

# Ultradryer High Pressure Dryer HLP-MSD 0006 to 0360, PN 40

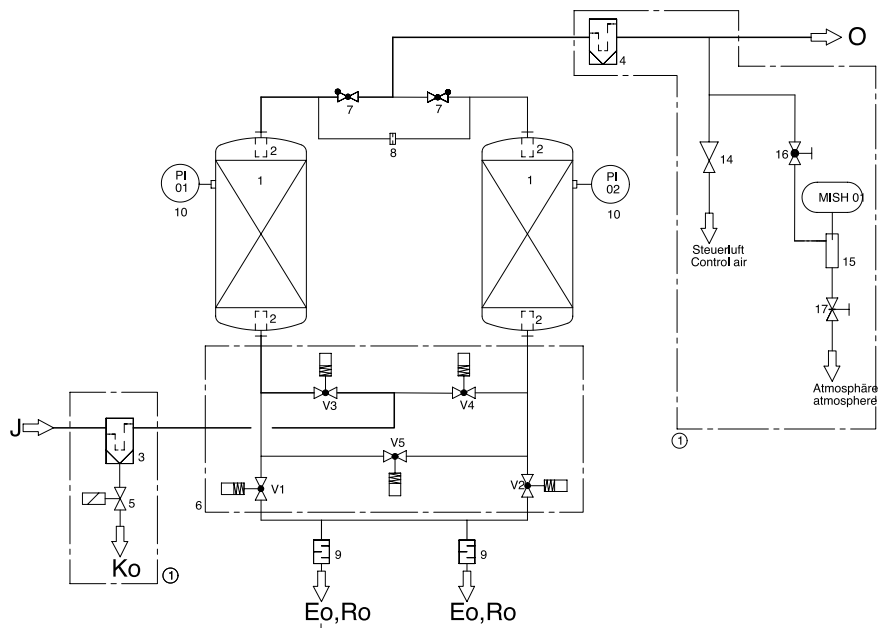
High pressure adsorption dryer, heatless regenerating,  
(option: pre-, and afterfilter).

Compressed air is lead through the inlet of the dryer (J) into the prefilter (3). At this stage, the air is cleaned from particles and condensate. The condensate is removed via the electronic condensate drain (5).

Via the pneumatically operated valve (V3, V4) the air is lead into the absorber vessel (1), in which the air is dried to the required dryness level (pressure dewpoint). Thereafter the air flows through the upper non-return valve (7) and an afterfilter (4) which retains eventually accruing abrasion of desiccant. Via the systems outlet (O) the clean and dry air reaches the user's air net.

During one vessel is in operation, the water previously accumulated in the other adsorber is removed (regeneration phase). For this process a partial stream of already dried air is lead through a nozzlele (8) and brought down to atmospheric pressure. For regeneration, purge air is lead over the desiccant bed and then released into the atmosphere via a pneumatically operated valve (V1, V2) and a silencer (9).

High pressure adsorption dryer  
HLD-MSD, PN 64)



| HLP<br>PN 40 | Volume flow<br>in<br>m <sup>3</sup> /h<br>(1 bar, 20°C)* | Regeneration air<br>losses<br>m <sup>3</sup> /h<br>(1 bar, 20°C) | Volume flow<br>out (min.)<br>m <sup>3</sup> /h<br>(1 bar, 20°C) | Pressure loss<br>initial<br>mbar | Prefilter<br>(afterfilter)<br>MF (PE) |
|--------------|--|--|---|----------------------------------|---------------------------------------|
| 0006         | 20   | 1.2  | 18.3  | 380                              | 03/05                                 |
| 0009         | 30   | 1.8  | 27.4  | 430                              | 03/05                                 |
| 0018         | 60   | 3.6  | 54.9  | 550                              | 03/05                                 |
| 0027         | 90   | 5.4  | 82.3  | 420                              | 04/20                                 |
| 0036         | 120  | 7.2  | 109.7   | 470                              | 04/20                                 |
| 0054         | 180  | 10.8   | 164.6   | 450                              | 05/20                                 |
| 0072         | 240  | 14.4   | 219.4   | 510                              | 05/20                                 |
| 0108         | 360  | 21.6   | 329.1   | 520                              | 05/25                                 |
| 0144         | 480  | 28.8   | 438.9   | 570                              | 05/25                                 |
| 0180         | 600  | 36.0   | 548.6   | 670                              | 05/25                                 |
| 0288         | 960  | 57.6   | 877.7   | 600                              | 07/30                                 |
| 0360         | 1200   | 72.0   | 1097.1  | 670                              | 07/30                                 |

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

## HLP-MSD 0006 - 0360, PN 40

| Features HLP-MSD  | Benefits  |
|---|---|
| Purification package.<br>Option: pre-, afterfilter and condensate drain | Turnkey-system, no additional installation requirements, all components from one hand, technically perfectly matched to each other  |
| Low regeneration air requirements                                       | Saving of regeneration air, therefore low operating cost with high availability of compressed air at outlet of dryer  |
| Oversized filters   | High operating safety, all operating status can easily be detected at any time  |
| Display of operating status on LED                                      | Large filtration surface, therefore low differential pressure and low operating cost  |
| 12 sizes available, matched to high compressor pressure flows.          | Custom made solutions possible, matching exactly customers' requirements; no overpressure sizing of compressor necessary, since lowest possible regeneration air requirements |

| Product description:   |
|--|
| Complete purification package with heatless adsorption dryer which works on the basis of pressure swing adsorption.<br>Option: pre-, afterfilter and electronic condensate drain |

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

| Pressure dewpoint: |
|--------------------|
| -40°C at 100% load |

| Operating pressure:              |
|----------------------------------|
| min. 26 bar (g), max. 40 bar (g) |

| Medium temperature: |
|---------------------|
| min. 5°C, max. 55°C |

| Ambient temperature: |
|----------------------|
| min. 3°C, max. 50°C. |

| Power supply:  |
|----------------|
| 230 V/ 50-60Hz |

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

| Pressure vessel – design, manufacture, testing |
|--|
| Adsorber and filter: acc. to RL 97/23/EG       |

| Declaration of conformity: |
|----------------------------|
| acc. to RL 97/23/EG        |

### Sizing:

| PN 40 | Operating pressure bar (g)               | 26   | 27   | 28   | 29   | 30   | 31   | 32   | 33   | 34   | 35   | 36   | 37   | 38   | 39   | 40   |
|-------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|       | Correction factor overpressure ( $f_p$ ) | 0.81 | 0.83 | 0.84 | 0.86 | 0.87 | 0.88 | 0.90 | 0.91 | 0.92 | 0.94 | 0.95 | 0.96 | 0.98 | 0.99 | 1.00 |

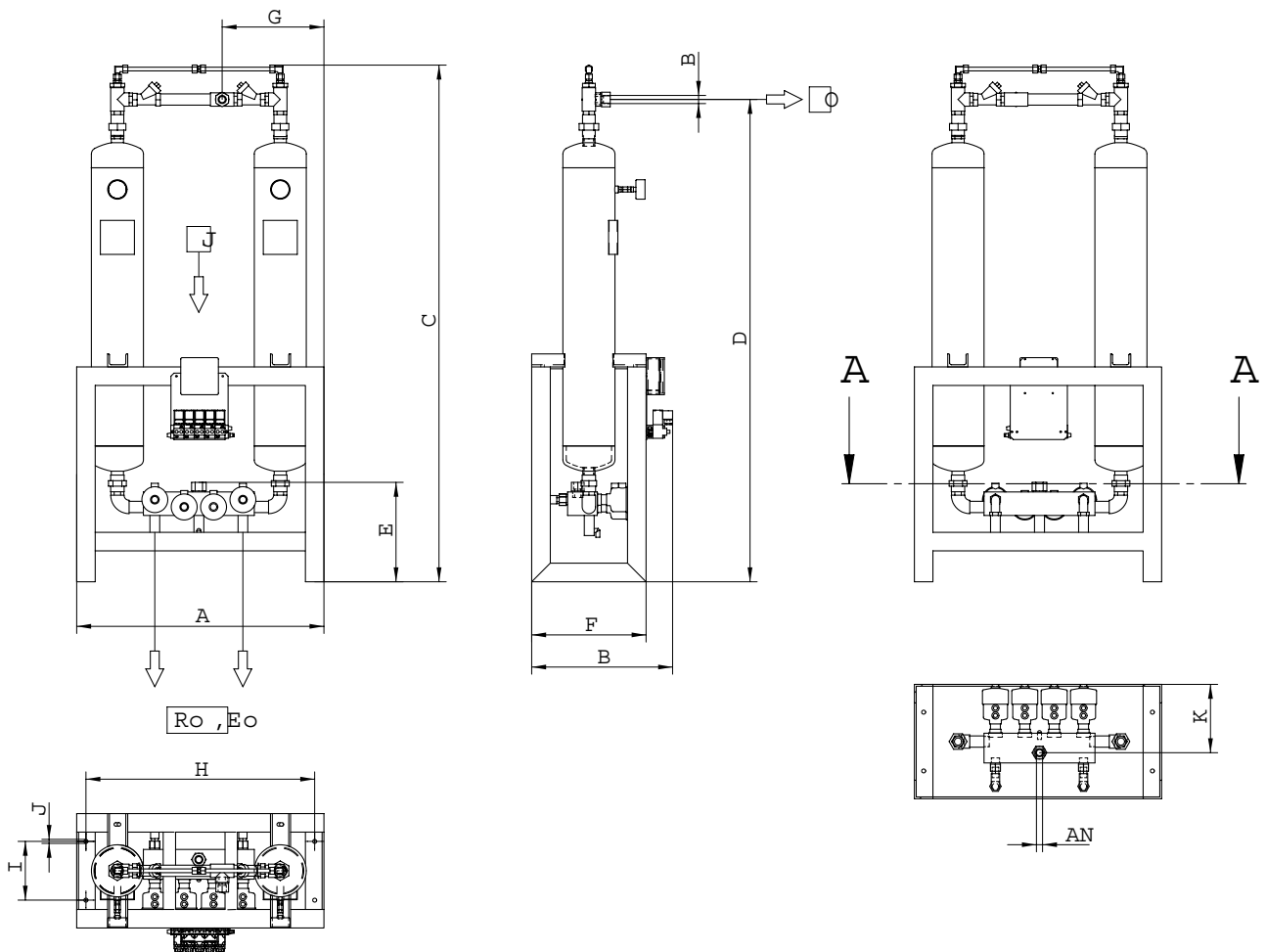
| Inlet temperature °C                          | 20   | 25   | 30   | 35   | 40   | 45   | 50   | 55   |
|---|------|------|------|------|------|------|------|------|
| Correction factor inlet temperature ( $f_T$ ) | 1.20 | 1.20 | 1.17 | 1.00 | 0.76 | 0.58 | 0.45 | 0.35 |

$$\dot{V}_{\text{corr}} = \frac{150 \text{ m}^3/\text{h}}{0.84 * 1.17} = 152.63 \text{ m}^3/\text{h}. \text{ Calculated dryer size: HLP-MSD 0054, PN 40}$$

$$\dot{V}_{\text{corr}} = \frac{\dot{V}_{\text{nom}}}{f_p * f_T}$$

Example :  
 $\dot{V}_{\text{nom}} = 150 \text{ m}^3/\text{h}$ ,  
 Inlet temperature = 30°C  
 Operating pressure = 28 bis 39 bar (g)

## HLP 0006 - 0360, PN 40



| HLP<br>PN 40 | Connection AN<br>G" | A<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | G<br>mm | H<br>mm | I<br>mm | J<br>mm | K<br>mm |
|--------------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0006         | G 1/4               | 560     | 350     | 1030    | 950     | 250     | 260     | 240     | 520     | 140     | 11      | -       |
| 0009         | G 1/4               | 560     | 350     | 1030    | 950     | 250     | 260     | 240     | 520     | 140     | 11      | -       |
| 0018         | G 1/4               | 690     | 440     | 1280    | 1200    | 250     | 350     | 280     | 640     | 230     | 13      | -       |
| 0027         | G 1/2               | 690     | 440     | 1280    | 1200    | 250     | 350     | 280     | 640     | 230     | 13      | -       |
| 0036         | G 1/2               | 690     | 440     | 1280    | 1200    | 250     | 350     | 280     | 640     | 230     | 13      | -       |
| 0054         | G 3/4               | 800     | 460     | 1670    | 1560    | 290     | 370     | 330     | 740     | 190     | 13      | 220     |
| 0072         | G 3/4               | 800     | 460     | 1670    | 1560    | 290     | 370     | 330     | 740     | 190     | 13      | 220     |
| 0108         | G 1                 | 800     | 460     | 1670    | 1560    | 290     | 370     | 320     | 740     | 190     | 13      | 220     |
| 0144         | G 1                 | 800     | 460     | 1650    | 1540    | 290     | 370     | 320     | 740     | 190     | 13      | 220     |
| 0180         | G 1                 | 800     | 460     | 1650    | 1540    | 290     | 370     | 435     | 740     | 190     | 13      | 220     |
| 0288         | G 1 1/2             | 1120    | 610     | 1630    | 1560    | 330     | 520     | 440     | 1030    | 280     | 17      | 300     |
| 0360         | G 1 1/2             | 1120    | 610     | 1710    | 1560    | 330     | 520     | 440     | 1030    | 280     | 17      | 300     |