ADSORPTION DRYER
B-DRY 110 – 1200 BI / BM

(Heatless regenerated adsorption dryer)

DESCRIPTION

B-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)
Operating temperature	1,5°C to 50°C
Pressure dew points	-40°C
Voltage, Frequency	230 V, 50/60 Hz
Power consumption	<60 W
Protection class (controller)	IP 65
Filter (inlet)[3]	Super fine coalescing; residual oil cont. <0,01mg/m3; 0,01µm
Filter (outlet)	Dust filter; 1µm
Dew point dependent control	OPTIONAL, Only available when dew point sensor is connected!
Relay output for dew point warning	OPTIONAL, Only available when dew point sensor is connected!
Digital input for stand-by	STANDARD, Open contact 24 VDC
Communication	Modbus (TCP/IP)

[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.

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MATERIALS

Columns, construction, support	Steel
Column inner protection	/
Column and construction outer protection	Epoxy painted
Desiccant support screen	Stainless steel
Valves	Brass, aluminium
Sealings	NBR
Fittings, Screws, plugs	INOX, brass, steel (zinc plated)
Lubricant	Shell cassida grease RLS 2
Outside protection	Powder paint coated (Epoxy-polyester base)
Desiccant	80% Molecular sieve 4A, 20% Silica gel

SPECIFICATION OF AIR QUALITY B-DRY 110-1200 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 B-DRY 110-1200 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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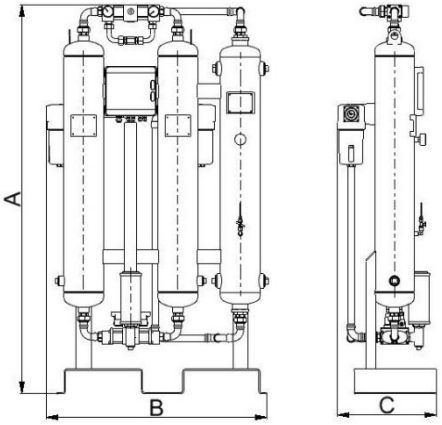
SIZES

Model	Connection IN & OUT	Inlet flow [Nm³/h][4]	Outlet flow [Nm³/h][5]	Height A [mm]	Width B [mm]	Depth C [mm]	Mass [kg]	Vessel Volume [l]	Filter
B-DRY 110	G 1"	110	86	1647	945	422	190	20	AF 0186
B-DRY 150	G 1"	150	117,5	1897	945	422	215	25	AF 0186
B-DRY 200	G 1"	200	157,0	1664	1045	471	275	36	AF 0306
B-DRY 250	G 1"	260	204,0	1914	1045	471	325	45	AF 0306
B-DRY 300	G 1 ½"	320	251,0	1742	1230	535	380	57	AF 0476
B-DRY 400	G 1 ½"	410	321,5	1989	1230	535	415	70	AF 0476
B-DRY 600	G 1 ½"	590	462,5	2051	1370	671	562	102	AF 0706
B-DRY 800	G 2"	770	603,5	2080	1520	701	718	134	AF 0946
B-DRY 1000	G 2"	1000	784,0	2140	1615	701	851	164	AF 0946
B-DRY 1200	G 2"	1152	903,2	2185	1805	701	1020	215	AF 1506

[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)

B-DRY 110 to B-DRY 300	Category 2, Module H
B-DRY 400 to B-DRY 1200	Category 3, Module H

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
[F]	77	86	95	104	113	122
C_{OT}	1	1	1	0,97	0,87	0,80

DEW POINT

[°C]	-25	-40	-70
[F]	-13	-40	94
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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