High Efficiency Compressed Air Dryers

Adsorption Dryers
Modular System

INTELLIGENT AIR TECHNOLOGY
Compressed air purification equipment must deliver uncompromising performance and reliability whilst providing the right balance of air quality with the lowest cost of operation and CO₂ emissions. Adsorption dryers totally clean and dry compressed air down to -40 °C pressure dewpoint as standard. For critical applications, adsorption dryers can be specified to provide a pressure dewpoint of -70 °C. A pressure dewpoint of -26 °C or better will not only prevent corrosion, but will also inhibit the growth of micro-organisms within the compressed air system.

**Modular Dryers at a glance**

**Adsorption Dryers A1TX - A14TX**
- Heatless regeneration pressure swing adsorption
- Capacity: 0,13 – 1,43 m³/min
- Pressure dew points -20 °C / -40 °C / -70 °C
- Multitronic controller
- Pre- and after-filter are included in the dryer package
- Optional: - dew point control ZHM100 - Pneumatic version

**Adsorption Dryers A1TXA - A14TXA**
- Heatless regeneration pressure swing adsorption with activated carbon stage
- Capacity: 0,13 – 1,43 m³/min
- Pressure dew points -20 °C / -40 °C / -70 °C
- Residue of oil content down to 0,003 mg/m³
- Multitronic controller
- Pre- and after-filter are included in the dryer package
- Optional: - dew point control ZHM100 - Pneumatic version

**Adsorption Dryers A7XS - A50XS**
- Heatless regeneration pressure swing adsorption
- Capacity: 0,82 – 4,98 m³/min
- Pressure dew points -20 °C / -40 °C / -70 °C
- Smart controller
- Pre- and after-filter are included in the dryer package
- Optional: - Dew point control DDS - Pneumatic version

**Adsorption Dryers A68XS - A340XS**
- Heatless regeneration pressure swing adsorption
- Capacity: 6,8 – 34 m³/min
  - Multi Bank >34 m³/min
- Pressure dew points -20 °C / -40 °C / -70 °C
- Smart controller with DDS
- Pre- and after-filter are included in the dryer package
- Optional: - Advanced electronic control system - Pneumatic version

**Adsorption Dryers A40R - A190R**
- Heat regenerative thermal swing adsorption
- Capacity: 3,97 – 19,82 m³/min
  - Multi Bank >20 m³/min
- Pressure dew points -20 °C / -40 °C / -70 °C
- Smart controller
- Pre- and after-filter are included in the dryer package
- Optional: - Dew point control DDS - Advanced electronic control system
Operation Procedure

Aluminium extrusions are used throughout for drying chambers and distribution manifolds. This design allows the desiccant material to be retained within the drying chambers and when used in conjunction with the unique snowstorm filling technique, prevents movement of the desiccant material during operation and all but eliminates desiccant attrition and breakdown which leads to loss of pressure dewpoint.

**Adsorption Dryer Operation - Drying Cycle**

The process air enters the dryer through the inlet and is directed into the on-line drying chamber via the inlet valves and lower manifold. The air is evenly distributed through the drying columns and passes over the desiccant material, reducing the water vapour content. The dried process air then combines in the upper manifold and exits the dryer via the outlet check valves.

**Adsorption Dryer Operation - Regeneration Cycle**

Heatless Pressure Swing Adsorption

At the start of the regeneration cycle, the exhaust valve of the dryer is closed and the off-line chamber is at full line pressure. The air in the off-line chamber has a dewpoint equal to the air leaving the dryer. The exhaust valve is then opened and the dry air within the chamber expands rapidly as it leaves the dryer via the exhaust silencer, forcing water to be removed from the desiccant material. Once the off-line chamber has de-pressurised, a continuous bleed of dried process air is directed into the off-line upper manifold. This air is known as purge air. With the exhaust valve open, the purge air expands from line pressure to atmospheric pressure and flows downwards through the columns, over the off-line desiccant material. As the purge air at line pressure contains a fixed amount of water vapour, allowing it to expand means the purge air becomes even drier, increasing its capacity to remove water from the saturated desiccant bed.

**Adsorption Dryer Operation - Regeneration Cycle**

Heat Regenerative Thermal Swing Adsorption

The regeneration cycle of a dryer is similar to that of the heatless dryer described above, however, to reduce the amount of purge air required, heat is added to assist the process. Two heater assemblies are strategically placed in each drying column to heat the purge air, optimising regeneration. The heaters are switched on after the column has de-pressurised, to again reduce energy consumption. The combination of dry purge air and heat uses less energy to remove the water from the saturated desiccant bed than is consumed by purge air alone. After a preset time, the heaters are switched off and the off-line bed is allowed to cool before changeover.
A1TX - A14TX and A7XS - A50XS models

- A1TX and A14TX models use only single extrusions, with a pressure die-cast inlet and outlet assembly
- Compressed air capacity within these ranges is increased by varying the length of the drying columns
- The greater the flow required, the longer the drying column

A068XS - A340XS models

- These models use multiple drying columns of equal length to provide required compressed air capacity
- The greater the flow required, the more drying columns are used (up to the maximum length of the manifold)

Adsorbent fill method - snowstorm filling

Unique to CompAir modular dryers is the snowstorm filling technique used to charge the drying chambers with adsorbent desiccant material. The benefits of the snowstorm filling technique include:

- Achieves maximum packing density for the desiccant material, fully utilising all of the available space envelope
- Prevents channelling of air through the desiccant as seen on traditional twin tower designs. Due to channelling, twin tower designs require more desiccant to achieve an identical dewpoint, increasing physical size, operational and maintenance costs
- Prevents desiccant attrition which can lead to dusting, blocked filters and loss of dewpoint
- Allows 100% of the available desiccant material to be used for drying, therefore reducing the amount of desiccant required and maintenance costs
- 100% of the desiccant is regenerated ensuring consistent dewpoint
- Provides a low, equal resistance to air flow allowing multiple drying chambers and multiple dryer banks to be used, a feature only available with Adsorption Dryer
- Ensures continuous dewpoint performance
Features and Benefits

- Adsorption dryers provide efficient removal of water vapour from compressed air
- Delivered air quality is in accordance with ISO 8573-1:2001
- Improves production efficiency and reduces maintenance costs and downtime
- Pressure Dewpoint’s of -70 °C, -40 °C & -20 °C (ISO 8573-1:2001 Classes 1, 2 & 3) are available
- Unlike refrigeration dryers, the -40 °C & -70 °C pressure dewpoint’s offered by CompAir not only eliminates corrosion, it also inhibits the growth of micro-organisms
- Ideal for both compressor room and point of use applications
- Low noise level
- CompAir’s unique modular construction and snowstorm filling of the adsorbent desiccant material provides:
  - Consistent dewpoint performance
  - A smaller, more compact and lightweight dryer
  - Simple to install and easy to maintain
  - Fully corrosion protected inside and out
  - Approvals to International Standards (PED, CSA/UL/CRN)
  - Eliminates the need for costly annual pressure vessel inspections
  - 10 year guarantee on pressure envelope

- Distribution manifolds and drying columns are all constructed from lightweight, high tensile extruded aluminium
- The shape of the extrusion varies on each model range
- All extrusions are below 150 mm (6") in diameter, which is under the pressure vessel inspection requirements of ASME
- World-wide design approvals include PED, CRN, CE
- Fully corrosion protected

Compressed air pre & after filtration
Adsortion dryers are designed only for the removal of water vapour, and not liquid water, water aerosols, oil, particulates or micro-organisms. Only by using CompAir compressed air pre and after filtration the removal of these contaminants is guaranteed and air quality in accordance with ISO 8573-1:2001 be delivered.

Adsorbent desiccant material
Selected for optimum dewpoint performance, dryers delivering a -40 °C pressure dewpoint utilise a split bed of activated alumina and molecular sieve. For critical applications, dryers delivering a -70 °C pressure dewpoint are filled with a special blend of silica gel and molecular sieve.

All desiccant materials are specially selected to provide:
- Optimum adsorption and regeneration capacity - to ensure consistent dewpoint
- Low dusting - to prevent blockage of down-stream filtration
- High crush strength - to prevent breakdown of the desiccant during operation
- High resistance to aggressive and oil-free condensate - for compatibility with all types of air compressor, their lubricants and condensate
**Adsorption Dryers Control System**

**Energy Saving by dew point dependent switching device**

<table>
<thead>
<tr>
<th>Air Demand %</th>
<th>Energy Saving %</th>
<th>Energy Saving P/A Kw</th>
<th>Environmental Saving P/A Kg CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>33.00</td>
<td>95.040</td>
<td>40.867</td>
</tr>
<tr>
<td>90</td>
<td>44.00</td>
<td>115.200</td>
<td>49.536</td>
</tr>
<tr>
<td>80</td>
<td>47.00</td>
<td>135.360</td>
<td>58.205</td>
</tr>
<tr>
<td>70</td>
<td>53.00</td>
<td>152.640</td>
<td>65.635</td>
</tr>
<tr>
<td>60</td>
<td>60.00</td>
<td>172.800</td>
<td>74.304</td>
</tr>
<tr>
<td>50</td>
<td>66.00</td>
<td>190.080</td>
<td>81.734</td>
</tr>
</tbody>
</table>

System pressure 6 bar g. Max Temp 35 °C. System flow 1700 m³/hr (1000 cfm). Average pressure 6.5 bar g. Average Temp 30 °C.

**Adsorption Dryer Controllers**

<table>
<thead>
<tr>
<th>Dryer Model</th>
<th>A1TX - A14TX</th>
<th>A7XS - A50XS</th>
<th>A068XS - A340XS</th>
<th>A1TXA - A14TXA</th>
<th>A40RS - A190RS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multitronic</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>Smart</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>Smart DDS/ZHM100</td>
<td>O</td>
<td>O</td>
<td>S</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Advanced</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

S = Standard  O = Optimal

**Adsorption Dryer Controller Features**

<table>
<thead>
<tr>
<th>Controller Options</th>
<th>Power on Indication</th>
<th>Fault Indication</th>
<th>Display fault condition values</th>
<th>Service interval Indication</th>
<th>Service countdown timers</th>
<th>Configurable alarm settings</th>
<th>Remote Volt Free Alarm Contacts</th>
<th>Filter Service Timer</th>
<th>DDS Energy Mgmt System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Smart DDS</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Multitronic</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Advanced</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

SMART  SMART DDS  ADVANCED

Controllers

Multitronic
### Technical Data

#### Heatless regeneration pressure swing adsorption dryers

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity* m³/min</th>
<th>Width</th>
<th>Dimension mm</th>
<th>Depth</th>
<th>Connection</th>
<th>Pressure bar</th>
<th>Weight kg</th>
<th>Pre-/after filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A001TX</td>
<td>0.13</td>
<td>312</td>
<td>390</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>A002TX</td>
<td>0.25</td>
<td>312</td>
<td>565</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>A004TX</td>
<td>0.42</td>
<td>359</td>
<td>815</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>A006TX</td>
<td>0.58</td>
<td>359</td>
<td>1065</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>A009TX</td>
<td>0.93</td>
<td>436</td>
<td>1185</td>
<td>300</td>
<td>3/8&quot;</td>
<td>16</td>
<td>52</td>
<td>12</td>
</tr>
<tr>
<td>A012TX</td>
<td>1.2</td>
<td>436</td>
<td>1411</td>
<td>300</td>
<td>3/8&quot;</td>
<td>16</td>
<td>65</td>
<td>12</td>
</tr>
<tr>
<td>A014TX</td>
<td>1.43</td>
<td>436</td>
<td>1610</td>
<td>300</td>
<td>1/2&quot;</td>
<td>16</td>
<td>77</td>
<td>17</td>
</tr>
</tbody>
</table>

A001TX - A014TX including pre- and afterfilter. A001TX - A014TX following PED 97/23EC Cat. IV. Electric supply 230 V / 50Hz/60Hz, Electr. Consumption max. 50 watt.

#### Heatless regeneration pressure swing adsorption dryers

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity* m³/min</th>
<th>Width</th>
<th>Dimension mm</th>
<th>Depth</th>
<th>Connection</th>
<th>Pressure bar</th>
<th>Weight Kg</th>
<th>Pre-/after filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A001TXA</td>
<td>0.13</td>
<td>445</td>
<td>390</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>A002TXA</td>
<td>0.25</td>
<td>445</td>
<td>565</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>A004TXA</td>
<td>0.42</td>
<td>432</td>
<td>815</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>A006TXA</td>
<td>0.58</td>
<td>432</td>
<td>1085</td>
<td>210</td>
<td>1/4&quot;</td>
<td>16</td>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>A009TXA</td>
<td>0.93</td>
<td>632</td>
<td>1185</td>
<td>300</td>
<td>3/8&quot;</td>
<td>16</td>
<td>72</td>
<td>12D</td>
</tr>
<tr>
<td>A012TXA</td>
<td>1.2</td>
<td>632</td>
<td>1411</td>
<td>300</td>
<td>3/8&quot;</td>
<td>16</td>
<td>90</td>
<td>12D</td>
</tr>
<tr>
<td>A014TXA</td>
<td>1.43</td>
<td>632</td>
<td>1611</td>
<td>300</td>
<td>1/2&quot;</td>
<td>16</td>
<td>107</td>
<td>17D</td>
</tr>
</tbody>
</table>

A001TXA - A014TXA including pre- and after-filter. A001TXA - A014TXA following PED 97/23EC Cat. IV. Electric supply 230 V / 50Hz/60Hz. Electr. Consumption max. 50 watt.

#### Heat regenerative thermal swing adsorption dryers

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity* m³/min</th>
<th>Width</th>
<th>Dimension mm</th>
<th>Depth</th>
<th>Connection</th>
<th>Pressure bar</th>
<th>Weight Kg</th>
<th>Pre-/after filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A40R (E/S/EDS)</td>
<td>3.96</td>
<td>321</td>
<td>1578</td>
<td>717</td>
<td>2&quot;</td>
<td>10.5</td>
<td>150</td>
<td>132</td>
</tr>
<tr>
<td>A80R (E/S/EDS)</td>
<td>7.93</td>
<td>321</td>
<td>1578</td>
<td>947</td>
<td>2&quot;</td>
<td>10.5</td>
<td>245</td>
<td>132</td>
</tr>
<tr>
<td>A120R (E/S/EDS)</td>
<td>11.9</td>
<td>321</td>
<td>1578</td>
<td>1177</td>
<td>2½&quot;</td>
<td>10.5</td>
<td>325</td>
<td>240</td>
</tr>
<tr>
<td>A160R (E/S/EDS)</td>
<td>15.85</td>
<td>321</td>
<td>1578</td>
<td>1407</td>
<td>2½&quot;</td>
<td>10.5</td>
<td>440</td>
<td>240</td>
</tr>
<tr>
<td>A190R (E/S/EDS)</td>
<td>19.82</td>
<td>321</td>
<td>1578</td>
<td>1637</td>
<td>2½&quot;</td>
<td>10.5</td>
<td>565</td>
<td>240</td>
</tr>
</tbody>
</table>

Electr. connect 415V/3ph + neutral / 50-60Hz

*) referred to 1 bar (abs) and 20 °C
INNOVATIVE PRODUCTS AND SERVICES
– TRUST COMPAIR TO SUPPLY INTELLIGENT COMPRESSED AIR SOLUTIONS

With over 200 years of engineering excellence, the CompAir brand offers an extensive range of highly reliable, energy efficient compressors and accessories to suit all applications.

An extensive network of dedicated CompAir sales companies and distributors across all continents provide global expertise with a truly local service, ensuring our advanced technology is backed up with the right support.

As part of the worldwide Gardner Denver operation, CompAir has consistently been at the forefront of compressed air systems development, culminating in some of the most energy efficient and low environmental impact compressors on the market today, helping customers achieve or surpass their sustainability targets.

COMPAIR COMPRESSED AIR PRODUCT RANGE

Advanced Compressor Technology

Lubricated
• Rotary Screw
  > Fixed and Regulated Speed
• Piston
• Portable

Oil-Free
• Water Injected Screw
  > Fixed and Regulated Speed
• Two Stage Screw
  > Fixed and Regulated Speed
• Piston
• High Speed Centrifugal - Quantima®

Complete Air Treatment Range
• Filter
• Refrigerant Dryer
• Desiccant Dryer
• Condensate Management
• Heat of Compression Dryer

Modern Control Systems
• CompAir DELCOS Controllers
• SmartAir Master Sequencer

Value Added Services
• Air Audit
• Performance Reporting
• Leak Detection

Leading Customer Support
• Custom Engineered Solutions
• Local Service Centres
• Genuine CompAir Parts and Lubricants

CompAir policy is one of continuous improvement and we therefore reserve the right to alter specifications and prices without prior notice. All products are sold subject to the Company’s conditions of sale.