

ADSORPTION DRYER

A-DRY 06 – 200 BI / BM

(Heatless regenerated adsorption dryer)



DESCRIPTION

A-DRY BI / MB adsorption dryers have been designed for drying and purification of compressed air for breathing air applications. Version BI is suitable for industrial applications according to EN12021 while BM can be used for medical applications where European Pharmacopoeia is applicable.

Operation of the dryer requires two columns operated alternately. 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. Dryers consists from upper and lower control block, controller with LED display and two columns filled with desiccant. Third column is filled with combination of special functional materials which reduce concentration of certain substances down to the acceptable level. Springs in the columns make sure that the desiccant beads will not move during operation.

Proven robust design enables efficient and reliable operation, fast installation and simple maintenance.

DRYER RATING ACCORDING TO ISO8573-1

Solid particles ⁽¹⁾	Water ^{(1),(2)}	Oil ⁽¹⁾
2	1-3	1

⁽¹⁾Typical result based on standard configuration and nominal operating conditions.

⁽²⁾Depend on specific design. Class 2 when operated at nominal operating conditions.

TECHNICAL SPECIFICATIONS

Operating pressure	4 – 16 bar(g)	A-DRY 06 to A-DRY 200
Operating temperature	1,5°C to 50°C	
Pressure dew points	-40°C	
Voltage, Frequency	230 V, 50/60 Hz	
Power consumption	<35 W	
Protection class (controller)	IP 65	
Filter (inlet) ⁽³⁾	Super fine coalescing; residual oil cont. <0,01mg/m ³ ; 0,01µm	
Filter (outlet)	Dust filter; 1µm	
Input for stand-by	STANDARD, Open contact 24 VDC	
Dew point dependent control	Optional	
Communication	ON REQUEST (available only with ADC 2.0 controller)	

⁽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.

MATERIALS

Upper and lower control block	Aluminium (anodised)
Columns	Aluminium, Stainless steel spring and support, polyester needle felt, desiccant
Valves	Brass, aluminium
Check valves	PA
Valve membranes	NBR reinforced with PA fibres
Sealings	NBR
Flexible connection	Nylon
Fittings, Screws, plugs	INOX, brass, steel-zinc plated
Lubricant	Shell cassida grease RLS 2
Outside protection (columns, front/back cover)	Powder paint coated (Epoxy-polyester base)
Desiccant	80% Molecular sieve 4A, 20% Silica gel

SPECIFICATION OF AIR QUALITY A-DRY 06-200 BI


CONTAMINATION	VALUE SPECIFIED IN EN12021	RESIDUAL VALUE WITH A-DRY BI ⁽⁶⁾
Water content (H2O)	Max. 50mg/m3 at atmospheric pressure (PDP -45°C at 1bara)	PDP -40°C at 7barg (PDP -55 @1bara)
Lubricants	<0,5mg/m3	<0,01mg/m3
Carbon dioxide (CO2)	<500ppm (<500ml/m3)	<500ppm (<500ml/m3)
Carbon monoxide (CO)	<15ppm (<15ml/m3)	<15ppm (<15ml/m3)
Oxygen content	21 +/- 1% vol.	21 +/- 1% vol.

SPECIFICATION OF AIR QUALITY A-DRY 06-200 BM

CONTAMINATION	VALUE SPECIFIED IN EUROPEAN PHARMACOPOEIA	RESIDUAL VALUE WITH A-DRY BM ⁽⁶⁾
Water content (H2O)	Max. 67ppm at atmospheric pressure (PDP -45°C at 1bara)	PDP -40°C at 7barg (PDP -55 @1bara)
Lubricants	<0,1mg/m3	<0,01mg/m3
Carbon dioxide (CO2)	<500ppm (<500ml/m3)	<500ppm (<500ml/m3)
Carbon monoxide (CO)	<5ppm (<5ml/m3)	<5ppm (<5ml/m3)
Nitrogen dioxide (NO2)	<2ppm (<2ml/m3)	<2ppm (<2ml/m3)
Nitrogen monoxide (NO)	<2ppm (<2ml/m3)	<2ppm (<2ml/m3)
Nitrogen oxide (NOx)	<1ppm (y1ml/m3)	<1ppm (<1ml/m3)
Sulphur dioxide (SO2)	<0,1ppm (<0,1ml/m3)	<0,1ppm (<0,1ml/m3)
Oxygen content	20,9 +/- 0,5% vol.	20,9 +/- 0,5% vol.

⁽⁶⁾Residual outlet values of CO2, CO and O2 are specified based on standard environment inlet conditions without higher industrial pollutions (CO2 300-600ppm, CO <20ppm, O2 20,94%).

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SIZES

Model	Connection IN & OUT	Inlet flow [Nm ³ /h] ⁽⁴⁾	Outlet flow [Nm ³ /h] ⁽⁵⁾	Height A(A*) [mm]	Width B(B*) [mm]	Width D(D*) [mm]	Depth C(C*) [mm]	Mass [kg]	Vessel Volume [l]	Filter
A-DRY 06	G 3/8"	6	4,7	520 (492)	370 (470)	444	100 (130)	15	1,30	AF 0056
A-DRY 12	G 3/8"	12	9,5	715 (687)	370 (470)	444	100 (130)	19,3	2,17	AF 0056
A-DRY 24	G 3/8"	24	19,0	1105 (1077)	370 (470)	444	100 (130)	27,1	3,89	AF 0056
A-DRY 36	G 3/8"	36	28,4	1495 (1467)	370 (470)	444	100 (130)	39,3	5,61	AF 0056
A-DRY 60	G 3/4"	60	47,4	1105 (1077)	500 (615)	573	148 (170)	64,3	9,95	AF 0076
A-DRY 75	G 3/4"	75	59,3	1300 (1272)	500 (615)	573	148 (170)	75,7	12,2	AF 0076
A-DRY 105	G 3/4"	105	83,0	1700 (1672)	500 (615)	573	148 (170)	100,0	16,6	AF 0106
A-DRY 150	G 1"	150	118,5	1440 (1440)	440 (948)	570	198 (240)	243,6	26,3	AF 0186
A-DRY 200	G 1"	200	158,0	1655 (1655)	440 (948)	570	198 (240)	260,3	31,2	AF 0186

⁽⁴⁾Refers to 1bar(a) and 20°C at 7 bar operating pressure , inlet temperature 35°C and pressure dew point at outlet -40°C

⁽⁵⁾Outlet flow refers to operation at nominal inlet flow conditions. Outlet flow is given at maximum purge air loss of 21,6%. Average pure air losses are approximately 17,3 % of inlet flow at nominal conditions.

PRESSURE EQUIPMENT DIRECTIVE PED 2014/68/EU (Fluid group 2)

A-DRY 06 to A-DRY 200	PED Category 1, Module A
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CORRECTION FACTORS

To calculate the correct capacity of a given dryer based on actual operating conditions, multiply the nominal flow capacity by the appropriate correction factor(s).

$$Corrected\ capacity = Nominal\ inlet\ flow\ capacity \times c_{OP} \times c_{OT} \times c_D$$

OPERATING PRESSURE

[bar]	4	5	6	7	8	9	10	11	12	13	14	15	16
[psi]	58	72	87	100	115	130	145	160	174	189	203	218	232
c _{OP}	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

OPERATING TEMPERATURE

[°C]	25	30	35	40	45	50	[°C]	-25	-40	-70
[F]	77	86	95	104	113	122	[F]	-13	-40	94
c _{OT}	1	1	1	0,97	0,87	0,80	c _D	1,1	1	0,7


MAINTENANCE

For maintenance, please follow instructions specified in operating manual. Check dryer operation weekly.

Typical service interval:

- Filter elements: every 12 months in operation or sooner if required
- Silencers, valve components: every 24 months in operation or sooner if required
- Adsorbent, valve components, silencers: every 48 months in operation or sooner if required

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