



ECP 1000-G

## Peltier Gas Cooler Series ECP®

Version ECP1000 with 1 x 150 NI/h

Version ECP2000 with 2 x 150 NI/h

Version ECP3000 with 1 x 350 NI/h

### Special Features

- With Jet-Stream heat exchanger available in three standard materials
- Ambient temperature up to +50 °C [122 °F]
- Gas outlet dew point adjustable from +2 to +15 °C [35.6 to 59 °F]
- Dew point stability  $\pm 0.1$  °C [ $\pm 0.18$  °F]
- Status alarm contact
- Compact and lightweight design
- High reliability
- Self-controlling

### Application

The M&C gas coolers type ECP are used in analytical technology for lowering the dew point of humid gases to prevent condensation in the analyzer. An extremely stable gas outlet dew point minimizes vapour cross-sensitivity and volumetric errors.

### Description

The electronically controlled Peltier gas coolers and the special design of the Jet-Stream heat exchangers ensure optimum dew point reduction to a low, stable value and reliable condensate separation. External condensate pre-separation is not required.

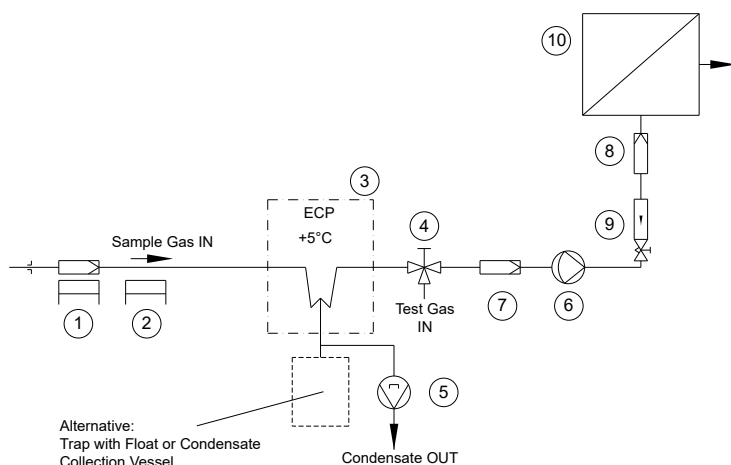
The condensate is discharged externally by means of a peristaltic pump, trap or collecting vessel. The practical design allows the installation of heat exchangers made of different materials depending on the application.

LEDs indicate the operating status as well as low and high temperatures. If the temperature deviates by  $\pm 3$  °C [ $\pm 5.4$  °F], an alarm function is triggered.

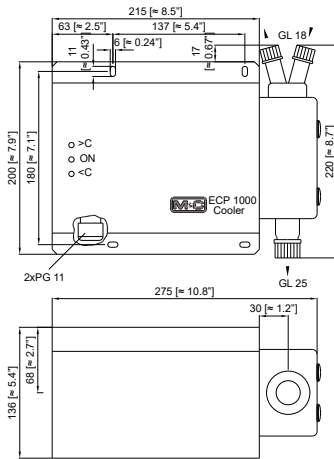
Due to the small and lightweight design as well as a very fast operational readiness, the Peltier gas coolers are particularly suitable for portable and compact stationary gas conditioning systems. The gas coolers are self-monitoring.

### Application example for ECP

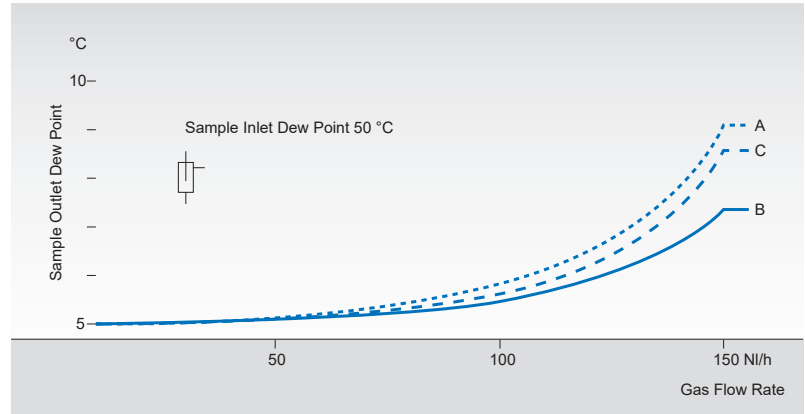
- 1 Heated filter sample probe SP210-H or SP2000-H
- 2 Heated sample line 4M4/6
- 3 Cooler ECP1000
- 4 3-way ball valve 3L/PV-1
- 5 Peristaltic pump SR25.2
- 6 Diaphragm pump MP47 or MP06/12 or N5KP
- 7 Fine filter FP-2T-D with liquid alarm LA1
- 8 Aerosol filter CLF-5/W optional according to application
- 9 Flow meter FM10 or FM40, 25-250 NI/h
- 10 Analyzers e.g. PMA1000



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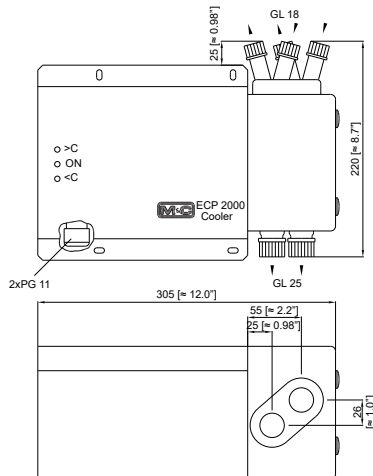


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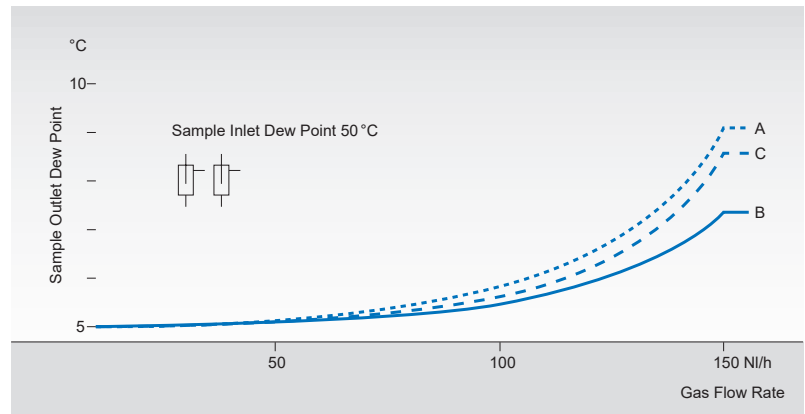


Gas cooler with	Part No.
A Heat exchanger out of glass	01K1000
B Heat exchanger out of SS 316Ti	01K2000
C Heat exchanger out of PVDF	01K3000

ECP 2000

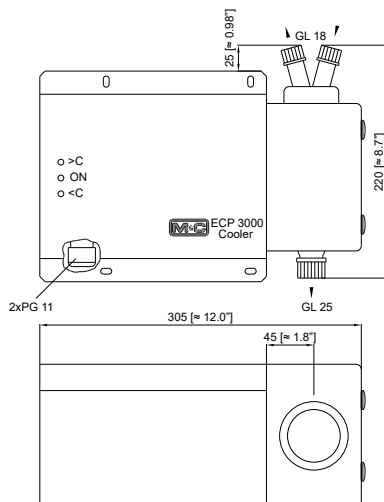


ECP 2000

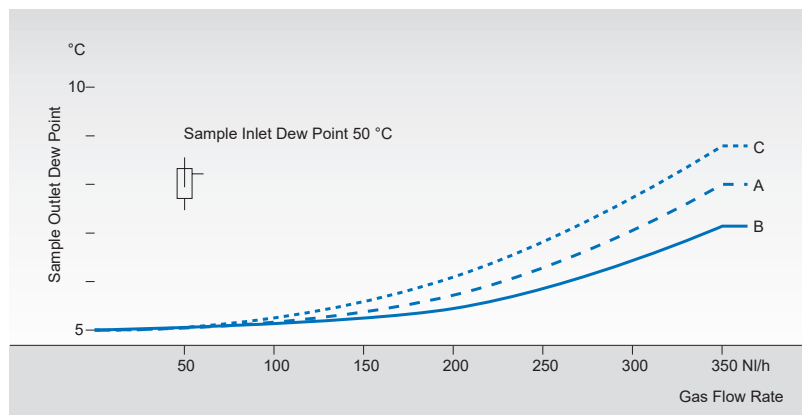


Gas cooler with	Part No.
A Heat exchanger out of glass	01K2100
B Heat exchanger out of SS 316Ti	01K2200
C Heat exchanger out of PVDF	01K2300

ECP 3000



ECP 3000



Gas cooler with	Part No.
A Heat exchanger out of glass	01K3100
B Heat exchanger out of SS316Ti	01K3200
C Heat exchanger out of PVDF	01K3300

Dimensions in mm (inches)

Gas Cooler Series EC*	ECP 1000	ECP 2000	ECP 3000
Part No. with Duran glass® heat exchanger	01K1000	01K2100	01K3100
Part No. with stainl. steel heat exchanger	01K2000	01K2200	01K3200
Part No. with PVDF heat exchanger	01K3000	01K2300	01K3300
Number of heat exchangers	1	2	1
Gas flow rate heat exchanger	Max. 150 NI/h** [2.5 LPM]**	2 x max. 150 NI/h** [2.5 LPM]**	Max. 350 NI/h** [5.8 LPM]**
Ambient temperature	+5 to +45 °C [41 °F to 113 °F], +50 °C* [122 °F]*	+5 to +50 °C [41 to 122 °F]	+5 to +50 °C [41 to 122 °F]
Storage temperature	-20 °C to +60 °C [-4 to 140 °F]		
Sample outlet dew point	Range of adjustment: +2 to +15 °C [35.6 to 59 °F], factory setting: +5 °C [41 °F]		
Dew point stability	±0.1 °C [±0.18 °F] at constant conditions		
Sample inlet temperature	Max. 180 °C [356 °F]**		
Sample inlet dew point	Max. 80 °C [176 °F]**		
Total cooling power at +25 °C [77 °F] ambient	50 kJ/h	90 kJ/h	90 kJ/h
Stagnant space heat exchanger	50 ml	2 x 50 ml	100 ml
Δ P per heat exchanger	1 mbar at 150 NI/h	1 mbar at 150 NI/h	5 mbar at 350 NI/h
Power consumption	115 VA	115 VA	115 VA
Main connection	230 V ±10 %, 50 Hz or 115 V ± 10 %, 60 Hz		
Ready for use	< 10 min.		
Electrical connection	Terminals 2.5 mm <sup>2</sup> , cable gland 2 x M16		
Status alarm: 2 changeover contacts	Contact rating: 250 V, 2 A, 500 VA, 50 W, alarm point: Δ T ±3 °C zu T <sub>SET</sub>		
Case protection	IP20; EN 60529		
Electrical standard	EN 61010		
Case colour	RAL 9005		
Method of mounting	Wall-mount		
Dimensions [W x H x D]	275 x 22 x 136 mm [≈ 10.8" x 8.7" x 5.4"]	305 x 220 x 136 mm [≈ 12.0" x 8.7" x 5.4"]	
Weight	5.5 kg [≈ 12.1 lbs]	7 kg [≈ 15.4 lbs]	7 kg [≈ 15.4 lbs]

\* Option

\*\* Maximum values in technical data must be rated in consideration of total cooling capacity at 25 °C [77 °F] ambient temperature and an outlet dew point of 5 °C [41 °F].

Material of heat exchanger	Duran glass®	PVDF	SS 316Ti
Admissible gas pressure, max - bar abs.	3 <sup>1)</sup> /2 <sup>2)</sup>	3/2 <sup>2)</sup>	10/2 <sup>2)</sup>
Sample gas connection	For tube ø 6 mm, 8 oder 10 mm*	G 1/4" i	G 1/4" i, NPT*
Condensate connection	For tube ø 12 mm 10 oder 8 mm*	G 3/8" i	G 3/8" i, NPT*

\* Option

1) With GL adapter

2) Max. 2 bar abs. with peristaltic pump SR25.1

For GL adapters and tube fittings to connect different tube diameters at the heat exchanger, see data sheets "Fittings for GL Glass Connections" and "Flexible and rigid tube fittings, plugs and connectors with barbed fitting".

Duran® is a brand name for borosilicate glass produced by the German company DURAN Group GmbH