



***Translation of the original instructions***

**RÜHLE - Curing Machine**

***Type: PR 8 - 20***



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# 1 Safety Instructions

!!! Observe the safety instructions during the installation, operation, cleaning and maintenance of the Rühle curing machine!



Hazard potentially causing irreversible injuries if disregarded.



Warning, potentially causing serious injuries if disregarded.



Note



Work on electrical equipment of the machine may only be carried out by qualified technicians!



Always disconnect machine from the mains during this process!

## 1.1 Safety instructions

!!! A **supervisor** (responsible person) must be appointed for the machine!

This person must:

- a) Completely read and understand these operating instructions before transport, commissioning, setup, operation, cleaning, decommissioning, care / maintenance as well as dismantling / disposal!
- b) Prepare work instructions for the intended and safe transport, commissioning, setup, operation, cleaning, decommissioning, care / maintenance as well as dismantling / disposal!
- c) Make sure that the qualified workers have completely read and understood the respective work instructions according to section 1.1b!
- d) Proper functioning of the protective devices must be checked at least once a year by a Rühle service technician!

e) Provide personal protective equipment!

All life cycles phases:



Wear foot protection!



Wear hand protection!



Wear protective clothing!

Cleaning; care / maintenance; dismantling:



Wear eye protection!



Use light breathing mask!

!!! The **operator** must operate the machine according to the intended use and strictly observe all points listed in the "Operation" work instructions prepared by the supervisor.

!!! Before putting the machine into operation for the first time and on each working day, the **operator** must check the functionality of the following safety devices:

- a) Visual check for changes or damages on all machine sides and accessible machine parts, e.g. the needles. The machine must be shut down in the event of any damages or changes!
- b) Check the safety switches as follows:  
Close the hood and hook the protective guard on the inlet of the hood.
  - Start the machine. - Press the stop button. - If the machine has not switched off, it must be shut down immediately!

- Start the machine. – Lift the “Inlet” reach protection by 20mm. – If the machine does not switched off, it must be shut down immediately!

!!! To **shut down** the machine the stop button must be pressed and the power plug pulled from the outlet! The machine must be secured against further use!

!!! The **supervisor** must arrange for the repair of the non-functional safety device by a Rühle service technician. Until the corresponding parts have been repaired, the supervisor must ensure that the machine or parts of the machine are under no circumstances put into operation!

!!! The **cleaning personnel** must observe the work procedures from the “Cleaning” work instructions prepared by the supervisor.

!!! The **maintenance personnel** may only carry out work specified as “Regular care”, unless any other authorisation has been issued in writing by the manufacturer of the machine. The maintenance personnel must observe the work procedures from the “Maintenance” work instructions prepared by the supervisor.

The power plug must be disconnected for maintenance work!

!!! The machine may not be modified.

!!! Only Rühle spare parts and accessories may be used.

!!! The operating instructions as well as all other technical documents included must be supplied completely when reselling the machine.

## **1.2 Remaining risk of accidents**

!!! All life cycles phases



Damaged curing needles and softer blades must be replaced!

Any manipulation and bypassing of the safety devices is strictly prohibited!

The safety notes of the manufacturers must be observed when handling curing, cleaning or disinfecting agents!

!!! Maintenance



The machine must be disconnected from the mains when performing maintenance work!



The protective covers (protective guard, hood, etc.) may be removed only while performing maintenance!

## **1.3 Intended Use**

The curing machine may only be used for the injection of pickle into fish, meat and poultry products. Special needles and compression springs are needed for processing fish and poultry!

The max. room temperature may be 12 °C for reasons of food hygiene!

This machine may not be operated by persons under the age of 18!



Claims of any type because of damages due to non-intended use are ruled out!

### **Misuse:**

- Any use other than the one listed above is strictly prohibited and is considered misuse!
- Operating the machine in explosion hazard areas is prohibited!
- Handling / processing products and materials not belonging to food products is prohibited!

- Handling / processing fish and poultry products without special needles and compression springs is prohibited!

## **2 Installation instructions**

Installation and commissioning of the curing machine may only be carried out in the presence of a Rühle service technician or by persons authorised by Rühle.

Rühle GmbH Lebensmitteltechnik shall not be liable for any damage resulting from non-compliance with these operating instructions.

### **2.1 Machine transport and setup**

Please refer to the short instructions supplied with the machine regarding transport and setup of the curing machine.



The machine and machine parts must be transported by 2 persons (1x operator of floor conveyor / 1x transport supervision).

The power supply line must not be damaged by driving over or pinching it!

The machine must be decommissioned until a damaged power supply line has been repaired!

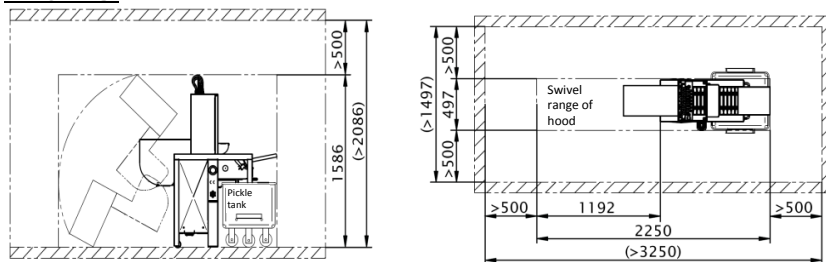


Make sure the machine is stable!

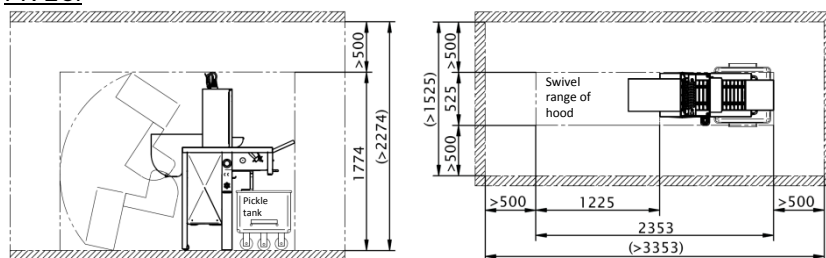


## 2.2 Workplace description

PR 8 - 15:



PR 20:



The work area around the machine is at least 0.5 m on all sides; for maintenance work it is at least 1 m; if used as passage way, it is at least 1.2 m.

## 2.3 Connecting the machine

The machine is connected to a three-phase current outlet; its data (voltage, amperage) must agree with the specifications on the type plate of the machine.



The machine must be decommissioned until a damaged power supply line has been repaired!

The power supply line must be regularly checked!

Check the correct rotational direction of the machine by starting it. Suctioning is not possible if the rotation field is wrong, the impeller pump runs dry and no pickle exists at the needle bar!



- In such a case, an electrician must change the direction of rotation inside the mains plug.
- The power supply to the machine must be fuse-protected with 16 A.

### **3 Operating instructions**

Please refer to the short instructions supplied with your machine for the operation of your curing machine.



Follow also the safety instructions in Chapter 1.1!

In its respective life cycle phases (transport, commissioning, setup, operation, cleaning, decommissioning, care / maintenance, dismantling / disposal) this machine is designed for 1-person operation!

When using this machine, no other person may be present near the machine!

The following is strictly prohibited and anyone disregarding this prohibition acts gross negligently when:



- Reaching on the outlet side through the protective guard into the curing chamber during operation; the same applies to the inlet side!
- Operating the machine without side cover!
- Operating the machine without perforated basket on the suction unit!
- Manipulating the protective devices of the machine or deactivating them!

Working on the machine without the side covers installed or without the perforated basket installed on the suction unit is only permitted to a Rühle service technician during the service phase!



The operator must make sure that no persons, who do not know the hazards of the machine or cannot anticipate them, are about in the area of the machine!



The operator controls may only be operated with the fingers. Using any objects (e.g. blade) is prohibited!

## **4 Cleaning instructions**

The curing machine has been designed to allow for complete cleaning of all parts that come into contact with the food product.

### **4.1 Safety instructions**

- Follow also the safety instructions in Chapter 1.1!
- The cleaning staff must notify the supervisor immediately of any defects on the machine!
- The cleaning staff must use the specified cleaning agents and disinfectants!
- Germ reduction is achieved only by correct cleaning and subsequent disinfection!
- Appropriate material (e.g. brushes, rags, ...) is required and must be provided for the proper procedures of the above!
- Cleaning products and disinfectants approved for the food product area and suitable against contamination (e.g. protein, lime-scale, ...) must be used!
- The cleaning agents and disinfectants must be prepared to a solution as described in the product data sheet of the manufacturer!
- Personal protective equipment must be worn!



### **Cleaning with high-pressure cleaners**

is permitted only for:

- all external surfaces (all outside stainless steel surfaces + machine bases),
- reach-protection (inlet),
- reach-protection (outlet),
- inside of the hood,
- softer,
- needle bar,
- Transport belt,
- Perforated basket (pickle intake).

The operator controls must be cleaned manually and may not be exposed to a water jet!

All other parts and surfaces may be cleaned only with normal water pressure!

## **4.2 Cleaning agents and disinfectants**

The following cleaning agents and disinfectants must be used:

Cleaning agents:	Alkaline cleaning:	P3 - topax 12, P3 - topax 19, P3 - topax 66
	Acidic cleaning:	P3 - topax 56
Disinfectants:		P3 - topax 91, P3 - topax 99

Or:

Cleaning agents:	Alkaline cleaning:	Somplex F fat solvent
	Acidic cleaning:	Somplex foam, acidic
Disinfectants:		Tego 2000, Tego IMC

### **4.3 Cleaning procedure**

Please refer to the short instructions supplied with your machine for carrying out the cleaning procedure.



Inspect all needles and softer blades for damage or breakage!

## **5 Service: Care, maintenance, repair**

Any work related in any way with service may be carried out only by Rühle service technicians and by persons authorised by Rühle in writing. In this regard, a distinction is made between regular care and maintenance and repair. The respective qualification certificate must be issued explicitly for the corresponding work.



Follow also the safety instructions in Chapter 1.1!



Notify and obtain permission from Rühle customer service if welding or cutting work is required on the machine!



Make sure when working on the electrical equipment of the machine that



- this is only done by qualified personnel!
- the machine is always disconnected from power!

### **5.1 Regular care**

Regular care of the machine must be carried out at least once per week. This prevents malfunctions and signs of wear.

Any abnormalities detected during regular care must be reported to the supervisor! He must immediately initiate correction or maintenance or notify Rühle Service!

**Care schedule:**

- a) Disassemble the machine according to the cleaning instructions. Check for any parts moving with difficulty, material abrasion or other signs of wear and tear!
- b) Check softer blades for wear and tear, damage or broken blades!
- c) Check curing needles for wear, damage, chipped needles and clear passage!
- d) Check the needle system for leakage integrity!
- e) Inspection of all safety switches as outlined in Chapter 1.1 Safety Instructions!
- f) Visual check for changes or damages on all machine sides and accessible machine parts, e.g. the needles. The machine must be shut down in the event of any damages or changes!

**5.2 Regular maintenance**

Regular maintenance of the machine must be carried out every 2000 hours of operation but at least once per year.

**Maintenance schedule:**

- a) Inspect the safety devices as outlined in Chapter 1.1 Safety Instructions!
- b) Check the softer blades and resharpen, if necessary!
- c) Check the needles for free passage; replace if necessary!
- d) Replacement of the needle seals in the needle register!
- e) Replacement of impeller in the impeller pump!
- f) Check the seal kit of the impeller pump!
- g) Check belt for function and damage!
- h) Inspect the hoses (piping and needle system)!
- i) Check radial shaft seals for leak tightness; replace otherwise!
- j) Check function of the pressure gauge!
- k) Fill all lubricating nipples and moving parts in the machine compartment with grease!
- l) Test run with open machine (caution: moving parts)!

## **5.3 Repair and spare parts**

As a damaged part on a machine is usually damaged due to causes unrelated to the part, always carry out a fault diagnosis.

## **6 Disposal**

1. The following component contains low-viscosity grease:
  - Main drive gearboxDispose of the low-viscosity grease properly!
2. The following component contains oil:
  - Main drive gearboxDispose of the oil properly!
3. All other materials must be sorted and disposed of at a recycling facility!

## **7 Technical documentation**

### **7.1 Technical data**

Connection voltage:	400 V 50/60 Hz 3-phase AC / N / PE
Power consumption:	1.8 kW
Full-load current:	4.2 A
Back-up fuse max.:	16 A
Protection class:	IP54
Ambient temperature:	+2°C to +40°C
Dimensions, W x H x D	
PR 8 - 15:	2250 x 1586 x 497 mm
PR 20:	2353 x 1774 x 525 mm
Machine weight	
PR 8 - 15:	130 kg

PR 20:	170 kg
Transport weight:	
PR 8 - 15:	200 kg
PR 20:	300 kg
Output max.:	
PR 8:	500 kg/h
PR 10:	750 kg/h
PR 15:	1000 kg/h
PR 20:	2000 kg/h
Speed max.:	
PR 8 - 15:	60 strokes/min
PR 20:	55 strokes/min
Feed:	20 mm/stroke
Needle rows:	
PR 8:	1 row with 8 needles
PR 10:	1 row with 10 needles
PR 15:	2 rows with 7 and 8 needles
PR 20:	2 rows with 10 and 10 needles
Vertical clearance:	
PR 8 - 20:	max. 180 mm
Horizontal clearance:	
PR 8 - 15:	max. 272 mm
PR 20:	max. 301 mm
Width (transport) belt:	300 mm
Injection volume:	5% - 40%
Operating pressure max.:	0.5 - 4.3 bar
Emission sound pressure level:	75.4 dB(A) averaged, when idling accuracy class 2 as per DIN EN ISO 3744: 2010
Measuring instrument:	Brüel & Kjær - Type 2240

The data on the type plate principally applies; it is located opposite the operator side at the level of the inlet. In case of deviations contact the manufacturer for a written confirmation of the data!



If your country requires a ground fault circuit interrupting device as protective measure, a ground fault circuit interrupting device (type B), AC/DC sensitive, must be used.

## ***7.2 Electrical circuit diagram***

The electrical circuit diagram of your machine is located in the electrical control cabinet and must be supplied when reselling the machine!

## **8 EC Declaration of Conformity according to Directive 2006/42/EC [for PR 8]**

complies with all relevant provisions of the directive indicated above, including any changes to it that are valid at the time of the declaration.

The product complies with all relevant provisions of the following additional EU Directives and standards, including any changes to these that are valid at the time of the declaration:

- DIN EN 1672-2: 2009-07 Food processing machinery - Basic concepts - Part 2: Hygiene requirements Hygiene requirements
- DIN EN 60204-1: 2007-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements General requirements  
+ A1: 2009-10
- DIN EN 13534: 2011-02 Food processing machines - curing injection machines - Safety and hygiene requirements
- EC 1935/2004 Regulation on materials and articles intended to come into contact with food.

## **9 EC Declaration of Conformity according to Directive 2006/42/EC [for PR 10]**

complies with all relevant provisions of the directive indicated above, including any changes to it that are valid at the time of the declaration.

The product complies with all relevant provisions of the following additional EU Directives and standards, including any changes to these that are valid at the time of the declaration:

- DIN EN 1672-2: 2009-07 Food processing machinery - Basic concepts - Part 2: Hygiene requirements Hygiene requirements
- DIN EN 60204-1: 2007-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements General requirements  
+ A1: 2009-10
- DIN EN 13534: 2011-02 Food processing machines - curing injection machines - Safety and hygiene requirements
- EC 1935/2004 Regulation on materials and articles intended to come into contact with food.

## ***10 EC Declaration of Conformity according to Directive 2006/42/EC [for PR 15]***

complies with all relevant provisions of the directive indicated above, including any changes to it that are valid at the time of the declaration.

The product complies with all relevant provisions of the following additional EU Directives and standards, including any changes to these that are valid at the time of the declaration:

- DIN EN 1672-2: 2009-07 Food processing machinery - Basic concepts - Part 2: Hygiene requirements Hygiene requirements
- DIN EN 60204-1: 2007-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements General requirements  
+ A1: 2009-10
- DIN EN 13534: 2011-02 Food processing machines - curing injection machines - Safety and hygiene requirements
- EC 1935/2004 Regulation on materials and articles intended to come into contact with food.

## ***11 EC Declaration of Conformity according to Directive 2006/42/EC [for PR 20]***

complies with all relevant provisions of the directive indicated above, including any changes to it that are valid at the time of the declaration.

The product complies with all relevant provisions of the following additional EU Directives and standards, including any changes to these that are valid at the time of the declaration:

- DIN EN 1672-2: 2009-07 Food processing machinery - Basic concepts - Part 2: Hygiene requirements Hygiene requirements
- DIN EN 60204-1: 2007-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements General requirements  
+ A1: 2009-10
- DIN EN 13534: 2011-02 Food processing machines - curing injection machines - Safety and hygiene requirements
- EC 1935/2004 Regulation on materials and articles intended to come into contact with food.