

# Operational Manual

## OIL BATH

### DK-250



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Congratulations!

We are honored that you have chosen our product.

The DKD professionally works to satisfy your desire at your service. This operational manual has been designed to help you understand how to achieve your interest utilizing the circulators. For optimal utilization of all functions, we recommend to study this manual to begin the operation.

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# Operating manual

## 1.1 Intended use

DKD circulators have been designed to control the temperature of specific fluids in a bath tank.



DKD circulators are not suitable for direct temperature control of foods, semi-luxury foods and tobacco, or pharmaceutical and medical products. Direct temperature control means unprotected contact of the object with the

## 1.2 Description

The circulators are operated via the keypad. The implemented microprocessor technology allows to set and to store the set point that can be indicated on the LED temperature display. The PID temperature control adapts the heat supplied to the thermal requirements of the bath. ATC - Absolute Temperature Calibration (1-point calibration).

## 2. Operator Responsibility – Safety Recommendations

The DKD's ensure safe operation when installed, operated and maintained according to common safety regulations. This section explains the potential dangers that may arise when operating the circulator and also specifies the most important safety precautions to include these dangers as far as possible.

- The operator is responsible for the qualification of the personnel operating the units.
- The personnel operating the units should be regularly instructed about the dangers involved with their job activities as well as measures to avert these dangers.
- Make sure all persons tasked with operating, installing, and maintaining the unit have read and understand the safety information and operating instructions.
- When using hazardous materials or materials that could become hazardous, the circulator may be operated only by persons who are absolutely familiar with these materials and the circulator. These persons must be fully aware of possible risks.

If you have any questions concerning the operation of our unit or the information in this manual, please contact us.

### Contact:

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#### 4 - Safety instructions for the operator:

- You have received a product designed for industrial use. Nevertheless, avoid strikes to the housing, vibrations, damage to the operating-element panel (keypad, display), and contamination.
- Make sure the product is checked for proper condition regularly (depending on the conditions of use). Regularly check (at least every 2 years) the proper condition of the mandatory, warning, prohibition and safety labels.
- Make sure that the mains power supply has low impedance to avoid any negative effects on instruments being operated on the same mains.
- This unit is designed for operation in a controlled electromagnetic environment. This means that transmitting devices (e.g., cellular phones) should not be used in the immediate vicinity. Magnetic radiation may affect other devices with components sensitive to magnetic fields (e.g., monitors). We recommend maintaining a minimum distance of 1 m.
- Permissible ambient temperature: max. 40 °C, min. 5 °C.
- Permissible relative humidity: 50% (40 °C).
- Do not store the unit in an aggressive atmosphere.
- Protect the unit from contamination
- Do not expose the unit to sunlight.

#### 5 - Appropriate operation

Only qualified personnel is 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.

##### Use:

The bath can be filled with flammable materials. There might be chemical dangers depending on the bath medium used. Observe all warnings for the used materials (bath fluids) and the respective instructions (safety data sheets). Insufficient ventilation may result in the formation of explosive mixtures. Only use the unit in well ventilated areas. The unit is not for use in explosive atmosphere. Only use recommended materials (bath fluids). Only use non-acid and non corroding materials.

##### Disposal:



The product may be used with oil as bath fluid. These oils fully or partially consist of mineral oil or synthetic oil. For disposal, observe the instructions in the safety data sheets. Effects on the ozone layer. However, during the long operating period of the unit, disposal prescriptions may change. So only qualified personnel should take care of disposal. The disposal can be separated in an environmentally friendly manner. Contact an authorized waste management company in your country. Disposal with household waste (unsorted waste) or similar collections of municipal waste is not permitted!

**Technical specifications:**

Working temperature range: 25 to 250 °C

Temperature selection: 0.1 °C

Temperature indication: 0.1 °C

Resolution: 0.1 °C

Temperature control: PID

Heater wattage (at 220 V): 1500w

Circulating blade

Bath depth: 15 cm

Filling volume from ... to: 6 to 8 liters

Weight: 8kg

Temperature stability: 0.1°C

Altitude up to 2000 m - normal zero.

Ambient temperature: +5 ... +40 °C Air humidity: Max. real humidity 80 % for temperatures up to +31 °C, linear decrease down to 50 % relative humidity at a temperature of +40 ° Max.

Mains fluctuations of ±10 % are permissible.

**Preparation of operation**

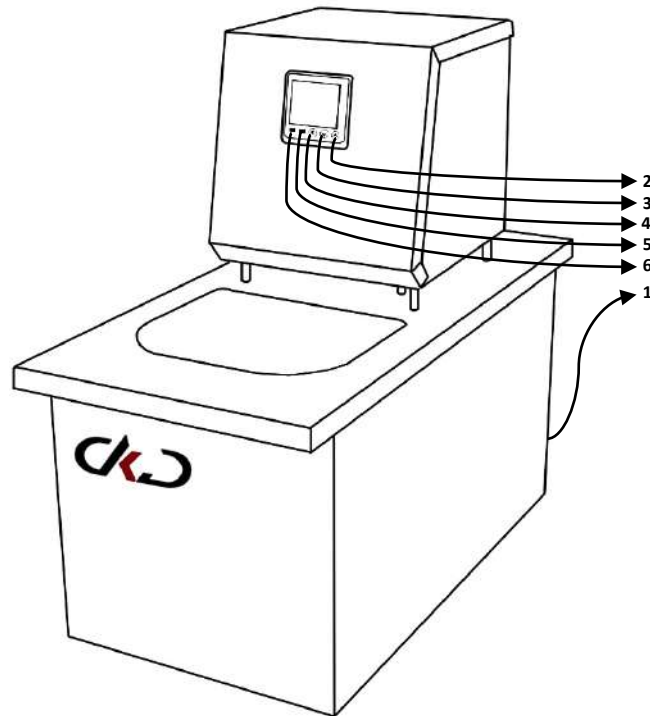
- Remove the calibrator from the packaging and place it on a flat surface.
- Make sure that the instrument has been correctly earthen.
- Supply the oven with line 220V AC
- Before start the calibration read with attention the instruction manual

## INSTALLATION

### Removal of packaging

The calibrator is equipped with packaging suitable for transport and traditional shipping systems. Any damage caused during transport must be notified immediately to the carrier and a claim must be made.

### Thermo regulator











## COMMANDS LIST

| POS | DESCRIPTION |
|-----|-------------|
|-----|-------------|

1. SUPPLY SOCKET
2. Press the  key to increment the set point value.
3. Press the  key to decrement the set point value.
4. Press the  key to select the digit to change.
5. Press once to go to next parameter.
6. Adjustment and initial key.

## Keys

| Key   | Name                | Overview  | Description  |
|---|---------------------|---|--|
|    | Level Key           | <p>Selects the setting level.</p> <p>The next setting level depends on how long the key is pressed.</p> | <ul style="list-style-type: none"> <li>In Operation Level <ul style="list-style-type: none"> <li>Press once for less than 1 second to go to Adjustment Level.</li> <li>Press for at least 3 seconds to go to Initial Setting Level.</li> </ul> </li> <li>In Adjustment Level <ul style="list-style-type: none"> <li>Press once for less than 1 second to go to Operation Level.</li> <li>Press for at least 3 seconds to go to Initial Setting Level.</li> </ul> </li> <li>In Initial Setting Level <ul style="list-style-type: none"> <li>Press for at least 1 second to go to Operation Level.</li> <li>Display <i>MOVE</i> (Move to Advanced Function Setting Level) and then enter -169 to go to Advanced Function Setting Level.</li> </ul> </li> </ul> |
|    | Mode Key            | Changes the parameter that is displayed within a setting level.   | <ul style="list-style-type: none"> <li>Press once to go to the next parameter.</li> <li>Hold to go to the previous parameter.</li> </ul>   |
|    | Down Key and Up Key | Set the value.  | <ul style="list-style-type: none"> <li>Hold the key to increment or decrement the value quickly.</li> <li>Any changes in settings are applied at the following times: <ul style="list-style-type: none"> <li>After 3 seconds elapse</li> <li>When the  Key is pressed</li> <li>When the level is changed with the  Key</li> </ul> </li> </ul>  |
|  | Shift Key (PF Key)  | Operates as a user-defined function key.  | <ul style="list-style-type: none"> <li>Press the  to select the digit to change. You can change the PF Setting parameter to assign any of the following functions.</li> <li>Press the  Key for at least 1 second and then specify one of the following functions: RUN/STOP, automanual, autotuning, or canceling an alarm latch</li> </ul> <p>The PF Key operates as a Digit Shift Key by default.</p> <p>Example: If you set the PF Setting parameter to STOP, operation will stop when you press the PF Key for at least 1 second.</p>   |



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