Operating Manual

for

the semi automatic

Injector

PR

Operating instructions for the Rühle-Curing Machines

PR 8, PR 10, PR 15, PR 20, PR 25, PR 30, PRT 50, PRT 60

Contents

Page

1.	Contents
2.	Introducing the machine
3.	Safety instructions
4./5.	Machine installation
6./7.	Operating the machine
8.-10.	Cleaning the machine
11./12.	Machine maintenance
13.	Guarantee services

Stand: 18.03.1995

Introducing the machine

The RÜHLE automatic curing machines can be used to inject a wide range of products.

The main field of applications are:

- Curing meat
- Curing poultry
- Curing fish

All the products to be processed can be cured with and without bones.

A few examples of this are:

Belly pork	Loin	Pig`s head
Tongue	Ham	Turkey
Chicken	Game	Salmon

For poultry and fish RÜHLE automatic curing machines are fitted with special needles and pressure springs to suit the more sensitive nature of the product.

The basic equipment of the machines comprises of a completely retractable protective cover, a stainless steel pump, and an automatic, removable conveyor belt.

In types PR 25, PR 30 and PRT 60, the conveyor belt speed can also be regulated in three stages.

Apart from the product mentioned above, no other materials should be processed with the RÜHLE automatic curing machine, unless agreement is obtained in writing from RÜHLE.

The RÜHLE meat processing machinery company reserves the right to make technical modifications in line with technical progress.

Safety instructions

The machine must be installed by RÜHLE customer or a person authorised by RÜHLE.

Any maintenance work must only be carried out by RÜHLE customer service or persons authorised by RÜHLE.

After connecting the machine, all the safety devices must be checked for functionality.

Should a safety device malfunction, the machine must not be used, and the fault must be remedied immediately.

The safety devices must be tested at least once a year.

Every person who comes into contact with the machine must first read, understand and observe the operating manual.

Under no circumstances should the machine be structurally modified. If the machine has obviously been structurally modified, it must not be used until it has been returned to its original condition.

When the machine is being moved, no person other than the operator should be in the vicinity of the machine.

The machine must only be operated by trained personnel.

Before it is moved, the machine must be disconnected from the mains.

The described cleaning method must be strictly followed.

If the machine is resold, the operating manual must accompany it.

Machine installation

- Place the machine in the desired position.

  Important: Ensure that the machine is in an ambient temperature between 1 ° C and 50 ° C.

- To permit movement of the machine, there is a handle on the front side with which the machine can be raised.

- The machine can now be moved to the required position on the wheels mounted at the rear.

  Important: The machine should only be moved when the mains plug has been disconnected.

- The plug supplied with the machine must be connected to a socket with connection values of 380V / 16 A.

  For safety reasons, the connection point must be located above the machine.

  The connection socket must be installed and tested by a professional.

  Caution: If the machine has been supplied on request with different power connection values, the appropriate power socket should be used. Please check the data on the rating plate of the machine.

- Place a bucket of clean water under the front end of the machine and immerse the suction filter in the water.

- Place the cleaning plate under the needle bar.

  To do this, the needle bar must be stopped in the highest position.

  The plate is inserted so that the round cutouts lie close to the plastic bushes of the needle bar guides.

  Important: Ensure that the plate does not lie on the bushes, as otherwise this could result in damage to the machine.

- Switch on the machine and set the injection pressure as high as possible by turning the pressure adjustment knob clockwise.

  You can read the pump pressure from the pressure gauge.

  Caution: If bubbles rise in the bucket of water and no water is sprayed out of the needles, the two black cables in the mains plug must be changed over.

  Do not become irritated by the indicator on the pressure gauge falling each time the needle bar is lowererd, this is completely normal and does not in any way influence the quantity injected.

  After approximately 3 minutes you can stop the machine again.

  Important: Always ensure that the machine is only operated when the suction filter is resting in a container filled with water or brine. If the machine should run dry, damage can occur to the impeller wheel in the pump.

- You can now remove the cleaning plate under the needle bar again.

  To do this, the needle bar must be raised to the highest position.

Operating the machine

- Now prepare your usual brine in a container.

  We recommend a chilled brine at + 10 ° C to ensure the optimum meat temperature for the subsequent tumbling process.

- Place the brine container under the machine exactly below the return filter and completely immerese the suction filter in the container.

- Suspend the conveyor belt run-in plate in the two holding bolts laterally above the front end of the conveyor belt.

- Start the machine by pressing the start button.

- You can now adjust the desired pressure at the setting knob.

  For example: A 20 % injection quantity is desired. Adjust the pressure so that a pressure of 2 bars is reached.

  10 % corresponds to 1 bar and 30 % corresponds to 3 bars.

  Since each machine has a certain pressure tolerance, it is necessary to check the first item injected by weighing it before and after injection.

  Should the difference in weight not correspond to the desired quantity to be injected, you must increase or reduce the pressure accordingly.

- Now place an empty container under the delivery side of the machine into which the cured product can fall.

  For type PR 20 and larger machines, a standard truck can also be placed under the machine delivery side.

  Should you also require this for smaller types, you can obtain a supporting frame from RÜHLE which can also be fitted later.

- You can now place the products to be cured on the conveyor belt one after the other.

  With the different types of meat, be sure that they are laid on the belt as described below. This way you can be sure of an optimum curing result.

For machines with two rows of needles, you can inject the full pressure in one operating prodecure. This applies to machines of type PR 15 and larger.

For machines with a single row of needles, it is advisable to halve the pressure and to run the product through the machine twice.

There is otherwise a danger of tearing the meat tissue at the injection points. This applies to types PR 8 and PR 10.

- Tongues require special handling.

  These should be cured by passing them twice, through a two-row machine or three times through a single-row machine. This is necessary as the tongue has very fine and firm tissue and therefore reacts very sensitively to high pressure.

- Products with bones can be processed in exactly the same way as products without bones.
  However, when processing these, ensure that the side where the bone is present lies on the conveyor belt.

- Belly pork and ham with the skin on must be placed on the conveyor belt with the skin side in contact with the belt.

- Poultry must be placed on the conveyor belt with the breast side down on the belt.

Caution: Since poultry has a particularly sensitive tissue structure, excessive injection pressure should not be set under any circumstances.
The machine must also be equipped with a poultry fitting.

- Fish can be injected lying on its side.

Caution: Since fish has a particularly sensitive tissue structure, it must only be injected with a special fish attachment.

- When the last piece of meat has been cured, the machine can be stopped by pressing the stop button.

Cleaning the machine

- After the operating process has ended, the machine is stopped by pressing the stop button.

  When doing this, ensure that the needle bar stops at its highest position.

  When the machine stops, the conveyor belt clutch releases automatically.

  Important: If the machine is disconnected by moving the safety cover, the conveyor belt remains locked. To release it, you must then press the stop button.

- Now prepare a container of lukewarm water. Ensure that the water is not hotter than 60 ° C, otherwise there is a risk of the albumin coagulating in the hose system and thus damaging the machine.

  A special cleansing agent for injectors, which is obtainable from most specialist dealers, must be added to the water.

- Now place the cleaning plate under the needle bar in such a way that the semi-circular cutouts at the side of the plate lie close to the needle bar guides.

  Caution: Under no circumstances must the cleaning plate lie on the guides, otherwise the machine could be damaged.

- Now place the container with the cleaning water under the return filter at the front of the machine and immerse the suction filter completely.

- Start the machine by pressing the start button.

- After 3 minutes, switch off the machine using the stop button, ensuring that the needle bar is again in its highest position.

- Remove the cleaning container from under the machine and also the cleaning plate under the needle bar.

- By releasing the two bolts on the inner side of the safety cowling the front view panel can be taken out upwards.

  The complete safety housing can then be opened up over the rear of the machine.

- Now take out the conveyor belt run-in plate at the front side of the conveyor belt, by tilting it upwards and then taking it off the machine forwards.

- If the conveyor belt is still interlocked, because the machine was stopped via the safety machanism, operate the stop button to release the belt.

  You can now pull out the stop bar to the side and push the conveyor belt out of the rear of the machine lifting slightly.

  (For safety reasons the belt cannot be completely removed but you are able to clean every part without problem).

  To clean the front area of the conveyor belt, you can raise it at the front side of the machine when it is in its working position.

- Now remove the suction filter by rotating the complete filter to remove it from the hose connection piece and dismantle it into the three parts.

- Pull the return filter out of the machine like a drawer.

- The exterior of the machine must now be cleaned with a brush.

  When doing this, proceed in the following order:

  - The complete needle bar
  - The upper side of the conveyor belt (rotate the belt manually when doing this)
  - The inner side of the safety housing
  - The outer side of the safety housing
  - The outer sides of the machine
  - The individual components of the suction filter
  - The conveyor belt run-in plate
  - The return filter

  When all parts have been thoroughly brushed, the whole machine can be rinsed with lukewarm water. Should you use a high pressure cleaner, please ensure that the high pressure water jet does not under any circumstances come into contact with the electrical controls.

Disinfection

- When applying the disinfectant, proceed in the same sequence as when cleaning with the brush. Only use disinfectant which has been expressly approved for use in the foodstuffs industry.

Assembly

- After external cleaning, the belt can be pushed in again.

  Slightly raise the front side of the conveyor belt and push it from the rear towards the front.

  Now push in the stop bar on the machine operating side so that the belt frame can rest on the bar.

  The stop bar must be pushed through the hole provided on the opposite side of the machine in order to secure it.

  Important: Ensure that the front end of the belt is lying level with the front edge of the machine. If this is not so and the machine is started, the conveyor belt clutch cannot engage. The clutch must then be released by pressing the stop button. The belt must then be brought into the correct position before starting the machine again.

- Now assemble the three parts of the suction filter and screw them onto the hose connector.

- Push the return filter under the return trough again.

- Pivot the complete safety housing back onto the upper part of the machine and place the front view-panel of th machine onto the centring pins. Ensure that the guide bolts at the side and at the top of th front view-panel are let into the safety housing.

  You can now push the two bolts on the inside of the safety cover against the front view panel, so that the complete safety housing is secure.

- The conveyor belt run-in plate con now be put back in position.

  Guide the run-in plate from above into the corresponding locating bolts on the front side of the machine, and then bring it into the horizontal position.

Machine maintenance

Machine maintenance must be carried out once every year.

The technical operations must only carried out by RÜHLE customer service or by a person authorised by RÜHLE.

Necessary maintenance tasks:

- Cleaning the technical components inside the machine.

  Lubrication of:

  - Joints
  - Free-wheel on the belt drive
  - Ball bearing on the gears

- The functioning of the following components must be checked:

  - Needles in the needle bar
  - Pump impeller wheel
  - Drive rollers for the needle bar

- Small maintenance tasks can be carried out by anybody who is technicaly minded.

  This applies to the replacement of a faulty impeller wheel and to fitting replacement needles.

- Replacing the impeller wheel

Symptoms: If the pump pressure no longer reaches the desired value it is highly probable that the impeller wheel has become worn.

Procedure:
- Tilt the machine over onto the transport handle.
- Slacken the screws on the pump cover.
- Using two pairs of multi-purpose pliers, remove the pump housing.

Caution: Ensure that all parts of the impeller are removed.

- Now with gentle rotation push the new RÜHLE impeller into the pump casing.
- You can now close the pump over again.

  Be sure that the cover seal is properly inserted.

- Fitting a replacement needle

Symptoms: Should a needle become bent, it must be replaced by a new one. If the neelde is only blocked, it can be reused after cleaning.

Procedure:
- Hold the needle tube firmly with pliers or a 12 mm spanner.
- You can now slacken and unscrew the needle with a 14 mm spanner.
- If blocked you can push a thin wire through the needle.
- The needle can then be inserted again.

Guarantee services

Intensive quality assurance means that the machines are inspected for possible quality deficiencies at all stages of production through to delivery.

However, should we fail to detect a defect, please inform us immediately, so that we can elilminate it as quickly as possible.

For electrical components, we offer a guarantee of six months.

For all other components the guarantee period is one year.

Needles and impellers damaged by wear are excluded from this guarantee.

Any faults or damage caused through operating errors by the user are excluded from the guarantee.