



»»» Adsorption  
Dryers for  
Compressed Air  
ADS 1 to 215

Clean and dry air.  
Prevent the risks,  
enjoy the benefits.





## User benefits

### Boost quality and productivity

- Eliminate any residual water from the net for guaranteed clean compressed air
- Ensure your air network is protected against rust avoiding leakages
- Higher final product quality
- Increase your overall productivity

### Save costs

- Prolong the life span of your operation process (machine/equipment...)
- Reduce potential downtime
- Energy management solution available to minimise energy consumption

### Easy operation and installation

- Compatible with any compressor technology
- User-friendly communication display providing air quality indication and maintenance requirements
- Ready to install, with an integrated filtration solution (ADS 1 - 10)
- Compact equipment fits in a minimum space

## Risks to avoid

### Humid, unclean air can cause:

- A dirty air network increases leakage risk
- High maintenance cost of your air network (corrosion), operation process and potential downtime
- Shorten the life span of your operation process (machine/equipment)
- Risk of water contamination in the air network, with potential freezing in winter time
- Lower quality of the final product causing potential risk of product recalls
- Reduced productivity

## ADS Adsorption Dryers

A compressor takes humidity from the intake air which turns into condensate during the compression process. This will cause wear and corrosion to the downstream equipment, with potential costly interruption to production, and reduction in the efficiency and service life of the equipment used. Adsorption dryers provide a solution to prevent this negative impact.



The Ceccato ADS adsorption dryers will eliminate water vapour that may potentially condensate in your compressed air system and cause damage. These dryers use an adsorption material called "desiccant" in order to absorb and remove (by regeneration phase) the humidity from the compressed air. With this method we can reach a PDP < 3°C ( -40°C. or -70°C.). This range should also be used when the ambient temperature goes below freezing point, to avoid ice building in pipes and applications. The ADS range is typically used in the chemical, food and pharmaceutical industry and whenever a PDP <3°C is requested.

Adsorption removes the remaining moisture content in the air that will condense out even downstream of a refrigerant dryer. Its technology 'simulates' a temperature reduction down to -40°C to -70°C by attracting and retaining moisture with the desiccant media (moisture freezes at +3°C actual temperature reduction) to condense out the very last water content in the air. The moisture is removed from the air flow to your network and released. Adsorption dryers are recommended for the most demanding applications, where no moisture contamination can be accepted.

## Standard features and options

| STANDARD FEATURES AND OPTIONS | ADS 1 - 10                       | ADS 15 - 156                                                                                               | ADS 110 - 215             |
|-------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------|
| Capacity at 7 bar (- 40°C)    | 114 - 990 l/1'                   | 1500 - 15600 l/min                                                                                         | 10800 - 21600 l/1'        |
| Dew point                     | Standard -40°C                   | Standard -20°C<br>Standard -40°C                                                                           | Standard -40°C            |
| Maximum working pressure      | 16 bar                           | 14 bar                                                                                                     | 11 and 14,5 bar           |
| Working pressure range        | 4-16 bar                         | 4 - 14 bar                                                                                                 | 4-11 bar &<br>11-14,5 bar |
| Voltages                      | 12 - 24 V - DC<br>50/60Hz        | 115 - 230 V - AC<br>50/60Hz                                                                                | 230 V - AC<br>50/60Hz     |
|                               | 100 - 115 - 230V -<br>AC 50/60Hz |                                                                                                            |                           |
| Dew point sensor              | x                                | Optional                                                                                                   | ✓                         |
| Dew point -70°C               | By derating<br>the air capacity  | Available on the -40°C version (for models<br>ADS 21 and larger) and with a rated flow<br>reduction of 30% |                           |

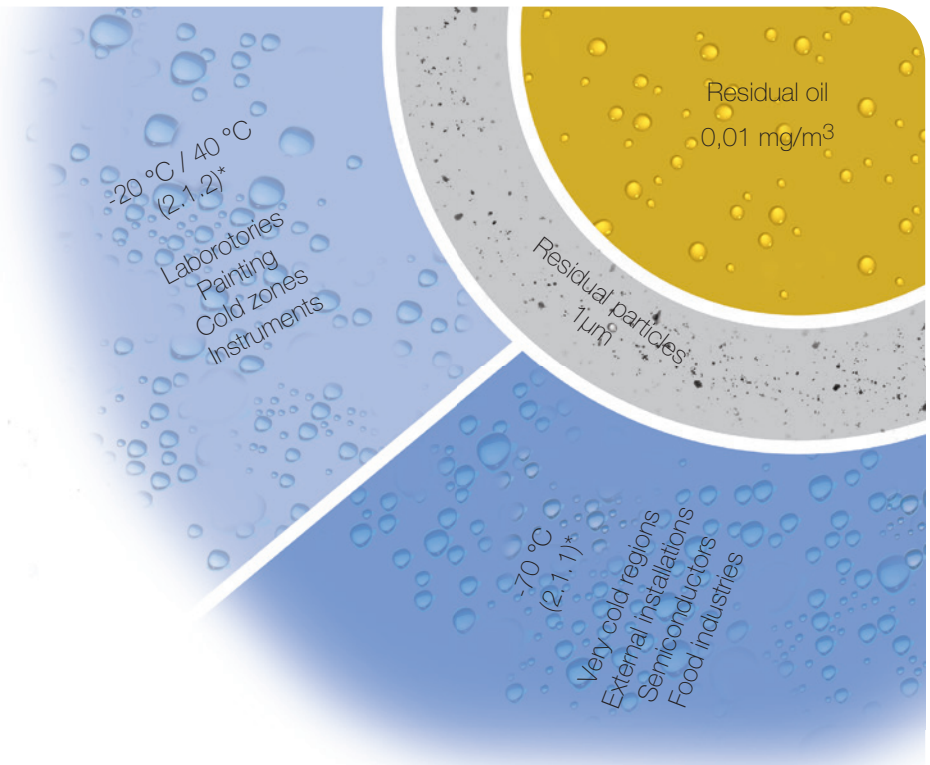
✓ = available x = not available

# APPLICATIONS & DRYING PROCESS

## Application for ADS dryer

Particularly for:

- The chemical and pharmaceutical Industries.
- Petrochemical plants.
- Food industry.
- Transportation of hygroscopic materials.
- Quality painting.
- Textile production.
- Semiconductors.
- Cable pressurization.
- Beer and drinks production.
- Applications in low-temperature environments.
- ... and whenever a pressure dew point less than 3°C is requested.



\* Quality class according to ISO 8573-1

## The drying process

### Drying:

Wet air from the compressors passes through the **inlet filter (1)** which removes the oil and enters into vessel A. The desiccant adsorbs the water vapor molecules. After a fixed (STD) or variable adsorbing time (CD) the **inlet valve (2)** deviates the airflow from vessel A to vessel B, where the air continues to be dried.

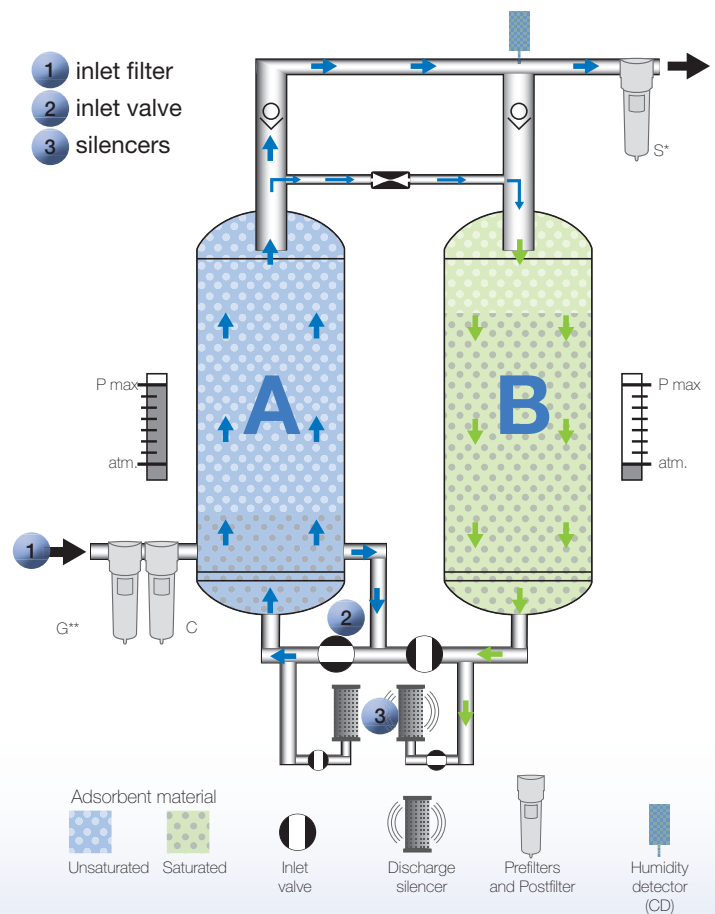
### Regeneration:

During the drying phase in vessel A, some dry air is deviated into vessel B. Flowing from top to bottom, the dried air is able to remove the water vapor from the desiccant material. During this phase, vessel B is open to the atmosphere, allowing the purge air to expand.

The **silencers (3)** on the outlet ensure quiet operation.

### Pressurization:

Once regeneration has taken place, vessel B is pressurized again so that the **inlet valve (2)** can change the air flow again.



\* On ADS1-10 outlet filter is built inside of the desiccant cartridges.  
 \*\* Recommended but not included on ADS156

# A compact quality air solution for easy installation and maintenance

## »»» ADS 1 - 10 STD RANGE Compact execution

- Versatile installation with multiport system and six possible connections.
  - Compact, reduced footprint, simple design.
  - This module can be installed horizontally or vertically, can stand on the floor or be mounted on a wall (optional mounting kit available).
  - The inlet prefilter C is delivered loose with the dryer but it can be directly fixed on it.
- The outlet postfilters are integrated in the desiccant cartridges.

- Aluminium head, base and cylinders prevent corrosion.
- Easy to maintain:
  - Maintenance operations can be performed without disconnecting tubing.
  - Adsorbent cartridge with built-in postfilter.
- Automatic electronic control to manage the dryer and phase status with an automatic fault diagnosis, including alarms.
- Each tower is fitted with a high efficiency silencer for quiet operation.

## »»» Components

- 1 Prefilter removes particulates and coalesced liquids from the air system.
- 2 Removable front panel allows for easy access for servicing without disconnecting the pipe system.
- 3 Postfilters, integrated in the dryer, removes particulate in the air stream.
- 4 Electronic control housed in an IP65 box which enables:
  - regeneration cycle management
  - regulation status
  - default diagnosis
  - remote default report



**MULTIPOINT INLET AND  
OUTLET  
THIS ARRANGEMENT ENSURES EASY  
AND FAST INSTALLATION**

## »»» Applications for ADS 1 - 215



## »»» ADS 15 - 156

### »»» Reliability

- improved flow
- unique valve system
- desiccant protection
- flow distributor - swirl

### »»» Performance

- high-efficiency silencers
- lower noise level
- very low purge consumption
- PDP -20°C / -40°C
- PDP -70°C optional
- dew point sensor (optional)



### »»» Features

- digital controller
- nozzle purge set for different pressures
- synchronization possibility with the compressor
- two included filters (loose)

### »»» Options

- PDP sensor and selection
- Wall-mounting kit for units with 2 columns



- New "swirl" technology ensures optimal distribution of the airflow and decreases uneven wear of the desiccant.

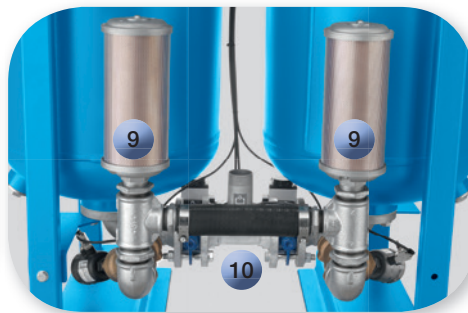
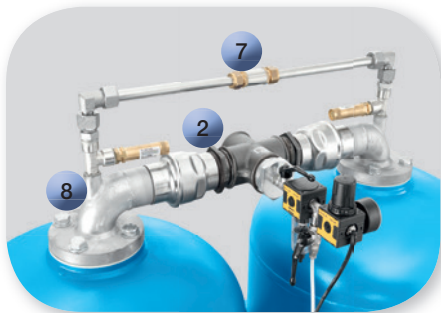
## »»» ADS 110 - 215 RANGE

### Electric timer control (STD) • Control dew point (CD)

- Developed with high quality components.
- ADS dryers guarantee a stable dew point of  $-40^{\circ}\text{C}$ .
- The use of an optimised desiccant volume and a wide vessel ensure a low air speed and a longer contact time.
- Purge phases are controlled by an electronic timer on the standard models (ADS / STD).
- There is also a dew point control version (ADS / CD) where the drying phase is dew point dependent and is controlled by our electronic dew point management system.
- The two inlet prefilters G - C and the outlet postfilter S have to be mounted on the air distribution line. The filters are included but not pre-mounted.

### »»» Components

- 1 Wide vessels for optimum air spread and reliable drying.
- 2 Air outlet connection.
- 3 Robust frame, including fork lift slots for easy installation.
- 4 Pressure dew point sensor (ADS / CD).
- 5 Pressure dew point digital display (ADS / CD).
- 6 Two manometers integrated in the control panel to show pressure in the two vessels.
- 7 Purge nozzle for regeneration.
- 8 Galvanized piping with flanged connections.
- 9 High efficiency silencers with integrated safety valve.
- 10 Air inlet connection.
- 11 Inlet valves, long service interval.

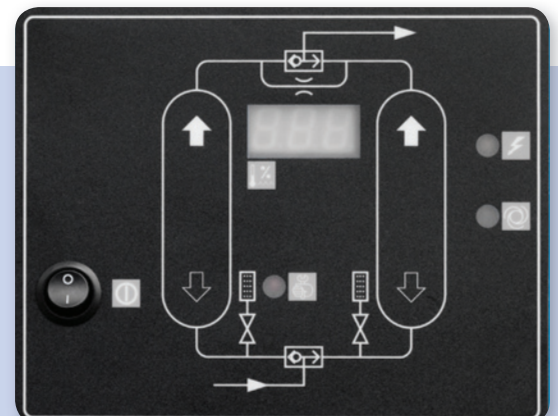


### »»» How to decrease your energy consumption?

The electronic Pressure Dew Point control (CD) extends the drying phase of the dryer's cycle. It is done by measuring PDP of compressed air on the dryer outlet and only switching the columns when desiccant in the active tower is saturated. The regeneration part of the cycle stays fixed.

As most of the time compressor and dryer runs < 100% load, this results in a significant extension of the drying time and a reduction in purge air consumption.

Typically the extra investment in a Pressure Dew Point control is paid back in a few months by savings made on dryer running costs.



# ADSORPTION DRYERS ADS 1 - 215



## Technical data for PDP -40°C version

For dimensions & weight for the version PDP -20°C, please refer to the dimension drawing

| Type    | Max. Working Pressure |     | Operating Pressure | Air Treatment Capacity |      |                   | Standard Dew Point | G<br>0,1 mg/<br>mc | C<br>0,01 mg/<br>mc | S<br>(MPPS=0,1 µm)<br>99,81% | Inlet / outlet Connections | Dimensions |      |             | Weight |
|---------|-----------------------|-----|--------------------|------------------------|------|-------------------|--------------------|--------------------|---------------------|------------------------------|----------------------------|------------|------|-------------|--------|
|         | BAR                   | psi |                    | BAR                    | l/1' | m <sup>3</sup> /h |                    |                    |                     |                              |                            | cfm        | °C   | Pre filters |        |
| ADS 1   | 16                    | 232 | 7,0                | 114                    | 7    | 4,1               | -40                | n.a.               | C 7                 | Integrated in the dryer      | 3/8"                       | 92         | 281  | 445         | 13     |
| ADS 2   | 16                    | 232 | 7,0                | 168                    | 10   | 5,9               | -40                | n.a.               | C 7                 |                              | 3/8"                       | 92         | 281  | 504         | 14     |
| ADS 3   | 16                    | 232 | 7,0                | 282                    | 17   | 10                | -40                | n.a.               | C 7                 |                              | 3/8"                       | 92         | 281  | 635         | 17     |
| ADS 4   | 16                    | 232 | 7,0                | 426                    | 26   | 15,3              | -40                | n.a.               | C 7                 |                              | 3/8"                       | 92         | 281  | 815         | 20     |
| ADS 7   | 16                    | 232 | 7,0                | 708                    | 42   | 24,7              | -40                | n.a.               | C 7                 |                              | 3/8"                       | 92         | 281  | 1065        | 24     |
| ADS 10  | 16                    | 232 | 7,0                | 990                    | 59   | 34,7              | -40                | n.a.               | C 15                |                              | 1/2"                       | 92         | 281  | 1460        | 31     |
| ADS 15  | 14                    | 203 | 7                  | 1500                   | 90   | 53                | -40                | n.a.               | C 15                | S 15                         | 1"                         | 401        | 620  | 1070        | 87     |
| ADS 21  | 14                    | 203 | 7                  | 2100                   | 126  | 74                | -40                | n.a.               | C 21                | S 21                         | 1"                         | 401        | 620  | 1115        | 88     |
| ADS 27  | 14                    | 203 | 7                  | 2700                   | 162  | 95                | -40                | n.a.               | C 30                | S 30                         | 1"                         | 401        | 620  | 1285        | 99     |
| ADS 33  | 14                    | 203 | 7                  | 3300                   | 198  | 116               | -40                | n.a.               | C 48                | S 48                         | 1"                         | 401        | 620  | 1465        | 114    |
| ADS 39  | 14                    | 203 | 7                  | 3900                   | 234  | 138               | -40                | n.a.               | C 48                | S 48                         | 1"                         | 401        | 620  | 1615        | 124    |
| ADS 54  | 14                    | 203 | 7                  | 5400                   | 324  | 191               | -40                | n.a.               | C 84                | S 84                         | 1" 1/2                     | 571        | 620  | 1285        | 165    |
| ADS 66  | 14                    | 203 | 7                  | 6600                   | 396  | 233               | -40                | n.a.               | C 84                | S 84                         | 1" 1/2                     | 571        | 620  | 1465        | 197    |
| ADS 78  | 14                    | 203 | 7                  | 7800                   | 468  | 275               | -40                | n.a.               | C 84                | S 84                         | 1" 1/2                     | 571        | 620  | 1615        | 211    |
| ADS 99  | 14                    | 203 | 7                  | 9900                   | 594  | 350               | -40                | n.a.               | C 114               | S 114                        | 1" 1/2                     | 571        | 620  | 1915        | 245    |
| ADS 117 | 14                    | 203 | 7                  | 11700                  | 702  | 413               | -40                | n.a.               | C 156               | S 156                        | 1" 1/2                     | 738        | 620  | 1615        | 298    |
| ADS 156 | 14                    | 203 | 7                  | 15600                  | 936  | 551               | -40                | n.a.               | C 156               | S 156                        | 1" 1/2                     | 738        | 620  | 1915        | 328    |
| ADS 110 | 11                    | 159 | 7,0                | 10800                  | 648  | 381               | -40                | G 114              | C 114               | S 114                        | 1" 1/2                     | 840        | 1040 | 1760        | 445    |
|         | 14,5                  | 210 | 12,5               | 12900                  | 774  | 456               | -40                |                    |                     |                              |                            |            |      |             |        |
| ADS 130 | 11                    | 159 | 7,0                | 13200                  | 792  | 466               | -40                | G 156              | C 156               | S 156                        | 1" 1/2                     | 840        | 1040 | 1760        | 445    |
|         | 14,5                  | 210 | 12,5               | 15900                  | 954  | 561               | -40                |                    |                     |                              |                            |            |      |             |        |
| ADS 180 | 11                    | 159 | 7,0                | 18000                  | 1080 | 636               | -40                | G 216              | C 216               | S 216                        | 2"                         | 840        | 1040 | 1760        | 600    |
|         | 14,5                  | 210 | 12,5               | 21600                  | 1296 | 763               | -40                |                    |                     |                              |                            |            |      |             |        |
| ADS 215 | 11                    | 159 | 7,0                | 21600                  | 1296 | 763               | -40                | G 216              | C 216               | S 216                        | 2"                         | 840        | 1040 | 1760        | 650    |
|         | 14,5                  | 210 | 12,5               | 25800                  | 1548 | 911               | -40                |                    |                     |                              |                            |            |      |             |        |

① Reference conditions: Operating pressure: see the technical data table / Operating temperature: 35°C / Relative humidity: 100%

② Filters are delivered loose with the dryer: ADS 1-10: the filters can be directly fixed on the dryer. ADS 15-215: the filters have to be mounted on the air distribution line. For conditions differing from the reference conditions, use the below correction factor table.

## Correction factors

| Correction factors       | ADS/14 or 16 bar (max. working pressure) |      |      |   |      |      |      |     |      |      |      |      |    |      |
|--------------------------|------------------------------------------|------|------|---|------|------|------|-----|------|------|------|------|----|------|
| Air Inlet Pressure - bar | 4                                        | 5    | 6    | 7 | 8    | 9    | 10   | 11  | 12   | 13   | 14   | 14,5 | 15 | 16   |
| ADS 1 - ADS 10           | 0,62                                     | 0,75 | 0,87 | 1 | 1,12 | 1,25 | 1,37 | 1,5 | 1,62 | 1,75 | 1,87 | 1,93 | 2  | 2,12 |
| ADS 15 - ADS 156         | 0,62                                     | 0,75 | 0,87 | 1 | 1,12 | 1,25 | 1,37 | 1,5 | 1,62 | 1,75 | 1,87 |      |    |      |

| Correction factors       | ADS/11 bar (max. working pressure) |      |      |   |     |     |     |      | ADS/14,5 bar (max. working pressure) |      |      |      |      |
|--------------------------|------------------------------------|------|------|---|-----|-----|-----|------|--------------------------------------|------|------|------|------|
| Air Inlet Pressure - bar | 4                                  | 5    | 6    | 7 | 8   | 9   | 10  | 11   | 11                                   | 12,5 | 13   | 14   | 14,5 |
| ADS 110 - ADS 215        | 0,47                               | 0,68 | 0,84 | 1 | 1,1 | 1,2 | 1,3 | 1,38 | 0,89                                 | 1    | 1,04 | 1,11 | 1,15 |

| Correction factors       | Air Inlet Temperature °C |      |      |    |      |      |      |
|--------------------------|--------------------------|------|------|----|------|------|------|
| Air Inlet Temperature °C | 20                       | 25   | 30   | 35 | 40   | 45   | 50   |
| ADS 1 - ADS 10           | 1,07                     | 1,06 | 1,04 | 1  | 0,88 | 0,78 | 0,55 |
| ADS 15 - ADS 156         | 1                        | 1    | 1    | 1  | 0,84 | 0,67 | 0,55 |
| ADS 110 - ADS 215        | 1                        | 1    | 1    | 1  | 0,84 | 0,71 | 0,55 |

| Correction factors      | Pressure Dew Point °C |     |     |
|-------------------------|-----------------------|-----|-----|
| Pressure Dew Point °C   | -20                   | -40 | -70 |
| ADS 1-10 & ADS 110- 251 | n.a.                  | 1   | 0,7 |
| ADS 15 - ADS 156        | 1                     | 1   | 0,7 |





Adsorption air dryers  
Range ADS 1 • 215



- A high quality product offering you **technology you can trust**.
- Our products are **easy to use** and guarantee high **reliability**.
- Distributors are always nearby ensuring **availability** of both products and support.
- Choosing our high performance products entails a **partnership** that will boost your business.
- Safeguarding long-term productivity through optimal **serviceability** and use of original parts.



## Care. Trust. Efficiency.

**Care.**

Care is what service is all about: professional service by knowledgeable people, using high-quality original parts.

**Trust.**

Trust is earned by delivering on our promises of reliable, uninterrupted performance and long equipment lifetime.

**Efficiency.**

Equipment efficiency is ensured by regular maintenance. Efficiency of the service organization is how Original Parts and Service make the difference.

© 2015, Ceccato. All rights reserved. All mentioned brands, product names, company names, trademarks and service marks are the properties of their respective owners. Our products are constantly being developed and improved. We thus reserve the right to modify product specifications without prior notice. Pictures are not contractually binding.

6999100164



Contact your local Ceccato representative now!

[www.ceccato-compressors.com](http://www.ceccato-compressors.com)