

# COMPRESSED AIR TREATMENT DRYING · FILTRATION · CONDENSATE MANAGEMENT



CLEAN  
COMPRESSED AIR

# CLEAN COMPRESSED AIR FOR THE MOST DEMANDING REQUIREMENTS



## ALMiG Kompressoren GmbH

No industrial or trade company can do without compressed air. It is used in such a wide variety of applications that it would be pointless to try to list them all.

To ensure the optimum utilisation of compressed air, it should be dry, clean and, in some cases, oil-free.

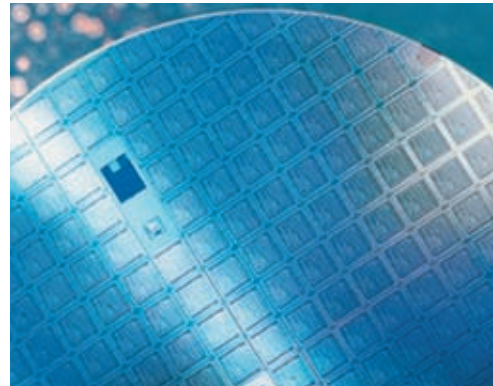
Compressed air treatment is therefore indispensable. However, if treatment is neglected or not

adapted to the individual requirement profile, this has an adverse effect on the entire compressed air system. This can lead to unnecessary production downtimes and shortens the service life of compressed air consumers.

Reason enough to ensure the correctly adjusted quality of compressed air for each individual application.

## Why compressed air treatment

- prevents corrosion, wear and damage in the mains
- improves the economic efficiency of the compressed air system
- prolongs the service life of compressed air consumers
- reduces production costs significantly
- raises the quality of your products
- increases productivity



## CYCLONE SEPARATOR · AS



Type AS	Volumetric flow rate <sup>1</sup> m <sup>3</sup> /h	Connection	Height standard mm	Height premium mm	Width mm	Weight standard kg	Weight premium kg
30	30	3/8"	220	327	90	0.6	1.4
60	60	1/2"	220	327	90	0.6	1.4
180	180	3/4"	280	387	90	0.7	1.5
300	300	1"	305	417	120	1.1	1.9
570	570	1 1/2"	385	497	120	1.3	2.1
990	990	2"	500	612	165	3.6	4.4
1320	1320	2 1/2"	500	612	165	4.7	5.5
2700	2700	3"	710	825	200	6.2	7
2400	2400	DN 100	855	855	410	41	41
3000	3000	DN 125	865	865	450	55	55
6600	6600	DN 150	890	890	520	81	81
7500	7500	DN 175	940	940	600	117	117
12000	12000	DN 200	1025	1025	650	157	157

<sup>1</sup> bars overpressure ( $\Delta p$ ), based on the intake state of the compressor (1 bar, 20 °C) | Operating overpressure max.: 16 bars (AS 30 – 2700) · 12 bars (AS 2400 – 12000)

### Cyclone separators remove liquid water from compressed air.

Cyclone separators have been developed for treating compressed air in industrial applications. Thanks to an optimised design, the three-part housing with swirl insert offers low pressure differentials at high flow rates.

Due to the conical shape of the filter housing base, entrainment of separated aerosols can be ruled out. The turbulence-free zone in the lower section of the filter housing prevents condensate from the wet area, which has already been separated, from being carried away with the air flow.

Optionally, cyclone separators with electronic condensate drains are also available in the Premium version

### Equipment features:

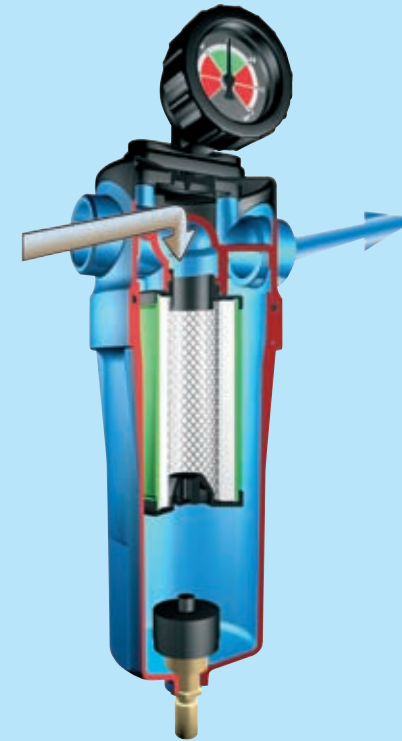
- standard version with float-type condensate drain
- premium version includes electronically controlled condensate drain to drain off condensate without any loss of compressed air

# HIGH PERFORMANCE FILTERS

The optimum filter for any requirement profile:

Type of filter	Type	Particle size $\mu\text{m}$	Residual oil content <sup>1</sup>	Residual water content <sup>2</sup> (in liquid form) $\text{mg}/\text{m}^3$
Pre-filter	AFP	5	1	available
Micro-filter	AFM	1	0.1	not available <sup>3</sup>
Submicro-filter	AFS	0.1	0.01	not available <sup>3</sup>
Act. carbon filter	AFC		0.003	not available <sup>3</sup>

<sup>1</sup> with an inlet concentration of  $3 \text{ mg}/\text{m}^3$   
<sup>2</sup> details refer to a station without upstream compressed air dryer  
<sup>3</sup> the compressed air no longer contains residual water in liquid form; if the temperature is not reduced downstream from the filter elements (air is 100 % saturated)



**Compressed air filters ensure the provision of clean air for the most demanding requirements.**

Compressed air filters can be used in a variety of applications. They are deployed wherever compressed air must be clean, dry and free from oil aerosols.

This is an exacting requirement profile considering that  $1 \text{ m}^3$  of compressed air at a final compression pressure of 10 bars can contain more than 2 billion particles and liquid molecules.

The ALMiG high performance filters are optimal to meet these requirements.

## Equipment features:

- standard version, including
  - pressure differential indicator
  - float-type drain trap
- premium version, including
  - pressure differential manometer to indicate the most economically efficient time for changing the filter element
  - electronically controlled condensate drain to remove the condensate without any pressure loss
- three-section housing with bayonet joints for simple replacement and installation of filter elements
- extremely light aluminium housing with threaded connection volumetric flow rates ranging from  $30$  to  $2640 \text{ m}^3/\text{h}$
- alternatively, for volumetric flow rates ranging between  $2700$  and  $10.800 \text{ m}^3/\text{h}$ , a steel housing with flanged connection

# AFP, AFM, AFS, AFC

## Filters with threaded connections

Filter type AFP, AFM, AFS, AFC	Volumetric flow rate		Connec- tion	Standard version <sup>1</sup>			Premium version <sup>2</sup>		
	nom.	max.		Width	Height	Weight	Width	Height	Weight
	m <sup>3</sup> /h	m <sup>3</sup> /h		mm	mm	kg	mm	mm	kg
30	30	37	3/8"	233	90	0.7	392	90	1.5
60	60	75	1/2"	233	90	0.7	392	90	1.5
108	108	135	3/4"	293	90	0.8	452	90	1.6
180	180	225	3/4"	293	90	0.8	452	90	1.6
204	204	255	1"	328	120	1.2	487	120	2
300	300	375	1"	328	120	1.3	487	120	2.1
432	432	540	1 1/2"	408	120	1.4	567	120	2.3
570	570	710	1 1/2"	408	120	1.5	567	120	2.4
750	750	935	2"	523	165	3.8	682	165	4.6
990	990	1235	2"	523	165	3.9	682	165	4.8
1140	1140	1425	2 1/2"	698	165	4.9	857	165	5.7
1320	1320	1650	2 1/2"	698	165	5	857	165	5.8
1680	1680	2100	3"	735	200	6.8	894	200	7.6
2100	2100	2625	3"	888	200	8	1047	200	8.8
2640	2640	3300	3"	1008	200	8.9	1167	200	9.7

all details based on 1 bar (abs), + 20 °C, 70 % r. h.

<sup>1</sup> aluminium housing with threaded connection, including float-type drain trap and pressure differential indicator

<sup>2</sup> aluminium housing with threaded connection, including electronically controlled condensate drain and differential pressure gauge

Operating pressure: 16 bars

Operating temp.: min. + 1 °C, max. + 65 °C

## Filters with flanged connections

Filter type AFP, AFM, AFS, AFC	Volumetric flow rate		Connec- tion	Standard version <sup>1</sup>			Premium version <sup>2</sup>		
	nom.	max.		Width	Height	Weight	Width	Height	Weight
	m <sup>3</sup> /h	m <sup>3</sup> /h		mm	mm	kg	mm	mm	kg
2760	2760	3450	DN 100	1126	485	116	1126	485	116
4200	4200	5250	DN 125	1137	630	184	1137	630	184
5700	5700	7125	DN 150	1227	630	197	1227	630	197
7500	7500	9375	DN 150	1261	676	250	1261	676	250
9300	9300	11625	DN 175	1316	712	300	1316	712	300
11000	11000	13750	DN 200	1316	712	300	1316	712	300

all details based on 1 bar (abs), + 20 °C, 70 % r. F.

<sup>1</sup> steel housing with flanged connection, including float drain and pressure differential indicator

<sup>2</sup> steel housing with flanged connection, including electronically controlled condensate drain and pressure differential gauge

Operating pressure: 12 bars

Operating temp.: min. + 1 °C, max. + 60 °C

Operating overpressure $\Delta p$ (bars)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.25	0.36	0.5	0.6	0.7	0.9	1	1.1	1.2	1.4	1.5	1.6	1.75	1.9	2	2.1

### Conversion factors to other operating overpressures

The specified volumetric flow rates refer to a pressure of 7 bars. Volumetric flow rates at different pressures can be calculated using these corrective factors.

### Designed flow rating

The volumetric flow rates through the filter element should be between 50 and 100 % of the **nominal** volumetric flow rate. With higher or lower volumetric flow rates, the filtration efficiency deteriorates. The **maximum** volumetric flow rate must not be exceeded.

# COMPRESSED AIR REFRIGERANT DRYERS · ADD



ADD 50  
for wall mounting



ADD 310  
as a stand-alone-version

## Optional versions

Type ADD	Volumetric flow rates m <sup>3</sup> /h	Cooling air requirement m <sup>3</sup> /h	Com-pressed air connection	Power consumption kW	Dimensions			Screw compressor for PLUS version		
					Width mm	Height mm	Depth mm	BELT	DIRECT	VARIABLE
23	23	300	1/2"	0.18	232	610	692	-		
50	50	300	3/4"	0.20	232	610	692	4/5		
69	69	540	3/4"	0.29	232	610	692	7		
96	96	540	3/4"	0.47	232	610	692	11		
140	140	720	1"	0.61	232	610	692	15		
150	150	720	1"	0.61	330	797	790	16	11/15	
204	204	800	1"	0.86	330	797	790	18/22	16/18/22	16/20/24
310	310	2300	1 1/2"	1.04	330	797	790	30/37		28/32/34

Pressure dew point + 3 °C based on an ambient temperature of + 25 °C and compressed air inlet temperature of + 35 °C at 7 bars | Refrigerant: R 134 a

„PLUS“ version  
with "docked-on" compressed air refrigerant dryer,  
which can also be retrofitted for the following series:  
BELT 4 – 37, DIRECT 11 – 22 and VARIABLE 16 – 34

Operating overpressure $\Delta p$ (bars)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.6	0.7	0.78	0.86	0.94	1	1.06	1.11	1.15	1.19	1.22	1.24	1.25	1.26	1.26
Ambient temperature $T_a$ (°C)						25	30	35	40						
Corrective factor $f_{tu}$						1	0.97	0.93	0.88						

## Refrigerant dryers – which can be fitted into any space.

Refrigerant dryers of the ADD series can be used flexibly and for a wide variety of applications

- as stand-alone units
- as wall-mounted units

- or as "dock-on dryer kits" (compressor plus refrigerant dryer)

These refrigerant dryers reduce production costs and increase productivity. An efficient, three-stage heat exchanger system ensures the reliable operation of the dryer up to an inlet temperature of + 55 °C.

## Conversion factors:

In accordance with DIN ISO 7183 refrigerant dryers are designed for an operating overpressure of 7 bars, an ambient temperature of 25 °C and an inlet temperature of 35 °C. In the case of other operating overpressures and temperatures the above conversion factors apply.



Operating overpress. $\Delta p$ (bars)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.6	0.7	0.78	0.86	0.94	1	1.06	1.11	1.15	1.19	1.22	1.24	1.25	1.26	1.26
Ambient temperature $T_a$ (°C)						25	30	35	40	45	50				
Corrective factor $f_{tu}$						1	0.97	0.93	0.88	0.76	0.52				

Type ADQ	Volumetric flow rate	Cooling air requirement	Com-pressed air connection	Power consumption	Dimensions			
	m <sup>3</sup> /h	m <sup>3</sup> /h		kW	Width mm	Height mm	Depth mm	Weight kg
16	16	260	1/2"	0.12	250	670	505	29
21	21	260	1/2"	0.12	250	670	505	29
26	26	260	1/2"	0.12	250	670	505	30
42	42	300	1/2"	0.17	250	670	505	30
66	66	300	1/2"	0.21	250	670	550	38
96	96	540	3/4"	0.41	265	800	585	41
132	132	540	3/4"	0.47	265	800	585	43
150	150	720	3/4"	0.61	265	800	585	45
180	180	720	3/4"	0.61	265	800	585	47
225	225	1000	1 1/2"	0.76	575	1030	560	70
300	300	2300	1 1/2"	1.04	575	1030	560	85
360	360	2300	1 1/2"	1.04	575	1030	560	87
480	480	2200	1 1/2"	1.4	575	1030	560	92
550	550	2800	2"	1.84	690	1305	800	115
630	630	2800	2"	1.84	690	1305	800	120
750	750	3100	2"	1.98	690	1305	800	130
1000	1000	3100	2"	2.58	690	1305	800	150
1300	1300	5000	3"	3.4	784	1585	1362	260
1650	1650	5000	3"	3.4	784	1585	1362	270
2200	2200	4500	3"	5.3	784	1585	1362	300
2700	2700	4500	DN 100	6.8	784	1585	1362	330
3600	3600	10000	DN 125	78.1	1510	1570	1500	420
4200	4200	10000	DN 125	11.3	1510	1570	1500	520
5100	5100	9000	DN 150	12.9	1510	1570	1500	620
6000	6000	9000	DN 150	12.9	1510	1570	1500	720

Pressure dew point + 3 °C based on an ambient temp. of + 25 °C and a compressed air inlet temp. of + 35 °C at 7 bars  
Refrigerant: R 134 a, R 507

### Refrigerant dryers – tried, tested and powerful

The powerful refrigerant dryers of the ADQ series are highly efficient quality dryers that have proved their worth a thousand times over.

They are convincing because of high efficiency and reliability at inlet temperatures up to + 60 °C and a pressure dew point of + 3 °C.

In addition, this series is characterised by particularly large heat exchanger surface areas that guarantee a constant pressure dew point and a high degree of water separation even under extreme operating conditions.

# ADSORPTION DRYER - COLD-REGENERATING · OEKODRY 2000



Type OekoDry 2000	Nominal throughput rate inlet <sup>1</sup> m <sup>3</sup> /h	Reg. air flow on average – 40 °C m <sup>3</sup> /h	Dimensions				Connection
			Width mm	Height mm	Depth mm	Weight kg	
0005	5	0.85	300	350	120	7	1/2"
0010	10	1.7	300	595	120	11	1/2"
0015	15	2.55	300	855	120	15	1/2"
0025	25	4.25	300	1385	120	24	1/2"
0035	35	5.95	535	670	195	29	1"
0050	50	8.5	535	925	195	38	1"
0065	65	11.5	535	1175	195	48	1"
0080	80	13.6	535	1435	195	57	1"
0100	100	17	535	1685	195	67	1"

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature

Pressure dew point: – 40 °C at 100 % nominal load

– 70 °C at 70 % nominal load and a max. inlet temperature of + 35 °C

Operating overpressure: min. 4 bars, max. 16 bars

Operating overpressure $\Delta p$ (bars)	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.63	0.75	0.88	1	1.12	1.25	1.38	1.5	1.63	1.75	1.88	2	2.13
Inlet temperature (°C)	20	25	30	35	40	45	50						
Corrective factor $f_t$	1.1	1.1	1.1	1	0.8	0.7	0.5						

Complete treatment system with cold-regenerating adsorption dryer, pre- and after-filter and condensate drain.

#### Technical data:

- pressure dew points:  
up to – 40 °C at 100 % nominal load  
up to – 70 °C at 70 % nominal load  
and a max. inlet temperature of 35 °C
- volumetric flow rates up to 5 – 100 m<sup>3</sup>/h

- regeneration air requirement app. 17 % of the nominal volumetric flow rate
- operating overpressure 4 – 16 bars

Two type series, MINI and MIDI, with a total of 9 installation sizes offer reliable and efficient compressed air treatment to meet the demand. The OekoDry 2000 series is also available as a SuperPlus version. A special advantage of the SuperPlus version is that it determines the desiccant load status by means of the sensors in a microprocessor control system. It ascertains

the optimal loading and regeneration time of the desiccant. Hence the required amount of valuable regeneration air is reduced by 40 % on average and the service life of the desiccant is considerably prolonged. The efficiency of the overall system is additionally increased by using the new economisers.

Moreover, operation of the two filters is monitored and the most time to change the filter elements is established.

$$V_{\text{corr}} = \frac{V_{\text{nom}}}{f_{pu} \cdot f_t}$$

Example:  $V_{\text{nom}} = 20 \text{ m}^3/\text{h}$

Inlet temperature = 30 °C

Operating overpressure = 10 bars

$$V_{\text{corr}} = \frac{20 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 13.18 \text{ m}^3/\text{h}$$

Calculated dryer size:

OekoDry 2000, type 0015



# OEKODRY C



Operating overpressure $\Delta p$ (bars)	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pü}$	0.63	0.75	0.88	1	1.12	1.25	1.38	1.5	1.63	1.75	1.88	2	2.13

Complete treatment system with cold-regenerating adsorption dryer, pre- and afterfilter and electronic condensate drain.

#### Technical data:

- pressure dew points
  - $\leq -20$  °C
  - $\leq -40$  °C
  - $\leq -70$  °C
- volumetric flow rates ranging from 5 to 1000 m<sup>3</sup>/h

Type OekoDry C	Nominal volumetric flow rate inlet <sup>1</sup> m <sup>3</sup> /h	Reg. air flow on average			Dimensions				Connection
		- 20 °C m <sup>3</sup> /h	- 40 °C m <sup>3</sup> /h	- 70 °C m <sup>3</sup> /h	Width mm	Height mm	Depth mm	Weight kg	
0005	5	0.7	0.8	1	470	700	340	27	3/8"
0010	10	1.4	1.5	2	470	700	340	33	3/8"
0015	15	2.1	2.3	3	470	1060	340	41	3/8"
0025	25	3.5	3.8	5	470	1060	340	44	1/2"
0035	35	4.9	5.3	7	470	1060	340	48	1/2"
0050	50	7	7.5	10	670	1610	450	107	3/4"
0080	80	11.2	12	16	670	1610	450	140	3/4"
0100	100	14	15	20	670	1610	450	169	1"
0150	150	21	23	30	770	1980	600	200	1"
0175	175	24.5	26.2	35	770	1980	600	225	1"
0225	225	31.5	34	45	770	1980	600	277	1 1/2"
0300	300	42	45	60	770	1980	600	321	1 1/2"
0375	375	52.5	56	75	950	2190	700	398	1 1/2"
0550	550	77	83	110	950	2190	700	431	2"
0650	650	91	98	130	950	2190	700	506	2"
0850	850	119	128	170	1100	2350	800	595	2"
1000	1000	140	150	200	1100	2350	800	676	2 1/2"

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature  
Pressure dew point: - 20 °C, - 40 °C, - 70 °C at 100 % nominal load

Type °C	Pressure dew pt. °C	Residual water cont. g/m <sup>3</sup>	Inlet temperature °C							
			20	25	30	35	40	45	50	
- 20	- 20	0.88	Corrective factor temperature $f_r$	1.2	1.2	1.1	1	-	-	-
			Pressure dew point (°C)	- 20	- 20	- 20	- 20	-	-	-
- 40	- 40	0.11	Corrective factor temperature $f_r$	1.2	1.2	1.1	1	-	-	-
			Pressure dew point (°C)	- 40	- 40	- 40	- 40	-	-	-
- 70	- 70	0.0027	Corrective factor temperature $f_r$	1	1	1	1	0.8	0.7	0.5
			Pressure dew point (°C)	- 70	- 70	- 70	- 70	- 65	- 55	- 50

- regeneration air requirement at PDP:
  - 20 °C: 14 %
  - 40 °C: 15 %
  - 70 °C: 20 %
 of the relevant nominal volumetric flow rate
- operating overpressure 4 – 16 bars

$$V_{\text{corr}} = \frac{V_{\text{nom}}}{f_{pü} \cdot f_r}$$

Example:  $V_{\text{nom}} = 200$  m<sup>3</sup>/h  
Inlet temperature = 30 °C  
PDP - 40 °C  
Operating overpressure = 10 bars

$$V_{\text{corr}} = \frac{200 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 131.8 \text{ m}^3/\text{h}$$

Calculated dryer size:  
OekoDry C, type 0150

# ADSORPTION DRYER - COLD-REGENERATING · OEKODRY C



Type OekoDry C	Nominal volumetric flow rate inlet <sup>1</sup> m <sup>3</sup> /h	Reg. air flow on average			Dimensions				Connection
		- 20 °C m <sup>3</sup> /h	- 40 °C m <sup>3</sup> /h	- 70 °C m <sup>3</sup> /h	Width mm	Height mm	Depth mm	Weight kg	
1350	1350	189	202	270	1500	2555	950	870	DN 80
1650	1650	231	247	330	1700	2365	1050	1000	DN 80
1950	1950	273	292	390	1800	2585	1163	1105	DN 100
2250	2250	315	337	450	1900	2605	1290	1350	DN 100
2750	2750	385	412	550	2000	2695	1340	1530	DN 100
3500	3500	490	525	700	2200	2680	1490	1720	DN 100
4000	4000	560	600	800	2400	2980	1630	2250	DN 150
5000	5000	700	750	1000	2600	3030	1715	2950	DN 150
6000	6000	840	900	1200	2800	3070	1815	3500	DN 150
7000	7000	980	1050	1400	3000	3080	1915	3865	DN 150
8750	8750	1225	1312	1500	3400	3280	2290	5820	DN 200

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature | Pressure dew point: - 20 °C, - 40 °C, - 70 °C at 100 % nominal load

Type	Pressure dew pt. °C	Residual water cont. g/m <sup>3</sup>	Inlet temperature °C	20	25	30	35	40	45	50
- 20	- 20	0.88	Corrective factor temperature f <sub>r</sub>	1.2	1.2	1.1	1	-	-	-
			Pressure dew point (°C)	- 20	- 20	- 20	- 20	-	-	-
- 40	- 40	0.11	Corrective factor temperature f <sub>r</sub>	1.2	1.2	1.1	1	-	-	-
			Pressure dew point (°C)	- 40	- 40	- 40	- 40	-	-	-
- 70	- 70	0.0027	Corrective factor temperature f <sub>r</sub>	1	1	1	1	0.8	0.7	0.5
			Pressure dew point (°C)	- 70	- 70	- 70	- 70	- 65	- 55	- 50

Operating overpressure Δp (bars)	4	5	6	7	8	9	10
Corrective factor f <sub>pu</sub>	0.63	0.75	0.88	1	1.12	1.25	1.38

Complete treatment system with cold-regenerating adsorption dryer, pre-, after-filters and electronic condensate drain.

#### Technical data:

- pressure dew points
  - ≤ - 20 °C
  - ≤ - 40 °C
  - ≤ - 70 °C
- volumetric flow rates ranging from 1350 to 8750 m<sup>3</sup>/h

- regeneration air requirement at PDP:
  - 20 °C: 14 %
  - 40 °C: 15 %
  - 70 °C: 20 %
 of the relevant nominal volumetric flow rate
- operating overpressure 4 – 10 bars

$$V_{\text{corr}} = \frac{V_{\text{nom}}}{f_{\text{pu}} \cdot f_r}$$

Example:  $V_{\text{nom}} = 2000 \text{ m}^3/\text{h}$   
Inlet temperature = 30 °C  
Operating overpressure = 10 bars

$$V_{\text{corr}} = \frac{2000 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 1318 \text{ m}^3/\text{h}$$

Calculated dryer size:  
OekoDry C, type 1350

# ADSORPTION DRYER - HEAT REGENERATING · OEKODRY W



Type OekoDry W	Nominal volum. flow rate inlet <sup>1</sup> m <sup>3</sup> /h	Dimensions			Weight kg	Connection	Average power requirement kW
		Width mm	Height mm	Depth mm			
0375	375	1636	2319	800	845	DN 50	3.3
0550	550	1700	2485	893	1080	DN 50	4.9
0650	650	1750	2457	935	1200	DN 50	5.5
0850	850	1820	2527	985	1380	DN 50	7.1
1000	1000	1830	2672	1050	1570	DN 80	8.4
1350	1350	2320	2854	1100	1890	DN 80	11.3
1650	1650	2370	2922	1180	2110	DN 80	13.8
1950	1950	2620	2986	1256	2650	DN 100	16.1
2250	2250	2670	3006	1280	2950	DN 100	18.5
2750	2750	2820	3064	1470	3850	DN 100	22.6
3500	3500	3430	3130	1682	4310	DN 100	28.2
4000	4000	3530	3214	1852	4820	DN 150	32.9
5000	5000	3730	3314	1987	5440	DN 150	41.2
6000	6000	3930	3485	2087	5930	DN 150	48.7
7000	7000	4145	3517	2187	6690	DN 150	57
8750	8750	4620	3530	2475	8205	DN 200	71

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature  
Pressure dew point: - 40 °C at 100 % nominal load

Corrective factors C1 depending on the operating overpressure and inlet temperature							
Inlet temperature °C	Operation overpressure in bars						
	4	5	6	7	8	9	10
30	0.72	0.92	1.09	1.25	1.36	1.45	1.51
35	0.55	0.7	0.85	1	1.12	1.25	1.37
40	0.33	0.45	0.58	0.71	0.82	0.92	1.03

External heat-regenerating adsorption dryer with blower and cooling without compressed air loss.

#### Technical data:

- pressure dew point - 40 °C at 100 % nominal load
- volumetric flow rates ranging from 375 to 8750 m<sup>3</sup>/h
- operating overpressure 4 – 10 bars

Especially with higher outputs and pressure dew points, heat-regenerating adsorption dryers

are more efficient and - more important - less expensive to operate.

Due to suction gas cooling, the OekoDry W series operates without loss of compressed air. Here, ambient air is directed through the adsorption vessel to cool the plant. This reduces pressure and thus also the temperature.

This makes the OekoDry W series even more efficient and economical.

$$V_{\text{corr}} = \frac{V_{\text{nom}}}{C1}$$

Example:  $V_{\text{nom}} = 8000 \text{ m}^3/\text{h}$

Inlet temperature = 30 °C

Operating overpressure = 9 bars

$$V_{\text{corr}} = \frac{8000 \text{ m}^3/\text{h}}{1.45} = 5517 \text{ m}^3/\text{h}$$

Calculated dryer size:  
OekoDry W 6000

# TREATMENT SYSTEM FOR TECHNICALLY OIL-FREE COMPRESSED AIR · OEKOPAC 2000



Type OekoDry 2000	Nominal volum. flow rate inlet <sup>1</sup>	Reg. air flow on average – 40 °C	Dimensions				Connection
			Width	Height	Depth	Weight	
	m <sup>3</sup> /h	m <sup>3</sup> /h	mm	mm	mm	kg	
0005	5	0.85	189	300	343	12	1/2"
0010	10	1.7	189	300	591	19	1/2"
0015	15	2.55	189	300	853	25	1/2"
0025	25	4.25	189	300	1377	32	1/2"
0035	35	5.95	322	532	665	29	1"
0050	50	8.5	322	532	917	38	1"
0065	65	11.5	322	532	1169	48	1"
0080	80	13.6	322	532	1421	57	1"
0100	100	17	322	532	1673	67	1"

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature  
 Pressure dew point: – 40 °C at 100 % nominal load, – 70 °C at 70 % nominal load and a max. inlet temperature of + 35 °C  
 Operating overpressure: min. 4 bars, max. 16 bars

In the case of other operating overpressures and temperatures, use the conversion factors in the adjacent table for the OekoPac 2000 and OekoPac OP series.

Operating overpressure Δp (bars)	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.63	0.75	0.88	1	1.12	1.25	1.38	1.5	1.63	1.75	1.88	2	2.13
Inlet temperature (C°)	20	25	30	35	40	45	50						
Corrective factor $f_t$	1.1	1.1	1.1	1	0.8	0.7	0.5						

Complete system solution for compressed air treatment, including cold-regenerating dryer, adsorption dryer, active carbon adsorber, pre- and after-filters and automatic condensate drain.

## Technical data:

- pressure dew points:  
up to – 40 °C at 100 % nominal load  
up to – 70 °C at 70 % nominal load  
and a max. inlet temperature of 35 °C
- volumetric flow rate from 5 to 100 m<sup>3</sup>/h
- regeneration air app. 17 % of nominal volumetric flow rate
- operating overpressure 4 – 16 bars

- residual contaminant content:
  - particles < 0.01 μm,  
degree of separation: 99.999 %
  - oil (liquid phase) < 0.01 mg/m<sup>3</sup>
  - oil vapours and hydrocarbons  
< 0.003 mg/m<sup>3</sup>

The OekoPac 2000 series is based on the OekoDry 2000 adsorption dryers and serves to supply absolutely dry and oilfree compressed air.

It is also available in the SuperPlus variant. A particular benefit of this equipment variant is that the desiccant load status is determined by the sensors of the microprocessor control system.

This establishes the optimal adsorption and regeneration air of the desiccant. In this way, the required amount of valuable regeneration air can be reduced by 40 % on average and the service life of the desiccant significantly prolonged.

Due to the use of the new economisers the efficiency of the overall system is increased. Economisers compute the optimum time to replace the filter elements online by continuously evaluating the energy costs in relation to the costs of changing the filter elements.

$$V_{corr} = \frac{V_{nom}}{f_{pu} \cdot f_t}$$

Example:  $V_{nom} = 20 \text{ m}^3/\text{h}$   
 Inlet temperature = 30 °C  
 Operating overpressure = 10 bars

$$V_{corr} = \frac{20 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 13.18 \text{ m}^3/\text{h}$$

Calculated unit size:  
 OekoPac 2000, type 0015

# OEKOPAC OP

The OekoPac OP series is also a treatment plant for technically oil-free compressed air. It comprises pre-filtration in three stages, each with an electronic, level-controlled condensate drain, cold-regenerating adsorption dryer, active carbon adsorber, after-filter and a special shut-off feature against the penetration of oil – just to be on the safe side. Real operational reliability!



Type 0005 – 1000 complete and ready for connection as a cabinet version in a steel housing with pre-, micro- and submicro-filter, adsorption dryer, oil vapour adsorber and dust filter. Operating overpressure: 4 – 16 bars.

Type 1350 – 8750 in an open design with pre-, micro- and submicro-filters, adsorption dryer, oil vapour adsorber and dust filter. Operating overpressure: 4 – 10 bars.

Type OekoPac OP	Nominal volumetric flow rate inlet <sup>1</sup> m <sup>3</sup> /h	Reg. air flow on average – 50 °C m <sup>3</sup> /h	Dimensions				Connection
			Width mm	Height mm	Depth mm	Weight kg	
0005	5	0.8	650	700	340	35	3/8"
0010	10	1.5	650	700	340	45	3/8"
0015	15	2.3	650	1060	340	58	3/8"
0025	25	3.8	650	1060	340	62	1/2"
0035	35	5.3	650	1060	340	66	1/2"
0050	50	7.5	940	1610	450	147	3/4"
0080	80	12	940	1610	450	192	3/4"
0100	100	15	940	1610	450	231	1"
0150	150	23	1140	1980	600	273	1"
0175	175	26	1140	1980	600	305	1"
0225	225	34	1140	1980	600	378	1 1/2"
0300	300	45	1140	1980	600	438	1 1/2"
0375	375	56	1580	2190	700	543	1 1/2"
0550	550	83	1580	2190	700	588	2"
0650	650	98	1580	2190	700	690	2"
0850	850	128	1600	2350	800	812	2"
1000	1000	150	1600	2350	800	923	2 1/2"
1350	1350	203	2250	2555	950	1330	DN 80
1650	1650	248	2550	2365	1050	1525	DN 80
1950	1950	293	2700	2385	1135	1690	DN 100
2250	2250	337	2900	2605	1290	2155	DN 100
2750	2750	413	3050	2695	1340	2430	DN 100
3500	3500	525	3400	2680	1490	2915	DN 100
4000	4000	600	3650	2980	1630	4005	DN 150
5000	5000	750	3950	3030	1715	4620	DN 150
6000	6000	900	4250	3070	1815	5475	DN 150
7000	7000	1050	4550	3080	1915	6190	DN 150
8750	8750	1312	5150	3280	2290	9150	DN 200

<sup>1</sup> based on 1 bar (abs) and + 20 °C intake temperature, 7 bars and inlet temperature of + 35 °C | Pressure dew points: up to – 50 °C at 100 % nominal load and regeneration air requirement of 15 %

## Advantages of this system solution:

- compact system solution with electronic control unit
- oil-free compressed air to meet the most exacting demands, 100,000 times cleaner than breathing air
- pressure dew points up to – 50 °C at 100 % nominal load and a regeneration air requirement of 15 %
- optionally pressure dew points up to – 70 °C at 100 % nominal load and a regeneration air requirement of 20 %
- volumetric flow rates from 5 to 8750 m<sup>3</sup>/h
- operating overpressure: 4 – 16 bars
- residual contaminated content:
  - particles < 0.01 µm,
  - degree of separation: 99.999 %
  - oil (liquid phase) < 0.01 mg/m<sup>3</sup>
  - oil vapours and hydrocarbons < 0.003 mg/m<sup>3</sup>

# ACTIVE CARBON ADSORBER · AKC

<sup>1</sup> all details based on 1 bar (abs) and + 20 °C intake state, 7 bars and + 35 °C inlet temperature  
Ambient temperature: min. 4 °C, max. 50 °C | Inlet preconditions: PDP – 40 °C, residual oil content 0.003 mg/m<sup>3</sup>



Operating overpressure Δp (bars)	4	5	6	7	8	9	10	11	12	13	14	15	16
Corrective factor $f_{pu}$	0.62	0.75	0.88	1	1.12	1.25	1.38	1.5	1.62	1.75	1.88	2	2.13
Inlet temperature (C°)	20	25	30	35	40	45	50						
Corrective factor $f_t$	1	1	1	1	0.9	0.8	0.5						

## Active carbon adsorbers for removing oil droplets and oil vapours completely from the compressed air.

Active carbon adsorbers provide absolutely oil-free compressed air without any odour or taste for volumetric flow rates ranging from 5 to 8750 m<sup>3</sup>/h.

Active carbon adsorbers ensure:

- freedom from oil with a residual oil content ≤ 0.003 mg/m<sup>3</sup> due to excellent oil vapour adsorption
- calculable service life of the active carbon, app. 10,000 operating hours

Type AKC	Nominal volumetric flow rate inlet <sup>1</sup> m <sup>3</sup> /h	Dimensions			Weight kg	Connection
		Width mm	Height mm	Depth mm		
0005	5	150	485	160	5	3/8"
0010	10	150	590	175	7	3/8"
0015	15	150	820	175	9	3/8"
0025	25	200	780	200	10	1/2"
0035	35	200	940	200	12	1/2"
0050	50	290	1200	350	24	3/4"
0080	80	290	1536	350	29	3/4"
0100	100	320	1456	350	36	1"
0150	150	320	1907	350	41	1"
0225	225	380	1769	450	66	1 1/2"
0300	300	440	1746	450	70	1 1/2"
0375	375	440	1953	450	82	1 1/2"
0550	550	550	1995	600	95	2"
0650	650	550	2020	600	161	2"
0850	850	600	2115	600	180	2"
1000	1000	660	2237	600	190	2 1/2"
1350	1350	700	2555	700	201	DN 80
1650	1650	800	2365	800	331	DN 80
1950	1950	850	2585	850	395	DN 100
2250	2250	950	2605	950	459	DN 100
2750	2750	1000	2695	1000	585	DN 100
3500	3500	1150	2680	1150	680	DN 100
4000	4000	1200	2980	1200	975	DN 150
5000	5000	1300	3030	1300	1105	DN 150
6000	6000	1400	3070	1400	1320	DN 150
7000	7000	1500	3080	1500	1625	DN 150
8750	8750	1700	3280	1700	2750	DN 200

- absolute operational reliability
- highest level of performance, reliability and quality
- low pressure differentials
- constant efficiency

$$V_{corr} = \frac{V_{nom}}{f_{pu} \cdot f_t}$$

Example:  $V_{nom} = 200 \text{ m}^3/\text{h}$

Inlet temperature = 30 °C

Operating overpressure = 10 bars

$$V_{corr} = \frac{200 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 131.8 \text{ m}^3/\text{h}$$

Calculated adsorber size:

AKC, Type 0150

## CONDENSATE MANAGEMENT · ULTRAMAT/AQUAMAT

Type ULTRAMAT	Volumetric flow rates			Pressure range	Dimensions				Connec- tion
	Compressor	Dryer	Filter		Width	Height	Depth	Weight	
	m <sup>3</sup> /min	m <sup>3</sup> /min	m <sup>3</sup> /min	bar	mm	mm	mm	kg	
05	5	10	50	0.8-16	90	100	130	0.7	1/2"
10 K	10	20	100	0.8-16	88	133	144	1	3/4"
100 K	100	200	1000	0.8-16	150	203	240	3.7	1"

Performance data referred to temperate climate.  
Initial condition: 1 bar (abs); + 20 °C; 70 % rel. humidity  
7 bars; + 35 °C; 100 % rel. humidity

Temperature range:  
Standard: + 1 °C to + 60 °C  
With heater: - 25 °C to + 60 °C

Type AQUAMAT	Piston compressors max. volumetric flow rate		Screw compressors max. volumetric flow rate		Dimensions			
	Turbine and synthetic oil	VDL oil	Turbine and VCL oil	Synthetic VCL oil	Width	Height	Depth	Weight
	m <sup>3</sup> /min	m <sup>3</sup> /min	m <sup>3</sup> /min	m <sup>3</sup> /min	mm	mm	mm	kg
120	1	0.5	1.5	1	345	555	320	8.5
250	2	1	3	2.5	440	655	430	19.5
450	3.5	1.5	6	4.5	477	725	460	23.5
900	7	3	12	9	665	840	510	35
1800	14	6	24	18	775	961	650	67
3600	18	12	48	36	1750	961	650	136
7200	56	24	96	72	3700	961	650	272

Temperature range:  
Standard: + 1 °C to + 60 °C  
With heater: - 25 °C to + 60 °C



### ULTRAMAT – optimally implement condensate drainage.

ULTRAMATS are electronically and level-controlled condensate drains that can be used wherever effective, operationally reliable and cost-efficient condensate drainage is required.

#### Advantages of this system:

- loss-free operation
- generously dimensioned internal cross-sections, hence very

insensitive to contamination and condensate with an extremely high particle content

- fewer malfunctions, increased reliability
- considerably improved function of the oil/water separators due to reduced tendency of the condensate to emulsify
- very low noise during operation: particularly important when the drain is used locally, by the workstations
- voltage supply 24 V and 230 V
- potential-free contacts as standard

### AQUAMAT – oil/water separating systems for treating condensate in line with environmental requirements.

ALMiG AQUAMATS treatment compressed air condensate with an average 5 % oil content, which is too hazardous to the environment to be fed into the public sewage system, so that it conforms to the limit values required by law for discharge.

#### Advantages of this system:

- ease of operation and service-friendliness
- simple and quick filter replacement
- waste water test kit included in the scope of supply
- automatic maintenance indication
- reduced disposal costs

## INTELLIGENTE DRUCKLUFT MADE IN GERMANY

### In line with the customer's needs

With our innovative system concepts we offer customised solutions for almost all applications. Our endeavour lies not only in supplying compressors, we

offer ourselves as a competent system provider capable of offering solutions to all users of compressed air. That does not only apply to the consultation and installa-

tion phase of your new compressor(s), but naturally continues in all areas of service, maintenance and visualisation.

**Challenge us!**

Screw compressors	Piston compressors	Turbocompressors	Blower	Complete accessories	Control, regulate, monitor
<ul style="list-style-type: none"> <li>constant speed 2.2 – 500 kW/5 – 13 bars</li> <li>variable speed-controlled and direct drive 2.2 – 355 kW/5 – 13 bars</li> <li>oil-free, with water injection 1.5 – 85 kW/5 – 13 bars</li> </ul>	<ul style="list-style-type: none"> <li>oil-free, up to 10 bars 1.1 – 4 kW</li> <li>for normal pressure up to 10 bars 1.5 – 15 kW</li> <li>for medium pressure up to 15 bars 1.5 – 15 kW</li> <li>for high pressure up to 40 bars 2.2 – 45 kW</li> <li>as a booster for an input pressure up to 15 bars and an output pressure up to 40 bars 2.2 – 30 kW</li> </ul>	<ul style="list-style-type: none"> <li>for oil-free compressed air 65 – 1000 kW</li> <li>two-stage up to 9 bars</li> <li>three-stage up to 10 bars</li> </ul>	<ul style="list-style-type: none"> <li>at constant speed 1.5 – 55 kW 300 – 1000 mbars</li> <li>with speed control and direct drive 3 – 55 kW 300 – 1000 mbars</li> </ul>	<ul style="list-style-type: none"> <li>refrigerant dryers 0.27 – 100 m<sup>3</sup>/min</li> <li>desiccant dryers 0.08 – 145 m<sup>3</sup>/min</li> <li>activated carbon adsorbers 0.08 – 145 m<sup>3</sup>/min</li> <li>filters, all particle sizes 0.5 – 225 m<sup>3</sup>/min</li> <li>complete condensate management up to 120 m<sup>3</sup>/min</li> </ul>	<ul style="list-style-type: none"> <li>base load changeover controls</li> <li>consumption-related controls</li> <li>visualisation (we bring your compressed air to the PC)</li> <li>tele-monitoring (the hotline of your compressed air station)</li> </ul>



Your expert advisor