Adsorption Dryers for Compressed Air
ADS 1 to 215

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

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

= 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.

**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.

* Quality class according to ISO 8573-1

**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 prefiltre 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. Prefiltre removes particulates and coalesced liquids from the 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

**Applications for ADS 1 - 215**
Energy efficient and solid performance

**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.
Perfectly clean and dry air system with a clever dew point management

**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°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.
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 run < 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.
Perfectly clean and dry air system with a clever dew point management

### Technical data for PDP -40°C version

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

#### Correction factors

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

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

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<tr>
<th>Correction factors</th>
<th>ADS/14 &amp; ADS 156</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Inlet Temperature °C</td>
<td>4 20 25 30 35 40 45 50</td>
</tr>
<tr>
<td>ADS 1 - ADS 10</td>
<td>1,07 1,06 1,04 1 0,88 0,78 0,55</td>
</tr>
<tr>
<td>ADS 15 - ADS 156</td>
<td>1 1 1 1 0,84 0,67 0,55</td>
</tr>
<tr>
<td>ADS 110 - ADS 215</td>
<td>1 1 1 0,84 0,71 0,55</td>
</tr>
</tbody>
</table>

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

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<tr>
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</thead>
<tbody>
<tr>
<td>Pressure Dew Point °C</td>
<td>-20 -40 -70</td>
<td>n.a. 0,7 0,7</td>
</tr>
</tbody>
</table>
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.

- 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.