TURBO-DRI Desiccant Dryers

Ingersoll Rand’s line of TURBO-DRI™ desiccant dryers is the result of our unending pursuit to create the most reliable desiccant dryers you can operate. Our developments have set many new standards and new expectations industry-wide.

Flexible choices for clean, dry air
Whatever your budget or air requirements, our advanced desiccant dryers provide consistent dew point control as well as long-lasting operation to limit potential system corrosion and protect sensitive instrumentation, tools, products and processes.

Advanced Design for Optimum Operation and Superior Reliability

From space-saving profiles and reliable desiccant to state-of-the-art control and ease of maintenance, these unique dryers offer exceptional performance. Innovative engineering combined with durable components for easy installation and operation.

Top Quality, Durable Desiccant
High-performance, reliable, non-acidic desiccant makes up the core of our TURBO-DRI desiccant dryer. High-strength, fracture-resistant, activated alumina limits dusting and provides clean, dry air to downstream equipment and processes.

Flexible, Low-Profile Design
Streamline servicing, enhance safety and increase uptime with an easy-access, low-profile design that places key maintenance points at operator level. The compact silhouette also allows for upright shipment and facilitates quick installation.

Easy-to-Maintain, High-Performance Valves
We took special care to ergonomically and conveniently locate our high-performance valves to reduce maintenance times. Our design allows the typical diaphragm valve on a heatless dryer to be rebuilt in less than ten minutes, without removing the valve from the associated manifold.

State-of-the Art Control
Maintain optimum performance and limit downtime using an advanced microprocessor controller that continuously monitors dryer functions.
Selecting the Right Desiccant Dryer

TURBO-DRI desiccant dryers are engineered for low pressure drop through valve selection, tower sizing and filter design. Each dryer features two towers with high-strength desiccant and durable, easily maintained valves to deliver unsurpassed reliability, performance and customer value.

The key difference in each unit is the regeneration process – how moisture is desorbed from the desiccant. Various options offer a different balance between initial capital investment and long-term operating cost to best match your application.

Heatless Dryers
The simplest approach – the Heatless dryer – diverts a portion of the dried compressed air through the off-line tower and regenerates its desiccant before purging the moisture into the atmosphere through a muffler. Heatless dryers are ideal for applications where dew point spikes cannot be tolerated. They are an economical choice in situations where lowering initial capital cost outweighs the additional operating cost of extending compressor run time to supply the air used in desiccant regeneration.

Heated Dryers
Heated dryers are similar to heatless dryers, with one big exception. Dried air diverted from the system passes through a high-efficiency external heater before entering the off-line tower to regenerate the desiccant. Because heated air holds considerably more moisture, this process reduces the amount of dry compressed air needed for regeneration. While heater-related components add to the initial capital investment, using less diverted compressed air lowers operating costs.

Heated Blower
Instead of diverting dried compressed air from the air system to regenerate the desiccant, a high-performance centrifugal blower directs ambient air through a heater and then through the off-line tower. This heated air regenerates the desiccant before being exhausted to the atmosphere. The Heated Blower design requires higher initial capital investment than the Heatless design, but provides significantly lower operating costs.

Heat-of-Compression (HOC)
With no heaters, blowers or compressed air loss, and minimal pressure drop, HOC dryers offer the lowest operating cost. Hot air exiting the compressor is diverted to the regenerating tower, where it removes moisture from the desiccant. Air is cooled as it passes through a heat exchanger, allowing moisture to condense for removal by a separator. Air then flows through the drying tower, where any remaining moisture gets adsorbed by the desiccant before being filtered to provide high-quality, oil-free air.

Variables such as air capacity and quality, system demand and lifecycle costs determine which dryer is right for you. The lesser the demands, the more you can focus on low capital investment. The greater the demands, the greater the need for a more advanced dryer technology.
High Performance, Cost-Effective Features

TURBO-DRI desiccant 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. Microprocessor Controller
Protects dryer by continuously monitoring operating parameters, while controlling valve switching to direct airflow and blower/heater operation.

B. Environmental Protection
IP54-rated for dust/moisture contamination protection (optional IP65 for wash-down applications).

C. Motor Starter (Heated Blower only)
Used for high-efficiency centrifugal blower.

D. Power Supply
Dryers operate at 50 or 60 Hz (pneumatic options available on Heatless model).

E. Centrifugal Blower (Heated Blower only)
Advanced blower uses ambient air for regeneration, reducing compressed air loss.

F. High-Performance Heater
(Heated and Heated Blower only)
Heats the air used in regeneration to increase moisture removal and reduce the need for air.

G. Non-Acidic, High-Strength Desiccant
Activated alumina desiccant provides maximum performance and is easy to store and handle.

H. Silencing Muffler
Reduces exhaust air noise for a quiet work environment.

I. Long-Lasting Valves
Durable butterfly valves – centrally located for easy access – use self-energized sealing for quick response and long life.

J. Robust Filters
High-efficiency pre-filter and heavy-duty after-filter remove oil aerosol content down to 0.01 mg/m³ @ 21°C and particles down to 1 micron to ensure high-quality air for downstream point of use.

K. Safety Relief Valve
Protects dryer from over-pressurization.

L. Desiccant Towers
Desiccant towers are certified per regional requirements.

M. Humidity Sensor
As part of the optional EMS package, this sensor allows for continuous dew point monitoring.

N. Cool Sweep Mode (Heated Blower and HOC)
Reduces temperature and humidity spikes that may occur during switching.

HOC dryers are the most cost-effective means to protect air lines, tools and expensive instrumentation. The only electricity cost needed is to power the microprocessor controls—less than 150 watts per year, or the equivalent of one light bulb!

HOC Energy Consumption Comparison

<table>
<thead>
<tr>
<th>Dryer Type</th>
<th>Energy Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heatless Dryer</td>
<td>150 watts/year</td>
</tr>
<tr>
<td>Heated Dryer</td>
<td>150 watts/year</td>
</tr>
<tr>
<td>Heated Blower Dryer</td>
<td>150 watts/year</td>
</tr>
<tr>
<td>HOC Dryer*</td>
<td>Less than 150 watts/year</td>
</tr>
</tbody>
</table>

HOC components are specifically designed to minimize energy use. These include a stainless steel heat exchanger during the first stage of air cooling and a moisture separator that discharges condensate without compressed air loss. Also available with stripping and cooling cycle to limit temperature or dew point spikes.

*If stripping cycle is included, additional costs may be incurred due to compressed air usage.
Comprehensive Dryer Control

A digital, multi-function controller, standard on every TURBO-DRI desiccant dryer, acts as the dryer’s command center. This advanced controller is programmed to monitor dryer operation and execute all valve switching functions for airflow and regeneration, with performance tracking and alarm monitoring. Compatible with MODBUS-capable networks, the controller further enhances dryer operating functions.

The full-featured control panel for Heatless, Heated, Heated Blower and HOC units includes:
• Backlit LCD display for viewing critical dryer parameters under all lighting conditions
• Integrated keypad, providing user access to all internal functions and selectable displays
• Visual status indication using dryer schematics
• Multiple displays, from “Dryer On/Off Control” to “Regeneration Sequence Status”

TURBO DryPak™

This complete package delivers optimal efficiency and performance by integrating an advanced HOC dryer with a centrifugal compressor into one seamless system, minimizing your operating and installation costs. Contact your local representative for additional details.

TURBO-DRI Desiccant Dryer Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow -40°F PDP</th>
<th>Heater kW</th>
<th>Blower hp</th>
<th>Inlet/Outlet Connection</th>
<th>Width in</th>
<th>Depth in</th>
<th>Height in</th>
<th>Weight lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>THC1000</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
<td>3.0 NPT</td>
<td>64</td>
<td>51</td>
<td>88</td>
<td>2,127</td>
</tr>
<tr>
<td>THC1200</td>
<td>1,200</td>
<td>-</td>
<td>-</td>
<td>3.0 NPT</td>
<td>64</td>
<td>51</td>
<td>88</td>
<td>2,424</td>
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<tr>
<td>THC14700</td>
<td>1,470</td>
<td>-</td>
<td>-</td>
<td>4.0 FLG</td>
<td>76</td>
<td>58</td>
<td>80</td>
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<td>THC1900</td>
<td>1,900</td>
<td>-</td>
<td>-</td>
<td>4.0 FLG</td>
<td>84</td>
<td>61</td>
<td>90</td>
<td>3,065</td>
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<td>THC2700</td>
<td>2,700</td>
<td>-</td>
<td>-</td>
<td>4.0 FLG</td>
<td>84</td>
<td>61</td>
<td>90</td>
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<td>THC3500</td>
<td>3,500</td>
<td>-</td>
<td>-</td>
<td>6.0 FLG</td>
<td>96</td>
<td>68</td>
<td>100</td>
<td>4,508</td>
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<tr>
<td>THC4800</td>
<td>4,800</td>
<td>-</td>
<td>-</td>
<td>8.0 FLG</td>
<td>96</td>
<td>68</td>
<td>100</td>
<td>5,008</td>
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<tr>
<td>THC6000</td>
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<td>-</td>
<td>-</td>
<td>8.0 FLG</td>
<td>96</td>
<td>68</td>
<td>100</td>
<td>6,008</td>
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<tr>
<td>THC7500</td>
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<td>-</td>
<td>-</td>
<td>8.0 FLG</td>
<td>101</td>
<td>72</td>
<td>100</td>
<td>7,930</td>
</tr>
<tr>
<td>THC9100</td>
<td>9,100</td>
<td>-</td>
<td>-</td>
<td>10.0 FLG</td>
<td>101</td>
<td>72</td>
<td>100</td>
<td>9,065</td>
</tr>
</tbody>
</table>

TURBO-DRI Heatless Dryers

| THB1000 | 1,000 | 9.0 | - | 3.0 NPT | 79 | 48 | 80 | 3,043 |
| THB1200 | 1,200 | 12.0 | - | 3.0 NPT | 79 | 48 | 80 | 3,285 |
| THB1500 | 1,500 | 15.0 | - | 3.0 NPT | 84 | 56 | 80 | 3,480 |
| THB1800 | 1,800 | 18.0 | - | 4.0 FLG | 84 | 60 | 90 | 4,050 |
| THB2100 | 2,100 | 18.0 | - | 4.0 FLG | 84 | 60 | 90 | 5,100 |
| THB3000 | 3,000 | 30.0 | - | 6.0 FLG | 96 | 73 | 100 | 7,701 |
| THB4800 | 4,800 | 36.0 | - | 6.0 FLG | 102 | 84 | 100 | 10,950 |
| THB6000 | 6,000 | 50.0 | - | 8.0 FLG | 110 | 91 | 107 | 12,448 |
| THB8000 | 8,000 | 60.0 | - | 8.0 FLG | 112 | 91 | 107 | 15,688 |

TURBO-DRI Heated Blower Dryers

| THB1000 | 1,000 | 24.0 | 7.5 | 3.0 NPT | 78 | 59 | 80 | 3,167 |
| THB1200 | 1,200 | 24.0 | 7.5 | 3.0 NPT | 78 | 59 | 80 | 3,410 |
| THB1500 | 1,500 | 30.0 | 15.0 | 3.0 NPT | 84 | 65 | 90 | 4,155 |
| THB1800 | 1,800 | 30.0 | 15.0 | 4.0 FLG | 88 | 65 | 90 | 6,011 |
| THB2100 | 2,100 | 30.0 | 15.0 | 4.0 FLG | 90 | 68 | 90 | 8,113 |
| THB3000 | 3,000 | 80.0 | 20.0 | 6.0 FLG | 120 | 78 | 100 | 9,701 |
| THB4800 | 4,800 | 80.0 | 25.0 | 6.0 FLG | 130 | 83 | 100 | 12,187 |
| THB6000 | 6,000 | 100.0 | 30.0 | 8.0 FLG | 130 | 87 | 100 | 14,725 |
| THB8000 | 8,000 | 125.0 | 30.0 | 8.0 FLG | 150 | 94 | 103 | 17,442 |

TURBO-DRI Heated-of-Compression Dryers

| THC1000 | 1,000 | - | - | 3.0 NPT | 109 | 70 | 101 | 6,005 |
| THC1200 | 1,200 | - | - | 4.0 FLG | 111 | 78 | 101 | 6,604 |
| THC172700 | 2,708 | - | - | 4.0 FLG | 126 | 104 | 109 | 10,075 |
| THC2500 | 3,500 | - | - | 6.0 FLG | 131 | 108 | 112 | 12,200 |
| THC4802 | 4,814 | - | - | 8.0 FLG | 140 | 112 | 115 | 17,300 |
| THC6000 | 6,000 | - | - | 8.0 FLG | 174 | 118 | 118 | 20,275 |
| THC7524 | 7,524 | - | - | 8.0 FLG | 186 | 140 | 127 | 26,500 |
| THC9101 | 9,101 | - | - | 8.0 FLG | 189 | 156 | 130 | 29,580 |
| THC10102 | 10,102 | - | - | 8.0 FLG | 215 | 160 | 154 | 33,100 |
| THC12120 | 12,120 | - | - | 8.0 FLG | 218 | 166 | 154 | 37,300 |
| THC14701 | 14,701 | - | - | 10.0 FLG | 242 | 172 | 140 | 42,800 |

*Dryer weight shown does not include desiccant. Desiccant shipped separately on these models. Dimensions and weights are approximate.

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

Heaters, Externally Heated and Heated Blower Dryers
Performance data obtained and presented in accordance with CAGI Standard 200.

Heatless, Externally Heated and Heated Blower Dryers

- Advanced model, equipped with dew point monitor and stripping cycle. Data in table above is representative of “A” models, contact your local representative for data specific to the “B” models.

HOC Dryers

- Standard model

Heated-of-Compression Dryers

- Standard model

A = Advanced model, equipped with dew point monitor and stripping cycle. Data in table above is representative of “A” models, contact your local representative for data specific to the “B” models.

HOC capacity based on 100 psig operating pressure, 220°F compressor discharge temperature and 65°F cooling water temperature.

Heatless, Externally Heated and Heated Blower Dryers

Performance data obtained and presented in accordance with CAGI Standard 306

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

Heatless Dryers

S = Standard model

Pressure dew point at 100 psig inlet air pressure, 100°F air inlet temperature, 100°F ambient temperature.
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 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 long-life, environmentally friendly, activated alumina desiccant. This uniformly sized, spherically shaped desiccant is exceptionally effective at removing moisture, and is non-toxic, inert, highly resistant to shock and abrasion, and has very low dust content.

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.

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.
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