

# ECOTROC® KT-H Refrigeration Dryer



Rev 03\_0426

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



Environmentally  
friendly  
refrigerant  
R513a

## Even more compact and powerful: ECOTROC® KT-H

The new **ECOTROC® KT-H** refrigeration dryer series convinces with its extremely compact design, high performance and reliability. Compressed air treatment is made even more efficient and safe with our new integrated control system. The use of high-quality components and an aluminium plate heat exchanger ensures efficiency and durability. R513A is a proven environmentally friendly refrigerant with high thermal efficiency and excellent chemical stability properties.

## Brand components

- Refrigerant compressor: Sikelan / Copeland
- Fan motor: Elco
- Condenser: Mipal
- Expansion valve: Sanhe Refrigeration
- Control: Coel

## The ECOTROC® KT-H Plus-Effects +++

- + microprocessor monitors the most important components as well as the quality of the compressed air
- + simple and efficient installation
- + time-controlled condensate drain via solenoid valve
- + Environmentally friendly refrigerant R513a

## The service advantages

- + Easily removable side panel allows easy access to the interior of the **ECOTROC® KT-H** (no tools required)
- + Clear arrangement of components allows for easy maintenance work

# ECOTROC® KT-H

## 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 from the compressed air. This is essential to prevent damage (corrosion), functional problems or even loss of production in pneumatic controls and systems. The **ECOTROC® KT-H** 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-H** 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 pressure 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 time-controlled solenoid valve



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

The refrigerant enters the heat exchanger in a liquid form, where 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 receiver stores the excess refrigerant and balances the system.

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

# ECOTROC® KT-H

## Refrigeration Dryer



### Control unit

#### Automatic operation control and monitoring

The microprocessor controller of the **ECOTROC® KT-H** regulates 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 easy troubleshooting.

- Clear display of the pressure dew point
- Display of the ambient temperature
- Alarm output in case of an internal problem of the refrigeration dryer
- Quick identification of the affected component
- Troubleshooting list in the manual often offers quick solutions
- External alarm output programmable



#### We recommend pre- and post-filtration!

- Optional available prefilters APF... MFO
- Optional available post-filters APF... SMA



easy access to the clear  
structured interior

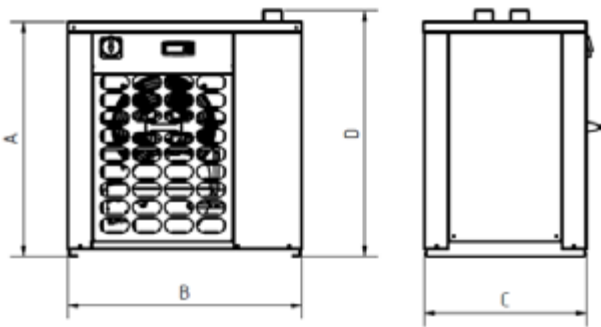
Models

Type	Capacity*						Dimensions (mm)				Connection	Weight kg
	+3 °C PDP		+7 °C PDP		+10 °C PDP		A	B	C	D	Thread**	
	m³/h	cfm	m³/h	cfm	m³/h	cfm						
KT-H21	21	12	24	14	26	15	588	588	412	615	G 3/4" f	28
KT-H36	36	21	40	24	44	26	588	588	412	615	G 3/4" f	28
KT-H55	55	32	62	37	68	40	588	588	412	615	G 3/4" f	30
KT-H71	71	42	80	47	87	51	588	588	412	615	G 3/4" f	30
KT-H100	100	59	112	66	123	72	588	588	412	615	G1" f	35
KT-H120	120	71	134	79	148	87	588	588	412	615	G1" f	35
KT-H145	145	85	162	95	178	105	588	588	412	615	G1" f	35
KT-H180	180	106	202	119	221	130	692	904	562	718	G 1 1/2" f	48
KT-H216	216	127	242	143	266	157	692	904	562	718	G 1 1/2" f	48
KT-H280	280	165	314	185	344	203	692	904	562	718	G 1 1/2" f	80
KT-H320	320	188	358	211	394	232	692	904	562	718	G 1 1/2" f	85
KT-H400	400	236	448	264	492	290	692	904	562	718	G 1 1/2" f	90
KT-H540	540	318	605	356	664	391	692	904	562	718	G 1 1/2" f	100
KT-H684	684	403	766	451	841	495	949	1008	662	975	G 2" f	120
KT-H792	792	466	887	522	974	574	949	1008	662	975	G 2" f	180
KT-H1098	1098	647	1230	724	1351	796	951	1360	782	897	G 3" f	195

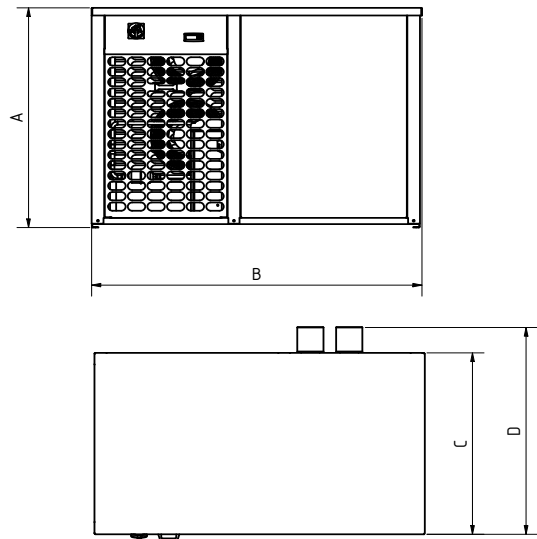
\* relating to 1 bar (abs.) at 7 bar g operation pressure; PDP = pressure dew point

\*\* f = internal thread

KT-H21 - KT-H792 (inlet/outlet on topsite)



KT-H1098 (inlet/outlet on backside)



Correction factors

Correction factors											
Inlet temperature	°C	30	35	40	45	50	55	60			
	F(t1)	1,12	1	0,82	0,69	0,58	0,46	0,41			
Ambient temperature	°C	20	25	30	35	40	45	50			
	F(t2)	1,09	1	0,92	0,89	0,83	0,76	0,52			
Operation pressure	bar (g)	4	5	6	7	8	9	10	12	14	16
	F(p)	0,86	0,92	0,96	1	1,03	1,05	1,08	1,11	1,14	1,16

Pressure dew point 3° C relating to volume flow at a suction condition of 20 °C and 1 bar (abs.)  
Multiply the capacity of the dryer with the correction factors in the tables above.

Example:  
Capacity KT-H 120 at inlet temperature 40 °C, ambient temperature 35 °C, operation pressure 6 bar (g) = capacity nominal (120 m³/h) x F(t1) (0,82) x F(t2) (0,89) x F(p) (0,96) = capacity calculated (84 m³/h)

The dryer must be selected that is sufficiently large for a capacity of 84 m³/h under standard conditions.

## Electrical data

Type	Installed electrical power	Operating voltage	Fuse protection min.
	kW	V / Ph / Hz	A
KT-H21	0,14	230 / 1 / 50	2
KT-H36	0,20	230 / 1 / 50	3
KT-H55	0,27	230 / 1 / 50	3
KT-H71	0,33	230 / 1 / 50	4
KT-H100	0,42	230 / 1 / 50	5
KT-H120	0,45	230 / 1 / 50	5
KT-H145	0,49	230 / 1 / 50	6
KT-H180	0,72	230 / 1 / 50	8
KT-H216	0,76	230 / 1 / 50	10
KT-H280	0,83	230 / 1 / 50	10
KT-H320	1,54	230 / 1 / 50	20
KT-H400	1,82	230 / 1 / 50	20
KT-H540	2,31	230 / 1 / 50	25
KT-H684	2,70	400 / 3 / 50	10
KT-H792	3,72	400 / 3 / 50	16
KT-H1098	4,11	400 / 3 / 50	16

## Specifications

Pressure dew point	+3 °C / +7 °C / +10 °C depending on capacity that means volume flow
Medium	Compressed air
Operation pressure min.	4 bar (g)
Operation pressure max.	16 bar (g)
Ambient temperature max.	50 °C
Ambient temperature min.	4 °C
Inlet temperature max.	60 °C
Refrigerant	R513a
Colour	powder coated (textured) RAL 9005 / 5010

## Technical features

- Microprocessor controller ensures safe and efficient operation.
- Corresponds to standards based on machinery safety directives 2006/42/EC.
- The ECOTROC® KT-H series of 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/EU 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\*

Solid particles	-
Humidity (gaseous)	Class 4 (PDP +3 °C) Class 5 (PDP +7 °C) Class 6 (PDP +10 °C)
Residual oil	-

\* according to ISO 8573-1:2010