

# Adsorption Dryer HRG

HRG	$\dot{V}_{nom}$ at 7 bar(g)		connections PN16, DIN 2633 DN	installed power kW	weight kg	dimensions		
	m <sup>3</sup> /h	cfm				A=width mm	B=depth mm	C=hight mm
0375	375	220	DN 50	10,6	750	1430	800	2120
0550	550	325	DN 50	11,2	960	1510	985	2340
0650	650	385	DN 50	11,2	1100	1530	1000	2300
0850	850	500	DN 50	14,2	1200	1590	1060	2370
1000	1000	590	DN 80	14,2	1300	1660	1120	2460
1350	1350	800	DN 80	24,0	1580	1850	1190	2580
1650	1650	975	DN 80	28,0	1880	1850	1340	2660
1950	1950	1150	DN 100	38,0	2280	2040	1400	2720
2250	2250	1330	DN 100	38,0	2490	2110	1410	2740
2750	2750	1620	DN 100	42,5	2900	2260	1460	2790
3500	3500	2065	DN 100	52,5	3480	3380	1890	3060
4000	4000	2360	DN 150	67,5	4300	3490	1860	3180
5000	5000	2945	DN 150	86,0	5050	3750	1950	3310
6000	6000	3535	DN 150	86,0	5900	3880	2170	3460
7000	7000	4125	DN 150	111,0	6800	4240	2270	3530
8750	8750	5155	DN 200	135,0	8700	4570	2440	3570
10500	10500	6185	DN 200	153,0	12000	4780	2600	3310
11200	11200	6775	DN 200	174,0	13000	4970	2750	3350
13600	13600	8010	DN 200	198,5	15000	5280	2975	3380

$\dot{V}_{nom}$  in m<sup>3</sup>/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<sub>1</sub>) for sizing, depending on dryer inlet temperature and operating pressure at a pressure dew point of -40°C:

T <sub>inlet</sub> °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	<b>1,00</b>	1,12	1,25	1,37
40	0,33	0,45	0,58	0,71	0,82	0,92	1,03

table 2

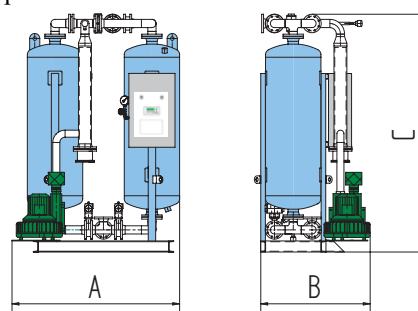
**Sizing Example:**

real air flow ( $\dot{V}_T$ ): 3990 m<sup>3</sup>/h  
 operating pressure: 6 bar(g)  
 inlet temperature: 40 °C  
 Faktor C<sub>1</sub>: 0,58

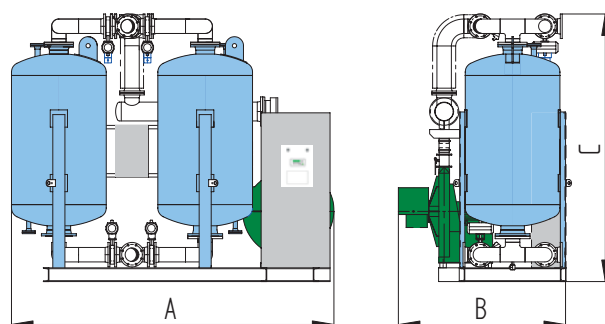
$$\dot{V}_{corr} = \frac{\dot{V}_T}{C_1} = \frac{3990 \text{ m}^3/\text{h}}{0,58} = 6879 \text{ m}^3/\text{h}$$

Selection: HRG 7000

up to 2750



from 3500



Technical changes reserved. Release: R01/31082004

## Adsorption Dryer HRG

### 1. Process Characteristics

- Desorption in co-current flow to the adsorption direction with externally heated blower air
- Cooling with ambient 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 |   |

### 3. Operating Limits

- |                        |                           |   |
|------------------------|---------------------------|---|
| • 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

- |  |                                       |
|--|---------------------------------------|
| • 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

- |                                      |   |
|--------------------------------------|---|
| • Material:                          | carbon steel  |
| • Design data:                       | 11 bar(g), 230°C für 0375 - 2750<br>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 HRG

*continuation of standard design*

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