### Adsorption Dryer HRS

<table>
<thead>
<tr>
<th>HRS</th>
<th>( \dot{V}_{\text{inst}} ) at 7 bar(g)</th>
<th>connections</th>
<th>installed power</th>
<th>weight</th>
<th>dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m³/h</td>
<td>cfm</td>
<td>PN16, DIN 2633</td>
<td>kW</td>
<td>kg</td>
</tr>
<tr>
<td>0375</td>
<td>375</td>
<td>220</td>
<td>DN 50</td>
<td>7,6</td>
<td>800</td>
</tr>
<tr>
<td>0550</td>
<td>550</td>
<td>325</td>
<td>DN 50</td>
<td>11,2</td>
<td>1010</td>
</tr>
<tr>
<td>0650</td>
<td>650</td>
<td>385</td>
<td>DN 50</td>
<td>11,2</td>
<td>1150</td>
</tr>
<tr>
<td>0850</td>
<td>850</td>
<td>500</td>
<td>DN 50</td>
<td>14,2</td>
<td>1260</td>
</tr>
<tr>
<td>1000</td>
<td>1000</td>
<td>590</td>
<td>DN 80</td>
<td>14,2</td>
<td>1390</td>
</tr>
<tr>
<td>1350</td>
<td>1350</td>
<td>800</td>
<td>DN 80</td>
<td>20,0</td>
<td>1670</td>
</tr>
<tr>
<td>1650</td>
<td>1650</td>
<td>975</td>
<td>DN 80</td>
<td>24,0</td>
<td>1970</td>
</tr>
<tr>
<td>1950</td>
<td>1950</td>
<td>1150</td>
<td>DN 100</td>
<td>32,5</td>
<td>2390</td>
</tr>
<tr>
<td>2250</td>
<td>2250</td>
<td>1330</td>
<td>DN 100</td>
<td>32,5</td>
<td>2590</td>
</tr>
<tr>
<td>2750</td>
<td>2750</td>
<td>1620</td>
<td>DN 100</td>
<td>38,0</td>
<td>3000</td>
</tr>
<tr>
<td>3500</td>
<td>3500</td>
<td>2065</td>
<td>DN 100</td>
<td>44,5</td>
<td>3800</td>
</tr>
<tr>
<td>4000</td>
<td>4000</td>
<td>2360</td>
<td>DN 150</td>
<td>52,5</td>
<td>4580</td>
</tr>
<tr>
<td>5000</td>
<td>5000</td>
<td>2945</td>
<td>DN 150</td>
<td>71,0</td>
<td>5330</td>
</tr>
<tr>
<td>6000</td>
<td>6000</td>
<td>3535</td>
<td>DN 150</td>
<td>86,0</td>
<td>6200</td>
</tr>
<tr>
<td>7000</td>
<td>7000</td>
<td>4125</td>
<td>DN 150</td>
<td>95,0</td>
<td>7150</td>
</tr>
<tr>
<td>8750</td>
<td>8750</td>
<td>5155</td>
<td>DN 200</td>
<td>115,0</td>
<td>8950</td>
</tr>
<tr>
<td>10500</td>
<td>10500</td>
<td>6185</td>
<td>DN 200</td>
<td>135,0</td>
<td>12600</td>
</tr>
<tr>
<td>11200</td>
<td>11200</td>
<td>6775</td>
<td>DN 200</td>
<td>153,0</td>
<td>13600</td>
</tr>
<tr>
<td>13600</td>
<td>13600</td>
<td>8010</td>
<td>DN 200</td>
<td>177,5</td>
<td>15800</td>
</tr>
</tbody>
</table>

\( \dot{V}_{\text{inst}} \) 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:

<table>
<thead>
<tr>
<th>( T_{\text{inlet}} )</th>
<th>operating pressure bar(g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>4</td>
</tr>
<tr>
<td>30</td>
<td>0.72</td>
</tr>
<tr>
<td>35</td>
<td>0.55</td>
</tr>
<tr>
<td>40</td>
<td>0.33</td>
</tr>
</tbody>
</table>

**Sizing Example:**
real air flow \( \dot{V}_{\text{inst}} \): \( 3990 \) m³/h
operating pressure: \( 6 \) bar(g)
inlet temperature: \( 40 \) °C
Faktor \( C_1 \): \( 0.58 \)

\[
\dot{V}_{\text{corr}} = \frac{\dot{V}_{\text{inst}}}{C_1} = \frac{3990 \text{ m³/h}}{0.58} = 6879 \text{ m³/h}
\]

Selection: HRS 7000

---

Donaldson Filtration Deutschland GmbH • Büssingstrasse 1 • D-42781 Haan • Tel: ++49-2129-569-0 • Fax: ++49-2129-569-100

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
   • Operation pressure: 7 bar(g)
   • Inlet temperature: +35°C
   • Inlet humidity: saturated
   Selection at different operating conditions by correction factor C1 according to table 2.

3. Operating Limits
   • Media: compressed air/nitrogen
   • 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
   Design for operating conditions beyond specified application limits on request.

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
   • Design, manufacturing and testing: acc. to AD-2000
   • Approval: acc. to PED 27/23/EC incl.
   • 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.