

Adsorption Dryer HRS

| HRS | \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 | 800 | 1340 | 810 | 2120 |
| 0550 | 550 | 325 | DN 50 | 11,2 | 1010 | 1470 | 890 | 2340 |
| 0650 | 650 | 385 | DN 50 | 11,2 | 1150 | 1510 | 930 | 2260 |
| 0850 | 850 | 500 | DN 50 | 14,2 | 1260 | 1610 | 940 | 2330 |
| 1000 | 1000 | 590 | DN 80 | 14,2 | 1390 | 1680 | 970 | 2460 |
| 1350 | 1350 | 800 | DN 80 | 20,0 | 1670 | 1800 | 1090 | 2580 |
| 1650 | 1650 | 975 | DN 80 | 24,0 | 1970 | 1900 | 1130 | 2630 |
| 1950 | 1950 | 1150 | DN 100 | 32,5 | 2390 | 2020 | 1260 | 2720 |
| 2250 | 2250 | 1330 | DN 100 | 32,5 | 2590 | 2120 | 1270 | 2740 |
| 2750 | 2750 | 1620 | DN 100 | 38,0 | 3000 | 2320 | 1400 | 2790 |
| 3500 | 3500 | 2065 | DN 100 | 44,5 | 3600 | 3380 | 1830 | 3060 |
| 4000 | 4000 | 2360 | DN 150 | 52,5 | 4580 | 3490 | 1860 | 3180 |
| 5000 | 5000 | 2945 | DN 150 | 71,0 | 5330 | 3750 | 1950 | 3310 |
| 6000 | 6000 | 3535 | DN 150 | 86,0 | 6200 | 3880 | 2080 | 3400 |
| 7000 | 7000 | 4125 | DN 150 | 95,0 | 7150 | 4240 | 2230 | 3470 |
| 8750 | 8750 | 5155 | DN 200 | 115,0 | 8950 | 4570 | 2490 | 3570 |
| 10500 | 10500 | 6185 | DN 200 | 135,0 | 12600 | 4780 | 2600 | 3060 |
| 11200 | 11200 | 6775 | DN 200 | 153,0 | 13600 | 4970 | 2750 | 3100 |
| 13600 | 13600 | 8010 | DN 200 | 177,5 | 15800 | 5280 | 2975 | 3230 |

\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 (C₁) 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

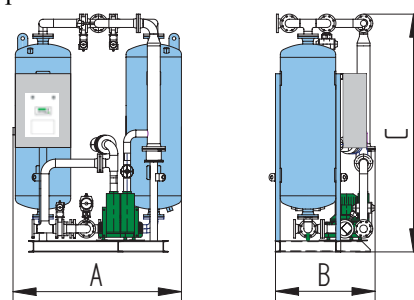
Sizing Example:

real air flow (\dot{V}_T): 3990 m³/h
 operating pressure: 6 bar(g)
 inlet temperature: 40 °C
 Faktor C₁: 0,58

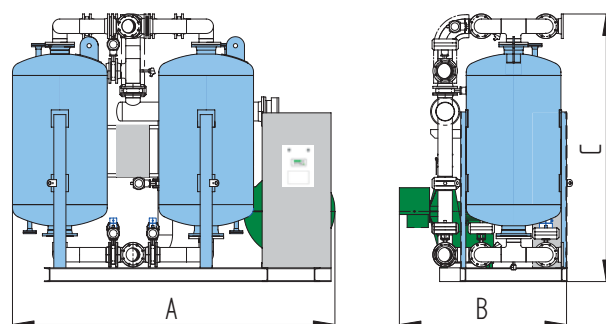
$$\dot{V}_{corr} = \frac{\dot{V}_T}{C_1} = \frac{3990 \text{ m}^3/\text{h}}{0,58} = 6879 \text{ m}^3/\text{h}$$

Selection: HRS 7000

up to 2750



from 3500



Technical changes reserved. Release: R01/31082004

Adsorption Dryer HRS

1. Process Characteristics

- Desorption in counter-current flow to the adsorption direction with externally heated blower air
- Cooling with ambient air
- Designed for automatic and continuous operation (up to 2750 at pressure-vacuum 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 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

heater to regeneration inlet valves

Electrical flange heater

with overheat protection

Regeneration blower

with suction filter

Adsorption dryer HRS

continuation of standard design

| | |
|---|--|
| Pneumatically activated butterfly valves | internals made of stainless steel |
| 4-way plug-valve | from 0375-2750; maintenance free |
| 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 (size 3500 and up) |
| End position monitoring | of inlet butterfly valves with limit switches (size 3500 and up) |
| Control air piping | up to size 2750 with PVC-pipe; with galvanized steel pipe (size 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.