Donaldson.
FILTRATION SOLUTIONS

HEATLESS ADSORPTION DRYERS ULTRAPAC CLASSIC

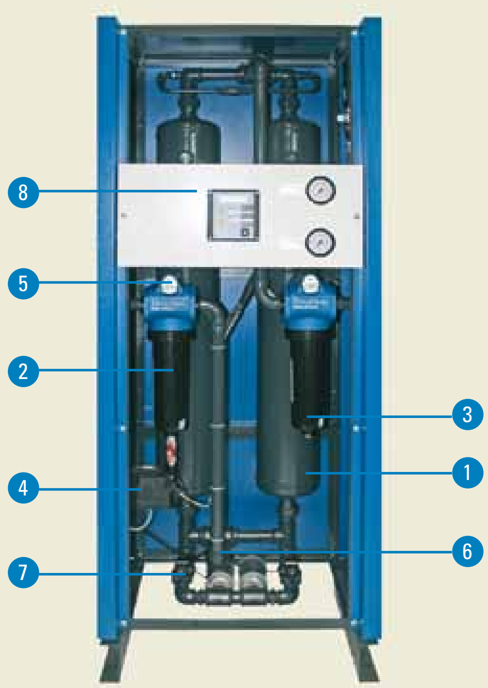
Ultrapac Classic: Energy saving Cont

Adsorption Drying – why?

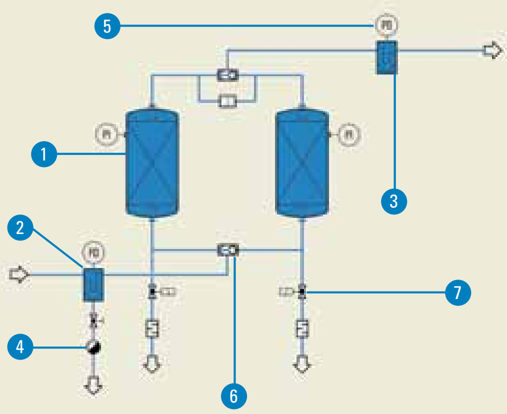
Only dry compressed air is also clean compressed air, because the moisture in the compressed air network conjoins dirt particles, which could lead to corrosion, production downtimes and losses in the production quality.

Donaldson's high efficiency adsorption dryers remove moisture from the compressed air and therefore guarantee an efficient and secure production process. State-of-the-art technology and selected materials are the basis for high operational safety. The Ultrapac is equipped with the most modern control system, pre- and afterfilter, condensate drain and silencer.

Maximum efficiency and the highest operational safety, coupled with low operational costs are attributes that convey the advantages of the adsorption dryer. The areas of application are diverse and are matched to the exact requirements of the customer.



1 Adsorber
2 Prefilter
3 Afterfilter
4 Automatic condensate drain UFM-D
5 Differential pressure gauge
6 Shuttle valve
7 Solenoid valve with silencer
8 Control

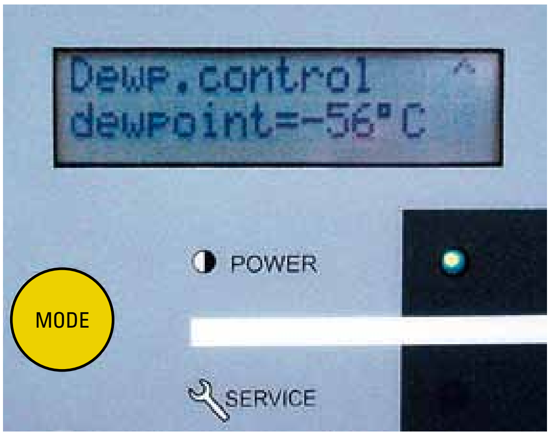


The time-controlled adsorption dryer without capacity control operates with a predetermined cycle time for which the dryers is designed, irrespective whether the desiccant might be loaded to the maximum. The dryer's requirement for regeneration air (energy consumption of compressed air) therewith remains constant.

rol with new user-friendly Functions

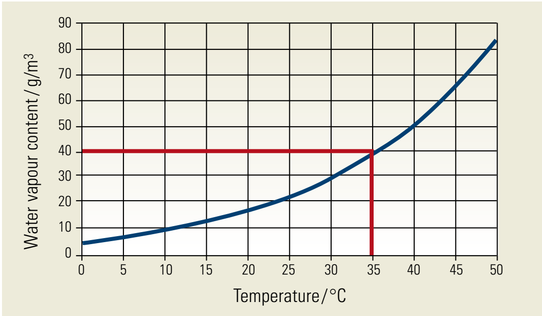
The water load of the dryer depends on the actual operational conditions. If the inlet conditions, airflow, pressure or ambient temperatures vary, the quantity of the water loading will also vary.

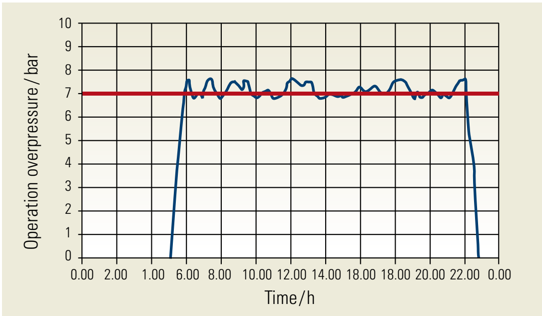
With a continual dewpoint measurement at the outlet of the dryer, the newly developed "Ultraconomy" control will determine the actual amount of moisture that enters the dryer and will assess the optimum time when the dryer requires regenerating whilst maintaining a constant selected dewpoint.

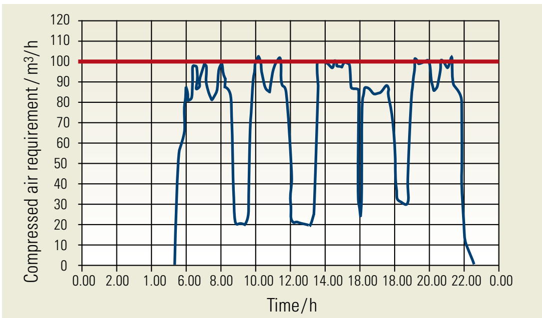


This leads to considerable savings in regeneration air. An example exemplifies this: a dryer designed for 100 m^3/h, 35 °C inlet temperature and 7 bar (g) operational pressure uses approx. 15 m^3/h regeneration air during a fixed cycle. At an average compressed air requirement of 60 %, an average inlet temperature of 30 °C and average pressure of 7.2 bar the water load only still amounts to approx. 45 % of the original value. On average the dryer is now only using 6.75 m^3/h and is therewith saving 8.25 m^3 per hour. According to compressor type and condition this is equivalent to a power consumption of up to 1 kW.

At a full cost price of 2 cents per m^3 of generated compressed air and 8,000 operating hours per year the saving amounts to Euro 1,320.





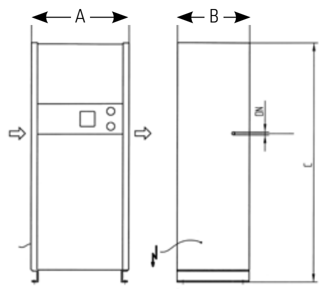


Options: Ultrapac Classic HED/ALD/MSD

- Pneumatic control
- Alternative power supply (24 V DC, 110 V AC)
- Dryers as silicone and separating agent free models
- Frostproof trace heating
- Bypass lines
- Pressure controlled automatic start-up device
- Pressure and temperature monitoring

Technical Data Ultrapac Classic

Type HED/ALD/ MSD	Nominal inlet flow m^3/h (1 bar, 20 °C)*	Average reg. air flow m^3/h (1 bar, 20 °C)			Connection DN "	Dimensions		
		HED	ALD	MSD		Width (A) mm	Depth (B) mm	Height (C) mm
0005	5	0.7	0.8	1	G 3/8	470	340	700
0010	10	1.4	1.5	2	G 3/8	470	340	700
0015	15	2.1	2.3	3	G 3/8	470	340	1060
0025	25	3.5	3.8	5	G 1/2	470	340	1060
0035	35	4.9	5.3	7	G 1/2	470	340	1060
0050	50	7.0	7.5	10	G 3/4	670	460	1610
0080	80	11.2	12.0	16	G 3/4	670	460	1610
0100	100	14.0	15.0	20	G 1	670	460	1610
0150	150	21.0	23.0	30	G 1	770	680	1980
0175	175	24.5	26.3	35	G 1	770	680	1980
0225	225	31.5	34.0	45	G 1 1/2	770	680	1980
0300	300	42.0	45.0	60	G 1 1/2	770	680	1980
0375	375	52.5	56.0	75	G 1 1/2	950	770	2190
0550	550	77.0	83.0	110	G 2	950	770	2190
0650	650	91.0	98.0	130	G 2	950	770	2190
0850	850	119.0	128.0	170	G 2	1100	880	2350
1000	1000	140.0	150.0	200	G 2	1100	880	2350



Explanation:
* Related to the intake of the compressor +20 °C, 1 bar abs., at a compressed air inlet temperature of +35 °C and 7 bar (g) operating pressure.

Conversion factor f

Type	Pressure dewpoint	Inlet temperature	Operating overpressure (bar) 4	5	6	7	8	9	10	11	12	13	14	15	16
HED/ALD	-20 °C/-40 °C	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	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

Example: $\dot{V}_{nom} = 200\ m^3/h$, Inlet temperature = 30 °C, Operating pressure = 10 bar, Pressure dewpoint = -40 °C
Calculated dryer size: Ultrapac ALD 0150

$$\dot{V}_{corr} = \frac{\dot{V}_{nom}}{f} = \frac{200\ m^3/h}{1,51} = 132,5\ m^3/h$$

Donaldson® Ultrafilter

Compressed Air Filtration · Filters for Sterile Air, Steam and Liquids · Refrigerant Drying · Adsorption Drying · Condensate Drains · Condensate Purification Systems · Process Air and Gas Processing

Donaldson. FILTRATION SOLUTIONS

Total Filtration Management

Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

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A compressive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

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