PURIFICATION SYSTEM
H2-DRY XD/HP
(Hydrogen purification system)

DESCRIPTION
H2-DRY adsorption dryers are designed for continuous separation of water vapour from hydrogen gas thus reducing the dew point. Dryer is designed for fully automatic operation and it does not require any external gas for regeneration. A proven and robust design enables efficient and reliable operation, fast installation and simple maintenance. Dryer is suitable for easy integration in electrolyser hydrogen package. Version "P" consumes up to 2% of hydrogen for regeneration while version "X" performs regeneration in closed loop meaning zero hydrogen is wasted during regeneration. Both vesrions are available with optional de-oxo unit which reduces oxygen content down to <5ppm.

DRYER RATING ACCORDING TO ISO8573-1

Solid particles[1]	Water[1],[2]	Oil[1]
1	1-3	/

[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	Up to 45 bar
Inlet temperature	Up to +80°C
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 65
Communication	Modbus TCP/IP, Profinet TCP/IP (other on request)
Filter requirement (inlet)*	Super fine coalescing
Filter requirement (outlet)*	Dust filter; 1µm
Column insulation	YES
Valve position switches	YES
External instrument air supply	YES (Pressure = 7barg, Quality = 1/2/1 ISO8573-1)
External cooling water supply	YES (max. water temperature = +30°C)
Integrated DeOxo unit	Optional (**D** = DeOxo unit)
DRYER TYPES	1 = HEATED PURGE PULSE HPP (purge consumption up to 2%)
	2 = HEATED PURGE HP (purge consumption up to 4%)
	3 = ZERO LOSS REGENERATION X (without purge consumption = zero loss)

* Filters are included as standard

MATERIALS

Columns, construction, support	Stainless Steel
Frame, support structures	Carbon steel (Epoxy powder painted)
Desiccant support screen	Stainless steel
Valves	Stainless steel
Seals	FKM, PTFE
Fittings, Screws, plugs	INOX
Desiccant	Activated alumina

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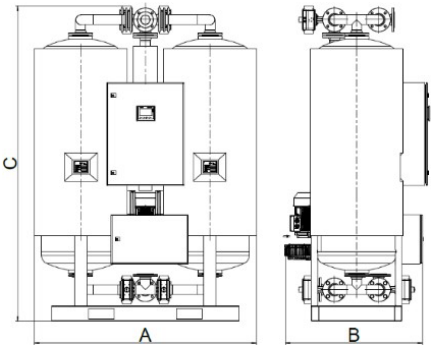
SIZES

MODEL	CAPACITY [Nm³/h][3]	CAPACITY [kg/h][3]	INSTALLED EL. POWER[5] [kW]	INSTALLED COOLING POWER[4] [kW]	COOLING WATER FLOW[4] [m3/h]	ELECTROLYSER [kW]
H2-DRY 15 HP	52,5	4,7	0,4	1,1	0,189	250 kW
H2-DRY 30 HP	105	9,3	0,6	2,2	0,377	500 kW
H2-DRY 60 HP	210	18,7	1,2	4,5	0,771	1 MW
H2-DRY 180 HP	630	56,1	3	13,5	2,313	3 MW
H2-DRY 300 HP	1050	93,4	5,0	22,5	3,857	5 MW
H2-DRY 600 HP	2100	186,9	8	45	7,714	10 MW
H2.DRY 1200 HP	4200	373,8	16	90	15,429	20 MW
H2-DRY 2500 HP	8400	747,6	32	180	30,857	40 MW
H2-DRY 3600 HP	12600	1121,4	45	269	46,114	60 MW
H2-DRY 5000 HP	16800	1495,2	60	359	61,543	80 MW
H2-DRY 6500 HP	21000	1869,0	75	448	76,800	100 MW
H2-DRY 15 X	52,5	4,3	1,7	1,4	0,240	250 kW
H2-DRY 30 X	105	8,7	1,9	2,9	0,497	500 kW
H2-DRY 60 X	210	17,4	2,5	5,7	0,977	1 MW
H2-DRY 180 X	630	52,3	3	17,1	2,931	3 MW
H2-DRY 300 X	1050	86,8	6,6	29	4,971	5 MW
H2-DRY 600 X	2100	173,7	10	57,5	9,857	10 MW
H2.DRY 1200 X	4200	347,3	18	115	19,714	20 MW
H2-DRY 2500 X	8400	694,7	34	229	39,257	40 MW
H2-DRY 3600 X	12600	1042,0	47	344	58,971	60 MW
H2-DRY 5000 X	16800	1389,4	62	458	78,514	80 MW
H2-DRY 6500 X	21000	1736,7	77	573	98,229	100 MW

[3] Refers to 1bar(a) and 0°C at 30 bar operating pressure

[4] Applicable if inlet temperature is up to 80°C at version without deoxo or at version with deoxo. dT 5°C considered for flow calculation

[5]Deoxo preheater is not included. Heater is required if 100% humidity is expected in combination with deoxo unit.



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).

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

OPERATING PRESSURE

[bar]	5	6	7	8	10	15	20	25	30	35	40	45
[psi]	0,34	0,41	0,48	0,55	0,69	1,03	1,37	1,7	2,1	2,4	2,8	3,1
C_{OP}	0,19	0,23	0,26	0,29	0,35	0,52	0,68	0,84	1	1,16	1,32	1,48

MAINTENANCE

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

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