

# PSG Plus Cooler

## MAK Mobile

### Application

The compact powerful and low maintenance sample gas conditioning system **MAK Mobile** is used for continuous extractive gas analysis at changing locations. It serves primarily for exact constant lowering of the sample gas dew point and thus for drying of the humid sample gas flow. In this way water vapour cross sensitivities and volumetric errors are minimized and damages of the sensible analyzer are avoided. Integrated filter, condensate pump and sample gas pump ensure residual dust and condensate removal as well as supply of the analyzer with sample gas.

### Technology

The precise microprocessor-controlled temperature regulation of the Peltier cooler within the **MAK Mobile** in combination with the innovative corrosion resistant PFA-coated heat exchangers achieves a low highly constant dew point. The hydrophobic corrosion resistant PFA-coating and the very short retention time of the sample gas in the heat exchanger ensure lowest possible gas dissolution ratios.

### Functions

All components of the **MAK Mobile** are integrated in an extremely robust transport case which can be operated in closed condition and therefore weather protected. The heated line is inserted lateral in the case and directly connected at the temperature resistant robust stainless-steel connector and the 7-pole plug. At the integrated temperature controllers dew point temperature and temperature of the heated line can be adjusted quick and simple. Through the inspection window in the case lid temperature controller and up to three flow meters are readable at any time. With optional integrable components like flow meters, liquid alarm sensor, acid dosage and temperature controller for the heated line the portable sample gas conditioning system **MAK Mobile** can be equipped as needed.



- ✓ Powerful Peltier cooler for max. 250NI/hr
- ✓ Constant adjustable outlet dew point
- ✓ Integrated condensate pump, sample gas pump and PTFE fine filter
- ✓ Corrosion resistant heat exchanger with PFA-coating
- ✓ Compact design, low weight
- ✓ Extremely robust transport case
- ✓ Fast operational readiness < 10 min.
- ✓ Up to 3 flowmeter, a temperature controller, acid dosage and liquid alarm integrable as option
- ✓ Tubing in PTFE and PVDF
- ✓ Quick and simple maintenance

## Technical Data

MAK Mobile		
Model		<b>MAK Mobile</b>
Part number		92100640
Max. gas flow $V_n^{1)}$	l/h	250
Outlet dew point	°C	adjustable +1 to +15 / factory setting +4 / alarm limits $\pm 4$
Dew point stability	°C	$\pm 0,1$
Max. operating pressure	bar abs.	3
Max. sample gas temperature	°C	190
Ambient temperature	°C	+5 to +45
Storage temperature	°C	-25 to +65
Betriebsbereitschaft	min	< 10
Filter porosity	$\mu\text{m}$	2
Connection sample gas inlet	mm	stainless steel fitting DN4/6
Connection sample gas outlet (max. 3)	mm	PVDF-fitting DN4/6
Materials of gas wetted parts		PFA, PTFE, PVDF, glass, PPS, FPPM, SS316
Design data		
Dimensions (W x H x D)	mm	468 x 355 x 193
Weight	kg	approx. 12
Housing / colour		heavy duty ABS-case / grey
Electrical data		
Voltage	VAC	230 50 Hz (115 60Hz optional)
Total cooling capacity	kJ/h	max. 245 (2 Peltier-elements)
Power consumption	W	100
Electrical connection		1,5m cable with device plug
Electrical connection heated line (option)		7-pole socket
Max. switching capacity f. heated line (Option)	A	10
Electrical case protection	A	2 (standard) resp. 10 for option temperature controller for heated line
Alarm contact		switching off sample gas pump at excess / low temperature and liquid alarm
Electrical equipment standard		EN61010

<sup>1)</sup> in consideration of the total cooling capacity at 25°C ambient temperature

## Additional Options

Option	Part number
Voltage 115V/60Hz instead of 230V 50Hz	92100645
Integrated flowmeter with needle valve FM60, 6-60NI/h	92100646
Integrated flowmeter with needle valve FM150, 15-150NI/hr	92100647
Integrated flowmeter with needle valve FM250, 25-250NI/hr	92100648
Integrated flowmeter with needle valve FM500, 50-500NI/hr	92100649
Liquid alarm with sensor integrated in the filter to switch off sample pump at liquid	92100650
Integrated from outside visible temperature regulator for heated line with 7-pole connection for max. 10A switching capacity	92100651
Additional sample gas outlet without flowmeter	92100652
Sample gas outlet made of SS316 instead of PVDF	92100653
Acid dosage upstream heat exchanger inlet with integrated SR25 for minimization of wash out effects	92100644

## Options

