



ECP 20-2 PV

Peltier Gas Cooler Series ECP®

Version ECP 20-2 for 500 NI/hr gas flow rate (single stream)

- **Compact, self-controlling and maintenance-free**
- **With patented Jet-Stream heat exchanger available in 3 standard materials**
- **Gas flow rate 1 stream x500 l/hr**
- **Dew point adjustable at $+5\text{ °C} \pm 0,1\text{ °C}$**
- **Status-Alarm contact standard**
- **Small dimensions**
- **Light weight**
- **Optimum reliability**

Application

The **M&C** gas cooler **ECP-20-2** is used in gas analysis to lower the dew point of humid gas to avoid condensation in the analyser. An extremely stable gas dew point avoids water vapour cross-sensitivity and volumetric errors.

Description

The electronically controlled peltier cooler produced by **M&C** incorporates the patented "Jet-Stream" design of heat exchanger. This design induces condensate formation and guarantees optimum dew point reduction to a stable low value, eliminating the need for additional pre-drainage devices.

The condensate formed should be removed with a small peristaltic pump, sample trap or collection vessel. The simple construction employed enables heat exchangers of different materials to be used depending on the application. The operating status of the cooler is displayed by three LED's, one each for over or under temperature alarm and one which pulsates indicating the cooler is functioning correctly. The alarm status changes when the temperature deviates by $\pm 3\text{ °C}$ from the set point.

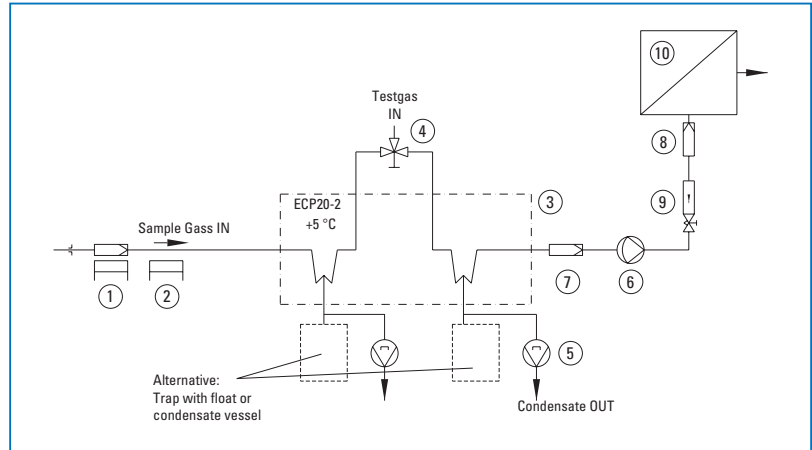
The gas cooler **ECP 20-2** has got two EC-Jet-stream heat exchangers which are best employed using one as a pre-cooler and the second as a main or final cooler with a flow capacity max. of 500 NI/hr.

The compact lightweight design of this device makes it ideal for use in portable and compact continuous sample conditioning systems.

The gas cooler is self-controlling and maintenance-free.

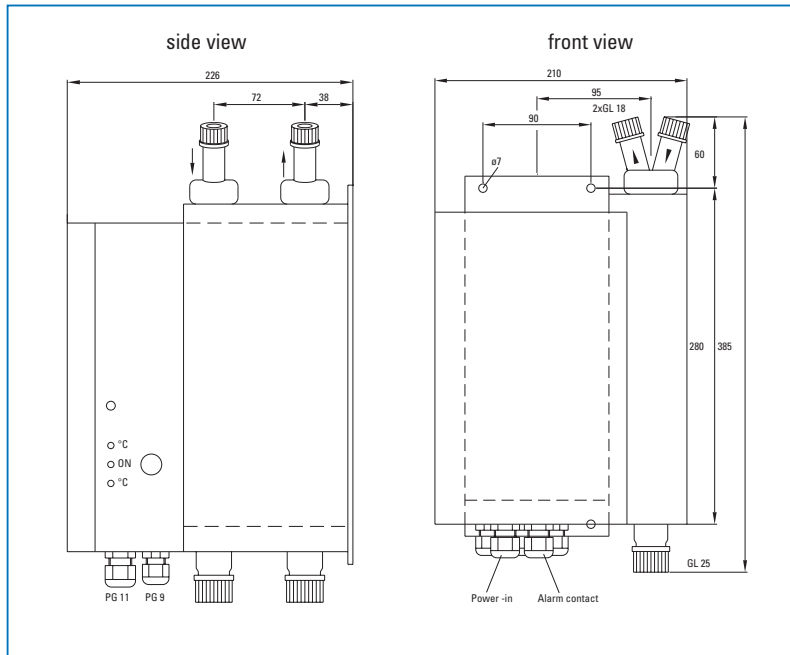
Example application for ECP 20-2

- 1 Heated filter sample probe **SP2000-H**
- 2 Heated sample line **4M4/6**
- 3 Cooler **ECP20-2**
- 4 3-way ball valves **3L/PV-1**
- 5 Peristaltic pumps **SR25.1**
- 6 Diaphragm pump **MP47**
- 7 Fine filter **FP-2T-D** with liquid alarm **LA1**
- 8 Aerosol filter **CLF-5/W** optional according to application
- 9 Flow meter **FM10**, 50-500 NI/hr
- 10 Analyser, e. g. **PMA1000**



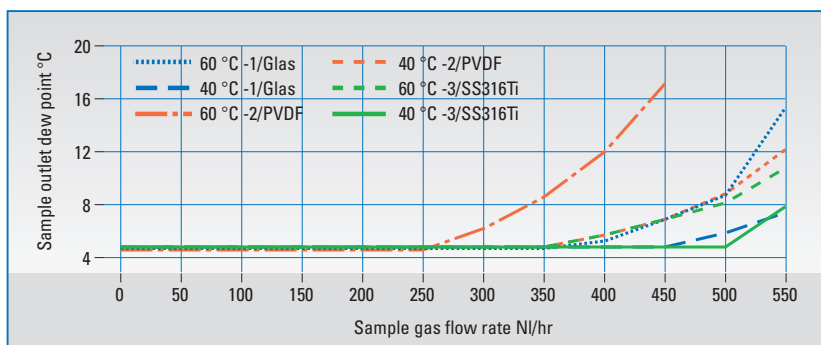
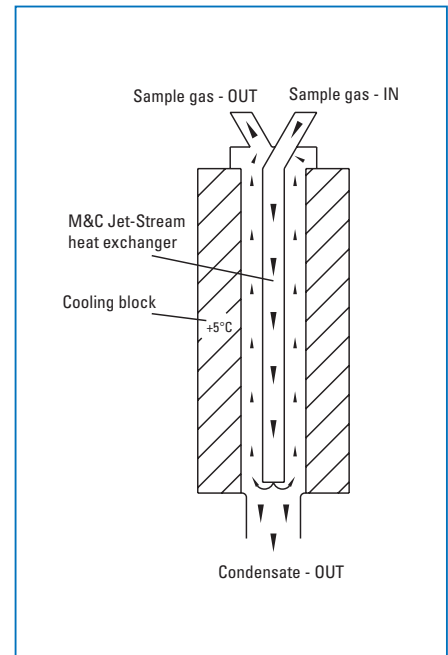
Dimensions

ECP 20-2



Abmessungen in mm

Functioning diagram of M&C-heat exchanger



Sample outlet dew point difference for the gas cooler **ECP20-2** with heat exchangers out of:

- 1 Glass
- 2 PVDF
- 3 Stainless steel 316Ti

in dependence on the gas flow rate and 40 °C and 60 °C sample inlet dew point at 25 °C ambient temperature.

Technical Data

Gas Cooler series ECP®	ECP 20-2		
Part No. Gas Cooler ECP 20-2	01K8100	01K8140	01K8120
Material of heat exchanger	Duran glass®	PVDF	st. steel AISI 316Ti
Gas pressure max.-bar abs. ²⁾ with GL adapter	2 / 3 ²⁾	3	10**
Sample gas connection	for ø 6 mm o.d. tube G1/4"i		
Condensate connection	for ø 12 mm o.d. tube G3/8"i		
ΔP at 500 NI/hr flow rate	5 mbar		
Stagnant space per heat exchanger	approximately 70 ml		
Gas stream / Gas flow rate	1x max. 500 NI/hr *		
Ambient temperature	+5 to +45 °C		
Sample outlet dew point	set in factory +5 °C ±1 °C, range of adjustment 0-15 °C		
Dew point stability	at constant conditions ± 0,1 °C*		
Sample inlet temperature	max. 180 °C*		
Sample inlet dew point	max. 80 °C*		
Total cooling capacity at +25 °C ambient	80 kJ/h		
Main power connection / Power consumption	230V 50Hz or 115V 60Hz switchable, 250VA		
Ready for working	<20 min.		
Electrical connection	terminals 2,5 mm ² , 2x PG11 cable gland		
Status alarm 1 changeover contact, potential free	contact rating 250V, 2A, 500VA, 50W alarm point: Δ ±3 °C to T _{SOLL}		
Case protection / Electrical standard	IP54 EN60529 / EN61010		
Method of mounting / Case colour	wall mounting / case colour black		
Dimension / Weight	210x385x 226 mm / 12,5 kg		

* Maximum values in technical datas must be rated in consideration of total cooling capacity at 25 °C ambient temperature.

** Other versions on request.

GL-adapter and tube fittings for the connection of different tube diameters at the heat exchanger see data sheet 3-5.1.1 and 7-1.