



HybridDryer

Flexible

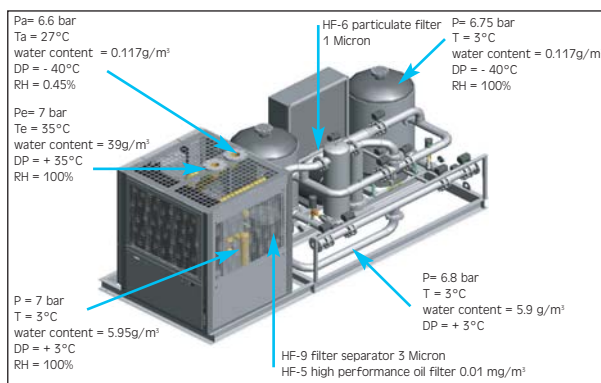
Environmentally friendly

Economical

Combined Economicality The Hankison HybriDryer Series

Compressed air for highest requirements

Certain production processes such as instrument air, air for pneumatic control systems and process engineering solutions, feed air for the transport of powdery materials in the chemical, pharmaceutical and food processing industries etc. require dependably treated, high-quality compressed air – technically oil-free and very dry – with pressure dew points of under 0°C down to -40°C. If the compressed air is channeled through extensive pipe networks or in areas exposed to ambient weather conditions, disturbances due to frozen condensate are – especially in winter time – the order of the day. Until now the economical treatment of a dew point under 0°C was only achievable via desiccant dryers. For capacities over 1000m³/h mostly heated regenerative desiccant dryers (blower purge dryers) were used, which, in comparison to heatless regenerative desiccant dryers, are more cost-effective.



The HybriDryer unites all advantages

The HANKISON Hybridryer is a combination of a refrigeration dryer and a heated regenerative desiccant dryer. The saturated compressed air first enters the refrigeration dryer, it is cooled down to +3°C and the water vapor is condensed. The condensate is then separated from the compressed air flow in the separator filter.

After that the air leaves the refrigeration dryer circulation. The absolute temperature and the dew point are still at +3°C and the relative humidity is 100%! - the ideal condition of the adsorbent is achieved!

The compressed air is then introduced into the desiccant dryer, where it is dried to dew points of -25°C to -40°C.

The still cold compressed air is then supplied to the integrated air-to-air heat exchanger and thus cools the inflowing compressed air.

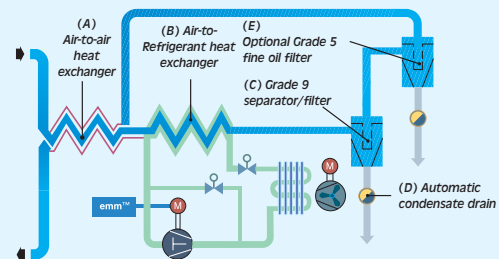
An ambient air temperature controlled bypass in the combination makes it possible to avoid the desiccant dryer during the summer period and only use it in the winter time, as required. Thus the slightly higher investment costs justify themselves even more clearly by the considerably lower operating expenses.

Ways to compressed air treatment

The principle of the refrigerated compressed air dryer

They are used in areas, where the compressed air network is exposed only to temperatures above the freezing point. Warm, saturated compressed air is firstly being cooled down via an Air-to-Air heatexchanger (A) and than further cooled down in an Air-to-Refrigerant heatexchanger (B), which is being controlled by a constant-pressure expansion valve. The water vapor condenses into liquid and is than separated from the compressed air stream in the Grade 9 separator/filter (C) and discharged by the fully automatic condensate drain (D).

The cool, dry air is now being used to cool the warm incoming compressed air via the Air-to-Air heat exchanger (A).

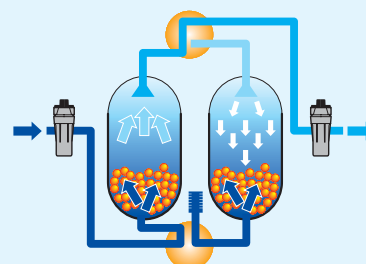


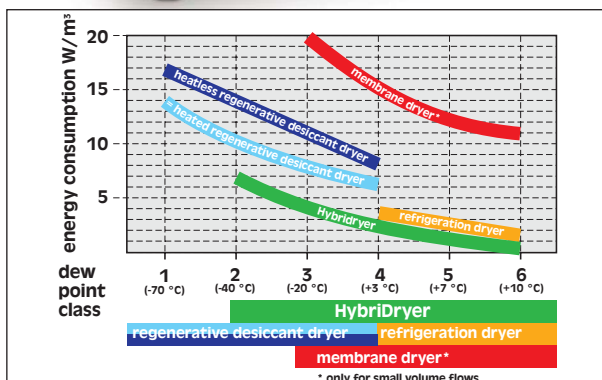
The principle of the desiccant dryer

Desiccant dryers are being used, when the compressed air system is exposed to temperatures below the freezing point or when a particularly low dew point is required for a specific applications. The air is channeled through a vessel filled with an adsorption media (activated Alumina), where the water vapor is being captured at the surface of the adsorbent.

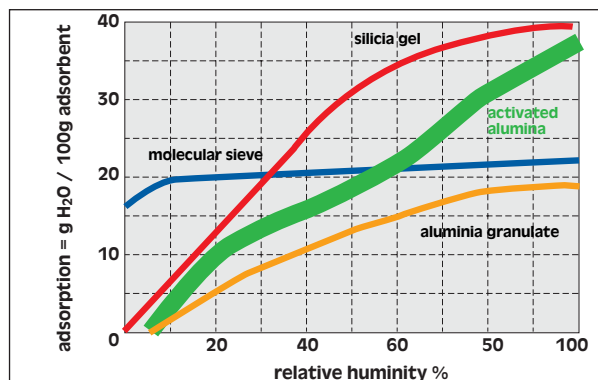
These drying agents can be regenerated and used again and again. The dryers have two desiccant vessels.

The compressed air supply is being controlled, so that only one vessel always dries, whereas the other vessel, through which no compressed air flows, is being regenerated. Heated regenerative desiccant dryers (blower purge dryers) are being regenerated via an blower and mostly an electric operated heater.





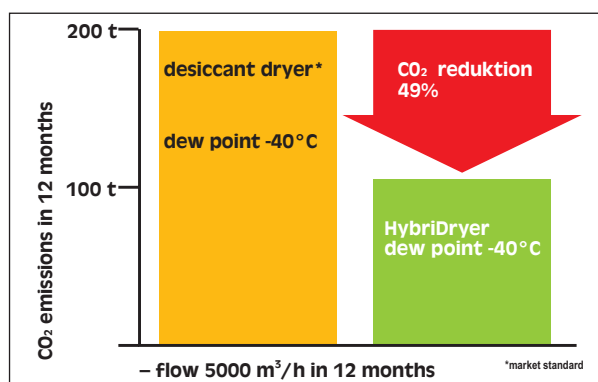
dew point classes and their energy requirements



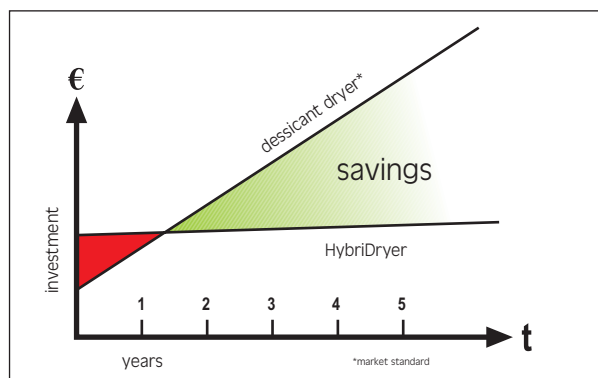
ideal condition for the adsorbent activated alumina

All the advantages of the Hybridryer at a glance

- Low operating expenses in comparison with heated regenerative desiccant dryers
- Selectable summer/winter operation (+3°C / -40°C)
- Constant pressure dew point
- No temperature or dew point peaks during switch over
- No loss of compressed air
- Efficient finest oil filtration at the coolest point
- Extended lifetime of the adsorbent through extremely low regeneration temperatures
- Optimal outlet temperatures
- Volume flows of 1000 to 35000 m³/h
- Lowest operating expenses



CO₂ reductions with the Hybridryer



cost savings with the Hybridryer



The refrigeration dryer section of the Hybridryer with the refrigeration specifics



The desiccant dryer section displaying the bypass for "summer/winter" operation



The compact structure of the Hybridryer enables installations in a container

Technical Data

model	volume flow (m ³ /min)	length (mm)	measurements		power consumption	
			height (mm)	depth (mm)	summer operation +3°C	winter operation -40°C
HBD 1200	1200	4300	2250	1550	3.1	5.7
HBD 1500	1500	4300	2250	1550	4.3	7.5
HBD 2000	2000	4600	2250	1900	6.7	10.8
HBD 2500	2500	4600	2250	1900	7.5	12.4
HBD 3000	3000	4600	2250	1900	9.4	15.7
HBD 4000	4000	4600	2250	1900	11.5	19.4
HBD 5000	5000	5150	2600	3250	11.5	21.2
HBD 6000	6000	5150	2600	3200	13.8	25.4
HBD 7000	7000	5500	2600	3600	15.3	28.6
HBD 8000	8000	5500	2600	3600	17.7	32.7
HBD 9000	9000	5550	2600	3700	20.0	35.7

Volume flow acc. to VDI 2045 for suction conditions +20°C and 1 bar absolute, operating pressure 7 bar, compressed air inflow temperature +35°C, ambient temperature +25°C, power connection 400/3/50

Subject to technical alterations

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 Specifications may change without notice.

