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Manufacturing and distribution
of construction material testing devices

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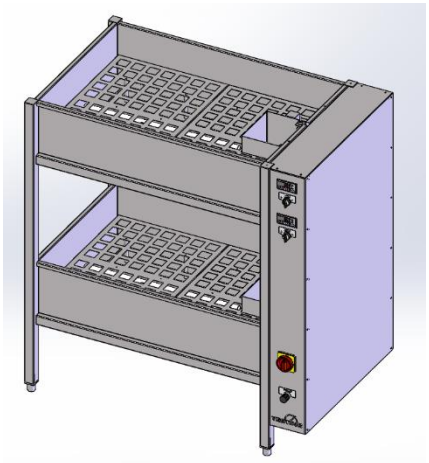
Operating Manual

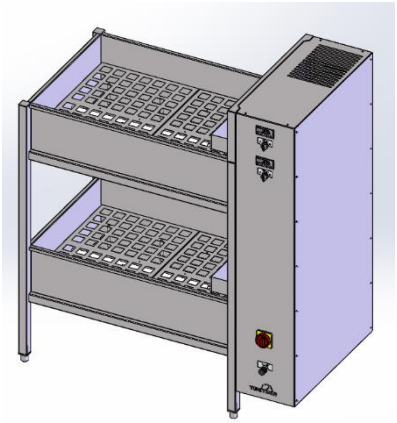
Water storage of mortar prisms

1.0326



1.0326S

1.0326K



1.0326SK

CAUTION: Do not place this device into operation until you have made yourself fully acquainted with its connection, with its function, and with the position of all its control elements and functions.

Contents **Page:**

Attachments:
Declaration of conformity
Elec. schema
Record of measurement and testing at the manufacturer's plant

1. Basic instructions

1.1 Designation

Designation of the device: Please see the name plate on the device, which shows the complete characteristic data and the electric properties of the system.

1.2 Purpose for which this system was designed

This Operating Manual contains the information required for operation of the products described here, for the purpose for which they have been designed. This Operating Manual is intended to be used only by technically qualified staff.

“Technically qualified staff” is defined as those persons who – as a result of their training; their experience; the instructions which they have received; as well as their knowledge of the relevant standards, regulations, accident-prevention regulations, and conditions of product operation in the company – have been authorized by the person responsible for the safety of the company equipment to carry out the activities and actions required for operation of the equipment described below, and who can recognize and prevent any possible dangers arising from such operation (this definition of technically qualified staff has been provided).

The User must by all means observe the requirements and limit values, as well as all safety instructions, given in this Operating Manual. Any use of this device not in conformity with these stipulations shall be considered to be in violation of the use for which this system was intended. If this device must be operated under special conditions, or with special modes of operation, then this shall be authorized only after consultation with the manufacturer, and after obtaining his prior and express approval.

The water bath for standing prisms is only used for storing mortar prisms according to EN 196 in a vertically standing position in laboratory and research applications.

Caution! 	The instructions provided in this operating manual concern only the correct use of the system. To perform the test correctly, the user must observe the specific norms for the test.

This operating manual contains safety instructions that are to be observed in order to exclude any risk of fatalities, injuries, damage to the equipment or improper operation. Safety markings are as follows:

Caution! 	This warning refers to dangers that could cause material damage.

Danger 	This warning refers to dangers that could cause severe injuries or even fatalities.
Note 	Provides practical advice on operation

1.4 Guarantee

Our **General Terms of Sales and Delivery** apply in all cases.

The Manufacturer guarantees that this Operating Manual has been prepared in conformity with the technical and functional parameters of the machine as delivered. The Manufacturer reserves the right to add supplementary information to this Operating Manual as required.

The guarantee provided by the Manufacturer is the legal guarantee. This guarantee does not cover wear-and-tear parts.

The Manufacturer guarantees trouble-free operation only if the User observes the instructions in this Operating Manual, and only if the User employs the machine for the purpose for which it is intended.

The Manufacturer shall not be liable for damages that may occur if the machine is used for purposes for which it is not intended, or if the User does not observe the instructions and rules for operation as set forth in this Operating Manual.

No claims for damages may be lodged against the Manufacturer if the machine is modified in its structural or constructional characteristics without the prior written consent of the Manufacturer, or if its functional characteristics are modified without such consent.

1.4 Improper use

The following use is deemed to be improper and is thus prohibited:

- Only use temperature control units (regulator/heating/cooling) in a fault-free condition!
- Do not bypass, bridge, disassemble or deactivate safety devices.
- Setting up the water bath on an uneven surface or a surface that cannot bear the load.
- Use of bath fluids other than water.

- The manufacturer shall accept no responsibility for damage on account of technical modifications to the temperature control unit, improper handling, misuse or use of the temperature control unit in disregard of the operating manual.

1.5 Safety notices

The following information is provided to draw your attention to the risks that only you can recognise, avoid or eliminate.
The device corresponds to the relevant safety regulations.

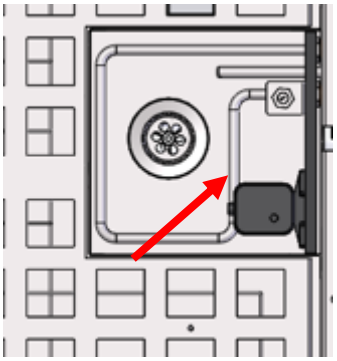
Caution 	Proper handling and correct use are solely the responsibility of the user.

The location of use should be an environment that corresponds to a laboratory or technical centre.
Do not commission the device if you have doubts about safe operation based on the external condition of the device (e.g. damage).
Safe operation of the device is doubtful if the user does not use the device corresponding to this operating manual.
Make sure that this manual always remains accessible to every user.
Only use the device for the intended use.
Have repairs, modifications or interventions carried out by experts only. Following the manufacturer's instructions when doing so.
Improper repairs can result in serious damage.
Do not move the device away from its installation site while it is in operation.
Do not insert any wires or tools into the existing openings.
Disconnect from the power supply if:

- Hazards resulting from the device are to be averted,
- Cleaning work is carried out,
- Maintenance or repair work is carried out in the service workshop.

Pull out the mains plug!

Attention 	Do not touch into the separated area in the water corner during operation. There is a risk of burning on the heaters surface.



1.5.1 Obligations of the operator

Authorisation to operate the water bath independently is entrusted only to persons who:

- are over the age of 18,
- have been instructed in how to operate the device and
- have been appointed to do so in writing by the business operator.

The person operating the equipment must ensure that they do not put themselves or anyone else at risk.

If the operating safety of the water bath is impaired by defects or damage, it should be taken out of operation immediately and should only be used again after all of the sources of danger have been dealt with.

1.5.2 Dangers when working with the water bath

The water storage basin is built according to the state-of-the-art and the recognised technical rules. However, usage may still involve risks to the life and health of the user or third parties or damage to electrical parts or other property.

The water storage basin is only to be used

- for its intended purpose and
- when in perfect working order.

Any faults that may affect safety must be immediately resolved.

1.6 Acceptance of delivery and transport

1.6.1 Acceptance of delivery

When accepting delivery of the product, first inspect it for its outer, visible condition. If this inspection is satisfactory, the product may be accepted from the freight forwarder (railways, parcel service, or other haulage company).

If there are no shortcomings, and if there are no transport damages, then use the bill of delivery to make sure that the consignment is complete, and that all parts have been delivered.

If you assume or suspect transport damage, or if transport damage becomes apparent only after you have accepted the delivery, immediately make an exact report of the conditions and any damage as they exist. Send us this report immediately by fax or e-mail. Important: Absolutely do not make any changes to the delivered goods.

After we have studied your report, we can make a decision whether we can:

- Deliver spare parts to you, or
- Send a specialized fitter/installer to your plant, or
- Ask that you return the product to us for repair.

1.6.2 Transport

The system is supplied standing on a pallet. The system can be moved to its intended location in the delivery packaging, by means of a pallet truck or other suitable floor-level conveyors that must be able to reach under the pallet.

Ropes or similar lifting gear may only be attached if it has been ensured that no lateral forces are applied to the packaging and thus possibly to parts of the system as well.

The system can be taken down from the pallet and brought to its intended destination by hand.

The weight is	approx. 100 kg for model 1.0326
	approx. 145 kg for model 1.0326K
	approx. 120 kg for model 1.0326S
	approx. 160 kg for model 1.0326SK

1.7 Commissioning

Install and align the system on a load-bearing, level and vibration-free surface. Installation must be performed by a specialist.

Permissible temperature:	from 15 °C to +25 °C
Operating humidity range:	from 30 % to 75 %
Max. height:	1,000 m above sea level

Floor load: 600 kg/m²

Use is only permitted indoors. Short distances to supply connections.

The water bath can be aligned with the adjustable machine feet.

Use of a RESIDUAL CURRENT CIRCUIT BREAKER with 30 mA rated fault current resolution is recommended.

Connect hose ø13 to hot water connection 2 – 6 bar
Connect water outlet DN 40 to hot water connection
The use of a sludge collecting basin is optional
Connect electrical supply cable 400 V / 16 A CEE socket

1.8 Connection to the power supply

Danger 	• The machine must be connected to the building power system by a qualified electrician. • In accordance with the pertinent standards, the yellow-green connection terminal must be attached to the earthing system before additional electrical connections are made. • Before making the electrical connections, please study the enclosed wiring diagram. Also check the machine rating plate to make sure that the ratings of the building power supply conform to the requirements for voltage, wattage, amperage, and frequency of the machine. • The electrical socket must have a safety device that will protect the system against over-current. This safety device must satisfy the stipulations of the relevant standards, and must match the machine voltage. The technical characteristics of this safety device must also satisfy the standards that apply in the country in which the machine is installed.
Caution 	The manufacturer of the machine cannot be held liable for any damages that result because the information here is not observed.

Electrical tolerances:

- Actual voltage: ± 10% of the rated voltage
- Frequency: 50 Hertz ± 1% of the rated frequency, continually; ± 2% of the rated frequency, on a short-term basis
- The manufacturer shall not be liable for damages to persons or property that arise because the above instructions have not been observed.

2. Device characteristics

2.1 Assembly

The intended use involves the storage of specimens in water according to EN 196 in laboratory and research applications.

The water storage comprises a stainless steel frame with two fixed stainless steel water basins (models 1.0326S / 1.0326SK) or two water basins made of plastic (models 1.0326 / 1.0326K). Two removable grilles are located in each water basin. The heating, temperature sensor, float switch, pump, outflow and overflow are located in a separate area at the side for protection against mechanical damage. The heating, the pump for the water circulation and the cooling are activated by the float switch. The overflow and outflow are merged into an outflow line.
The water level is determined by the overflow. A float switch detects if the water level has dropped too low and activates a valve to add water.
The water can be drained from the basin by pulling out the stopper.

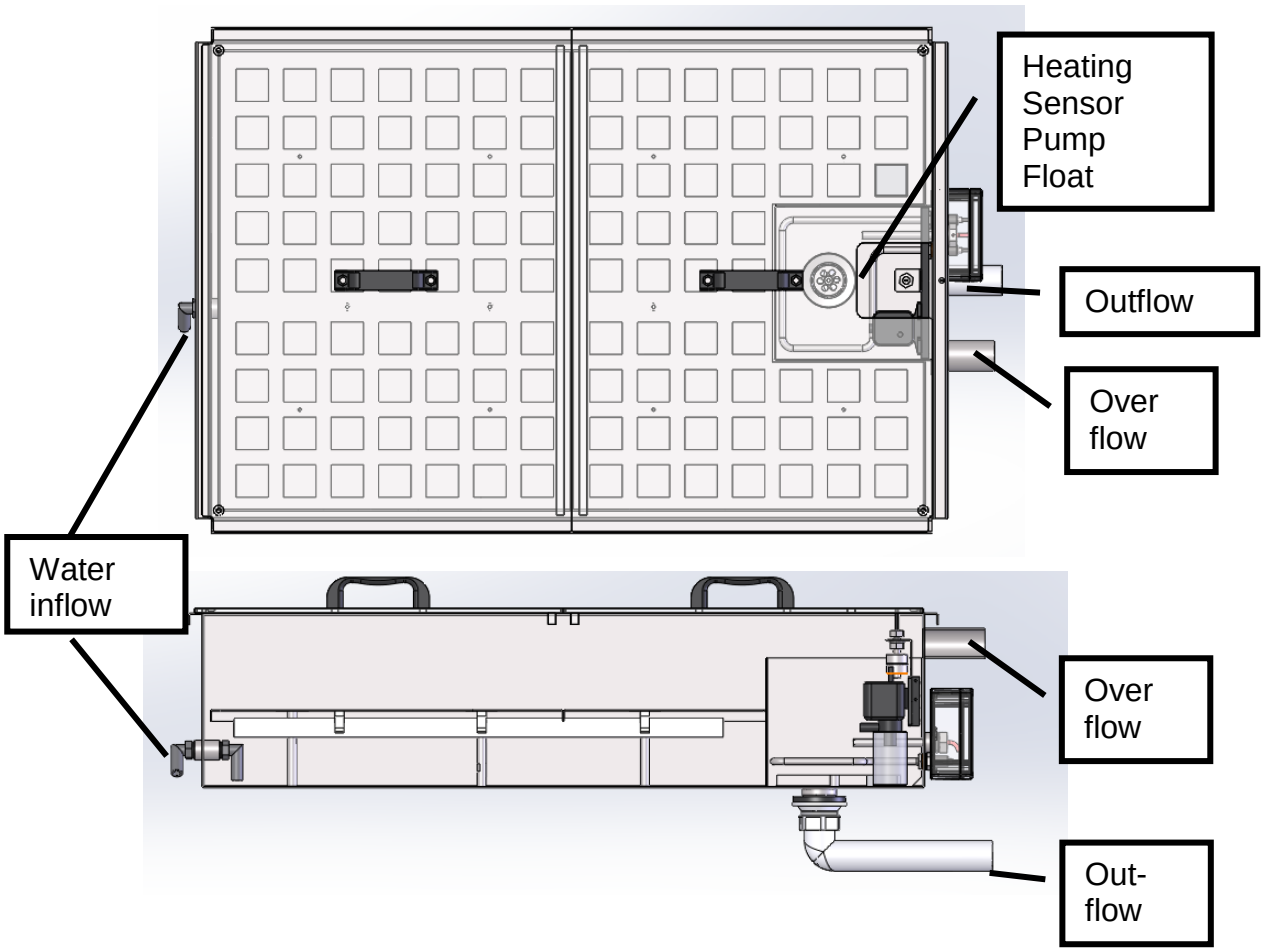
The 1.0326 / 1.0326S models can only heat the water.
The 1.0326K / 1.0326SK models are also provided with a cooling system per basin.

The supply voltage for the basin is 400 V / 50-60 Hz and is connected to the power supply by a CEE connector.

2.2 Technical data

Outer dimensions	1.0326 / 1.0326S	1200 x 720 x 1300 mm
	1.0326K / 1.0326SK	1320 x 720 x 1515 mm
Inner dimensions		630 x 957 x 230 mm
Filling level		~170 mm
Capacity		230 items (115 items / level)
Basin height from base		560 mm / 1260 mm
Supply voltage		400 V / 50 - 60 Hz
Power consumption	1.0326 / 1.0326S	2x 1000 W only heating
	1.0326K / 1.0326SK	2x 1200 W with heating and cooling
Water connection		Hose inner diameter ø 13 mm 2 – 6 bar DN 40 outflow
Weights	1.0326	100 kg net / 430 kg gross

	1.0326K	145 kg net / 470 kg gross
	1.0326S	120 kg net / 450 kg gross
	1.0326SK	160 kg net / 490 kg gross



3. Operation

Caution 	Be aware that incorrect entries on the device can cause malfunction, failure, major damage or danger to the operating personnel of the device.

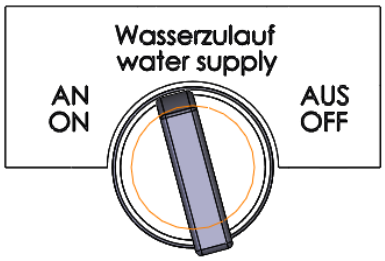
Switch on the main switch

Regulator displays actual temperature
Water basin is filled with water
The pump is switched on when the water level is reached

The water storage basins are now ready for operation

3.1 Function of the level control switch

The switch is used to switch a solenoid valve "ON" or "OFF", which is required for the supply of water.
The water level control function is deactivated when the switch is set to "OFF".
If the switch is set to "ON", water is pumped into the pool via the inlet until the float (water level control) has reached the set level. When the set level is reached, the solenoid valve receives the electric impulse to close.



For a complete water exchange, the switch must be left in the "OFF" position. The electrical consumers such as heating or cooling are now deactivated.
Then the plug is pulled out and the basin empties through the outlet. When the basin is completely empty, insert the plug, set the switch to "ON" and the basin is filled to the preset level. Only when the set water level has been reached is the heating and cooling activated as required.

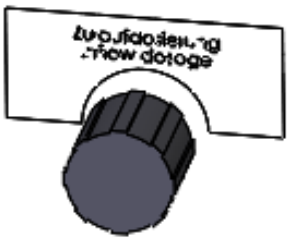
3.2 General repeat operating steps

Adding specimens
The specimens are stored vertically. The distances to one another are specified by the grilles.
The basins are prepared for other specimen dimensions. The grilles can be removed. Ensure water circulation for this case also.

Emptying the water basin
The water level regulation is switched off with the pushbutton. The basins are emptied by pulling out the stopper.

3.3 Pressure regulator

With the pressure regulator the incoming water pressure can be reduced or increased.



Function	Meaning
Left turn	reduce
Right turn	increase

3.4 Control equipment

The device automatically controls the temperature to the values set by the User. It is not necessary for the user to make manual changes.

It means:

	Temperature
1	heating
2	cooling
3	alarm

The open- and closed-loop control equipment installed in the device was developed for control systems in which several outputs are required. A membrane keyboard with 5 keys is used to input the settings for the required values (setpoints), the standby values, and all other parameters for the controllers.

Settings that can be made:

△	Button: UP	By pushing this button, you increase the parameter or the parameter value.
▽	Button: DOWN	By pushing this button, you decrease the parameter or the parameter value. In case of an alarm, you can also shut off the acoustic alert (buzzer) by pressing this button.
●		Not active

	Button: SET	When you press this button, it will display the desired setting (setpoint value). This button is also used to set the parameters.
	Standby	Standby circuitry

The controller has three (3) operation levels:
Changing the parameters beginning with the letter “A…” can modify the characteristics of the system. Therefore be very careful when modifying these values.

Operator level no. 1:
Parameterization of the setpoint value:
You can directly select the setpoint value for heating by pressing the SET button (regardless of the standby mode). If you release the SET and then press the UP and DOWN buttons, you can increase or decrease the setpoint values. The newly set values will then apply for the control functions.

Operator level no. 2 (P parameters):
If you press both the UP and DOWN buttons at the same time and hold them both down for at least 4 seconds, you will go into a parameter list for the control parameters (these parameters begin with P1). You can then use the UP button to move the list upward, and the DOWN button to scroll downward in this list. When you press the SET button, this will display the value of a single parameter. If you then press the UP or the DOWN button, while still holding down the SET button, then you can increase or decrease the value of the respective parameter. When you release all the buttons, the new value will be saved. If you then take no action and press no buttons for more than 60 seconds, the system will jump back to the basic state.
The following is a brief description of some of the parameters:

Parameter	**Description of the function**	**Setting range**
P0	Actual value	—
P1	Desired value (setpoint) for cooling	–99.9 ... +99.9 K
P2	Hysteresis control-contact 1	0.1 ... 99.0 K
P3	Hysteresis control-contact 2	0.1 ... 99.0 K
P4	Lower limit for setpoint value	–99°C ... P5
P5	Upper limit for setpoint value	P4 ... 999°C
P6	Correction of actual value	–20.0 ... +20.0 K
P19	Locking the keyboard buttons	0 = unlocked; 1 = locked
P30	Lower limit value for alarm	–99 ... 999°C/K
P31	Upper limit value for alarm	–99 ... 999°C/K
P32	Hysteresis alarm, one-sided	0.1 ... 99.9 K

Operator level no. 3:

To move into the third operator level, first go into the second operator level as described above (Operator level no. 2). Then scroll the parameter list up to the highest parameter. Then press the UP button and hold it pressed for at least 10 seconds. The display will show “PA”. Then press the UP and DOWN buttons at the same time, and hold them both down for at least 4 seconds. This will take you to the parameter list on the third operator level. The parameters there begin with “A1”. You can then use the UP button to move the list upward, and the DOWN button to scroll downward in this list. When you press the SET button, this will display the value of a single parameter. If you then press the UP or the DOWN button, then you can increase or decrease the value of the respective parameter. When you release all the buttons, the new value will be automatrically saved. If you then take no action and press no buttons for more than 60 seconds, the system will jump back to the first display.

3.5 Calibration of the display value

After setup, the temperature of the water should be compared with the displayed value with the help of a reference instrument. If these values deviate from one another, a calibration to the reference instrument is possible, as described below.

The actual value correction is in the second operating level under P6.
The value set here is added to the sensor measurement value. The modified measurement value appears on the display and serves as a basis for the regulation.

Note 	Heating the water to a temperate higher than the default setpoint value of 20 °C can cause an excessive load and hence shorten the service life of the tubular heater.

4. Maintenance and cleaning

These operating instructions are not instructions for comprehensive maintenance and repair work. Such work must be carried out by TESTING service personnel or by approved specialist technicians.

Regular inspections and maintenance will maintain functionality of the system.

The stainless steel surfaces can become stained and unsightly over time. Use a conventional stainless steel cleaning agent for cleaning. Bathing vessels and built-in parts should be cleaned with a household cleaner occasionally, but at least when changing the liquid. The inside surfaces can be cleaned with diluted citric acid/vinegar. Remove the base grille. Then rinse with clean water. To ensure water drainage, sample residues must be removed from the outflow.

Clean the filter housing of the pump monthly or at reduced pumping capacity. The pump can be removed from the holder for cleaning purposes and separated from the electrical system. To do this, the right cover must be opened. Clean the pump and the filter with a soft brush under running water. Remove the filter housing. Remove dirt in the rotor through the openings.

Note 	The accident prevention regulation DGUV requires testing of portable electrical devices to be repeated in accordance with VDE 0701, items 1-4 in a test cycle of about 6 months.

Inspections

The system must be checked for its industrial safety at regular intervals. There are national regulations for this purpose that must be complied with, for example the UVV.

Daily routine inspections

- The connections are in good condition (valves, filters, hose lines)
- Noises
- Condition of the electrical connections
- Functionality of the control unit

Note 	Regular inspections for correct functioning will provide important information on the operational condition of the system.

5. Troubleshooting

Caution 	Work on electrical equipment may only be carried out by qualified personnel!

In the event of a fault, the system must be disconnected from the power supply.

For further troubleshooting and rectification of defects, please refer to our detailed operating instructions and the enclosed circuit diagram.

Status messages on the regulator
Sensor error messages are saved and are displayed even after the cause of the error has been eliminated. The error message can be deleted by acknowledging with the AB key.

Display	**Error cause**	**Measures**
AUS or OFF	Standby mode	Switching on with key
F1L	Sensor error, short-circuit	Check sensor
F1H	Sensor error, sensor breakage	Check sensor
- - -	Keylock active	See parameter P19 or A19
Flashing Display	Temperature alarm	
Buzzer	Temperature alarm	The buzzer can be acknowledged with the AB key
EP	Data loss in the parameter memory (control contact 1 and 2 are without current)	If the fault cannot be rectified by switching the power supply off/on, the regulator must be repaired

5.1 General troubleshooting

FAULT	CAUSE	REMEDY
Incorrect water temperature	No power supply	Check power supply cable
	Controller settings wrong	Consult with manufacturer
	Temperature sensor defective	Check temperature sensor (Pt100) Correct location in protective tube
	No water circulation	Check pump, replace if necessary
	Heating/Cooling defective	Check heating/cooling, replace if necessary
	Water level too low, float located in the lowermost position	Set float position
		Check electrical connections
Water temperature in basin is different	No circulation Pump defective	Replace pump
	Error in electrics	Check electrics Consult with manufacturer
Water level too low	No water supply	Check water connection and electrical valve for functioning
	Float defective	Check switching function of float, replace if necessary
High water consumption	Float defective	Check switching function of float, replace if necessary
	Outflow defective	Check and/or clean sealing function and seat of the stopper in the outlet nozzle
Loud noises	Deposits in the pump	Clean pump and filter

6. Placing the system out of operation

If the device should be placed out of operation for a lengthy period of time, it must be disconnected from the mains power supply. Then, during this time, conduct all maintenance on the system that is required. Drain or remove the water from all storage tanks. Cover the dev ice to protect it from dust. Keep the door open in order to prevent unpleasant smells.

7. Scrapping, disposal

If the system is no longer to be used, the following is recommended.

- Disconnect cable from mains supply.
- Dismantle system and scrap according to currently applicable legal requirements.

The product and the packaging material are made from recyclable materials. The separate, environment friendly disposal of material residues promotes the recycling of reusable materials.

This product complies with directive 2002/96/EC of the European Parliament and Council of Ministers on waste electrical and electronic devices. The product is labelled with the following symbol:

Instructions on disposal are obtainable from the respective municipality or local authority.

8. After-sales service

Great care was taken to assure that this Operating Manual was properly prepared. We cannot, however, guarantee that it has no mistakes, or that all data are complete and correct in the event of technical modifications.

8.1 Date of this version of the Operating Manual

Version no. 7
Oct. 2020

8.2 Copyright

The copyright to this Operating Manual is held by:

TESTING Bluhm & Feuerherdt GmbH

This Operating Manual is intended for use only by the User and his/her staff. It contains instructions and data that may NOT be:

- Reproduced,
- Distributed, or
- Provided to any third party.

Any person acting in violation of the above stipulations may be prosecuted before a court of law.

8.3 Spare parts and technical help

If you have any questions of technical nature, or if you need spare parts, please get in touch with the following address:

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DE – 12277 Berlin
Germany

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Fax [+ 49 30] 710 96 45 98
www.testing.de
info@testing.de

EC Declaration of Conformity in accordance with the Machinery Directive 2006/42/EC Appendix II 1.A

The authorised representative established in the community,

Mr. Feuerherdt

hereby declares that the following product

Manufacturer:	TESTING Bluhm & Feuerherdt GmbH Motzener Str. 26b 12277 Berlin
Product designation:	1.0326 / 1.0326K / 1.0326S / 1.0326SK
Serial number:	continuous
Serial/Type designation:	water storage bath

complies with all of the relevant provisions of the above named guidelines as well as the additional applied guidelines (following) - including any of the amendments thereto which are in force at the time of the declaration.

The following additional EU Directives have been applied:

Low Voltage Directive 2014/35/EC

The following harmonised standards have been applied:

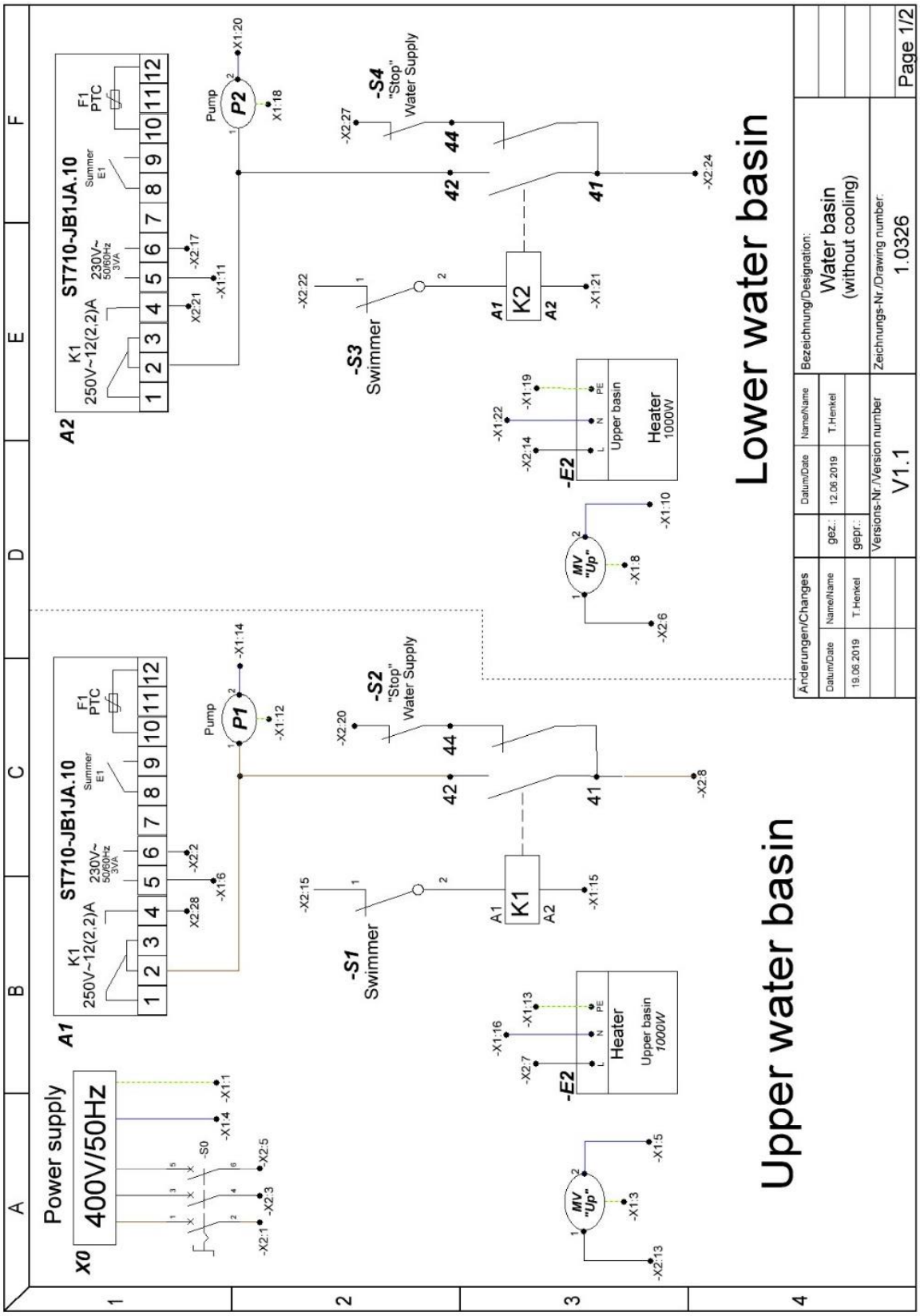
DIN EN 60204-1	The Safety of Machines - Electrical Equipment of Machines - Part 1: General Requirements (corrigendum 2010)
DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction (corrigendum 2013)

The name and address of the person who has been authorised to compile the technical documentation:
Mr. Metge

Location: Berlin
Date: 01/04/2019

(Signature)
Managing Director

(Signature)
Technician


Lower water basin
Upper water basin
Power supply
400V/50Hz
X0
A1
A2
ST710-JB1JA.10
K1
250V~12(2,2)A
230V~ 50/60Hz 3VA
Summer E1
F1 PTC
Pump
P1
P2
-S1 Swimmer
-S2 "Stop" Water Supply
-S3 Swimmer
-S4 "Stop" Water Supply
K1
K2
-E2
Heater
Upper basin
1000W
MV "Up"
-S0
Änderungen/Changes
Datum/Date
Name/Name
19.06.2019
T.Henkel
gez.:
gepr.:
12.06.2019
T.Henkel
Bezeichnung/Designation:
Water basin
(without cooling)
Versions-Nr./Version number
V1.1
Zeichnungs-Nr./Drawing number:
1.0326
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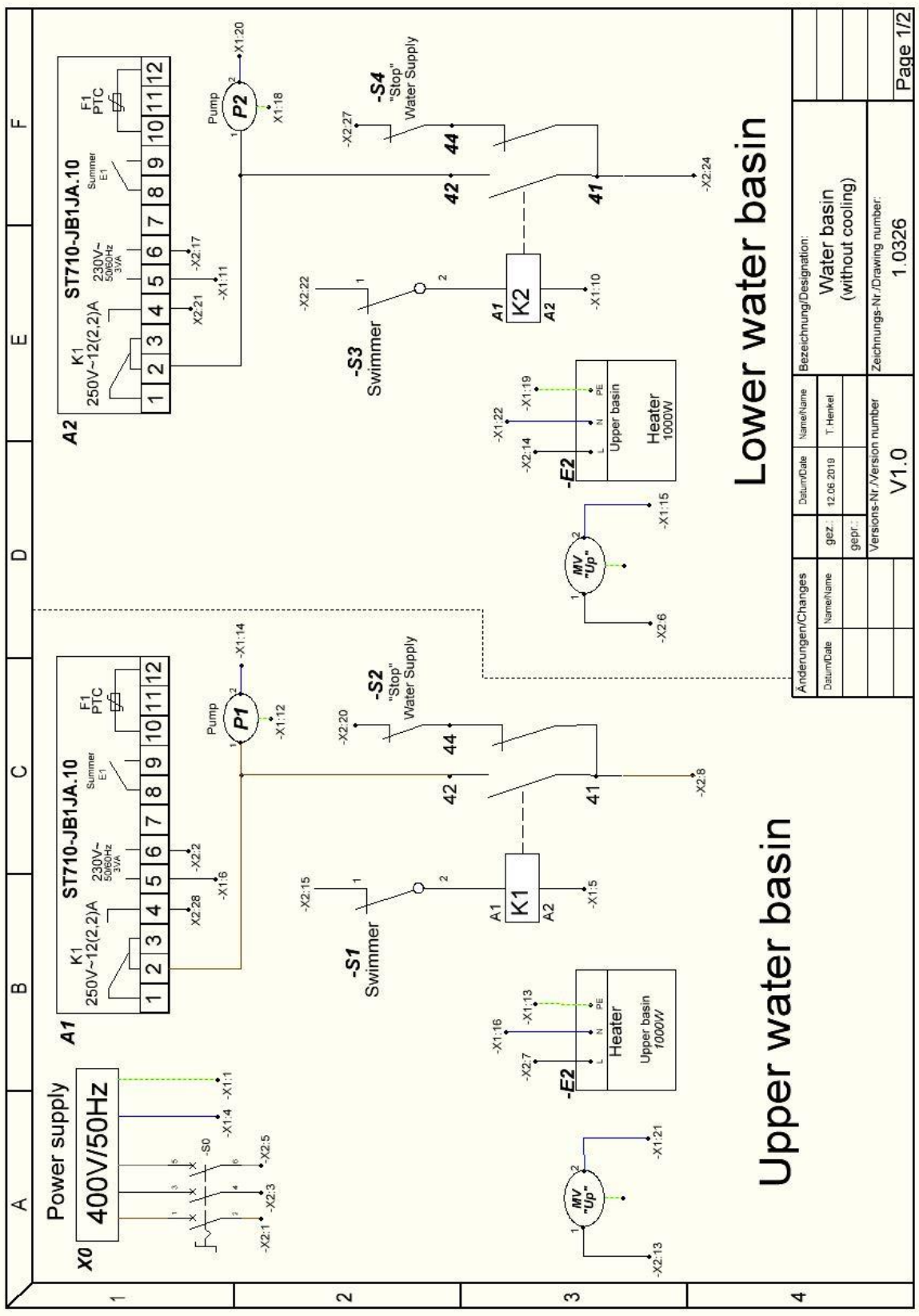
Lower water basin
Upper water basin
Power supply
400V/50Hz
X0
A1
A2
ST710-JB1JA.10
K1
250V~12(2,2)A
F1
PTC
Summer
E1
230V~
50/60Hz
3VA
Pump
P1
P2
-S1
Swimmer
-S2
-S3
Swimmer
-S4
"Stop"
Water Supply
K1
K2
-E2
Heater
Upper basin
1000W
MV
"Up"
-S0
Bezeichnung/Designation:
Water basin
(without cooling)
Änderungen/Changes
Datum/Date
Name/Name
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Versions-Nr./Version number
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1.0326
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