PSG Basic Cooler

MAK BASIC

Application

The compact sample gas treatment systems of the **MAK BASIC** series are used for drying sample gases to exclude condensation in the analyzers. Stable dew points of less than 3°C even with highly fluctuating volume flows with different humidity contents. Volumetric errors or errors caused by H2O cross sensitivity of analysis methods are thus largely eliminated. The **MAK BASIC** series is also characterized by an optimized JET heat exchanger system in that the leaching of water-soluble gases such as SO2 is reduced to a minimum, which leads to a significant improvement in the analysis results.

Technology

The precise proportional temperature control in combination with the long-lasting hot gas bypass system and the innovative corrosion-resistant heat exchangers achieves low, extremely constant dew points. Load fluctuations and high thermal loads are also reliably compensated. The hydrophobic surface and the very short residence time of the gas in the heat exchanger ensure the lowest possible gas solubility rates.

Functions

An electronic system monitors the cooling temperature and provides a clear display on the unit. A potential-free alarm contact enables remote monitoring of the unit.

- ✔ Optimized jet stream heat exchanger principle
- ✔ Lowest leaching of measurement gases
- ✔ Powerful compressor cooler with 792 KJ / h cooling capacity
- ✔ The heat exchanger can be changed without opening the housing
- ✔ Gas flow 1 x 150 l / h, 2 x 150 l / h or 1 x 250 l / h (by connecting the heat exchangers in series)
- ✔ Long-lasting hot gas bypass system without switching the compressor
- ✔ Corrosion-resistant PVDF heat exchangers
- ✔ Compact design
- ✔ Digital display for temperature and alarms
- ✔ Potential-free contacts for operational monitoring/alarm

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AGT-PSG GmbH & Co.KG | Weißkirchener Str. 3 | D-61449 Steinbach
Phone +49 (0) 6171 9750-0 | Fax +49 (0) 6171 9750-30 | info@perfectsamplegas.de

PSG Perfect Sample Gas

Technical Data

Model			
Type		MAK Basic Mono	MAK Basic Duo
Article		MAK Basic-1101-4-00-F	MAK Basic-1202-4-00-F
Number of gas paths		1	2 (1)*
Number of condensate pumps		1	2
Material of the gas path			
Refrigeration transfer / memory		Aluminum insert / copper pipe	
Cooling surface		PVDF	
Enclosures / seals		PVDF / Viton	
Operating			
Gas flow rate Vn[1)] at 60°C Tp	l/h	1 x 150	2 x 150 (1 x 250)*
Gas temperature at the entrance	°C	max. 140	
Ambient temperature	°C	+5 bis +50	
Pressure	bar	0,2 bis 2,2	
Gas dew point at the outlet[1)]	°C	3,0 ± 0,3 under constant conditions	
Dead volume per gas path	ml	27	
Operational readiness	min	< 5	< 10
Cooling	KJ/h	792	
Design data			
Dimensions (W x H x D)	mm	322 x 268 x 351	
Weight without options	kg	19	19,5
Housing		Only Wall Montage / RAL 9003	
Connections		Gas: PVDF DN 4/6 / Condensate: PVDF DN 4/6	
Electrical data			
Power supply		Power Cord	
Digital display		Temperature (Outlet-Dewpoint), Operating Status, Alarm	
Alarm limits	°C	< +2.0 / > +10.0	
Enclosure protection type		IP 20 EN 60529 / EN 61010	
Conformity		CE	
Power supply		230V 50/60Hz oder 115V 50/60Hz	
Power consumption	W	190 - 220	

[1)] at 25°C ambient temperature
[*)] by connecting two heat exchangers in row, a higher gas flow is made possible
Tp = input dew point

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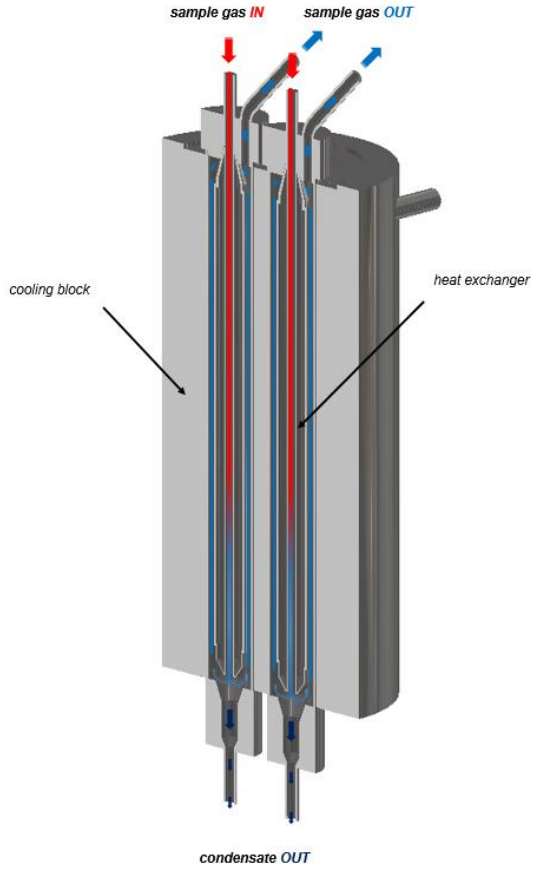
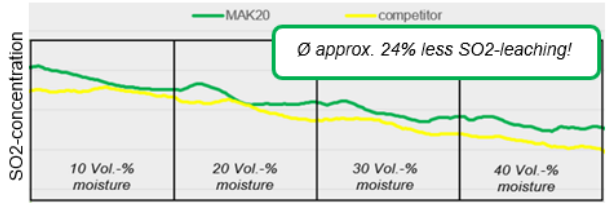
MAK BASIC Heat Exchanger – System





moisture content of the measuring gas

More efficiency, no energy losses, even at high ambient temperature

- Refrigeration transmission by copper and aluminum
- Proven jet-stream operating principle
- Compact design
- Optimal shielding against the environment

High and constant drying rate even in extreme load fluctuation

- Hydrophobic surface
- Consistent use of gravity
- Immediate dissipation of the condensate from the gas stream

Exceptionally low gas solubility rates enable accurate analysis

- Very low dead volume
- Extremely short residence time of the gas in the system
- Reduced reaction time of the gas to the condensate

Reliability and long-term stability reduce maintenance and costs

- Alternating heat exchanger
- Very good chemical resistance
- No abrasive wear
- Self-cleaning effect, no contamination
- Maintenance-free system
- Proven and safe technology
- Monitored quality

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