



Donaldson  
FILTRATION SOLUTIONS

## Dryer Systems

### Heatless Regenerating Adsorption Dryers

Ultrapac® HED-ALD-MSD 0005 - 0035

#### MAIN FEATURES & BENEFITS

- Purification package complete with pre- and afterfilter
- Prefilter with electronic, level-controlled condensate drain incl. function control and alarm message
- Generous dimensioned filters:  
large filtration surface, therefore low pressure drop and low operating costs
- Comprehensive option package:  
Dewpoint depending control, start-up device, bypass, pneumatic control, free of silicone and extractable components etc.
- 5 sizes available, matched to the compressor flows, with 3 selectable pressure dewpoints each



HED-ALD-MSD  
0005 - 0035

#### INDUSTRIES



- Chemical and electrical industry



- Machine building industry and  
plant engineering / construction



- Automotive industry

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Donaldson®  
Ultrafilter

## PRODUCT DESCRIPTION

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).

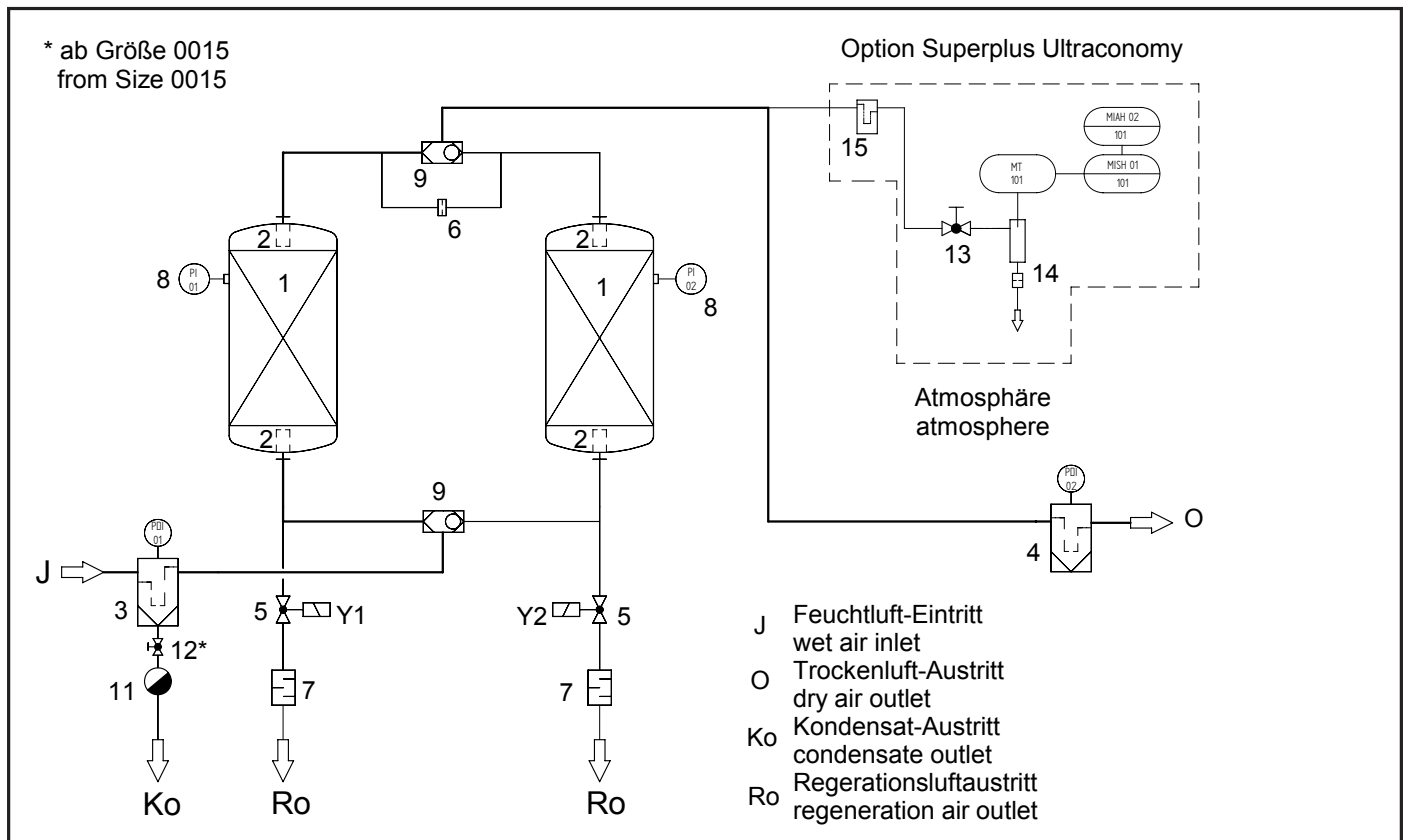
Via the lower shuttle valve (9), the air is lead into the adsorption vessel (1), in which the air is dried down to the required dewpoint. Via the upper shuttle valve (9), the air is let into an afterfilter (4), in which possibly released particles from the desiccant bed are retained. Via the outlet (O),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

### Typical applications for the adsorption dryers HED-ALD-MSD are:

- Central compressed air purification**  
 Generation of dry, oil-free and particulate-free compressed air
- Point-of-use applications**  
 Drying and purification of control and instrument and process air
- Automotive industry**  
 Purification of compressed air for painting applications



**PRODUCT SPECIFICATIONS**

<b>Features:</b>	<b>Benefits:</b>
Purification package complete with pre- and afterfilter	Turnkey system, no additional installation required, all components from one hand, technically perfectly matched to each other
Prefilter with electronic, level-controlled condensate drain incl. function control and alarm message	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
5 sizes available, matched to the compressor flows, with 3 selectable pressure dewpoints each	Custom made solutions possible, matching exactly customer's requirements; no oversizing of compressors necessary, due to 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 option package for economical operation and safe system installation in the compressed air network
Superplus Version including dewpoint dependent capacity control and text display	Saving of energy and operational cost due to adaption of the purge air consumption to the actual operating conditions. Indication of current dewpoint and function status as well as alarm and service messages on LCD text display in clear text ensures high operating safety of the adsorption dryer.

<b>Technical Data</b>	
<b>Operating pressure:</b>	min. 4 bar (g) / max. 16 bar (g)
<b>Ambient temperature:</b>	min. +4°C / max. +50°C
<b>Medium temperature:</b>	max. +50°C
<b>Medium:</b>	Compressed air / nitrogen
<b>Power supply:</b>	230 VAC / 50-60 Hz or 110 VAC / 50-60 Hz or 24 VDC
<b>Power consumption</b>	40 W
<b>Declaration of Conformity</b>	
<b>Types 0005 - 0035:</b>	acc. to Directive 2014/35/EU
<b>Pressure vessel – design, manufacture, testing</b>	
<b>Adsorber:</b>	acc. to Directive 2014/29/EU
<b>Filter:</b>	acc. to PED 2014/68/EU

## PRODUCT SPECIFICATIONS

HED/ ALD/ MSD	Volume flow in m <sup>3</sup> /h (1 bar, 20°C)*	Regeneration air losses average m <sup>3</sup> /h (1 bar, 20°C)			Volume flow out (min.) m <sup>3</sup> /h (1 bar, 20°C)			Pressure loss initial mbar	Prefilter (Afterfilter) 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

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

## SIZING

Type	Pressure dewpoint (PDP)	Residual water content	Inlet temperature	Operating pressure (bar)												
				4	5	6	7	8	9	10	11	12	13	14	15	16
HED ALD	-20°C -40°C	0,88 g/m <sup>3</sup> 0,11 g/m <sup>3</sup>	25°C	0,75	0,90	1,05	1,20	1,35	1,50	1,65	1,80	1,95	2,10	2,25	2,40	2,55
			30°C	0,69	0,83	0,96	1,10	1,24	1,38	1,51	1,65	1,79	1,93	2,06	2,20	2,34
			35°C	0,63	0,75	0,88	1,00	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13
MSD	-40°C ≤ -40°C* ↑ DTP ↓ ≥ -70°C*	0,11 g/m <sup>3</sup> 0,11 g/m <sup>3</sup> 0,0027 g/m <sup>3</sup>	25°C	0,75	0,90	1,05	1,20	1,35	1,50	1,65	1,80	1,95	2,10	2,25	2,40	2,55
			30°C	0,69	0,83	0,96	1,10	1,24	1,38	1,51	1,65	1,79	1,93	2,06	2,20	2,34
			35°C	0,63	0,75	0,88	1,00	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,00	2,13
			40°C	0,50	0,60	0,70	0,80	0,90	1,00	1,10	1,20	1,30	1,40	1,50	1,60	1,70
			45°C	0,44	0,53	0,61	0,70	0,79	0,88	0,96	1,05	1,14	1,23	1,31	1,40	1,49
			50°C	0,31	0,38	0,44	0,50	0,56	0,63	0,69	0,75	0,81	0,88	0,94	1,00	1,06
* on request				Correction factors (f)												

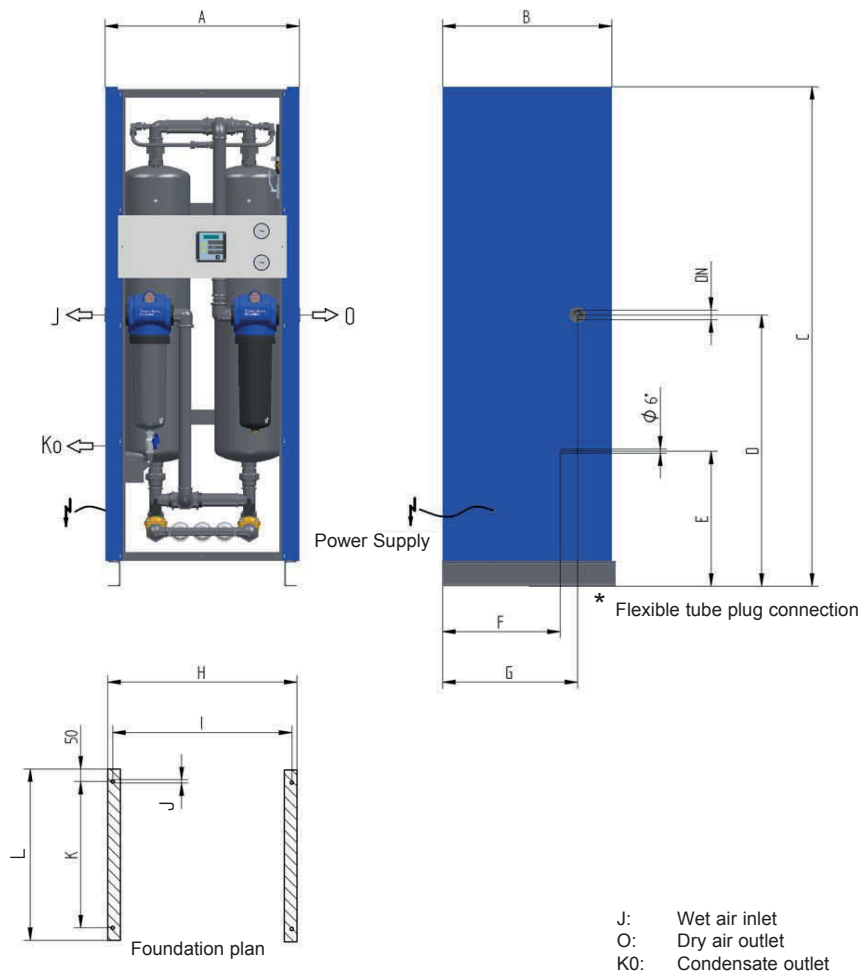
### Example:

$\dot{V}_{nom} = 50 \text{ m}^3/\text{h}$ , inlet temperature = 30°C, operating pressure = 10 bar (g), PDP = -40°C

$$\dot{V}_{korr} = \frac{\dot{V}_{nom}}{f} = \frac{50 \text{ m}^3/\text{h}}{1,51} = 33,1 \text{ m}^3/\text{h}$$

**Calculated dryer size:  
ALD, Type 0035**

## DIMENSIONS



Type	DN "	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	Weight kg
0005	G 3/8	470	340	700	390	145	255	255	460	457	6,5	215	315	27
0010	G 3/8	470	340	700	390	145	255	255	460	457	6,5	215	315	33
0015	G 3/8	470	340	1060	700	310	255	255	460	457	6,5	215	315	41
0025	G 1/2	470	340	1060	700	310	255	255	460	457	6,5	215	315	44
0035	G 1/2	470	340	1060	700	310	255	255	460	457	6,5	215	315	48