

Sample gas cooler EGK 4



Accurate measurements of gas components require gas samples with stable dew points even under harsh ambient conditions.

Basically a cooling system designed like a refrigerator type cooling system is connected to a cooling block. This cooling block has an even heat dissipation and thus supports the performance of the highly efficient heat exchangers. While the compressor is running constantly the temperature regulation is done by the Bühler-constant-regulating-system.

This system allows very smooth regulation and eliminates all disadvantages of a traditional on-off operation mode.

The cooling block takes up to four individual heat exchangers hence the cooler is suitable to serve up to four separate gas sample streams.

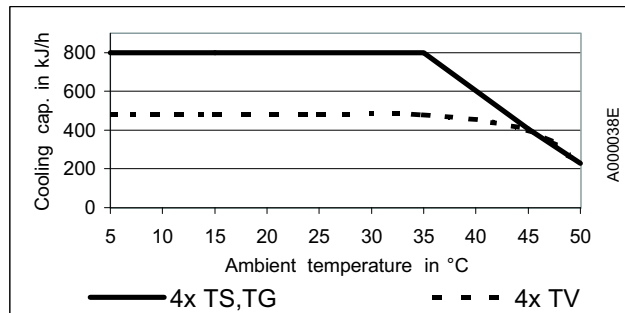
Depending on the system's basic principle the condensate is removed either by peristaltic pumps or by automatic condensate drainers which can be directly attached to the heat exchangers within the cooler's outer contour (AK 5.1).

- **compact design**
- **easy to install**
- **wall or rack mountable**
- **very reliable cooling system**
- **coolant Fluorocarbon free**
- **up to 4 gas streams**
- **heat exchangers in SS, Glass or PVDF**
- **nominal capacity 800 kJ/h**
- **dewpoint stability 0,2 K**

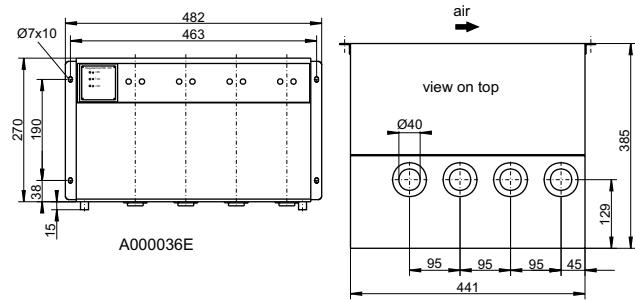
technical data

ready for operation	max. 20 minutes
cooling capacity (at 25°C)	800 kJ/h
ambient temperature	+5..50°C
dewpoint (set at factory)	approx. 5 °C
dewpoint variations static	0,2 K
over full operation range	± 2 °C
power supply	115 or 230V, 50/60 Hz
power consumption	170/ 500 VA
fuse	10 A
alarm output	each 230V, 3 A, 690 VA
	change over contact
protection class	IP 20
housing	varnished sheet metal
installation	wall or rack mounting
dimensions	approx. 510 x 355 x 450 mm
weight incl. 4 heat exchangers	approx. 38 kg

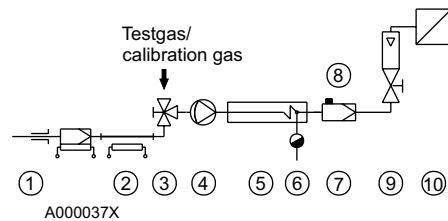
performance data's



dimensions



typical installation scheme:



- | | |
|--|---|
| 1 sample probe | 7 moisture detector |
| 2 sample tube | 8 fine filter |
| 3 3 way valve | 9 flowmeter |
| 4 sample gas pump | 10 analyser |
| 5 sample gas cooler EGK-4 | |
| 6 automatic condensate drain or perist. pump | Types and datas of components see individual data sheets. |

heat exchanger

The energy content of the sample gas and as a result the required cooling capacity is determined by 3 parameters: gas temperature t_G , dewpoint t_e (moisture content) and flow Q . The outlet dew point raises with increasing energy content of the gas due to physical rules. The acceptable cooling capacity is determined by a tolerated raise of the outlet dew point.

The following limits are set for $t_e=65^\circ\text{C}$ and $t_G=90^\circ\text{C}$. Indicated is the Q_{max} in NI/h cooled air i.e. after the moisture has condensed.

If the real values stay below the parameters t_e and t_G , Q_{max} can be increased. As an example instead of $t_e=65^\circ\text{C}$, $t_G=90^\circ\text{C}$ and $v=250$ l/h the values $t_e=50^\circ\text{C}$, $t_G=80^\circ\text{C}$ and $v=350$ l/h could be accepted.

Please let us know if you want assistance or use our cooler adaption programme.

heat exchanger

	TS	TG	TV
flow rate v_{max} ¹⁾	530 l/h	280 l/h	150 l/h
inlet dewpoint $t_{e,\text{max}}$ ¹⁾	80 °C	80 °C	65 °C
gas inlet temperature $t_{G,\text{max}}$ ¹⁾	180 °C	140 °C	140 °C
max. cooling capacity Q_{max}	450 kJ/h	230 kJ/h	120 kJ/h
gas pressure p_{max}	160 bar	3 bar	3 bar
pressure drop p ($v=150$ l/h)	8 mbar	8 mbar	8 mbar
death volume V_{tot}	69 ml	48 ml	129 ml
sample gas connections	G 1/4" i ²⁾	GL 14	DN 4/6
condensate out connections	G 3/8" i ²⁾	GL 25	G 3/8" i

¹⁾With maximum heat transfer of the heatexchanger and max. cooling capacity of the cooler

²⁾NPT-threads upon request

Please indicate with order cooler

45 28 999	EGK 4, 19", 230 V, 50/60 Hz
45 28 099	EGK 4, 19", 115 V, 50/60 Hz
45 27 999	EGK 4, wall mountable, 230 V, 50/60 Hz
45 27 099	EGK 4, wall mountable, 115 V, 50/60 Hz

accessories

see separate data sheets

Heat exchanger

45 10 023	TS, stainless steel 1.4571
45 10 013	TG, Duran glass
45 01 002	TV-WW, PVDF, E= horizontal, A= horizontal
45 01 003	TV-WS, PVDF, E= horizontal, A= vertical
45 01 004	TV-SS, PVDF, E= vertical, A= vertical
45 01 006	TV-SS-PT100, PVDF
45 10 018	TV-SW, PDVF, E= vertical, A= horizontal
45 10 010	TV-WW-PT100, PVDF