
ECP1000-G

# Peltier Gas Cooler Series ECP®

Version ECP1000 with 1 x 150 Nl/h
Version ECP2000 with 2 x 150 Nl/h
Version ECP3000 with 1 x 350 Nl/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 ± 0.1 °C [± 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.

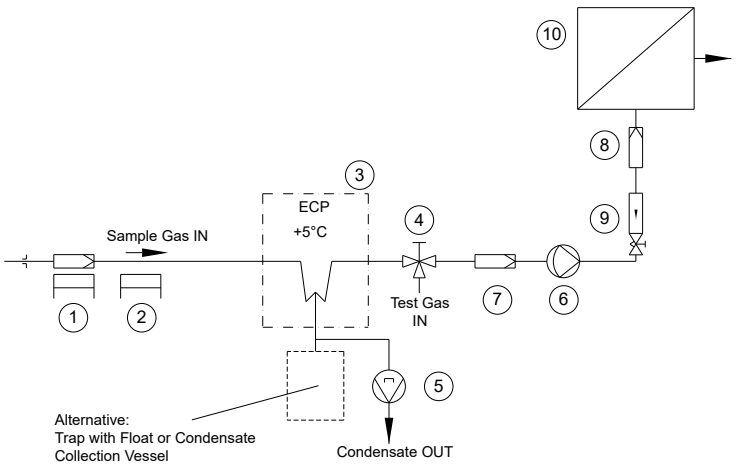
The condensate is discharged externally by means of a peristaltic pump, trap or collecting vessel. The practical design allows the installation of heat exchangers made of different materials depending on the application.

LEDs indicate the operating status as well as low and high temperatures. If the temperature deviates by ±3 °C [±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** Sample gas pump MPF
**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 Nl/h
**10** Analyzers e.g. PMA1000

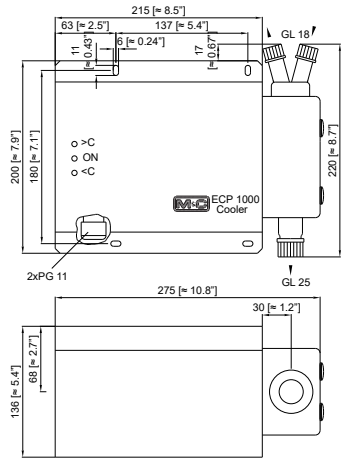




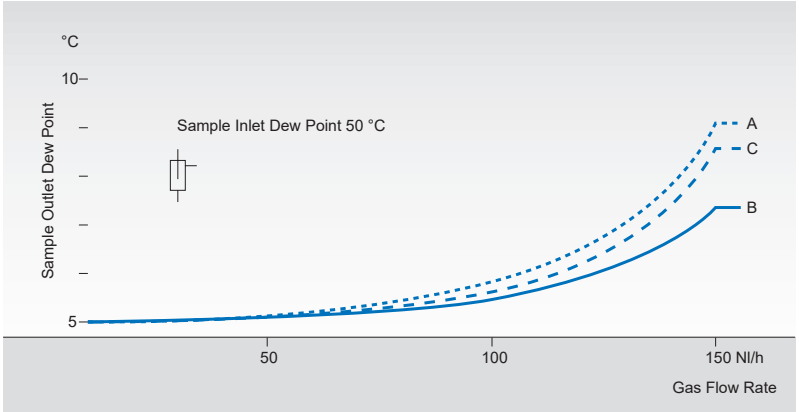

M&C TechGroup Germany GmbH • Rehhecke 79 • 40885 Ratingen • Germany
info@mc-techgroup.com • www.mc-techgroup.com • P. +49 2102 . 935 - 0

# Dimensions

## ECP1000

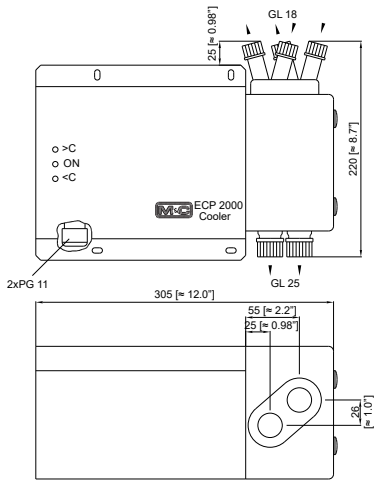



## ECP1000




| 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 |

## ECP2000

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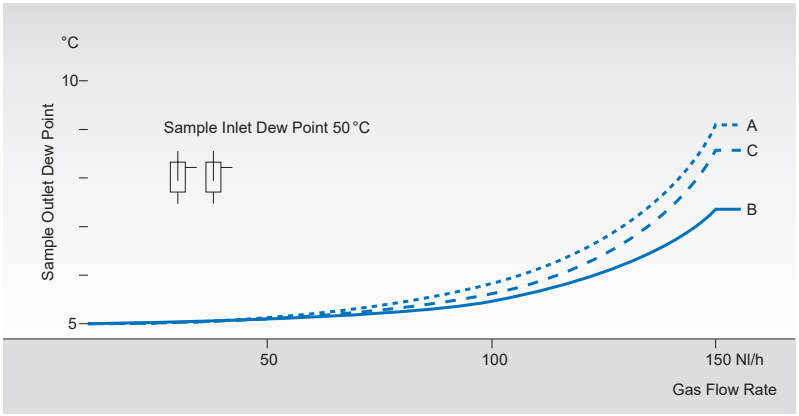
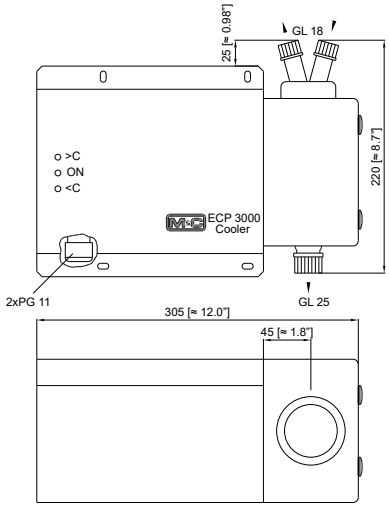
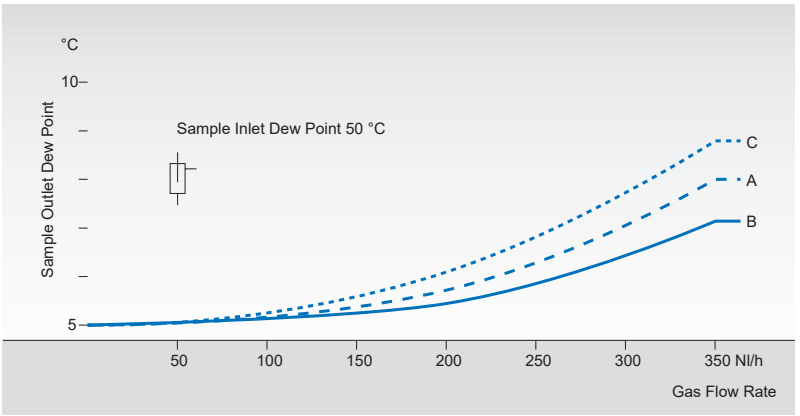



| Gas cooler with | Part No. |
|---|---|
| A Heat exchanger out of glass | 01K2100 |
| B Heat exchanger out of SS 316Ti | 01K2200 |
| C Heat exchanger out of PVDF | 01K2300 |

## ECP3000




## ECP3000




| 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]



M&C TechGroup Germany GmbH • Rehhecke 79 • 40885 Ratingen • Germany
info@mc-techgroup.com • www.mc-techgroup.com • P. +49 2102 . 935 - 0

## Technical Data

| Gas Cooler Series EC® | ECP1000 | ECP2000 | ECP3000 |
|---|---|---|---|
| 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 Nl/h** [2.5 LPM]** | 2 x max. 150 Nl/h** [2.5 LPM]** | Max. 350 Nl/h** [5.8 LPM]** |
| Ambient temperature | +5 to +45 °C [41 to 113 °F],<br>+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 Nl/h | 1 mbar at 150 Nl/h | 5 mbar at 350 Nl/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 mm², cable gland 2 x M 16 | | |
| Status alarm: 2 changeover contacts | Contact rating: 250 V, 2 A, 500 VA, 50 W, alarm point: Δ T ±3 °C zu $T_{SET}$ | | |
| 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<br>[≈ 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].
Please note: Nl/h and Nl/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.

| Material of heat exchanger | Duran glass® | PVDF | SS 316Ti |
|---|---|---|---|
| Admissible gas pressure, max - bar abs. | 3[1]/2[2] | 3/2[2] | 10/2[2] |
| Sample gas connection | For tube ø 6 mm,<br>8 oder 10 mm* | G 1/4" i | G 1/4" i, NPT* |
| Condensate connection | For tube ø 12 mm<br>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 SR25.2
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

## Air flow direction and minimum distance for installation