

# ADSORPTION DRYER

## R-DRY 400-20000 BVL

(Heat regenerated adsorption dryer)

### DESCRIPTION

R-DRY BVL 400-10000 adsorption dryers are designed for continuous separation of water vapour from compressed air thus lowering the dew point. R-Dry dryers have two columns that operate alternately. Adsorption takes place under pressure in the first column while the second column is regenerated(heated ambient air for desorption + cooling with water cooled air in a closed loop). A dryer consists of two columns, filled with desiccant beads, blower, electric heater, air-water heat exchanger, controller with an LCD display, valves, manometers, and support construction. A proven and robust design enables efficient and reliable operation, fast installation and simple maintenance. At version BVAS electric heater is replaced by heat exchanger and steam is used to heat up the air for regeneration.

### DRYER RATING ACCORDING TO ISO8573-1

Solid particles <sup>(1)</sup>	Water <sup>(1),(2)</sup>	Oil <sup>(1)</sup>
2	1-3	1

<sup>(1)</sup>Typical result based on standard configuration and nominal operating conditions

<sup>(2)</sup> Dependant on a specific design. Class 2 when operated at nominal operating conditions.

### TECHNICAL SPECIFICATIONS

Operating pressure	4 – 11 bar
Operating temperature (inlet)	1,5°C to 42,5°C (for temperature >35°C apply correction factor)
Ambient temperature	1,5°C to 50°C (check also blower suction conditions)
Pressure dew point	-40°C (lower PDP on request)
Voltage, Frequency	400V, 50Hz
Protection class (controller)	IP 54
Filter requirement (inlet)*	Super fine coalescing; residual oil cont. <0,01mg/m <sup>3</sup> ; 0,01µm
Filter requirement (outlet)*	Dust filter; 1µm
Column insulation	OPTIONAL (Required for ambient temp. <10°C)
Valve position switches	OPTIONAL
Comm. module (PROFIBUS/PROFINET)	OPTIONAL

DRYER TYPES	BVL (standard)	BVLS (regeneration with steam)
Desorption	Blower ambient air (vac.)	Blower ambient air (vac.) (steam heated)
Cooling	Blower ambient air (vac.)	Blower ambient air (vac.)
Blower suction conditions max.		80% RH at 35°C 35% RH at 50°C
Compressed air losses		0%**

\* Filters are included as standard but not mounted on the dryer

\*\*a small quantity of compressed air is used to repressurise the vessels, to operate the valves and to measure dew point

### MATERIALS

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

**SIZES**

Model	Conn. IN & OUT <sup>(5)</sup>	Inlet flow Nm <sup>3</sup> /h <sup>(3)</sup>	A [mm]	B [mm]	C [mm]	Mass [kg]	Vessel Volume [l] <sup>(6)</sup>	Blower power [kW]	Heater power <sup>(7)</sup> [kW]	Filter
R-DRY 400	DN50	390	1400	1200	2300	1400	108	1,3	3,5	AF 0476
R-DRY 600	DN50	590	1500	1300	2350	1900	167	1,6	5,5	AF 0706
R-DRY 780	DN50	780	1700	1350	2350	2300	221	1,6	7	AF 0706
R-DRY 1000	DN50	930	1750	1300	2400	2400	266	1,6	8	AF 0946
R-DRY 1200	DN80	1150	1900	1400	2500	3000	333	1,6	10	AF 1506
R-DRY 1600	DN80	1600	2000	1500	2600	3200	474	4	14	AF 1756
R-DRY 2000	DN100	1950	2250	1650	2750	4420	583	4	17	AF 2006
R-DRY 2500	DN100	2530	2380	1750	2700	5000	769	7,5	22	AF 2406
R-DRY 3000	DN100	2990	2570	1800	2850	5200	917	8,5	26	BF 300
R-DRY 3600	DN100	3680	2800	1800	2900	6240	1146	8,5	32	BF 450
R-DRY 4100	DN125	4100	3000	2700	2850	6700	1291	8,5	35	BF 450
R-DRY 5000	DN125	4990	3200	2900	2950	7700	1609	15	45	BF 600
R-DRY 6500	DN150	6550	3520	2900	3050	9400	2166	15	56	BF 900
R-DRY 7700	DN150	7700	3700	3100	3100	10300	2592	15	70	BF900
R-DRY 10000	DN200	10250	5000	3250	2850	15600	3584	22	95	BF 1200
R-DRY 12000	DN200	11700	5050	3300	2850	-	4173	-	-	BF 1200
R-DRY 14000	DN200	14800	4800	2600	3650	-	5463	-	-	BF 1500
R-DRY 16000	DN250	16000	5000	3200	3650	-	6201	-	-	BF 1800
R-DRY 18000	DN250	18200	5200	3500	4200	-	6982	-	-	BF 1800
R-DRY 20000	DN250	20200	6500	4100	3300	-	7820	-	-	BF 2500

<sup>(3)</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>(5)</sup>Refers to dryer inlet and outlet connection without filters.

<sup>(6)</sup>Volume per vessel

<sup>(7)</sup>In case of BVAS version the same power should be considered but steam is used as an energy source. For electric connection just the power of blower must be considered.

**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 FLOW CAPACITY x C<sub>OP</sub> x C<sub>OT</sub>

**OPERATING PRESSURE**

[bar]	4	5	6	7	8	9	10	11
[psi]	58	72	87	100	115	130	145	160
C <sub>OP</sub>	0,63	0,75	0,88	1	1,13	1,25	1,38	1,50

**OPERATING TEMPERATURE**

[°C]	25	30	35	40	42,5
[F]	77	86	95	104	108
C <sub>OT</sub>	1	1	1	0,7	0,52


**DEW POINT**

[°C]	-	-	-
[F]	-	-	-
C <sub>D</sub>	-	-	-

**MAINTENANCE**

For maintenance, please follow the operating manual. Check the dryer operation weekly.

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	Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2008 Reg. number: 200285
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