

## Ultrapac HED/ALD/MSD Type 0005 to 1000

Complete purification package with heatless adsorption dryer, pre-, afterfilter and level-controlled electronic condensate drain.

Compressed air is lead through the inlet of the dryer (J) and across the prefilter (3). At this stage, the air is cleaned from particles and condensate. The condensate is removed via the level-controlled electronic condensate drain (11).

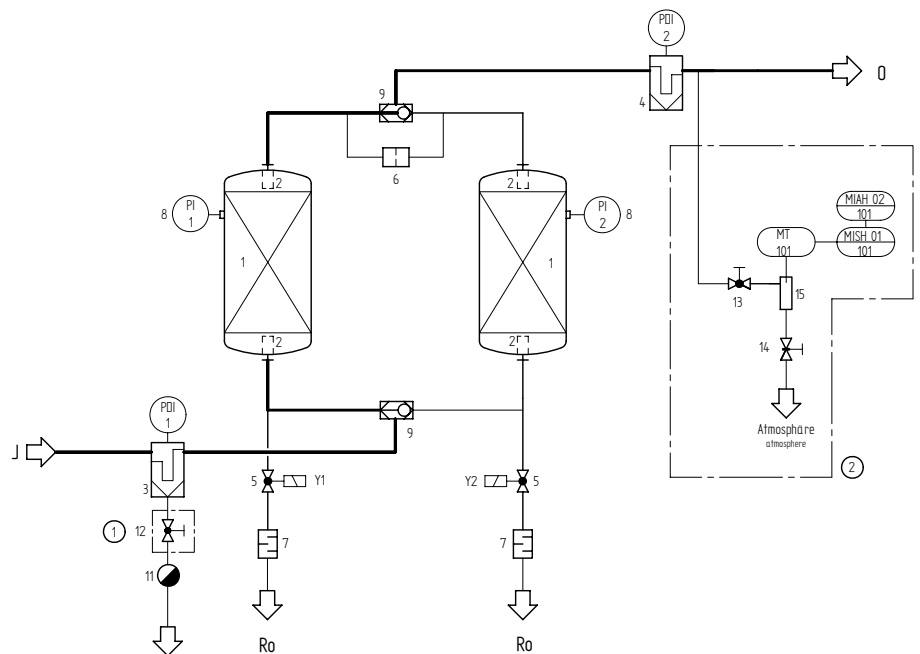
Via the lower shuttle valve (9), the air is lead into the adsorption vessel (1), in which the air is dried down to the required dewpoint. Via the upper shuttle valve (9), the air is let into an afterfilter (4), in which possibly released particles from the desiccant bed are retained. Via the outlet (O), the clean and dry air is lead into the compressed air network and to the point of use.

While one vessel is in the drying phase (adsorption), the other vessel is being dried again (regeneration).

A partial stream of dried air is expanded to atmospheric pressure via a nozzle (6) and lead across the desiccant bed for regeneration and via a solenoid valve (5) and a silencer (7) to the atmosphere.



Ultrapac  
HED/ ALD/ MSD



| Ultrapac<br>HED/ALD/<br>MSD | Volume flow in<br>m <sup>3</sup> /h<br>(1 bar, 20°C)* | Regeneration air losses<br>(average)<br>m <sup>3</sup> /h<br>(1 bar, 20°C) |       |     | Volume flow out<br>(min.)<br>m <sup>3</sup> /h<br>(1 bar, 20°C) |       |       | Pressure loss<br>initial<br>mbar | Prefilter<br>(Afterfilter)<br>M (V) |
|-----------------------------|---|--|-------|-----|---|-------|-------|----------------------------------|-------------------------------------|
|                             |   | HED  | ALD   | MSD | HED   | ALD   | MSD   |                                  |                                     |
| 0005                        | 5   | 0.7  | 0.8   | 1   | 4.1   | 4.0   | 3.8   | 50                               | 0035                                |
| 0010                        | 10  | 1.4  | 1.5   | 2   | 8.3   | 8.2   | 7.5   | 50                               | 0035                                |
| 0015                        | 15  | 2.1  | 2.3   | 3   | 12.4  | 12.2  | 11.3  | 80                               | 0035                                |
| 0025                        | 25  | 3.5  | 3.8   | 5   | 20.7  | 20.3  | 18.9  | 80                               | 0070                                |
| 0035                        | 35  | 4.9  | 5.3   | 7   | 29.0  | 28.5  | 26.4  | 90                               | 0070                                |
| 0050                        | 50  | 7.0  | 7.5   | 10  | 41.4  | 40.8  | 37.7  | 85                               | 0210                                |
| 0080                        | 80  | 11.2   | 12.0  | 16  | 66.2  | 65.2  | 60.3  | 100                              | 0210                                |
| 0100                        | 100   | 14.0   | 15.0  | 20  | 82.8  | 81.6  | 75.4  | 105                              | 0210                                |
| 0150                        | 150   | 21.0   | 23.0  | 30  | 124.2   | 121.7 | 113.1 | 155                              | 0210                                |
| 0175                        | 175   | 24.5   | 26.3  | 35  | 144.9   | 142.7 | 132.0 | 90                               | 0210                                |
| 0225                        | 225   | 31.5   | 34.0  | 45  | 186.3   | 183.2 | 170.0 | 105                              | 0450                                |
| 0300                        | 300   | 42.0   | 45.0  | 60  | 248.3   | 244.7 | 226.2 | 140                              | 0450                                |
| 0375                        | 375   | 52.5   | 56.0  | 75  | 310.4   | 306.1 | 282.8 | 165                              | 0450                                |
| 0550                        | 550   | 77.0   | 83.0  | 110 | 455.3   | 447.9 | 414.7 | 165                              | 0600                                |
| 0650                        | 650   | 91.0   | 98.0  | 130 | 538.1   | 529.5 | 490.1 | 200                              | 0750                                |
| 0850                        | 850   | 119.0  | 128.0 | 170 | 703.6   | 692.6 | 640.9 | 235                              | 1100                                |
| 1000                        | 1000  | 140.0  | 150.0 | 200 | 827.8   | 815.5 | 754.0 | 200                              | 1100                                |

\* related to 1 bar (abs) and 20 °C at intake of compressor and 7 bar (g) and 35 °C inlet temperature



## HED/ALD/MSD 0005-1000

| Features HED/ ALD/ MSD:   | Benefits  |
|---|---|
| Purification package complete with pre-,afterfilter and condensate drain  | Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other  |
| Prefilter with electronic, level-controlled drain UFM-T   | No compressor air losses due to condensate removal, therefore reduction of operating costs  |
| All dryers in cabinet construction  | Optimum protection against mechanical damage and against dirt   |
| Generous dimensioned filters  | Large filtration surface, therefore low pressure drop and low operating costs   |
| Display of operating status by LED  | High operating safety, since all operating status can be detected easily at any time  |
| Intermittent operation standard   | Link between dryer and compressor possible on central applications, therefore saving of compressed air  |
| 17 sizes available, matched to the compressor flows, with 3 pressure dewpoints each, for choice                                 | Custom made solutions possible, matching exactly customer's requirements; no oversizing of compressors necessary, since lowest possible regeneration air requirements |
| Comprehensive option package: Dewpoint depending control, start-up device, bypass, pneumatics control, change-over control etc. | Flexibility in application, well thought-o package for economical operation and safe system installation in the compressed air network                                |

| Product description:  |
|---|
| <b>Ultrapac HED/ALD/MSD:</b><br>Complete purification package with heatless adsorption dryer, which works on the basis of pressure swing adsorption, with integrated pre- and afterfilter and electronic, level controlled condensate drain |

| Medium:                  |
|--------------------------|
| Compressed air/ nitrogen |

| Pressure dewpoint:                                 |
|--|
| HED: -20 °C, ALD: -40 °C, MSD: -70 °C at 100% load |

| Operating pressure:               |
|-----------------------------------|
| min. 4 bar (g)<br>max. 16 bar (g) |

| Medium temperature: |
|---------------------|
| max. +50 °C         |

| Ambient temperature:    |
|-------------------------|
| min. +4 °C, max. +50 °C |

| Power supply:                           |
|---|
| 230 V/ 115 V AC/ 50 – 60 Hz,<br>24 V DC |

| Power consumption: |
|--------------------|
| approx. 40 W       |

| Pressure vessel – design, manufacture, testing:          |
|--|
| Absorber: acc. to 87/404/EEC<br>Filter: acc. to 97/23/EC |

| Declaration of conformity:              |
|---|
| Type 0005 – 0175:<br>acc. to 2006/95/EC |
| Type 0225 – 1000:<br>acc. to 97/23/EC   |

### Sizing:

| Operating pressure bar (g)                       | 4    | 5    | 6    | 7   | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15  | 16   |
|--|------|------|------|-----|------|------|------|------|------|------|------|-----|------|
| Correction factor overpressure (f <sub>p</sub> ) | 0.63 | 0.75 | 0.88 | 1.0 | 1.12 | 1.25 | 1.38 | 1.50 | 1.63 | 1.75 | 1.88 | 2.0 | 2.13 |

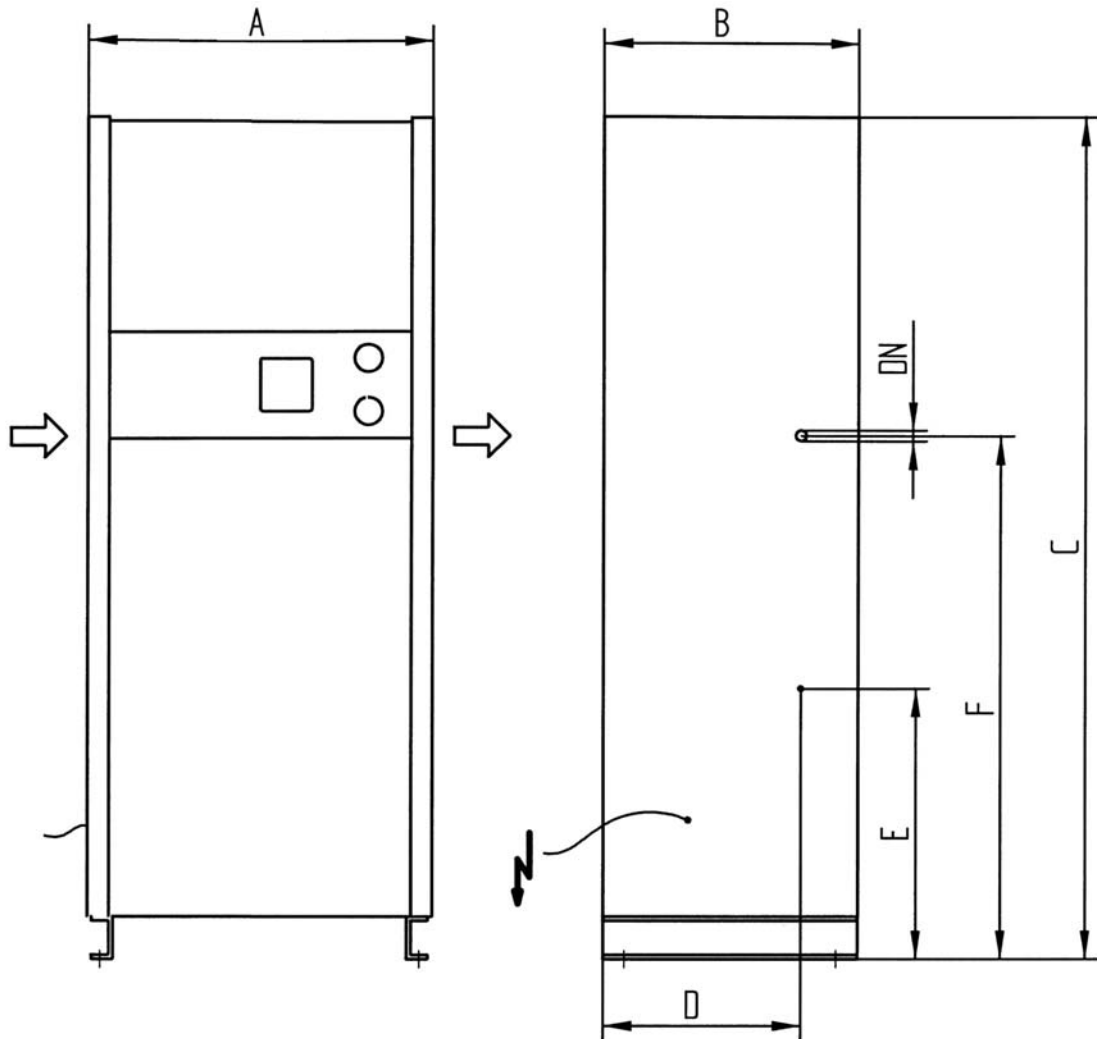
| Type | Pressure-Dewpoint | Residual water content  | Inlet temperature °C                                | 20   | 25   | 30  | 35  | 40  | 45  | 50  |
|------|-------------------|-------------------------|---|------|------|-----|-----|-----|-----|-----|
| HED  | -20°C             | 0.88 g/m <sup>3</sup>   | Correction factor HED Temperature (f <sub>T</sub> ) | -1.2 | 1.2  | 1.1 | 1.0 | -   | -   | -   |
|      |                   |                         | Pressure dewpoint (°C)                              | -20  | -20  | -20 | -20 | -   | -   | -   |
| ALD  | -40°C             | 0.11 g/m <sup>3</sup>   | Correction factor ALD Temperature (f <sub>T</sub> ) | -1.2 | 1.2  | 1.1 | 1.0 | -   | -   | -   |
|      |                   |                         | Pressure dewpoint (°C)                              | -40  | -40  | -40 | -40 | -   | -   | -   |
| MSD  | -70°C             | 0.0027 g/m <sup>3</sup> | Correction factor MSD Temperature (f <sub>T</sub> ) | -1.0 | -1.0 | 1.0 | 1.0 | 0.8 | 0.7 | 0.5 |
|      |                   |                         | Pressure dewpoint (°C)                              | -70  | -70  | -70 | -70 | -65 | -55 | -50 |

Example:  
 $\dot{V}_{nom} = 200 \text{ m}^3/\text{h}$ , inlet temperature = 30°C, operating pressure = 10 bar (g), PDP -40°C

$$\dot{V}_{corr} = \frac{\dot{V}_{nom}}{f_p \cdot f_T} = \frac{200 \text{ m}^3/\text{h}}{1.38 \cdot 1.1} = 131.8 \text{ m}^3/\text{h}$$

Calculated dryer size: Ultrapac ALD, type 0150

## HED/ALD/MSD 0005-1000



| HED/ALD/MSD | DN<br>" | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | Weight<br>kg |
|-------------|---------|---------|---------|---------|---------|---------|---------|--------------|
| 0005        | G 3/8   | 470     | 340     | 700     | 255     | 145     | 390     | 27           |
| 0010        | G 3/8   | 470     | 340     | 700     | 255     | 145     | 390     | 33           |
| 0015        | G 3/8   | 470     | 340     | 1060    | 255     | 310     | 700     | 41           |
| 0025        | G 1/2   | 470     | 340     | 1060    | 255     | 310     | 700     | 44           |
| 0035        | G 1/2   | 470     | 340     | 1060    | 255     | 310     | 700     | 48           |
| 0050        | G 3/4   | 670     | 460     | 1610    | 315     | 415     | 800     | 107          |
| 0080        | G 3/4   | 670     | 460     | 1610    | 315     | 415     | 800     | 140          |
| 0100        | G 1     | 670     | 460     | 1610    | 315     | 415     | 800     | 169          |
| 0150        | G 1     | 770     | 680     | 1980    | 465     | 535     | 1075    | 200          |
| 0175        | G 1     | 770     | 680     | 1980    | 465     | 535     | 1075    | 260          |
| 0225        | G 1 1/2 | 770     | 680     | 1980    | 465     | 535     | 1075    | 277          |
| 0300        | G 1 1/2 | 770     | 680     | 1980    | 465     | 535     | 1075    | 321          |
| 0375        | G 1 1/2 | 950     | 770     | 2190    | 530     | 660     | 1250    | 398          |
| 0550        | G 2     | 950     | 770     | 2190    | 530     | 660     | 1250    | 431          |
| 0650        | G 2     | 950     | 770     | 2190    | 530     | 660     | 1250    | 506          |
| 0850        | G 2     | 1100    | 880     | 2350    | 650     | 650     | 1450    | 595          |
| 1000        | G 2     | 1100    | 880     | 2350    | 650     | 650     | 1450    | 676          |