

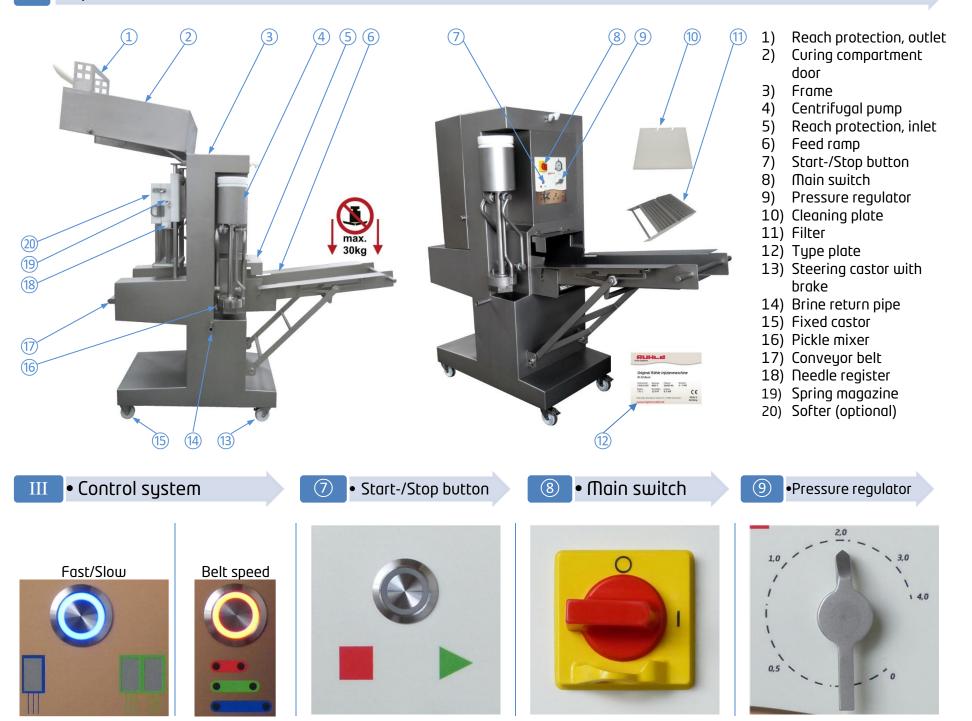
IR 43 Basic



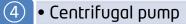
• Installing the machine



II • Operation





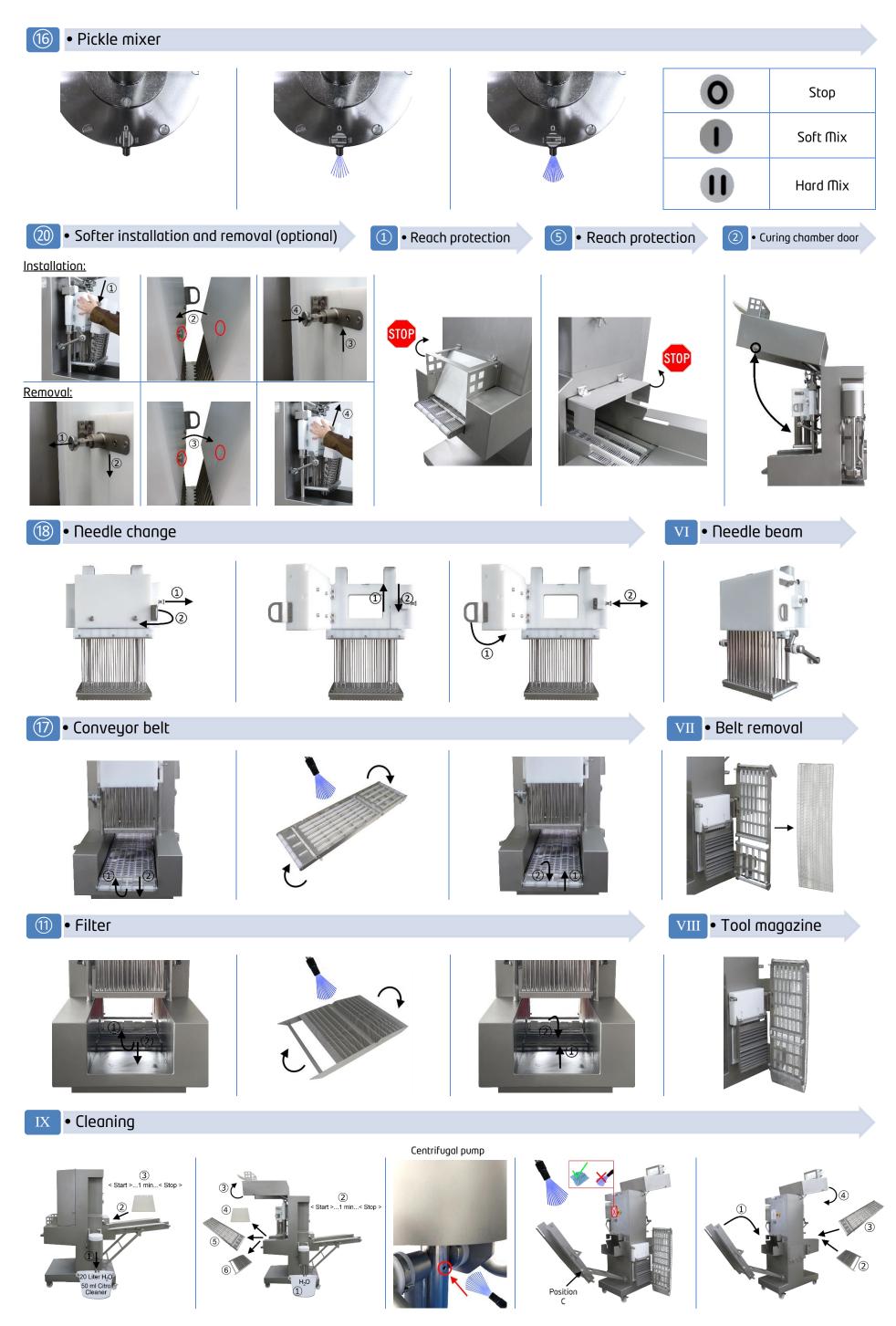






Rühle GmbH, Beim Signauer Schachen 10, D-79865 Grafenhausen Tel.: +49 7748-523-11, Fax: +49 7748-523-8511

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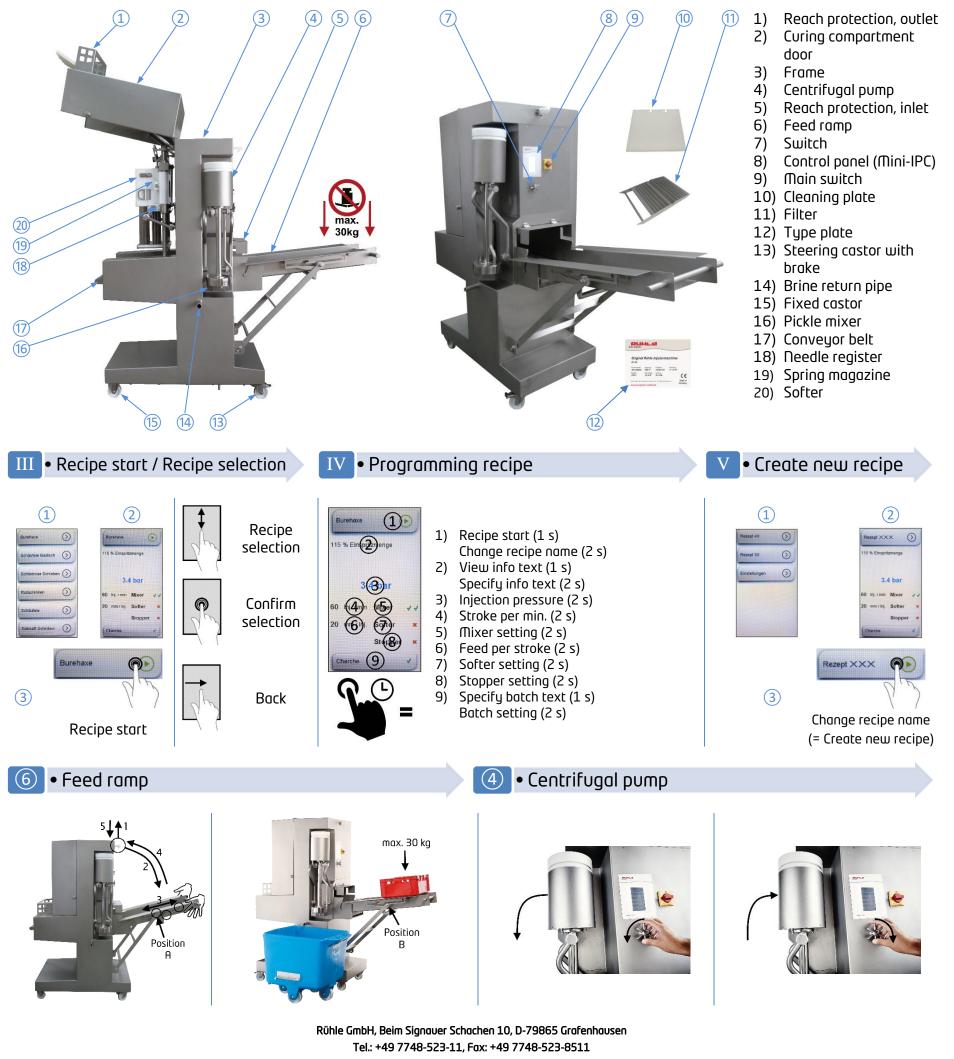
IR 43



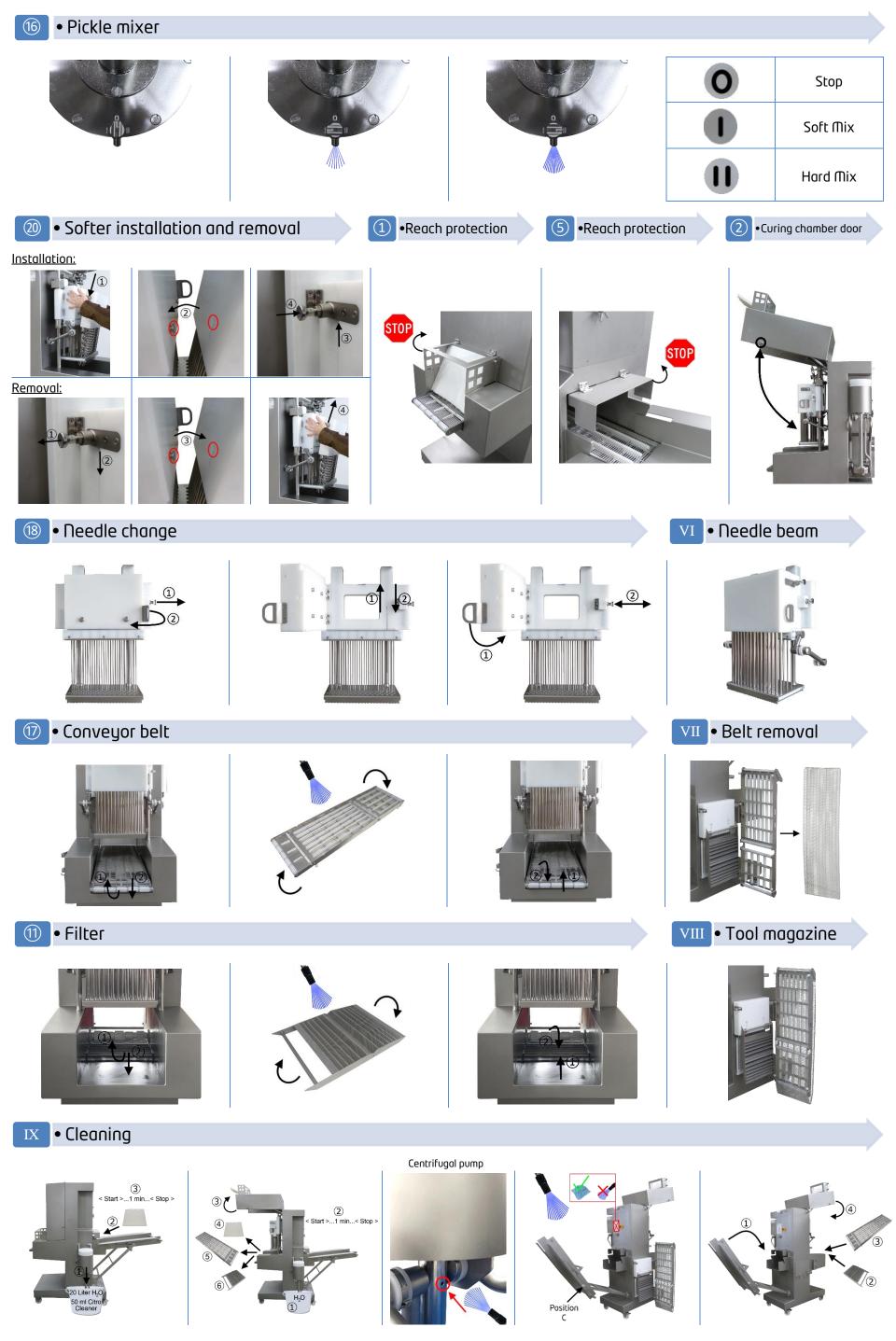
• Installing the machine



Operation



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Translation of the original instructions

RLIHL2 - Injector

Type: IR 43 Basic / IR 43

Rühle GmbH, Beim Signaver Schachen 10, 79865 Grafenhausen Germany Tel.: +49 7748-523-11, Fax: +49 7748-523-8511 www.original-rvehle.de





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Status: 05 December 2022 (Version 1.2) Changes reserved



Safety Instructions 1

III Observe the safety instructions during the installation, operation, cleaning and maintenance of the Rühle Injector!



Hazard potentially causing irreversible injuries if disregarded.

Warning potentially causing serious injuries if disregarded.

Note



Warning of electrical power.

Pull the mains plug!

Warning of sharp object. (Risk of cutting)



Warning of tipping danger.

Warning of non-ionising radiation.



Non-ionising radiation is not specifically generated but is only emitted by the electrical equipment (e.g. electric motors, power lines or solenoid coils) for technical reasons. In addition, the machine has no strong permanent magnets. If a safety distance (distance field source to implant) of 30 cm is maintained, the influence on active implants (e.g. cardiac pacemakers, defibrillators) can be excluded with a high degree of probability.

1.1 Safety instructions

III 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!

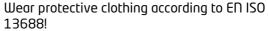
- b) Prepare work instructions for the intended and safe transport, commissioning, setup, operation, cleaning, decommissioning, care / maintenance as well as dismantling / disposal!
- c) Make sure that the qualified workers have completely read and understood the respective work instructions according 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 cycle phases:



Use foot protection according to EN ISO 20345! (e.g. recommended for butcher stores, dairies, meat and fish processing: safety boots S4 with steel cap)

Use hand protection according to EN ISO 388! (e.g. gloves with high cutting/puncture resistance)



(E.g. appropriate aprons/coats/overalls)

Cleaning; care/maintenance; dismantling:



Use eye protection according to EN 166! (e.g. tightly closing safety goggles)

(e.g. simple breathing mask protection class FFP1)



Use light breathing masks according to EN ISO 149!



Use hand protection according to EN ISO 374! (acid-resistant, butyl rubber, Viton)

Wear protective clothing according to EN ISO 13688, EN ISO 17491!

(E.g. appropriate coats/overalls)



[The information on the proposed personal protective equipment has only an advisory function. A full risk assessment should be carried out before using the product to assess whether the indicated personal protective equipment is suitable for local conditions. Personal protective equipment should conform to the relevant EU standards.]

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III 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 curing needles, hook (lock) of the loading ramp. The machine <u>must</u> be shut down in the event of any damages or changes!
- b) Check the safety switches as follows:
 Close curing compartment door with "Outlet" reach-protection as well as the "Inlet" reach-protection.

- Start the machine. - Turn the main switch to "O - Off". - If the machine has not switched off, it <u>must</u> be shut down immediately!

- Start the machine. - Lift the "Inlet" reach protection by 20 mm. - If the machine does not switched off, it <u>must</u> be shut down immediately!

- Start the machine. - Lift the "Outlet" reach protection by 20 mm. - If the machine does not switched off, it <u>must</u> be shut down immediately!

c) Error messages of the control system <u>must</u> be heeded!
 (IR 43 Basic / IR 43)

 $\tt !!!$ To $shut\ down$ the machine the main switch must be turned to "0" - OFF" and the power plug pulled from the outlet! The machine must be secured against further use!

III 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!



III The cleaning personnel must observe the work procedures from the "Cleaning" work instructions prepared by the supervisor.

III 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!

III The machine may not be modified.

III Only Rühle spare parts and accessories may be used.

III 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

III All life cycles phases



Error messages of the operating system must be heeded! Non-compliance is strictly prohibited!

(IR 43 Basic / IR 43)

Cut protection gloves must be worn when working:

- on the curing needles.
 - on the softer blades. (IR 43 Basic optional)



Reaching into the machine or the curing chamber during operation is strictly prohibited!

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



Do not hold the transport belt by the hinge during installation and dismantling as well as tensioning!

There is a risk of crushing in the area of the support and adjustment of the loading ramp. Therefore, always hold the loading ramp on its handles when adjusting it!



III Cleaning



Observe the safety instructions from the manufacturers when handling curing, cleaning or disinfecting agents!

!!! Stability



The machine is top-heavy; this represents an increased risk of tipping over when moving it!

Clear all obstacles before moving the machine!

The castors must always be locked with the locking devices except when moving the machine!

III Maintenance



Disconnect the machine from the mains power when performing maintenance work!

Only remove the protective covers (control cabinet cover, ...) while carrying out maintenance work!

Do not operate the machine if the pump has no filter basket!

1.3 Intended Use

The Injector may only be used for injecting curing solution into fish and meat products. The room temperature must not exceed 12 °C for reasons of food hygiene!

This machine is intended:

- for use during work
- for use by persons over 18 for use by instructed persons



Claims of any type for damage caused by use other than the intended use are excluded!

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!
- The loading ramp may only be exposed to a max. load of 30 kg and not be abused as storage surface, step or seat!

2 Installation instructions

Installation and commissioning of the Injector 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 Injector.

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!



There is an increased risk of tipping over during transport and movement!

To prevent this, do not drive over any objects such as hoses or cables, etc. and watch out for protruding edges or persons in the environment!



The brakes at the two steering rollers on the inlet side must always be locked except during transport! Ensure that the machine is stable!



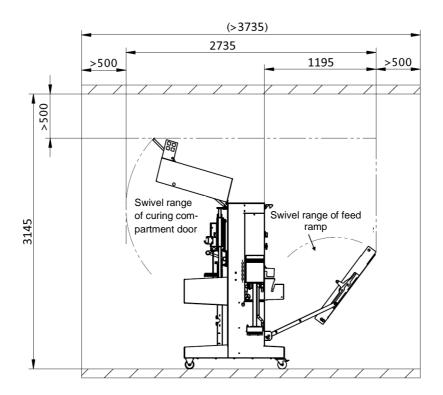


Foundation load: 2,7 kN/m²!

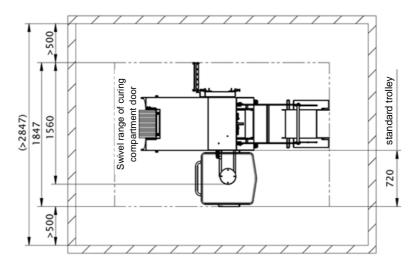
Set up the machine on a solid level floor with sufficient load bearing capacity!

2.2 Workplace description

The work area around the machine, plus a container on the outlet and pump side, 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 outlet (clockwise rotating field); the specifications (voltage, amperage) must correspond to 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.

<u>IR 43 Basic:</u> The machine does not start with a wrong rotating field!

<u>IR 43:</u> A message appears on the display in case of incorrect rotating field.



- 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 secured with an AC/DC sensitive ground-fault circuit interrupter (type B).



3 Operating instructions

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



Also observe Chapter 1 Safety instructions!

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:



- lifting the lamella of the reach-protection on the outlet side and reaching into the curing chamber during operation; the same applies the inlet side!
- Operating the machine without protective covers!
- Operating the machine without filter basket on the pickle mixer/centrifugal pump!
- manipulating the protective devices of the machine or deactivating them!

Working on the machine without the protective enclosure installed is only permitted to a Rühle service technician during the service phase!

 \wedge

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 control panel may only be operated by finger touch or with a stylus. Using any objects (e.g. knife) is prohibited! (IR 43 Basic / IR 43)





Fold the integrated transport belt - protruding on the discharge side of the machine - inward when the machine is not in use!

Cleaning instructions 4

The Injector IR 43 Basic / IR 43 has been designed to allow for complete cleaning both of the pickle carrying system and all parts that come into contact with the food product.

4.1 Safety instructions

- Also observe Chapter 1 Safety instructions! •
- The cleaning staff must notify the supervisor immediately of any • defects on the machine!
- The cleaning staff must use the specified cleaning agents and ٠ disinfectants!
- Germ reduction is achieved only by correct cleaning and subse-• quent disinfection!
- Appropriate material (e.g. brushes, rags, ...) is required and must ٠ be provided for the proper procedures of the above!
- Cleaning products and disinfectants approved for the food prod-• uct area and suitable against contamination (e.g. protein, limescale, ...) must be used!
- The cleaning agents and disinfectants must be prepared to a so-• lution as described in the product data sheet of the manufacturer!



Personal protective equipment must be worn as described in Chapter 1.1!

Cleaning with high-pressure cleaners



is permitted only for:

- all external surfaces (all outside stainless steel surfaces + castors), reach-protection (inlet),



- reach-protection (outlet),
- curing chamber door,
- softer (IR 43 Basic optional),
- needle bar,



- transport belt
- filter
- cleaning plate

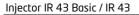
The control panel must be cleaned manually and may not be exposed to a water jet!

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

4.2 Cleaning agents and disinfectants

Recommended cleaning agents and disinfectants:

Art.			pН	Concen- tration for appli- cation	Expo- sure times	Temper- atures	
<u> </u>	Product name	Description	value	[%]	[min]	[°C]	
15207	FINK - Spül ASS	Alkaline foam cleaner, mild		1.0 - 5.0	5-15	20 - 50	
19402	FINK - Superfet- tlöser	Alkaline foam cleaner		0.5 - 5.0	5 - 20	20 - 50	
10030	FINK - FC 30	Cleaning and disin- fection, combined	line	1.0 - 3.0	5-15	20 - 50	IJ
18556	FINK – FC Power- foam A2	Alkaline foam cleaner	alkaline	1.5 - 3.0	5 - 20	20 - 50	daily
13308 *)	FINK – Antisept G	Disinfectant for spray application, QAC		0.5 - 3.0	5-15	20 - 40	
17107	FT 107 DES	Disinfection		2.0 - 5.0	15 - 30	20 - 40	
13302	FINK – Antisept A	Alcohol-based disin- fectant	tral	100	5	RT	IJ
13304	FINK – Antisept E	Alcohol-based disin- fectant	neutral	100	5	RT	daily





18803	FINK - Alu-Rei- niger	Acid foam cleaner		2.0 - 5.0	5-15	20 - 50	
17043	FT 43 SR	Acid foam cleaner		1.0 - 5.0	5-15	20 - 50	weeks
18550	FINK – FC Power- foam S1	Acid foam cleaner	acid	1.0 - 2.0	5 - 20	20 - 50	\sim
17310	Ökoron® 10	Disinfectant, acid	0	0.3 - 1.0	20 - 30	5 - 70	e
17307	Ökoron® 7S	Disinfectant, acid		0.5 - 2.0	1-20	5 - 60	Once in
17312	Ökoron® 12	Acid disinfection		0.5 - 3.0	5	Cold	
17313	Ökoron® 13	Acid disinfection, foamable		0.1 - 1.0	5	45	4
17900	Ökoron® SR	Ecological cleaner	acid	1.0 - 5.0	15-20	20 - 55	daily
*)	13308, FINK -	Because of customer-sp	becific a	pplication pro	hibitions, Qf	AC-containin	g

```
Antisept G
```

Because of customer-specific application prohibitions, QAC-containing products are sometimes not used since the IFS standard must be met. Possible alternative products would be, for example, FT 107 DES.

Supplier:

FINK TEC GmbH, Oberster Kamp 23, 59069 Hamm, Germany Tel. +49 2385-730 / info@finktec.com / www.finktec.com

4.3 Cleaning procedure

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

Before starting with internal cleaning, remove coarse soiling and product residues from the curing chamber under the hood.

Preparation for cleaning:

To ensure optimum cleaning, some components of the machine must be removed!

- Open the curing chamber door!
- Remove the cleaning plate!
 - 1) Hook the cleaning plate into the holder of the tool magazine provided!
- Remove the transport belt!
 - 1) Hook the transport belt into the holder of the tool magazine provided!



- 2) If necessary, the rod mesh belt can be separated from the belt frame and cleaned individually!
- 3) Fold the loading ramp to the cleaning position after removing the transport belt!
- Remove the softer if so equipped! (IR 43 Basic optional)
 - 1) Hook the softer into the holder of the tool magazine provided!
- Remove the filter!
 - 1) Hook the filter into the holder of the tool magazine provided!

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.



Also observe Chapter 1 Safety instructions!



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

When working on the electrical equipment of the machine, ensure that



- this is only done by qualified personnel!
- the machine is always disconnected from the power supply!
- a waiting time of at least 10 minutes is observed after switching off the machine to allow the capacitors of the frequency converter to discharge to a harmless voltage level!





Use of lubricants - hygiene area

- Multi-purpose grease OKS 476 white, for food technology NSF H1 Reg. No. 137619
 - Needle bar (switching mechanism)

Use of lubricants - others

• Synthetic high-performance lubricant TEROSON VR 500 / PLASTI-LUBE, based on super-refined mineral oils, free from metallic soaps or fatty acids

Protective equipment:

Protective gloves (EN 374), eye protection (EN 166), breathing mask (EN 14387), protective clothing (EN 14605)

Needle bar (drive sealing ring on motor)

[The information on the proposed personal protective equipment has only an advisory function. A full risk assessment should be carried out before using the product to assess whether the indicated personal protective equipment is suitable for local conditions. Personal protective equipment should conform to the relevant EU standards.]

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! (IR 43 Basic optional)
- c) Check curing needles for wear, damages and clear passage!
- d) Check the needle system for leakage integrity!

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- e) Inspection of all safety switches as outlined in Chapter 1.1 Safety Instructions!
- f) Check the steering rollers and locking devices for damages and proper function!
- g) Check the hook of the loading ramp lock for damage and functioning!
- h) Visually check for changes or damages on all machine sides and accessible machine parts, e.g. needle bar. The machine <u>must</u> 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) Read the error memory (frequency converter)!
- c) Replacement of the needle seals in the needle register!
- d) Check curing needles for wear, damages and clear passage!
- e) Check softer blades for wear and tear, damage or broken blades! (IR 43 Basic optional)
- f) Resharpening of the softer blades! (IR 43 Basic optional)
- g) Check pickle-carrying system (centrifugal pump, pipe assembly, needle register) for leaks!
- h) Check the function of the pressure transmitter! (IR 43 Basic / IR 43)
- i) Lubricate machine parts according to the list "Lubricant use" at the beginning of this chapter!
- j) Check the power cable for damage!
- k) Check gas springs for proper function and firm seat!
- I) Carry out a test run with open machine (caution: moving parts)!



- m) Check the needle bar switching mechanism (needle register, spring magazine)! All needles must close completely and without delay after each stroke!
- n) Check the transport belt frame for distortion!
- o) Check the transport belt tension for distortion!
- p) Check the setting for the top position of the pump by the lifting unit!

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.

For this reason, contact our Service Hotline at +49 7748-523-11 for spare parts or technical faults. Please keep the machine type and number ready.

6 Disposal



All materials and operating fuels must be separated and disposed of in accordance with nationally applicable regulations!

- 1. The following components contain oil:
 - Beam drive
 - Retract / extend the pump drive

The bar drive is equipped with an oil drain plug. The gear must be opened for the "Retract / extend pump" drive!

- 2. The following components contain lubrication grease:
 - a. Pump (bearing)
 - b. Gear motor (forward feed setting)

For the gear motor (forward feed setting) the gear unit must be disassembled to be able to empty the grease!

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7 Technical documentation

7.1 Technical data

Connection voltage: 400 V, 50/60 Hz, 3-phase AC / N / PE Power consumption: 6.1 kW Full-load current: 12.6 A Back-up fuse max.: 16 A Protection class: IP54 Protection class: 1 +2 to 40 °C Ambient temperature: Dimensions, L x W x H: 1220 x 925 x 1910 mm Work space, L x W x H: 2735 x 1847 x 2645 mm Machine weight: 480 kg Transport weight (pallet): 520 kg Transport weight (wooden crate): 620 kg Loading ramp, load capacity: 30 kg 3000 kg/h Output max.: Speed: Off: 0 strokes/min Slow: 24 strokes/min Fast: 48 strokes/min Feed: 30 / 45 / 60 mm/stroke **Needle rows:** 3 rows (14, 15 and 14 needles) Clear opening dimension, W x H: 360 x 280 mm Width of transport rake: 345 mm Injection volume: 3 - 80% Operating pressure: 0,3 - 4.2 bar Foundation load: 2,7 kN/m² Emission sound pressure level: $L_{pA} = 78 \, dB(A)$ Measured according to: DIN EN ISO 11201 accuracy class 2 Measured: while idling without product; at maximum speed



The data on the type plate principally applies; it is located next to the power supply line on the machine. 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 - <u>IR 43 Basic</u>

The manufacturer her	ewith declares	that the following product		
Name:	Rühle GmbH	Type:	IR 43 Basic	
Legal form:	Lebensmitteltechnik	Designation:	Injector	
Address:	Beim Signauer Schachen 10	From series		
	79865 Grafenhausen, Germ.	NO.:	2000	

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: 2021-05	Food processing machinery - Basic concepts - Part 2: Hygiene requirements
•	DIN EN 60204-1: 2019-06	Safety of machinery – Electrical equipment of ma- chines – Part 1: General requirements
•	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
•	EU 10/2011	come into contact with food.
•	EC 2023/2006	Regulation on good manufacturing practice for mate- rials and articles intended to come into contact with food.

Place of issue:

Date of issue: Function of the signing person in the company: Name of the signing person: Signed by: 79865 Grafenhausen, Germany 22 March 2022

22 March 2 signPerson authorised for the documentation: Name: Jürgen Stegerer

Address: Rühle GmbH Beim Signaver Schachen 10 79865 Grafenhausen, Germany

Management

Mr. Claus Rühle

Signature:

A declaration of conformity for your machine (serial number), with updated content, if necessary, can be requested from RÜHLE GmbH.



EC Declaration of Conformity according 9 to Directive 2006/42/EC - IR 43

The manufacturer her	ewith declares	that the following product		
Name:	Rühle GmbH	Type:	IR 43	
Legal form:	Lebensmitteltechnik	Designation:	Injector	
Address:	Beim Signauer Schachen 10	From series		
	79865 Grafenhausen, Germ.	NO.:	0001	

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
•	DIN EN 60204-1: 2019-06	Safety of machinery – Electrical equipment of ma- chines – Part 1: General requirements
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Place of issue:

Date of issue: Function of the signing person in the companu: Name of the signing person:

Signed by: 79865 Grafenhausen.

Germanu 24 lune 2021

Manaaement Mr. Claus Rühle Person authorised for the documentation: Name: Jürgen Stegerer

Address: Rühle GmbH Beim Signauer Schachen 10 79865 Grafenhausen, Germanu

Signature:

A declaration of conformity for your machine (serial number), with updated content, if necessary, can be requested from RÜHLE GmbH.