

9 Appendices

9.1 Gas cooler technical data

Gas Cooler Technical Data

Rated cooling power (at 5 °C gas outlet dew point):	50 kJ/h (40 °C version) or 55 kJ/h (50 °C version)
Ready for operation:	after max. 10 minutes
Ambient temperature:	5 °C to 55 °C
Gas outlet dew point, preset:	5 °C
Dew point fluctuations	
static:	± 0.1 K
in the entire specification range:	± 1.5 K
IP rating:	IP 20
Housing:	Stainless steel, brushed
Packaging dimensions:	approx. 235 x 225 x 280 mm (without add-on filter)
Weight incl. heat exchanger:	approx. 3.5 kg
Power supply:	24 V DC
24 V output:	max. 1 A
Power input:	max. 70 W (plus max. 25 W at 24 V output)
Status output switching capacity:	30 V AC / 60 V DC, 1 A
Electrical connections:	3-pole terminal block for moisture detector
<i>Standard applications</i>	2x 5-pole terminal block for power supply, status, and options

9.2 Technical Data - Options

A moisture detector may be connected to the control. The moisture detector can be mounted to the cooler using a block or by installing it into the optional filter.

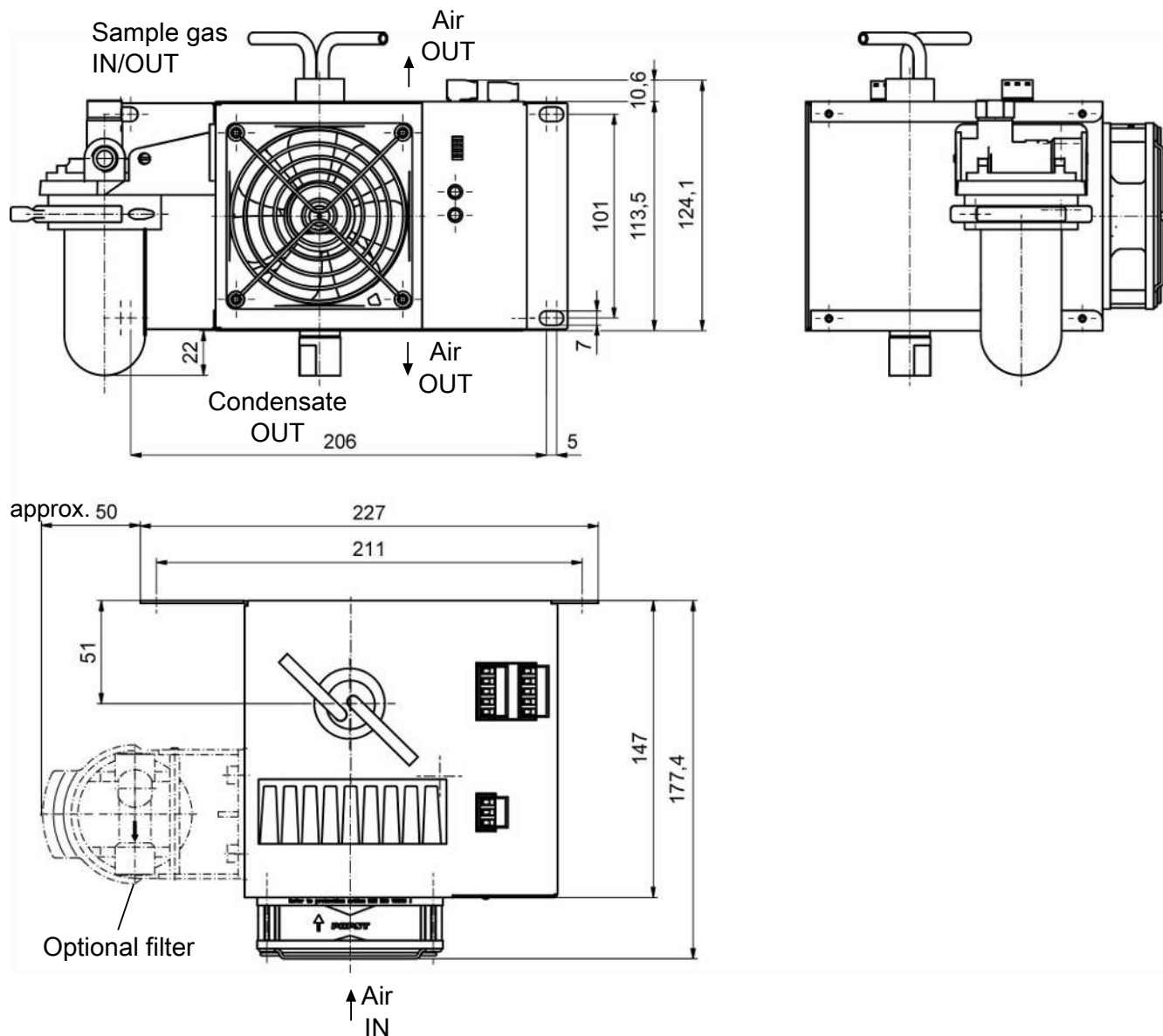
Technical Data FF-3-N Moisture Detector

Ambient temperature:	3 °C to 50 °C
max. operating pressure with FF-3-N:	2 bar
Weight:	0.04 kg (incl. cable)
Material:	PVDF, PTFE, epoxy resin, stainless steel 1.4571, 1.4576

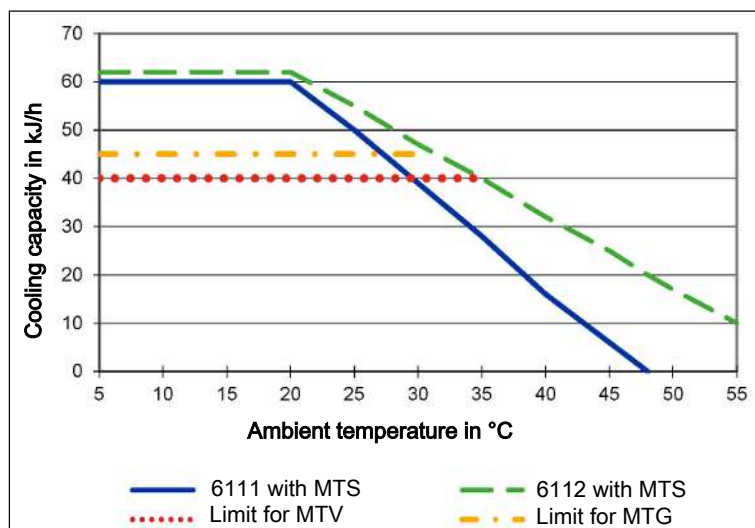
AGF-PV-30-F2 Filter Technical Data

Ambient temperature:	3 °C to 100 °C
max. operating pressure with filter:	4 bar
Weight:	0.24 kg
Filter surface:	60 cm ²
Filter fineness:	2 µm
Dead volume:	57 ml
Materials	
Filter:	PVDF, DURAN glass (parts in contact with media)
Seal:	FKM (Viton)
Filter element:	sintered PTFE

9.3 Dimensions (mm)



9.4 Performance data



A selected outlet dew point of 10 or 15 °C shifts the curves 5 or 10 °C to the right.

The MTV and MTG limits apply to a normal operating point of $t_e = 40$ °C and $\vartheta_G = 70$ °C.

9.5 Heat exchanger

9.5.1 Heat exchanger description

The energy content of the sample gas and the required cooling capacity of the gas cooler is determined by three parameters: gas temperature ϑ_G , dew point τ_e (moisture content) and volume flow v . The outlet dew point rises with increasing energy content of the gas. The following limits for the maximum flow are specified for a standard operating point of $\tau_e = 40^\circ\text{C}$ and $\vartheta_G = 70^\circ\text{C}$. The maximum flow $v_{\max}$ in NI/h of cooled air indicated, so after moisture has condensed. Values may differ for other dew points and gas inlet temperatures. However, the physical facts are so vast we decided to omit the illustration. Please contact our experts for clarification or refer to our calculation programme.

9.5.2 Heat exchanger overview

Heat exchanger	MTS ³⁾ MTS-I ^{2) 3)}	MTG ³⁾ MTG ³⁾	MTV ³⁾ MTV-I ^{2) 3)}
Materials in contact with media	Stainless steel PVDF	Glass PTFE	PVDF
Flow rate $v_{\max}$ ¹⁾	300 NI/h	210 NI/h	190 NI/h
Inlet dew point $\tau_{e\max}$ ¹⁾	65°C	65°C	65°C
Gas inlet temperature $\vartheta_{G,\max}$ ¹⁾	140°C	140°C	140°C
Max. Cooling capacity $Q_{\max}$	95 kJ/h	80 kJ/h	65 kJ/h
Gas pressure $p_{\max}$	25 bar	3 bar	2 bar
Pressure drop Δp ($v = 150 \text{ L/h}$)	20 mbar	19 mbar	18 mbar
Dead volume V_{tot}	19 ml	18 ml	17 ml
Gas connections (metric)	6 mm tube	GL14 (6 mm) ⁴⁾	DN 4/6
Gas connections (US)	1/4" tube	GL14 (1/4") ⁴⁾	1/4"-1/6"
Condensate out connections (metric)	G1/4	GL18 (8 mm) ⁴⁾	G1/4
Condensate out connections (US)	NPT 1/4"	GL18 (8 mm) ⁴⁾	NPT 1/4"

¹⁾ Max. cooling capacity of the cooler must be considered.

²⁾ Models marked I have NPT threads or US tubes, respectively.

³⁾ Passive discharge via automatic condensate drains or traps not applicable for MTG heat exchanger. For passive discharge on the MTS and MTV heat exchangers, use a screw connection with a clearance of at least 7 mm (see accessories).

⁴⁾ Gasket inside diameter