

# Measuring and testing instrument

# TT-1'000

Comparison measurement unit for temperature control units

Simple and reliable checking of temperature, pressure and flow rate

## Operating principle

The measuring and testing instrument TT-1'000 has been designed for a reliable examination of temperature control units. It allows to check the temperature controller and all kind of temperature probe without removing these components out of the temperature control unit. The measuring instrument works within the temperature range of -20°C up to +360°C.

The controller - adjusted with a calibrator - guarantees a precision of +/- 0.5°C.

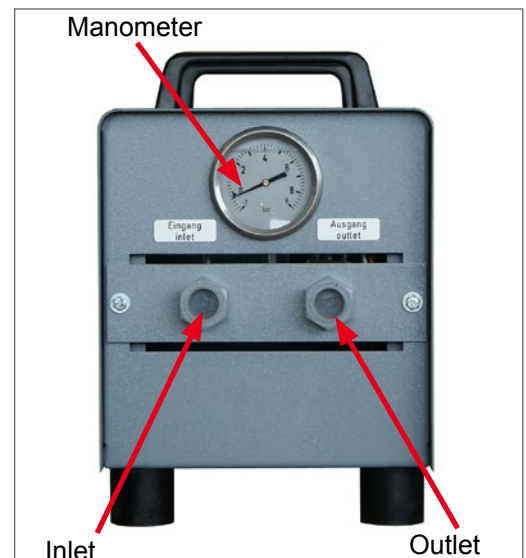
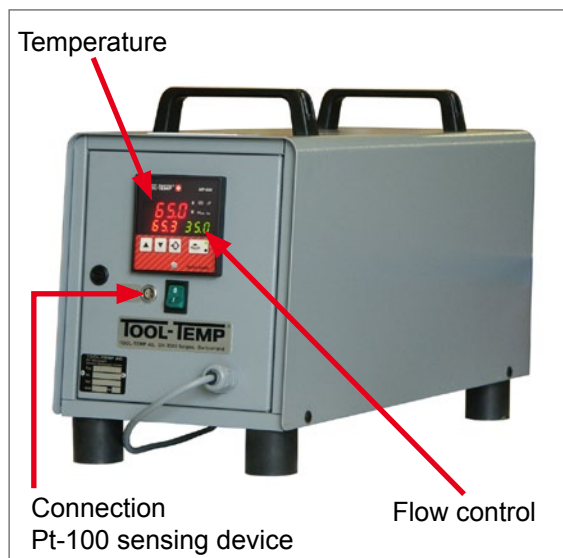
The pressure measurement is made thanks to a precision manometer which shows values in the pressure range as well as in the vacuum range. The integrated flow control displays the effective flow rate by several pressures and temperatures. With this information, the function and state of the pump can be easily checked.

To record the measurements, an additional precision sensing device Pt-100 or a 0-10 V output of the controller for an actual value indication are available. To protocol the temperature measurements, it is possible to connect a writer device to one of these two outputs.

It is possible to check all temperature control units which have connections from  $\frac{3}{8}$ " up to  $\frac{3}{4}$ ". Water, pressurised water, heat transfer oil or synthetic heat transfer liquid can be used as circulating medium with the measuring instrument.

## Domain of use:

The main domain of use of the measuring instrument is the precision check in the sense of a function check (ISO - 9000). In addition, the measuring and testing instrument is a reliable help to check whether a repair on a temperature control unit has been done correctly.

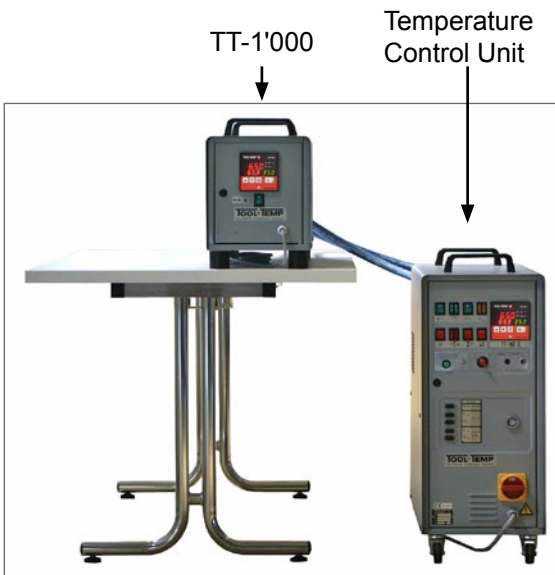


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## Technical data

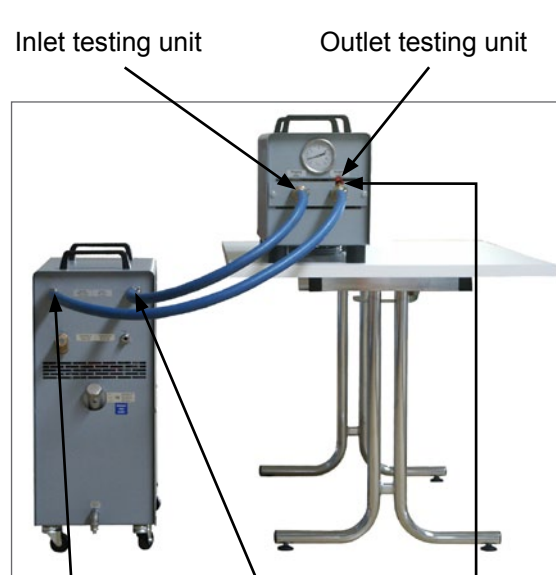
<b>Operational use</b>	for temperature control units with $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ "-connections	
<b>Connections</b>	$\frac{3}{4}$ " BSP female thread (inside diameter 19 mm)	
<b>Temperature range</b>	-20°C up to +360°C	
<b>Pressure indication</b>	-1 bar up to +9 bar	
<b>Flow range</b>	5 up to 80 l/min if required: 1,5 up to 35 l/min also possible	
<b>Medium</b>	water, pressurised water, heat transfer oil or synthetic heat transfer liquid	
<b>Precision</b>		
<i>Temperature</i>	+/- 0,5°C, respectively according to provided test report	
<i>Pressure</i>	accuracy class 1	
<i>Flow control</i>	4 - 10 l/min	+/- 1,5 l/min
	10 - 30 l/min	+/- 1,0 l/min
	30 - 70 l/min	+/- 1,5 l/min
<b>Output</b>	separate Pt-100 for the connection of a temperature recorder or 0-10 V as output of the temperature indication	
<b>Electrical connection</b>	230 V, 50/60 Hz - standard 110 - 120 V, 50/60 Hz - on requirement	
<b>Dimensions (LxWxH)</b>	580 x 255 x 370 mm	
<b>Weight</b>	approx. 22 kg	
<b>Colour</b>	silvergrey RAL 7001	

**Front view**



Example, how to test a temperature control unit.

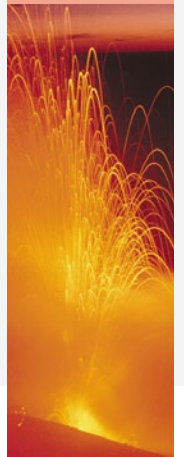
**Rear view**



From mould temperature control unit      To mould temperature control unit

For pressure measuring, mount a stop valve at the outlet of the testing unit

Connecting hoses and stop valves are excluded from scope delivery.



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