KAESER COMPRESSORS®

KRYOSEC® Refrigeration Dryers

TAH/TBH/TCH Series

Flow rate 0.35 to 4.50 m³/min

www.kaeser.com

TAH / TBH / TCH Series

Exceptionally reliable and ultra-compact

KRYOSEC refrigeration dryers exemplify outstanding ‘Made in Germany’ quality. They provide dependable drying in ambient temperatures up to 50 °C. The combination of the low pressure losses of the heat exchanger system and a low-maintenance design ensures cost-effective operations. With their compact footprint they are exceptionally versatile.

Why is it necessary to dry compressed air?

Ambient air always contains water. When converted by a compressor into compressed air and cooled to the required temperature, it can no longer retain all of the original moisture. This leads to the formation of condensate, which flows into the pipes along with the compressed air. In many cases, this results in expensive maintenance and repair work. That is where compressed air refrigeration dryers come into play – by drying the air down to a pressure dew point of 3 °C.

Dependable moisture protection

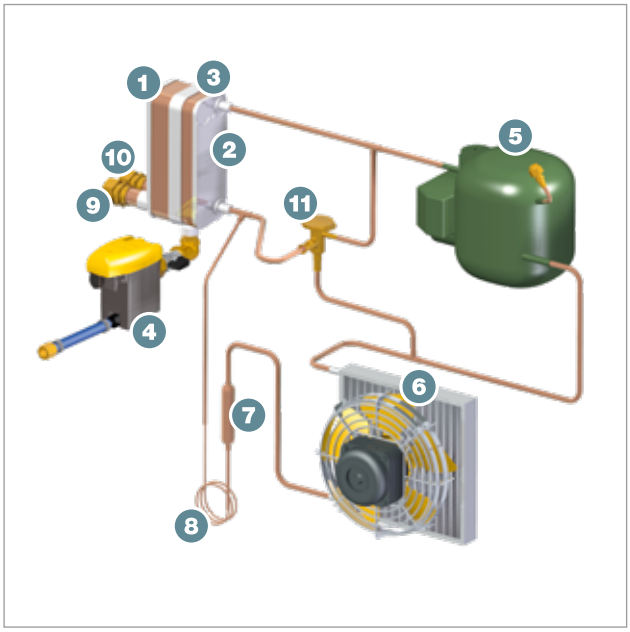
KRYOSEC dryers use a high quality heat exchanger system with stainless steel plates to dry the moist compressed air. Accumulating condensate is efficiently separated at all operating phases via the integrated separator, whilst the ECO DRAIN electronic condensate drain ensures reliable condensate removal.

Fully compliant industrial quality

KRYOSEC dryers meet machine safety requirements in accordance with EN 60204-1. Safety features include a lockable ON/OFF switch as well as an integrated power supply isolation device. Excellent workmanship, compact design and outstanding reliability make them ideal for decentralised installations, for example with manufacturing and processing machines that rely on high-quality compressed air.

Also suitable for high ambient temperatures

KRYOSEC dryers ensure dependable drying even under the most demanding of operating conditions. Performance is also enhanced by the cooling airflow and the combination of the generously-dimensioned heat exchanger and refrigerant condenser surfaces.



Design

(1) Air/air heat exchanger
(2) Air/refrigerant heat exchanger
(3) Condensate separator
(4) Condensate drain
(5) Refrigerant compressor
(6) Refrigerant condenser with fan (air-cooled)
(7) Filter dryer
(8) Capillary tube (refrigerant vaporisation and cooling)
(9) Compressed air inlet
(10) Compressed air outlet
(11) Hot gas bypass control

Big performance in a compact package

MADE BY KAESER

Image: TAH 7

Image:
Wall-mounted TAH 7; mounting points are located on the rear of the dryer (TAH series only)

TAH / TBH / TCH Series

Dependable moisture protection in all phases of operation

Low pressure differential

The dryer's stainless steel plate heat exchanger is complemented by an air-air heat exchanger. Low pressure differential and high quality insulation ensure energy-efficient operation at all times. The integrated condensate separator provides dependable performance even with fluctuating compressed air flow.

Optimal performance adjustment

The hot gas bypass control ensures optimised compressed air cooling and prevents harmful ice formation. Moreover, KRYOSEC dryers can also adjust for the ambient pressure (automatically on the TAH & TBH series, manually on the TCH series).

Dependable condensate drainage

With the ECO-DRAIN electronic condensate drain, condensate is reliably drained away as required, without pressure loss. To protect against condensation and corrosion inside the system, cold surfaces are insulated. A ball valve installed at the condensate inlet permits quick and easy maintenance.

Simple controls

KRYOSEC dryers feature a dew point trend indicator. The practical colour scale allows the user to check system status at a glance.

TAH / TBH / TCH Series

Keeps on drying when the going gets too hot for other units

High-performance refrigerant condenser

The dryer's generously-dimensioned heat exchanger surfaces ensure effective heat transfer even at high ambient temperatures. The robust fins with barrier-free air flow are easy to clean.

Special cooling air flow

A decisive factor for the reliability of KRYOSEC dryers is the sophisticated design of the cooling air flow. The placement of the fan in a separate enclosure immediately adjacent to the refrigerant condenser avoids performance-reducing bypass flows.

Premium quality refrigerant compressor

The premium quality reciprocating compressors used in KRYOSEC dryers are designed to provide reliable operation in ambient temperatures of up to 50 °C.

Strain-relieved condensate line

In the KRYOSEC dryer, accumulating condensate is discharged reliably from the condensate drain via a strain-relieved condensate line attached to the enclosure by a bulkhead pipe fitting.

Dependable up to 50 °C

ambient temperature

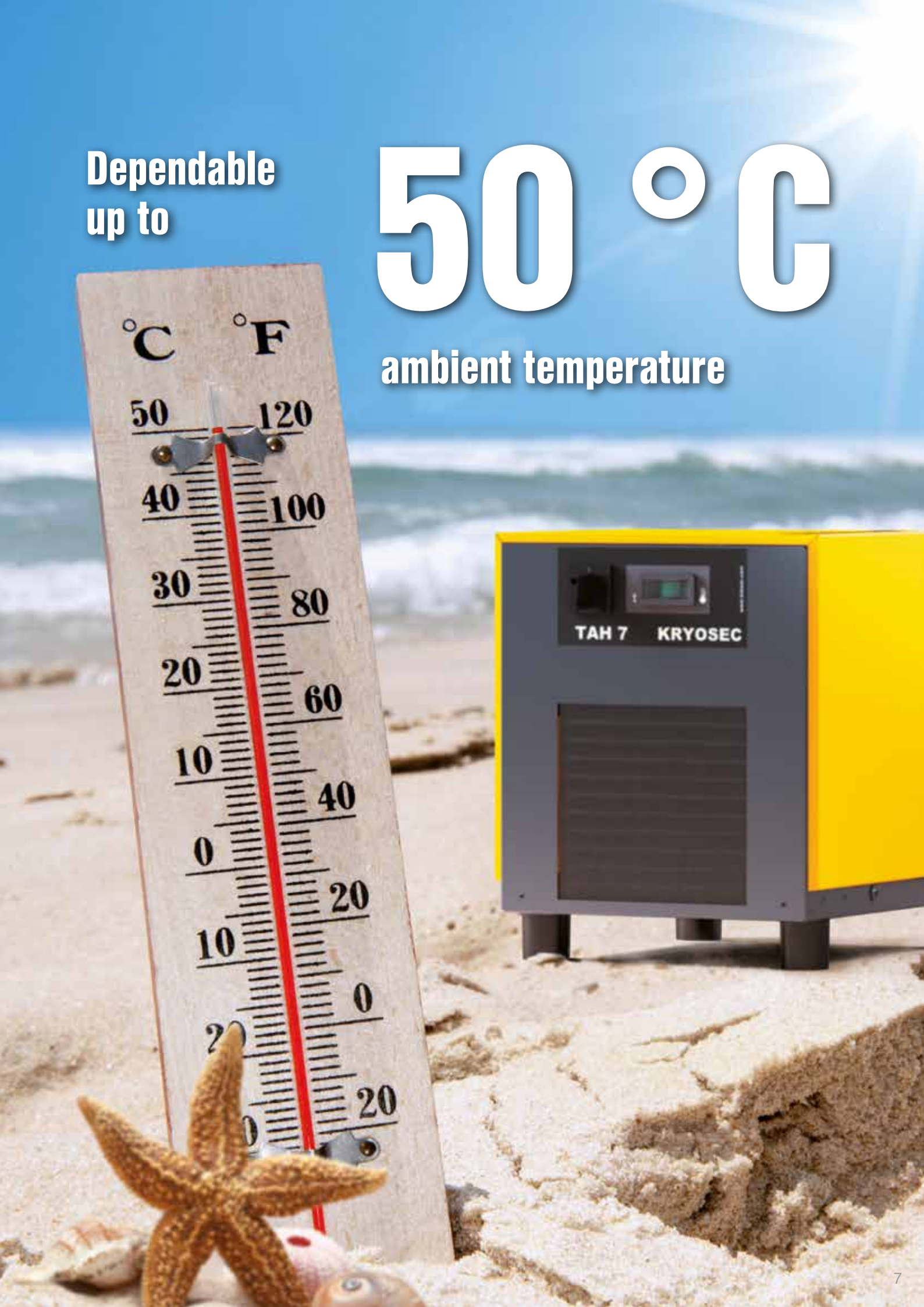


Image: Installation under a web press

Optimal process protection through fully compliant industrial quality

Standard-compliant design

KRYOSEC dryers fulfil machine safety requirements in accordance with EN 60204-1. The high-quality, lockable on/off switch clearly indicates the switch position. An integrated power supply isolating device is also fitted as standard.

Meticulous assembly

The layout and mounting of components in KRYOSEC dryers displays high-quality, durable workmanship. The electrical wiring, for example, is bundled in plastic sheathing and is always strain-relieved. Details like this contribute significantly to dryer dependability.

Low profile, high ground clearance

With their low-profile design, KRYOSEC dryers fit easily beneath machinery and work platforms. Moreover, the machine feet increase ground clearance to protect the unit`s internal components.

Ready to run

KRYOSEC dryers are delivered ready-to-run with a power supply cable, strain-relieved via a PG screw connection. Commissioning could hardly be easier. It's not even necessary to open the unit!

Equipment

Refrigeration circuit

Hermetically-sealed refrigeration circuit comprising a reciprocating compressor, fan/condenser assembly, filter/dryer, capillary tube, insulated air/air and air/refrigerant heat exchanger with integrated copper brazed, stainless steel condensate separator and hot gas bypass regulator.

Condensate drainage

ECO-DRAIN 30 electronically-controlled condensate drain with ball valve at the condensate inlet, with cold surfaces insulated.

Electrical equipment and displays

Mechanical dew point trend indicator. Electrical equipment compliant with EN 60204-1: lockable main switch with integrated power supply disconnecting device.

Enclosure

Powder-coated unit enclosure with removable hood and machine mounts. Prepared for wall mounting (TAH series only).

Connections

Delivered with strain-relieved power supply cable (without plug), internally wired. Bulkhead pipe fitting to connect the external condensate line.

Documentation

Includes operating manual and CE declaration of conformity (EU version).

Optional extras

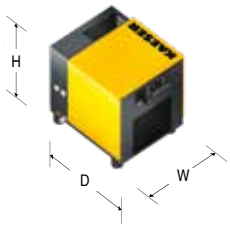
“Pressure dew point warning” floating contact

Additional electronic thermostat with floating output. Mounted inside the unit, ready for operation. Signal can be read directly at the output point. Adjustable upper and lower switching thresholds.

Condensate drain, including floating contact

Alternatively equipped with ECO-DRAIN 31 electronic condensate drain with floating alarm contact. Signal can be read directly on the drain.

Views



Front view

Left view

Right view

TAH series: Prepared for wall mounting

Rear view

How it works

Model	Flow rate m³/min	Refrigeration dryer pressure loss bar	Electrical power consumption at 100 % vol. kW	Gauge pressure bar	Mass kg	Dimensions W x D x H mm	Compressed air connection	Condensate outlet connection	Electrical connection	Refrigerant mass R-134a kg	Refrigerant mass R-134a as CO_2 equivalent t	Hermetic refrigerant circuit
TAH 5	0.35	0.05	0.12	3 to 16	24	386 x 473 x 440	G ½	G ¼	230 V / 1 Ph / 50 Hz	0.11	0.2	•
TAH 7	0.60	0.13	0.16		24					0.16	0.2	•
TAH 10	0.80	0.15	0.19		26					0.18	0.3	•
TBH 14	1.20	0.18	0.28	3 to 16	33	462 x 525 x 548	G ½	G ¼	230 V / 1 Ph / 50 Hz	0.29	0.4	•
TBH 16	1.60	0.19	0.33		38					0.41	0.6	•
TBH 23	2.20	0.23	0.41		46		G 1			0.48	0.7	•
TCH 27	2.60	0.21	0.47	3 to 16	56	640 x 663 x 609	G 1	G ¼	230 V / 1 Ph / 50 Hz	0.57	0.8	–
TCH 33	3.15	0.23	0.59		66		G 1¼			0.47	1.1	–
TCH 36	3.50	0.25	0.63		69					0.47	1.1	–
TCH 45	4.50	0.23	0.91		75					1.15	1.6	–

*) Suitable for ambient temperatures from +3 °C to +50 °C. Max. compressed air intake temperature +60 °C

Performance data at reference conditions as per ISO 7183, option A1: Ambient temperature +25 °C, compressed air inlet temperature +35 °C, pressure dew point +3 °C and 7 bar gauge pressure.
The flow rate changes depending on operating conditions. Contains fluorinated greenhouse gas R-134a (GWP = 1,430)

Calculation of dryer flow rate

Correction factors for deviating operating conditions (flow rates in m³/min x k...)

Deviating working pressure p at dryer inlet														
p $bar_{(g)}$	3	4	5	6	7	8	9	10	11	12	13	14	15	16
k_p	0.64	0.75	0.84	0.92	1.00	1.05	1.09	1.12	1.16	1.19	1.22	1.24	1.26	1.27

Compressed air inlet temperature T_i							
T_i (°C)	30	35	40	45	50	55	60
k_{Ta}	1.19	1.00	0.80	0.66	0.51	0.43	0.35

Ambient temperature T_a						
T_a (°C)	25	30	35	40	45	50
k_{Ta}	1.00	0.96	0.92	0.88	0.85	0.80

Example:				
Working pressure:	10 $bar_{(g)}$	(See table)	k_p	= 1.12
Compressed air inlet temperature:	40 °C	(See table)	k_{Ti}	= 0.80
Ambient temperature:	30 °C	(See table)	K_{Ta}	= 0.96

Selected refrigeration dryer TAH 10 with 0.8 m³/min ($V_{reference}$)
Max. possible flow rate under operating conditions
V_{max} Operation = $V_{reference}$ x k_p x k_{Ti} x k_{Ta}
V_{max} operation = 0.8 m³/min x 1.12 x 0.80 x 0.96 = 0.69 m³/min

The world is our home

As one of the world's largest compressed air system providers and compressor manufacturers, KAESER KOMPRESSOREN is represented throughout the world by a comprehensive network of branches, subsidiary companies and authorised partners in over 100 countries.

With innovative products and services, KAESER KOMPRESSOREN's experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency.

Moreover, the decades of knowledge and expertise from this industry-leading system provider are made available to each and every customer via the KAESER group's global computer network.

These advantages, coupled with KAESER's worldwide service organisation, ensure that every product operates at the peak of its performance at all times and provides maximum availability.

LGA InterCert
Certified
QM/EM System
DIN EN ISO 9001:2015/
14001:2015

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