

ATLAS COPCO DESICCANT AIR DRYERS FOR SIMPLE RELIABILITY

CD series (360-1600 l/s, 763-3392 cfm)
AD series (360-3450 l/s, 763-7314 cfm)
BD series (360-3450 l/s, 763-7314 cfm)

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.



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

HEATLESS DESICCANT DRYERS

The drying process

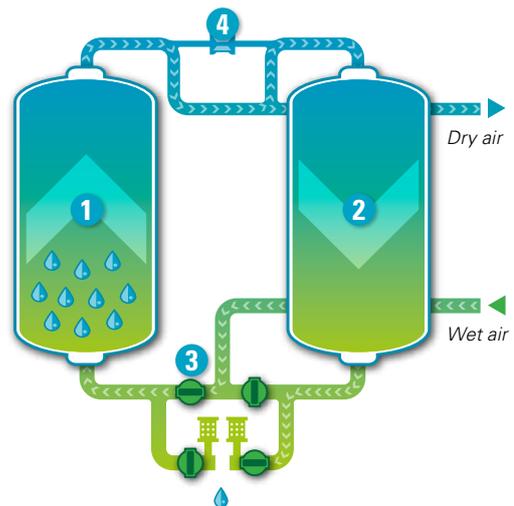
- Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

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

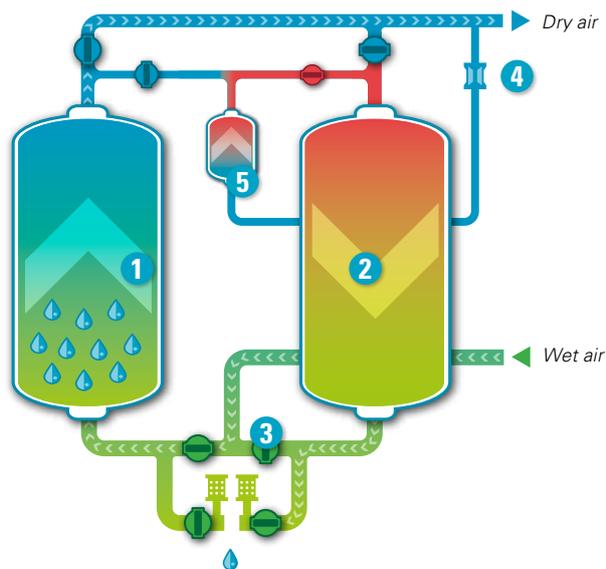
- Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

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

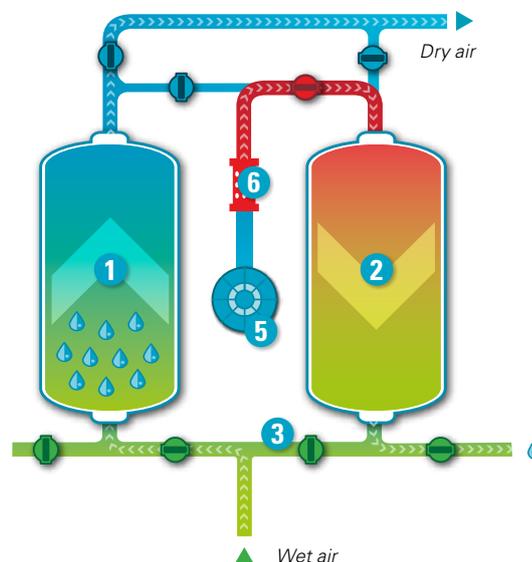
- Wet compressed air flows upward through the desiccant which adsorbs the moisture, from bottom to top (1).

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.
- 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 $-40^{\circ}\text{C}/-40^{\circ}\text{F}$.

2

Butterfly valves

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

3

Galvanized piping with flanged connections

- 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.

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.
- Galvanized 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.
- Galvanized 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.

ADVANCED CONTROL AND MONITORING

Atlas Copco's Elektronikon® control and monitoring system takes continuous care of your 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
Electrical components	Pre-mounted electrical cubicle
	Elektronikon® 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	ASME approval
	AS1210 approval
	MHLW approval
	ML approval
	MOM approval

ADDITIONAL FEATURES & OPTIONS	CD 360-1600	AD 360-3450	BD 360-3450
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	○	○	○
Dryer tower insulation	-	○	○
Blower inlet filter	-	-	○
External pilot air connection for low pressure inlet	-	-	○
Pneumatic control	○	-	-
ANSI connection	○	○	○
Extra matched flanges (DIN)	○	○	○
Modbus & Profibus	-	○	○

- : 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	Filter sizes (recommended)			Dimensions						Weight	
	l/s	m ³ /hr	cfm	bar	psi		Pre-filters		After-filter	mm			in			kg	lbs
						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		
CD 360	360	1296	763	0.19	2.76	80	DD310F	PD310F	DDp310F	1173	1116	1854	46	44	73	650	1443
CD 480	480	1728	1018	0.14	2.03	80	DD425F	PD425F	DDp425F	1776	988	2549	70	39	100	970	21534
CD 630	630	2268	1336	0.14	2.03	80	DD520F	PD520F	DDp520F	1884	843	2604	74	33	103	1240	2753
CD 970	970	3492	2056	0.12	1.74	100	DD780F	PD780F	DDp780F	2359	1039	2643	93	41	104	2010	4463
CD 1260	1260	4536	2671	0.12	1.74	100	DD1050F	PD1050F	DDp1050F	2472	1039	2636	97	41	104	2470	5484
CD 1600	1600	5760	3392	0.11	1.60	150	DD1400F	PD1400F	DDp1400F	2693	1428	2576	106	56	101	3560	7904

Heated purge desiccant dryers

DRYER TYPE	Inlet flow FAD 7 bar(e)/100 psig			Pressure drop (excluding filters)		Inlet/outlet connections	Filter sizes (recommended)			Dimensions						Weight	
	l/s	m ³ /hr	cfm	bar	psi		Pre-filters		After-filter	mm			in			kg	lbs
						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		
AD 360	360	1296	763	0.17	2.47	80	DD310F	PD310F	DDp310F	1764	1016	2558	69.4	40.0	100.7	1130	2486
AD 480	480	1728	1018	0.17	2.47	80	DD425F	PD425F	DDp425F	1764	1016	2558	69.4	40.0	100.7	1130	2486
AD 630	630	2268	1336	0.17	2.47	80	DD520F	PD520F	DDp520F	1884	1016	2612	74.2	40.0	102.8	1550	3410
AD 970	970	3492	2056	0.17	2.47	100	DD780F	PD780F	DDp780F	2359	1176	2702	92.9	46.3	106.4	2450	5390
AD 1260	1260	4536	2671	0.17	2.47	100	DD1050F	PD1050F	DDp1050F	2472	1176	2684	97.3	46.3	105.7	2860	6292
AD 1600	1600	5760	3392	0.17	2.47	150	DD1400F	PD1400F	DDp1400F	2693	1823	2479	106.0	71.8	97.6	3560	7832
AD 2070	2070	7452	4388	0.17	2.47	150	DD1800F	PD1800F	DDp1800F	2793	1832	2540	110.0	72.1	100.0	4700	10340
AD 2530	2530	9108	5364	0.17	2.47	150	DD2100F	PD2100F	DDp2100F	2993	2033	2651	117.8	80.0	104.4	5650	12430
AD 3450	3450	12420	7314	0.17	2.47	200	DD3150F	PD3150F	DDp3150F	3350	2189	2893	131.9	86.2	113.9	7700	16940

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	
	l/s	m ³ /hr	cfm	kW	hp	bar	psi		Pre-filters		After-filter	mm			in			kg	lbs
								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		
BD 360	360	1296	763	8.44	11.31	0.16	2.32	80	DD310F	PD310F	DDp310F	1764	1038	2558	69	41	101	1215	2673
BD 480	480	1728	1018	10.35	13.87	0.16	2.32	80	DD425F	PD425F	DDp425F	1764	1038	2558	69	41	101	1215	2673
BD 630	630	2268	1336	14.75	19.77	0.16	2.32	80	DD520F	PD520F	DDp520F	1884	1038	2612	74	41	103	1480	3256
BD 970	970	3492	2056	21.77	29.17	0.16	2.32	100	DD780F	PD780F	DDp780F	2359	1194	2702	93	47	106	2420	5324
BD 1260	1260	4536	2671	27.73	37.16	0.16	2.32	100	DD1050F	PD1050F	DDp1050F	2472	1194	2684	97	47	106	2940	6468
BD 1600	1600	5760	3392	33.00	44.22	0.1	1.45	150	DD1400F	PD1400F	DDp1400F	2720	2199	2548	107	87	100	4200	9240
BD 2070	2070	7452	4388	39.00	52.26	0.16	2.32	150	DD1800F	PD1800F	DDp1800F	2793	2199	2548	110	87	100	4800	10560
BD 2530	2530	9108	5364	55.00	73.70	0.22	3.19	150	DD2100F	PD2100F	DDp2100F	2993	2199	2548	118	87	100	5750	12650
BD 3450	3450	12420	7314	69.00	92.46	0.18	2.61	200	DD3150F	PD3150F	DDp3150F	3350	2417	2893	132	95	114	7800	17160

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

COMMITTED TO SUSTAINABLE PRODUCTIVITY

We stand by our responsibilities towards our customers,
towards the environment and the people around us.
We make performance stand the test of time.
This is what we call — Sustainable Productivity.

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