

Operating instructions

Laboratory mortar mixer

Model 1.0204.LV





Significance of the operating instructionsBefore operating the laboratory mortar mixer, the operating instructions must be read and understood.

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The notes have the following meaning:

Warning	This warning applies to all procedures that need to be performed with care to avoid damage to the device.
Danger	This warning applies to all procedures that represent a risk for the
	operator if the process cannot be performed with care.
Note	
(i)	provides practical information about handling the machine

Annex documents:

Test report
Test and measurement report



1. Receipt, transport

1.1 Receipt

Check the visible external condition of the delivered shipment. If it is in good condition, the shipment can be accepted by the carrier (parcel service or freight forwarder).

If there is no objection or any transport damages detected, the completeness of the shipment must be checked against the delivery note.

If any transport damages occur after a successful acceptance, a production log with an exact report and a photo about the extent of the damage must be immediately prepared. Please send us the production log immediately by fax. Absolutely no changes may be made to the delivered shipment.

On the basis of this production log, we should be able to assess whether the damage can be remedied

- by delivery of spare parts or
- by sending a specialist technician or only
- by returning the device.

1.2 Transport

The mortar mixer is supplied in suitable cardboard packaging, standing on a pallet.

The weight of the mortar mixer is approx. 22 kg. Dimensions of the mortar mixer are H=568, W=235, D= 396

The mortar mixer 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.

Wrapping with ropes or similar lifting gear is only permissible if it is ensured that no lateral forces are exerted on the packaging and therefore also possibly on parts of the mortar mixer.

1.3 Removing the transport packaging

To remove the transport packaging, proceed as follows:

- Open the lid of the transport packaging
- Remove the cardboard or styrofoam transport protection (inserts)
- Side panels should be cut open at the vertical edges
- Cut side panels at the horizontal bottom edges



Danger	The packaging materials (plastics, polystyrene, screws, nails, wood etc.) must be kept away from children. They must be disposed of correctly.
Warning	Before disposal of the packaging, please check to see whether there are any further components, instructions, documents or replacement parts in the packaging.

After unpacking the device, make sure that the mortar mixer has not been damaged in any obvious way during transport. If in doubt, do **not** plug in the device and contact your seller.

1.4 Transport by hand

The mortar mixer can be transported to its intended destination by hand. Its weight is about 22 kg.

2. Scope of delivery

Item	Amount	Description	Serial number
1.	1	Mortar mixer (including operating instructions)	1.0204.LV
2.	1	Stainless steel stirrer	
3.	1	Stainless steel bowl	
4.	1	Power cable	
5.	1	Operating Instructions	



3. Basic safety instructions

3.1 Obligations of the operator

The operating instructions must be easily accessible and kept in the immediate vicinity of the mortar mixer. Only suitably qualified operating personnel may work with the mortar mixer. The operating personnel must be trained before using the mortar mixer. Check that the operating personnel have read and understood the operating instructions. Establish exact responsibilities for the operating personnel. Personal protective equipment must be provided to all operating personnel.

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

If the operational safety is compromised due to defects or damage to the mortar mixer, the mortar mixer must be taken out of operation immediately and must only be used again after all potential hazards have been eliminated.

3.2 Requirements for the operating personnel

The mortar mixer may only be operated by suitably qualified specialist personnel who have been assigned and trained by the operator. The minimum age for the operator is 18 years. Under 18 years of age, the mortar mixer may only be operated under the supervision of a qualified specialist. The operator is responsible for the work area of third parties.

3.3 Obligations of the operating personnel

The operating personnel must read the operating instructions carefully before handling the mortar mixer. Please observe the safety regulations. When handling the mortar mixer, personal protective equipment must be worn.

3.4 Workplace

The workplace is located at the control panel in front of the mortar mixer. The workplace is determined by the customer-connected peripherals. It must therefore be designed by the operator in order to be safe. The workplace's design is also based on the applicable requirements from the German Health and Safety at Work Regulations (Betriebs-Sicherheits-Verordnung, BetrSichV) and the analysis of workplace hazards.



3.5 Dangers when handling the mortar mixer

The mortar mixer is constructed in accordance with the latest technology and accepted technical rules. Nevertheless, danger to the user's life or that of third parties or damage to machine parts or other property may occur during its use.

The mortar mixer must only be used

- for the intended purpose
- and in a technically faultless safe condition.

Faults that could impair safety must be eliminated immediately.

4. Basic information

4.1 Intended use

This description contains the required information for the intended use of the products they describe. It is intended for technically qualified personnel. The operator must define his staff's area of responsibility precisely.

Qualified personnel are persons who, based on their education, experience, and instruction as well as their knowledge of relevant standards, provisions, accident prevention regulations and operating conditions have been authorized by those responsible for the safety of the machine to execute their respectively required activities and who can recognize and prevent any possible dangers while doing so (definition for specialist personnel according to IEC 364).

The requirements and limit values specified in these operating instructions and the safety instructions provided must be observed. Any other use is considered to be improper. If special work practices or conditions are required, the manufacturer's consultation and approval should be acquired.

The manufacturer accepts no liability for damages caused as a result of a failure to observe these "safety and operating instructions".

The mortar mixer is used exclusively for the mechanical mixing of mortars and cement paste for the production of test specimens according to different standards.

Intended use includes the following applications:

The requirements and limit values, as well as the safety instructions provided in these operating instructions, must be complied with in all cases.

Note

The mortar mixer is designed for operation in dry spaces.



Any other use is considered to be improper. If special work practices or conditions are required, the manufacturer's consultation and approval should be acquired.

Note



The operating instructions indicated in these instructions only apply to the correct use of the mortar mixer. In order to perform the operation correctly, the user must observe the specific standards for the test.

- These operating instructions are intended for the forwarding agent, the installer, the operator, the maintenance technician and the disposal company.
- Please read these instructions carefully, because they describe how the mortar mixer is safe to operate.
- These operating instructions shall be considered to be part of the product and only apply to the mortar mixer that they are supplied with.
- Keep the operating instructions in a suitable condition throughout the entire operating period, so that they can be consulted if necessary.
- If the mortar mixer is to be sold, the operating instructions and the attachments must be handed over with it.
- The manufacturer assumes no liability for any damage caused resulting from an improper use of the device.
- Subject to change without notice: The manufacturer reserves the right to make alterations to the technical descriptions as well as the parts to which these descriptions refer to, without any prior notice.

4.2 Improper usage

The mortar mixer may only be used in a technically flawless condition.

Only use the mortar mixer for the described use, any improper use shall result in the loss of the warranty claim.

Manipulations and modifications to the mortar mixer (electrical, mechanical changes, etc.) that have not been authorized in a written agreement with the manufacturer are considered to be prohibited and the manufacturer does not accept any claims for damages. We recommend only using original spare parts and accessories; otherwise the manufacturer assumes no liability.

Ensure that no hazardous situations occur during the work. The mortar mixer must be switched off immediately if it does not work properly and the manufacturer or their authorized service personnel must be notified immediately.

Not intended use and therefore not permissible are the following:



- Mixing of substances other than those specified under 4.1
- Filling and processing of food
- Overfilling the mixing bowl
- Setting up and operating the mixer in environmental conditions other than those named under 6.1

4.3 Information about the CE marking

TESTING Bluhm & Feuerherdt test equipment carries the CE symbol.

The CE marking confirms the conformity of the product with the EC directives relevant to the product and compliance with the "essential requirements" defined therein, i.e. the established, generally applicable level of protection. The conformity assessment procedure has been carried out in accordance with the applicable EC directives. Decisive here is Council Decision 93/465/EEC on the modules to be used in the technical harmonization directives for the various phases of the conformity-assessment procedure and the regulations for the affixing and use of the CE marking.

4.4 Requirements imposed on the operator

The person operating the equipment must ensure that they do not put themselves or anyone else at risk. Only persons who have been instructed in the operation are allowed to operate the device independently.

If the operating safety is compromised by faults or damage to the device, it must be taken out of operation immediately and must only be used again after the elimination of all hazards.

Check to see whether the specification given on the identification plate corresponds with your power supply voltage. Connect only to alternating current.

If the device or the connection cable is damaged, pull out the power plug immediately.

Danger



Take the necessary precautionary measures when mixing, in order to prevent dust from getting into the eyes, mouth and nose.

• The use, lifting, installing, waiting and scrapping of the mortar mixer may only be carried out by qualified personnel. Qualified employees are persons who are authorized to work with the machine on the basis of their experience and knowledge concerning the operation of the mortar mixer and the directives, regulations and handling. The



user must be carefully trained, in order to operate the machine and safety equipment with which the machine is equipped, in order to avoid an incorrect use. Safety equipment must always be installed and checked daily.

- Manipulations and modifications to the machine (electrical, mechanical changes, etc.)
 that have not been authorized in a written agreement by the manufacturer are considered to be prohibited and the manufacturer does not accept any claims for damages.
- Ensure that no hazardous situations occur during the work. Stop the machine immediately if it does not work properly, and immediately notify the manufacturer or their authorized service personnel.
- Do not place any wires or tools in the existing openings.

4.5 General safety instructions

Warning



All instructions must be read. Failure to comply with the instructions that are described below could cause electric shocks, fires and/or serious injuries.

1) The workplace

- Keep your working area clean and tidy. Disorder and unlit work areas may result in accidents.
- Do not work with the mortar mixer in hazardous environments where there are flammable liquids, gases or powders. Electrical tools produce sparks that may ignite the powder or vapors.
- Keep children and other persons away from the device during use. You could lose control over the device if you are distracted.



2) Electrical safety

- The mortar mixer contains an IEC power connector (IEC 60320 C14).
- The supplied connecting plug type F (CEE 7/4) of the mortar mixer must fit into the corresponding socket (CEE 7/3). The plug must not be changed in any way. Do not use adapter plugs together with protective grounding devices. Unchanged plugs and suitable sockets reduce the risk of electrical shock.
- Avoid bodily contact with grounded surfaces, such as pipes, heaters, stoves and refrigerators. There is an increased risk of electrical shock if your body is grounded.
- Keep the device away from rain or moisture. The penetration of water into an electrical appliance increases the risk of electrical shock.
- Do not use the cable to carry the device, to hang it, or to pull the plug out of the socket. Keep the cable away from heat, oil, sharp edges or moving parts. Damaged or tangled cables increase the risk of an electric shock.

3) The safety of personnel

- Be attentive, pay attention to what you do, and work rationally. Do not use the
 device if you are tired or under the influence of drugs, alcohol or medication. A
 moment of carelessness during use of the device may result in serious injury.
- Wear personal protective equipment and always wear protective goggles. Wearing
 personal protective equipment, such as a dust mask or non-slip safety shoes, reduces the risk of injury.
- Remove adjusting tools or wrenches before turning the mortar mixer on. A tool or key that is in a rotating part of the device can cause injury.
- Wear suitable clothing. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothing, jewelry or long hair could become tangled in moving parts.

4) Careful handling and usage of power tools

- Remove the power plug from the socket before carrying out any device settings or changing accessory parts. This precautionary measure prevents an unintentional turning on of the device.
- Keep unused power tools out of reach of children. Do not allow persons to use the
 device who are unfamiliar with the device or who have not read the instructions.
 Power tools are dangerous when used by inexperienced persons.
- Maintain the device with care. Check whether movable parts of the device are functioning properly and do not jam, whether parts are broken or damaged, in such a way that the function of the device is compromised. Have damaged parts of the device repaired before use. Many accidents are caused by poorly maintained machines.
- Use power tools, accessories, insertion tools, etc. according to these instructions and as required by this particular type of device. Take into account the working conditions and the work to be carried out. Using power tools for applications for which they were not intended can lead to dangerous situations.



5) Service

 Allow your device to be repaired only by qualified specialist personnel and only with original replacement parts. This will ensure that the device will remain safe.

4.6 Protective clothing

The operator must ensure that all personnel wear the appropriate protective clothing, for example:

- Safety shoes
- Suitable outer clothing
- Protective gloves
- Face protection
- Respiratory protection

4.7 Regular checks

The mortar mixer must be checked for industrial safety at regular intervals. There are national regulations for this, which must be observed.

5. Description of the mortar mixer

5.1 Mechanical structure

The housing of the mortar mixer is made of stable aluminum and stainless steel.

The mixer is made of stainless steel and is coupled with the planetary gear by a snap closure. It rotates on its own axis and is moved by an electric motor in a planetary motion around the bowl axis at 2 fixed speeds.

The mixing bowl is made of NIROSTA steel and can be removed from the working position after lowering.

This distance can be adjusted by loosening two clamping screws.



5.2 Safety devices

The mortar mixer is equipped with the following safety devices:

1. EMERGENCY STOP switch

When the EMERGENCY STOP switch is pressed, the drive motor is disconnected from the 24V supply.

To put the mortar mixer back into operation, the EMERGENCY STOP switch must be returned to its basic position by turning it in the direction of the arrow.

2. Inductive, electronic proximity switch

The proximity switch above the mixing bowl holder detects the edge of the mixing bowl.

If the mixing bowl is not inserted into the mounting, the safety module prevents the mortar mixer from being operated. The motor cannot be powered up.

3. Fixed protective cover

The mixing bowl is covered in the mixing position by a fixed protective cover which encloses the stirrer on all sides.

6. Preparations for start-up

6.1 Installation site/environmental conditions

Warning



The operation of the mortar mixer is permitted only in dry rooms!

The following limit values apply:

Ambient temperature DIN EN 60204-1, 4.4.2 +5°C to +40°C Humidity DIN EN 60204-1, 4.4.3 30% to 95%

Note



Place the mortar mixer on a stable, level surface.

6.2 Electrical connection

An IEC power connection cable is used to provide the power connection of the mortar mixer. The mortar mixer contains an IEC power connector (IEC 60320 C14).

Voltage: 85-264V~; Frequency: 47-63Hz



7. Prior to first operation

Handling bowl and stirrer

7.1 Loosen and remove the stirrer

Move the right hand lever at the right side of the mortar mixer to the back and upwards. The mixing bowl lowers.

The container holder is in the lowered position.

Use your left hand to hold the mixer and firmly hold the cord ring of the mixer attachment with your right hand.

Turn the cord ring counterclockwise as far as it will go. Now pull the stirrer downwards.



Figure 1 Loosen and remove the stirrer

7.2 Removing the mixing bowl

Fold out the bolts of the bowl to the outside. Tilt the bowl slightly and remove it to the front.



Figure 2 Lower the mixing bowl and remove the stirrer

The bowl can now be filled, if desired.



7.3 Inserting the mixing bowl

The container holder is in the lowered position.

Insert the bowl so that the rear tab of the bowl first engages the rear of the recess in the mounting.

Then set the bowl on the pins and fold the latches towards the bowl.



Figure 3Inserting and locking the mixing bowl

7.4 Insert the stirrer and clamp securely

Insert stirrer laterally at an angle into the mixing bowl. Turn the cord ring counterclockwise as far as it will go. Position the stirrer under the holder so that the stud in the knurling surface and the flat surface on the stirring ring are aligned. Insert the stirrer into the holder as far as it will go and tighten the cord ring clockwise. Position the mixing bowl (lifting)

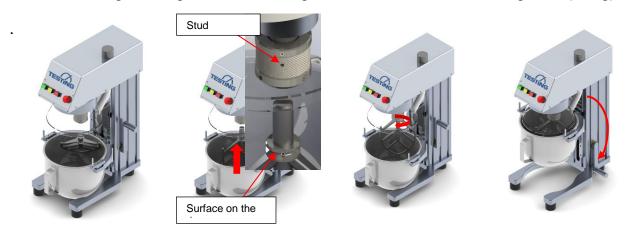


Figure 4Inserting and tightening the stirrer

Note

The mixer can not be started with the mixing bowl lowered or missing.



7.5 Checking the distance between mixing bowl and stirrer

If the distance between the mixing bowl and the stirrer is greater or lesser than the applicable standard allows for, this can be adjusted.

Warning

Disconnect the power plug before starting work!

This could result in serious injuries, as your hands can get caught in the rotating stirrer.

First, the mixing bowl must be lowered and removed (see point <u>7.1/7.2</u>). Now remove the contact protection. The contact protection is fixed with 3 spring ball pressure pieces. it only has to be pressed down.



Figure 5 Removing contact protection

Reinsert the mixing bowl and stirrer.

The stirrer can now be turned by hand.

With the spacing template (TESTING Art.-No.: 1.0203.07), the distance can be checked and adjusted as described in point <u>8.2</u> (see: Height adjustment). If the distance conforms to the standards, the contact protection is refitted.

Warning



Warning - do not use the mixer without contact protection!
This could result in serious injuries, as your hands can get caught in the rotating stirrer.



7.6 Correct distance

If the distance between stirrer and mixing bowl is not correct, remove stirrer and mixing bowl.

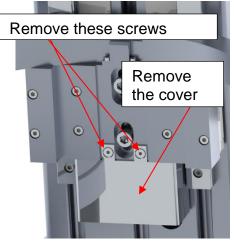
First, unscrew the cover.

Slightly loosen the two clamping screws.

Now loosen the lock nut of the adjusting screw at the lower end of the mixing bowl holder, and then set the distance with the help of the adjusting screw from the mixing bowl mounting and retighten the clamping screws.

Check the distance with the spacing template.

- By turning the adjusting screw in a clockwise direction, the distance is reduced.
- By turning the adjusting screw in a counterclockwise direction, the distance is increased.
- Insert bowl and stirrer and check the distance, repeat the process until the distance is correct.
- If the distance is set correctly, the lock nut, the adjusting screw and both of the clamping screws on the holder for the mixing bowl must be tightened **firmly**. The contact protection must be reassembled, the mixing bowl and the stirrer must then be inserted.



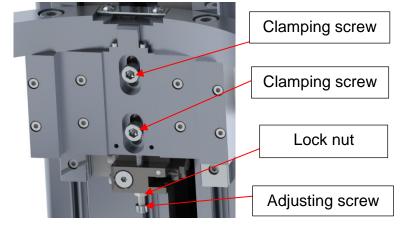


Figure 6 Height adjustment



8 Optional splash guard ring

In order to avoid splashing out of the material with very thin-bodied sample material, there is an optional splash guard ring for the mortar mixer. The optional splash guard ring can be ordered using the catalog number "1.0204.TEN-07".



Figure 7 Mixer with splash guard ring

8.1 Installing the splash guard ring

To install the splash guard ring, remove the stirrer and the bowl, push the splash guard ring onto the protective cage until it snaps into place.

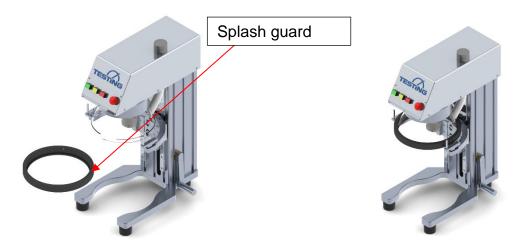


Figure 8 Installing splash guard ring



9. Operation

9.1 Switching the mortar mixer on and off

Connect the power cable to the IEC power connection of the mortar mixer and the socket.

Turn on the mortar mixer, the power switch lights up.

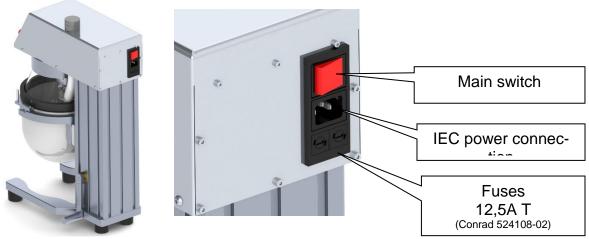
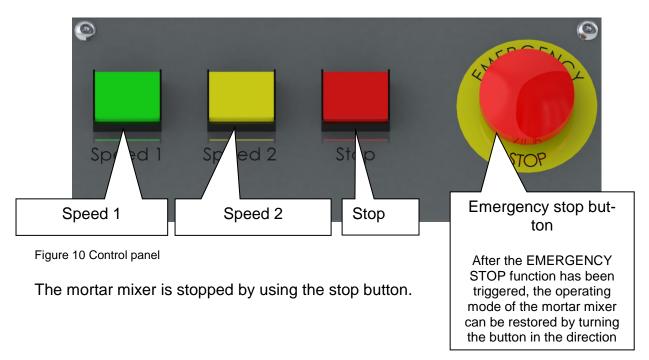


Figure 9 Power switch/Power connection/Fuses

9.2 Explanation of the control unit

If the mortar mixer is switched on and the mixing bowl is up, the mortar mixer can be started at one of the two speeds.





10. Setting speeds

Both the speed levels of the mixer are already set correctly by the manufacturer. If the speeds are to be adjusted, the cover must be removed. For this purpose, the funnel holder has to be removed and the 6 screws of the cover have to be unscrewed. Now the cover can be removed.

Warning



Attention - the set speed should only be adjusted if a corresponding measuring device (stroboscope) is available to determine the rotational speed.

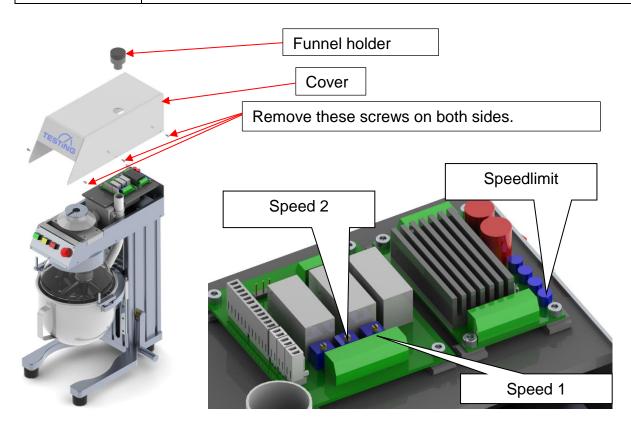


Figure 11 Boards

The speed can be adjusted by turning the respective potentiometer while the motor is running.

Speeds of the mortar mixer according to DIN EN 196-1			
	Rotation (min ⁻¹)	Planetary movement (min ⁻¹)	
Speed 1	140 ± 5	62 ± 5	
Speed 2	285 ± 10	125 ± 10	



11. Warranty

In principle, our General Conditions of Sale and Delivery are applicable.

The manufacturer provides a guarantee that these operating instructions have been compiled in accordance with the technical and functional parameters of the mortar mixer supplied.

The manufacturer reserves the right to add supplementary information to these operating instructions.

The manufacturer provides the statutory warranty. Exceptions to this warranty are wear parts.

The manufacturer guarantees trouble-free operation only if the guidelines in these operating instructions are observed and when used as intended.

The manufacturer is not liable for damage resulting from the incorrect use of the mortar mixer or the failure to comply with the guidelines and codes of conduct contained in these operating instructions.

Warranty claims made to the manufacturer are excluded if the mortar mixer is modified without the written consent of the manufacturer, in terms of its construction or functional design.



12. Connection plan

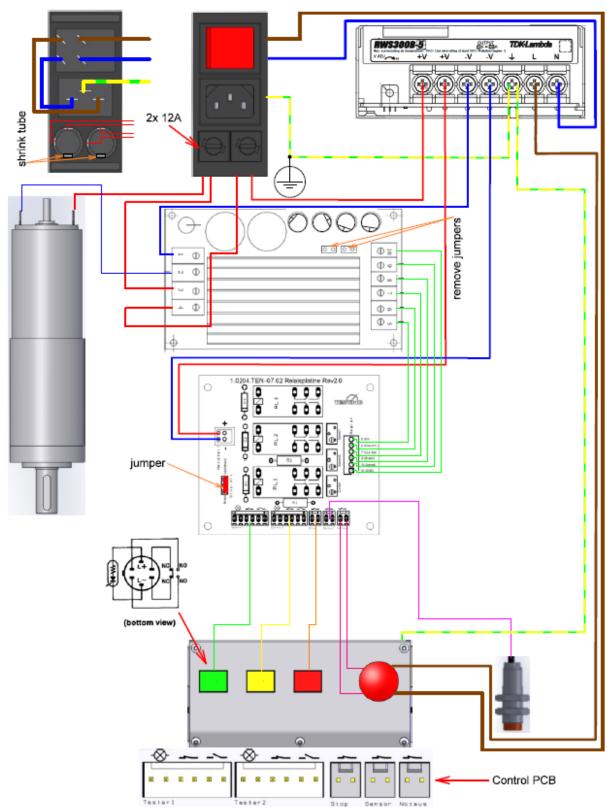


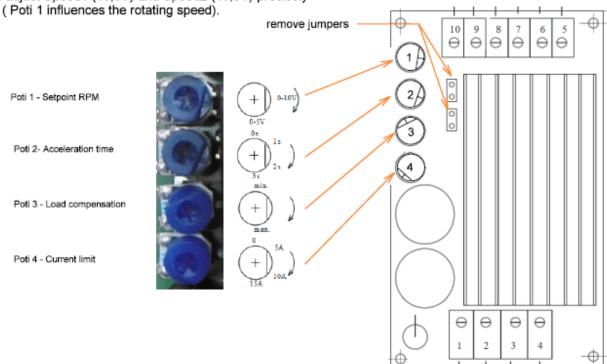
Figure 12 Connection plan

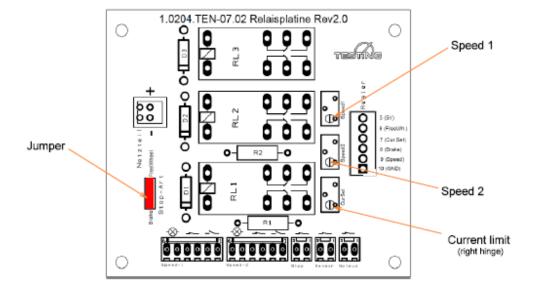


Settings Motor controller:

(potentiometer = short "Poti")

- 1. Poti 3 and 4 turn anti-clockwise to stop, Poti 2 turn clockwise to stop
- 2. Poti 1 adjust to a slow rotasting motor (approx. speed1).
- Poti 3 adjust unless motor cogs, then slightly turn back unless cogging ends (smooth running motor)
- 4. Measure voltage at motor (approx. 10V)
- 5. Current limit at PCB: turn clockwise to stop
- adjust Speed1 (10,5V) and Speed2 (19,9V) precisely (Poti 1 influences the rotating speed)







13. Cleaning and maintenance

13.1 Cleaning the mortar mixer

If external cleaning of the mortar mixer is necessary, depending on the frequency of use or ambient conditions, proceed as follows:

- 1. Switch off the MAIN SWITCH.
- 2. Remove the power plug.
- 3. Any loose lying dust should be removed using a brush or by vacuuming
- 4. If necessary, the mortar mixer can be cleaned externally with a damp cloth.

Normal household detergents can be used as additives.

Warning



Any cleaning with pressure, spray or gushing water, as well as water being introduced with dripping sponges or similar unsuitable aids, results in sustained damage to mechanical and/or electrical or electronic components of the mortar mixer.

13.2 Maintenance of the mortar mixer

The mixer is virtually maintenance-free. The bevel gear unit of the DC motor and the planetary gear unit of the mixer head are provided with sufficient lubrication for approximately 5,000 operating hours.

After several years of operation, a thorough cleaning and relubrication of the gear units with suitable lubricants is recommended.

Due to the very compact design of the mixer, we recommend that you use our maintenance service.

13.3 Checking and adjustment

Depending on the mortar mixer's frequency of use, the distance between the stirrer and the mixing bowl may need to be checked (see point 8)

This distance is increased by normal wear of the mixer and may need to be readjusted.



13.4 Taking the mortar mixer out of operation

- 1. Switch off the MAIN SWITCH.
- 2. Disconnect the mortar mixer from the power supply
- 3. Cover the mortar mixer with the dust cover
- 4. Store the mortar mixer in a dry place

Warning



Safety note!

- 1. Work on electrical equipment may only be carried out by qualified personnel!
- 2. In the event of a fault and/or before disassembling covers, pull out the power plug!

Note



In the event of a fault, the mortar mixer must be disconnected from the power supply. The IEC power connection has two safety fuses (one for each speed). These can be checked and replaced with new, identical safety fuses if necessary.

For further fault finding and the remedy of defects, please refer to our detailed description of the control system and the electric wiring diagram accompanying these operating instructions.

14. Disposal

To prevent damage to the environment, always ensure that the used mortar mixer is only disposed of by authorized specialist companies or by the manufacturer.



14. Issue date of the operating instructions

^{5st} edition 04/2019

15. Copyright

The copyright remains with the company

TESTING Bluhm & Feuerherdt GmbH

These operating instructions are intended only for the operator and his/her personnel. It contains specifications and instructions that may not be

- replicated
- distributed or
- communicated by other means.

Infringements of this provision are punishable under criminal law.

16. Address of the manufacturer

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e-mail: info@testing.de