PSG Plus Cooler

MAK 20 Peltier

Application

The compact sample gas conditioning systems of the **MAK 20 Peltier** series are used for continuous extractive gas analysis. They are primarily used for precise, constant lowering of the sample gas dew point and thus for drying the humid sample gas flow. In this way, water vapour cross-sensitivities and volumetric errors are minimised and damage to the sensitive analyser is avoided.

Technology

The precise temperature control of the Peltier control in conjunction with the corrosion-resistant jet heat exchangers achieves low, extremely constant dew points. Load fluctuations and high thermal loads are also reliably equalized. The hydrophobic surface and the very short dwell time of the gas in the heat exchanger ensure the lowest possible gas solubility rates.

Functions

The electrical control of the **MAK 20 Peltier** monitors the cooling temperature and adjusts the cooling capacity of the individual Peltier elements to the current demand. The power-controlled fans dissipate the waste heat with the lowest possible noise level. The potential-free alarm contact enables remote monitoring of the device.

- ✔ Powerful Peltier cooler with four long-life Peltier elements
- ✔ Precise output dew point even with heavy load changes
- ✔ Corrosion-resistant PVDF heat exchanger
- ✔ optinoal
  High-performance stainless steel heat exchanger
- ✔ 1 - 2 replaceable jet heat exchangers
- ✔ Very compact design
- ✔ Wall mounting possible in 2 positions (back or right-side panel)
- ✔ Digital display for temperature & alarms
- ✔ Available with and without condensate pumps

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PSG Perfect Sample Gas

Technical Data

Model			
Typ		MAK20P-1	MAK20P-2
Number of Peltier elements		4	4
Number of jet heat exchangers		1	2
Number of gas paths		1	2 (1[2)])
Number of condensate pumps		1	2
Material of the gas paths			
Refrigeration transfer / memory		Aluminium	
Heat exchanger material		PVDF (optional stainless steel)	
Connections		PVDF (optional stainless steel)	
Operating			
Gas flow rate V_n[1)] at 60°C Tp	l/h	1 x 150	2x 125 oder 1 x 300[2)]
Gas temperature at the entrance	°C	max. 140	
Ambient temperature	°C	+5 to +50	
Pressure	bar	0,2 to 2,2	
Gas dew point at the outlet[1)]	°C	3,0 ± 0,1 under constant conditions (factory setting 3°C, adjustable via display)	
Dead volume per gas path	ml	27	
Operational readiness	min	< 15	
Cooling	KJ/h	max 468	
Design data			
Dimensions (B x H x T)	mm	320 x 280 x 143	
Weight	kg	10	
Housing		Wall mounting on back or right-side panel	
Connections		Gas: DN 4/6 / Condensate : DN 4/6 or DN 10/12	
Electrical data			
Mains connection		Power plug	
Digital display		Cooling temperature (actual & setpoint), operating status, alarm	
Alarm limits	°C	< +2.0 / > +10.0 (Adjustable on display)	
Enclosure protection type		IP 20 EN 60529	
Conformity		CE	
Supported voltages / frequencies		110 – 240 V AC at 47 ~ 63Hz	
Power consumption	W	170	
Alarm signal		Potential-free changeover contact	

[1)] at 25°C ambient temperature
Tp = inlet dew point
[2)] by connecting the two individual gas paths

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