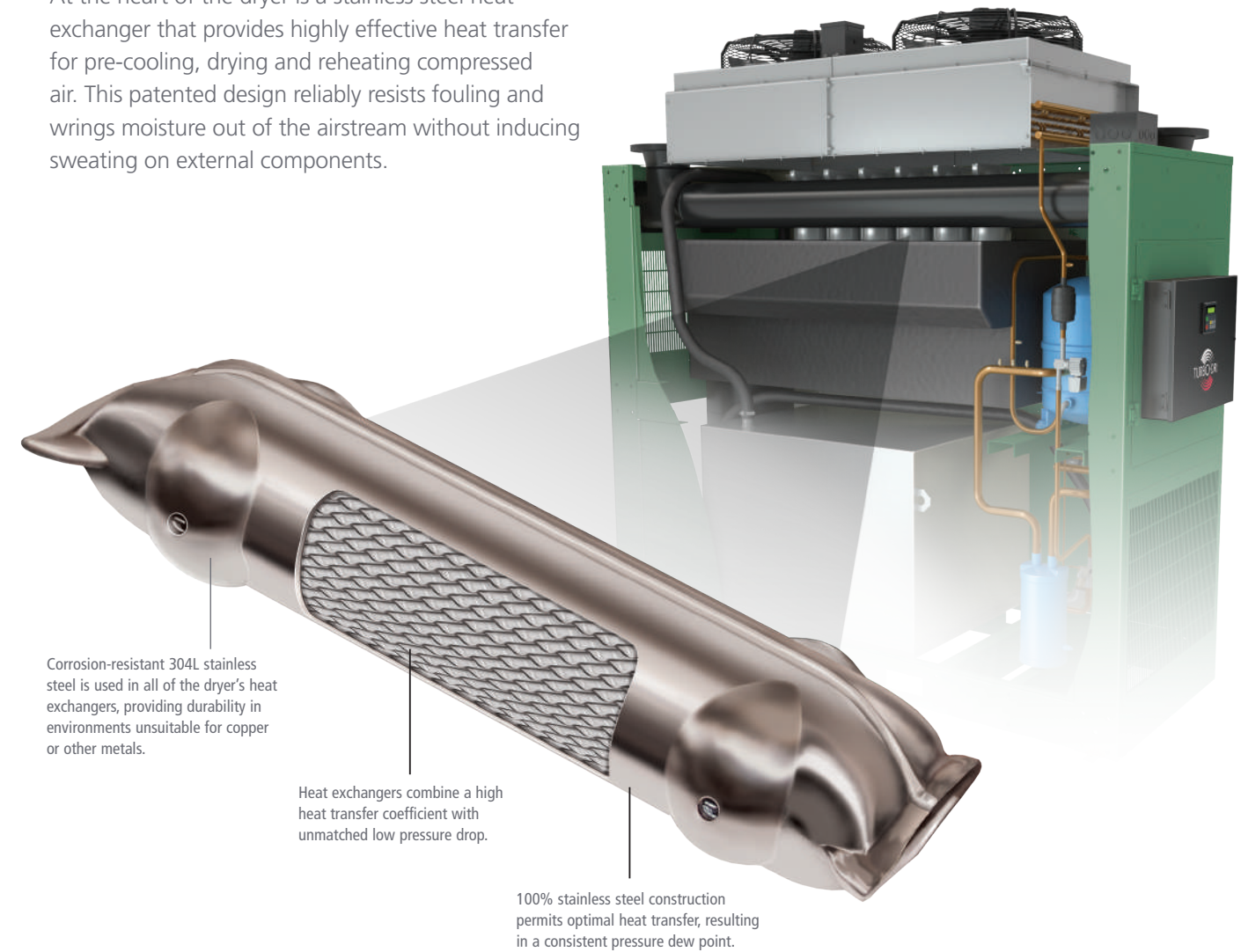
Both the cycling and non-cycling models benefit from a patented stainless steel heat exchanger that enables peak throughput with low pressure drop, high-heat-transfer efficiency and trouble-free, non-fouling operation.



Built on Reliability

Superior Heat Transfer at Work

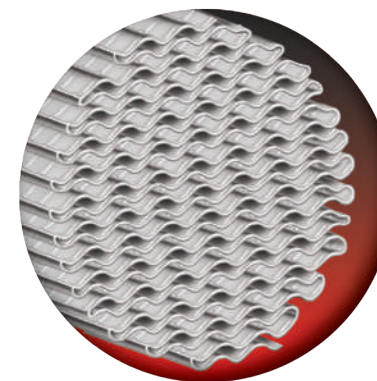
At the heart of the dryer is a stainless steel heat exchanger that provides highly effective heat transfer for pre-cooling, drying and reheating compressed air. This patented design reliably resists fouling and wrings moisture out of the airstream without inducing sweating on external components.



Corrosion-resistant 304L stainless steel is used in all of the dryer's heat exchangers, providing durability in environments unsuitable for copper or other metals.

Heat exchangers combine a high heat transfer coefficient with unmatched low pressure drop.

100% stainless steel construction permits optimal heat transfer, resulting in a consistent pressure dew point.



Compact Innovation

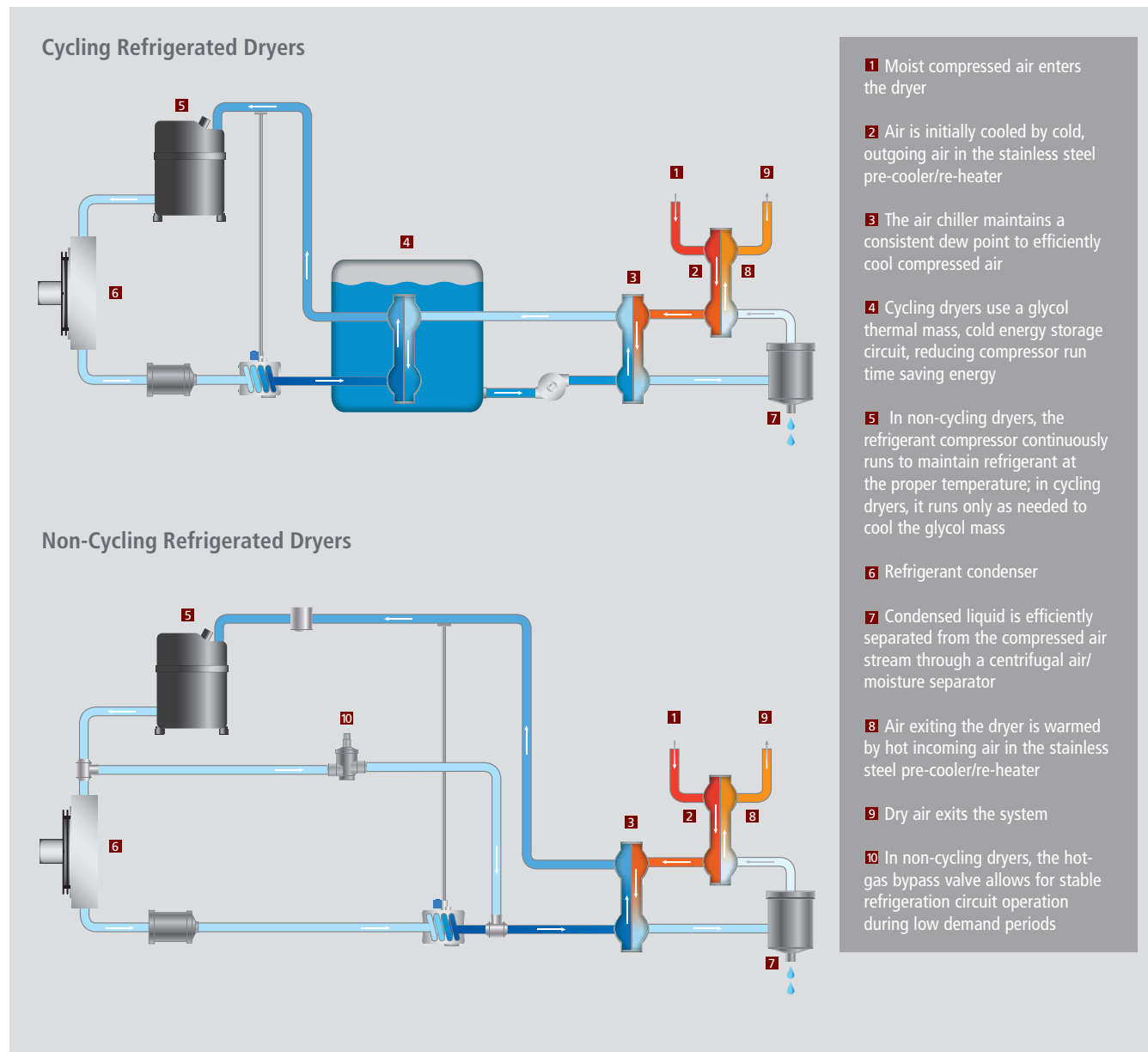
An innovative corrugated and folded stainless steel panel dramatically increases surface area for optimum heat transfer. Two stainless steel welded shells house the panel to form a resilient, reliable heat exchanger that eliminates common causes of leaks and failures due to dissimilar metals and tube-in-tube chaffing.

Designed to Maximize Efficiency

How Refrigerated Dryers Work

TURBO-DRI refrigerated dryers use centrifugal separation to remove moisture at the coldest point in the system. As the air stream is cooled in the stainless steel heat exchanger, moisture from the air stream condenses and is discharged through an electronic condensate removal drain. The result is highly efficient moisture removal and exceptionally dry, clean air.

In the cycling dryer design, a thermal mass storage reservoir is added to the refrigeration circuit. This enables the compressor to cycle off for energy savings during periods of reduced load. The dryer circuit continues using the stored coolant to remove moisture from the compressed air.



Intelligent Control

The easy-to-use TURBO-DRI controller automatically manages dryer operation for optimum air treatment and energy efficiency.

Microprocessor Controller

- Easy to use with integrated keypad and backlit LCD to view dryer parameters and percentage of energy savings (cycling dryers)
- Microprocessor constantly monitors dryer functions, including thermal mass temperature (cycling dryers) and provides alarms to minimize dryer downtime
- MODBUS-compatible RS232/485 communication port enables remote start/stop and remote alarm contact
- Dryer restarts automatically in the event of a sudden loss of power
- Adjustable chiller temperature set point and digital temperature display ensures optimal dryer performance, reducing energy use
- Energy savings is available at the touch of a button (cycling dryers)
- Dedicated buttons enable convenient adjustment of solenoid drain timing and drain function test
- Advanced diagnostic memory includes failure code storage

Performance-Driven Benefits

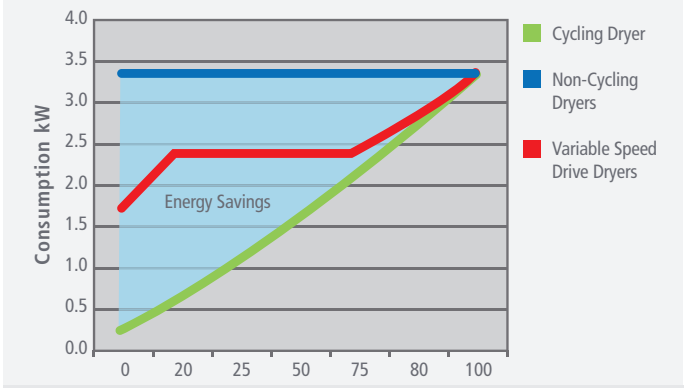
TURBO-DRI refrigerated dryers deliver the performance you need for greater reliability, quality and cost-efficiency from your compressed air system. The dependability of TURBO-DRI dryers is derived from the unique combination of components and features designed for a long and productive service life. These dryers satisfy both the quality and performance demands of your application and environment.

- A Thermal Mass Storage Tank (cycling dryers only)** A thermal mass reservoir in all TURBO-DRI cycling refrigerated dryers sustains air cooling/drying with the refrigeration system cycled off during periods of low demand
- B Quiet Compressor** High-quality, fully hermetic compressor offers quiet, reliable operation
- C Superior Heat Exchanger** 100% stainless steel heat exchanger delivers extreme reliability with superior heat transfer, and lowest pressure drop
- D Centrifugal Separator** Separator efficiently removes moisture, even in partial load conditions
- E Clog-Resistant Condensate Drain** Adjustable electric condensate drain with large port resists clogging (view obstructed in diagram)
- F High-Quality Enclosure** Heavy gauge steel cabinet is powder-coated for added durability
- G Large Condensers** Generously sized condensers are precisely positioned to avoid accumulation of dust and/or debris



TURBO-DRI Cycling Refrigerated Dryer

The Energy Efficiency of Cycling Dryers



Unlike non-cycling or variable speed drive systems, TURBO-DRI cycling dryers provide dry, clean air while optimizing energy use across any operating load.

- H Efficient Pre-cooler/Re-heater** Reduces cooling costs through a dual-purpose design that conditions exiting air, while lowering the initial heat load of incoming air
- I Advanced Digital Controls** Easy-to-use digital controls provide real-time monitoring, trouble-free operation and remote connection
- J Easy Access Refrigeration Valves** Accessible refrigeration service valves simplify maintenance
- K Eco-Friendly Refrigerant** Environmentally friendly R404A refrigerant meets or exceeds most regional regulations and standards
- L Robust Packaging** Rugged design and construction limit the likelihood of shipping damage and provide a strong foundation for a long, productive service life

Large Capacity Dryers

Modular Design for Enhanced Productivity

Cycling and non-cycling refrigerated dryers for larger compressed air volumes—3,250 to 19,200 scfm—accomplish drying by integrating multiple air treatment modules into one combined system (larger systems are also available upon request). The combined modules share common water headers (water-cooled dryers only), a single inlet header and a single outlet header, each with dual connection capability, permitting installation versatility.

Each module retains its own refrigeration system, heat exchanger, condensate drain and controls, so each can run independently. This provides the right balance of cooling proportional to overall compressed air volume. Cycling models share a common thermal mass storage tank for even greater efficiency.

Both the cycling and non-cycling models benefit from a patented stainless steel heat exchanger design that enables peak throughput with low pressure drop, high-heat-transfer efficiency and trouble-free, non-fouling operation.



Redundancy for Added Reliability

Since each air treatment module works independently, the redundant, banked system enables complete continued operation even if a module is offline. Overall system function is coordinated through fully adjustable digital controls to meet application requirements.



Multi-module TURBO-DRI refrigerant dryer pictured with optional air isolation valves.

TURBO-DRI refrigerated dryers use environmentally friendly R404A refrigerant to help reduce global warming potential.

TURBO-DRI Refrigerated Dryer Specifications

Model	Air Capacity @ 38°F PDP scfm	Pressure Drop psig	Absorbed Power (kW) Air Cooled	Water Cooled	Max Pressure psig	In/Out Connections	Width in	Depth in	Height in	Weight lb
TURBO-DRI Non-Cycling Refrigerated Dryers										
TNC1000 A	1,000	2.4	6.5	-	220	4.0" FLG	32	76	69	1,700
TNC1200 A	1,200	3.1	9.5	-	220	4.0" FLG	32	76	69	1,725
TNC1600 A	1,600	3.3	11.3	-	220	4.0" FLG	32	76	69	1,800
TNC2000 A/W	2,000	3.5	13.8	9.0	220	6.0" FLG	36	91	91	2,450
TNC2400 A/W	2,400	4.8	16.2	11.7	220	6.0" FLG	36	91	91	2,500
TNC3250 A/W	3,250	3.4	22.6	17.8	220	8.0" FLG	77	92	100	4,800
TNC4000 A/W	4,000	3.5	27.6	18.0	220	8.0" FLG	77	92	100	5,000
TNC4800 A/W	4,800	4.8	32.4	23.4	220	8.0" FLG	77	92	100	5,500
TNC6000 A/W	6,000	2.6	41.4	27.0	220	10.0" FLG	110	92	101	7,500
TNC8000 A/W	8,000	3.5	55.2	36.0	220	12.0" FLG	141	92	102	9,000
TNC9600 A/W	9,600	4.8	64.8	46.8	220	12.0" FLG	148	100	102	10,000
TNC12000 A/W	12,000	4.3	81.0	58.5	220	14.0" FLG	175	102	103	14,000
TNC14400 A/W	14,400	4.3	97.2	70.2	220	14.0" FLG	211	100	103	17,000
TNC16800 A/W	16,800	4.8	113.4	81.9	220	16.0" FLG	242	104	106	21,000
TNC19200 A/W	19,200	4.8	129.6	93.6	220	16.0" FLG	275	104	106	25,000
TURBO-DRI Cycling Refrigerated Dryers										
TCD1000 A/W	1,000	2.5	8.9	6.9	220	4.0" FLG	32	72	69	2,315
TCD1200 A/W	1,200	3.1	10.5	6.9	220	4.0" FLG	32	72	69	2,435
TCD1600 A/W	1,600	3.3	13.1	7.7	220	4.0" FLG	32	72	69	2,785
TCD2000 A/W	2,000	3.5	13.5	10.4	220	6.0" FLG	32	91	91	3,925
TCD2400 A/W	2,400	3.5	15.8	11.4	220	6.0" FLG	32	91	91	4,150
TCD3250 A/W	3,250	3.5	24.1	15.3	220	8.0" FLG	78	96	100	6,520
TCD4000 A/W	4,000	3.5	27.0	20.7	220	8.0" FLG	78	96	100	6,720
TCD4800 A/W	4,800	3.5	31.6	22.8	220	8.0" FLG	78	96	100	6,880
TCD6000 A/W	6,000	3.5	40.5	31.1	220	10.0" FLG	110	98	102	9,700
TCD8000 A/W	8,000	3.5	54.0	41.4	220	12.0" FLG	143	99	103	13,020
TCD9600 A/W	9,600	3.0	63.2	45.6	220	12.0" FLG	149	99	103	13,350
TCD12000 A/W	12,000	3.0	79.0	57.0	220	14.0" FLG	176	101	103	16,400
TCD14400 A/W	14,400	3.0	94.8	68.4	220	14.0" FLG	209	101	103	19,600
TCD16800 A/W	16,800	3.0	110.6	79.8	220	16.0" FLG	243	101	104	23,000
TCD19200 A/W	19,200	3.0	126.4	91.2	220	16.0" FLG	276	101	104	26,400

Performance data obtained as per ISO 7183, Table 2, Option A2.

Pressure dew point at 100 psig inlet air pressure, 100 °F air inlet temperature, 100 °F ambient temperature.

Maximum inlet temperature: 120°F, minimum ambient temperature: 34°F, maximum ambient temperature: 113°F

Standard power supply (V/Ph/Hz): 480/3/60

A = Air-Cooled

W = Water-Cooled

For applications with flow requirements outside of the values listed in the table, please contact your local representative for additional information.

We Build Solutions

We do more than build products at Ingersoll Rand. We bring our customers unmatched experience in designing comprehensive compressed air systems that cover virtually any need.

Systems and Support to Keep You Productive

Who better to design, build and maintain today's process air solutions at peak efficiency than the one of the companies that leads the world in building them? Ingersoll Rand solves process and business problems to help you succeed in today's global economy through enhanced reliability, energy efficiency and productivity that lower your total cost of ownership. As your fourth utility, compressed air should be as dependable as your electric, water and gas services.

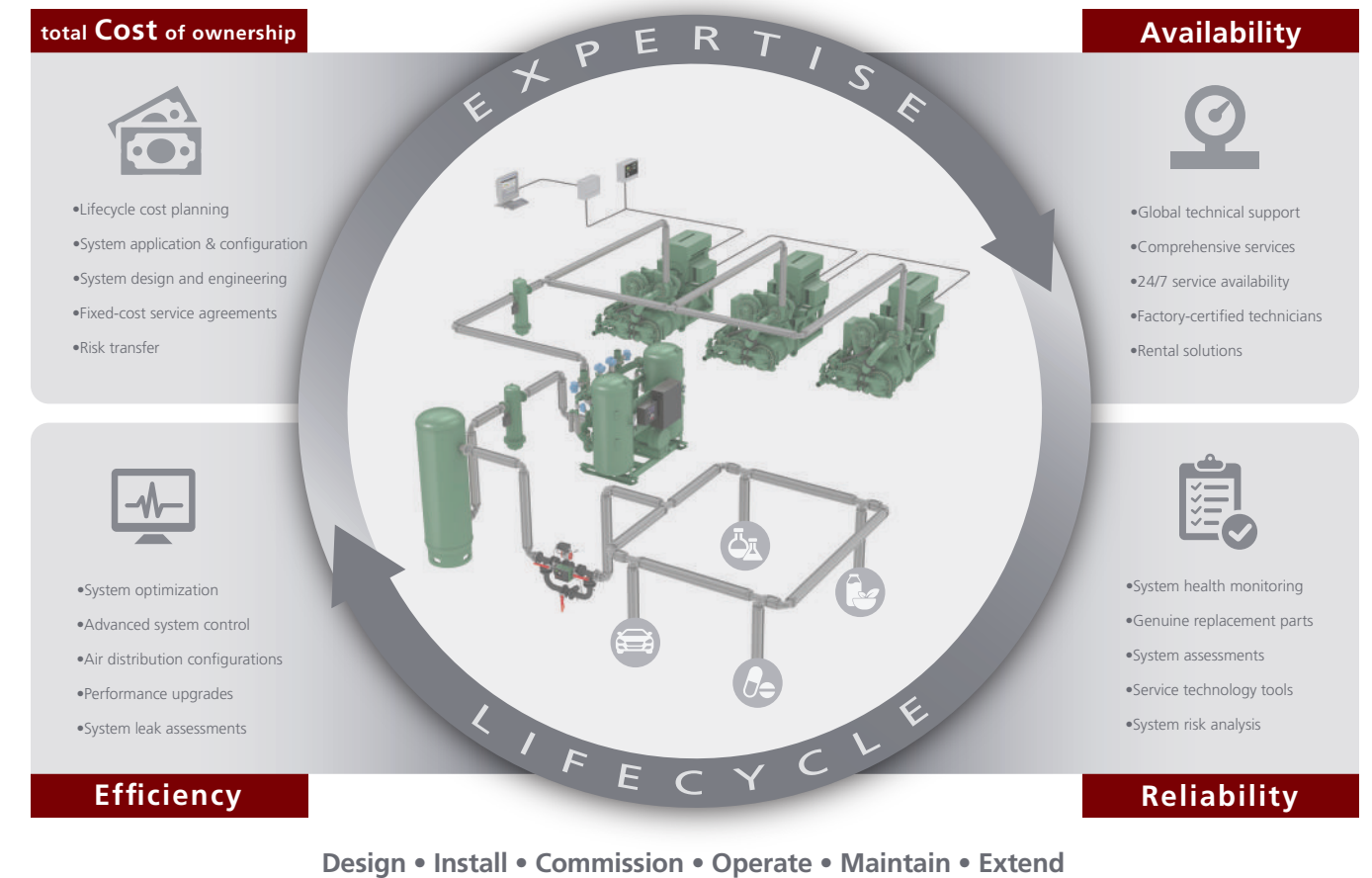


Efficient Solutions Save Energy and Our Environment

As part of Ingersoll Rand's commitment to increase energy efficiency and reduce climate impact from its product portfolio, TURBO-DRI uses next-generation refrigerants that have a low global warming potential (GWP). These refrigerants can reduce the environmental impact by significantly lowering greenhouse gas (GHG) emissions as compared to traditional refrigerants without compromising performance or safety.

Your Trusted Partner in Compressed Air

Optimize your total **Cost** of ownership, while maximizing **Availability**, **Reliability** and **Efficiency** throughout the life of your compressed air system with our Lifecycle CARE services.



PackageCARE™...eliminate the inconvenience

No matter where your facility is located, Ingersoll Rand is committed to serving you 24 hours a day, seven days a week, and is available to support you with innovative, cost-effective service solutions that will keep you running at peak performance. Let Ingersoll Rand handle the pressures and responsibilities of owning a compressed air system with our signature service contract.





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