

# Sample Gas Cooler EGK 4 S



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

The heart of any cooling system is the cooling block. Bühler gas coolers feature cooling blocks made of aluminum which accommodate highly efficient heat exchangers available in a variety of materials such as stainless steel, glass or PVDF. The temperature of the cooling block is regulated by the **Bühler Constant Regulating System** featuring a straight and constant temperature value. Maintenance-free models accommodating up to four gas streams are available.

The coolers status can be monitored by a display of the cooling block temperature and a LED which blinks until the cooler reaches the valid temperature range.

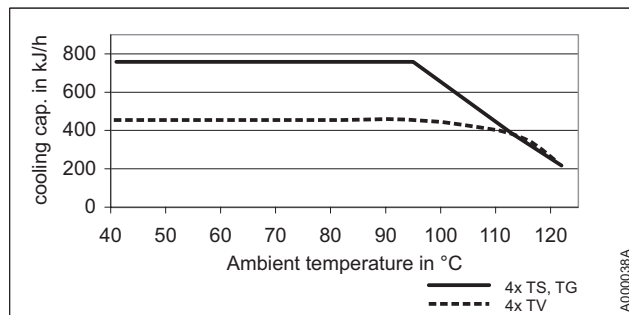
The cooler can be supplied with feet adjustable from about 0.6" to 2.6" and either mounting brackets or handles.

- **Compact design**
- **Easy installation**
- **Wall, rack or table mountable**
- **Reliable cooling system**
- **CFC-free**
- **Up to 4 gas streams**
- **Heat exchangers in SS, Glass or PVDF**
- **Nominal capacity 760 Btu/hr**
- **Dew point stability 0.1 °F**
- **Temperature display**
- **Feet, handles or mounting brackets available**

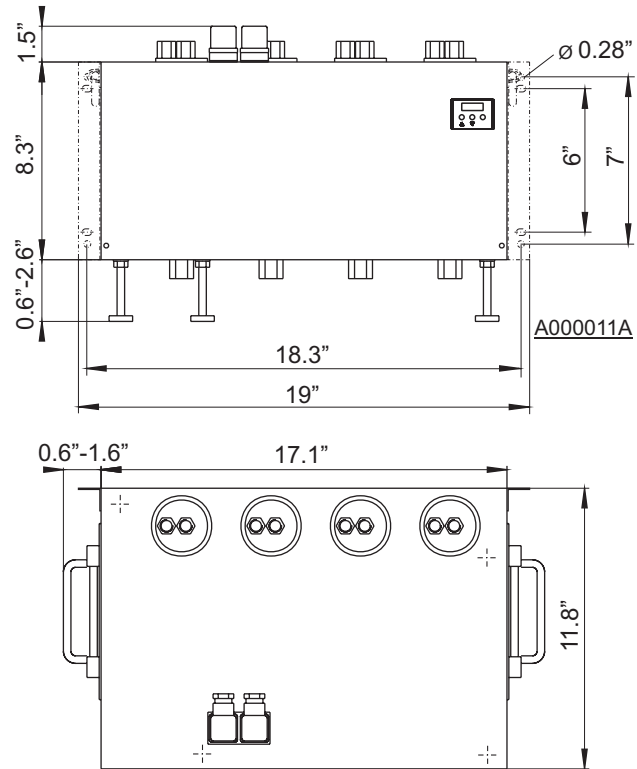
## Technical Data

Ready for operation	max. 15 minutes
Cooling capacity (at 77°F)	760 Btu/h
Ambient temperature	40-120 °F
Dewpoint (default)	approx. 41 °F
Power supply	115 or 230V, 50/60 Hz
Power consumption	170/ 500 VA
Fuse	10 A
Alarm output	250VAC / 150VDC , 2 A, 50 VA change over contact
Protection class	IP 20
Housing	Stainless steel
Installation	Wall, rack or table mounting
Dimensions (H x W x D)	approx. 8.3 x 17.2 x 12 inches
Weight (incl. 4 heat exchangers)	approx. 4.4 lb

## Performance Data



## Dimensions (in)



## Heat Exchanger

The energy content of the sample gas and, as a result, the required cooling capacity of the gas cooler is determined by 3 parameters: gas temperature  $\vartheta_G$ , dewpoint  $\tau_e$  (moisture content) and flow  $v$ . The outlet dew point rises with increasing energy content (heat) of the gas. The required cooling capacity is determined by the maximum acceptable level of the outlet dew point.

The following table shows cooler performance assuming the following conditions:  $\tau_e=120^\circ\text{F}$  and  $\vartheta_G=160^\circ\text{F}$ . Indicated is the  $v_{\text{max}}$  in lpm cooled air (i.e. after the moisture has condensed). If the actual values stay below the parameters  $\tau_e$  and  $\vartheta_G$ ,  $v_{\text{max}}$  can be increased. For example (TG), instead of  $\tau_e=120^\circ\text{F}$ ,  $\vartheta_G=160^\circ\text{F}$  and  $v=5.7$  lpm the values  $\tau_e=105^\circ\text{F}$ ,  $\vartheta_G=160^\circ\text{F}$  a maximum flow rate of  $v=7.1$  lpm could be achieved.

**Please contact one of Buhler's application specialists for assistance and further information.**

### Heat Exchanger

	TS	TG	TV
Flow rate $v_{\text{max}}^1$	8.8 lpm	4.7 lpm	2.5 lpm
Inlet dewpoint $\tau_{e,\text{max}}^1$	180 °F	180 °F	150 °F
Gas inlet temperature $\vartheta_{G,\text{max}}^1$	360 °F	285 °F	285 °F
Max. cooling capacity $Q_{\text{max}}$	425 Btu/hr	220 Btu/hr	114 Btu/hr
Gas pressure $p_{\text{max}}$	2300 psi	43 psi	43 psi
Pressure drop $\Delta p$ ( $v=150$ l/h)	0.1 psi	0.1 psi	0.1 psi
Dead volume $V_{\text{tot}}$	4.2 cu. in.	2.9 cu. in.	7.9 cu. in.
Sample gas connections	G 1/4" i <sup>2)</sup>	GL 14	DN 4/6
Condensate outlet connections	G 3/8" i <sup>2)</sup>	GL 25	G 3/8" i

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

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

## Please indicate with order

### Cooler

45 70 999	EGK 4 S; 230 V, 50/60 Hz, Display for wall mount
45 71 999	EGK 4 S; 230 V, 50/60 Hz, Display for rack mount
45 72 999	EGK 4 S; 115 V, 50/60 Hz, Display for wall mount
45 73 999	EGK 4 S; 115 V, 50/60 Hz, Display for rack mount

**Accessories** see individual data sheets

### Mounting Accessories

45 70 001	Mounting brackets (mounted)
45 70 002	Handles (2 pcs, mounted)
45 70 003	Feet (4 pcs, added)
45 70 008	Mounting brackets for up to 4 peristaltic pumps

### Heat Exchanger

45 10 023	TS, stainless steel 1.4571
45 10 013	TG, Duran glass
45 01 004	TV-SS, PVDF

we reserve the right to amend specification