

High Efficiency Compressed Air Dryers



➤ **Adsorption Dryers
Classical System**

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 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.

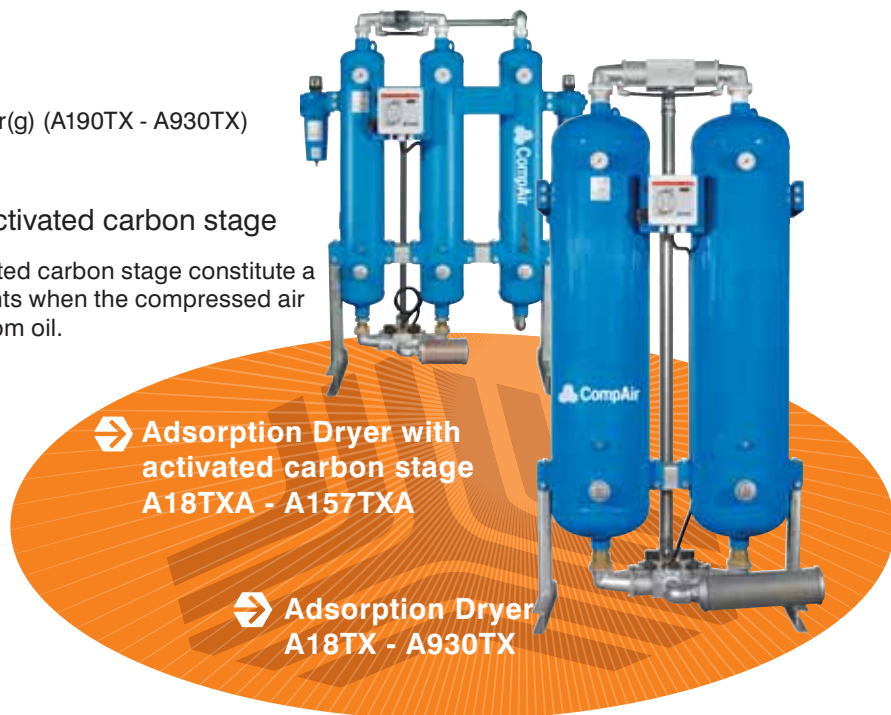
➤ **Adsorption Dryers A18TX - A930TX**

- Heatless Regeneration-Pressure-Swing Adsorption
- Capacity: 2.0 – 95 m³/min
- Pressure dewpoints -25 °C / -40 °C / -70 °C
- Adsorption dryer pre and after filter, AF series
- 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_TXA 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: 2.0 – 17 m³/min
- Pressure dewpoints -25 °C / -40 °C / -70 °C
- Adsorption dryer pre and after filter, AF series
- Remaining oil content 0.003 mg/m³
- Multitronic control
- Design pressure 16 bar(g)



➤ **Operating Procedure**

Pre-filtration

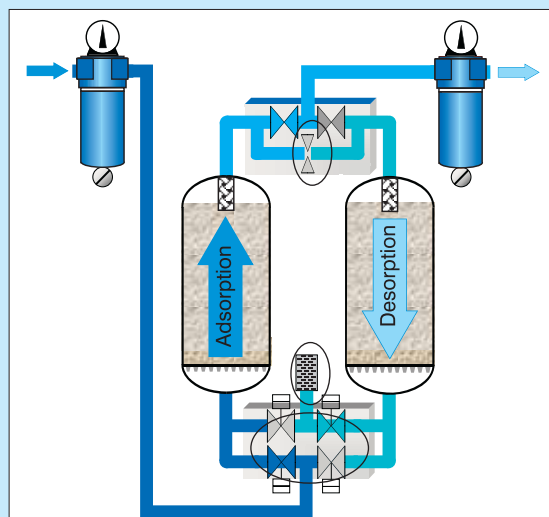
- pre-filter removal efficiency:
- 99,9999 % of particles and liquids down to 0.01 micron
 - oil down to 0.01mg/m³
 - incl. float drain

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. ≤ 1 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**

A18TX(A)T - A157TX(A)T with factory mounted energy saving dew point control and remote monitoring

Accessories not fixed, retrofit

Dew point meter for dew point dependent control
Signal splitter, for remote monitoring
Regeneration gas return at synchronous control
Soft start device at low system pressure
Filter silencer for further noise reduction
Electronic delta p gauge for pre and after filter
Zero loss drain Bekomat for pre filter

Options factory fitted on request

Marine painting
Pneumatic version, A18TXP - A157TXP
Vessel approval ASME VIII Div.1

A190TXT - A930TXT with factory mounted energy saving dew point control and remote monitoring

Regeneration gas return at synchronous control
Soft start device at low system pressure
Filter silencer for further noise reduction
Electronic delta p gauge for pre and after filter, not fitted
Zero loss drain Bekomat for pre filter not fitted


Options factory fitted on request

Marine Painting
Vessel Approval ASME VIII Div.1
Design PN 16
Stainless steel vessels


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 -70 °C.



A70TVTT – A2417TVTT

The vacuum heat-regenerative adsorption dryer range providing optimum efficiency, reliability and a constant high-level of performance. This level of efficiency is especially reflected in proven, accurate dewpoint control. 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.

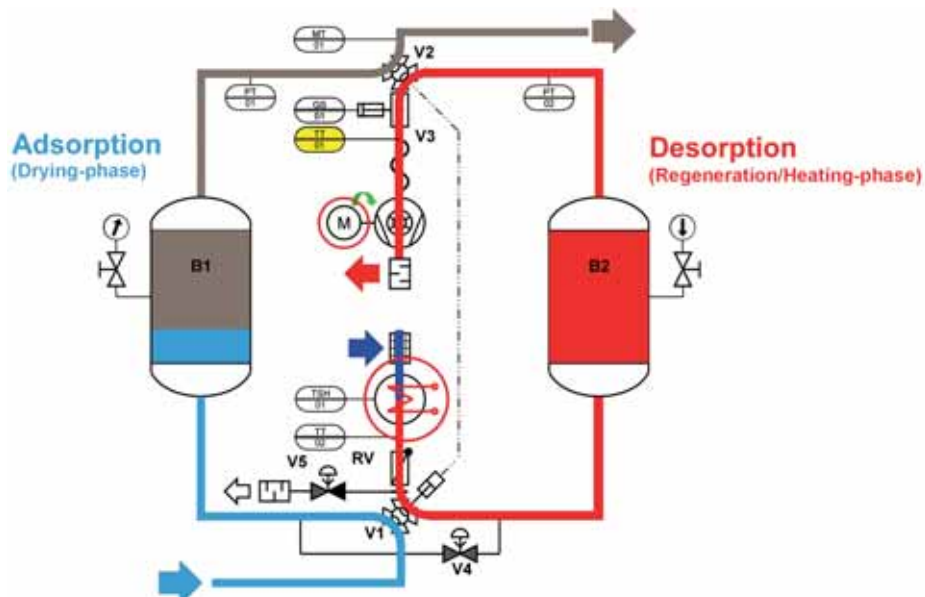
➤ Adsorption Dryers A70TVTT - A2417TVTT

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



➤ Adsorption Dryer A70TVTT - A2417TVTT

➤ Operating Procedure



- ➔ **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**
Standard dewpoints -25 °C and -40 °C.
- ➔ **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**
Pressure, inlet temperature, heating, vacuum pump, operation and receiver changeover.
- ➔ **Options factory fitted**
PROFIBUS interface
Control S7 Siemens
Insulation of surfaces > 60 °C, galvanised metal sheet cover
Marine Painting
- ➔ **Customised design on request**
Regeneration using heat of compression or steam
Design PN 16, stainless steel, certification according to alternative rules
Loop system in closed circuit cooling the atmospheric regeneration air-recommended at high ambient temperature

➔ Electronic dryer control panel (ZDMC) with full-colour LCD touch-panel display

- ➔ **Colour LCD touch display**
(320 x 240 Pixel) user-friendly menu guide, protection class IP65.
- ➔ **Integrated colour schematic diagram with status indication**
- ➔ **2 MB internal memory and 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.
- ➔ **ModBus and Ethernet connection** (RJ45 and Traffic-LEDs),
(for data transfer and remote operation, (RFC1006, Send, Receive, Read, Write)
- ➔ **Energy saving dew point dependent control and remote monitoring**
Single alarm potential free contacts



⇒ Adsorption Dryer Pre and After Filter, AF-Series

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

– validated according to ISO12500 – the removal of these contaminants is guaranteed and air quality in accordance with ISO 8573-1 : 2010

can 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 low pressure differential, product consistency and reliability.



⇒ CompAir Filter

Housings with threaded connection from G 1/4 to G2 1/2", DIN EN ISO228 (BSPP)

- High grade aluminium casting
- Alchromed internally and externally to prevent corrosion
- Epoxyd powder coated to ensure top quality of protective finish

Flanged housings DN 80 to DN 250, DIN EN 1092-1

- 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.



Filter for adsorption dryers with pressure differential gauge

Filter elements	
Prefilter Series AF_XL(D)	Efficiency 99.9999 %, particles ≤ 0.01µm, rest oil ≤ 0.01mg/m ³ (1 bar, 20 °C)
Afterfilter Series AF_LH(D)	Efficiency 99.95%, particles ≤ 1µm (1 bar, 20 °C)

Accessories:

- **Electronic delta p gauge for pre and after filter**
- **Zero loss drain Bekomat for pre filter**



Conversion factor for dryer capacity, A18TX to A930TX												
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

Conversion factor for dryer capacity, A70TVT to A2417TVT			
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

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.

$$\text{Flow x conversion factor} = 68.33 \times 0.80 = 54.67 \text{ m}^3/\text{min}$$

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

Type	Capacity*	Dimensions in mm			Inlet & Outlet Connection	Weight	Pre-filter	After-filter
	m³/min	Width	Height	Depth	EN ISO 228-1	kg	Type	Type
A018TX	2.05	870	1420	490	G1"	120	AF030XLD	AF030LHD
A024TX	2.69	870	1750	490	G1"	142	AF030XLD	AF030LHD
A033TX	3.36	670	1530	490	G1"	143	AF030XLD	AF030LHD
A043TX	4.45	670	1760	530	G1 1/2"	173	AF050XLD	AF050LHD
A058TX	5.82	830	1810	585	G1 1/2"	210	AF050XLD	AF050LHD
A070TX	7.27	860	1820	605	G1 1/2"	249	AF080XLD	AF080LHD
A103TX	10.18	910	1870	635	G2"	277	AF120XLD	AF120LHD
A125TX	13.11	1020	2000	640	G2"	408	AF120XLD	AF120LHD
A157TX	17.08	1050	2020	670	G2 1/2"	510	AF160XLD	AF160LHD

A_TXA with activated carbon stage

A018TXA	2.05	1170	1420	490	G1"	161	AF030XLD	AF030LHD
A024TXA	2.69	1170	1750	490	G1"	193	AF030XLD	AF030LHD
A033TXA	3.36	970	1530	490	G1"	193	AF030XLD	AF030LHD
A043TXA	4.45	970	1760	530	G1 1/2"	234	AF050XLD	AF050LHD
A058TXA	5.82	1260	1810	585	G1 1/2"	283	AF050XLD	AF050LHD
A070TXA	7.27	1290	1820	605	G1 1/2"	334	AF080XLD	AF080LHD
A103TXA	10.18	1350	1870	635	G2"	428	AF120XLD	AF120LHD
A125TXA	13.11	1500	2000	640	G2"	555	AF120XLD	AF120LHD
A157TXA	17.08	1550	2020	670	G2 1/2"	698	AF160XLD	AF160LHD

A190TX to A930TX with flange connection**

					DIN EN 1092-1			
A190TX	21.7	1060	2080	840	50	640	AF310XPD/DN80	AF310VHD/DN80
A250TX	26.7	1270	2120	900	65	830	AF310XPD/DN80	AF310VHD/DN80
A320TX	37.5	1350	2160	990	65	960	AF490XPD/DN80	AF490VHD/DN80
A390TX	43.3	1530	2210	1040	80	1080	AF490XPD/DN80	AF490VHD/DN80
A490TX	52.5	1600	2255	1100	80	1500	AF620XPD/DN100	AF620VHD/DN100
A630TX	66.7	1875	2385	1200	100	2000	AF925XPD/DN100	AF925VHD/DN100
A770TX	75.8	1925	2660	1250	100	2450	AF925XPD/DN100	AF925VHD/DN100
A930TX	94.8	2160	1820	1565	125	2900	AF1230XPD/DN150	AF1230VHD/DN150

Electric connection 230V / 1 / 50 – 60Hz, installed power 0,04kW, protection class IP54, on request: 115V / 1 / 60Hz and 24V DC

Technical Data – No Loss Vacuum Heat Regeneration Adsorption Dryers

Type**	Capacity*	Dimensions in mm			Inlet & Outlet Connection	Weight	Average power consumption	Pre-filter	After-filter
	m³/min	Width	Height	Depth	DIN EN 1092-1	kg	kWh/h	Type	Type
A0070TVT	7	1140	2230	990	40	460	3.5	AF0080XLD/G1 1/2"	AF0080LHD/G1 1/2"
A0085TVT	8.5	1140	2230	990	40	560	4.2	AF0120XLD/G2"	AF0120LHD/G2"
A0107TVT	10.6	1260	2300	1110	50	750	4.4	AF0120XLD/G2"	AF0120LHD/G2"
A0142TVT	14.2	1260	2300	1110	50	800	7.1	AF0160XLD/G2 1/2"	AF0160LHD/G2 1/2"
A0197TVT	19.7	1460	2690	1160	80	1154	9.8	AF0310XPD/DN80	AF0310VHD/DN80
A0250TVT	25.0	1540	2700	1200	80	1350	12.5	AF0310XPD/DN80	AF0310VHD/DN80
A0330TVT	33.0	1605	2750	1405	80	1720	14.7	AF0490XPD/DN80	AF0490VHD/DN80
A0392TVT	39.2	2025	2870	1490	100	1880	17.3	AF0490XPD/DN80	AF0490VHD/DN80
A0488TVT	48.8	2050	2890	1565	100	2350	21.3	AF0620XPD/DN100	AF0620VHD/DN100
A0592TVT	59.2	2160	2960	1750	100	2850	30.0	AF0925XPD/DN100	AF0925VHD/DN100
A0683TVT	68.3	2430	3230	1710	150	4000	33.9	AF0925XPD/DN100	AF0925VHD/DN100
A0790TVT	79.0	2490	3260	1710	150	4100	36.5	AF0925XPD/DN100	AF0925VHD/DN100
A0875TVT	87.5	2550	3265	1775	150	4200	38.8	AF0925XPD/DN100	AF0925VHD/DN100
A1035TVT	103.5	2550	3540	1865	150	4950	56.3	AF1230XPD/DN150	AF1230VHD/DN150
A1183TVT	118.3	2635	3560	1900	150	5700	61.9	AF1850XPD/DN150	AF1850VHD/DN150
A1333TVT	133.3	3085	3625	2110	200	6400	74.6	AF1850XPD/DN150	AF1850VHD/DN150
A1533TVT	153.3	3125	3645	2235	200	7400	81.3	AF1850XPD/DN200	AF1850VHD/DN200
A1800TVT	180.0	3225	3710	2285	200	8700	91.0	AF2470XPD/DN200	AF2470VHD/DN200
A2050TVT	205.0	3475	4050	2350	250	11500	94.3	AF2470XPD/DN200	AF2470VHD/DN200
A2471TVT	241.7	3500	4200	2380	250	13500	126.1	AF3080XPD/DN200	AF3080VHD/DN200

Electric connection 400 V / 3 / 50 Hz (60 Hz on request), control voltage 230 V / 1 / 50 – 60Hz, protection class IP54

*) Relating to ISO 7183, A: 1 bar (a), 20°C, inlet temperature + 35°C, saturated, at 7 barg and pressure dew point – 25 °C. USE SELECTION SOFTWARE

***) Pre- and after filter are not factory mounted

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.

