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 760 btu/h**
- **dewpoint stability 0,4 °F**

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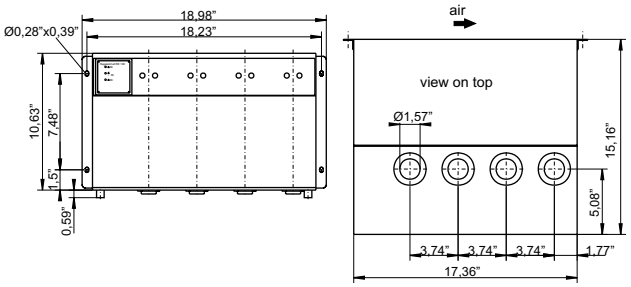
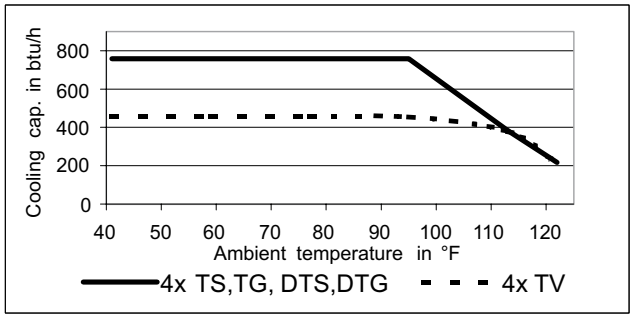
technical data

ready for operation	max. 20 minutes
cooling capacity (at 77°F)	760 btu/h
ambient temperature	+40...120 °F
dewpoint (set at factory)	approx. 41 °F
dewpoint variations static	0,4 °F
over full operation range	± 3,6 °F
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	
installation	wall or rack mounting
dimensions	approx. 20 x 14 x 18 inches
weight incl. 4 heat exchangers	approx. 38 kg

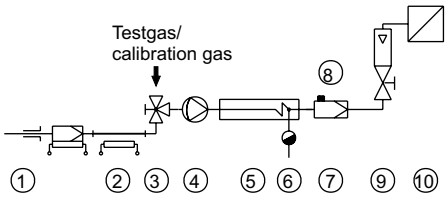
dimensions



performance data's



typical installation scheme:



1 sample probe
2 sample tube
3 3 way valve
4 sample gas pump
5 sample gas cooler EGK-4
6 automatic condensate drain or perist. pump
7 moisture detector
8 fine filter
9 flowmeter
10 analyser

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 ϑ_G, dewpoint τ_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 τ_e=149°F and ϑ_G=194°F. Indicated is the Q_{max} in Nl/h cooled air i.e. after the moisture has condensated.
If the real values stay below the parameters τ_e and ϑ_G, Q_{max} can be increased. As an example instead of τ_e= 149 °F, ϑ_G = 194 °F and v = 250 l/h the values τ_e=122 °F, ϑ_G=176 °F 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)]	400 l/h	250 l/h	150 l/h
inlet dewpoint $\tau_{e,max}$ [1)]	180 °F	180 °F	150 °F
gas inlet temperature $\vartheta_{G,max}$ [1)]	360 °F	285 °F	285 °F
max. cooling capacity Q_{max}	320 btu/h	190 btu/h	114 btu/h
gas pressure p_{max}	2300 psi	43 psi	43 psi
pressure drop Δp (v=150 l/h)	0,1 psi	0,1 psi	0,1 psi
death volume V_{tot}	45 ml	25 ml	70 ml
sample gas connections	G 1/4“ i [2)]	GL 14	DN 4/6
condensate out connections	G 3/4“ i [2)]	GL 25	G 1/4” 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 seperate data sheets

we reserve the right to amend specification

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= horizontal, A= vertical
45 01 006	TV-SS-PT100, PVDF
45 10 018	TV-SW, PDVF, E= senkrecht, A = vertical
45 10 010	TV-WW-PT100, PVDF