

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 1,5 to 6,6 cm 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 800 kJ/h
- Dew point stability 0.2 °C
- Temperature display
- Feet, handles or mounting brackets available



Technical Data

Ready for operation Cooling capacity (at 25°C) Ambient temperature Dew point (set at factory) Dew point variations static Over full operation range Power supply Power consumption Fuse Alarm output Protection class Housing material Installation Dimensions (H x W x D)

max. 15 minutes 800 kJ/h +5..50°C approx. 5 °C 0,2 K ±2°C 115 or 230V, 50/60 Hz 170/ 500 VA 10 A 230VAC/150VDC, 2 A, 30 VA change over contact IP 20 stainless steel wall, rack or table mounting approx. 510 x 355 x 450 mm max. 32 kg

Performance Data

Weight (incl. 4 heat exchangers)



Dimensions



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 ϑ_{c_1} dewpoint τ_{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: τ_{*}=65°C and θ_G=90°C. Indicated is the v_{max} in NI/h cooled air (i.e. after the moisture has condensed). If the actual values stay below the parameters τ_e and ϑ_G , v_{max} can be increased. For example (TG), instead of τ_e = 65°C, ϑ_g = 90°C and v = 250 l/h the values τ_e =50°C, ϑ_g =80°C and v=350 l/h could be achieved.

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

Heat Exchanger	TS	TG	TV
Flow rate v _{max} ¹⁾	530 l/h	280 l/h	150 l/h
Inlet dewpoint $\tau_{e,max}^{(1)}$	80 °C	80 °C	65 °C
Gas inlet temperature $\vartheta_{G,max}^{(1)}$	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
Dead 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
$^{\scriptscriptstyle 1\!\!\!\!)}$ with maximum heat transfer of the heat exchanger and max. cooling capacity of the cooler		²⁾ 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