KAESER COMPRESSORS®

Refrigeration Dryers

THP Series

Flow rate 0.8 to 85 m³/min, Pressure up to 45 bar

www.kaeser.com

THP Series

Outstanding quality

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 also increases. 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 so, the air is often still completely 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 to reduce costly maintenance and repair work. Refrigeration drying is usually the most efficient solution for the majority of compressed air applications.

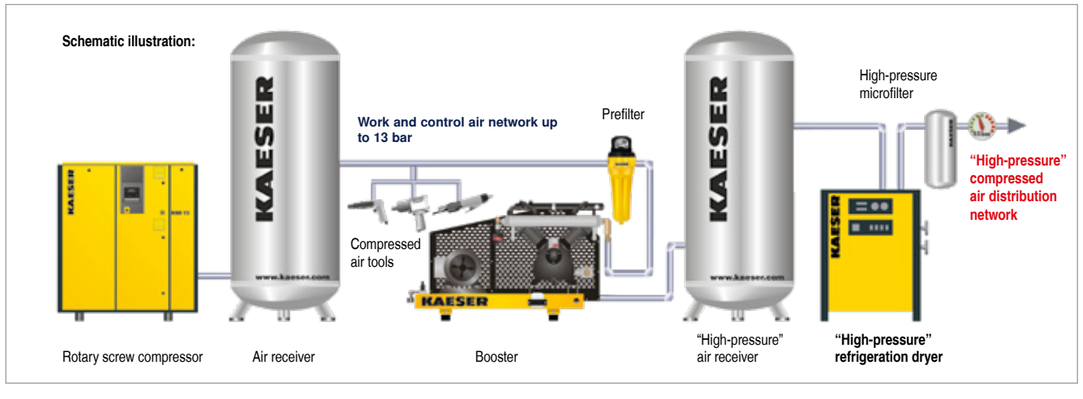
Up to 45 bar: THP series refrigeration dryers

As with lower pressure applications, the following also applies for compressed air at higher pressures, e.g. for blowing air used for 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 85 m³/min and pressures up to 45 bar.

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, even at high ambient temperatures. With this in mind, the developers at KAESER KOMPRESSOREN created the THP refrigeration dryer series: featuring a highly efficient refrigeration circuit and a corrosion-resistant copper-soldered stainless steel plate heat exchanger, these dryers are designed for optimum performance. 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. With their generously-dimensioned components, KAESER refrigeration dryers combine all of these features to provide 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.

Application example for a "high-pressure" refrigeration dryer



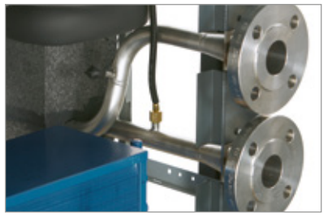
Standard version
THP 40-50

Future-proof refrigerant

The new EU 517/2014 F-gases regulation is intended to minimise emissions of fluorinated greenhouse gases and therefore contribute to limiting global warming. KAESER's new T-systems are equipped with R-513A refrigerant, which has a very low GWP (Global Warming Potential) value. This means that these efficient dryers will be future-proof for their entire life cycle.

Powerful cooling system

The refrigeration dryers in THP series units feature a powerful cooling system. It includes a high quality refrigerant compressor, generously-dimensioned heat exchanger surfaces, as well as cleverly designed cooling air flow. This combination therefore ensures dependable operation even at high temperatures and guarantees stable pressure dew points at all times.



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 stainless steel piping.

ECO-DRAIN: High pressure version

The THP series dryer is equipped as standard with a high pressure version of the ECO-DRAIN 12 condensate drain. This ensures even more efficient condensate removal without any pressure loss and also saves energy.

Technical specifications

Model	Flow rate at max. working pressure m³/min	Pressure loss bar	Effective power consumption kW	Refriger-ant	Electrical connection	Air connection (inner thread)	Conden-sate outlet	Dimensions W x D x H mm	Mass kg	Refrigerant fill capacity kg	CO_2 equi-valent t	Her-metic refrigerant circuit
...up to 45 bar*												
THP 85-45	8.5	0.26	1	R-513A	400V 3 Ph 50 Hz	DN 25	R ½	1036 x 1128 x 1277	168	1.5	0.95	–
THP 142-45	14.2	0.4	1.46			DN 25			172	2.0	1.26	–
THP 212-45	21.2	0.5	1.6			DN 40			211	2.5	1.58	–
THP 283-45	28.3	0.81	2.55			DN 50		1036 x 1144 x 1277	218	2.7	1.58	–
THP 354-45	35.4	0.74	3.9	R-513A		DN 50			288	6.0	3.61	–
THP 496-45	49.6	0.65	5.3			DN 80		1362 x 1588 x 1464	465	7.5	4.73	–
THP 565-45	56.6	0.59	7.4			DN 80			590	7.5	4.73	–
THP 850-45	85	0.61	9.2			DN 80			710	14.0	8.83	–

Max. compressed air inlet temperature 50/43 °C; | The max. working pressure is reduced to 40 bar for inlet temperatures of +50 °C and higher | Refrigerant R-513A; GWP 629

Performance data as per ISO 7183, Option A1: Reference point 1 bar(abs), 20 °C, rel. humidity 0 % – Reference point: max. working pressure 45/50 bar | bar(g), Compressed air inlet temperature +35 °C, Ambient temperature 25 °C, Inlet compressed air rel. humidity 100 %, Pressure dew point +3 °C

Correction factors for other operating conditions (Flow rate as per DIN / ISO in m³/min x Correction factor k...)

Correction factors for other working pressures...

...for pressures up to 45 bar

Working pressure (bar)	20	25	30	35	40	45
Pressure loss multiplied by	0.88	0.92	0.94	0.96	0.98	1.00

Correction factors for...

...other inlet air temperatures

Temperature (°C)	30	35	40	45	50	55	60
k_{TI}	1.18	1.0	0.84	0.73	0.64	0.55	0.49

...other ambient temperatures

25	30	35	40	45
1	0.95	0.89	0.84	0.78

(Please consult KAESER regarding other correction factors)

PT INDO KOMPRESIGMA
Jl Outer Ring Road No. 65 – Kembangan Utara
Jakarta 11610 – Indonesia
Tel: 62-21-2951 8888 – Fax: 62-21-2951 0000
E-mail: info_jkt@kaeserindo.com – www.kaeser.com

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