

Transparent thermostats – CT series

High temperature constancy and visual observation

Transparent thermostats manufactured by SCHOTT Instruments have been specially designed to measure the viscosity of Newtonian liquids in capillary viscometers. They can be used for both manual measurements and, when used in connection with viscosity measuring equipment, for automatic measurements. The most important characteristics of the transparent thermostats are their ability to maintain a constant temperature and capability of visual observation of the flow of the fluid in the viscometer.

The transparent thermostats of the series CT 53 and CT 54 are suitable for viscosity measurements in compliance with DIN 51 562 (Part 1) and ASTM D 445. They are comprised of a stainless steel bath with insulating glass, a coated steel casing and a bath thermostat. In addition, the CT 54 has an integrated discharge outlet on one side to drain the bath. An RS-232-C interface enables it to be connected to a PC.



The viscosity of Newtonian liquids is extremely dependent on temperature. Depending on the measurement medium, a deviation of 0.5 to 2% can be expected for a temperature deviation of 0.1 K. For this reason, the significant influence of temperature on the viscosity of a fluid must be taken into consideration when selecting a thermostat. All SCHOTT Instruments thermostats have the possible temperature stability of 0.01 K (see Technical Specifications) under optimum ambient conditions.

CT 52

The transparent thermostat CT 52 is made of acrylic glass and it is able to take up to two automatic measurement positions or brackets for manual measurements. Due to its design its ability to keep the temperature constant is not quite as great and it can only be used up to temperatures of +60 °C. If temperature constancy is not a top priority, the CT 52 is a cost-effective alternative.

CT 52



CT 53

This thermostat is for use with temperatures between +5 °C and +102 °C. Between +5 °C and +50 °C cooling is recommended to maintain the temperature constancy. Either a flowthrough cooler (e.g. CK 300, see Accessories) or simple cooling with circulated water can be used.

CT 53 HT

The high temperature version of the thermostats is used to measure viscosity at temperatures above +80 °C (see Technical specification).

2 or 4 measuring points

All CT 53 models enable the user to position 2 measurement stands or brackets into the thermostats. Up to 4 micro-TC viscometers can be positioned in the thermostats using the special VZ 7191 holder.

CT 53 TT

These thermostats have been specifically designed for use at temperatures well below room temperature. Viscosity measurements can be measured between -40 °C and +102 °C. For measurements under +5 °C, a cryostat is necessary to reach the low temperatures.

CT 53

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CT 54

The main technical features of this thermostat are identical to those of the CT53. The main differences are the number of measuring positions (the number doubles) and the additional discharge outlet to drain the bath. Up to 8 micro-TC-viscometers can be positioned in the thermostats if 2 special VZ 7191 holders are used.



Recommended temperature equalization fluids

Fluid	Alcohol	Water	Paraffin oil	Silicon oil
Temperature range	-40 °C ...+10 °C	+5 °C ...+ 80 °C	+40 °C ...+150 °C	+80 °C ...+150 °C

The following applies to all temperature equalization fluids:

The viscosity of the temperature equalization fluid should be a max. 10 mm²/s (cSt) at 25 °C.

Technical specifications	CT 52	CT 53 TT**	CT 53	CT 53 HT	CT 54
Operating temperature	+10 ...+60 °C	-40 ...+102 °C	+5 ...+102 °C	+5 ...+150 °C	+5 ...+102 °C
Measurement points for AVS/S	2	2	2	2	4
Measurement points for TC	2	2	2	2	4
Measurement points Micro-TC	2	4*	4*	4*	8*
Temperature constancy in compliance with DIN 58 966 at 25 °C	± 0.02 K	± 0.01 K	± 0.01 K	± 0.01 K	± 0.01 K
Dimensions (W x H x D in mm)	355 x 370 x 250	355 x 370 x 250	355 x 370 x 250	355 x 370 x 250	605 x 370 x 250
Volume	18 l	15 l	15 l	15 l	27 l
Weight (empty)	approx. 5 kg	approx. 13.5 kg	approx. 13.5 kg	approx. 13.7 kg	approx. 28 kg

When using in the normal temperature range it is necessary to cool the system (+5 °C to approx. +50 °C) to maintain the temperature constancy. This can be achieved either by using circulated water or a flow-through cooler (e.g. CK300).

* When using with 4 or 8 micro-TC-viscometers, a special holder (Type: VZ 7191) is required for two of the existing measurement positions.

** When using at very low temperatures (well below room temperature) a cryostat is required. Cryostats can be included in delivery (at the list price of the manufacturer).

Accessories



Flow-through cooler CK300

The fluor-hydro-carbon gas free flow-through cooler serves to mechanically cool the bathfluid and is filled with environment compatible coolant R 134a. It works at ambient temperatures between +5 and +50 °C. Refrigeration power is 300 W at 20 °C. The CK300 is very compact (200 x 430 x 300 mm, W x H x D) and very stable (approx. 25 kg).

The flow-through cooler is available for all standard international voltage and frequency ranges (230 V, 50 Hz; 115 V, 60 Hz). Other voltage and frequency combinations are only available upon request as special productions.



AVS Measurement stands

For the use of capillary viscometers for opto-electronic measurement recording.

Type no.: AVS/S	Metal measurement stand, preferably for non-aqueous bath fluids	For use with temp. range: -80 ...+80 °C
Type no.: AVS/SK	PVDF measurement stand, corrosion free, suitable for both aqueous and non-aqueous bath fluids	For use with temp. range: 0 ...+80 °C
Type no.: AVS/SK-CF	PVDF measurement stand specially for use of Cannon-Fenske-Routine viscometers	For use with temp. range: 0 ...+80 °C
Type no.: AVS/SK-V	PVDF measurement stand specially for the use of dilution viscometers	For use with temp. range: 0 ...+80 °C
Dimensions	90 x 90 x 460 mm (W x D x H)	
Weight	approx. 1.1 kg	

We reserve the right to make technical changes.

CK300