



**COOLING CONSTANT TEMPERATURE
BATHS "CRIO-VIS-T-01",
"CRIO-VIS-T-02", "CRIO-VIS-T-03"**

Operating manual

! *Before using this instrument, carefully read the operating manual.*

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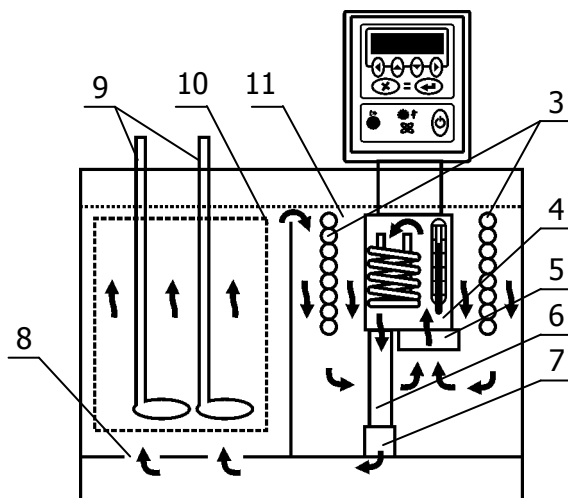
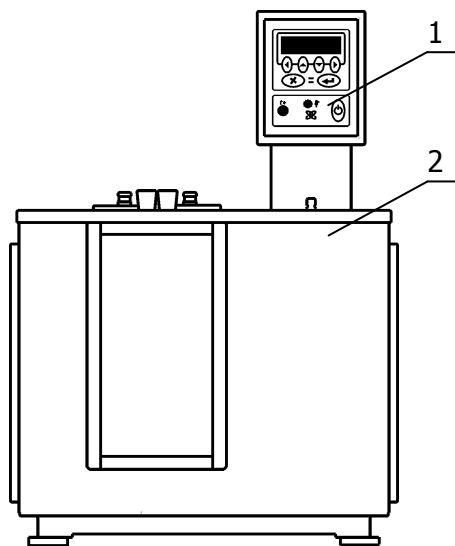
This manual provides the information needed to operate cooling constant temperature baths "CRIO-VIS-T-01", "CRIO-VIS-T-02" and "CRIO-VIS-T-03". Baths differ in the range of working temperature.

INTRODUCTION

Intended use

Cooling constant temperature baths "CRIO-VIS-T-01", "CRIO-VIS-T-02" and "CRIO-VIS-T-03" with insulating anti-fog double-pane glass window are intended for standard viscosity test of liquids by means of glass capillary viscometers according to ASTM D445, IP 71, ISO 3104 or DIN 51366.

Appearance and parts names



Cooling constant temperature baths consist of heating immersion circulator 1 and bath tank 2. The bath tank contains main 11 and operating 10 baths; and a refrigerating machine. The main bath includes heating immersion circulator and coil 3 which pumps coolant while operating the refrigerating machine.

The operating principle of the baths is based on supporting a preset constant temperature of flowing thermal fluid in the bath tank and providing a good temperature uniformity of the operating bath. The circulation of the thermal fluid is provided by rotary pump 5, located in the heating immersion circulator.

Maintaining of the preset temperature by means of heating is provided by immersion circulator 1.

The refrigerating machine provides the cooling of the thermal fluid by means of coil 3, located in the main bath.

Pump 5 of immersion circulator pours thermal fluid from main bath 11 to chamber 4 with heater and temperature sensor. In the chamber thermal fluid temperature is adjusted and poured into operating bath 10 through output pipe 6, connected to socket 7 and splitter 8. Then thermal fluid returns to main bath 11 by overflowing.

Viscometers 9 should be installed in the operating bath.

Environmental Conditions

Indoor use only.

Ambient temperature: +10...+35 °C.

Air humidity: max. relative humidity 80 % for temperatures up to +31 °C,

Max. mains fluctuation of ± 10 % are permissible.

Safety Recommendations

Avoid strikes to the housing, vibrations, damage to the operating element panel (keypad, display), and contamination.

Do not store the instrument in aggressive atmosphere.

Protect the instrument from contamination.

Only qualified personnel are authorized to perform configuration, installation, maintenance and repairs of the circulator.

Routine operation can also be carried out by untrained personnel who should however be instructed by trained personnel.

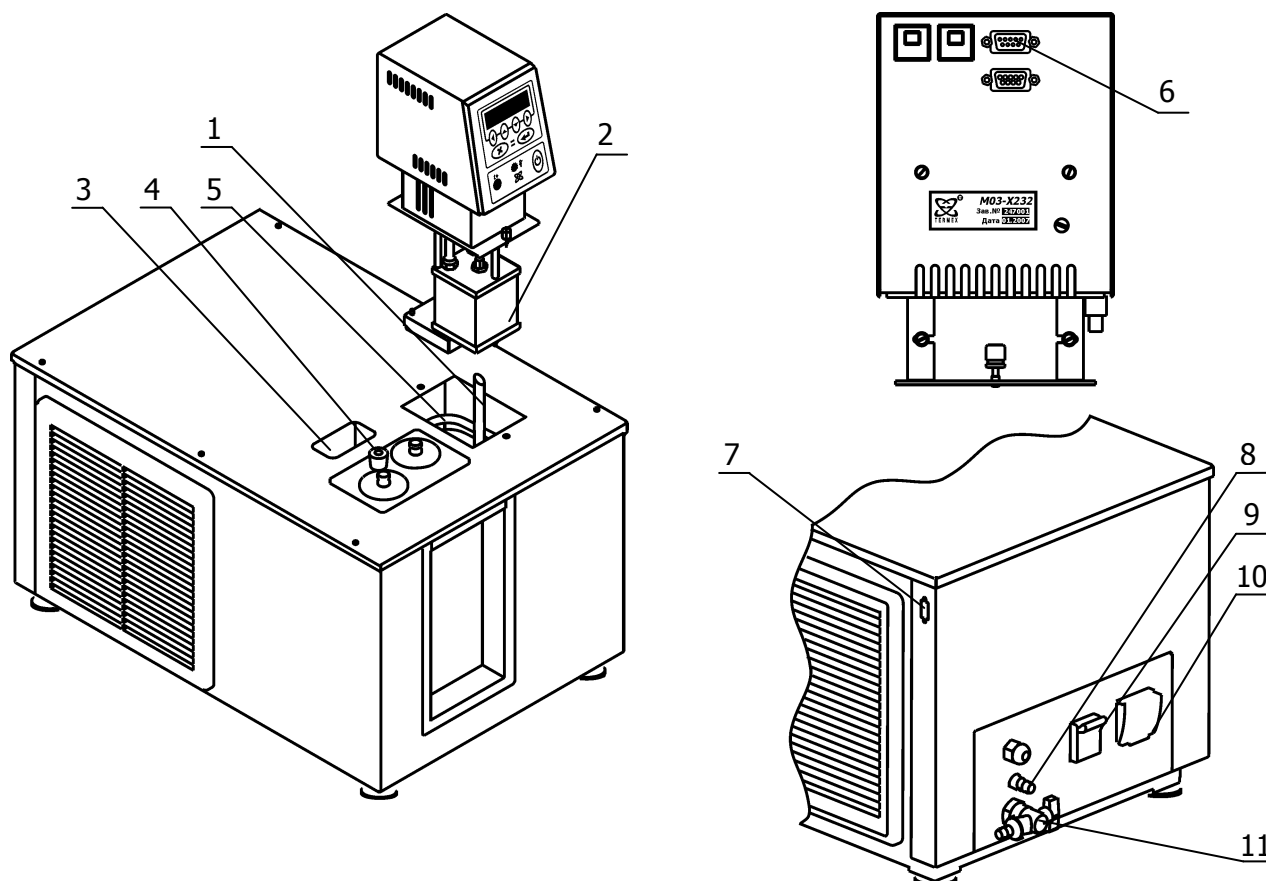
! *CAUTION: The instrument is not for use in explosive atmosphere.*

USING THE COOLING CONSTANT TEMPERATURE BATHS

! *NOTE: Throughout this manual, keystrokes are represented in **bold type**; references to messages on the display are in "quotes."*

Before using the bath, carefully read the operating manual.

Preparation



Carefully select a spot for installing instrument with free air access for circulator and refrigerating machine ventilation. Make sure it is far away from any kind of heat source.

Place the instrument on an even surface with a pad, made of nonflammable material.

Insert output pipe 1, with its taper end up, into the corresponding socket in the bottom of the bath tank. Place chamber 2 of the immersion circulator on top of pipe 1, negotiating coil 5 loops. Submerge the circulator in the bath tank up to the stop and secure it with screws on the bath cover. Connect the circulator (connector 6) and refrigerating machine (connector 7) by means of the cable from our delivery package. Attach draining hose to socket 8 and place it in the tank of at least 1.5 L in volume to collect the excess of thermal fluid.

Fill the baths up with thermal fluid using one of the holes on the bath cover. Keep adding thermal fluid before it starts to drip from socket 8.

Connect the circulator cable in plug 10, located on the back panel of the bath tank. Connect the instrument to the power supply (220 V).

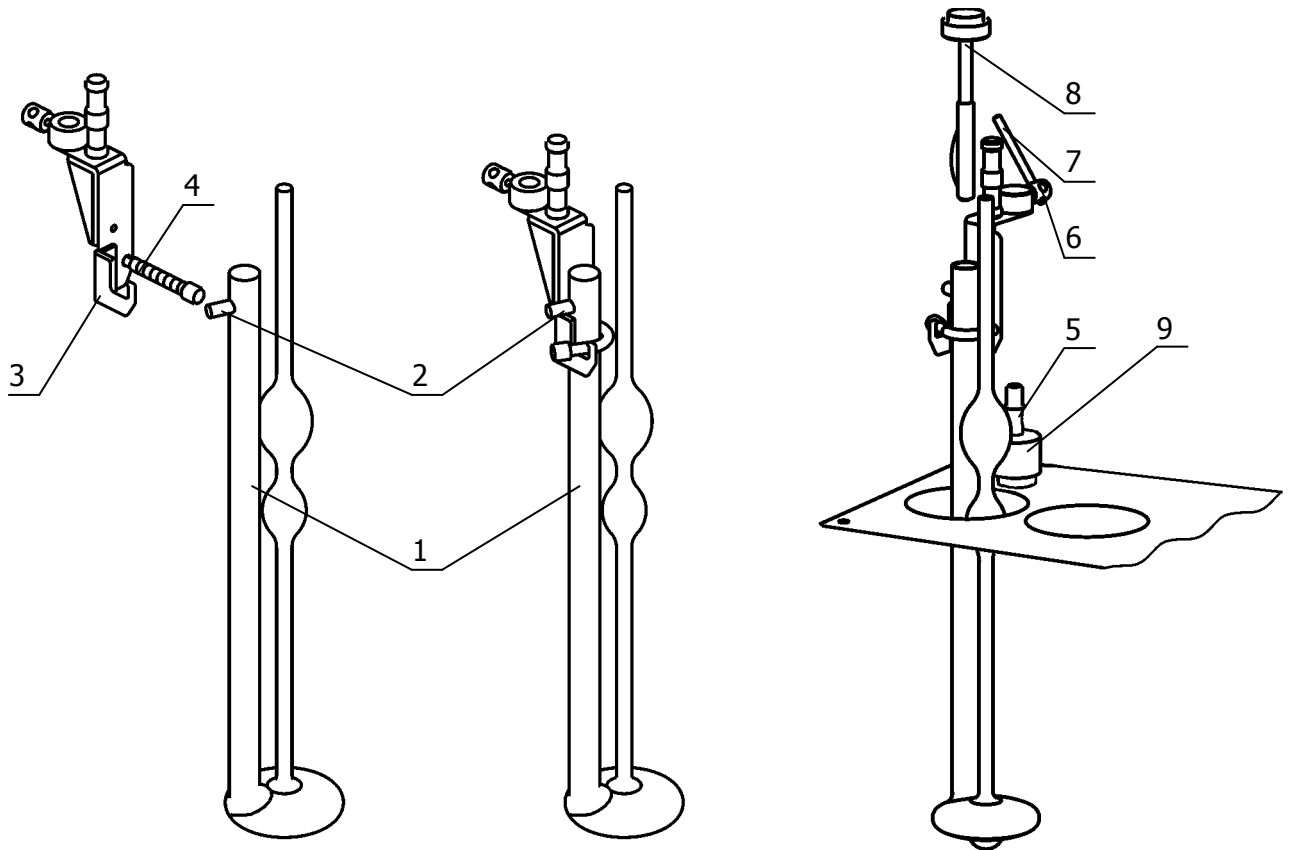
Insert the lamp from our delivery package in adapter 3. Adapter 4 is intended for installing test thermometer. Turn automatic switch 9 on.

When cleaning the baths, drain thermal fluid through drain valve 11.

To operate the instrument, read the "M03 Heating Immersion Circulator. Operating manual."

Installing viscometers

Holders from our delivery package are intended for installing capillary glass viscometers in "VIS-T-08-03", "VIS-T-09-03", "VIS-T-08-04" and "VIS-T-09-04" bath tanks.



To install viscometers:

- insert mounting tube of full viscometer 1 in the holder so that side arm 2 is placed on the ridge of holder 3, secure it with spring clamp 4;
- place viscometer holder on stand 5 on the bath cover and secure screw 6 with rod 7;
- insert verticality indicator 8 into mounting tube;
- release cap nut 9 and set the viscometer vertically — a bubble must be in the center of verticality indicator;
- fix the viscometer position by rotating cap nut 9 clockwise.

GENERAL SPECIFICATIONS

Working temperature range:	
<ul style="list-style-type: none"> • CRIO-VIS-T-01 • CRIO-VIS-T-02 • CRIO-VIS-T-03 	<p style="text-align: right;">0...+50 °C</p> <p style="text-align: right;">-20...+50 °C</p> <p style="text-align: right;">-30...+50 °C</p>
Set-point resolution	0.01 °C
Display resolution	0.01 °C
Temperature stability	±0.01 °C
Temperature uniformity	±0.01 °C
Digital setting accuracy	±0.3 °C
Digital setting repeatability	±0.02 °C
Heating capacity	2000 W
Cooling capacity at 0 °C:	
<ul style="list-style-type: none"> • CRIO-VIS-T-01 • CRIO-VIS-T-02 • CRIO-VIS-T-03 	<p style="text-align: right;">140 W</p> <p style="text-align: right;">200 W</p> <p style="text-align: right;">300 W</p>
Bath volume	12 Liters
Dimensions, W×D×H	400×700×600 mm
Bath opening	165×85 mm
Bath depth	300 mm
Size of glass panel	130×270 mm
Weight	54 kg
Power supply	230 V, 50/60 Hz
Warranty	2 years