KAESER COMPRESSORS

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Refrigeration Dryers THP Series

Flow rate 0.80 to 106.18 m³/min, pressure up to 50 bar

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THP Outstanding Performance

Why is it necessary to dry compressed air?

The atmospheric air drawn into a compressor is a mixture of gases that always contains water vapour. The amount of water vapour air can carry varies and is mostly dependent on temperature.

As air temperature rises – which occurs during compression – the air's capability to hold moisture increases also. When the air is cooled its capacity to hold moisture reduces, which causes the water vapour to condense.

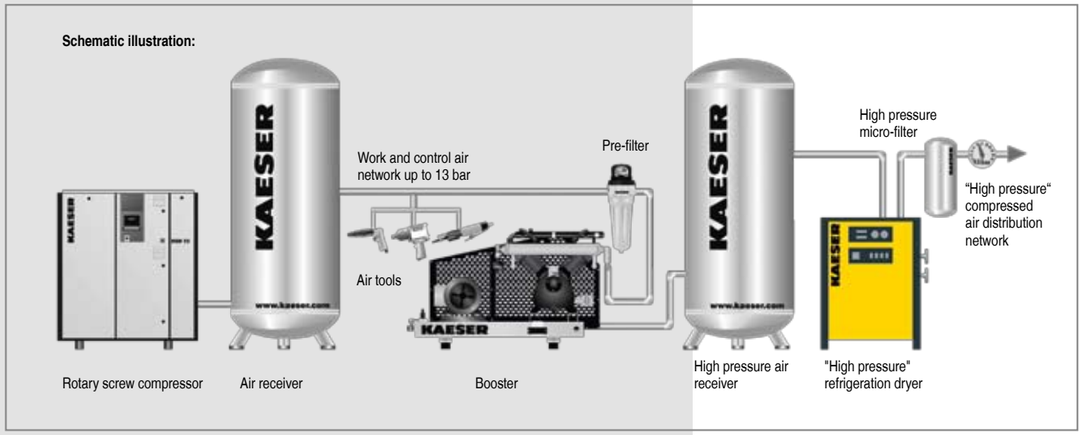
This condensate is then removed in the downstream centrifugal separator or the air receiver. Even then, the air is often still totally saturated with water vapour. This is why, as the air cools further, significant amounts of condensate can accumulate in the air distribution piping and at take-off points.

Therefore, additional drying is essential to avoid production downtime and interruptions, as well as reduce costly maintenance and repair work. Refrigeration drying is usually the most efficient solution for the majority of compressed air applications.

Up to 50 bar: THP Series refrigeration dryers

As with lower pressure applications, the following also applies for compressed air at higher pressures, e.g. for blowing air and PET container production: If a pressure dew point of 3 °C is sufficient to meet the application's needs, then a modern compressed air refrigeration dryer provides the most efficient and economical solution for compressed air drying. KAESER KOMPRESSOREN offers an impressive range of compressed air refrigeration dryers for flow rates up to 106 m³/min and pressures up to 50 bar. Designed and constructed to the very highest quality standards, KAESER THP Series dryers deliver outstanding reliability and can be seamlessly integrated as part of an efficient KAESER compressed air system solution.

Application example for a "high pressure" refrigeration dryer



Standard version
THP 40-50

Stainless steel plate heat exchanger

The copper-soldered stainless steel plate heat exchangers in THP Series dryers ensure maximum corrosion resistance and long service life. The long-term dependability of THP Series refrigeration dryers is further enhanced by generously dimensioned condensers (image) and heat exchangers.

Flow optimised piping

The smaller the pressure differential within a dryer, the more efficient its performance. All THP dryers operate with exceptionally low pressure differential values thanks to quality, flow optimised piping (35 bar models use copper, 45 and 50 bar models are made from stainless steel).

ECO DRAIN – High pressure version

The 45 bar THP Series dryer is equipped with a high pressure ECO DRAIN 12 condensate drain as standard. This ensures even more efficient condensate removal without any pressure loss and also saves energy. The electronic condensate drain is optional for 35 and 50 bar versions.

Dependable Performance Even at High Ambient Temperatures

The quality of a refrigeration dryer is best judged by how effectively and reliably it can separate condensate, particularly at high ambient temperatures. With this in mind, the developers at KAESER Kompressoren created the THP refrigeration dryer series. Featuring highly efficient refrigeration circuits, these dryers are designed for optimum performance. The air circulating system for the corrosion resistant stainless steel plate heat exchanger further illustrates this, as it is made from stainless steel and copper piping. The key aim of any refrigeration dryer is to provide reliable condensate separation, which is why KAESER uses a separate stainless steel condensate separator. The flow-optimised piping also ensures minimal pressure differential. KAESER refrigeration dryers combine all of these features to ensure exceptional air treatment in accordance with EN 60204-1, which means dependable, sustained pressure dew point performance of +3 °C even at high ambient temperatures up to +43 °C.

Technical Specifications

Model *	Flow rate at max. operational pressure ** m³/min	Differential pressure ** bar	Effective power consumption ** kW	Refrigerant	Power supply	Air connection (Inner thread)	Condensate outlet	Dimensions H x W x D mm	Weight kg
... up to 45 bar * **									
THP 85-45	8.50	0.26	1.01	R 134 a	400V 3 PH 50 Hz	DN 25	R 1/2	1277 x 1036 x 1128	168
THP 142-45	14.17	0.40	1.46			DN 25			172
THP 212-45	21.23	0.50	1.97			DN 40			211
THP 283-45	28.32	0.81	2.93			DN 50		1277 x 1036 x 1144	218
THP 354-45	35.40	0.74	4.48	R 404 a		DN 50			268
THP 496-45	49.55	0.65	5.19			DN 80		1464 x 1362 x 1525	465
THP 565-45	56.63	0.81	8.02			DN 80			590
THP 850-45	84.95	0.81	10.21			DN 80			710
THP 1061-45	106.18	0.74	13.36			DN 80			719
... up to 50 bar * **									
THP 8-50	0.80	0.25	0.23	R 134 a	230V 1 PH 50 Hz	R 1/2	R 3/8	660 x 501 x 521	39
THP 13-50	1.30	0.20	0.27						41
THP 18-50	1.80	0.22	0.42						43
THP 27-50	2.70	0.27	0.59						48
THP 40-50	4.00	0.25	0.68				R 1/4	995 x 651 x 500	114
THP 50-50	5.00	0.28	0.95			R 3/4			127

*) Max. air inlet-/ambient temperature 50/43 °C – **) Performance data for reference conditions as per DIN/ISO 7183, Option A: Max. operating pressure, ambient temperature +25 °C, compressed air inlet temperature +35 °C, pressure dew point +3 °C. Flow rates and differential pressure differ for other operating conditions. – ***) The max. operating pressure is reduced to 40 bar for inlet temperatures of +50 °C and higher

Correction factors for deviating operating conditions (flow rate as per DIN / ISO in m³/min x correction factor c...)

Correction factors for deviating inlet temperatures

°C	30	35	40	45	50	55	60
c_{Ti}	1.18	1.0	0.84	0.73	0.64	0.55	0.49

Correction factors for deviating ambient temperatures

°C	25	30	35	40	45
c_{Ti}	1	0.95	0.89	0.84	0.78

(Please consult Kaeser for further correction factors)

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