

# Atlas Copco

Desiccant Air Dryers for Simple Reliability

CD series / AD series / BD series (360-1600 l/s, 763-3392 cfm)



*Sustainable Productivity*

**Atlas Copco**



# The right desiccant dryer for your application

A dry compressed air system is essential to maintain the reliability of production processes and the quality of your end products. Untreated air can cause corrosion in pipe work, premature failure of pneumatic equipment, and product spoilage. Atlas Copco's desiccant dryers produce dry compressed air in a reliable and energy-efficient way while protecting your systems and processes.

## WORKING PRINCIPLE

Desiccant dryers or twin tower dryers consist of two towers filled with desiccant such as activated alumina or silica gel. While one tower is drying compressed air, the other is being regenerated. Desiccant dryers can achieve dewpoints of down to  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$  and  $-70^{\circ}\text{C}/-100^{\circ}\text{F}$ .

## WHY DESICCANT DRYERS?

- Robust design.
- Total reliability.
- A constant, stable dewpoint in full load conditions.



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## 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  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$ , Atlas Copco desiccant dryers eliminate system failures, production downtime and costly repairs.



## COMPETITIVE PERFORMANCE

A dewpoint down to  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$  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 170 countries, we offer professional and timely service through interaction and involvement. Uptime is guaranteed by dedicated technicians and 24/7 availability.





# 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.

## HEATLESS DESICCANT DRYERS

### The drying process

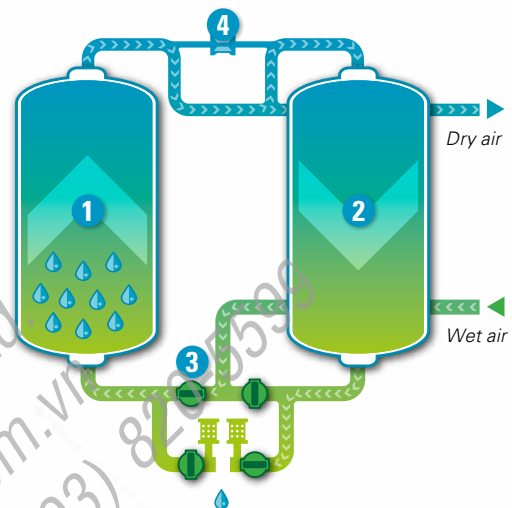
- Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

### The regeneration process

- 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.

### Switching

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



## HEATED PURGE DESICCANT DRYERS

### The drying process

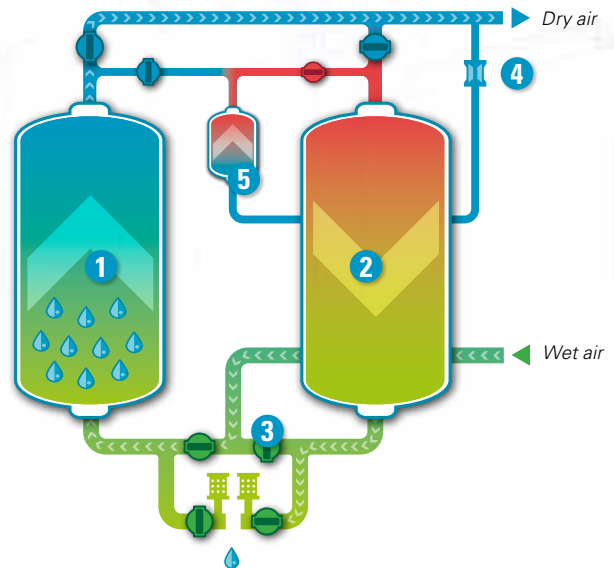
- Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

### The regeneration process

- Dry air from the outlet of the drying tower is expanded to atmospheric pressure (4) and sent over the heater (5). The heated air is then sent through the saturated desiccant (2) forcing the adsorbed moisture out, from top to bottom.
- After the heating process, the hot tower desiccant is cooled. Cooling is done by expanding dry compressed air from the outlet over the hot reactivated tower, from top to bottom.

### Switching

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



## BLOWER PURGE DESICCANT DRYERS

### The drying process

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

### The regeneration process

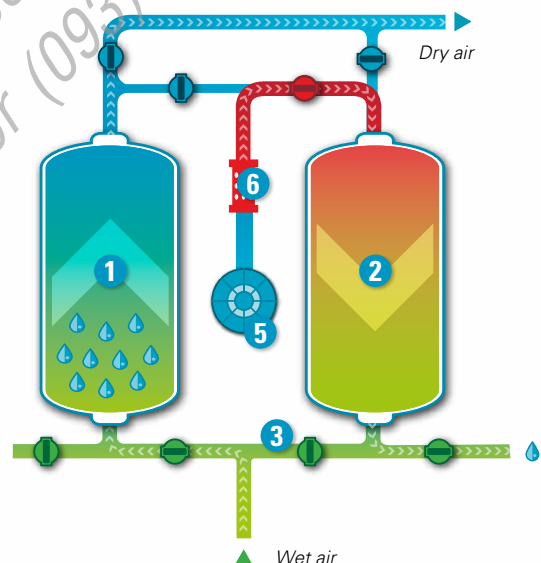
- The blower (5) takes ambient air and blows it over the external heater (6). The heated air is then sent through the saturated desiccant (2), forcing the adsorbed moisture out, from top to bottom.

### 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).



# 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.
- Mounted directly on the inlet and outlet of the dryer, for easy assembly.



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.

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# AD

## High reliability and reduced energy costs

1

### High-quality desiccant

- Reliable high adsorption capacity desiccant for maximum performance.
- Pressure dewpoint of  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$ .

2

### Butterfly valves

High-performance butterfly valves with actuators ensure long lifetime.

3

### Galvanized piping with flanged connections

- Galvanized 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.

5

### Filters (optional)

- Pre-filter(s) protect desiccant against oil contamination, increasing the lifetime of the desiccant.
- After-filter protects network against desiccant dust, avoiding network contamination.
- Mounted directly on the inlet and outlet of the dryer, for easy assembly.

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

### 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.

8

### Check valve

- Nickel-plated.
- Wafer type.

# BD

## Industrial performance



1

### High-quality desiccant

- Reliable high adsorption capacity desiccant for maximum performance.
- Pressure dewpoint of  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$ .

2

### Butterfly valves

High-performance butterfly valves with actuators ensure long lifetime.

3

### Galvanized piping with flanged connections

Galvanized and properly sized piping simplifies maintenance and minimizes the chance of leakages.

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.

5

### Filters (optional)

- Pre-filter(s) protect desiccant against oil contamination, increasing the lifetime of the desiccant.
- After-filter protects network against desiccant dust, avoiding network contamination.
- Mounted directly on the inlet and outlet of the dryer, for easy assembly.

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### 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

### 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.

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# Advanced control and monitoring

Atlas Copco's Elektronikon® control and monitoring system takes continuous care of your AD or 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	Inlet air flange
	Exhaust silencer
	Outlet air flange
Connections	DIN-flanges
	ANSI-flanges
Electrical components	Pre-mounted electrical cubicle
	Elektronik® control and monitoring system (only on BD & AD)
	IP54 protected
	Voltage free contacts for remote alarm and warning signals (only on BD & AD)
Framework	Base frame with forklift slots
	Lifting holes
Mechanical approval	PED approval
	ASME approval
	CRN approval
	ML approval

ADDITIONAL FEATURES & OPTIONS	CD 360-1600	AD 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	○	-	-

- : Not available

○ : Optional



# Technical specifications

## HEATLESS DESICCANT DRYERS

DRYER TYPE	Inlet flow FAD 7 bar(e)/100 psig			Pressure drop (excluding filters)		Inlet/outlet connections  50 Hz: G/PN16 60 Hz: NPT/DN	Filter sizes (recommended)			Dimensions						Weight	
	l/s	m³/hr	cfm	bar	psi		Pre-filters		After-filter	mm			in			kg	lbs
							1 µm 0.1 ppm	0.01 µm 0.01 ppm	1 µm	L	W	H	L	W	H		
CD 360	360	1296	763	0.19	2.76	80	DD310+	PD310+	DDp310+	1173	1116	1854	46	44	73	650	1443
CD 480	480	1728	1018	0.14	2.03	80	DD425+	PD425+	DDp425+	1776	988	2549	70	39	100	970	21534
CD 630	630	2268	1336	0.14	2.03	80	DD630	PD630	DDp630	1884	843	2604	74	33	103	1240	2753
CD 970	970	3492	2056	0.12	1.74	100	DD970	PD970	DDp970	2359	1039	2643	93	41	104	2010	4463
CD 1260	1260	4536	2671	0.12	1.74	100	DD1260	PD1260	DDp1260	2472	1039	2636	97	41	104	2470	5484
CD 1600	1600	5760	3392	0.11	1.60	150	DD1600	PD1600	DDp1600	2693	1428	2576	106	56	101	3560	7904

## HEATED PURGE DESICCANT DRYERS

DRYER TYPE	Inlet flow FAD 7 bar(e)/100 psig			Average power consumption		Pressure drop (excluding filters)		Inlet/outlet connections  50 Hz: G/PN16 60 Hz: NPT/DN	Filter sizes (recommended)			Dimensions						Weight	
	l/s	m³/hr	cfm	kW	hp	bar	psi		Pre-filters		After-filter  1 µm	mm			in			kg	lbs
									1 µm 0.1 ppm	0.01 µm 0.01 ppm		L	W	H	L	W	H		
AD 360	360	1296	763	5.9	8.0	0.27	3.92	80	DD310+	PD310+	DDp310+	1200	1075	1829	47	42	72	820	1821
AD 480	480	1728	1018	7.9	10.7	0.17	2.47	80	DD425+	PD425+	DDp425+	1764	930	2558	69	37	101	1130	2509
AD 630	630	2268	1336	10.8	14.6	0.17	2.47	80	DD630	PD630	DDp630	1884	930	2612	74	37	103	1410	3131
AD 970	970	3492	2056	16.8	22.7	0.17	2.47	100	DD970	PD970	DDp970	2359	1085	2702	93	43	106	2280	5062
AD 1260	1260	4536	2671	21.7	29.3	0.17	2.47	100	DD1260	PD1260	DDp1260	2472	1085	2684	97	43	106	2750	6106
AD 1600	1600	5760	3392	27.5	37.1	0.11	1.60	150	DD1600	PD1600	DDp1600	2708	1342	2603	107	53	102	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  50 Hz: G/PN16 60 Hz: NPT/DN	Filter sizes (recommended)			Dimensions						Weight	
	l/s	m³/hr	cfm	kW	hp	bar	psi		Pre-filters		After-filter	mm			in			kg	lbs
									1 µm 0.1 ppm	0.01 µm 0.01 ppm		1 µm	L	W	H	L	W		
BD 360	360	1296	763	8.4	11.3	0.16	2.32	80	DD310+	PD310+	DDp310+	1100	1028	1829	43	40	72	1160	2576
BD 480	480	1728	1018	10.4	14.0	0.16	2.32	80	DD425+	PD425+	DDp425+	1764	1024	2558	69	40	101	1275	2831
BD 630	630	2268	1336	14.8	20.0	0.16	2.32	80	DD630	PD630	DDp630	1884	1024	2612	74	40	103	1560	3464
BD 970	970	3492	2056	21.8	29.4	0.16	2.32	100	DD970	PD970	DDp970	2359	1175	2702	93	46	106	2540	5640
BD 1260	1260	4536	2671	27.7	37.4	0.16	2.32	100	DD1260	PD1260	DDp1260	2472	1175	2681	97	46	106	3035	6739
BD 1600	1600	5760	3392	35.3	47.7	0.11	1.60	150	DD1600	PD1600	DDp1600	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 170 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!

