ECO**TROC®** KT-S
Compressed Air Refrigeration Dryer

Rev 02_0425

For a safe, reliable and efficient supply of dry compressed air

Compact and powerful: ECOTROC® KT-S

The new **ECOTROC® KT-S** refrigeration dryer series convinces with its extremely compact design, high performance and reliability. Compressed air treatment is made even more efficient and safe by our new integrated control system. The use of high-quality components and a stainless steel plate heat exchanger ensures an economic efficiency and durability.

Brand components:

- Refrigerant compressor: Embraco / Copeland
- Fan motor: Lionball
- Condenser: Planer
- Expansion valve: Sanhua
- Control: Easy (CAREL)

The ECOTROC® KT-S Plus-Effects +++

+ microprocessor control monitors the most important components as well as the quality of the compressed air
+ simple and efficient installation
+ level-controlled condensate drain **KONDRAIN®** N1 included

The service advantages:

+ practical clip fasteners allow the side panels to be removed without tools; this ensures easy access to the interior of the **ECOTROC® KT-S**
+ clear arrangement of components allows easy repair and maintenance work

ECO**TROC**® KT-S

Compressed Air Refrigeration Dryer

Safe and energy-efficient compressed air treatment

Physically, water is unavoidably present in every compressed air system. In summer considerably more than in winter, because warm air can absorb more moisture than cold air. The refrigeration dryer uses this physical principle to separate water. In order to prevent damage (corrosion), functional problems or even loss of production in pneumatic controls and systems, it is essential to separate water from compressed air systems. The **ECOTROC® KT-S** series treats compressed air in a solution-oriented manner.

KSI refrigeration dryers reliably provide dry compressed air at minimal operating costs. This protects expensive plants, machines and equipment worldwide and effectively increases operational reliability.

Operating principle

The **ECOTROC® KT-S** refrigeration dryer works on the physical principle that warm air can absorb more moisture than cold air. Warm air entering the refrigeration dryer contains a varying amount of moisture, depending on previous treatment and other influences. To remove this moisture, the temperature of the air is lowered to the desired dew point, at which point all excess moisture condensates and is discharged. Dry compressed air is now released to the downstream compressed air system.

Incoming air is first precooled in an air-to-air heat exchanger before flowing into the air-to-refrigerant heat exchanger. air-to-refrigerant heat exchanges which extracts most of the heat from the air. Condensate is ejected from the air flow by a cyclone separator at the bottom of the heat exchanger and discharged by a level-controlled condensate drain.

In order to maintain the process, a complex refrigerant circuit is integrated in the the **ECOTROC® KT-S** refrigeration dryer.

The refrigerant is fed as a liquid into the heat exchanger. There it partially evaporates due to the heat input from the incoming warm air. The resulting gas is compressed and afterwards liquefied again by an air-cooled condenser. A tank stores the excess refrigerant and balances the system.

Various temperature sensors are installed to increase operational reliability in the refrigerant circuit.

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Control unit

Automatic operation control and monitoring

The microprocessor control of the **ECOTROC® KT-S** controls the operation of the refrigeration dryer fully automatically. In addition, it provides information on the current status of the process and, in the event of problems or errors, allows allows easy troubleshooting.

- simple display of pressure dew point
- alarm output in case of a problem in the compressed air refrigeration dryer.
- quick identification of the affected component
- troubleshooting list in the manual often offers quick solutions

We recommend pre- and post-filtration!

easy access to the clear structured interior

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Fully-automatic unit for compressed air treatment

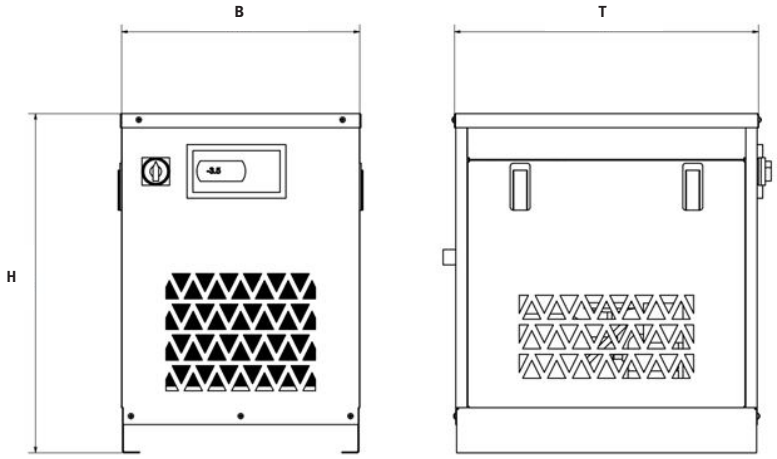
including:

- electronic, level-controlled condensate drain **KONDRAIN®** N1

Capacity Volume Flow: up to 1080 m³/h*

Pressure dew point: +3°C

* based on 1 bar (abs.) at 7 bar g operating pressure



Models

Type*	Capacity		Dimensions (mm)			Connection	Weight	Quantity heat exchanger
	m³/h	cfm	H	B	T		kg	
KT-S36	36	21	520	410	465	G½“ female	27	1
KT-S54	54	32	520	410	465	G½“ female	30	1
KT-S71	71	42	520	410	465	G½“ female	31	1
KT-S95	95	56	520	410	465	G½“ female	32	1
KT-S120	120	71	620	430	600	G1“ female	43	1
KT-S145	145	85	620	430	600	G1“ female	47	1
KT-S175	175	103	620	430	600	G1“ female	48	1
KT-S210	210	124	620	470	650	G1“ female	52	1
KT-S280	280	165	620	470	650	G1“ female	63	1
KT-S320	320	188	620	470	650	G1“ female	66	1
KT-S400	400	235	830	700	855	G2 ½ “ female	126	1
KT-S540	540	318	830	700	855	G2 ½ “ female	129	1
KT-S660	660	388	830	700	855	G2 ½ “ female	140	1
KT-S780	780	459	830	700	855	G2 ½ “ female	148	1
KT-S1080	1080	636	830	700	855	G2 ½ “ female	168	1

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Correction factors

Correction factors						
Inlet temperature						
°C	30	35	40	45	50	60
F_1	1,29	1	0,92	0,78	0,65	0,45

Correction factors						
Ambient temperature						
°C	20	25	30	35	40	50
F_2	1,05	1	0,98	0,93	0,84	0,70

Correction factors working pressure											
bar g	4	6	7	8	10	11	12	14	16		
F_3	0,80	0,94	1	1,04	1,11	1,14	1,16	1,22	1,25		

Pressure dew-point 3° C calculated to volume flow at a suction condition of 20°C and 1 bar (abs.)

Please divide the maximum volume flow to be expected by the correction factors in the tables above.
Example: 200 m³/h maximum volume, at 6 bar, 40°C inlet and 30°C ambient temperature: ▸Capacity nom (200 m³/h) / F3 (0,94) / F1 (0,92) / F2 (0,98) = Capacity calculated (236 m³/h)
▸ You have to choose the dryer that is big enough for at least 236 m³ / h under normal conditions.

Electrical Data

Type	Installed power	Operating voltage	Min. fuse protection
	kW	V / Ph / Hz	
KT-S36	0,14	230 / 1 / 50	2A
KT-S54	0,15	230 / 1 / 50	2A
KT-S71	0,17	230 / 1 / 50	2A
KT-S95	0,29	230 / 1 / 50	4A
KT-S120	0,32	230 / 1 / 50	4A
KT-S145	0,35	230 / 1 / 50	4A
KT-S175	0,50	230 / 1 / 50	4A
KT-S210	0,61	230 / 1 / 50	6A
KT-S280	0,70	230 / 1 / 50	6A
KT-S320	0,71	230 / 1 / 50	6A
KT-S400	1,16	230 / 1 / 50	10A
KT-S540	1,15	230 / 1 / 50	10A
KT-S660	1,31	400 / 3 / 50	10A
KT-S780	1,75	400 / 3 / 50	10A
KT-S1080	2,07	400 / 3 / 50	16A

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Specifications

Specifications	
Pressure dew-point	+3°C
Medium	Compressed air and gases
Min. working pressure	4 bar g
Max. working pressure	16 bar g
Ambient temperature max.	50°C
Ambient temperature min.	4°C
Inlet temperature max.	60°C
Refrigerant	R134a
Colour	powder coated RAL 9005 / 5010

Technical features

Microprocessor control ensures safe and efficient operation.

Complies with the following standards based on the Machinery Safety Directives 2006/42/EC.
The ECOTROC® KT-S series refrigeration dryers have been subjected to internal quality tests and a final assembly inspection.

The following standards and manufacturing procedures were used as a basis for production:
2006/42/EC Machinery Directives; 2014/35/EU Low Voltage Directives; 2014/30/EC Electromagnetic Compatibility Directives; 2014/68/EU Pressure Equipment Directive, CAT I, Module A; EN ISO 12100:2010; EN 60204-1:2018; EN 378-2:2016

Quality assurance

Development/production **DIN EN ISO 9001**

Air purity class according to ISO 8573-1:2010

Solid particles **-**

Humidity (gaseous) **class 4 (PDP +3°C); class 5 (PDP +7°C); class 6 (PDP +10°C)**

Residual oil **-**

Maintenance instructions

The following maintenance rules ensure safe and trouble-free operation. These should be observed by the operator.

weekly	Clean condensor
semi-annual	Check condensate drain **KONDRAIN®** N1 and clean if necessary