The DRYPOINT® RA refrigeration dryer is the standard solution for applications with stable operating conditions and constant pressure dew points of +3 °C. Due to a wide range of models, we can always offer you the right solution for your needs. Each of these is characterised by reliable drying, a minimum loss of compressed air and a low energy consumption, even with different work loads. The tried and tested design of the DRYPOINT® RA enables not only the highest functionality but also a reliable, safe and cost-effective operation.

**A tried and tested system, for all applications: DRYPOINT® RA**

**Application-based**
- For capacities from 20 to 13,200 m³/h
- Efficient drying through highly effective aluminium heat exchanger combination
- Stable pressure dew point of +3 °C by utilising a hot gas bypass valve with external pressure equalisation and pressure-controlled fan
- Optimum protection of the refrigeration cycle via low- and high-pressure switch (standard feature as of the RA 490 model)

**Integrated extras**
- Equipped with BEKOMAT® as standard
- Central control panel to inspect the function of the dryer and monitor the integrated BEKOMAT®

**Environmentally friendly and easy to service**
- Use of environmentally and ozone-friendly refrigerant with a particularly favourable GWP value (Global Warming Potential)
- Low-cost and fast maintenance

**DRYPOINT® RA 20-960**
- Control and monitoring of the integrated BEKOMAT® via the control panel
- Potential-free alarm contact to transmit alarm messages

**DRYPOINT® RA 1080-13200**
- Control and monitoring of the integrated BEKOMAT® via the control panel
- Use of low-vibration and energy-efficient Scroll compressors
- Potential-free alarm contact to transmit alarm messages
- RS485 interface provides the option of external control and monitoring
- Recording of alarm situations/messages
A high pressure drop on the refrigeration dryer has to be compensated for by a higher compressor performance and therefore associated increased energy demand. The consequences are unnecessary energy consumption and much higher operating costs. This is why the DRYPOINT® RA refrigeration dryers pressure drop has been reduced to an absolute minimum. Key elements here include the flow-optimised heat exchanger, a demister for safe separation and generously dimensioned components to ensure a low pressure drop of on average 0.16 bar – in full load operation.

Superior efficiency with minimum pressure loss
<table>
<thead>
<tr>
<th>Operating pressure (bar)</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
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</thead>
<tbody>
<tr>
<td>Correction factor</td>
<td>0.77</td>
<td>0.86</td>
<td>0.93</td>
<td>1.00</td>
<td>1.05</td>
<td>1.14</td>
<td>1.21</td>
<td>1.27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compressed air - Inlet temperature (°C)</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA 20 – RA 960</td>
<td>1.27</td>
<td>1.21</td>
<td>1.00</td>
<td>0.84</td>
<td>0.70</td>
<td>0.57</td>
<td>0.48</td>
<td>0.42</td>
<td>On request</td>
<td></td>
</tr>
<tr>
<td>RA 1080 – RA 13200</td>
<td>1.26</td>
<td>1.20</td>
<td>1.00</td>
<td>0.81</td>
<td>0.68</td>
<td>0.57</td>
<td>0.46</td>
<td>0.38</td>
<td>On request</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambient temperature: (°C)</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA 20 – RA 960</td>
<td>1.00</td>
<td>0.96</td>
<td>0.91</td>
<td>0.85</td>
<td>0.76</td>
<td>0.64</td>
</tr>
<tr>
<td>RA 1080 – RA 13200</td>
<td>1.00</td>
<td>0.95</td>
<td>0.93</td>
<td>0.85</td>
<td>0.73</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Example: Nominal, relieved volume flow rate: 2500 m³/h relative to the following operating conditions:

- Betriebsdruck: 10 bar, g, Correction factor 1 = 1.14
- Compressed air inlet temperature: +40 °C, Correction factor 2 = 0.81
- Ambient temperature: +30 °C, Correction factor 3 = 0.95

Minimum volume flow rate = nominal volume flow rate / (F1*F2*F3) = 2,500 m³/h / (1.14*0.81*0.95) = 2,850 m³/h

selected dryer RA 3000 with 3,000 m³/h
Operating principle of DRYPOINT® RA

In the DRYPOINT® RA refrigeration dryers, the air is dried in a counter-flow process with optimised heat exchange along the entire process path. The air flows in a constant downwards direction with no diversions.

The generously dimensioned counter-flow heat exchanger unit which consists of an air-air and an air-refrigerant heat exchanger, among others, cools the compressed air to a temperature of around 3°C. Therefore the size and design of the heat exchangers promote effective cooling while minimising flow resistance.

Warm compressed air saturated with moisture is pre-cooled in the air-air heat exchanger when it enters the refrigeration dryer (1). Consequently, the refrigerating capacity of the refrigerant needed in the downstream air-refrigerant heat exchanger (2) is reduced. This makes the system more energy-efficient. Gravity supports a very high droplet separation of nearly 99%. The flow velocity is greatly reduced in the very large condensate collection chamber with subsequent broad return. This reliably avoids any entrainment of droplets which have already been separated (3).

The condensate which is produced is drained from the DRYPOINT® RA through the level-controlled condensate drain BEKOMAT®. This prevents any pressurised air losses and can be treated reliably with processing systems such as the oil-water separation system ÖWAMAT® or the emulsion splitting plant BEKOSPLIT® (4). Before leaving the DRYPOINT® RA, the dried, cold compressed air is re-heated in the air-air heat exchanger. This significantly lowers the relative humidity and recovers up to 60% of the refrigerating capacity used (1).

Do you have questions about the best way of processing your compressed air?

We have the answers! We offer efficient solutions for any type of processing chain. Please contact us with your queries. We would be delighted to tell you more about our condensate treatment, filtration, drying, measuring and process technology, and our comprehensive services.

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