

Sample Gas Analyzers | Sample Gas Conditioners | Peristaltic Pumps | Pre-Separators | Moisture Sensors
Refrigeration Gas Dryers | Refrigeration Air Dryers | Compressed Air Filters | Compressed Air Separators

SAMPLE GAS CONDITIONING

MAK 10-1 Peltier / MAK 10-1 Compressor

GENERAL

MAK10 sample gas coolers offers precision, safety and longterm-stability for extractive analytics. It is designed to lower the sample dew-point and separate water vapour from humid sample streams in gas analysis systems. A typical application is to provide a conditioned sample gas prior to gas analysis by moisture intolerant analysis equipment.

MAK10 PELTIER

The cooling is done using so-called all-electric Peltier elements. Peltier elements are electrothermal transducers that generate temperature differences when current flows through. This is used for the cooling of the gas.

MAK10 COMPRESSOR

The cooling is done via a traditional refrigerant circuit consisting of compressor, condenser and evaporator. The evaporation of the refrigerant generates cooling that is used to cool down the gas.

HEAT-EXCHANGER TECHNOLOGIE

The innovative heat exchanger system with its hydrophobic, PTFE-coated cooling surface ensures a constant drying rate even in case of extreme load variations. Small dead space and short response time of gas to liquid realize lowest possible gas solubility rates.

FEATURES

The digital control unit with its fail-safe alarm function monitors dew-point and ambient temperature and informs before a system shut down takes place. With optional components you can upgrade MAK10 sample gas coolers to complete sample gas conditioning systems. The flexible, modular design ensures an optimal integration into all analysis systems.



TECHNICAL DATA

Modell				
Technology	PELTIER		COMPRESSOR	
Type	MAK10P-1	MAK10P-1 PS1	MAK10-1	MAK10-1 PS1
Number of gas paths	1			
Number of condensate pumps	1	2	1	2
Number of pre-separators	1		1	
Options	Pre-separator, Filter, Flowmeter, Moisture sensor, Sample gas pump			
Operation data				
Gas flow per gas path at 65°tp	100NI/h 1.7lpm	115NI/h 1.9lpm	125NI/h 2.0lpm	150NI/h 2.5lpm
Gas flow per gas path at 55°tp	140NI/h 2.3lpm	160NI/h 2.7lpm	175NI/h 2.9lpm	200NI/h 3.3lpm
Gas temperature at inlet	max. 140°C			
Ambient temperature	5-40°C		5-45°C	
Operating pressure (abs.)	0.5-2.2bar			
Gas dew-point at outlet	3.0°C +/-0.3°C			
Pressure loss per gas path	5mbar (V=100NI/h)			
Dead space per gath path	26 ml			
Ready for start-up	< 15min		< 5min	
Cooling capacity	Peltier-elements: 2 x 34,5W		220W	
Material of gas paths				
Cooling transfer tube	Aluminium			
Cooling surface	PTFE-Coating			
Housing / Sealings	PVDF / Viton			
Design data				
Dimensions (BxHxT)	310mm x 266mm x 321mm			
Weight without options	9,5kg	10,0kg	16,0kg	16,5kg
Housing	wall-mounting (19" rack and mobile optional) / RAL 7035			
Connections	Gas: PVDF DN 4/6 / Condensate: PVDF DN 4/6			
Approvals	CE		CE, C/US	
Electrical data				
Mains connection	Plug			
Communication	Potential-free alarm-contact			
Alarm set points	< +2.0°C / > +10.0°C			
Housing protection class	IP 20 EN 60529 / EN 61010			
Power supply	230V 50/60Hz +/-15% / 115V 50/50Hz +/-10%			
Power consumption	180W		195W	

Subject to change without notice / Last update: 05.06.2014