NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET A.Ş.

NB 5 – NB 9 – NB 20

WATER BATHS

USER'S MANUAL

$\mathsf{C}\,\mathsf{E}$

**NÜVE SANAYI MALZEMELERI
İMALAT VE TICARET A.Ş.**

 **Esenboğa Yolu 22 km
 Akyurt - ANKARA / TURKEY
 Tel : (00 90 312) 399 28 30 (3 lines)
 Fax : (00 90 312) 399 21 97
 e-mail:** sales@nuve.com.tr

WARRANTY CERTIFICATE

1. Nüve warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period begins from the delivery date.

2. Warranty does not apply to parts normally consumed in operation or general maintenance or any adjustments described during the operating instructions provided with the equipment.

3. Nüve does not accept any liability in the case where the goods are not used in accordance with their proper intent.

4. The warranty may not be claimed for damages occurred during the shipment, for damages resulting from improper handling or use, the defects in maintenance, negligence, bad functioning of auxiliary equipment, in the case of force majeure or accident and incorrect power supply.

5. In the event of failure, Nüve shall be under no liability for any injury, or any loss or damage as the result of the failure other than the guarantee conditions.

BEFORE OPERATING THE INSTRUMENT THIS MANUAL SHOULD BE READ CAREFULLY.

THE VALIDITY OF THE GUARANTEE IS SUBJECT TO THE OBSERVATION OF THE INSTRUCTIONS AND PRECAUTIONS DESCRIBED IN THIS MANUAL.

TABLE OF CONTENTS   Page

1. INTRODUCTION

1.1. Use and Function

The NB series baths accurately control the temperatures of samples and commonly used in microbiology, research and industrial laboratories. They offer excellent temperature control of liquid producing a uniform and stable heating environment for the applications. They provide temperatures between 5 °C above the ambient temperature and 80 °C for procedures where temperature uniformity and stability are important. The homogeneous temperature distribution in the tank is ensured by means of the sheet heaters placed onto the outer sides and the outer bottom surface of the tank.

The baths are equipped with the timer, safety thermostat and they are controlled by a PID microprocessor controlled system to ensure precise temperature control.

Two digital displays situated on the user-friendly control panel display the temperature and time values.

All components which are in contact with the liquid are of high grade stainless steel to resist corrosion.

The NB series water baths are manufactured according to the following standards

EN 61010-1, EN 50081-1

 Do not operate the bath for purposes other than main purpose.

The bath is only to be used by authorised people after the user's manual has been read carefully. Only technical personnel can handle the product in case of a failure.

2. TECHNICAL SPECIFICATIONS

2.1. Technical Specifications Table

|	NB 5	NB 9	NB 20
Temperature range	Ambient temperature + 5 °C / 80 °C		
Temperature sensor	Fe- Const.		
Temperature set and display sensitivity	0.1 °C		
Temperature variation	0.1 °C		
Control system	Programmable microprocessor PID		
Timer	1 min - 99.9 hours + Hold position		
Temperature fluctuation	± 0.1 °C		
Temperature homogeneity	< 0.3 °C (at 40 °C)		
Power supply	230 V, 50 / 60 Hz		
Power consumption	600 W	800 W	1600 W
Tank volume	6 liters	9.5 liters	21 liters
Useful volume	4 liters	7 liters	15 liters
Internal material	Stainless Steel		
External material	Epoxy-polyester painted steel		
Internal Dim.s(wxdxh)mm.	151x300x150	240x300x150	505x300x150
External Dim.s(wxdxh)mm.	235x390x250	320x390x250	590x390x250
Net/Packed weight	7 / 8	8 / 9	11 / 13

2.2. General Presentation
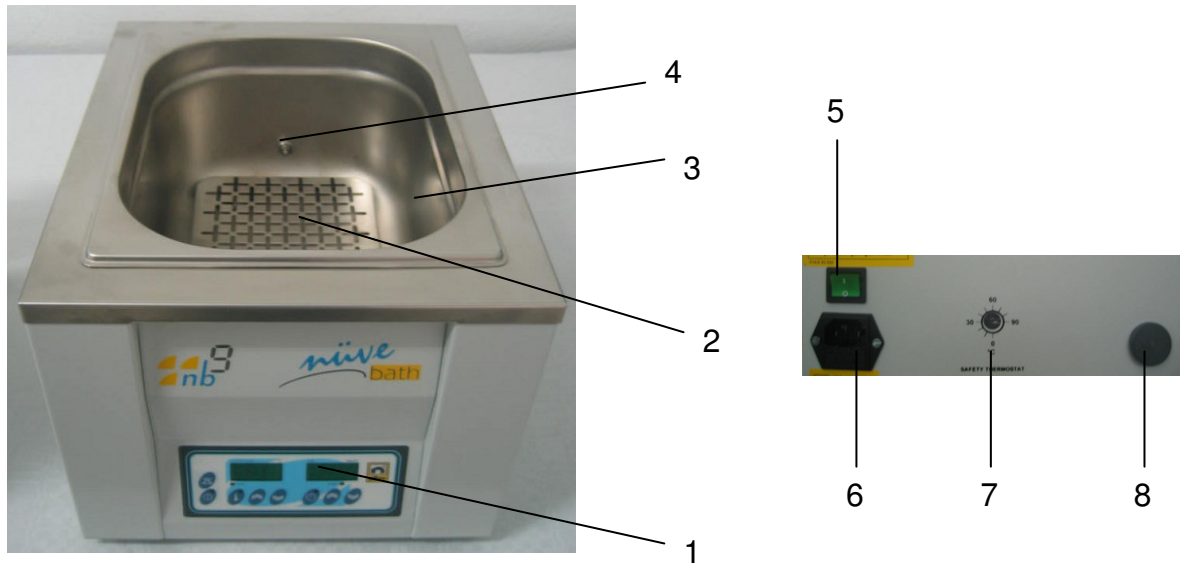
Figure 1

1. Display and control panel
2. Grid
3. Tank
4. Temperature sensor
5. On / off switch
6. Supply inlet and the fuses
7. Safety thermostat
8. Water discharge line

2.3. Optional Accessories

- Stainless steel or plexiglass lid
- Tube rack

3.   INSTALLATION PROCEDURE

3.1.   Lifting and Transport

All lifting and transport must be carried out using proper handling equipment. The bath must be supported from underneath and never be turned over.

3.2.   Unpacking

Remove the packing cardboard box and the second nylon packing around the dry heat sterilizer. The below written are provided with the instrument, please check them;
Provided with the bath are below, check them.

- Users Manual
- Electrical cable
- Perforated grid

3.3.   Environmental Conditions

Please pay special attention to the followings,

- Indoor use only
- Room temperature from 5°C to 40 ° C
- Humidity level % 80 up to 22° C
- Maximum height 2000 m.
- Temperature range for maximum performance: 15ºC / 25ºC

3.4.   Mains Supply

The bath requires 230 V, 50 / 60 Hz.

Please make sure that the supplied mains matches the required power ratings.

Always connect the water bath to properly grounded sockets.

A supply fitted with a circuit breaker should be used for protection against indirect contact in case of an insulation fault.

3.5.   Positioning

- Lift the bath underneath and carry it carefully into position.
- Balance it on the four pedestals. If necessary, adjust the pedestal heights.

Check the followings,

- the proposed site is suitable for users,
- the operator can follow up the bath even he deals with something else.
- the bath does not occupy the utilisation space of others or damage them.

3.6. Prior to Operation

3.6.1. Filling the Tank

- Fill the tank with distilled water as far as the maximum line MAX (see diagram below). .
- **NEVER OPERATE THE BATH UNLESS DISTILLED WATER/LIQUID IS FILLED UNTIL THE MAX LINE.**
- **Add distilled water if the level drops below the MAX line during the operation.**
- Make sure that the heated sample is not flammable or explosive at the set temperature.
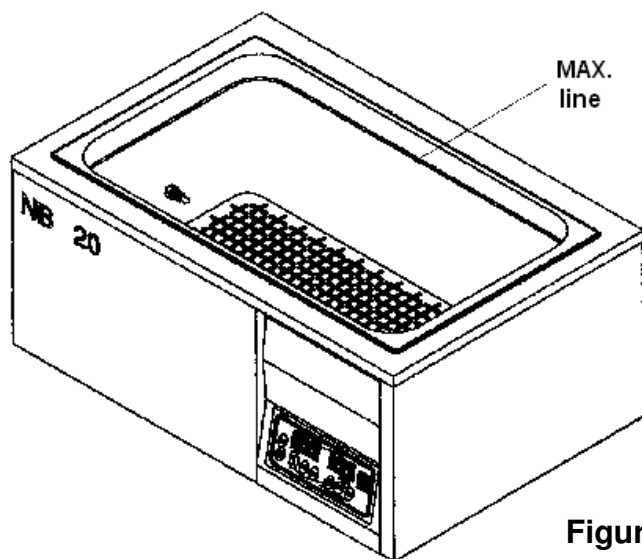

Figure 2

Before the operation pay attention to the following,

- Make sure that the safety thermostat is adjusted to the temperatures which are higher than the set temperature.
- Liquids are not heated in sealed containers.
- The boiling points of the samples are higher than the set temperature.
- Liquids which may expand during heating do not overflow from their containers.
- The vapours and gases which are generated during the operation are not harmful to humans or flammable or explosive.
- The set temperature does not destroy the structure of the samples.
- Plug the power cable into a grounded socket.

4.   OPERATING PRINCIPLES

4.1. Switching On

- Push on/off switch.
- See that the microprocessor control system activates.
- Set the values and start the operation.
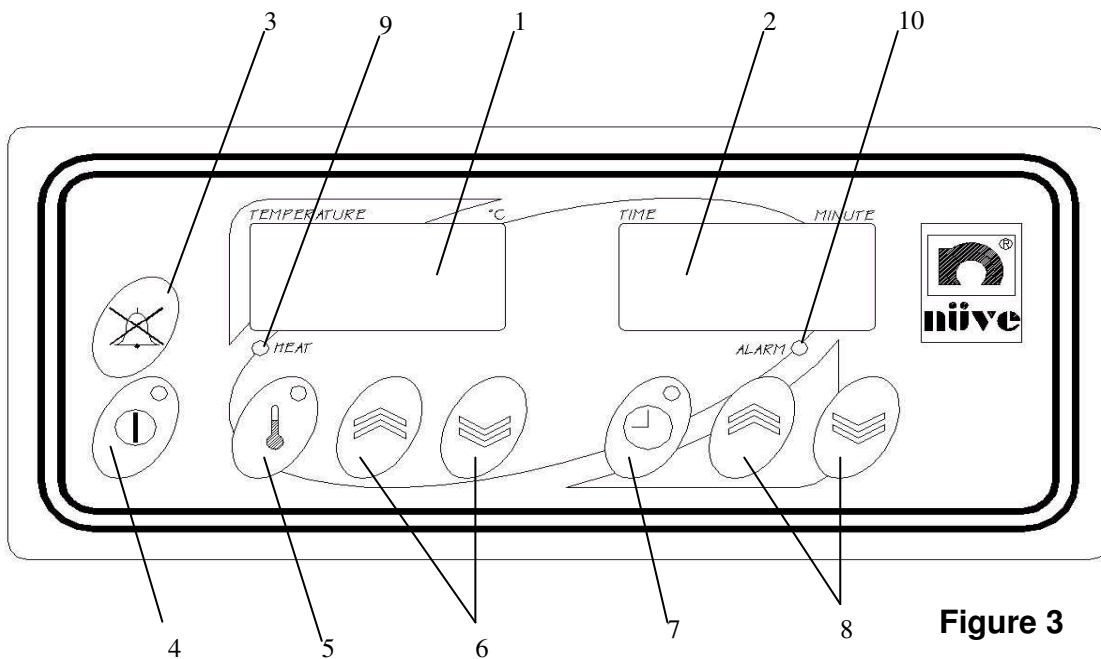
4.2. Control Panel

Figure 3

1. **Temperature Display:** This display shows the tank temperature during the operation and the set temperature value during programming. The error codes are also shown on this display.

2. **Time Display:** This display shows the elapsed time during the operation and the set value during programming.

3. **Alarm Mute Key:** This key is used to mute the alarm which sounds when the program ends and if any failure occurs during the operation.

4. **Start / Stop Key:** This key is used to start the program or to stop the running program manually.

5. **Temperature Set Key:** This key is used to set the temperature.

6. **Temperature Value Increase/Decrease Keys:** These keys are used to increase or decrease the values on the temperature display.

7. **Time Set Key:** This key is pushed to set the time. (01 minute – 99.9 hours and Hold position) The number after the decimal point is multiplied by 6 minutes to find the real time. (Ex: 54.7 = 54 hours 42 minutes)

8. **Time Value Increase/Decrease Keys:** These keys are used to increase or decrease the values on the displays.

9. **Heat Led:** This led flashes during heating process.

10. **Alarm Led:** It turns on when the program ends and if any failure occurs during the operation.
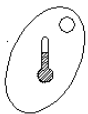
4.3. Programming Summary
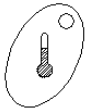
Push the temperature set key.

Set the temperature by pushing the value increase/decrease keys on the temperature adjustment side.

Push the temperature set key again to save the temperature value.

Push the time set key.

See "t ın" on the temperature display. Set the time value by pushing the value increase/decrease keys on the time adjustment side (01 minute to 99 hours 54 minutes or Hold)
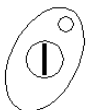
Push the time set key again.

See "dly" on the temperature display. Set the delay time, after which the program starts, by pushing the value increase/decrease keys on the time adjustment side (01 minute to 99 hours 54 minutes)

Push the time set key again to save the settings.

Push the start/stop key to start the program.

NOT: During the program, the time starts to count up after the instrument has reached to the set temperature.

4.4. Completion of the Work

• See that the program is over.

> **ATTENTION!! PLEASE CHECK OF THE LIQUID LEVEL IN THE TANK DURING LONG OPERATIONS AND REFILL TO THE MAY LINE IF NECESSARY.**

• Take the samples out at the end of the operation. Take precautions while handling the samples after the operation as they can be hot.
• Remove the undesirable effects occurred during the operation after the tank has been completely emptied.
• You may leave the bath at stand-by or switch it off.

5. PERIODIC MAINTENANCE AND CLEANING

5.1. Periodic Maintenance

• Regularly check the water level in the tank and add more if necessary.

5.2. Cleaning

• Clean the water bath at room temperature after disconnecting the power cable.
• Discharge the contaminated water by removing the tap of the hose at the back side. Place the tap again after the water in the tank has been completely discharged.
• Clean the water bath with a wet cloth to remove dirt and dust.
• Use mild liquid detergent to remove tough dirt.
• Take precaution when handling chemical cleaners.
• Check the tank and external condition of the water bath regularly and ensure any rust spots that may develop are removed.

6. TROUBLESHOOTING

If the water bath fails to operate, check the following,

• the on/off switch is on,
• the mains supply is present,
• the plug is plugged-in properly,
• the plug is not defective,
• the fuse of the mains and the fuses of the instrument are sound,
• the mounting that the plug is plugged into is not defective.

Errors Messages:

OFL:
• The temperature in the tank exceeds 85°C. Contact to an authorized technical help.
• The temperature sensor (Fe-Const) endings are broken.

PLEASE CONTACT TO AN AUTHORIZED NUVE AGENT T SEEK TECHNICAL HELP IF ANY ERROR OCCURS.

7. ELECTRICAL CIRCUIT DIAGRAM

FUSES	
NB 5	F2x3.5A
NB 9	F2x4.5A
NB 20	F2x10A

HEATERS	
NB 5	600W
NB 9	800W
NB 20	1800W