

Airpol

Compressors Manufacturing Company Ltd.



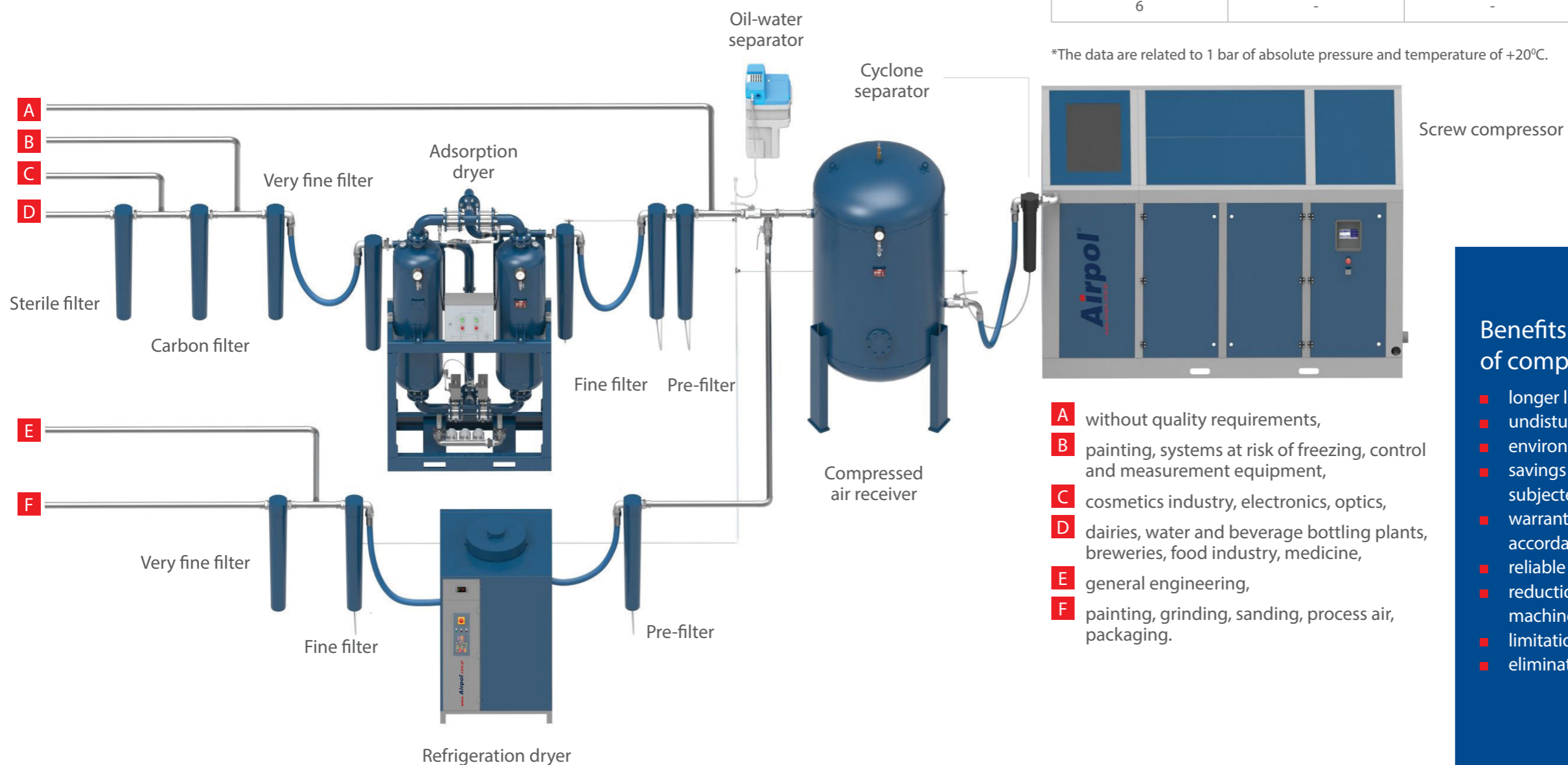
**COMPRESSED
AIR
TREATMENT
SYSTEMS**

WHY TO TREAT THE COMPRESSED AIR?

Ambient air sucked by the compressor contains solid contaminants and water vapour. The compressor itself is also a source of contaminants (oil, wear products). Therefore, the air in the network after compression contains water vapour, dust and oil.

As heat is generated in the compression process, although being cooled the compressed air leaving the compressor is still so hot that when it contacts the external conditions the condensate causing corrosion and premature wear of pipelines and the installed equipment and tools is produced because of temperature difference. That results in disturbances and interruptions in operation and requires expensive maintenance and repair works that could be avoided by using the suitably selected additional compressed air treatment systems to obtain dry air free of contaminants.

The compressed air treatment involves its cooling, drying and removal of dust and oil. To achieve the above aims, there are used different solutions adapted to individual users' needs and based on the devices such as dryers, filters and separators. They ensure obtainment of the required compressed air quality - one of the most important energy carriers used in the technological processes.



Quality class of compressed air according to ISO 8573.1

The applied international standard ISO 8573.1 defines upper limits for content of solid particles, water and oil in compressed air. For example: the characteristics for the compressed air quality class 2.3.2 is as follows: solid particles up to 1 micron in quantity of 1 mg/m³, humidity - temperature of pressure dew point -20°C, oil content up to 0.1 mg/m³.

Quality class according to ISO 8573.1	Solid particles		Water	Oil
	*Max size of solid particles μm	*Max concentration of solid particles mg/m ³	*Max value of pressure dew point °C	Max concentration of oil mg/m ³
1	0,1	0,1	-70	0,01
2	1	1	-40	0,1
3	5	5	-20	1
4	15	8	+3	5
5	40	10	+7	>5
6	-	-	+10	-

*The data are related to 1 bar of absolute pressure and temperature of +20°C.

Benefits resulting from the use of compressed air:

- longer life of the pneumatic tools,
- undisturbed technological process,
- environmental protection,
- savings from reduction of the oily condensate quantity subjected to disposal,
- warranty of obtaining the compressed air quality in accordance with the required class according to ISO 8573-1,
- reliable operation of the compressed air operated machines,
- reduction of costs related to inspections and repairs of machines,
- limitation of the compressed air plant corrosion,
- elimination of unscheduled downtime in production.

COMPRESSED AIR REFRIGERATION DRYERS

The refrigerant dryers are designed to remove water, moisture and vapour, having destructive and corrosion influence on the networks and pneumatic tools, from compressed air.

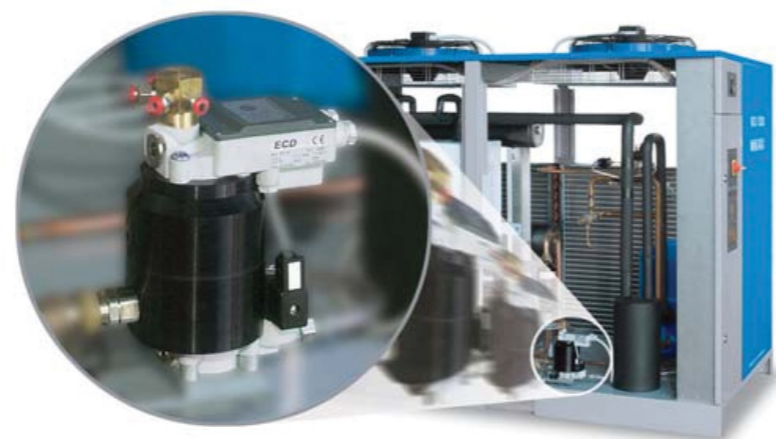
The compressed air at average temperature of $+30^{\circ}\text{C} \div +45^{\circ}\text{C}$ supplied to the dryer, is initially cooled in the air to air heat to $+14^{\circ}\text{C} \div +23^{\circ}\text{C}$. Then the air is further cooled in the evaporator of the refrigerant circuit and achieves the set dew point of $+3^{\circ}\text{C}$, required to condensate water vapour existing in the compressed air circuit.

The use of dried compressed air makes it possible to limit the corrosion risk of tools, cylinders, pneumatic machines, air receivers, pipelines and also avoid damage of the final product e.g. paint coating.



Microprocessor controller

Clear information on the present condition of the refrigeration compressor, fan and the necessity to carry out maintenance work (in OP 50 - OP 190 dryers).



Electronic drain valve, controlled by the level of condensate

Effective prevention of all compressed air loss.

Discharges only water, NOT compressed air = Energy savings

Noise-free, no acoustic impact = Environmental protection.

(OPA 10 - OPA 40 dryers equipped with time controlled condensate drains).

Type	Flow*		Power consumption W	Power supply V/Hz/Ph	Connection	Overall dimensions			Weight kg	Refrigerant type
	m ³ /h	m ³ /min				L mm	W mm	H mm		
OPA 10	50	0,8	260	230/50/1	G 1/2	372	404	380	25	R134a
OPA 20	72	1,2	280	230/50/1	G 1/2	372	424	380	30	R134a
OPA 30	110	1,8	320	230/50/1	G 1/2	372	424	446	34	R134a
OPA 40	140	2,3	420	230/50/1	G 1 1/4	460	440	500	43	R404A
OP 50	180	3,0	673	230/50/1	G 1	370	500	765	44	R404A
OP 60	216	3,6	793	230/50/1	G 1 1/2	460	560	790	53	R410A
OP 65	246	4,1	870	230/50/1	G 1 1/2	460	560	790	60	R410A
OP 70	312	5,2	1072	230/50/1	G 1 1/2	460	560	790	65	R410A
OP 80	390	6,5	1190	230/50/1	G 1 1/2	580	590	900	80	R410A
OP 90	462	7,7	1446	230/50/1	G 1 1/2	580	590	900	80	R410A
OP 100	600	10	1818	400/50/3	G 2	735	900	962	128	R410A
OP 110	720	12	2013	400/50/3	G 2	735	900	962	146	R410A
OP 120	900	15	2636	400/50/3	G 2	735	900	962	158	R410A
OP 130	1080	18	3568	400/50/3	G 2	735	900	962	165	R410A
OP 140	1440	24	3900	400/50/3	G 3	1020	1082	1535	325	R410A
OP 150	1800	30	4460	400/50/3	G 3	1020	1082	1535	335	R410A
OP 160	2100	35	5550	400/50/3	G 3	1020	1082	1535	350	R410A
OP 170	3000	50	6800	400/50/3	DN125	1020	2100	1535	550	R404A
OP 180	4200	70	10200	400/50/3	DN125	1020	2100	1535	600	R404A
OP 190	5040	84	12300	400/50/3	DN125	1020	2100	1535	650	R404A

*Reference conditions:

Operating pressure	7 bar
Compressed air temperature	35°C
Ambient temperature	25°C
Pressure dew point	+3°C +/- 1 at 100% load

Limit conditions:

Min/max operating pressure	5 bar/16 bar (OPA10-OPA40); 5 bar/13 bar (OP50-OP190)
Max compressed air temp. on the inlet	+55°C
Min/max ambient temperature	+5°C/+45°C

Correction factors for operating conditions other than the declared reference conditions K=AxBXC														
Ambient temperature	°C	25	30	35	40	45								
	A	1,00	0,92	0,84	0,80	0,74								(OPA 10 - OP 90)
		1,00	0,91	0,81	0,72	0,62								(OP 100 - OP 190)
Compressed air temperature	°C	30	35	40	45	50	55							
	B	1,25	1,00	0,82	0,69	0,58	0,45							(OPA 10 - OP 90)
		1,00	1,00	0,82	0,69	0,58	0,49							(OP 100 - OP 190)
Operating pressure	bar	5	6	7	8	9	10	11	12	13	14	15	16	
	C	0,90	0,96	1,00	1,03	1,06	1,08	1,10	1,12	1,13	1,15	1,16	1,17	(OPA 10 - OP 90)e
		0,90	0,97	1,00	1,03	1,05	1,07	1,09	1,11	1,12				(OP 100 - OP 190)

ADSORPTION DRYERS

These devices are used everywhere the compressed air plants are subjected to freezing or where in critical applications the use of very dry air is required.

The adsorption dryers provide the highest quality compressed air - free of moisture, solid particles and oil. They consist of two columns, filled with activated alumina and operating alternately in the determined time intervals. Adsorption takes place under pressure in the first column while the second column regenerates (adsorption drying).

Depending on the way of the bed regeneration, there are cold and heated regenerative adsorption dryers.

ADSORPTION DRYER is the complete compressed air treatment station equipped as standard in a set of two filters: coalescing filter of inlet air and dust filter of outlet air

- High quality air with very low relative humidity to effectively prevent water condensation.
- Small compressed air pressure drops thanks to large capacity adsorbent-filled tanks, as well as large diameter supply and receiving collectors. This ensures low speed of compressed air, and thus a small pressure drop.
- Simple design and easy operation.
- High energy efficiency of dehumidifiers equipped with a dew point temperature sensor which allows you to automatically adjust the frequency of dehumidifier cycles to actual conditions, and thus reduce the consumption of compressed air for bed regeneration.



COLD REGENERATED ADSORPTION DRYERS

The devices for regeneration of adsorption medium use previously dried compressed air in quantity of approx. 15% of nominal flow.



Time control

The microprocessor controller regulates operation of the service valves and regeneration of absorbers in the programmed time intervals.

Adsorption and regeneration phases occur at equal time intervals (every 5 min.).

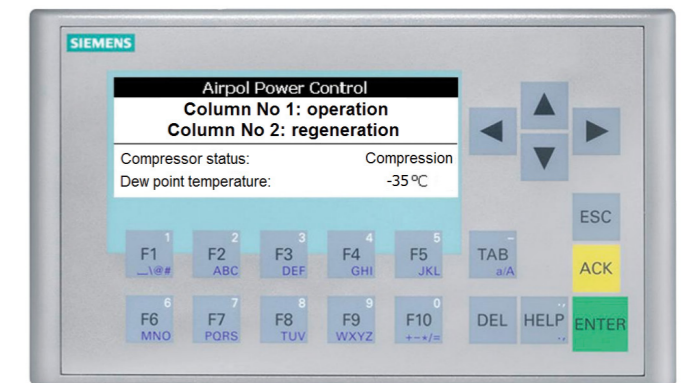
Dew point control

Control is carried out according to measurement of the pressure dew point at the dryer compressed air outlet. Owing to that loss of dried air is limited, and the entire adsorption cycle is adapted to the changing operation conditions.



Efficient and continuous operation of the dryer

Owing to two columns filled with activated carbon, continuous operation of the adsorption dryer is possible. Its operation is characterised by alternation of adsorption and regeneration phases.



Pressure dew point,
Compressed air purity class
according to ISO 8573.1

at 100% load

- -20°C, class 1.3.1 – NDA dryers
- -40°C, class 1.2.1 – OAD dryers
- -70°C, class 1.1.1 – ADU dryers

HIGH QUALITY
COMPRESSED AIR

Type NDA/OAD ADU	Flaw*	Regeneration consumption* (average)			Outlet flow rate* (minimum)			Power consumption	Power supply	Connection	Overall dimensions			Weight
		NDA	OAD	ADU	NDA	OAD	ADU				L	W	H	
	m ³ /h	m ³ /h		m ³ /h			W	V/Hz/Ph	mm	mm	mm	kg		
0005	5	0,7	0,8	1	4,1	4,0	3,8	50	230/50/1	G 1/2	720	495	890	85
0010	10	1,4	1,5	2	8,3	8,2	7,6	50	230/50/1	G 1/2	720	495	890	89
0015	15	2,1	2,3	3	12,4	12,2	11,3	50	230/50/1	G 1/2	720	495	890	93
0025	25	3,5	3,8	5	20,7	20,3	18,9	50	230/50/1	G 1/2	720	495	1350	130
0035	35	4,9	5,3	7	29,0	28,5	26,5	50	230/50/1	G 1/2	720	495	1350	140
0050	50	7,0	7,5	10	41,4	40,8	37,8	50	230/50/1	G 3/4	720	520	1410	180
0080	80	11,2	12	16	66,2	65,2	60,5	50	230/50/1	G 3/4	720	520	1410	185
0100	100	14	15	20	83	82	76	50	230/50/1	G 1	850	530	1840	190
0150	150	21	23	30	125	122	114	50	230/50/1	G 1	850	530	1840	240
0175	175	24	26	35	145	143	133	50	230/50/1	G 1	850	530	1840	250
0225	225	32	34	45	187	184	171	50	230/50/1	G 1	850	530	1840	255
0300	300	42	45	60	249	245	227	50	230/50/1	G 5/4	1000	590	1722	300
0375	375	53	56	75	311	306	284	50	230/50/1	G 5/4	1000	590	1722	320
0550	550	77	83	110	456	448	416	50	230/50/1	G 1 1/2	1070	690	1810	450
0650	650	91	98	130	538	530	492	50	230/50/1	G 1 1/2	1070	690	1810	480
0850	850	119	128	170	704	693	643	50	230/50/1	G 2	1220	726	2129	515
1000	1000	140	150	200	828	816	756	50	230/50/1	G 2	1220	726	2129	550
1350	1350	189	202	270	1118	1102	1021	50	230/50/1	DN 80	1500	925	2300	800
1650	1650	231	247	330	1366	1347	1248	50	230/50/1	DN 80	1800	1120	2170	850
1950	1950	273	292	390	1615	1592	1475	50	230/50/1	DN 100	1800	1120	2170	900
2250	2250	315	337	450	1863	1836	1701	50	230/50/1	DN 100	1900	1290	2600	1300
2750	2750	385	412	550	2277	2244	2079	50	230/50/1	DN 100	2000	1340	2690	1500
3500	3500	490	525	700	2898	2856	2646	50	230/50/1	DN 100	2200	1500	2700	1700
4000	4000	560	600	800	3312	3264	3024	50	230/50/1	DN 150	2450	1650	3000	2500

***Reference conditions:**

Operating pressure	7 bar
Compressed air temperature	35°C
Ambient temperature	20°C
Pressure dew point	-20°C +/- 1 (NDA), -40°C +/- 1 (OAD), -70°C +/- 1 (ADU)

Limit conditions:

Min/max operating pressure	6 bar/10 bar
Max compressed air temp. on the inlet	+45°C
Min/max ambient temperature	+5°C/+40°C
Max oil content on the inlet	3 mg/m ³

Correction factors for operating conditions other than the declared reference conditions

Compressed air temperature [°C]	Compressed air pressure [bar]						
	4	5	6	7	8	9	10
30	0,69	0,83	0,96	1,10	1,24	1,38	1,51
35	0,63	0,75	0,88	1,00	1,13	1,25	1,38
40	0,50	0,60	0,70	0,80	0,90	1,00	1,10
45	0,44	0,53	0,61	0,70	0,79	0,88	0,96

HEAT REGENERATED ADSORPTION DRYERS

Regeneration of the bed in these devices takes place by blowing it with heated ambient air. The use of the blower and air heater eliminates losses of compressed air that in quantity of only 3% is also used for sorbent regeneration.

In these devices, bed regeneration is done by purging with the heated air taken from the environment. The blower with the air heater eliminates losses of compressed air which, in an amount of just 3%, is used to regenerate the adsorbent.



**HEATED
REGENERATION**
means
elimination
of compressed
air losses

Energy saving

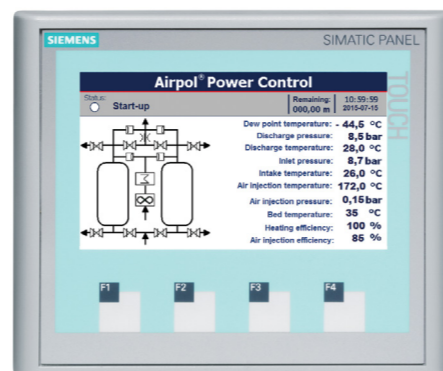
- minimal consumption of compressed air for adsorbent regeneration (as compared to other dehumidifier types)
- adjusting the frequency of adsorption and regeneration waveforms according to measurement of the pressure dew point temperature. The system automatically controls the cycles of the dehumidifier work for minimal use of compressed air, in an amount necessary to recover the bed and also to maintain the constant pressure dew point temperature set in the controller.

Constant pressure dew point and maximum dehumidification accuracy

The pressure dew point temperature sensor allows the measurement and visualization of its actual value. By automatically adjusting the dehumidifier, (frequency of adsorption and regeneration phases) the pressure dew point temperature is consistently maintained at a constant preset level to ensure desired compressed air quality.

Microprocessor controller in the heat regenerated adsorption dryers

The controller optimizes the drying process and ensures high energy efficiency by regulating the dryer operation depending on the measurement of the pressure dew point value at the dryer compressed air outlet. Owing to that loss of dried air is limited, and the entire adsorption cycle is adapted to the changing operation conditions.



Pressure dew point, Compressed air purity class according to ISO 8573.1

at 100% load

- -40°C, class 1.2.1 - SGR dryers (standard version)
- -70°C, class 1.1.1 – SGR dryers (special version)

Complete control of the dryer operation

The dryer controller enables the user to:

- monitor the present dryer condition,
- read present values of the process parameters including monitoring of their changes in the diagram,
- modify different settings,
- view the list of events,
- read present state of the counters of operating time, cycles, energy consumption, time to next service etc.

Web Server

The dryer controller is equipped with an option for remote monitoring of its condition by the implemented function of web server. It means that the user is able to view the dryer condition with the web browser when the controller is connected to the local network.



Type	Flow* m ³ /h	Installed power kW	Power supply V/Hz/Ph	Connection	Overall dimensions			Weight kg
					L mm	W mm	H mm	
SGR 0300	300	6,6	400/50/3	G 1½	1200	1440	2190	600
SGR 0375	375	6,6	400/50/3	G 1½	1200	1440	2190	600
SGR 0550	550	13,2	400/50/3	G 2	1350	1260	2290	1200
SGR 0650	650	13,2	400/50/3	G 2	1350	1260	2290	1200
SGR 0850	850	20,0	400/50/3	G 2	1600	1350	2200	1600
SGR 1000	1000	20,0	400/50/3	G 2½	1600	1350	2200	1600
SGR 1350	1350	22,5	400/50/3	G 2½	1900	1590	2300	2200
SGR 1650	1650	22,5	400/50/3	G 3	1900	1590	2300	2200
SGR 1950	1950	46,0	400/50/3	DN 80	2250	1660	2690	3500
SGR 2250	2250	46,0	400/50/3	DN 80	2250	1660	2690	3500
SGR 2750	2750	46,0	400/50/3	DN 100	2250	1870	2870	3700
SGR 3500	3500	49,0	400/50/3	DN 150	3000	2200	3200	4500
SGR 4000	4000	49,0	400/50/3	DN 150	3000	2200	3200	4500

*Reference conditions:

Operating pressure	7 bar
Compressed air temperature	35°C
Ambient temperature	20°C
Pressure dew point	-40°C +/- 1 at 100% load

Limit conditions:

Min/max operating pressure	6 bar/10 bar
Max compressed air temp. on the inlet	+45°C
Min/max ambient temperature	+5°C/+40°C
Max oil content on the inlet	3 mg/m ³

Correction factors for operating conditions other than the declared reference conditions

Compressed air temperature [°C]	Compressed air pressure [bar]						
	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	0,70	0,86	1,00	1,12	1,25	1,37
40	0,33	0,45	0,58	0,71	0,82	0,92	1,03

MEDICAL DRYERS

The MEDIPAC dryers based on the adsorption devices are used to ensure clean and dry compressed air in accordance with the suitable medical standards and requirements.

Medipac Standard

- adsorbent in replaceable cartridges,
- compact design and small dimensions,
- replacement indicator of consumables, informing about optimum time for replacement of the dryer filtration elements and cartridges, ensuring safe operation of the device at the same time,
- unique integrated control block, ensuring comfortable maintenance.



Medipac Superplus

- control dependent on load - operation cycle adapts automatically to the moisture load at the inlet, which affects the regenerated air saving and reduction of operating costs,
- possible intermittent operation - ensures compressed air saving,
- self-diagnosing system - full monitoring of the regenerated air flow parameters by the sensors.

Type	Flow*	Regeneration consumption* (average)	Outlet flow rate* (minimum)	Power consumption	Power supply	Connection	Overall dimensions			Weight
	m ³ /h	m ³ /h	m ³ /h				L mm	W mm	H mm	
Medipac 2000-0005	5	0,85	3,94	4	230/50/1	G 1/2	300	189	343	12
Medipac 2000-0010	10	1,70	7,88	4	230/50/1	G 1/2	300	189	591	19
Medipac 2000-0015	15	2,55	11,82	4	230/50/1	G 1/2	300	189	853	25
Medipac 2000-0025	25	4,25	19,70	4	230/50/1	G 1/2	300	189	1377	32
Medipac 2000-0035	35	5,95	27,60	4	230/50/1	G 1	532	322	665	44
Medipac 2000-0050	50	8,50	39,40	4	230/50/1	G 1	532	322	920	58
Medipac 2000-0065	65	11,05	51,20	4	230/50/1	G 1	532	322	1170	73
Medipac 2000-0080	80	13,60	63,00	4	230/50/1	G 1	532	322	1420	87
Medipac 2000-0100	100	17,00	78,80	4	230/50/1	G 1	532	322	1670	105

*Reference conditions:

Operating pressure 7 bar
 Compressed air temperature 35°C
 Ambient temperature 20°C
 Pressure dew point -40°C +/- 1

Limit conditions:

Min/max operating pressure 4 bar/16 bar
 Max compressed air temp. on the inlet +50°C
 Min/max ambient temperature +4°C/+50°C

MEDIPAC

=
 Air treatment system with adsorption dryer, CO-, CO₂-, NO_x- and SO₂ adsorber, pre-filter, final filter and condensate drain.

STERILE FILTERS

The P-SRF sterile filters are designed to effectively remove bacterial contamination and viruses included in compressed air and process air.

They ensure retention rate of > 99.99998% related to 0.2 µm. High quality durable stainless steel construction ensures excellent mechanical stability, chemical inertness and resistant to temperatures up to 200°C. The filters are adapted to over 100 possible sterilisation cycles in the specified conditions (in steam or autoclave).



Application of the sterile filters:

- food and beverage production industry,
- pharmaceutical industry,
- health protection and biotechnology,
- aseptic packaging,
- chemical industry.

Type	Flow* m ³ /h	Connection	Max operating pressure bar	Dimensions				Weight kg	Cartridge
				A mm	B mm	C mm	D mm		
P-SRF N 0006	60	G 1/4	16	215	105	70	55	1,7	03/10
P-SRF N 0009	90	G 3/8	16	243	105	70	55	1,9	04/10
P-SRF N 0012	120	G 1/2	16	243	108	70	55	1,9	04/20
P-SRF N 0018	180	G 3/4	16	266	125	70	55	2	05/20
P-SRF N 0027	270	G 1	16	293	125	85	74	2,6	05/25
P-SRF N 0036	360	G 1 1/2	16	344	140	85	74	3	07/25
P-SRF N 0048	480	G 1 1/2	16	386	170	104	94	4,3	07/30
P-SRF N 0072	720	G 2	16	460	170	104	94	4,8	10/30
P-SRF N 0108	1080	G 2	16	587	170	104	94	5,3	15/30
P-SRF N 0144	1440	G 2 1/2	16	732	216	129	106	9	20/30
P-SRF N 0192	1920	G 3	16	987	216	129	106	10,8	30/30

*Nominal flow at: 1bar abs. and 20°C at the compressor suction and compressed air pressure of 7 bar.

COMPRESSED AIR FILTERS (UP TO 16 BAR)

The compressed air filters are used to treat compressed air and other gases by removing solid particles and oil from them.

They are the necessary part of the compressed air preparation system, whose aim is to improve durability and extend service life of the pneumatic and control elements and actuators. Depending on the filter element used, with specific filtration accuracy, the required compressed air purity class suitable for individual industrial applications is obtained.

FP series dust, oil and carbon filters

Pre-filter	Initial filtration of solid particles
Solid particles	3 µm
Compressed air quality (solid particles)	ISO 8573.1 Class 3
Pressure drop in filter	0,01 bar

Fine filter	Fine filtration of solid particles and water and oil mist
Solid particles	< 1 µm
Residual oil content	< 0,1 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 2
Pressure drop in filter	0,05 bar

Very fine filter	Very fine filtration of solid particles and water and oil mist
Solid particles	0,01 µm
Residual oil content	< 0,01 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in filter	0,08 bar

Carbon filter (with activated carbon)	Adsorption of oil vapour and odour
Residual oil content	0,003 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in filter (install always together with filter and S element)	0,06 bar

FP series filter elements:

- Q – pre-filter element
- P – fine filter element
- S – very fine filter element
- C – carbon filter element



Q

P

S

C



Condensate drains

-  mechanical condensate drain – standard equipment
-  float operated mechanical condensate drain
-  electronic timer controlled condensate drain
-  electronic no-loss drain (condensate level sensor)

Type	Flow* m ³ /h	Connection	Max operating pressure bar	Dimensions				Weight kg	Cartridge
				A mm	B mm	C mm	D mm		
FP 78	78	G 1/2	16	187	88	20	60	1,1	Q,P,S,C
FP 120	120	G 3/4	16	257	88	20	80	1,2	Q,P,S,C
FP 335	335	G 1	16	363	125	32	120	3,2	Q,P,S,C
FP 510	510	G 1 1/2	16	461	125	32	140	3,7	Q,P,S,C
FP 780	780	G 1 1/2	16	640	125	32	160	4,8	Q,P,S,C
FP 996	996	G 2	16	684	163	43	520	8,8	Q,P,S,C
FP 1500	1500	G 2	16	935	163	43	770	13,5	Q,P,S,C
FP 2400	2760	G 3	16	1000	240	59	780	30,5	Q,P,S,C

*Nominal flow at: 1 bar abs. and 20°C at the compressor suction and compressed air pressure of 7 bar.

Correction factors for FP flow filters for operating conditions other than nominal														
Compressed air pressure [bar]														
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0,38	0,52	0,63	0,75	0,88	1,00	1,13	1,26	1,38	1,52	1,65	1,76	1,87	2,00	2,14



COMPRESSED AIR FILTERS (UP TO 16 BAR)

DF series dust, oil and carbon filters

The DF series compressed air filters are designed for industrial treatment of compressed air or other gases. They are equipped with the economizer (mechanical differential pressure monitor) or economizer (differential pressure monitor indicating the most economic time to change the filter element).

Pre-filter	Initial filtration of solid particles and water and oil mist
Solid particles	< 3 µm
Residual oil content	< 0,2 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 3
Pressure drop in filter	0,11 bar

Fine filter	Fine filtration of solid particles and water and oil mist
Solid particles	< 0,1 µm
Residual oil content	< 0,02 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 2
Pressure drop in filter	0,08 bar

Very fine filter	Very fine filtration of solid particles and water and oil mist
Solid particles	< 0,01 µm
Residual oil content	< 0,01 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in filter	0,10 bar

Carbon filter (with activated carbon)	Adsorption of oil vapour and odour
Residual oil content	0,003 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in filter (install always together with filter and M or S element)	0,13 bar

ECONOMIZER means:
ECONOMY – the intelligent way to calculate the most advantageous time to change the filter element
COMFORT – LED display informs with the message about the need to change the filter element

DF series filter elements:

- V – pre-filter element
- M – fine filter element
- S – very fine filter element
- A – carbon filter element



standard version plus version superplus version

Accessories for DF series filters

- standard version: float operated drain, economizer,
- plus version: float operated drain, economizer,
- superplus version: electronic level controlled condensate drain, economizer.

Type	Flow* m ³ /h	Connection	Max operating pressure bar	Dimensions						Weight		Cartridge	
				A			B	C		D	standard/plus kg		superplus kg
				standard mm	plus mm	superplus mm		standard/plus mm	superplus mm				
DF 0035	35	G 1/4	16	181	255	405	76	22	178	100	0,5	1,5	V,M,S,A
DF 0070	70	G 3/8	16	291	297	450	103	22	178	115	0,9	1,9	V,M,S,A
DF 0120	120	G 1/2	16	335	335	495	103	22	178	150	1,0	2,0	V,M,S,A
DF 0210	210	G 3/4	16	367	367	535	139	22	178	180	2	3	V,M,S,A
DF 0320	320	G 1	16	437	437	595	139	22	178	250	2,2	3,2	V,M,S,A
DF 0450	450	G 1 1/4	16	581	581	740	190	22	178	250	5,2	6,6	V,M,S,A
DF 0600	600	G 1 1/2	16	581	581	740	190	22	211	250	5,2	6,6	V,M,S,A
DF 0750	750	G 2	16	581	581	740	190	22	211	250	5,2	6,6	V,M,S,A
DF 1100	1100	G 2	16	763	763	840	190	103	211	250	6,9	7,2	V,M,S,A

*Nominal flow at: 1 bar abs. and 20°C at the compressor suction and compressed air pressure of 7 bar.

Correction factors for DF flow filters for operating conditions other than nominal														
Compressed air pressure [bar]														
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0,38	0,52	0,63	0,75	0,88	1,00	1,13	1,26	1,38	1,52	1,65	1,76	1,87	2,00	2,14



CENTRIFUGAL SEPARATORS UP TO 16 BAR

The centrifugal separator is an ideal initial air preparation device that is designed to remove water and oil condensate from the compressed air to provide additional drying capacity for further drying systems.

The strong compressed air spinning results in the formation of condensate that is pushed against the separator walls and flows down to the tank bottom, where it is discharged by the drain valve from.

The special separator design, including the use of the deflector plate above the tank bottom, prevents the condensate from being entrained by the centrally rising compressed air stream. To ensure correct automatic operation of the separator, it should be equipped with the mechanical or electronic condensate drain.

ASC series



electronic condensate level controlled drain



electronic timer controlled condensate drain



float operated mechanical condensate drain

THE USE OF THE CENTRIFUGAL SEPARATOR is especially recommended when the dryer is installed downstream the compressor. It provides additional drying capacity for the drying system and help in maintaining the required dew point by further devices of the installed compressed air treatment system.



Type	Flow		Connection	Dimensions				Weight kg
	m ³ /h	m ³ /min		A mm	B mm	C mm	D mm	
ASC 001	120	2,0	G 3/8	187	88	20	60	0,7
ASC 002	155	2,6	G 1/2	187	88	20	60	0,7
ASC 003	235	3,9	G 3/4	257	88	20	80	0,8
ASC 004	365	6,1	G 1	263	125	32	100	1,8
ASC 005	770	12,8	G 1 1/2	461	125	32	140	2,5
ASC 006	1280	21,3	G 2	684	163	43	520	5,1
ASC 007	2460	41,0	G 2 1/2	684	163	43	520	5,1
ASC 008	2850	47,5	G 3	795	240	59	630	12,9

DFC series

Type	Flow		Connection	Dimensions					Weight kg	
	m ³ /h	m ³ /min		A		B mm	C			D mm
				standard mm	superplus mm		standard mm	superplus mm		
DF-C 0120	120	2,0	G 1/2	283	407	103	234	368	115	1,6
DF-C 0210	210	3,5	G 3/4	369	493	139	322	446	180	2,7
DF-C 0320	320	5,3	G 1	369	493	139	322	446	180	2,7
DF-C 0450	450	7,5	G 1 1/2	573	697	190	510	634	250	2,9
DF-C 0750	750	12,5	G 2	573	759	190	510	722	250	2,9
DF-C 1100	1100	18,3	G 2	573	759	190	510	722	250	2,9



Accessories for DF-C series centrifugal separators

- ST standard version – timer controlled condensate drain,
- SP superplus version – electronic condensate level controlled drain.

CONDENSATE DRAINS

The condensate drains are designed to discharge condensate from the compressed air system elements. They are installed under the air receiver, filter, dryer, centrifugal separator or similar pressurized system element.

Mechanical condensate drains

– the valve opens as a result of the float lifting by the water level increase



Type	Max compressor capacity		Operating pressure min ÷ max	Operating temperature min ÷ max	Connection		Overall dimensions	Weight
	m ³ /h	m ³ /min			MPa	°C		
Mechanical-float operated	5400	90	0,15 ÷ 1,6	+1,5 ÷ +65	G 1/2	G 1/2	135 x 110 x 130	0,6

Electronic condensate drains

■ timer controlled condensate drains – the solenoid valve opens at the predetermined time intervals set in the electronic timer



Type	Max compressor capacity		Operating pressure min ÷ max	Operating temperature min ÷ max	Connection		Overall dimensions	Weight
	m ³ /h	m ³ /min			MPa	°C		
Electronic-timer controlled/16 bar	9000	150	0,15 ÷ 1,6	+1,5 ÷ +65	G 1/2	G 1/2	94 x 90 x 114	0,54
Electronic-timer controlled/40 bar	9000	150	0,15 ÷ 4,0	+1,5 ÷ +65	G 1/2	G 1/8	98 x 50 x 112	0,57

■ water level controlled condensate drains – very quiet, not causing loss of compressed air



Type	Max compressor capacity		Operating pressure min ÷ max	Operating temperature min ÷ max	Connection		Overall dimensions	Weight
	m ³ /h	m ³ /min			MPa	°C		
Electronic UFM D05	300	5	0,08 ÷ 1,6	+1 ÷ +60	G 1/2	G 1/4, ø8	179 x 74 x 127	1,0
Electronic UFM D10	600	10	0,08 ÷ 1,6	+1 ÷ +60	3 x G 1/2	G 1/2, ø13	212 x 74 x 157	1,7
Electronic UFM D30	1800	100	0,08 ÷ 1,6	+1 ÷ +60	2 x G 1/2	G 1/2, ø13	212 x 93 x 162	2,0
Electronic UFM D130	7800	100	0,08 ÷ 1,6	+1 ÷ +60	3 x G 3/4	G 1/2, ø13	252 x 120 x 180	2,9
Electronic UFM D30HP	1800	100	0,12 ÷ 4,0	+1 ÷ +60	2 x G 1/2	G 1/2, ø13	197 x 93 x 162	2,2

Supply voltage: 230 V (option 115 V or 24 V)

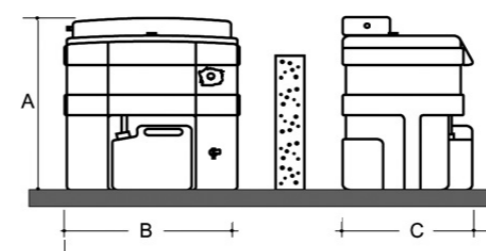
OIL-WATER SEPARATORS

The UFS SP are the oil water separators used to treat oil contaminated compressor condensate.

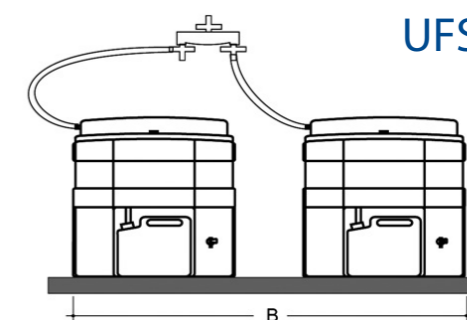
The oil water separators are designed to separate oil from water in the condensate. The pressurized compressor condensate supplied is depressurised in the special depressurising chamber and then it flows into the main tank, where oil deposits on the water surface and is discharged to an external container. The remaining water from the condensate is treated in the activated carbon bed and can be discharged directly to sewage.



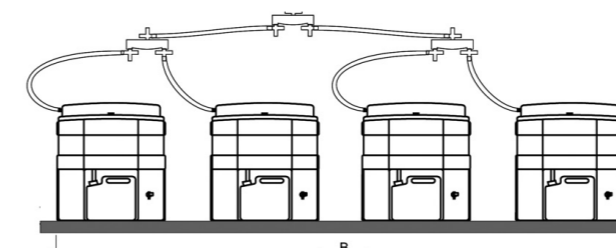
UFS-SP 5 ÷ SP 30N



UFS-SP 120N



UFS-SP 240N



ENVIRONMENTAL PROTECTION AND ECONOMY

Condensate treatment process on site is much more profitable than its collection and transport to an approved disposal facility.

Type	Max compressor capacity	Receiver	Oil receiver	Ambient temperature min ÷ max	Connection	Overall dimensions			Weight
						A	B	C	
	m ³ /h	l	l	°C	mm	mm	mm	kg	
UFS-SP 5	120	25	2,5	+1 ÷ +60	G 1/2	555	345	320	8,5
UFS-SP 10N	250	50	5	+1 ÷ +60	G 1	655	445	430	19,5
UFS-SP 15N	450	75	10	+1 ÷ +60	G 1	735	495	460	23,5
UFS-SP 30N	900	150	20	+1 ÷ +60	G 1	840	680	510	35,0
UFS-SP 60N	1800	300	20	+1 ÷ +60	G 1	985	790	660	67,0
UFS-SP 120N	3600	600	2x20	+1 ÷ +60	G 1	985	1780	660	136,0
UFS-SP 240N	7200	1200	4x20	+1 ÷ +60	G 1	985	3760	660	272,0

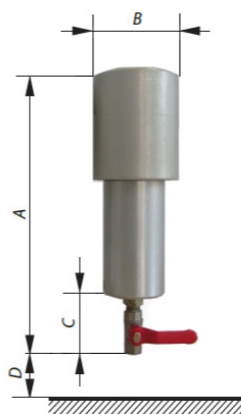
*If fitted with a heater: -25°C ÷ +60°C.

HIGH PRESSURE SYSTEMS – UP TO 40 BAR

Centrifugal separators

The STH centrifugal separators are designed to separate condensate from compressed air up to 40 bar. The optimum equipment design makes it possible to obtain effective centrifugal force, ensuring separation of condensate and initial compressed air preparation for further treatment stage.

Type	Flow		Connection	Dimensions				Weight kg
	m ³ /h	m ³ /min		A mm	B mm	C mm	D mm	
STH 500	500	8,3	G 1/2	280	110	55	40	0,7
STH 900	900	15,0	G 5/4	305	130	55	40	0,7



Compressed air filters

Depending on the required purity class of compressed air, the HP filters (with MF or SMF coalescent filter elements and AK activated carbon filter element) can be installed in three configurations ensuring the required content of oil and solid particles in compressed air.

Filter with MF filter element	Fine filtration of solid particles and water and oil mist
Solid particles	0,01 µm
Residual oil content	< 0,03 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 2
Pressure drop in filter	0,11 bar

Set of two filters with MF and SMF filter element	Very fine filtration of solid particles and water and oil mist
Solid particles	< 0,01 µm
Residual oil content	< 0,01 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in the set	0,24 bar

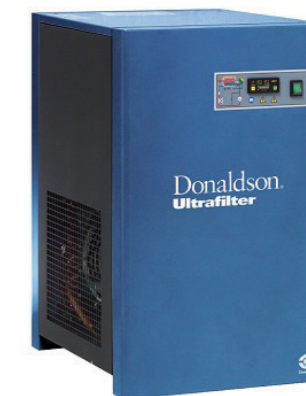
Set of three filters with MF, SMF, AK filter element	Adsorption of oil vapour and odour
Residual oil content	< 0,003 mg/m ³
Compressed air quality (oil particles)	ISO 8573.1 Class 1
Pressure drop in the set	0,37 bar



Type	Flow		Connection	Dimensions				Weight kg	Cartridge
	m ³ /h	m ³ /min		A mm	B mm	C mm	D mm		
HP 500 MF	500	8,3	G 3/4	300	105	55	40	2,1	05/20 MF
HP 500 SMF	500	8,3	G 3/4	300	105	55	40	2,1	05/20 SMF
HP 500 AK	500	8,3	G 3/4	300	105	55	40	2,1	05/20 AK
HP 900 MF	900	15	G 5/4	310	120	55	40	4,3	05/25 MF
HP 900 SMF	900	15	G 5/4	310	120	55	40	4,3	05/25 SMF
HP 900 AK	900	15	G 5/4	310	120	55	40	4,3	05/25 AK

Refrigeration dryers

The DHP high pressure systems are used to dry compressed air of up to max 45 bar. Compressed air supplied to the dryer is initially cooled in the air to air heat exchanger, and then flows through the heat exchanger (cooling medium – air), where it is further cooled to the required pressure dew point of +3°C. The compressed air moisture is condensed, stored and discharged automatically with the electronic condensate drain, whose opening is controlled by the condensate level. Finally cooled and dried air is used again in the air to air heat exchanger, where it cools the next portion of hot air supplied to the dryer and is heated at the same time.



Type	Flow*		Power consumption kW	Power supply V/Hz/Ph	Connection	Overall dimensions			Weight kg	Refrigerant type
	m ³ /h	m ³ /min				L mm	W mm	H mm		
DHP 0025AX	25	0,42	0,16	230/50/1	G 3/8	370	515	475	28	R134a
DHP 0045AX	45	0,75	0,18	230/50/1	G 3/8	370	515	475	29	R134a
DHP 0075AX	72	1,20	0,22	230/50/1	G 3/8	370	515	475	32	R134a
DHP 0090AX	90	1,50	0,23	230/50/1	G 3/4	345	420	740	38	R134a
DHP 0135AX	135	2,25	0,46	230/50/1	G 3/4	345	420	740	39	R134a
DHP 0180AX	180	3,00	0,69	230/50/1	G 3/4	485	455	825	50	R407C
DHP 0240AX	240	4,00	0,75	230/50/1	G 3/4	485	455	825	53	R407C
DHP 0315AX	315	5,25	0,70	230/50/1	G 1	555	580	885	89	R407C
DHP 0450AX	450	7,50	0,84	230/50/1	G 1	555	580	885	101	R407C
DHP 0615AX	615	10,25	1,10	230/50/1	G 1	555	580	885	115	R407C
DHP 0810AX	810	13,50	1,45	230/50/1	G 1 1/2	665	755	1105	156	R407C
DHP 1010AX	1010	16,83	2,17	400/50/3	G 1 1/2	665	755	1105	188	R407C
DHP 1260AX	1260	21,00	2,55	400/50/3	G 2	607	1156	1706	252	R407C
DHP 1620AX	1620	27,00	2,85	400/50/3	G 2	607	1156	1706	265	R407C
DHP 2280AX	2280	38,00	3,50	400/50/3	G 2	607	1156	1706	391	R407C
DHP 2700W	2700	45,00	2,40	400/50/3	DN 80	900	1174	1624	430	R134a
DHP 3500W	3500	58,33	4,70	400/50/3	DN 80	900	1174	1624	455	R134a
DHP 4200W	4200	70,00	4,90	400/50/3	DN 80	900	1174	1624	615	R134a

*Nominal flow at: 1bar abs. and 20°C at the compressor suction and 35°C, 40 bar of compressed air.
DHP 2700W - DHP4200W high pressure air dryers with water cooling system, (option - air cooling).

Correction factors for operating conditions other than nominal									
Operating pressure	bar	15	20	25	30	35	40	45	(DHP 0025AX - DHP 2280AX)
	A	0,57	0,70	0,80	0,88	0,94	1,00	1,05	
Compressed air inlet temperature	°C	30	35	40	45	50	55	60	(DHP 0025AX - DHP 2280AX)
	B	1,12	1,00	0,83	0,69	0,59	0,50	0,44	
		1,20	1,00	0,83	0,75	0,55	0,45	0,35	(DHP 2700W - DHP 4200W)

Airpol

Compressors Manufacturing Company Ltd.

HEADQUARTERS

ul. Nieszawska 15

61-021 Poznań

phone +48 61 650 45 67

fax +48 61 650 45 77

e-mail: airpol@airpol.com.pl

www.airpol.com.pl

OUR COMMERCIAL
PARTNER

01_2017