

Adsorption Dryer HRE

HRE	\dot{V}_{nom} at 7 bar(g)		connections PN16, DIN 2633 DN	installed power kW	weight kg	dimensions		
	m ³ /h	cfm				A=width mm	B=depth mm	C=hight mm
0375	375	220	DN 50	7,6	710	1430	800	2120
0550	550	325	DN 50	11,2	920	1510	985	2340
0650	650	385	DN 50	11,2	1050	1530	985	2260
0850	850	500	DN 50	14,2	1140	1590	1060	2330
1000	1000	590	DN 80	14,2	1210	1660	1120	2460
1350	1350	800	DN 80	20,0	1480	1770	1190	2580
1650	1650	975	DN 80	24,0	1790	1800	1340	2630
1950	1950	1150	DN 100	32,5	2180	2040	1400	2720
2250	2250	1330	DN 100	32,5	2360	2110	1410	2740
2750	2750	1620	DN 100	38,0	2680	2260	1460	2790
3500	3500	2065	DN 100	44,5	3180	3380	1830	2860
4000	4000	2360	DN 150	52,5	3990	3490	1860	2980
5000	5000	2945	DN 150	71,0	4820	3750	1950	3110
6000	6000	3535	DN 150	86,0	5400	3880	2170	3210
7000	7000	4125	DN 150	95,0	6200	4240	2270	3280
8750	8750	5155	DN 200	115,0	8000	4570	2530	3420
10500	10500	6185	DN 200	135,0	11200	4780	2600	3310
11200	11200	6775	DN 200	153,0	12000	4970	2750	3350
13600	13600	8010	DN 200	177,5	14000	5280	2975	3380

\dot{V}_{nom} in m³/h related to compressor inlet at 20°C and 1 bar(a), an operating pressure of 7 bar(g) and a compressed air inlet temperature of +35°C (saturated).

Conversion factor (C_1) for sizing, depending on dryer inlet temperature and operating pressure at a pressure dew point of -40°C:

T_{inlet} °C	operating pressure bar(g)						
	4	5	6	7	8	9	10
30	0,72	0,92	1,09	1,25	1,36	1,45	1,51
35	0,55	0,7	0,86	1,00	1,12	1,25	1,37
40	0,33	0,45	0,58	0,71	0,82	0,92	1,03

table 2

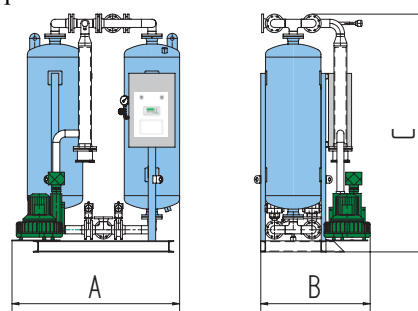
Sizing Example:

real air flow (\dot{V}_T): 3990 m³/h
 operating pressure: 6 bar(g)
 inlet temperature: 40 °C
 Faktor C_1 : 0,58

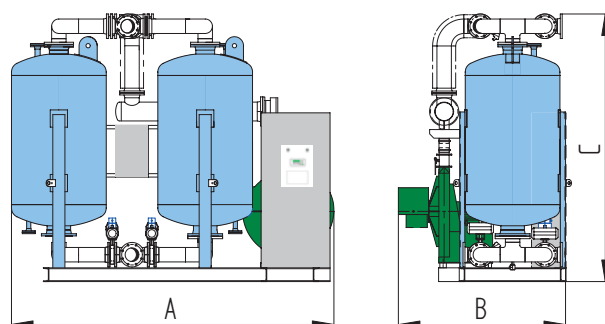
$$\dot{V}_{corr} = \frac{\dot{V}_T}{C_1} = \frac{3990 \text{ m}^3/\text{h}}{0,58} = 6879 \text{ m}^3/\text{h}$$

Selection: HRE 7000

up to 2750



from 3500



Technical changes reserved. Release: R01/31082004

Adsorption Dryer HRE

1. Process Characteristics

- Desorption in counterflow to the adsorption direction
- Cooling with an expanded portion of compressed air
- Designed for automatic and continuous operation

2. Standard Conditions

- | | | |
|------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------|
| • Pressure dewpoint: | -40°C | Selection at different operating conditions by correction factor C1 according to table 2. |
| • Operation pressure: | 7 bar(g) | |
| • Inlet temperature: | +35°C | |
| • Inlet humidity: | saturated | |
| • Average cooling air consumption: | appr. 2% related to \dot{V}_{nom} | |

3. Operating Limits

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|------------------------|---------------------------|---------------------------------------------------------------------------------|
| • Media: | compressed air/nitrogen | Design for operating conditions beyond specified application limits on request. |
| • Operating pressure: | 4-10 bar(g) | |
| • Inlet temperature: | 5-40°C | |
| • Ambient temperature: | 5-40°C | |
| • max. blower inlet: | 35°C/45% to 30°C/60% r.H. | |
| • Installation: | indoor | |

4. Standard Design

Control

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|----------------------------------------|---------------------------------------|
| • Design: | acc. to VDE/IEC |
| • Power supply: | 3 Ph / 400 V - 50 Hz |
| • Control voltage: | 24 V DC / 230 V - 50 Hz |
| • PLC: | Siemens S7-200 with CPU 224 |
| • Text display: | Siemens TD 200 |
| • Protection: | IP 55, acc. to IEC 529 |
| • Control panel: | C-steel sheet, powder coated, RAL7035 |
| • Potential free common alarm contact: | incl. |
| • Main switch: | incl. |

Adsorption Vessel

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|--------------------------------------|-----------------------------------------------------------------------|
| • Material: | carbon steel |
| • Design data: | 11 bar(g), 230°C für 0375 - 2750
10 bar(g), 200°C für 3500 - 13600 |
| • Design, manufacturing and testing: | acc. to AD-2000 |
| • Approval: | acc. to PED 27/23/EC |
| • Desiccant: | incl. |
| • gas distributor: | incl. (stainless steel) |

Piping

- | | |
|--------------------------------------|----------------------|
| • Nominal pressure: | PN 16 |
| • Material: | carbon steel |
| • Design, manufacturing and testing: | acc. to AD-2000 |
| • Approval: | acc. to PED 27/23/EC |

Heat insulation

Electrical flange heater

Regeneration blower

heater to regeneration inlet valves
with overheat protection
with suction filter

Adsorption dryer HRE

continuation of standard design

Pneumatically operated butterfly valves	internals made of stainless steel
Non-return valves	with PTFE- gaskets
Pressure release valves	with silencers
Pressure equalization valves	incl.
Resistance thermometer	Pt 100 - measuring and control devices
Pressure transmitter	for pressure and changeover control
Manometer with shut-off valve	per adsorption vessel
Control air unit	incl. valve manifold with multipole connection and control air filter
Pneumatic box	to house the control air unit (sizes 3500 and up)
End position monitoring	of inlet butterfly valves with limit switches (sizes 3500 and up)
Control air piping	up to size 2750 with PVC-pipe; with galvanized steel pipe (sizes 3500 and up)

5. Standard Options (upon request)

- Dewpoint dependent control ,ultraconomy‘
- Mounting of prefilter system incl. piping
- Mounting of afterfilter system incl. piping
- System bypass with 3 manual valves
- Bus interface
- Desorption air heating with steam heater instead of electrical heater
- Desorption air heating with steam and electrical heater
- Heat insulation of adsorption vessel
- 16 bar version
- Status information by light indicators
- Control air piping made of stainless steel
- Changeover monitoring and limit switches for additional butterfly valves
- Monitoring of dryer inlet temperature
- Free of silicone / separating agents
- Alternative power supply
- Pressure dew point below -40°C
- Frost protection down to -20°C
- Outdoor installation
- Special noise reduction

6. Filter

Please select the necessary prefilter and afterfilter systems from our comprehensive filter product range.

7. Condensate

For necessary and economical draining as well as conditioning of accumulated condensate, we recommend our condensate technology range of products.