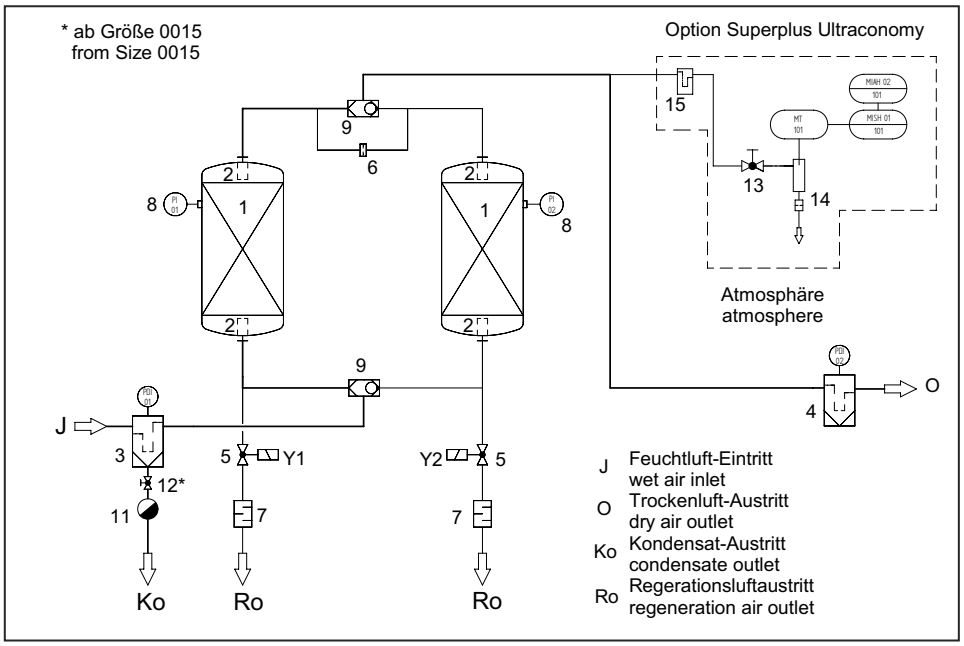
Donaldson® Ultrafilter

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.



HED/ALD/ MSD	Volume flow in m^3/h (1 bar, 20°C)*	Regeneration air losses (average) m^3/h (1 bar, 20°C)			Volume flow out (min.) m^3/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
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	No compressor air losses due to condensate removal, therefore reduction of operating costs
All dryers in cabinet construction	Optimum protection against mecanical 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 neccessary, since lowest possible regeneration sir 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:

HED/ALD/MSD:
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

Operating pressure:

min. 4 bar (g)
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,
24 V DC

Power consumption:

approx. 40 W

Declaration of conformity:

Type 0005 – 0175:
acc. to 2006/95/EC

Type 0225 – 1000:
acc. to 97/23/EC

Pressure vessel – design, manufacture, testing:

Absorber: acc. to 87/404/EEC

Filter: acc. to 97/23/EC

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	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	0,11 g/m³	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*	0,11 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
	↑ PDP		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*	0,0027 g/m³	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)												

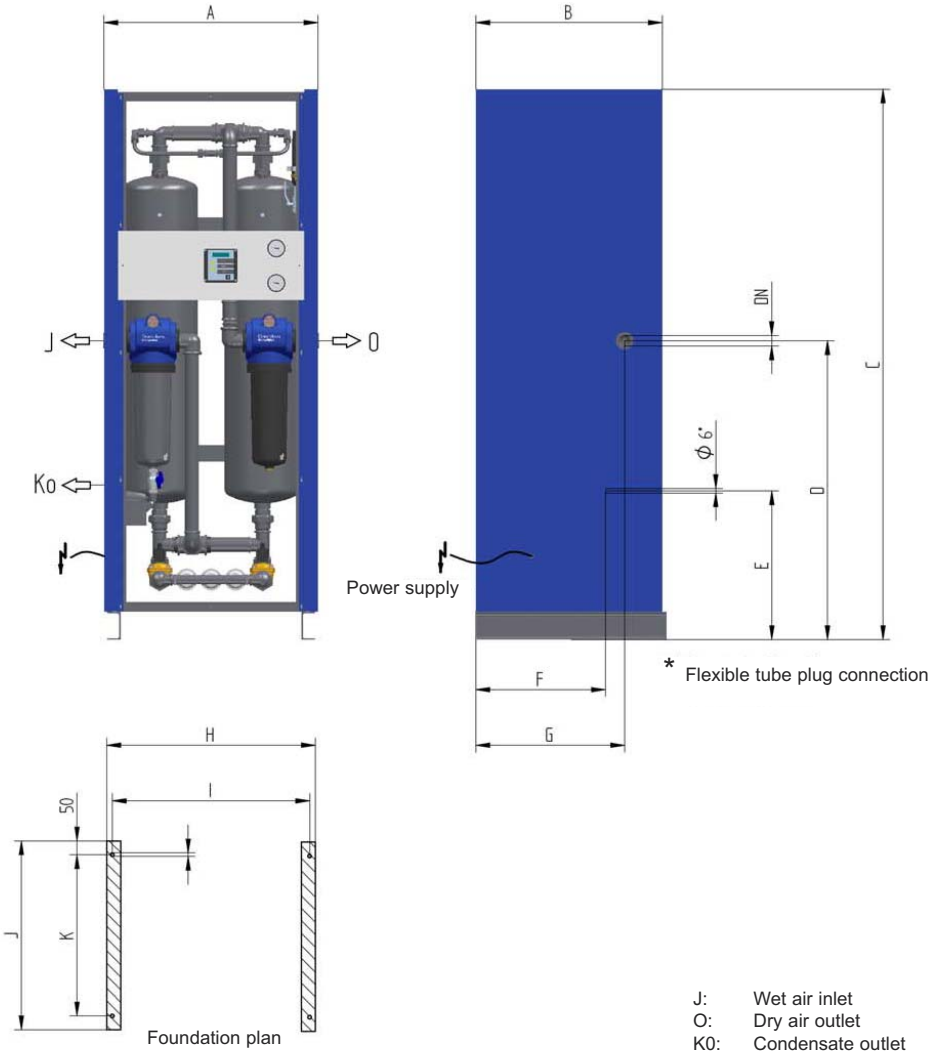
Example:

$\dot{V}_{nom}$ = 200 m³/h, inlet temperature = 30°C, operating pressure = 10 bar (ü), PDP= -40°C

$$\dot{V}_{corr} = \frac{\dot{V}_{nom}}{f} = \frac{200\ m^3/h}{1{,}38 * 1{,}1} = 132{,}5\ m^3/h$$

Calculated dryer size: Ultrapac ALD, type 0150

HED/ALD/MSD 0005-1000



J: Wet air inlet
O: Dry air outlet
K0: Condensate outlet

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 ⅜	470	340	700	255	145	390	255	460	440	6,5	215	315	27
0010	G ⅜	470	340	700	255	145	390	255	460	440	6,5	215	315	33
0015	G ⅜	470	340	1060	255	310	700	255	460	440	6,5	215	315	41
0025	G ½	470	340	1060	255	310	700	255	460	440	6,5	215	315	44
0035	G ½	470	340	1060	255	310	700	255	460	440	6,5	215	315	48
0050	G ¾	670	460	1610	315	415	800	340	650	610	13	360	460	107
0080	G ¾	670	460	1610	315	415	800	340	650	610	13	360	460	140
0100	G 1	670	460	1610	315	415	800	340	650	610	13	360	460	169
0150	G 1	770	680	1980	465	535	1075	535	750	710	13	580	680	200
0175	G 1	770	680	1980	465	535	1075	535	750	710	13	580	680	260
0225	G 1½	770	680	1980	465	535	1075	535	750	710	13	580	680	277
0300	G 1½	770	680	1980	465	535	1075	535	750	710	13	580	680	321
0375	G 1½	950	770	2190	530	660	1250	620	930	890	13	670	770	398
0550	G 2	950	770	2190	530	660	1250	620	930	890	13	670	770	431
0650	G 2	950	770	2190	530	660	1250	620	930	890	13	670	770	506
0850	G 2	1100	880	2350	650	650	1450	720	1080	1040	13	780	880	595
1000	G 2	1100	880	2350	650	650	1450	720	1080	1040	13	780	880	676