

# Sample Gas Cooler EGK 1/2



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

The EGK types provide a cooling system basically designed like a refrigerator type cooling system connected to a cooling block. This cooling block has an even heat dissipation and thus supports the performance of 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 the traditional on-off operating mode.

The cooling block takes either a single stream or a dual stream heat exchanger hence the cooler is suitable to serve two separate gas sample streams.

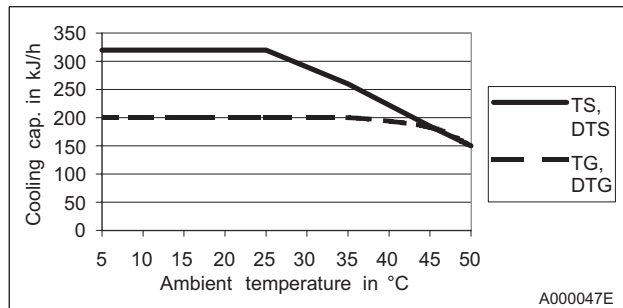
Depending on the system's basic principle the condensate is removed either by peristaltic pumps (up to two can be integrated into the cooler's cover), by automatic condensate drains or condensate vessels.

- **compact design**
- **single or dual gas streams**
- **heat exchangers made of stainless steel or duran glass**
- **Bühler-constant-regulating-system**
- **selfchecking**
- **status alarm**
- **display of cooling temperature**
- **cooling capacity 320kJ/h**
- **dewpoint stability 0,1 °C**

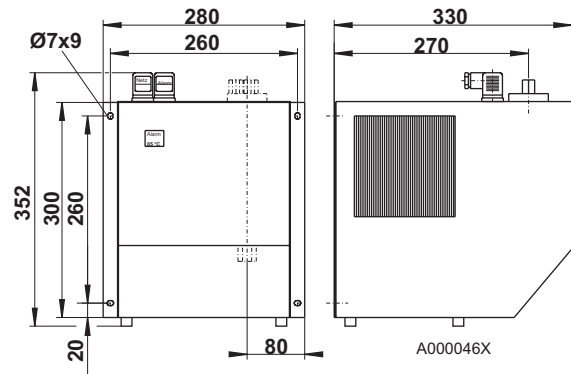
## technical data

ready for operation	max. 15 minutes
cooling capacity (at 25°C)	320 kJ
ambient temperature	+5...+50 °C
dewpoint (set at factory)	approx. 5 °C
dewpoint variations static	0,1 K
over full operation range	± 1,5 K
power supply	115 or 230 V, 50/60 Hz, plug according to DIN 43650
power consumption	180 VA, fuse (external) 10 A
alarm output:	max. 250V, 2 A, 50 VA plug acc. to DIN 43650
protection class	IP 20
housing	stainless steel
installation	table or wall mounting
packing dimensions	approx. 390 x 300 x 400 mm
weight incl. heat exchangers	approx. 15 kg

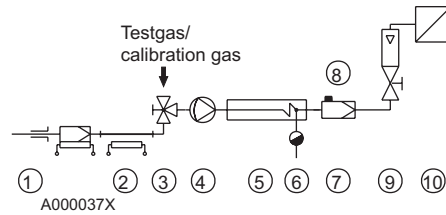
## performance data's



## 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-1/2                  |                     |
| 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  $\vartheta_G$ , dewpoint  $\tau_e$  (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  $\tau_e=65^\circ\text{C}$  and  $\vartheta_G=90^\circ\text{C}$ . Indicated is the  $Q_{\text{max}}$  in l/h cooled air i.e. after the moisture has condensed.

If the real values stay below the parameters  $\tau_e$  and  $\vartheta_G$ ,  $Q_{\text{max}}$  can be increased. As an example instead of  $\tau_e=65^\circ\text{C}$ ,  $\vartheta_G=90^\circ\text{C}$  and  $v=250$  l/h the values  $\tau_e=50^\circ\text{C}$ ,  $\vartheta_G=80^\circ\text{C}$  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	DTS	DTG
flow rate $v_{\text{max}}^{1)}$	400 l/h	250 l/h	2 x 200 l/h	2 x 125 l/h
inlet dewpoint $\tau_{e,\text{max}}^{1)}$	80 °C	80 °C	80 °C	65 °C
gas inlet temperature. $\vartheta_{G,\text{max}}^{1)}$	180 °C	140 °C	180 °C	140 °C
max. cooling capacity $Q_{\text{max}}$	340 kJ/h	200 kJ/h	340 kJ/h	200 kJ/h
gas pressure $p_{\text{max}}$	160 bar	3 bar	25 bar	3 bar
pressure drop $\Delta p$ ( $v=150$ l/h)	8 mbar	8 mbar	each 5 mbar	each 5 mbar
death volume $V_{\text{tot}}$	69 ml	48 ml	28 / 25 ml	28 / 25 ml
sample gas connections	G 1/4" i <sup>2)</sup>	GL 14	tube 6 mm	GL 14
condensate out connections	G 3/8" i <sup>2)</sup>	GL 25	tube 10 mm	GL 18

<sup>1)</sup> with maximum heat transfer of the heatexchanger and max. cooling capacity of the cooler

<sup>2)</sup> NPT-threads upon request

## Please indicate with order

### cooler

45 65 999 EGK-1/2 230 V 50/60Hz

45 66 999 EGK-1/2 115 V 50/60Hz

### heat exchanger

45 10 023 TS, stainless steel 1.4571

45 10 013 TG, Duran glass

45 01 026 DTS, stainless steel 1.4571, dual

45 01 027 DTG, Duran glass, dual

### accessories

44 10 001	automatic condensate drain 11 LD V 38
44 10 004	automatic condensate drain AK 20, PVDF
44 10 005	condensate vessel GL 1; glass, 0,4 l
44 10 019	condensate vessel GL 2; glass, 1 l
45 10 130	1 peristaltic pump 230 V, 0,3 l/h, built-in
45 10 230	second peristaltic pump 230 V, 0,3 l/h, built-in
45 10 131	1 peristaltic pump 115 V, 0,3 l/h, built-in
45 10 231	second peristaltic pump 115 V, 0,3 l/h, built-in
45 10 122	per. pump 230 V, 0,3 l/h, separat mounting
45 10 222	per. pump 115 V, 0,3 l/h, separat mounting