



Sample gas cooler EGK 1/2

In the chemical industry, petrochemistry or biochemistry, reliable process control relies on prompt and exact determination of the operating parameters.

Here, gas analysis is the key for safe and efficient control of process flows, environmental protection and quality assurance. This benefits controlling flue gas emission in power stations or exhaust gas analysis in automotive engineering, as well as the efficient control of air separators or sterile production and packaging in the food industry.

Many of the analysis processes used in these fields require extracting the sample gas. This inevitably also extracts process-related contamination such as particles or moisture. These in turn can impact the measurement results or damage the measuring cells. The sample gas must therefore be conditioned before entering the analyser.

EGK 1/2 is a compressor sample gas cooler for up to 2 gas paths and is an essential component for sophisticated analysis systems.

Compact installation

One or two gas paths

Heat exchanger made from stainless steel, Duran glass and PVDF

Bühler constant control system

Self-monitoring

Cooling block temperature display

Status alarm

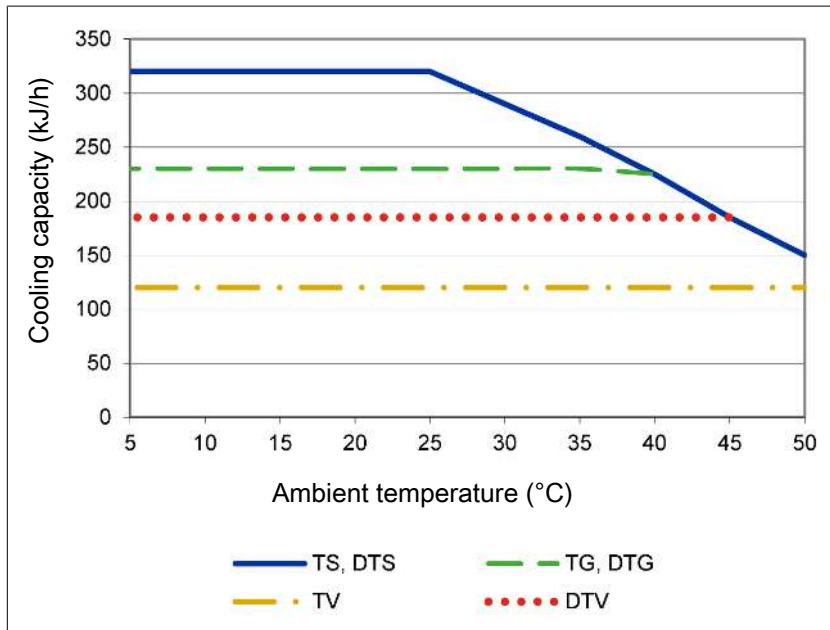
Rated cooling power 320 kJ/h

Dew point stability 0.1 °C

CFC-free



Performance data



Remark: The limit curves for the heat exchangers exchanger apply to a dew point of 65 °C.

Gas cooler technical data

Gas Cooler Technical Data

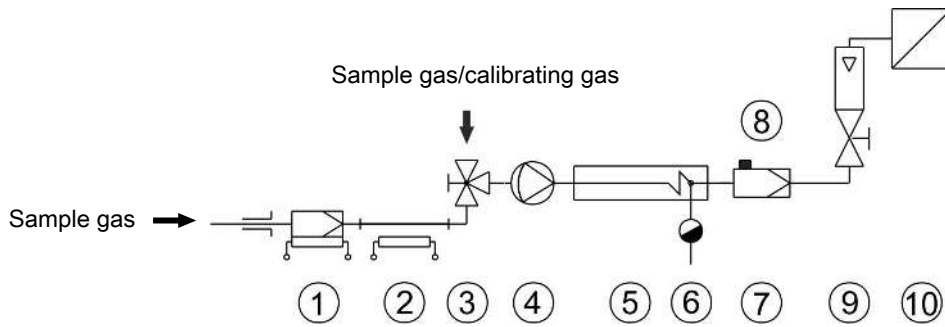
Ready for operation	after max. 15 minutes		
Rated cooling capacity (at 25 °C)	320 kJ/h		
Ambient temperature	5 °C to 50 °C		
Gas outlet dew point, preset	approx. 5 °C		
Dew point fluctuations			
static:	± 0.1 K		
in the entire specification range:	± 1.5 K		
IP rating	IP 20		
Housing	Stainless steel		
Packaging dimensions	approx. 390 x 300 x 400 mm		
Weight incl. heat exchanger	approx. 15 kg		
Electric supply	115 V, 60 Hz or 230 V, 50 Hz Plug per EN 175301-803		
Electrical data	230 V	115 V	
	Typical power input:	140 VA	155 VA
	max. operating current:	1.6 A	3.2 A
Alarm output switching connection	max. 250 V, 2 A, 50 VA Terminal plug per DIN 43650		
Installation	stand-alone or wall-mounted		

Technical Data - Options

CPsingle Peristaltic Pumps Technical Data

Flow rate	0.3 L/h (50 Hz) / 0.36 L/h (60 Hz) with standard hose
Vacuum inlet	max. 0.8 bar
Pressure inlet	max. 1 bar
Outlet pressure	1 bar
Hose	4 x 1.6 mm
Protection class	IP 40
Materials	
Hose:	Norprene (standard), Marprene, Fluran
Connections:	PVDF

Diagram typical installation



1 Sample gas probe	2 Sample gas line
3 Reversing tap	4 Sample gas pump
5 Sample gas cooler	6 Automatic condensate drain or peristaltic pump
7 Fine mesh filter	8 Moisture detector
9 Flow meter	10 Analyser

See data sheets for individual component models and data.

Heat exchanger description

The energy content of the sample gas and the required cooling capacity of the gas cooler is determined by three parameters: gas temperature ϑ_G , (inlet) dew point τ_e (moisture content) and volume flow v . The outlet dew point rises with increasing energy content of the gas. The approved energy load from the gas is therefore determined by the tolerated rise in the dew point.

The following limits are specified for a normal standard operating point of $\tau_e = 65^\circ\text{C}$ and $\vartheta_G = 90^\circ\text{C}$. The maximum volume flow v_{\max} in NI/h of cooled air is indicated, so after moisture has condensed.

If the values fall below τ_e and ϑ_G , the flow v_{\max} may be increased. For example, on the TG heat exchanger the parameter triple $\tau_e = 65^\circ\text{C}$, $\vartheta_G = 90^\circ\text{C}$ and $v = 280$ NI/h may also be used in place of $\tau_e = 50^\circ\text{C}$, $\vartheta_G = 80^\circ\text{C}$ and $v = 380$ NI/h

Please contact our experts for clarification or refer to our design program.

Heat exchanger overview

Heat exchanger	TS TS-I ²⁾	TG TG	TV TV-I ²⁾	DTS (DTS-6 ³⁾) DTS-I (DTS-6-I ³⁾) ²⁾	DTG DTG	DTV ³⁾ DTV-I ²⁾³⁾
Materials in contact with media	Stainless steel	Glass PTFE	PVDF	Stainless steel	Glass PTFE	PVDF
Flow rate v_{\max} ¹⁾	530 L/h	280 L/h	155 L/h	2 x 250 L/h	2 x 140 L/h	2 x 115 L/h
Inlet dew point $\tau_{e,\max}$ ¹⁾	80 °C	80 °C	65 °C	80 °C	65 °C	65 °C
Gas inlet temperature $\vartheta_{G,\max}$ ¹⁾	180 °C	140 °C	140 °C	180 °C	140 °C	140 °C
Max. Cooling capacity Q_{\max}	450 kJ/h	230 kJ/h	120 kJ/h	450 kJ/h	230 kJ/h	185 kJ/h
Gas pressure p_{\max}	160 bar	3 bar	3 bar	25 bar	3 bar	2 bar
Pressure drop Δp ($v=150$ L/h)	8 mbar	8 mbar	8 mbar	5 mbar each	5 mbar each	15 mbar each
Dead volume V_{tot}	69 ml	48 ml	129 ml	28 / 25 ml	28 / 25 ml	21 / 21 ml
Gas connections (metric)	G1/4	GL 14 (6 mm) ⁴⁾	DN 4/6	6 mm tube	GL14 (6 mm) ⁴⁾	DN 4/6
Gas connections (US)	NPT 1/4"	GL 14 (1/4") ⁴⁾	1/4"-1/6"	1/4" tube	GL14 (1/4") ⁴⁾	1/4"-1/6"
Condensate out connections (metric)	G3/8	GL 25 (12 mm) ⁴⁾	G3/8	Tube 10 mm (6 mm)	GL18 (10 mm) ⁴⁾	DN 5/8
Condensate out connections (US)	NPT 3/8"	GL 25 (1/2") ⁴⁾	NPT 3/8"	Tube 3/8" (1/4")	GL18 (3/8") ⁴⁾	3/16"-5/16"

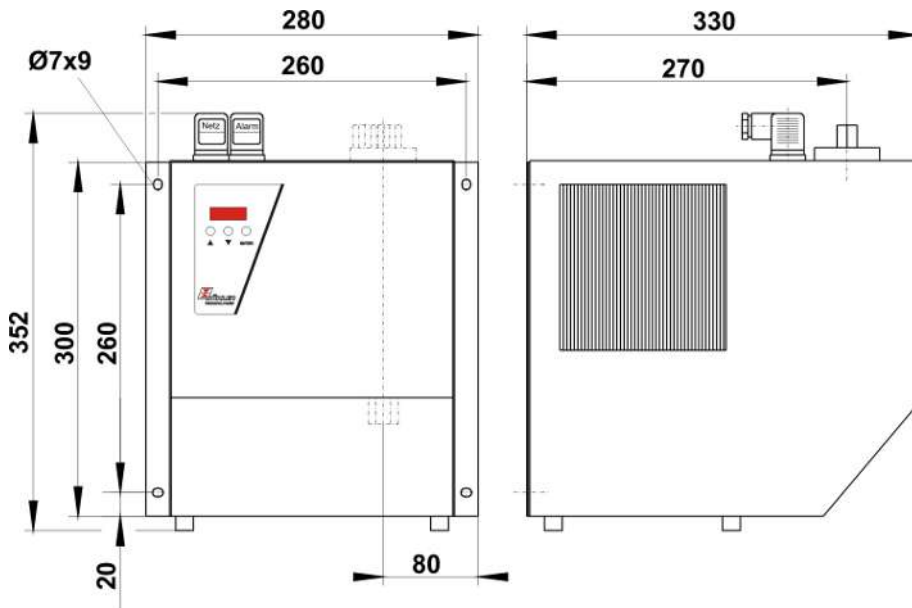
¹⁾ Max. cooling capacity of the cooler must be considered

²⁾ Models marked I have NPT threads or US tubes, respectively.

³⁾ Condensate drain only possible with condensate pump

⁴⁾ Gasket inside diameter

Dimensions (mm)



Ordering instructions

Gas cooler

The item number is a code for the configuration of your unit. Please use the following model key:

Please note: Every individual gas path must be equipped with peristaltic pump or condensate drain.

4562	X	X	X	X	X	0	0	0	Product Characteristics
Voltage									
1									115 V metric screw connections
2									230 V metric screw connections
3									115 V US screw connections
4									230 V US screw connections
Gas path / Material / Version									
0	0	0							without heat exchanger
1	1	0							1 gas path / single stainless steel heat exchanger / (TS and TS-I)
1	2	0							1 gas path / single glass heat exchanger / (TG)
1	3	0							1 gas path / single PVDF heat exchanger / (TV and TV-I)
2	6	0							2 gas paths / dual stainless steel heat exchanger / (DTS and DTS-I)
2	6	1							2 gas paths / dual stainless steel heat exchanger / (DTS-6 and DTS-6-I) ¹⁾
2	7	0							2 gas paths / dual glass heat exchanger / (DTG)
2	8	0							2 gas paths / dual PVDF heat exchanger / (DTV and DTV-I) ¹⁾
Condensate drain ²⁾									
			0						without condensate drain
			3						Peristaltic pump(s) CPsingle with hose connection 90° angle ³⁾
			4						Peristaltic pump(s) CPsingle with screw-in hose connection ³⁾

¹⁾ Condensate outlets only suitable for connecting peristaltic pumps.

²⁾ Peristaltic pumps also available for separate installation, see data sheet 450020.

³⁾ Each gas path equipped with a peristaltic pump. The supply voltage corresponds with that of the main unit.

Consumables and accessories

Item no.	Description
4410001	Automatic condensate drain 11 LD V 38
4410004	Automatic condensate drain AK 20, PVDF
4410005	Condensate trap GL 1; glass, 0.4 L
4410019	Condensate trap GL 2; glass, 1 L
44921220102	CPsingle peristaltic condensate pump with angled hose nipple
44921220104	CPsingle peristaltic condensate pump with screw-in hose connection (metric)
44921220105	CPsingle peristaltic condensate pump with screw-in hose connection (US)