



Donaldson®
FILTRATION SOLUTIONS

Dryer Systems

Heatless Regenerating Adsorption Dryers

Ultrapac® HED-ALD-MSD 1350 - 8750

MAIN FEATURES & BENEFITS

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



HED-ALD-MSD
1350 - 8750

INDUSTRIES



- Chemical and electrical industry



- Machine building industry and
plant engineering / construction



- Automotive industry

Donaldson Filtration Deutschland GmbH
Büssingstr. 1
D-42781 Haan
Tel.: +49 (0) 2129 569 0
Fax: +49 (0) 2129 569 100
E-Mail: CAP-de@donaldson.com
Web: www.donaldson.com

Donaldson®
Ultrafilter

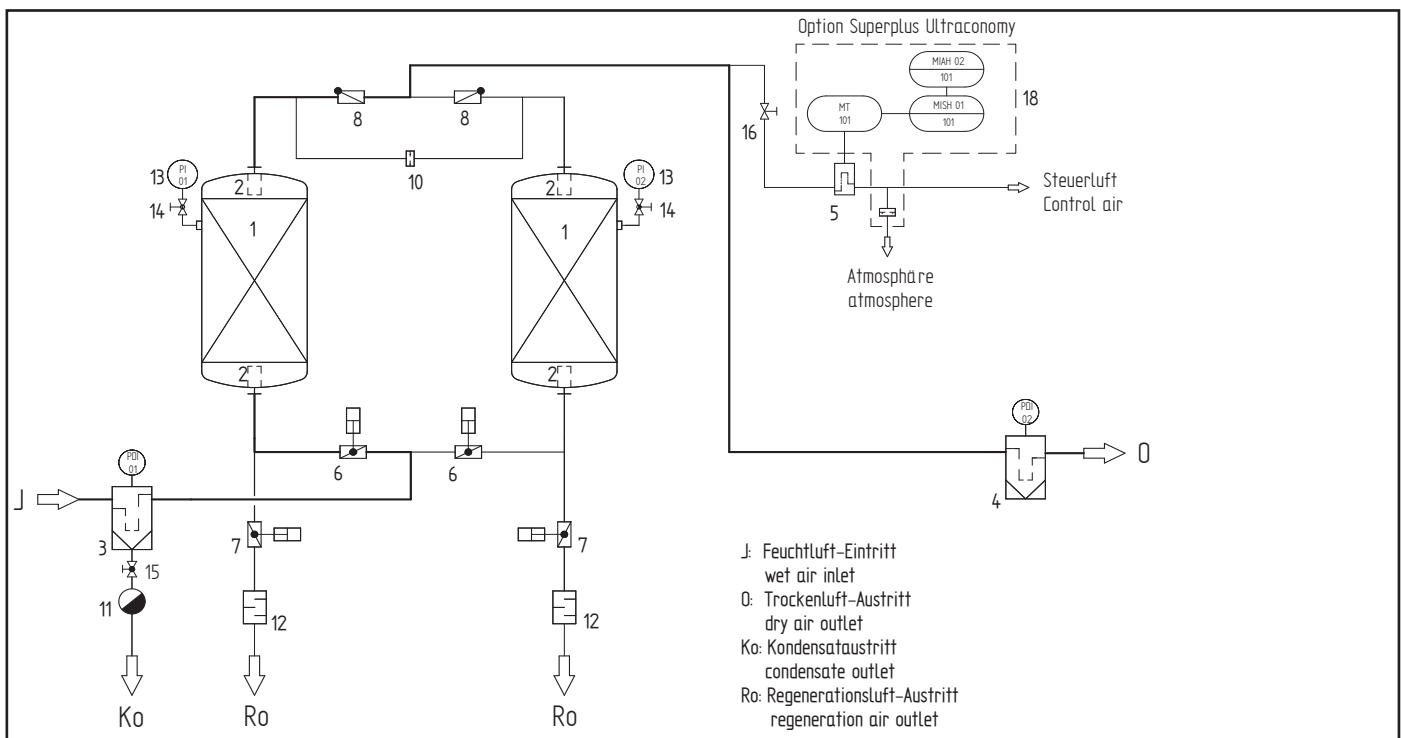
PRODUCT DESCRIPTION

Compressed air is lead through the inlet of the dryer (J) via the prefilter (3). At this stage, the air is cleaned from particles and condensate. The condensate are removed by a condensate drain (11). Via a butterfly valve (6), the air is lead into the adsorption vessel (1), in which the air is dried down to the required dewpoint. After that, the air is lead through a non-returnvalve (8) and an afterfilter (4), in which possibly released particles from the desiccant are retained. Via the dryer outlet (O), the clean and dry air is let into the compressed air network 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 an nozzle (10) and lead across the desiccant bed for regeneration and via a butterfly valve (7) and a silencer (12) to the atmosphere

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

- Central air treatment:**
 Production of dry, oil-free and particulate-free compressed air
- Back up system:**
 for heat regenerated adsorption dryers



PRODUCT SPECIFICATIONS

Features:	Benefits:
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
Easy serviceable butterfly valves	Short service downtime
Generous dimensioned filters and vessel diameters	Large filtration surface, therefore low flow speed, 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
11 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.

Technical Data	
Operating pressure:	min. 4 bar (ü) / max. 10 bar (ü)
Ambient temperature:	min. +4°C / max. +50°C
Medium temperature:	min. +5°C max. +50°C
Medium:	Druckluft / Stickstoff
Power supply:	230 VAC / 50-60 Hz or 110 VAC / 50-60 Hz or 24 VDC
Power consumption	40 W
Declaration of Conformity	
Types 1350 - 8750:	acc. to PED 2014/68/EU
Pressure vessel – design, manufacture, testing	
Adsorber:	acc. to PED 2014/68/EU
Filter:	acc. to PED 2014/68/EU

PRODUCT SPECIFICATIONS

HED/ ALD/ MSD	Volume flow in m³/h (1 bar, 20°C)*	Regeneration air losses average m³/h (1 bar, 20°C)			Volume flow out (min.) m³/h (1 bar, 20°C)			Pressure loss initial mbar	Prefilter (Afterfilter) M (PE)
		HED	ALD	MSD	HED	ALD	MSD		
1350	1350	189	202,5	270	1102,77	1093,93	1013	190	30/30
1650	1650	231	247,5	330	1347,71	1336,93	1238	230	30/30
1950	1950	273	292,5	390	1592,65	1579,91	1463	160	30/50
2250	2250	315	337,5	450	1837,59	1822,89	1688	180	30/50
2750	2750	385	412,5	550	2245,83	2227,86	2063	240	30/50
3500	3500	490	525	700	2857,63	2834,77	2625	280	3-20/30
4000	4000	560	600	800	3265,84	3239,74	3000	140	4-30/30
5000	5000	700	750	1000	4082,33	4049,68	3750	170	4-30/30
6000	6000	840	900	1200	4898,8	4859,61	4500	220	4-30/30
7000	7000	980	1050	1400	5715,27	5669,55	5250	260	4-30/30
8750	8750	1225	1312,5	1750	7144,63	7087,47	6563	160	8-30/30

* 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	0,88 g/m³ 0,11 g/m³	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
	-40°C		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	0,11 g/m³	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
	≤ -40°C*	0,0027 g/m³	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
	↑ DTP		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
	≥ -70°C*		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)												

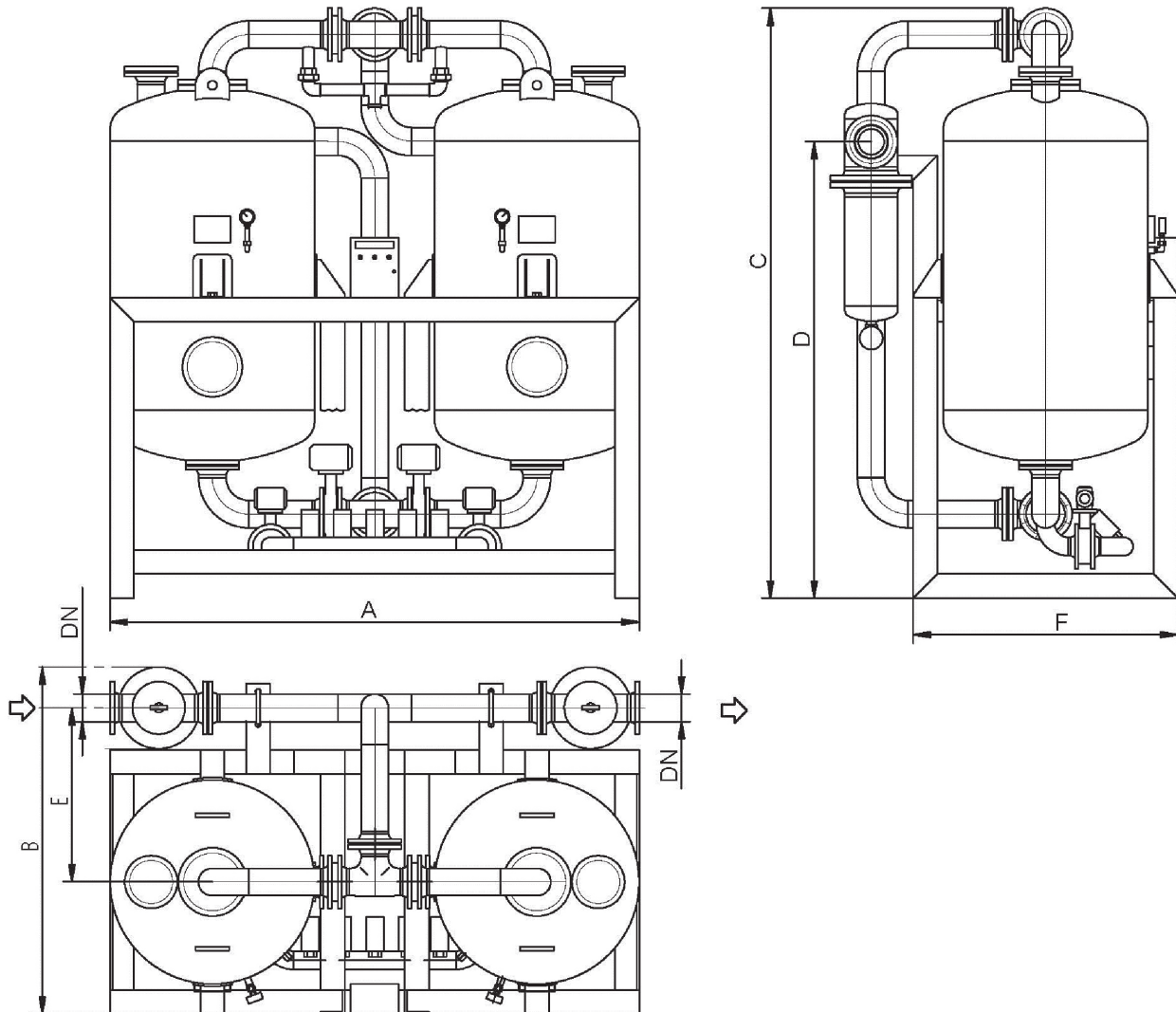
Example:

$\dot{V}_{nom} = 2500 \text{ m}^3/\text{h}$, inlet temperature = 30°C, operating pressure = 10 bar (g), PDP = -40°C

$$\dot{V}_{korr} = \frac{\dot{V}_{nom}}{f} = \frac{2500 \text{ m}^3/\text{h}}{1,51} = 1655,6 \text{ m}^3/\text{h}$$

**Calculated dryer size:
ALD, Typ 1950**

DIMENSIONS



Type	DN mm	A mm	B mm	C mm	D mm	E mm	F mm	Weight kg
1350	80	1500	950	2555	1800	475	700	1230
1650	80	1700	1050	2365	1800	525	800	1400
1950	100	1800	1190	2485	1900	595	850	1660
2250	100	1900	1290	2605	1900	645	950	1890
2750	100	2000	1340	2695	1900	670	1000	2070
3500	100	2200	1490	2695	1900	745	1150	2970
4000	150	2400	1600	2980	2250	825	1200	3750
5000	150	2600	1680	3040	2250	860	1300	4000
6000	150	2800	1780	3080	2250	910	1400	4900
7000	150	3000	1880	3095	2250	960	1500	5820
8750	200	3400	2290	3320	2300	1150	1700	7660