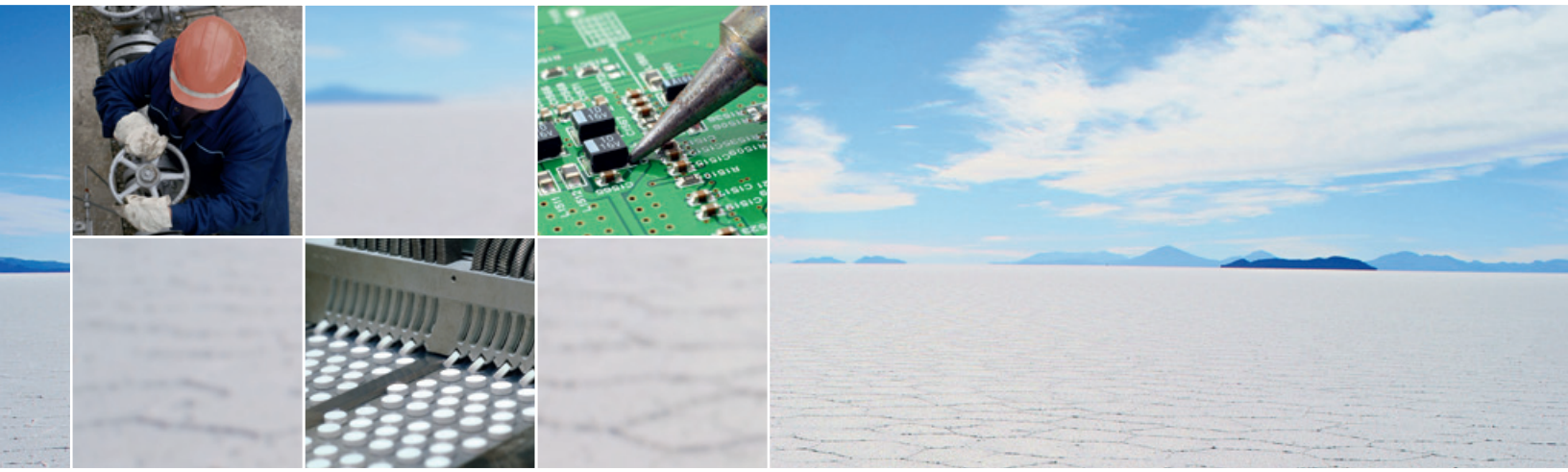
Atlas Copco

Heat-of-compression rotary drum dryers
ND series (3816-5297 cfm, 1800-2500 l/s)



Sustainable Productivity

Atlas Copco

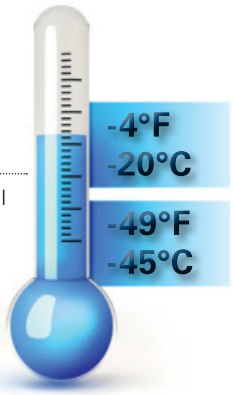
Why rotary drum dryers?

A dry compressed air system is essential to maintain the reliability of production processes and the quality of end products. Untreated air can cause corrosion in pipe work, premature failure of pneumatic equipment, and product spoilage.

A heat-of-compression dryer is an energy-efficient way to produce dry air. It uses the heat that is generated in the compression process to regenerate the desiccant. This heat is typically wasted in other drying technologies. Dewpoints as low as -49°F/-45°C can be achieved, depending on the site conditions.

Perfect for oil-free compressors

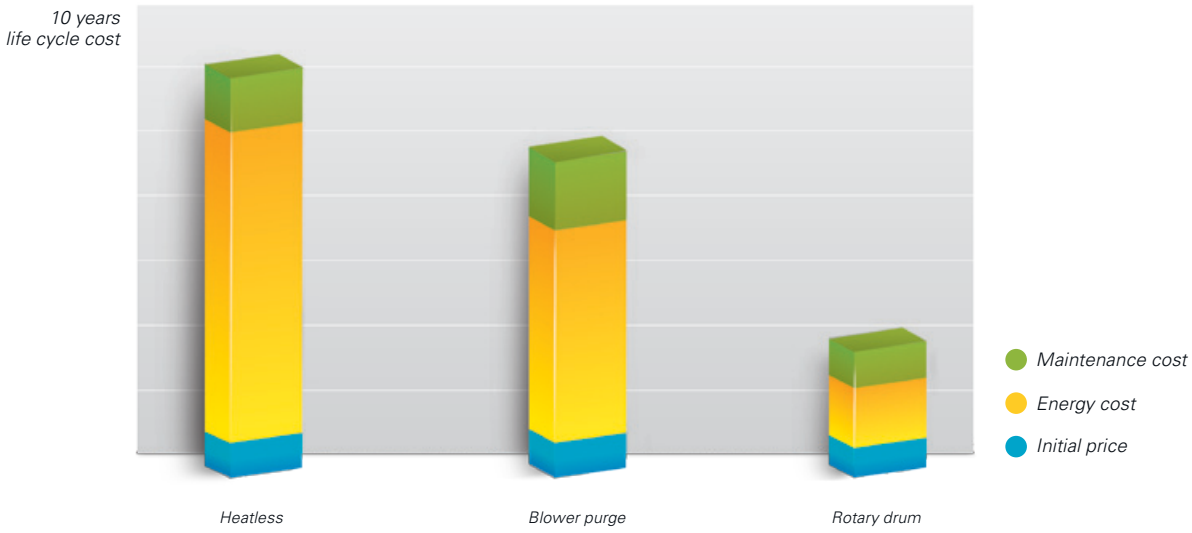
Heat-of-compression rotary drum dryers are especially designed to operate with oil-free screw and centrifugal compression technologies.



Lifecycle cost

Energy can constitute up to 80% of the total lifecycle cost of a dryer. You therefore need to look closely at energy efficiency when selecting a dryer. The illustration compares the lifecycle cost of heatless, blower purge and rotary drum dryers sized to dry 4132 cfm of air.

The heatless desiccant dryer is the most expensive to operate as 15% of its rated flow capacity is consumed as purge air. The rotary drum dryer can lead to significant energy savings because of its unique design and controls. Even compared to a blower purge dryer, rotary drum dryers can save up to 50% of the lifecycle cost.



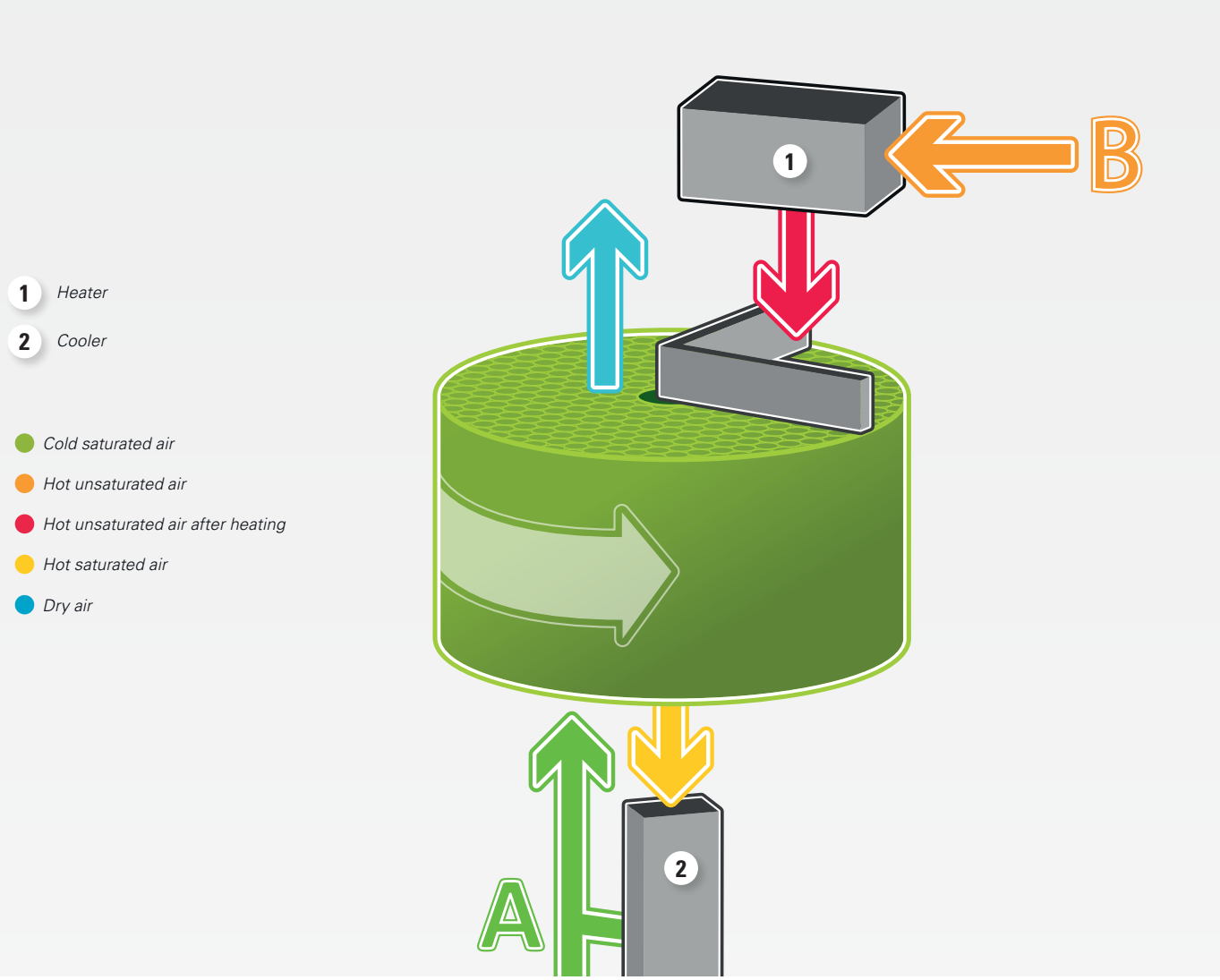
Working principle

The working principle of the ND rotary drum dryer is based on using hot compressed air from the compressor to regenerate the desiccant.

The single pressure vessel is divided into two sectors: one for drying (75%) and one for regenerating (25%). Desiccant, impregnated on a honeycomb glass fiber drum, slowly rotates through these two sectors.

Hot air leaving the last stage of the compressor is divided into two streams, A and B. The main stream – branch A – passes through the compressor's aftercooler (not visible in below image) and then enters the dryer for drying. The other stream B (hot saturated air) is headed for desiccant regeneration. The hot unsaturated air passes through the regeneration heater and is further heated to achieve deeper dewpoints (if required). It then enters the regeneration section of the drum, removes the moisture through adsorption and regenerates the desiccant. The now saturated regeneration air flow is cooled in the regeneration cooler and then mixed with the main incoming flow (cold saturated air).

The uniqueness of the ND dryer lies in the fact that the loss of compressed air is completely avoided. Due to the usage of the generated heat from the compression process, a minimal amount of electrical power is required to achieve very low dewpoints.



Cost-effective dry air for your application

Dry and clean compressed air is essential for a broad range of industrial applications. Yet it must be produced reliably, energy-efficiently and cost-effectively. Atlas Copco's heat-of-compression rotary drum dryers protect your systems and processes. Their robust design ensures they operate with total reliability and deliver the desired quality of air.

Food & Beverage

A reliable supply of dry air

The presence of moisture during the preparation of foods and beverages can cause contamination of end products. Processing machinery can also be affected by moisture, which interferes with their operation and obstructs the free and easy movement of the ingredient or item of food.

Pharmaceuticals

A tight control on quality

Strict moisture control is a key factor in the manufacture of most drugs and medicines. Many materials used to produce pharmaceuticals have a physical affinity for moisture, which can cause powdered material to aggregate. Other powders that are formed into a tablet under high pressures will adhere only when in a dry state. Humidity can cause a tablet to crumble or the drug to decompose and diminish in its therapeutic value. To assure consistently high-quality drugs, the presence of dry air in the processing area and machinery is therefore vital.

Power generation

A focus on productivity

All kinds of power plants rely on compressed air to operate pneumatically controlled valves and other components. High-quality dry air can be the key to achieving plant productivity and cost savings when you need them most, and keeping an operation running effectively during a period of maintenance or emergency.

Process air

A continuous flow of dry air

For process industries, high-quality dry air is vital for efficient pneumatic and instrumentation control. A dependable stream of high-quality dry air is essential to keep the production up and running at all times.

Protecting your reputation and production

By removing moisture from compressed air with a pressure dewpoint as low as -49°F/-45°C, ND heat-of-compression rotary drum dryers eliminate system failures, production downtime and costly repairs.

Keeping your production up and running

Key features of Atlas Copco's ND rotary drum dryers ensure maximum uptime for production processes:

- Simplicity of design: no switching of towers or valves, and only one moving part (the rotary drum).
- High-quality materials ensure high reliability: stainless steel coolers for water-cooled versions, and aluminium coolers for air-cooled versions.
- Atlas Copco's proven rotary drum technology has been used successfully over the past 40 years in thousands of installations.
- No-loss electronic drains for improved reliability.
- An advanced control and monitoring system takes continuous care of the dryer to ensure production efficiency.

Atlas Copco ND dryers meet or exceed the international standards for compressed air purity and are tested according to ISO 7183:2007. Naturally, all our dryers are IP54 compliant, providing full protection of electrical components, controls and displays.

Driving down energy costs

As the heat-of-compression is used to dry the desiccant, limited energy is required for drying. The energy required to rotate the drum is negligible. Furthermore, there is no loss of compressed air, ensuring 100% flow capacity at output. ND dryers are also characterized by zero purge by design, an extremely low pressure drop which reduces energy consumption of the air compressor, and no filtration requirements, all of which contribute to increased efficiency.

Easy installation and long maintenance intervals

The combination of an easy-to-service vessel, minimal maintenance downtime and long service intervals reduces your maintenance time and costs. The dryers have a small footprint thanks to an innovative all-in-one design. Delivered with inter-connecting piping, installation is straightforward, minimizing costly production downtime.

Assuring your peace of mind

Through continuous investment in our competent, committed and efficient service organization, Atlas Copco ensures superior customer value by maximizing productivity. With a presence in over 170 countries, we offer professional and timely service through interaction and involvement. Uptime is guaranteed by dedicated technicians and 24/7 availability.

ND: Reliable and compact

1 Regeneration air cooler

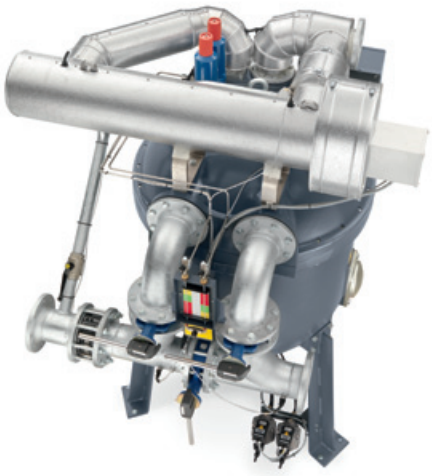
- Stainless steel for water-cooled versions; aluminium for air-cooled versions.
- Efficient heat transfer and high reliability.
- Integrated in the dryer.

2 Electric motor

- Drives the rotating drum, consuming minimal power (Variable Speed Drive is optional on selected models).
- Greased for life.

3 Rotary drum

- No loose desiccant, compared to twin tower dryers. This improves reliability as there is no need for pre- or after-filtration.



4 Compact design

Minimal floor space required.

5 Controls

- User-friendly interface in 32 languages.
- Comprehensive maintenance display.

6 Bypass

- Integrated for extra compactness.

7 Low wattage heater

- Stainless steel design ensures long lifetime.
- Nickel-plated heater pipe protects against corrosion.
- Double thermostat protection.

8 Rotor

- Rugged and reliable for a long lifetime.
- Bonded dessicant; no pre- or after-filtration required.

9 Electronic water drains

- No loss drains with superior reliability for efficient condensate removal.

10 Vessel

- Internally painted.

Superior energy-efficiency

Features of ND dryers which contribute to increased efficiency are zero purge by design, a low pressure drop, no filtration requirements and no loss of compressed air. A Variable Speed Drive (VSD) dryer version is available to match VSD compressors.

Smart heating and best performance

A smart algorithm makes sure only the energy required for heating is used, to reduce power consumption.

No loss of compressed air

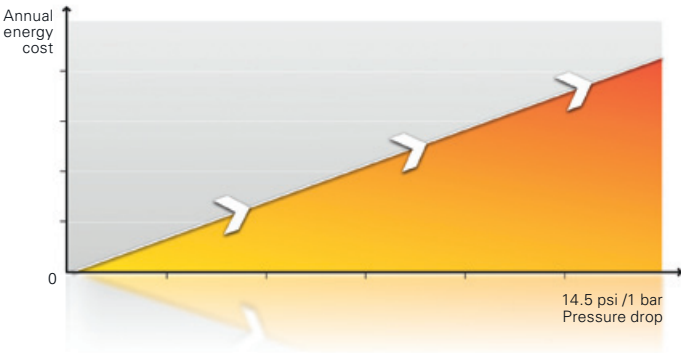
Since no compressed air is lost in the drying process, your oil-free compressor will run at full efficiency.

Zero purge by design

Whereas other desiccant dryer types can consume up to 15% of the compressed air, the ND dryer guarantees 100% flow capacity at the output.

Low pressure drop

If a desiccant dryer experiences a high internal pressure drop, the compressor discharge pressure must be set higher than required, which wastes energy and increases operating costs. Atlas Copco has therefore put considerable efforts into minimizing pressure drops in its dryers. Compared to twin tower dryers, the system pressure drop is very low.



No filtration requirements

ND dryers need no pre-filters, no after-filters and no dust filters, all of which can cause pressure drops. Typically a set of pre- and after-filters can have an average pressure drop exceeding 0.5 bar and lead to an extra 3.5% energy consumption.

Economical, compact and environmentally-friendly

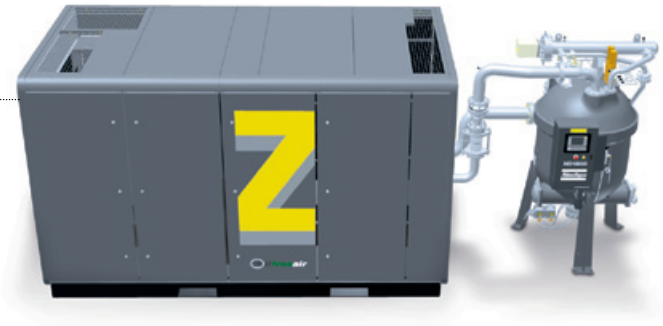
Taking technology to a new level, ND dryers will help you achieve a deep dewpoint at a low cost. What's more, they have a small footprint and lead to minimal ecological impact.

Low operating costs

The ND dryer is very economical in use. Since heat-of-compression is used for regeneration, less energy is required to reach very low dewpoints.

Complete, compact package

The small footprint of ND dryers means they take up minimal space in your facility. They come in a completely integrated package; all piping and connections are included as standard. A convenient lifting eye makes them easy to maneuver.



Low maintenance

The combination of an easy-to-service vessel, minimal maintenance downtime and long service intervals reduces your maintenance time and costs. In addition, there is no need to change filter cartridges.

Environmentally friendly

ND dryers are totally oil-free and use no Freon or CFCs, and a minimal amount of desiccant (only 5-10% of conventional adsorption dryers). 95% of all components can be recycled, and the units have very low noise levels.

A step ahead in control and monitoring

Atlas Copco's Elektronikon® control and monitoring system takes continuous care of your ND dryer to ensure optimal productivity and efficiency at your site.

User-friendly interface

Available in 32 languages, this graphical 3.5-inch high-definition color display with pictograms and LED indicators for key events is easy to use. The keyboard is durable to resist tough treatment in demanding environments.

Comprehensive maintenance display

Valuable items of information displayed include the ServicePlan indicator and preventive maintenance warnings.

Control and monitoring

Internet-based visualization

The Elektronikon® system monitors and displays key parameters such as dewpoint and inlet temperature, etc. Internet-based visualization of your dryer is possible by using a simple Ethernet connection.

AIRConnect™

AIRConnect™ is an optional advanced remote monitoring package that offers complete analysis and accurate management. It is fully customizable to meet specific customer needs, from simple alarm notification via email or SMS to visualization via fieldbus, LAN or internet, including advanced reporting services.

Scope of supply

Air circuit

- Interconnecting piping
- Integrated electronic no loss drains
- Integrated regeneration air cooler

Connections

- DIN-flanges
- ANSI-flanges

Electrical components

- Pre-mounted electrical cubicle
- Elektronikon® control and monitoring system
- IP54 protected
- Voltage free contacts for remote alarm and warning signals

Mechanical approval

- PED approval
- ASME approval
- CRN approval
- ML approval

Options

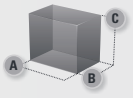
- Stainless steel interconnecting piping
- Pressure dew point sensor
- Variable Speed Drive variant (for VSD compressors)

Technical specifications

DRYER TYPE	Inlet flow FAD 100 psig /7 bar(e)			Rated heater power*		Outlet connections Flanged	Dimensions mm			Dimensions in			Weight	
	cfm	m³/hr	l/s	hp	kW		A	B	C	A	B	C	lbs	kg
ND 1800	4399	7470	2075	20.1	15	DIN 125/ANSI 6"	1497	1879	2322	59	74	91	3850	1750
ND 2000	4452	7560	2100	48.3	36	DIN 125/ANSI 6"	1947	1879	2411	77	74	95	3960	1800
ND 2100 VSD	4452	7560	2100	20.1	15	DIN 125/ANSI 6"	1497	1879	2392	21.7	74	94	3850	1750
ND 2500 VSD	5300	9000	2500	20.1	15	DIN 125/ANSI 6"	1497	1879	2392	21.7	74	94	3850	1750

** Actual power consumption is lower than the stated heater power and would depend on the conditions.*

Reference conditions:
Performance data per ISO 7183:2007



Driven by innovation

With more than 135 years of innovation and experience, Atlas Copco delivers the products and services to help maximize your company's efficiency and productivity. As a global industry leader, we are dedicated to offering high air quality at the lowest possible cost of ownership. Through continuous advancements, we strive to safeguard your bottom line and bring you peace of mind.

Local interaction

Atlas Copco Compressors LLC is headquartered in Rock Hill, SC. Our 187,000 sq. ft. manufacturing plant is one of several Atlas Copco production units across the U.S., including a custom design facility in Houston, TX. We take the best possible care of our customers through four regional customer centers and appointed authorized distributors, supported by a 131,000 sq. ft. distribution center and a network of field based personnel throughout the country. Across all of our different business types and brands, Atlas Copco employs approximately 3,300 people in the U.S.

Committed to sustainability

In 2010, Atlas Copco was named one of the Top 100 Sustainable Companies in the World for the fifth consecutive year. Through our Water for All organization, Atlas Copco is committed to supporting projects that supply clean water to those who need it most. Visit www.water4all.org for more information. All Atlas Copco Compressors facilities in the United States are triple certified to ISO 14001, ISO 9001 and OHSAS 18001; a set of standards to protect the environment, ensure product quality, and promote our employees' health and occupational safety.

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ISO9001 • ISO14001
OHSAS 18001

Danger: Compressed air should never be supplied as breathing air unless air is properly purified for breathing. Atlas Copco assumes no responsibility or liability related to the purchaser's/user's breathing system.

The information contained herein is general in nature and is not intended for specific construction, installation or application purposes.

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