

ADSORPTION DRYER

HPR-DRY 400-3600 BP

(Heat regenerated adsorption dryer)



DESCRIPTION

HPR-DRY 400-3600 BP adsorption dryers are designed for continuous separation of water vapour from compressed air thus lowering the dew point. HPR-Dry dryers have two columns that operate alternately. Adsorption takes place under pressure in the first column while the second column regenerates (heated ambient air for desorption + expanded dry compressed air purge for cooling). A dryer consists of two columns, filled with desiccant beads, a blower, heater, controller with an LCD display, valves, manometers, and a support construction. A proven and 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⁾ Dependant on a specific design. Class 2 when operated at nominal operating conditions.

TECHNICAL SPECIFICATIONS

Operating pressure	4 – 50 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
Communication (on request)	Optional: PROFIBUS, PROFINET
Filter requirement (inlet)*	Super fine coalescing; residual oil cont. <0,01mg/m3; 0,01µm
Filter requirement (outlet)*	Dust filter; 1µm
Column insulation	OPTIONAL (Required for ambient temp. <10°C)
Valve position switches	OPTIONAL
Communications module (PROFIBUS/PROFINET)	OPTIONAL
DRYER TYPES	BP
Desorption	Blower ambient air
Cooling	Purge air (expanded dry compressed air)
Blower suction conditions max.	Max 80% rh @ 35°C / Max 35%rh @ 50°C
Compressed air losses**	Approx. 2-3% (average at nom. cond.)
	Approx. 10-15% (during cooling at nom. cond.)

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

**A small quantity of compressed air is used to re-pressurise 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 ⁽⁵⁾	Inlet flow [Nm ³ /h] ⁽³⁾	A [mm]	B [mm]	C [mm]	Mass [kg]	Vessel Volume [l] ⁽⁶⁾	Blower power [kW]	Heater power [kW]	Filter
HPR-DRY 400	DN50	2200	1400	900	2300	1200	108	1,3	3,5	HF 070
HPR-DRY 600	DN50	3400	1500	850	2350	1680	167	1,6	5,5	HF 150
HPR-DRY 780	DN50	4500	1700	900	2350	2160	221	1,6	7	HF 200
HPR-DRY 1000	DN50	5300	1750	900	2400	2280	266	1,6	8	HF 200
HPR-DRY 1200	DN80	6600	1900	1050	2550	2640	333	1,6	10	HF 200
HPR-DRY 1600	DN80	9200	2000	1100	2700	3120	474	4	14	HF 200
HPR-DRY 2000	DN100	11200	2200	1200	2750	4080	583	4	17	HF 200
HPR-DRY 2500	DN100	14500	2400	1250	2650	4560	769	7,5	22	HF 240
HPR-DRY 3000	DN100	17150	2600	1200	2900	4800	917	8,5	26	HF 240
HPR-DRY 3600	DN100	21100	2800	1200	2900	5760	1146	8,5	32	-

⁽³⁾Refers to 1bar(a) and 20°C at 50 bar operating pressure , inlet temperature 35°C and pressure dew point at outlet -40°C

⁽⁵⁾Refers to dryer inlet and outlet connection without filters.

⁽⁶⁾Volume per vessel

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).

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

OPERATING PRESSURE

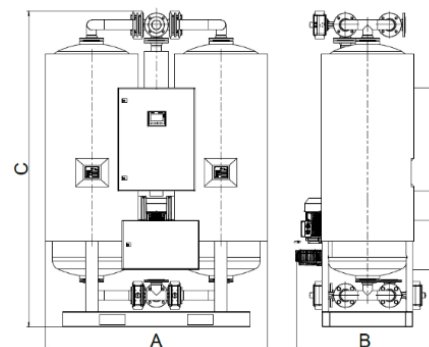
[bar]	15	20	25	30	35	40	45	50
[psi]	217	290	363	435	508	580	653	725
c _{OP}	0,31	0,41	0,51	0,61	0,71	0,81	0,9	1

OPERATING TEMPERATURE

[°C]	25	30	35	40	42,5
[F]	77	86	95	104	108
c _{OT}	1	1	1	0,7	0,52

DEW POINT


[°C]	-	-	-
[F]	-	-	-
c _D	-	-	-



MAINTENANCE

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

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 BUREAU VERITAS	Our quality management system is certified by BUREAU VERITAS in conformity with ISO 9001:2015 Reg. number: 200285
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