CompAir

High Efficiency Compressed Air Dryers

Adsorption Dryers
Classical System

INTELLIGENT AIR TECHNOLOGY

CompAir Heatless Regenerative Desiccant 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.

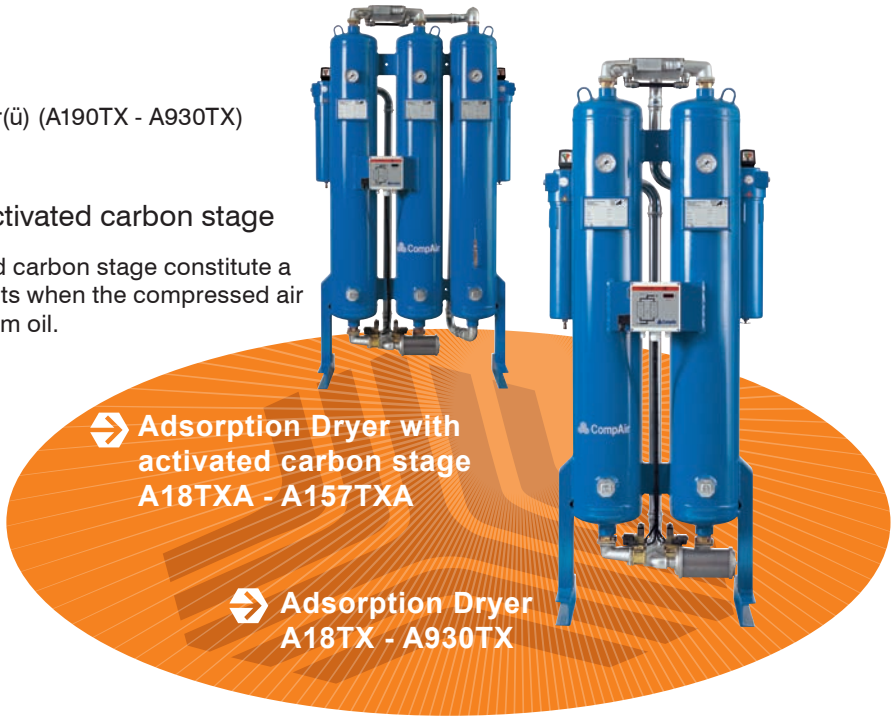
Adsorption Dryers A18TX - A930TX

- 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(ü) (A18TX - A157TX) and 10 bar(ü) (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 by 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)

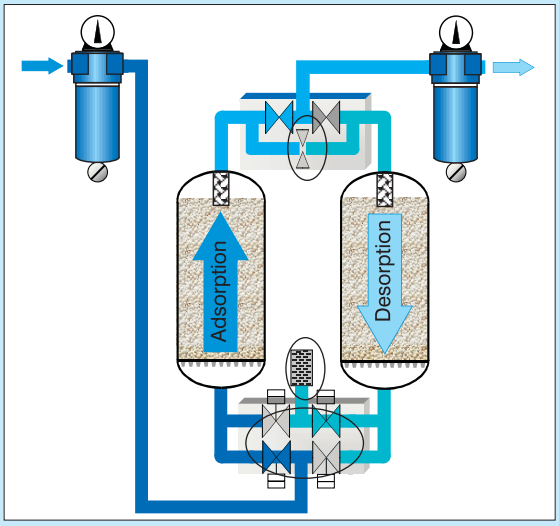


Operating Procedure

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 Desiccant 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

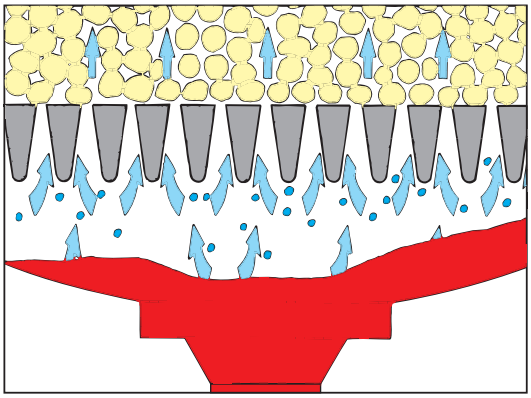
Desiccant
highly activated desiccant ensures stable pressure dewpoints of –25°C / –40°C / –70°C
> for high process security

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

- **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 controls**
- **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

Optional:

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 drying time to be adjusted up to 240 h
- Operating status LED´s on the control box facia 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.

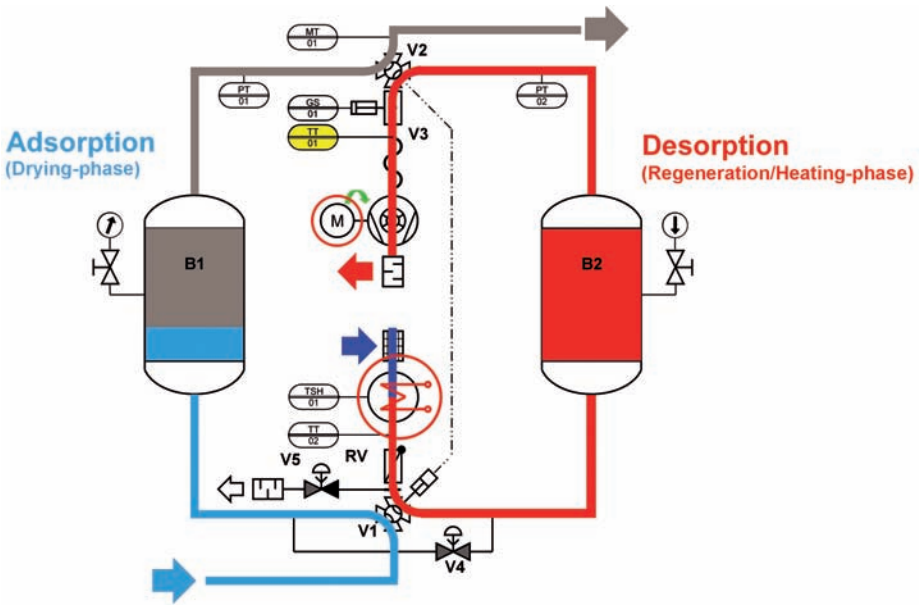
Vacuum Heat-Regenerative Adsorption Dryers
A70TV - A2417TV

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 16 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

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 nearly 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).

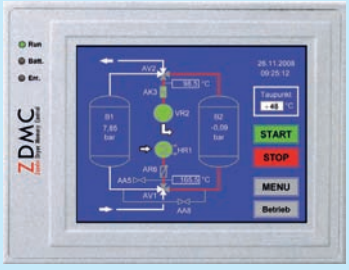
- **Integrated colour schematic diagram with status indication**

- **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-LED´s),
  (for data transfer and remote operation, (RFC1006, Send, Receive, Read, Write)

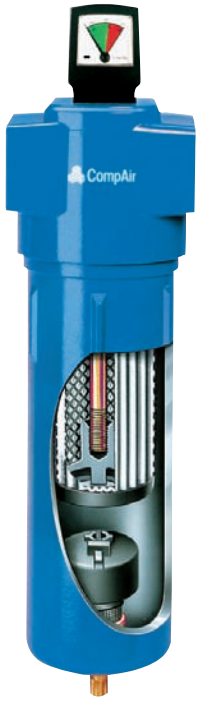
- **Communication modules available**
  (Profibus, DP-Master or Slave)



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 is 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(e)											
	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

Conversion factor pressure/temperature for Heat Regenerative Adsorption Dryer			
bar(ü)	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

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

Flow:	50 m³/min
Pressure:	5 bar (ü)
Maximum inlet temp:	30°C
Dew-point:	-25°C
Factor from table:	0,80

$$\frac{\text{flow}}{\text{conversion factor}} = \frac{50\ m^3/min}{0{,}80} = 62{,}5\ m^3/min$$

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

CompAir

Technical Data – Heatless Adsorption Dryers

Concept	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. IV								
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
A200TX - A1017TX excluding pre- and after-filters. KEA190TX - 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. IV *) referred to 1 bar (abs) and 20 °C. Electric supply 230 V (I phase) / 50Hz (option: 115V/60Hz/24VDC), Electr. Consumption 50 watt.								

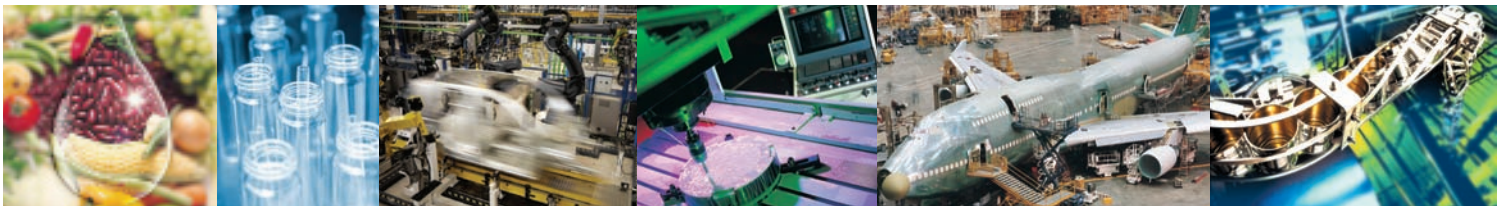
Technical Data – Heat Regenerative Adsorption Dryer

Type concept	Capacity* m³/min	Dimensions in mm A	B	C	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. A018TXA - A157TXA in accordance with PED 97/23EC Cat. IV *) referred to 1 bar (abs) and 20 °C. Electric supply 230 V (I phase) / 50Hz (option: 115V/60Hz/24VDC), Electr. Consumption 50 watt.								

CompAir

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.

www.compair.com
sales@compair.com

Brochure re-order ref. 91005-577EN 04/10 CI