

**CHAMPION**

by Gardner Denver

# Compressed Air Treatment

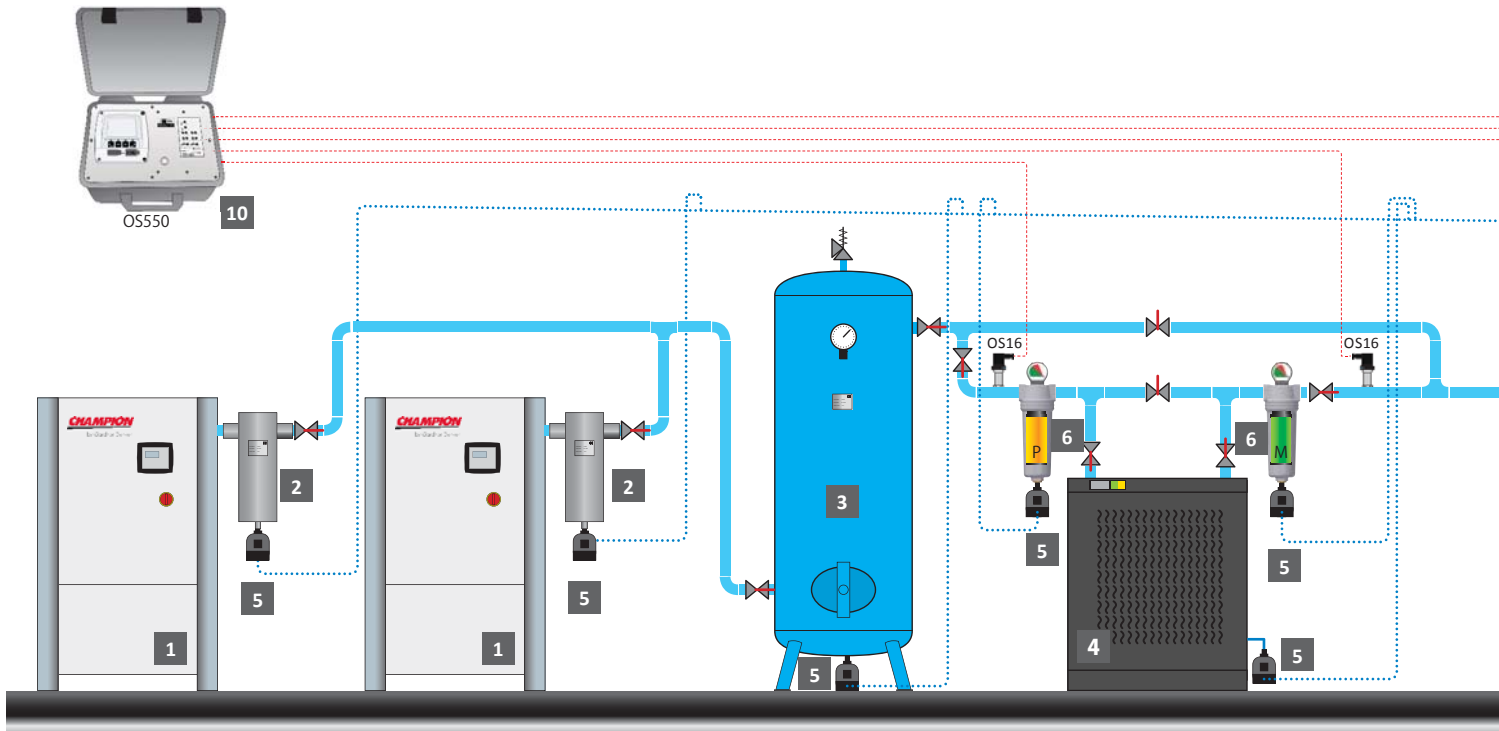
Product Catalogue  
Advanced



Smart and affordable

# Compressed air treatment

## BASIC PRINCIPLES OF MOST TYPICAL COMPRESSED AIR APPLICATION



### 1 COMPRESSOR

The basic working principle of an air compressor is to compress atmospheric air, which is then used as per the requirements. In the process, atmospheric air is drawn in through an intake valve; more and more air is pulled inside a limited space mechanically by means of piston, impeller, or vane.

Since the amount of pulled atmospheric air is increased in the receiver or storage tank, volume is reduced and pressure is raised automatically. In simpler terms, free or atmospheric air is compressed after reducing its volume and at the same time, increasing its pressure.

There are three major types, namely, reciprocating, rotary, and centrifugal compressor.

### 2 CYCLONE CONDENSATE SEPARATOR

Cyclone condensate separators use centrifugal motion to force liquid water out of compressed air.

The spinning causes the condensate to join together on the centrifugal separators walls when the condensate gains enough mass it falls to the bottom of the separators bowl where it pools in the sump until it is flushed out of the system by the automatic float drain valve.

They are installed following aftercoolers to remove the condensed moisture.

### 3 PRESSURE VESSEL

Pressure vessel plays very important role in compressed air system:

- damping pulsations caused by reciprocating compressors,
- providing a location for free water and lubricant to settle from the compressed air stream,
- supplying peak demands from stored air without needing to run an extra compressor,
- reducing load/unload or start/stop cycle frequencies to help screw compressors run more efficiently and reduce motor starts,
- slowing system pressure changes to allow better compressor control and more stable system pressures.

### 4 COMPRESSED AIR DRYER

Compressed air leaving the compressor aftercooler and moisture separator is normally warmer than the ambient air and fully saturated with moisture. As the air cools the moisture will condense in the compressed air lines. Excessive entrained moisture can result in undesired pipe corrosion and contamination at point of end use.

For this reason some sort of air dryer is normally required.

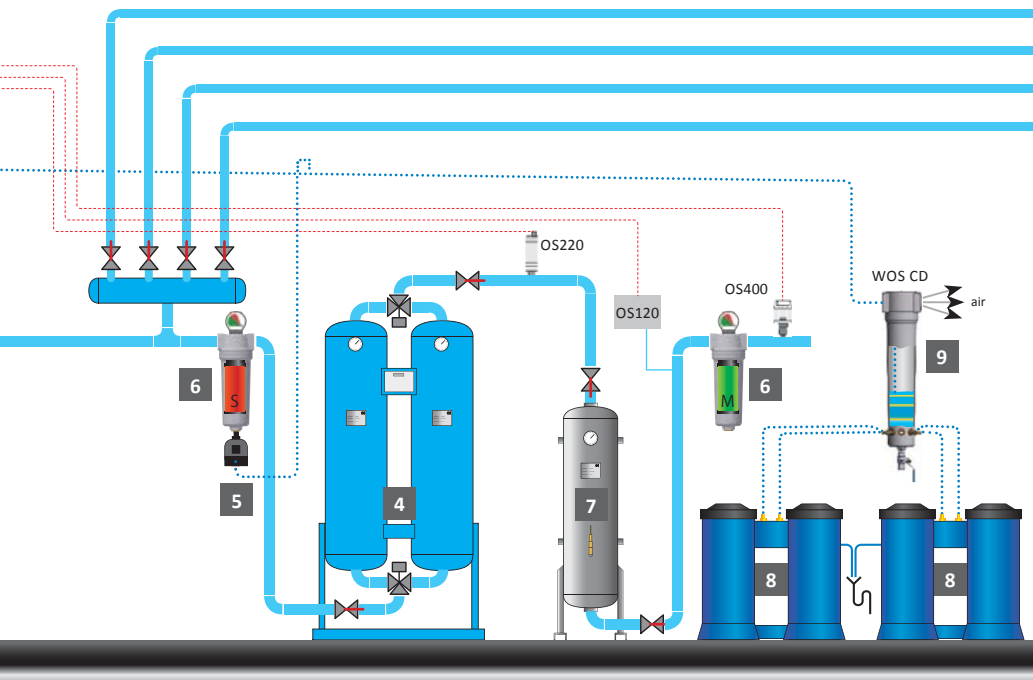
Some end use applications require very dry air, such as compressed air distribution systems where pipes are exposed to winter conditions. Drying the air to dew points below ambient conditions is necessary to prevent ice buildup.

Common types:

- refrigerant
- desiccant
- membrane

END USER

- Replace inappropriate end use applications with efficient models (vortex nozzles, atomizers).
- Install a flow controller to lower plant pressure and reduce artificial demand caused by higher than required pressures.
- Turn off air consuming equipment, using electric solenoids or manual shutoff valves.
- Avoid operation of air tools without a load, as this consumes more air than a tool under load.
- Replace worn tools, as they often require higher pressure and consume excess compressed air than tools in good shape.
- Lubricate air tools as recommended by the manufacturer. Keep air used by all end uses free of condensate in order to maximize tool life and effectiveness.
- Where possible and practical, group end use air equipment that has similar air requirements of pressure and air quality.



**5** CONDENSATE DRAIN

Drains are needed at all separators, filters, dryers and receivers in order to remove the liquid condensate from the compressed air system.

Failed drains can allow slugs of moisture to flow downstream that can overload the air dryer and foul end use equipment.

**6** FILTER

Compressed air filters are used for high efficient removal of solid particles, water, oil aerosols, hydrocarbons, odour and vapours from compressed air systems.

To meet the required compressed air quality appropriate filter element must be installed into filter housing.

**7** ACTIVATED CARBON TOWER

Activated carbon tower eliminates hydrocarbon vapours and odours from compressed air. Towers are filled with activated carbon adsorbent that adsorbs contaminants onto the surface of its internal pores. Activated carbon towers are used at applications where content of oil vapours needs to be reduced to minimum.

Activated carbon towers can be incorporated in existing compressed air systems significantly minimising the risks of contamination.

They are able to absorb oil carry-over (both liquid and vapour) to provide the plant with technically oil-free compressed air.

**8** OIL/WATER SEPARATOR

Local environmental laws and regulations state that condensate drained from compressed air systems cannot be returned to the sewage system due to the content of compressor lubricating oil.

Water/oil separators are one of the most effective and economical solution. Multi-stage separation process using oleophilic filters and activated carbon, ensures exceptional performance and trouble free operation.

**9** CONDENSATE DISTRIBUTOR

WOS CD is intended for systems, where amount of generated condensate exceeds capacity of single largest available WOS water oil separator. WOS CD can evenly distribute collected condensate between up to three WOS-35 water oil separators.

WOS CD is equipped with flow distributor on the inlet port and up to 8 hose tail connections mounted.

**10** CONTROL SYSTEM

It is always good to know the parameters value of your compressor air station. The control system with integrated sensors records and controls all important parameters:

- pressure
- temperature
- Dew point
- flow

## REFRIGERATED COMPRESSED AIR DRYERS

### EDT SERIES REFRIGERATED AIR DRYERS



operating pressure	<b>up to 16 bar</b>
max. ambient temp.	50 °C
pressure dew point	3°C
flow rate	30 to 1620 m³/h
max. inlet air temp.	70 °C

#### DESCRIPTION

The EDT series of energy saving refrigeration dryers offers important advantages in terms of energy saving, reliability and operating costs. The regulation system of the dryer controls the dryer operation granting the most energetically effective method of compressed air drying, achieving high energy saving and ensuring at the same time an excellent dew point stability also in dynamic conditions.

The EDT series is a synonym for high efficiency heat exchanger, highest energy savings, minimum pressure drops, lowest environmental impact, reduced carbon footprint, easy installation, easy serviceability and maximum reliability.

Type	Air flow		Power supply	Dimensions			Air connections IN/OUT	Power kW	Mass [kg]
	m³/h	cfm		A mm	B [mm]	C [mm]			
EDT 5	30	17	230V /1f / 50Hz	319	298	390	3/8"	0,16	18
EDT 7	42	25	230V /1f / 50Hz	319	298	390	3/8"	0,18	19
EDT 9	54	32	230V /1f / 50Hz	359	298	415	1/2"	0,18	22
EDT 12	72	42	230V /1f / 50Hz	359	298	415	1/2"	0,22	22
EDT 18	108	63	230V /1f / 50Hz	380	514	625	1"	0,38	35
EDT 26	2,6	92	230V /1f / 50Hz	380	514	625	1"	0,49	39
EDT 32	156	113	230V /1f / 50Hz	380	514	625	1"	0,59	42
EDT 40	240	141	230V /1f / 50Hz	680	511	860	1"	0,74	68
EDT 50	300	176	230V /1f / 50Hz	680	511	860	1 1/2"	0,81	75
EDT 60	360	212	230V /1f / 50Hz	680	511	860	1 1/2"	0,84	76
EDT 80	480	282	230V /1f / 50Hz	755	555	995	1 1/2"	1,10	94
EDT 101	600	353	230V /1f / 50Hz	1031	799	1039	2"	1,53	180
EDT 121	720	424	230V /1f / 50Hz	1031	799	1039	2"	1,85	190
EDT 140	840	494	230V /1f / 50Hz	1170	939	1180	2 1/2"	2,21	235
EDT 165	990	583	400V /3f / 50Hz	1170	939	1180	2 1/2"	2,24	246
EDT 190	1140	671	400V /3f / 50Hz	1170	939	1180	2 1/2"	2,55	246
EDT 230	1380	812	400V /3f / 50Hz	1170	939	1180	2 1/2"	2,97	268
EDT 270	1620	953	400V /3f / 50Hz	1170	939	1180	2 1/2"	3,33	272

#### CORRECTION FACTOR FOR OPERATING PRESSURE CHANGES

Operating pressure [bar(g)]	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor K1	0,71	0,82	0,90	0,96	1,00	1,04	1,07	1,09	1,11	1,13	1,15	1,16	1,18	1,19

#### CORRECTION FACTOR FOR AMBIENT TEMPERATURE CHANGES

Temperature [°C]	20	25	30	35	40	45	50
Correction factor K3	1,05	1,00	0,95	0,89	0,84	0,78	0,72

#### CORRECTION FACTOR FOR DEW POINT CHANGES

Temperature [°C]	3	5	7	9
Correction factor K4	1,00	1,12	1,24	1,38

#### CORRECTION FACTOR FOR INLET AIR TEMPERATURE CHANGES

Operat. pressure [bar(g)]	30	35	40	45	50	55	60	65	70
Correction factor K2	1,23	1,00	0,81	0,66	0,57	0,52	0,48	0,44	0,40

Data refers to the following working conditions: air FAD 20 °C / 1bar A, pressure 7 bar(g), ambient temperature 25 °C, air inlet temperature 35 °C, pressure dew point 3 °C, according to ISO 8573.1 standard humidity class 4.

Weights are net (without packing and for timed drain configuration). Refrigerant fluids: R134a (EDT 5-80), R404A (EDT 100-270). Protection class IP22.

Maximum working pressure 16 bar(g); maximum ambient temperature 50 °C; maximum inlet temperature +70 °C (EDT 5-80), +60 °C (EDT 100-270).

The correction factors in the following table should be used as a guide only; for accurate selection at conditions differing from the above the selection software should be utilised.

CAPACITY correction factors (indicative values): CAPACITY = RATED VALUE 7 bar(g) x K1 x K2 x K3 x K4.

# ADSORPTION COMPRESSED AIR DRYERS

## A-DRY SERIES HEATLESS ADSORPTION DRYERS



operating pressure	<b>4 to 16 bar</b>
operating temperature	1,5 to 50 °C
pressure dew points	-40°C (-25°C/-70°C)
flow rate	6 to 200 Nm <sup>3</sup> /h

### DESCRIPTION

A-DRY desiccant adsorption dryer has been designed to separate water moisture from compressed air thus reducing the dew point in the system. A-DRY is a range of products offering our customers a wide array of dried air solutions with volumetric flow rates ranging from 6 to 200 Nm<sup>3</sup>/h.

An innovative new design of A-DRY adsorption driers, developed with consideration of our customers, enables fast and reliable installation, use and servicing. Installation is simple with our ready to use controller while minimising the number of parts and motions required for assembly and disassembly makes servicing fast and reliable.

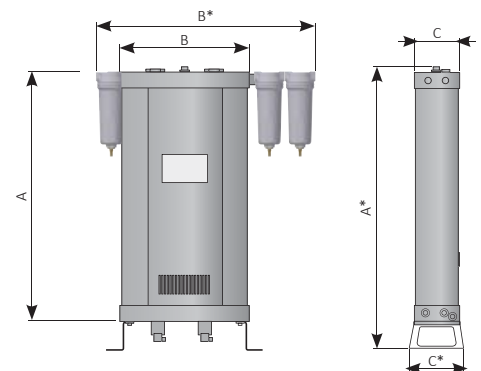
Type	Connection IN/OUT	Nominal volume flow		Dimensions						Mass kg
		Inlet <sup>1</sup> [Nm <sup>3</sup> /h]	Outlet <sup>2</sup> [Nm <sup>3</sup> /h]	A [mm]	A* [mm]	B [mm]	B* [mm]	C [mm]	C* [mm]	
A-DRY 06	G3/8"	6	4,7	339	404	288	552	100	120	10,5
A-DRY 12	G3/8"	12	9,4	573	638	288	552	100	120	13,5
A-DRY 24	G3/8"	24	18,8	1041	1106	288	552	100	120	19,0
A-DRY 36	G3/8"	36	28,2	1509	1574	288	552	100	120	27,5
A-DRY 60	G1/2"	60	47,0	1041	1106	370	634	148	170	45,0
A-DRY 75	G1/2"	75	58,8	1275	1340	370	634	148	170	53,0
A-DRY 105	G1/2"	105	61,8	1743	1808	370	634	148	170	70,0
A-DRY 150	G1"	150	88,3	1345	1455	440	815	198	240	170,5
A-DRY 200	G1"	200	117,7	1538	1648	440	815	198	240	182,2

Operating pressure range	4 to 16 bar
Operating temp. range	+1,5 °C to +50 °C
Pressure dew points	-25 °C /-40 °C /-70 °C
Voltage, frequency	230V, 50/60 Hz
Power consumption	<30 W
Protection class	IP 65
Filter (inlet)*	super fine- 0,01 µm
Filter (outlet)	dust filter; 1 µm

<sup>(1)</sup> Refers to 1bar(a) and 20°C at 7 bar operating pressure, inlet temperature 35°C and pressure dew point at outlet-40°C.

<sup>(2)</sup> Outlet flow refers to typical assumption during regeneration phase for operating at nominal inlet flow conditions. Outlet flow includes average air losses of approximately 17,3 %.

\* If dryer is supplied without inlet filter compressed air class 1 (ISO 8753-1) for solid particles and oil should be provided to the inlet of the dryer.



CORRECTION FACTORS- F1															
Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13
CORRECTION FACTORS- F2							DEW POINT								
Inlet temperature [°C]	25	30	35	40	45	50	[°C]	-25	-40	-70					
Correction factor	1,00	1,00	1,00	0,97	0,87	0,80	C <sub>p</sub>	1,1	1	0,7					

## ADSORPTION COMPRESSED AIR DRYERS

### X-DRY SERIES

#### HEATLESS REGENERATED MODULAR ADSORPTION DRYERS



operating pressure	<b>4 to 16 bar</b>
operating temperature	1,5 to 50 °C
pressure dew points	-40°C (-25°C/-70°C)
flow rate	300 to 1050 Nm <sup>3</sup> /h

#### DESCRIPTION

X-DRY 300-1050 modular adsorption dryers are designed for continuous separation of water vapour from compressed air thus reducing dew point. Operation of dryer requires two columns operated alternately.

Adsorption takes place under pressure in first column while second column regenerates with a portion of already dried compressed air at ambient pressure.

A dryer consists of two columns, filled with desiccant beads, controller with LCD display, valves, manometers, support construction and suitable filter housings with the required filter element. Proven robust design enables efficient and reliable operation, fast installation and simple maintenance.

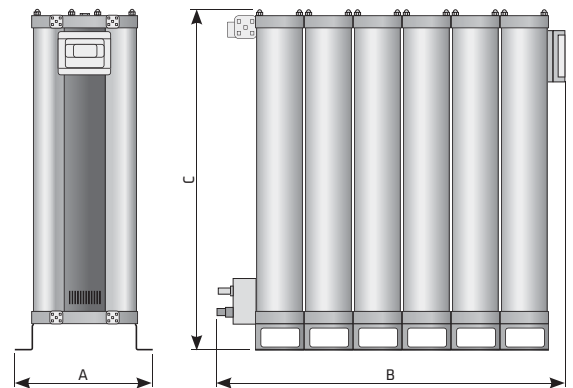
Type	Connection IN/OUT <sup>(3)</sup>	Nominal volume flow		Dimensions			Mass kg
		Inlet <sup>(1)</sup> [Nm <sup>3</sup> /h]	Outlet <sup>(2)</sup> [Nm <sup>3</sup> /h]	A [mm]	B [mm]	C [mm]	
X-DRY 300	G 2"	300	-	570	670	1450	350
X-DRY 450	G 2"	450	-	570	870	1450	520
X-DRY 600	G 2"	600	-	570	1070	1450	690
X-DRY 750	G 2"	750	-	570	1270	1450	860
X-DRY 900	G 2"	900	-	570	1470	1450	1030
X-DRY1050	G 2"	1050	-	570	1670	1450	1200

Operating pressure range	4 to 16 bar
Operating temp. range	+1,5°C to +60°C
Pressure dew points	-40°C (-25°C /-70°C)
Voltage, frequency	230V, 50/60 Hz
Power consumption	<60 W
Protection class	IP 65
Filter (inlet)*	super fine- 0,01 µm
Filter (outlet)	dust filter; 1 µm

<sup>(1)</sup> Refers to 1bar(a) and 20°C at 7 bar operating pressure, inlet temperature 35°C and pressure dew point at outlet -40°C.

<sup>(2)</sup> Outlet flow refers to typical assumption during regeneration phase for operating at nominal inlet flow conditions. Outlet flow includes average air losses of approximately 17,3 %.

<sup>(3)</sup> Refers to inlet and outlet filter housing.



CORRECTION FACTORS- F1															
Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13
CORRECTION FACTORS- F2							DEW POINT								
Inlet temperature [°C]	25	30	35	40	45	50	[°C]	-25	-40	-70					
Correction factor	1,00	1,00	1,00	0,97	0,87	0,80	C <sub>p</sub>	1,1	1	0,7					

# ADSORPTION COMPRESSED AIR DRYERS

## B-DRY SERIES

### HEATLESS REGENERATED ADSORPTION DRYERS



operating pressure	<b>4 to 16 bar</b>
operating temperature	1,5 to 60 °C
pressure dew points	-40°C (-25°C/-70°C)
flow rate	110 to 1000 Nm <sup>3</sup> /h

#### DESCRIPTION

B-DRY adsorption dryers are designed for continuous separation of water vapour from the compressed air thus reducing the pressure dew point. B-DRY series dryer consists of two columns, filled with desiccant beds, controller with LCD display, valves, manometers, support construction and suitable filter housings with the required filter element. Adsorption takes place under pressure in the first column while the second column regenerates with a portion of already dried compressed air at ambient pressure.

When the first column is saturated to a certain level column switch-over is carried out and the process of adsorption continues in the second column without any drop of pressure at the outlet of the dryer. Regeneration of saturated desiccant is possible because a small portion of already dry compressed air is decompressed and when expanded it becomes extremely dry.

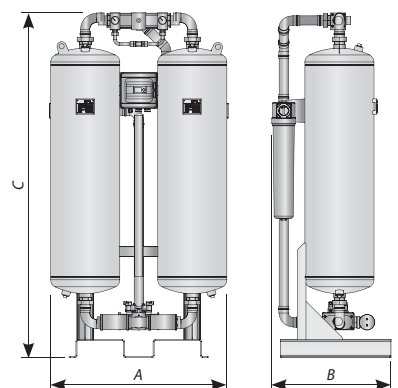
Type	Connection IN/OUT	Nominal volume flow		Dimensions			Mass
		Inlet <sup>1</sup>	Outlet <sup>2</sup>	A [mm]	B [mm]	C [mm]	
	"	[Nm <sup>3</sup> /h]	[Nm <sup>3</sup> /h]				kg
B-DRY 110	G1"	110	86,0	650	390	1570	126
B-DRY 150	G1"	150	117,5	700	410	1820	142
B-DRY 200	G1"	200	157,0	700	450	1600	180
B-DRY 250	G1"	260	204,0	700	450	1850	220
B-DRY 300	G1 1/2"	320	251,0	900	530	1620	255
B-DRY 400	G1 1/2"	410	321,5	900	530	1870	275
B-DRY 600	G1 1/2"	590	462,5	850	700	1940	355
B-DRY 800	G2"	770	603,5	1000	710	1980	470
B-DRY 1000	G2"	1000	784,0	1050	710	1980	560

Voltage, frequency	230V, 50/60 Hz
Power consumption	<60 W
Protection class	IP 65
Filter (inlet)*	super fine- 0,01 µm
Filter (outlet)	dust filter; 1 µm
DPD control	optional
Input for stand-by	standard

DEW POINT - CORRECTION FACTORS - C <sub>D</sub>			
Operat. temp. [°C]	-25	-40	-70
Operat. temperature [F]	-13	-40	-94
Correction factor C <sub>D</sub>	1,1	1	0,7

OPERATING TEMPERATURE - CORRECTION FACTORS - C <sub>OT</sub>								
Operat. temp. [°C]	25	30	35	40	45	50	55	60
Operat. temperature [F]	77	86	95	104	113	122	131	140
Correction factor C <sub>OT</sub>	1	1	1	0,97	0,87	0,80	0,64	0,51

OPERATING PRESSURE - CORRECTION FACTORS - C <sub>OP</sub>															
Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor C <sub>OP</sub>	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13



<sup>(1)</sup> Refers to 1bar(a) and 20°C at 7 bar operating pressure, inlet temperature 35°C and pressure dew point at outlet -40°C.

<sup>(2)</sup> Outlet flow refers to typical assumption during regeneration phase for operating at nominal inlet flow conditions. Outlet flow includes average air losses of approximately 17,3 %.

\* If dryer is supplied without inlet filter compressed air class 1 (ISO 8753-1) for solid particles and oil should be provided to the inlet of the dryer.

## ADSORPTION COMPRESSED AIR DRYERS

### SORBEO ADSORBENTS

#### Molecular sieve 3a - drying of unsaturated hydrocarbons

Model	Shape	Bulk density	Package	Mass
SORBEO MS3-S	Granule 2,5mm - 5,0mm	0,7 kg/l	5,8 L container	4 kg
SORBEO MS3-M	Granule 2,5mm - 5,0mm	0,7 kg/l	16,6 L container	11,5 kg
SORBEO MS3-L	Granule 2,5mm - 5,0mm	0,7 kg/l	35,4 L container	24 kg
SORBEO MS3-XL	Granule 2,5mm - 5,0mm	0,7 kg/l	216,5 L barrel	150 kg
SORBEO MS3-XXL	Granule 2,5mm - 5,0mm	0,7 kg/l	4 x barrel	600 kg

#### Molecular sieve 4A - drying of compressed air and other gases

Model	Shape	Bulk density	Package	Mass
SORBEO MS4-S	Granule 2,5mm - 5,0mm	0,7 kg/l	5,8 L container	4 kg
SORBEO MS4-M	Granule 2,5mm - 5,0mm	0,7 kg/l	16,6 L container	11,5 kg
SORBEO MS4-L	Granule 2,5mm - 5,0mm	0,7 kg/l	35,4 L container	24 kg
SORBEO MS4-XL	Granule 2,5mm - 5,0mm	0,7 kg/l	220 L barrel	150 kg
SORBEO MS4-XXL	Granule 2,5mm - 5,0mm	0,7 kg/l	Big bag	800 kg

#### Molecular sieve 10A - drying of purification gases and liquids

Model	Shape	Bulk density	Package	Mass
SORBEO MS10-S	Granule 2,5mm - 5,0mm	0,64 kg/l	5,8 L container	3,5 kg
SORBEO MS10-M	Granule 2,5mm - 5,0mm	0,64 kg/l	16,6 L container	10,5 kg
SORBEO MS10-L	Granule 2,5mm - 5,0mm	0,64 kg/l	35,4 L container	22 kg
SORBEO MS10-XL	Granule 2,5mm - 5,0mm	0,64 kg/l	216,5 L barrel	130 kg
SORBEO MS10-XXL	Granule 2,5mm - 5,0mm	0,64 kg/l	4x barrel	520 kg

#### Activated Alumina - drying of compressed air

Model	Shape	Bulk density	Package	Mass
SORBEO AA-S	Granule 2,0mm - 5,0mm	0,77 kg/l	5,8 L container	4 kg
SORBEO AA-M	Granule 2,0mm - 5,0mm	0,77 kg/l	16,6 L container	12 kg
SORBEO AA-L	Granule 2,0mm - 5,0mm	0,77 kg/l	35,4 L container	27 kg
SORBEO AA-XL	Granule 2,0mm - 5,0mm	0,77 kg/l	220 L barrel	170 kg
SORBEO AA-XXL	Granule 2,0mm - 5,0mm	0,77 kg/l	Big bag	907 kg

#### Silica Gel SGW - drying of compressed air; water resistant

Model	Shape	Bulk density	Package	Mass
SORBEO SGW-S	Granule 2,0mm - 5,0mm	0,45 kg/l	5,8 L container	2,5 kg
SORBEO SGW-M	Granule 2,0mm - 5,0mm	0,45 kg/l	16,6 L container	7 kg
SORBEO SGW-L	Granule 2,0mm - 5,0mm	0,45 kg/l	35,4 L container	15 kg
SORBEO SGW-XL	Granule 2,0mm - 5,0mm	0,45 kg/l	220 L barrel	100 kg
SORBEO SGW-XXL	Granule 2,0mm - 5,0mm	0,45 kg/l	4x barrel	400 kg

#### Silica Gel SGR - drying of compressed air

Model	Shape	Bulk density	Package	Mass
SORBEO SGR-S	Granule 2,0mm - 5,0mm	0,7 kg/l	5,8 L container	4 kg
SORBEO SGR-M	Granule 2,0mm - 5,0mm	0,7 kg/l	16,6 L container	11,5 kg
SORBEO SGR-L	Granule 2,0mm - 5,0mm	0,7 kg/l	35,4 L container	24 kg
SORBEO SGR-XL	Granule 2,0mm - 5,0mm	0,7 kg/l	220 L barrel	150 kg
SORBEO SGR-XXL	Granule 2,0mm - 5,0mm	0,7 kg/l	Big bag	500 kg

#### Activated Carbon - removal of oil vapours, smells, odours from compressed air

Model	Shape	Bulk density	Package	Mass
SORBEO AC-S	Pellet 3 mm	0,5 kg/l	5,8 L container	2,5 kg
SORBEO AC-M	Pellet 3 mm	0,5 kg/l	16,6 L container	8 kg
SORBEO AC-L	Pellet 3 mm	0,5 kg/l	35,4 L container	17 kg
SORBEO AC-XL	Pellet 3 mm	0,5 kg/l	220 L barrel	110 kg

#### Catalyst - catalytic oxidation of CO to CO<sub>2</sub>

Model	Shape	Bulk density	Package	Mass
SORBEO HC-S	Granule 3 mm	0,9 kg/l	5,8 L container	5 kg
SORBEO HC-M	Granule 3 mm	0,9 kg/l	16,6 L container	14 kg
SORBEO HC-L	Granule 3 mm	0,9 kg/l	35,4 L container	31 kg
SORBEO HC-XL	Granule 3 mm	0,9 kg/l	220 L barrel	198 kg



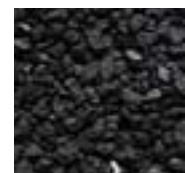
Molecular sieve



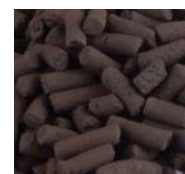
Activated Alumina



Silica Gel



Activated Carbon



Catalyst



# COMPRESSED AIR FILTERS

## AF SERIES ALUMINIUM COMPRESSED AIR FILTERS

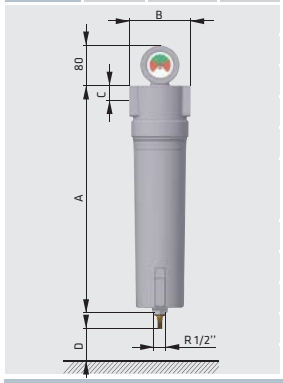


operating pressure	<b>16 bar</b>
volume flow rate	60 to 2760 Nm <sup>3</sup> /h
connections	3/8" to 3"
operating temp. range	1,5 to 65 °C
standard colour	RAL 5012

**DESCRIPTION**

AF filter housings are designed for high efficient removal of solid particles, water, oil aerosols, hydrocarbons, odour and vapours from compressed air(1) systems. To meet the required compressed air quality appropriate filter element (B, P, R, M, S, A, A2, H2, MS2) must be installed into filter housing. (1) For any other technical gas please contact producer or your local distributor.

Filter housing size	Pipe size inch	Max. operat. pressure [bar/psi]	Flow rate at 7 bar(g), 20 °C		Dimensions [mm]				Mass kg	FILTER ELEMENTS									
			Nm <sup>3</sup> /h	scfm	A	B	C	D		B sintered 15 µm	P prefilter 3 µm	R prefilter 1 µm	M microfilter 0,1 µm	S microfilter 0,01 µm	A activated carbon	A <sup>2</sup> adsorption (act.carb.)	H <sup>2</sup> catalyst (hopcalite)	MS <sup>2</sup> molecular sieve	
AF 0056	3/8"	16/232	60	35	187	88	20	60	0,7	06050 B15	06050 P	06050 R	06050 M	06050 S	06050 A	-	-	-	
AF 0076	1/2"	16/232	78	46	187	88	20	60	0,7	07050 B15	07050 P	07050 R	07050 M	07050 S	07050 A	07050 A <sup>2</sup>	07050 H <sup>2</sup>	07050 MS <sup>2</sup>	
AF 0106	3/4"	16/232	120	70	257	88	20	80	0,8	14050 B15	14050 P	14050 R	14050 M	14050 S	14050 A	14050 A <sup>2</sup>	14050 H <sup>2</sup>	14050 MS <sup>2</sup>	
AF 0186	1"	16/232	198	116	263	125	32	100	1,8	12075 B15	12075 P	12075 R	12075 M	12075 S	12075 A	12075 A <sup>2</sup>	12075 H <sup>2</sup>	12075 MS <sup>2</sup>	
AF 0306	1"	16/232	335	197	363	125	32	120	2,5	22075 B15	22075 P	22075 R	22075 M	22075 S	22075 A	22075 A <sup>2</sup>	22075 H <sup>2</sup>	22075 MS <sup>2</sup>	
AF 0476	1 1/2"	16/232	510	300	461	125	32	140	2,5	32075 B15	32075 P	32075 R	32075 M	32075 S	32075 A	32075 A <sup>2</sup>	32075 H <sup>2</sup>	32075 MS <sup>2</sup>	
AF 0706	1 1/2"	16/232	780	459	640	125	32	160	3,2	50075 B15	50075 P	50075 R	50075 M	50075 S	50075 A	50075 A <sup>2</sup>	50075 H <sup>2</sup>	50075 MS <sup>2</sup>	
AF 0946	2"	16/232	1000	588	684	163	43	520	5,1	51090 B15	51090 P	51090 R	51090 M	51090 S	51090 A	-	-	-	
AF 1506	2"	16/232	1500	882	935	163	43	770	7,1	76090 B15	76090 P	76090 R	76090 M	76090 S	76090 A	-	-	-	
AF 1756	2 1/2"	16/232	1680	990	935	163	43	770	6,9	76090 B15	76090 P	76090 R	76090 M	76090 S	76090 A	-	-	-	
AF 2006	3	16/232	2160	1270	795	240	59	630	12,9	51140 B15	51140 P	51140 R	51140 M	51140 S	51140 A	-	-	-	
AF 2406	3	16/232	2760	1620	1000	240	59	780	14,0	75140 B15	75140 P	75140 R	75140 M	75140 S	75140 A	-	-	-	



quality class- solids (ISO 8573-1)	7	6	3	2	1	1 <sup>3)</sup>	1 <sup>3)</sup>	1 <sup>3)</sup>	1	
residual oil content [mg/m <sup>3</sup> ]	-	-	-	<0,1	<0,01	<0,005	<0,005	-	-	
quality class- oils (ISO 8573-1)	-	-	-	2	1	1	0/1	-	-	
pressure drop- new element [mbar / psi]	20 / 0,290	10 / 0,145	20 / 0,290	50 / 0,725	80 / 1,160	60 / 0,870	see spec.	see spec.	<50/0,725	
change filter elem. at press. drop [mbar / psi]	<sup>1)</sup>	350 / 5,07	350 / 5,07	350 / 5,07	350 / 5,07	6 months <sup>2)</sup>	6 months <sup>2)</sup>	6 months <sup>2)</sup>		
filter material	sintered brass	acrylic fibres, cellulose	borosilicate micro fibres				borosilicate micro fibres			
			act. carbon	act. carbon	hopcalite	molec. sieve				
pleated version	-	✓	✓	✓	✓	-	✓	✓	✓	
wrapped version	-	-	-	-	-	✓	-	-	-	
sintered version	✓	-	-	-	-	-	-	-	-	
min. operating temperature (°C / °F)	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	1,5 / 35	
max. operating temperature (°C / °F)	65 / 149	65 / 149	65 / 149	65 / 149	65 / 149	45 / 113	45 / 113	45 / 113	45 / 113	

	CORRECTION FACTORS															
Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232	
Correction factor	0,38	0,50	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13	

<sup>1)</sup> B filter element can be cleaned with ultrasonic bath or with back flushing. Intervals of cleaning depends of application. If necessary replace filter element with new one.  
<sup>2)</sup> Filter elements "A, A<sup>2</sup>, H<sup>2</sup>", must be changed periodically to suit application, but at least every 6 months. Activated carbon filters must not operate in oil saturated conditions.  
<sup>3)</sup> Valid if "S" filter cartridge is installed upstream.  
<sup>4)</sup> For elements A<sup>2</sup>, H<sup>2</sup> and MS<sup>2</sup> it is necessary to reduce the flow according to technical data sheet specification.

## CONDENSATE SEPARATORS

### CKL-B SERIES

#### ALUMINIUM CYCLONE CONDENSATE SEPARATORS



operating pressure	<b>16 bar</b>
volume flow rate	120 to 2850 Nm <sup>3</sup> /h
connections	3/8" to 3"
operating temp. range	1,5 to 65 °C
standard colour	RAL 9005

#### DESCRIPTION

CKL-B condensate separators are designed for high efficient removal of bulk liquids from compressed air and vacuum systems. Inside the housing there is an insert with vanes that creates controlled rotation of the air.

As a result of centrifugal action liquids (water, oil) and large particles are forced to the housing wall, slowed down and accumulated at the bottom of separator housing as condensate. The turbulent free zone in the lower part of the filter housing prevents condensate from being picked up and "carried over" into the airstream.

To discharge condensate from the CKL-B cyclone separator it is essential to install automatic or electronic condensate drain.

Model	Pipe size	Max.oper. pressure	Flow rate at 7 bar(g), 20 °C		Temperature oper. range		Dimensions [mm]				Mass
	DN		bar/psi	Nm <sup>3</sup> /h	SCFM	°C	°F	A	B	C	
CKL 005 B	3/8	16/232	120	70	1,5- 65	35- 149	187	88	20	60	0,7
CKL 007 B	1/2	16/232	155	91	1,5- 65	35- 149	187	88	20	60	0,7
CKL 010 B	3/4	16/232	235	138	1,5- 65	35- 149	257	88	20	80	0,8
CKL 018 B	1	16/232	365	215	1,5- 65	35- 149	263	125	32	100	1,8
CKL 047 B	1 1/2	16/232	770	452	1,5- 65	35- 149	461	125	32	140	2,5
CKL 094 B	2	16/232	1280	753	1,5- 65	35- 149	684	163	43	520	5,1
CKL 150 B	2 1/2	16/232	2460	1447	1,5- 65	35- 149	684	163	43	520	5,1
CKL 200 B	3	16/232	2850	1677	1,5- 65	35- 149	795	240	59	630	12,9



quality class- solids (ISO 8573-1)	-
quality class- water (ISO 8573-1)	8
quality class- oils (ISO 8573-1)	-
efficiency	>98%

#### CORRECTION FACTORS

Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor	0,38	0,50	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13

# DIFFERENTIAL PRESSURE INDICATORS

## DESCRIPTION

Pressure drop indicator is designed to indicate pressure drop across the filter element in compressed air system. It detects when the filter cartridge is clogged and should be replaced. It is typically installed on the head of the filter housing. It be used in variety of applications. For applications not listed please contact producer or your local distributor.

## APPLICATIONS

- automotive
- electronics
- food & beverage
- chemical
- petrochemical
- plastics
- paint
- general industrial application

## MDA60



TECHNICAL DATA	
operat. press. range	<b>0 - 20 bar (0 - 290 psi)</b>
operat. temp. range	1,5- 65 °C (35- 149 °F)
mass	0,36 kg
measuring range	2 bar (29 psi)
dimensions (LxBxH)	84 x ø80 x 78 mm

## MDM60



TECHNICAL DATA	
operat. press. range	<b>0 - 16 bar (0 - 232 psi)</b>
operat. temp. range	1,5- 65 °C (35- 149 °F)
mass	0,15 kg
measuring range	0,9 bar (13 psi)
dimensions (LxBxH)	72x64x68 mm
Model	Description
MDM 60	basic version
MDM 60E	electronic version, LED alarm
MDM 60C	voltage free-contact version

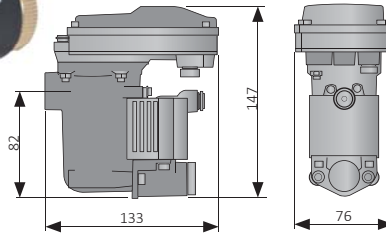
## EPG60



TECHNICAL DATA		
	EPG-SN	EPG
service network connec.	yes	no
system press. range	0- 16 bar (0- 232 psi)	
differential press. range	0,07- 1,00 bar	
max. differential press.	1 bar (14,7 psi)	
ambient oper. temp.	1,5 °C- 40 °C	
compr. air oper. temp.	1,5 °C- 65 °C	
mass	130 g (without batt.)	
materials	PA6, glass fibres, NBR	
battery life time	>1 year (alkaline AA)	
dimensions (LxBxH)	61,5x81x62 mm	

## CONDENSATE DRAINS

### EMD SERIES ELECTRONIC CONDENSATE DRAINS



operating pressure	<b>16 bar</b>
drain capacity	up to 75 l/h
connections	1/2"
operat. temp. range	1,5 to 65 °C

#### DESCRIPTION

EMD12 series drain is designed for fully automatic discharging of condensate or any other non-aggressive fluid from compressed air system. The units can be installed as external drain on any application specified.

Condensate accumulates in the collecting reservoir. When the level is high enough condensate is being discharged from the system without any air losses. Fluid level is detected by precise capacitive level sensor.

Special self-cleaning direct acting valve assures reliable operating. EMD series is also equipped with operation alarm, led indicator, test button and internal strainer. Version with Service Network for diagnostics parameter setting and alarm output is also available.

TECHNICAL DATA	EMD12	EMD12A	EMD12C	EMD12	EMD12A	EMD12C	EMD12	EMD12A	EMD12A	EMD25	EMD 75		
	230 V			115 V			24 Vac		24Vdc	230 V	115 V	230 V	115 V
Service network connection	-	-	✓	-	-	✓	-	-	-	-	-	-	-
Alarm output	-	✓	✓	-	✓	✓	-	✓	✓	-	-	-	-
Voltage	230 VAC, 50-60 Hz			115 VAC, 50-60 Hz			24 Vac, 50-60 Hz		24Vdc	230 V	115 V	230 V	115 V
Internal fuse	5 x 20 1A T			5 x 20 1A T			2A		2A	5 x 20 1A T		5 x 20 1A T	
Power	10 VA			10 VA			10 VA		8,5 A	24 A		24 A	
Operating pressure range	0-16 bar (0-232 psi)			0-16 bar (0-232 psi)			0-16 bar (0-232 psi)		0-8 bar	0-16 bar (0-232 psi)		0-16 bar (0-232 psi)	
Drain capacity (7 bar/101 psi)	12 l/h (0,007cfm)			12 l/h (0,007cfm)			12 l/h (0,007cfm)		12 l/h	25 l/h		75 l/h	
Operating temp. range	1,5-65°C (35-149°F)												
Inlet connection	G 1/2"			G 1/2"			G 1/2"		G 1/2"	G 1/2"		G 1/2"	
Outlet connection	Push connection for tube ø8												
Protection class	IP54												
Mass [kg]	0,55								0,9		1,2		
Dimensions A x B x C [mm]	133 x 76 x 147												
Peak compressor capacity [m³/min]	a	8,8								16,6		55,0	
	b	7,4								15,4		46,2	
	c	4,6								9,6		28,7	
Peak dryer capacity [m³/min]	a	18,56								38,6		116,0	
	b	14,9								31,0		93,1	
	c	9,28								19,3		58,0	
Peak filter capacity [m³/min]	a	92,8								193,3		580,0	
	b	74,4								154,9		465,0	
	c	46,4								96,6		290,0	

- a Northern Europe, Canada, Central Asia
- b Rest of the World
- c Moist tropical and subtropical regions

The amount of condensed water in compressed air system depends mainly on outside air temperature. Please take the relevant climate zone into account when dimensioning your specific EMD-12 drain series application:

# CONDENSATE DRAINS

## ECD-B SERIES

### ELECTRONIC CONDENSATE DRAINS



operating pressure	<b>16 bar</b>
drain capacity	15 to 150 l/h
connections	1/2"
operat. temp. range	1,5 to 65 °C

#### DESCRIPTION

ECD-B series have been developed for fully automatic discharging of condensate or any other non-aggressive fluid from compressed air(1) system. The units can be installed as external drain on any application specified.

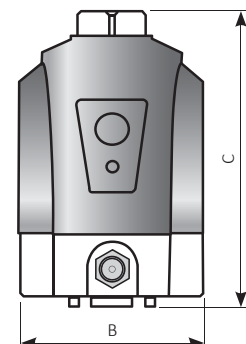
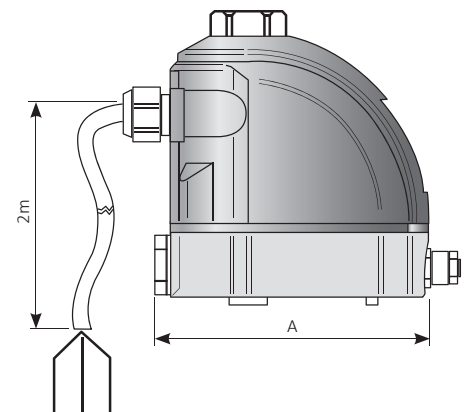
Condensate accumulates in the collecting reservoir and when the level is high enough condensate is being discharged from the system without any air losses. Fluid level is detected by precise capacitive level sensor.

Special self-cleaning direct acting valve assures reliable operating. ECD-B is equipped with operation alarm, led indicator, test button and internal strainer. ECD-B series can be used in variety of applications. For applications not listed please contact producer or your local distributor.

(1)For any other technical gas please contact producer or your local distributor.

TECHNICAL DATA		ECD 15B	ECD 40B	ECD 90B	ECD 150B
Voltage	115 VAC	115 V ± 10 %	115 V ± 10 %	115 V ± 10 %	115 V ± 10 %
	230 VAC	230 V ± 10 %	230 V ± 10 %	230 V ± 10 %	230 V ± 10 %
Power	115 VAC	24 VA	24 VA	24 VA	24 VA
	230 VAC	24 VA	24 VA	24 VA	24 VA
Frequency		50-60 Hz			
Operating pressure		0-16 bar (0- 232 psi)			
Drain capacity (at 7 bar/101 psi)		15 l/h	40 l/h	90 l/h	150 l/h
Operating temperature range		1,5- 65 °C (35-149 °F)			
Inlet connection		R 1/2"	R 1/2"	R 1/2"	R 1/2"
Outlet connection		R 1/8"	R 1/8"	R 1/8"	R 1/8"
Power interface		3 × 0,75 mm <sup>2</sup>	3 × 0,75 mm <sup>2</sup>	3 × 0,75 mm <sup>2</sup>	3 × 0,75 mm <sup>2</sup>
Protection class		IP54	IP54	IP54	IP54
Mass [kg]		0,9	0,9	1,05	1,15
Dimensions A × B × C [mm]		120×82×125	120×82×125	120×82×135	120×82×150
Peak compressor performance [m <sup>3</sup> /min]	a	11,6	29,4	60,6	111,6
	b	9,3	23,5	48,5	89,3
	c	5,8	14,7	30,3	55,8
Peak dryer performance [m <sup>3</sup> /min]	a	23,2	58,8	121,2	223,2
	b	18,6	47,0	97,0	178,6
	c	11,6	29,4	60,6	111,6
Peak filter performance [m <sup>3</sup> /min]	a	116	294	606	1116
	b	93	235	485	893
	c	58	147	303	558
Compressor motor power [kW]		up to 30	up to 75	up to 160	up to 315

Please take the relevant climate zone into account when dimensioning your specific ECD-B drain series application:



a	Northern Europe, Canada, Northern USA, Central Asia
b	Central and Southern Europe, Central America
c	South East Asian coastal regions, Oceania, Amazon and Congo regions

## CONDENSATE DRAINS

### TD M SERIES

#### TIMER CONTROLLED CONDENSATE DRAINS



TECHNICAL DATA	TD16M		TD16Mcr	
	Supply voltage	115V	230V	115V
Operating temp. range	1,5- 65 °C (35-149 °F)		1,5- 65 °C (35-149 °F)	
Operating pressure	<b>16 bar (232 psi)</b>		<b>16 bar (232 psi)</b>	
Protection class	IP65		IP65	
Coil power	18VA (holding), 36 VA (inrush)		18VA (holding), 36 VA (inrush)	
Mass (cable+valve)	0,35 kg		0,35 kg	
Time ON	0,5 s- 10 s		0,5 s- 10 s	
Time OFF	0,5 min- 45 min		0,5 min- 45 min	
Drain capacity (at 7 bar)	95 l/h		95 l/h	
Flow rate Kvs	2,4 l/min		3,4 l/min	
Inlet connection	R 1/2"		R 1/2"	
Outlet connection	R 1/4"		R 1/4"	
Dimensions LxBxH [mm]	77x79x93	87,5x90,5x123	77x79x93	87,5x90,5x123
Medium	Air, water, oil		Agressive fluids	
Option strainer	yes		no	

### AOK 20B

#### AUTOMATIC CONDENSATE DRAIN



TECHNICAL DATA	
Operating temperature range	1,5- 65 °C (35-149 °F)
Operating pressure	<b>20 bar (290 psi)</b>
Mass	0,6 kg
Discharge capacity (at 7 bar/101 psi)	167 l/h
Inlet connection	G 1/2" (NPT option)
Outlet connection	G 1/2" (NPT option)
Dimensions A x B x C	135 x 110 x 130 mm
Medium	Condensate (air, water, oil)

#### RECOMMENDATIONS

Install ball valve between pressure vessel and inlet connection.  
Install strainer element between pressure vessel and inlet connection.  
Install nipple with venting tube to avoid generation of air bubbles.  
Nipple is screwed on inlet connection.



### AOK 16B

#### AUTOM. COND. DRAIN



TECHNICAL DATA	
Operating temp. range	1,5- 65 °C (35-149 °F)
Operating pressure	<b>0 - 16 bar (0 - 232 psi)</b>
Mass	0,04 kg
Connection	G 1/2"
Outlet connection	ø8
Dimensions H x D	90 x ø38,5 mm
Medium	Condensate (air, water, oil)

### MCD

#### MANUAL COND. DRAIN



TECHNICAL DATA		MCD
Operating temp. range	1,5- 65 °C (35-149 °F)	
Operating pressure	<b>0-20 bar (290 psi)</b>	
Mass	0,06 kg	
Connection	G 1/2"	
Dimensions	H	38,2 mm
	E	24,0 mm
Medium	Condensate (air, water, oil)	
Material	brass	

## ACCESSORIES

### OCI OIL CONTENT INDICATOR



OCI oil content indicator has been designed to monitor oil content in pressure vessels and receivers where air quality is critical. It is calibrated to detect aerosol-mist level of oil with sensitivity down to 0,01 PPMm (0,012 mg/m<sup>3</sup>). Replacement cartridge is available when original is worn out.

TYPE	OCI A-4000-120
Connection	G1/8"
Dimensions	166 x 16,2 mm
Mass	0,134 kg
Pressure range	0,68- 16 barg
Oper. temp. range	1,5 °C to 49 °C
Measuring range	0- 25 PPM(m) at 20 °C ; 0- 30 mg/m <sup>3</sup>

### WS/WM WALL MOUNTING KIT FOR FILTERS



Wall mounting kits have been developed to easily mount filter on the wall or other surface. The kit contains 2 stainless steel consoles (which are mirrored) and 6 self-tapping screws.

TYPE	<b>WS</b>	<b>WM</b>
Fits to filter housings	AF 0056- AF 0106	AF 0186- AF 0706
Operating temp.	-20 to +120 °C	(-4 to 248°F)
Max. load/console kit (kg)	6	15
Mass (kg)	0,35	0,6
Material	Stainless steel	

### AK ASSEMBLY KIT FOR FILTERS



Assembly kits have been developed to connect two or more air filters together. Construction of assembly kit is universal and it can be used for any type of filter, including filters of some other world producers. It is easy to connect two\_filters together and it includes supporting elements for easy mounting on the wall or other surface.

Type	Connection	Operating temp.	Operating pressure	Max. load/console	Mass
AK 3/8"	3/8"	1,5- 65°C	0- 20 bar	0,47	0,3
AK 1/2"	1/2"	1,5- 65°C	0- 20 bar	0,47	0,3
AK 3/4"	3/4"	1,5- 65°C	0- 20 bar	0,6	0,3
AK 1"	1"	1,5- 65°C	0- 20 bar	1,57	0,5
AK 1 1/2"	1 1/2"	1,5- 65°C	0- 20 bar	2,2	0,5
AK 2"	2"	1,5- 65°C	0- 20 bar	2,32	1,57
AK 2 1/2"	2 1/2"	1,5- 65°C	0- 20 bar	2,28	1,53
AK 3"	3"	1,5- 65°C	0- 20 bar	2,22	1,47

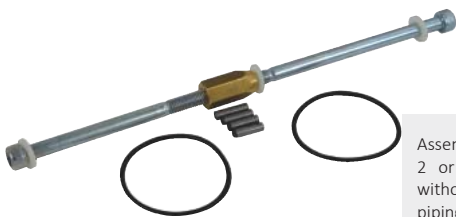
### SG SIGHT GLASS



Sight glass has been developed for easy checking level of condensate accumulated in the bottom of compressed air filter bowl. On every casted aluminium filter housing there is a pre casted area where sight glass can be mounted after appropriate holes are drilled.

TYPE	SG
Operating pressure	0 to 16 bar (0 to 232 psi)
Operating temp.	1,5 to +65 °C (35 to 149 °F)
Operating fluid	Air, water, oil
Mass (kg)	0,010
Material	PA12
Dimensions (mm)	59,0 x 20,5 x 11,0

### 2S, 3S, 2M, 3M ASSEMBLY KIT FOR FILTERS



Assembly kits are used for manifold 2 or 3 AF type filters together, without using interconnecting piping.

- Types are:
- 2S 2 x AF 0056 to AF 0106
  - 3S 2 x AF 0056 to AF 0106
  - 2M 3 x AF 0186 to AF 0706
  - 3M 3 x AF 0186 to AF 0706

### ES EXHAUST SILENCER



ES series expansion silencers are designed for efficient noise reduction at variety of applications where compressed air is expanded/depressurised to ambient pressure.

Type	Connec.	Operating pressure	Operating temperature	Dimensions	
				ø [mm]	h [mm]
ES 06050	1/4"	0-13 bar	1,5 to +65°C	51	69
ES 14050	3/8"			51	127
ES 12075	1/2"			75	131
ES 22075	3/4"			75	231
ES 22090	1"			90	231
ES 32090	1 1/4"			90	333
ES 32140	1 1/2"			140	336
ES 45140	2"			140	462

## OIL/WATER SEPARATION EQUIPMENT

### WOSM SERIES WATER - OIL SEPARATORS



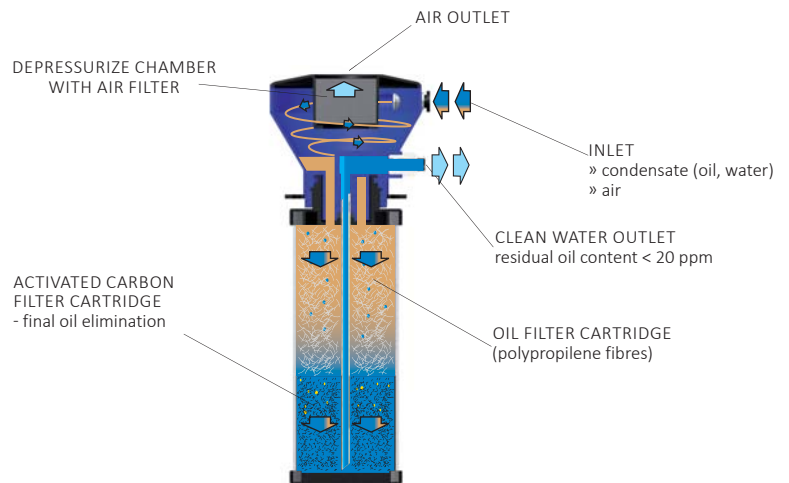
operat. temp. range	<b>1,5 to 45 °C</b>
inlet connection	ø8 mm
DIBt number	Z-83.5-31

#### DESCRIPTION

WOSm water oil separators have been developed to separate lubricant oil from condensate generated in compressed air systems. Due to patented technology regular service can be done in 30 seconds without any cleaning.

Separation begins in "cyclonic depressurization chamber" and continues in "filter cartridge". When the "filter cartridge" is fully saturated you just simply unscrew complete cartridge and replace it with new one.

All the condensate stays in old cartridge which can also be sealed with plastic cover and disposed according to local directives and laws.



#### TECHNICAL DATA

Operating temperature	1,5- 45 °C (max 65 °C) <sup>(1)</sup> ; 35- 113 °F (max. 149 °F) <sup>(1)</sup>																			
Operating media	Condensate (air, water, oil); Non agressive; Not suitable for emulsion																			
Residual oil content	< 20ppm																			
Service interval	When first of following parametres appears:																			
	- 4000 operating hours of compressor <sup>(2)</sup>																			
	- 12 months regardless of compressor operating hours																			
	- when all white polypropylene media becomes yellow																			
WOSm1	Max oil adsorption [g]	Cold climate zone 15 °C 60 %RH	Mild climate zone 25 °C 60 %RH	Hot climate zone 40 °C 100 %RH	<table border="1"> <thead> <tr> <th colspan="5">Dimensions [mm]</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>483</td> <td>106</td> <td>80</td> <td>335</td> <td>50</td> </tr> </tbody> </table>	Dimensions [mm]					A	B	C	D	E	483	106	80	335	50
	Dimensions [mm]																			
	A	B	C	D		E														
483	106	80	335	50																
Max FAD [Nm³/min]/[scfm]	1,23/43,05	1,08/37,8	0,62/21,9																	
Max condensate flow [l/h]	0,57	0,90	1,91																	
WOSm2	Max oil adsorption [g]	1520	1340	770	<table border="1"> <thead> <tr> <th colspan="5">Dimensions [mm]</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>816</td> <td>106</td> <td>80</td> <td>670</td> <td>50</td> </tr> </tbody> </table>	Dimensions [mm]					A	B	C	D	E	816	106	80	670	50
	Dimensions [mm]																			
	A	B	C	D		E														
816	106	80	670	50																
Max FAD [Nm³/min]/[scfm]	2,54/88,9	2,23/78,05	1,28/45,2																	
Max condensate flow [l/h]	1,19	1,87	3,96																	

<sup>(1)</sup> Max. operating temperature is 65 °C, but when temperature is over 45 °C, performance may decrease.

<sup>(2)</sup> At compressor oil carryover 2,5 mg/m³. Lower/higher oil carry over means proportionally longer/shorter lifetime (e.g. if oil carryover is 5 mg/m³ lifetime reduces to 2000 operating hours).



# OIL/WATER SEPARATION EQUIPMENT

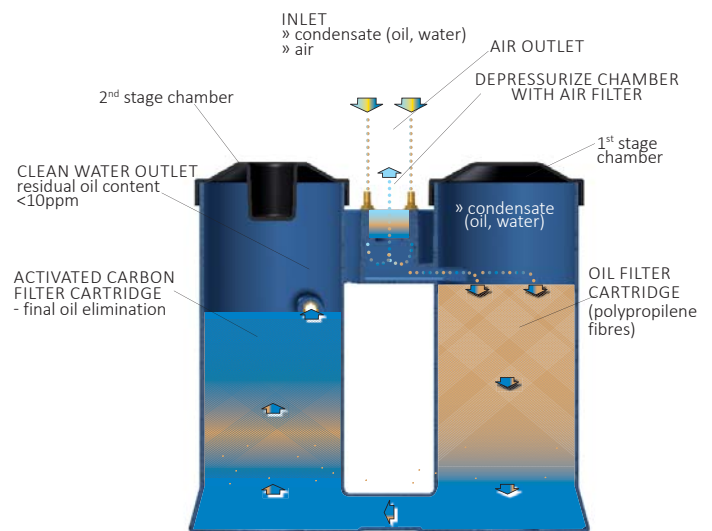
## WOS SERIES WATER - OIL SEPARATORS



operat. temp. range	<b>1,5 to 45 °C</b>
inlet connection	ø10 mm
DIBt number	Z-83.5-31

### DESCRIPTION

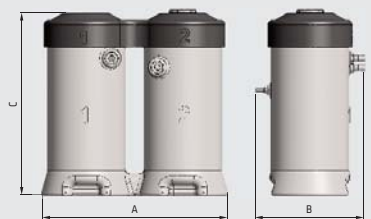
WOS water oil separators have been developed to separate lubricant oil from condensate from compressed air systems. WOS water-oil separator can be used in variety of applications. For applications not listed please contact producer or your local distributor.



### TECHNICAL DATA

Operating temperature	1,5- 45 °C (max 65 °C) <sup>(3)</sup> ; 35- 113 °F (max. 149 °F) <sup>(3)</sup>		
Operating media	Condensate (air, water, oil); Non agresive; Not suitable for emulsion		
Residual oil content	< 10ppm		
Service interval	When first of following parametres appears:		
	- 4000 operating hours of compressor <sup>(4)</sup>		
	- 12 months regardless of compressor operating hours		
	- outlet oil concentration reaches concentration determined with local directives		

Technical data		Cold climate zone 15 °C 60 %RH	Mild climate zone 25 °C 60 %RH	Hot climate zone 40 °C 100 %RH	Dimensions [mm]		
					A	B	C
WOS-4	Max oil adsorption [kg]	2,89	2,43	1,23	416	243	411
	Max FAD [Nm <sup>3</sup> /min]/[scfm]	4,82/170	4,04/142	2,05/72,3			
	Max condensate flow [l/h]	2,3	3,4	6,3			
WOS-8	Max oil adsorption [kg]	6,01	5,04	2,55	730	343	680
	Max FAD [Nm <sup>3</sup> /min]/[scfm]	10,0/353	8,4/296	4,25/150			
	Max condensate flow [l/h]	4,7	7,1	13,1			
WOS-20	Max oil adsorption [kg]	14,64	12,28	6,22	820	366	940
	Max FAD [Nm <sup>3</sup> /min]/[scfm]	24,4/861	20,5/723	10,37/366			
	Max condensate flow [l/h]	11,4	17,2	32,0			
WOS-35	Max oil adsorption [kg]	25,4	21,31	10,79	960	386	1137
	Max FAD [Nm <sup>3</sup> /min]/[scfm]	42,3/1495	35,5/1254	17,99/635			
	Max condensate flow [l/h]	19,8	29,8	55,6			



### Water quality test

Water quality test should be performed at least once per month, to control the contamination level of disposed condensate. If oil concentration is reached, oil filter cartridges must be changed.

<sup>(3)</sup> Max. operating temperature is 65 °C, but when temperature is over 45 °C, performance may decrease.

<sup>(4)</sup> At compressor oil carryover 2,5 mg/m<sup>3</sup>. Lower/higher oil carry over means proportionally longer/shorter lifetime (e.g. if oil carryover is 5mg/m<sup>3</sup> lifetime reduces to 2000 operating hours).

**WOS CD SERIES**  
CONDENSATE DISTRIBUTOR



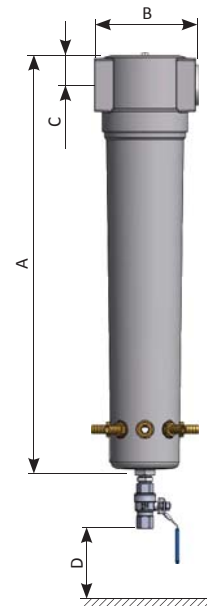
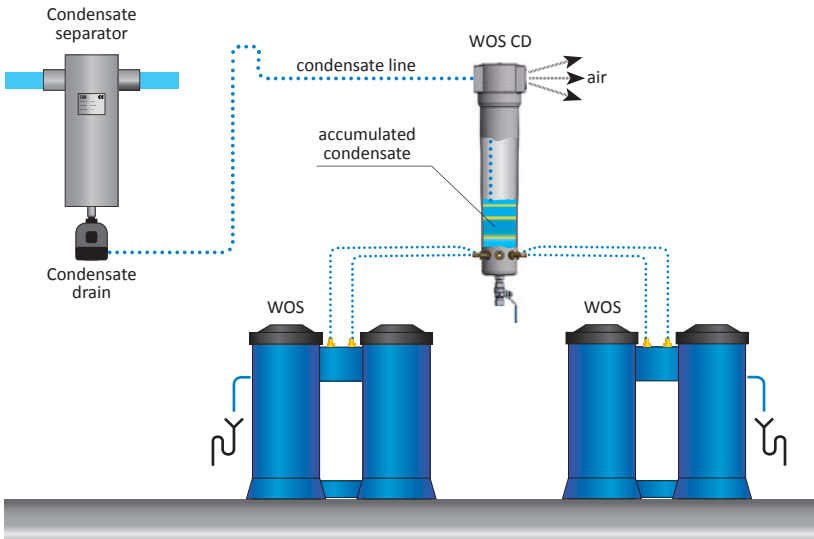
operat. temp. range	<b>1,5 to 65 °C</b>
inlet connection	3/4" to 3"
outlet hose connection	see specification

**DESCRIPTION**

WOS CD is intended for systems, where amount of generated condensate exceeds capacity of single largest available WOS water oil separator. WOS CD can evenly distribute collected condensate between up to three WOS 35 water oil separators.

WOS CD is equipped with flow distributor on the inlet port, up to 8 hosetail connections mounted on elbows for convenient outlet, manual ball valve for cleaning purpose and vent port for safe aeration.

Optional wall mounting kit is available. Maximum capacity in regard to free air delivery, when connected to WOS-35 is 120 Nm<sup>3</sup>/min.



TECHNICAL DATA

Type	Pipe size	Hosetail connections	Dimensions [mm]				Volume	Mass
	inch		A	B	C	D	L	kg
WOS CD 2	3/4"	2	257	88	20	140	0,6	1,2
WOS CD 4	1 1/2"	4	461	125	32	140	2,8	3
WOS CD 8	2"	8	684	163	43	140	6,0	6
WOS CD 12	3"	12	795	240	59	140	20,0	12,9

# ACTIVATED CARBON TOWERS

## TAC SERIES ACTIVATED CARBON TOWER



operating pressure	<b>0 to 16 bar</b>
operating temperature	1,5 to 45 °C

### DESCRIPTION

TAC activated carbon towers have been developed for separating oil vapours from compressed air (dry type separation).

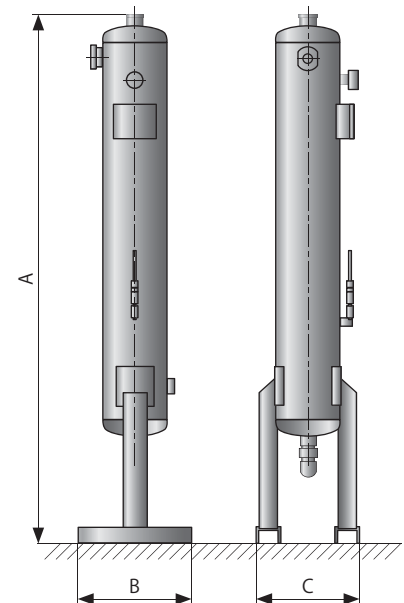
TAC series is made from high quality carbon steel. Flow distributors ensure uniform distribution of air flow through activated carbon bed. Oil vapours as well as some other hydrocarbons are separated due to adsorption process.

Super fine coalescing filter is required upstream TAC and 1 µm dust filter is recommended downstream to intercept activated carbon dust.

High pressure version is available on request.

Stainless steel version available on request.  
High pressure version available on request.

Filter housing size	Pipe size	Operating pressure	Flow rate at 7 bar(g), 20 °C		Dimensions [mm]			Mass	Cartridge number	
	inch		bar	Nm <sup>3</sup> /h	scfm	A	B			C
TACm 6	3/8	16	6	3,5	404	188	100	3,5	1 x ø80	
TACm 12	3/8	16	12	7	638	188	100	5,3	2 x ø80	
TACm 23	3/8	16	24	14,1	1106	188	100	6,5	4 x ø80	
TACm 35	3/8	16	36	21,1	1574	188	100	12	6 x ø80	
TACm 56	1/2	16	60	35,3	1106	270	148	15	4 x ø129	
TACm 70	1/2	16	75	44,1	1340	270	148	18	5 x ø129	
TACm 105	1/2	16	105	61,8	1808	270	148	22	7 x ø129	
TAC 10	3/4	16	100	59	1369	300	261	44	-	
TAC 18	1	16	175	103	1380	300	315	51	-	
TAC 30	1	16	275	162	1391	338	370	69	-	
TAC 47	1 1/2	16	475	280	1466	432	449	110	-	
TAC 94	2	16	900	530	1485	574	580	186,5	-	
TAC 150	2	16	1500	882	1586	712	724	310	-	
TAC 200	3	16	2200	1294	1631	910	852	440	-	
TAC 240	3	16	2800	1646	1656	1010	952	586	-	
									quality class- solids (ISO 8573-1)	-
									quality class- water (ISO 8573-1)	-
									quality class- oils (ISO 8573-1)	0/1
									pressure drop- new element-dry [mbar / psi]	20 / 0,29
									filter media	act. carbon
									residual oil vapour content (nominal) [mg/m <sup>3</sup> ]	<0,003



CORRECTION FACTORS															
Operating pressure [bar]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operating pressure [psi]	29	44	58	72	87	100	115	130	145	160	174	189	203	218	232
Correction factor	0,38	0,5	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,0	2,13
CORRECTION FACTORS															
Operating temperature [°C]	20	25	30	35	40	45	50	55	60						
Correction factor	1	0,98	0,97	0,92	0,86	0,75	0,60	-	-						

Replace activated carbon every 12 months or sooner if required. Check residual oil content with oil indicator monthly.

**CHAMPION**

by Gardner Denver

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For additional information please contact your local representative.

Specifications subject to change without notice.