CompAir



# High Efficiency Compressed Air Dryers


## Adsorption Dryers Classical System

INTELLIGENT AIR TECHNOLOGY

# CompAir Heatless Regenerative Adsorption Dryers A18TX - A930TX and A18TXA - A157TXA

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 $CO_2$ 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.

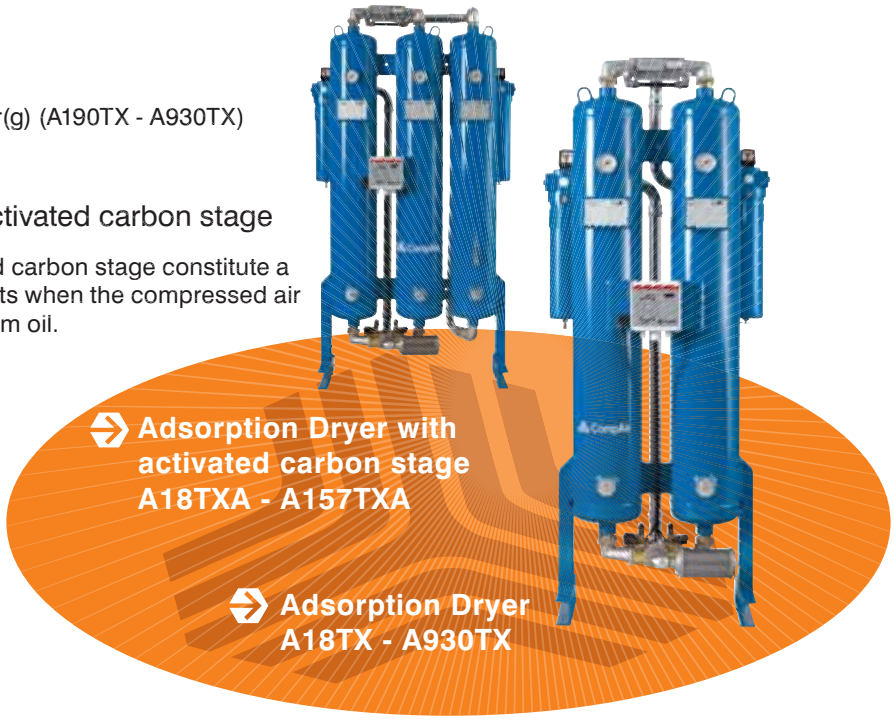
## Adsorption Dryers A18TX - A930TX

- Heatless Regeneration-Pressure-Swing Adsorption
- Capacity: 1,75 - 102 m³/min
- Pressure dewpoints -25 °C / -40 °C / -70 °C
- Particle removal <3 micron
- Multitronic control
- Design pressure 16 bar(g) (A18TX - A157TX) and 10 bar(g) (A190TX - A930TX) (higher design pressures available on request)

## Adsorption Dryers A18TXA - A157TXA with activated carbon stage

Adsorption dryers of the Series A TX as unit with activated carbon stage constitute a reliable purification unit which meets extreme requirements when the compressed air must not only be dried, but also be odourless and free from oil.

- Heatless Regeneration-Pressure-Swing Adsorption
- Capacity: 1,75 - 15,67 m³/min
- Pressure dewpoints -25 °C / -40 °C / -70 °C
- Particle removal <3 micron
- Remaining oil content 0,003 mg/m³
- Multitronic control
- Design pressure 16 bar(g) (higher design pressures available on request)

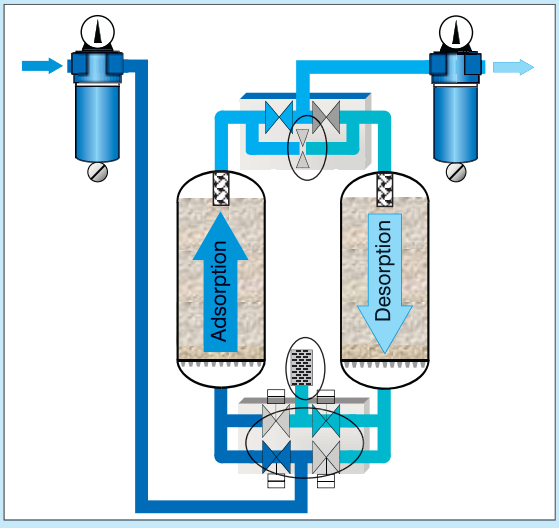



## Operating Procedure

**Pre-filtration**
pre-filter removal efficiency:
- 99,9999 % of particles and liquids down to 0.01 micron
- oil down to 0.01mg/m³
- incl. float drain

**Adsorption (drying)**
Air flow through the vessel from bottom to top. The desiccant adsorbs the water vapour from the compressed air up to achieve a pressure dewpoint of -25 / -40 or -70 °C.

**Re-pressurisation**
- Re-pressurisation takes place with the aid of a calibrated orifice when exhaust valves are closed




**After-filter**
- at the outlet of the dryers an after-filter removes any desiccant dust which may migrate from the desiccant bed. < 3 micron removal.
- incl. manual drain

**Desorption (regeneration)**
Regeneration air (purge air) expands via the calibrated orifice, flowing from top to bottom.

The moisture retained during the adsorption phase is removed with the partial flow of dry purge air via a silencer.

# CompAir Heatless Regenerative Adsorption Dryers

## A18TX - A930TX and A18TXA - A157TXA

**Dryer pressure vessels**
welded design in accordance with
PED (European Pressure vessel requirements).
Minimum of 1,000,000 pressure swing cycles
***> 10 years continuous operation***

**10-minute cycle**
12 pressure swings per hour ensure a maximum purge air requirement of 14.3 % in comparison with in the market usually used 6 minutes (purge air requirement of 18.1 %)
***= 5.6 % energy saving***

**Desiccant**
highly activated desiccant ensures stable pressure dewpoints of –25 °C / –40 °C / –70 °C
***> for high process security***

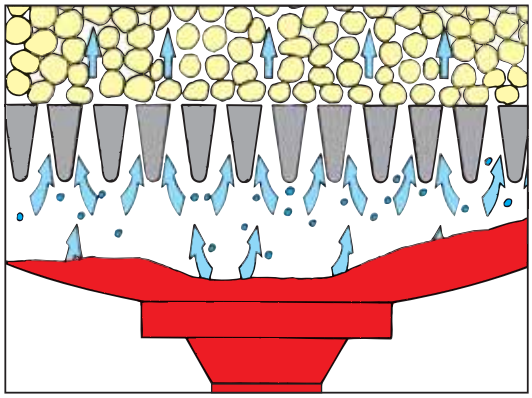
**Valve design**
directly acting main and exhaust valves.
Precise valve setting
***> stability in all operating conditions***

**Regeneration cycle**
operating condition are exactly preset of the purge air (passive pre-setting of the purge air)
***> adjustable via the multitronic control system***

**Wet area in receiver**
self-cleaning wedge wire desiccant support screen, located at the inlet of each vessel protects the desiccant against extensive moisture loading
***> i.e. extended service life***

**Optional:**

- **Dewpoint dependent switching ZHM100**
  Pressure dewpoint measurement, including digital display and remote outputs. Complete with dewpoint sensor, flow-chamber and capillary. Reduces operating costs above 60 % proportionally in line with partial load
- **Pneumatic control**
- **Soft start device recommended at fluctuating use of the dryer**
- **Pressure dewpoint -70 °C for highest air quality application**



Self-cleaning wedge-wire desiccant support screen, located at the inlet of each vessel protects the desiccant against extensive moisture loading

## Multitronic control

**Multitronic, ideally suited to meet the monitoring requirements of heatless adsorption drying. This flexible control system enables parameters to be adjusted to suit even the most arduous of operating conditions. From continuous monitoring and status feedback to pressure dewpoint control, Multitronic provides the user with valuable "need to know" information.**

- Allows to adjust drying time
- Operating status LEDs on the control box display indicate:
  - Operational status
  - Adsorption-phase
  - Desorption-phase
  - Economy cycle
- Selector switch I-0-2 for fixed or variable cycle setting (compressor synchronisation optional)
- Direct pressure dewpoint measurement including digital display
- Remote output for setting the value of the pressure dewpoint limit
- Adjustable target dewpoint from -25 °C to -40 °C.

# Vacuum Heat-Regenerative Adsorption Dryers
## A70TV - A2417TV

**The A70TV - A2417TV vacuum heat-regenerative adsorption dryer range extends the available dryer capacity even further, providing optimum efficiency, reliability and a constant high-level of performance. This level of efficiency is especially reflected in proven, accurate dewpoint measurement. The constant reproduceable dewpoint is achieved using a split-bed of propriety desiccant, whilst regeneration is undertaken in a vacuum. This type of regeneration utilising active-heating and intensive vacuum supported cooling defines the industry standard for heat-regenerative dryers.**

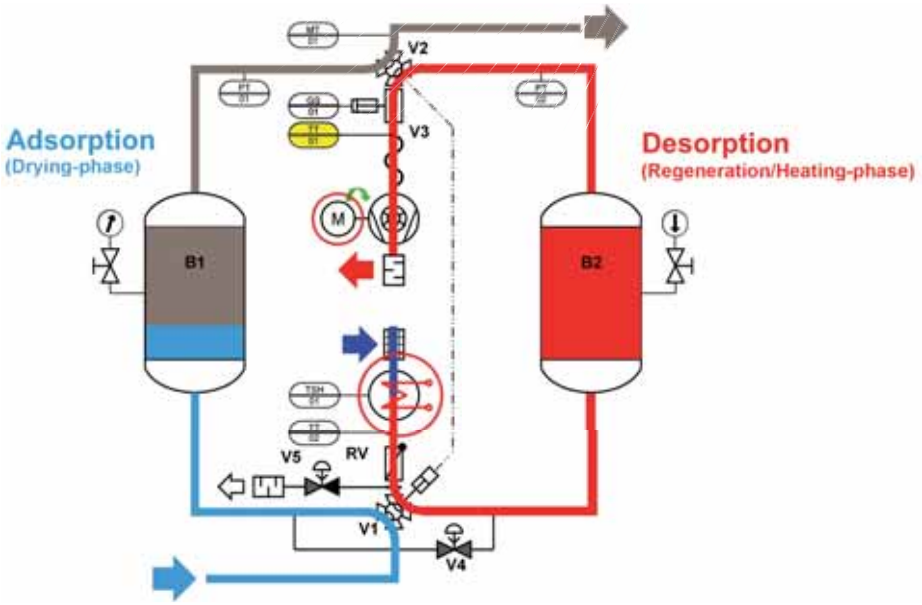
### Adsorption Dryers A70TV - A2417TV

- Heat Regeneration-Pressure-Swing Adsorption
- Capacity: 7 – 241 m³/min
- Pressure dewpoints -25 ˚C / -40 ˚C / -70 ˚C
- Design pressure 10 bar(g) (higher design pressures available on request)
- Design temperature (design limits). Adsorption 60 °C / Regeneration 200 °C. Higher temperatures on request
- Dryer memory control
- Self-cleaning wedge-wire desiccant support screen, located at the inlet of each vessel protects the desiccant against extensive moisture loading


### Options

- Dewpoint control
- Voltage-free connection for pressure dewpoint remote monitoring

## Operating Procedure



# CompAir Vacuum Heat-Regenerative Adsorption dryers

## A70TV - A2417TV

- **Low energy costs**
  Savings of up to 25 % possible when compared to conventional systems.
- **Dual split-bed desiccant**
  An optimum balance between water resistant and water retentive adsorption material for dewpoint stability.
- **Active heating under vacuum**
  Enabling a vaporization temperature of 98 °C.
- **Low regeneration temperature**
  Enabling desorption of the moisture under vacuum conditions.
- **Intensive cooling**
  Takes place in a vacuum at full vacuum pump capacity without temperature increase.
- **Regeneration performed without purge air**
  Due to high temperature differential even towards the end of the short cooling-phase.
- **Re-pressurisation on the wet-side**
  Guarantees zero purge air requirement. Air is solely used for pressure stabilisation.
- **Reliable dewpoints - down to -70 °C available**
  Standard dewpoints of -25 °C and -40 °C available.
- **Changeover avoiding dewpoint peak**
  Atmospheric moisture entering the desiccant bed during the regeneration and cooling phase never reaches the drying zone (i.e. Regeneration with atmospheric air entering the dryer from bottom to top).
- **Operating status and alarms**
  Monitor pressure, inlet temperature, heating, vacuum pump operation and receiver changeover.
- **Alternative regeneration methods**
  Optional methods of regeneration such as steam and/or hot water and Heat of Compression, are available on request. Please consult your CompAir partner for further details.

## Electronic dryer control panel (DMC) with full-colour LCD touch-panel display

- **Colour LCD touch display**
  (320 x 240 Pixel) user-friendly menu guide,
  protection class IP65, size (w x h x d: 177 x 134 x 60mm).
- **Integrated colour schematic diagram with status indication**
- **2 MB internal memory and 256 KB SD card for permanent trend-recording**
  The last 4 weeks data are held via a trend display, for full process evaluation.
- **Programming language STEP7** (= Siemens S7)
  simple re-programming with SIEMENS-SIMATIC-S7-Manager, for special applications and customer requirements.
- **Ethernet connection** (RJ45 and Traffic-LEDs),
  (for data transfer and remote operation, (RFC1006, Send, Receive, Read, Write)
- **Communication modules available**
  (Profibus, DP-Master or Slave)


# CompAir Compressed Air Microfilters

## Our proven and reliable microfilter-technology.

Adsorption dryers are designed specifically 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 can the removal of these contaminants be guaranteed and air quality in accordance with ISO 8573-1 : 2001 be delivered. Compressed air filters are now recognised as being an integral part of the dryer system.
Dust, dirt and oil mist filtration is common enough today. CompAir emphasises, not only the filtration efficiency but, importantly, links this to energy costs in terms of pressure differential, product consistency and reliability.

## CompAir Filter

**Housings with threaded connection from G 1/4 to G2**
- High grade aluminium casting
- Alochromed internally and externally to prevent corrosion
- Powder coated to ensure top quality protective finish

**Flanged housings DN 80 to DN 200**
- Welded mild steel vessels
- Sand blasted, cleaned and degreased
- Polyester primed internally and externally
- Acrylic paint outside

Both types of housings are built to the highest quality standards thanks to the attention of quality surface treatment, CompAir offers a 10 year guarantee on the filter housings.

**Available AF filter grades**

| Filter elements (efficiency, residual oil content) | |
|---|---|
| **Prefilter Series XPD** | **99.99999 % (0,01 µm) – 0.01 mg/m³ residual oil content (1 bar, 20 °C)** |
| **Afterfilter Series VHD** | **99.99 % (3 µm) (1 bar, 20 °C)** |

**Optional:**

- **Differential pressure gauge, delta p**
- **Deltatronic**
- **Zero air loss drain**
- **Extra pre-filter with 1 micron efficiency**

| Conversion factor pressure/temperature for Heatless Adsorption Dryer | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature °C | Pressure bar(g) | | | | | | | | | | | |
| | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 35 | 0.75 | 0.89 | 1.00 | 1.08 | 1.26 | 1.31 | 1.36 | 1.49 | 1.62 | 1.71 | 1.79 | 1.90 |
| 40 | 0.64 | 0.78 | 0.91 | 1.00 | 1.08 | 1.16 | 1.24 | 1.36 | 1.47 | 1.57 | 1.67 | 1.77 |
| 45 | 0.61 | 0.73 | 0.82 | 0.94 | 1.03 | 1.07 | 1.10 | 1.23 | 1.35 | 1.46 | 1.57 | 1.66 |
| 50 | 0.59 | 0.67 | 0.79 | 0.86 | 0.99 | 1.03 | 1.07 | 1.18 | 1.29 | 1.38 | 1.46 | 1.55 |

**Example of calculation**
**Heat Regenerative Adsorption Dryer:**
a) Compressed air to be treated

| | |
|---|---|
| Flow: | 50 m³/min |
| Pressure: | 5 bar(g) |
| Maximum inlet temp: | 30 °C |
| Dew-point: | -25 °C |
| Factor from table: | 0.80 |

$$\frac{\text{flow}}{\text{conversion factor}} = \frac{50\ \text{m}^3/\text{min}}{0.80} = 62.5\ \text{m}^3/\text{min}$$

**choose: Typ A683TV**

b) Calculation of maximum flow.
Flow x conversion factor
68.33 x 0.80 = 54.67 m³/min

c) Reserve available equals maximum flow - actual flow
54.67 m³/min - 50 m³/min = 4.67 m³/min

| Conversion factor pressure/temperature for Heat Regenerative Adsorption Dryer | | | |
|---|---|---|---|
| bar(g) | 30°C | 35°C | 40°C |
| 4 | 0.69 | 0.44 | 0.28 |
| 5 | 0.80 | 0.62 | 0.42 |
| 6 | 0.90 | 0.80 | 0.59 |
| 7 | 1.02 | 1.00 | 0.70 |
| 8 | 1.06 | 1.05 | 0.79 |
| 9 | 1.17 | 1.16 | 0.88 |
| 10 | 1.29 | 1.28 | 0.96 |

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# Technical Data – Heatless Adsorption Dryers

| Type | Capacity* m³/min | Dimensions in mm Width | Height | Depth | Connection | Pressure bar | Weight kg | Pre-/after filter AF_XP(D)/AF_VHD |
|---|---|---|---|---|---|---|---|---|
| A018TX | 1.75 | 670 | 1445 | 510 | G 1 | 16 | 125 | 30 |
| A024TX | 2.4 | 670 | 1690 | 515 | G 1 | 16 | 143 | 30 |
| A033TX | 3.3 | 670 | 1710 | 530 | G 1 | 16 | 178 | 50 |
| A043TX | 4.2 | 710 | 1770 | 535 | G 1 | 16 | 218 | 50 |
| A058TX | 5.8 | 841 | 1790 | 570 | G 1½ | 16 | 252 | 80 |
| A070TX | 7 | 841 | 1815 | 570 | G 1½ | 16 | 286 | 80 |
| A103TX | 10.3 | 841 | 1845 | 590 | G 1½ | 16 | 375 | 120 |
| A125TX | 12.5 | 1010 | 1980 | 610 | G 2 | 16 | 430 | 120 |
| A157TX | 15.6 | 1010 | 2000 | 630 | G 2 | 16 | 505 | 160 |
| A018TX - A157TX including pre- and after-filters. A018TX - A157TX in accordance with PED 97/23EC Cat. II-III | | | | | | | | |
| A190TX | 20 | 1060 | 2080 | 840 | 50 | 10 | 640 | 310 |
| A250TX | 25.8 | 1270 | 2120 | 900 | 65 | 10 | 830 | 310 |
| A320TX | 33.3 | 1350 | 2160 | 990 | 65 | 10 | 955 | 490 |
| A390TX | 41.6 | 1530 | 2210 | 1040 | 80 | 10 | 1075 | 490 |
| A490TX | 50 | 1600 | 2255 | 1100 | 80 | 10 | 1500 | 620 |
| A630TX | 63.3 | 1875 | 2385 | 1200 | 100 | 10 | 1990 | 925 |
| A770TX | 80.8 | 1925 | 2660 | 1250 | 100 | 10 | 2410 | 925 |
| A930TX | 101.6 | 2160 | 2820 | 1565 | 125 | 10 | 2850 | 1230 |
| A190TX - A930TX including pre- and after-filters (not mounted). A190TX - A930TX in accordance with PED 97/23EC Cat. IV | | | | | | | | |
| A018TXA | 1.75 | 870 | 1445 | 510 | G 1 | 16 | 158 | 30 |
| A024TXA | 2.4 | 870 | 1690 | 515 | G 1 | 16 | 183 | 30 |
| A033TXA | 3.3 | 1010 | 1710 | 530 | G 1 | 16 | 235 | 50 |
| A043TXA | 4.2 | 1075 | 1770 | 535 | G 1 | 16 | 295 | 50 |
| A058TXA | 5.8 | 1096 | 1790 | 570 | G 1½ | 16 | 340 | 80 |
| A070TXA | 7 | 1145 | 1815 | 570 | G 1½ | 16 | 390 | 80 |
| A103TXA | 10.3 | 1295 | 1845 | 590 | G 1½ | 16 | 525 | 120 |
| A125TXA | 12.5 | 1610 | 1980 | 610 | G 2 | 16 | 570 | 120 |
| A157TXA | 15.6 | 1650 | 2000 | 630 | G 2 | 16 | 685 | 160 |
| A018TXA - A157TXA including pre- and after-filters. A018TXA - A157TXA in accordance with PED 97/23EC Cat. II-III<br>*) referred to 1 bar (abs) and 20 °C. Electric supply 230 V (I phase) / 50Hz (option: 115V/60Hz/24VDC), Electr. Consumption max. 40 watt. | | | | | | | | |

# Technical Data – Heat Regenerative Adsorption Dryer

| Type | Capacity* m³/min | Dimensions in mm Width | Height | Depth | Connection DN | Weight Kg | Electr. Consumption in kWh/h | Pre-/after filter AF_XP(D)/AF_VHD |
|---|---|---|---|---|---|---|---|---|
| A70TV | 7 | 1215 | 1955 | 992 | 40 | 460 | 3.1 | 80 |
| A85TV | 8.5 | 1215 | 2205 | 992 | 40 | 560 | 3.8 | 120 |
| A107TV | 10.6 | 1305 | 2250 | 1085 | 50 | 750 | 5.2 | 120 |
| A142TV | 14 | 1360 | 2275 | 1120 | 50 | 800 | 6.7 | 160 |
| A197TV | 19.6 | 1560 | 2665 | 1265 | 80 | 1150 | 10.9 | 310 |
| A250TV | 25 | 1610 | 2680 | 1265 | 80 | 1350 | 12.8 | 310 |
| A330TV | 33 | 1700 | 2730 | 1595 | 80 | 1720 | 16.3 | 490 |
| A392TV | 39 | 2020 | 2845 | 1450 | 100 | 1880 | 18.1 | 490 |
| A488TV | 49 | 2090 | 2870 | 1580 | 100 | 2350 | 22.5 | 620 |
| A592TV | 59 | 2170 | 2940 | 1740 | 100 | 2850 | 27.9 | 925 |
| A683TV | 68 | 2450 | 3190 | 1780 | 150 | 4000 | 32.5 | 925 |
| A790TV | 79 | 2550 | 3210 | 2110 | 150 | 4100 | 38.9 | 925 |
| A875TV | 87.5 | 2550 | 3230 | 1955 | 150 | 4200 | 44.8 | 925 |
| A1035TV | 103.5 | 2600 | 3500 | 1910 | 150 | 4950 | 52.3 | 1230 |
| A1183TV | 118 | 2650 | 3520 | 1940 | 150 | 5700 | 56.3 | 1850 |
| A1333TV | 133 | 3100 | 3585 | 2180 | 200 | 6400 | 67.2 | 1850 |
| A1533TV | 153 | 3150 | 3605 | 2300 | 200 | 7400 | 75.6 | 1850 |
| A1800TV | 180 | 3250 | 3670 | 2355 | 200 | 8700 | 85.3 | 2470 |
| A2050TV | 205 | 3500 | 3855 | 2515 | 250 | 11500 | 98.9 | 2470 |
| A2417TV | 241.6 | 3600 | 3895 | 2570 | 250 | 13500 | 111.4 | 3080 |
| A70TV - A2417TV including pre- and after-filters (not mounted), in accordance with PED 97/23EC Cat. IV<br>*) referred to 1 bar (abs) and 20 °C. Electric supply 400 V/50Hz | | | | | | | | |

CompAir

*A Gardner Denver Company*

# *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®

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- Desiccant Dryer
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- Heat of Compression Dryer

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