# Atlas Copco

Desiccant Air Dryers for Simple Reliability
CD series / BD series (360-1600 l/s, 763-3392 cfm)


*Sustainable Productivity*

Atlas Copco

# How does a desiccant dryer work?

Wet air passes directly through the desiccant medium which adsorbs the moisture. The desiccant medium has a finite capacity for adsorbing moisture before it must be dried out, or regenerated. To do this, the tower containing saturated desiccant medium is depressurized and the accumulated water is driven off. How this happens depends on the type of desiccant dryer:

- Heatless dryers use only compressed air as a purge.
- Blower purge dryers use a combination of air from an external blower, heat and minimal compressed air.

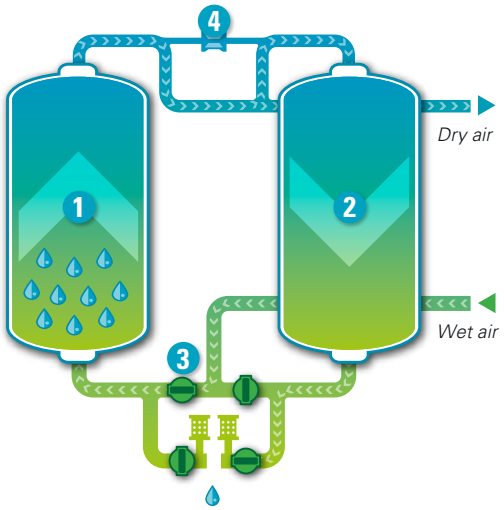
## The drying process

Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

## The regeneration process

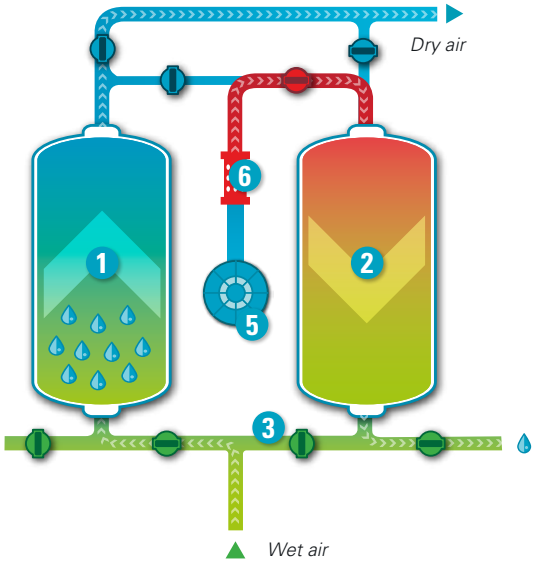
### Heatless desiccant dryers:

- Dry air from the outlet of the drying tower is expanded to atmospheric pressure and sent through the saturated desiccant, forcing the adsorbed moisture out (2) (4).
- After desorption, the blow-off valve is closed and the vessel is re-pressurized.




### Blower purge desiccant dryers:

The blower (5) takes ambient air and blows it over the external heater (6). The heated air is then sent through the saturated desiccant (2), forcing the adsorbed moisture out, from top to bottom.




### Cooling

- **Purge:** After the heating, the hot tower desiccant is cooled. Cooling is done by expanding dry compressed air from the outlet of the adsorbing vessel over the hot reactivated tower, from top to bottom.

## Switching

After regeneration, the functions of both towers are switched (3).


## High reliability

Compressed air entering the air net is always 100% saturated. When it cools, the moisture will condense, causing damage to your air system and finished products. Removing moisture from compressed air with a pressure dewpoint as low as -40°C/-40°F, Atlas Copco desiccant dryers eliminate system failures, production downtime and costly repairs.

## Competitive performance

A dewpoint down to -40°C/-40°F together with simple and easy controls guarantee the dryer operates in the best way possible.

## Good efficiency

Properly sized pipes and valves ensure a limited pressure drop. Several options are available to increase the efficiency and to reduce the energy consumption.

## Limited maintenance

Atlas Copco dryers have a small footprint thanks to the all-in-one design. Delivered ready for use, installation is straightforward, minimizing costly production downtime. All internal components are easily accessible to facilitate maintenance. The use of high-grade desiccant and high-quality valves results in three-year maintenance intervals.

## 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 160 countries, we offer professional and timely service through interaction and involvement. Uptime is guaranteed by dedicated technicians and 24/7 availability.

# CD: Simple reliability


## 1 High-quality desiccant

- Reliable high adsorption capacity desiccant for maximum performance.
- Pressure dewpoint of -40°C/-40°F.

## 2 Butterfly valves

- High-performance butterfly valves with actuators ensure long lifetime.

## 3 Galvanized piping with flanged connections

- Flanged piping simplifies maintenance and minimizes the chance of leakages.
- Properly sized piping.

## 4 Filters

- Pre-filter(s) protect desiccant against oil contamination, increasing the lifetime of the desiccant.
- After-filter protects the network against desiccant dust, avoiding network contamination.
- Can be mounted directly on the inlet and outlet of the dryer, for low pressure drop.
- Allow for easy assembly and maintenance as no extra piping or filter connections are required.

## 5 Cubicle

- IP 54 protected.
- Electronic control board.
- Time-based steering.
- Load/unload freeze contact.

## 6 Robust and compact design

- Standard frame, including forklift slots and lifting eyes for easy handling.
- Vessel connecting flanges are integrated into the top and bottom shells, lowering the total unit height.

## 7 Check valve

- Nickel-plated.
- Wafer type.
- With integrated fixed nozzle.

# BD: Industrial performance


## 1 High-quality desiccant

- Reliable high adsorption capacity desiccant for maximum performance.
- Pressure dewpoint of -40°C/-40°F.

## 2 Butterfly valves

- High-performance butterfly valves with actuators ensure long lifetime.

## 3 Galvanized piping with flanged connections

- Flanged piping simplifies maintenance and minimizes the chance of leakages.
- Properly sized piping.

## 4 Low-watt density heater

- Stainless steel design to ensure long lifetime.
- Nickel-plated heater pipe protects against corrosion.
- Heater is installed in an insulated heater pipe to assure the most energy-efficient setup.
- Optionally insulated vessels are available to further reduce the heat losses and increase the overall efficiency.

## 5 Filters (optional)

- Pre-filter(s) protect desiccant against oil contamination, increasing the lifetime of the desiccant.
- After-filter protects the network against desiccant dust, avoiding network contamination.
- Can be mounted directly on the inlet and outlet of the dryer, for low pressure drop.
- Allow for easy assembly and maintenance as no extra piping or filter connections are required.

## 6 Advanced control and monitoring system

- Fitted inside a real IP54 cubicle for easy cabling and safety.
- Monitoring of all parameters to ensure maximum reliability for your installation.

## 7 Dewpoint Dependent Switching (optional)

- Real PDP monitoring (hygrometer).
- PDP display on controller (and alarm).
- The dryer will only switch to the next tower when the desiccant is saturated (based on PDP input). During that period, the dryer consumes no energy.

## 8 Robust and compact design

- Standard frame, including forklift slots and lifting eyes for easy handling.
- Vessel connecting flanges are integrated into the top and bottom shells, lowering the total unit height.

# Advanced control and monitoring

Atlas Copco's Elektronikon® control and monitoring system takes continuous care of your BD desiccant 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, vessel pressure and inlet temperature, and includes an energy-savings indicator. 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.

# Optimize your system

## Scope of supply

### Air circuit

- Galvanized in- and outlet piping
- In- and outlet air flanges
- Insulated heater pipe and connection pipe to vessels (only on BD)

### Connections

- DIN-flanges
- ANSI flanges

### Electrical components

- Pre-mounted electrical cubicle
- Elektronikon® control and monitoring system (only on BD)
- Electronic timer card (only on CD)
- IP54 protected
- Voltage free contacts for remote alarm and warning signals (only on BD)

### Framework

- Base frame with forklift slots
- Lifting holes

### Mechanical approval

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

## Additional features & options

| Options | CD 360-1600 | BD 360-1600 |
|---|---|---|
| Maximum working pressure 14.5 bar(e)/210 psig | • | • |
| PDP control | - | • |
| Pre- and after-filter package for GA oil-injected compressor | • | • |
| Pre- and after-filter package for Z oil-free compressor | • | • |
| Pressure relief valves | • | • |
| Sonic nozzle | • | • |
| High inlet temperature variant | • | • |
| High ambient temperature variant | - | • |
| Dryer tower insulation | - | • |
| Blower inlet filter | - | • |
| External pilot air connection for low pressure inlet | - | • |
| Pneumatic control | • | - |

• *Optional* - *Not available*

# Technical specifications

## Heatless desiccant dryers

| DRYER TYPE | Inlet flow FAD 7 bar(e)/100 psig | | | Pressure drop (excluding filters) | | Inlet/outlet connections | Filter sizes (recommended) | | | Dimensions | | | | | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Pre-filters | | After-filter | mm | | | in | | | | |
| | l/s | m³/hr | cfm | bar | psi | 50 Hz: G/PN16 60 Hz: NPT/DN | 1 µm 0.1 ppm | 0.01 µm 0.01 ppm | 1 µm | L | W | H | L | W | H | kg | lbs |
| CD 360 | 360 | 1296 | 763 | 0.19 | 2.755 | 50 | DD280 | PD280 | DDp280 | 1173 | 1116 | 1854 | 46 | 44 | 73 | 650 | 1443 |
| CD 480 | 480 | 1728 | 1018 | 0.14 | 2.03 | 80 | DD390 | PD390 | DDp390 | 1776 | 988 | 2549 | 70 | 39 | 100 | 970 | 2154 |
| CD 630 | 630 | 2268 | 1336 | 0.14 | 2.03 | 80 | DD520 | PD520 | DDp520 | 1884 | 843 | 2604 | 74 | 33 | 103 | 1240 | 2753 |
| CD 970 | 970 | 3492 | 2056 | 0.12 | 1.74 | 100 | DD780 | PD780 | DDp780 | 2359 | 1039 | 2643 | 93 | 41 | 104 | 2010 | 4463 |
| CD 1260 | 1260 | 4536 | 2671 | 0.12 | 1.74 | 100 | DD1050 | PD1050 | DDp1050 | 2472 | 1039 | 2636 | 97 | 41 | 104 | 2470 | 5484 |
| CD 1600 | 1600 | 5760 | 3392 | 0.11 | 1.595 | 150 | DD1400 | PD1400 | DDp1400 | 2693 | 1428 | 2576 | 106 | 56 | 101 | 3560 | 7904 |

## Blower purge desiccant dryers

| DRYER TYPE | Inlet flow FAD 7 bar(e)/100 psig | | | Average power consumption | | Pressure drop (excluding filters) | | Inlet/outlet connections | Filter sizes (recommended) | | | Dimensions | | | | | | Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Pre-filters | | After-filter | mm | | | in | | | | |
| | l/s | m³/hr | cfm | kW | hp | bar | psi | 50 Hz: G/PN16 60 Hz: NPT/DN | 1 µm 0.1 ppm | 0.01 µm 0.01 ppm | 1 µm | L | W | H | L | W | H | kg | lbs |
| BD 360 | 360 | 1296 | 763 | 8.4 | 11.3 | 0.16 | 2.32 | 80 | DD280 | PD280 | DDp280 | 1100 | 1028 | 1829 | 43 | 40 | 72 | 1160 | 2576 |
| BD 480 | 480 | 1728 | 1018 | 10.4 | 14.0 | 0.16 | 2.32 | 80 | DD390 | PD390 | DDp390 | 1764 | 1024 | 2558 | 69 | 40 | 101 | 1275 | 2831 |
| BD 630 | 630 | 2268 | 1336 | 14.8 | 20.0 | 0.16 | 2.32 | 80 | DD520 | PD520 | DDp520 | 1884 | 1024 | 2612 | 74 | 40 | 103 | 1560 | 3464 |
| BD 970 | 970 | 3492 | 2056 | 21.8 | 29.4 | 0.16 | 2.32 | 100 | DD780 | PD780 | DDp780 | 2359 | 1175 | 2702 | 93 | 46 | 106 | 2540 | 5640 |
| BD 1260 | 1260 | 4536 | 2671 | 27.7 | 37.4 | 0.16 | 2.32 | 100 | DD1050 | PD1050 | DDp1050 | 2472 | 1175 | 2681 | 97 | 46 | 106 | 3035 | 6739 |
| BD 1600 | 1600 | 5760 | 3392 | 35.3 | 47.7 | 0.11 | 1.595 | 150 | DD1400 | PD1400 | DDp1400 | 2720 | 2199 | 2548 | 107 | 87 | 100 | 4100 | 9103 |

*Reference conditions:*
*Compressed air inlet temperature: 35°C/100°F*
*Inlet relative humidity: 100%*
*Dryer inlet pressure for 11 bar variants, after inlet filtration*

**Driven by innovation**

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

**Building on interaction**

As part of our long-term relationship with our customers, we have accumulated extensive knowledge of a wide diversity of processes, needs and objectives. This gives us the flexibility to adapt and efficiently produce customized compressed air solutions that meet and exceed your expectations.

**A committed business partner**

With a presence in over 160 countries, we will deliver high-quality customer service anywhere, anytime. Our highly skilled technicians are available 24/7 and are supported by an efficient logistics organization, ensuring fast delivery of genuine spare parts when you need them. We are committed to providing the best possible know-how and technology to help your company produce, grow, and succeed. With Atlas Copco you can rest assured that your superior productivity is our first concern!

2935 0586 10 – Printed in Belgium – Subject to alteration without prior notice. Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.

Atlas Copco

www.atlascopco.com