Quick installation guide

MPR 220 Turbo

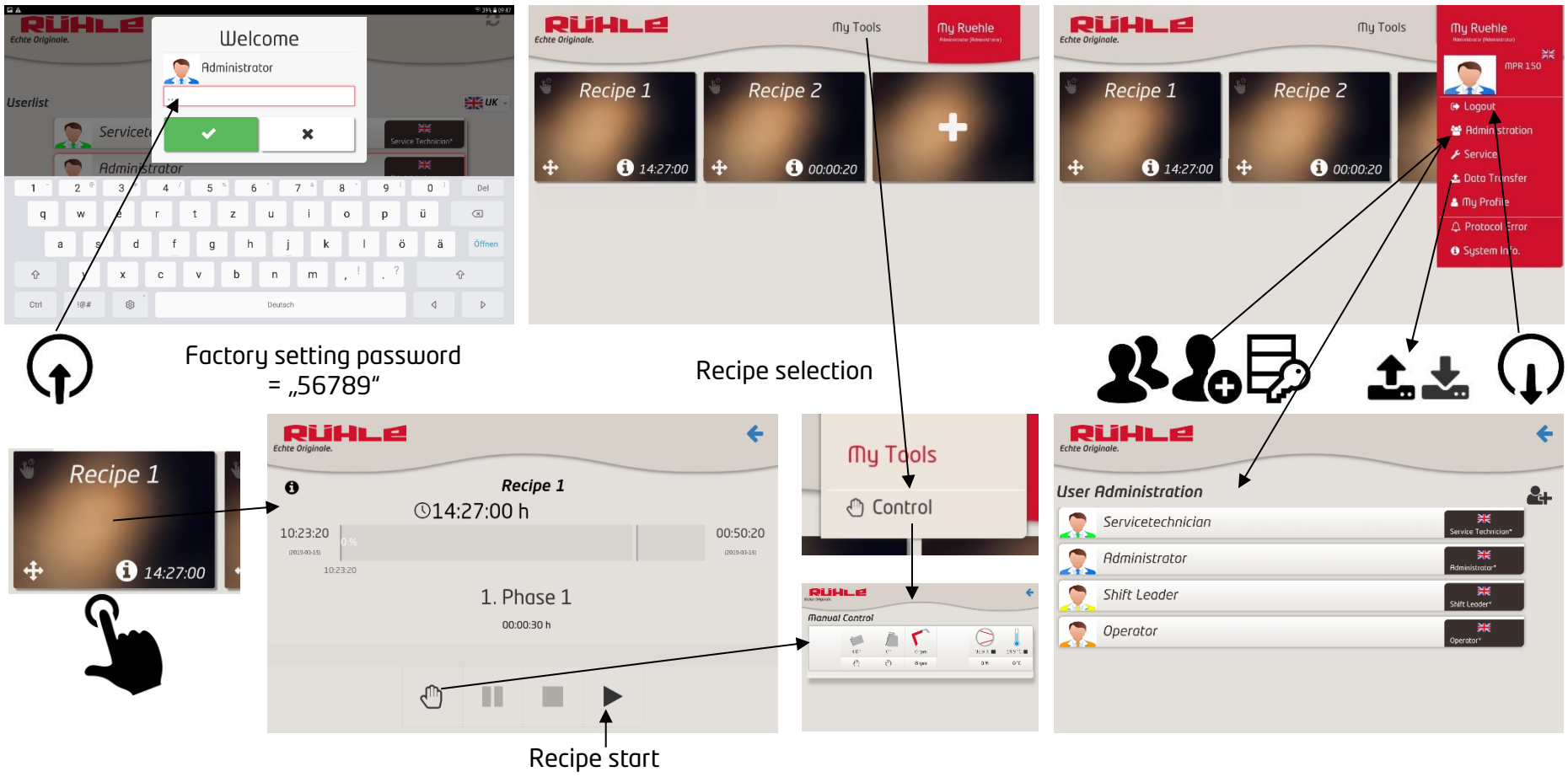
RÜHLE
Echte Originale.

I • Installing the machine

II • Operation

1) Frame
2) Control wheel
3) Main switch
4) Operation panel (Tablet-PC)
5) Side panel
6) Condensation flap
7) Tool magazine
8) Wheel
9) Machine foot
10) Guide roll with brake
11) Lift system
12) Drum
13) Tumbling system
14) Lid
15) Tumbling arm
16) Ring
17) Plug
18) Mixing arm (optional)
19) Charging trolley (optional)
20) Type plate

• Recipe selection / Recipe start



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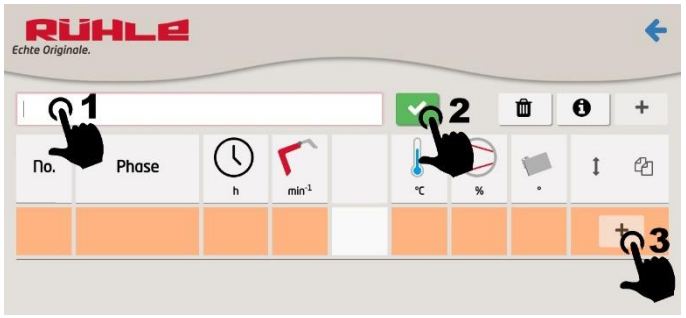
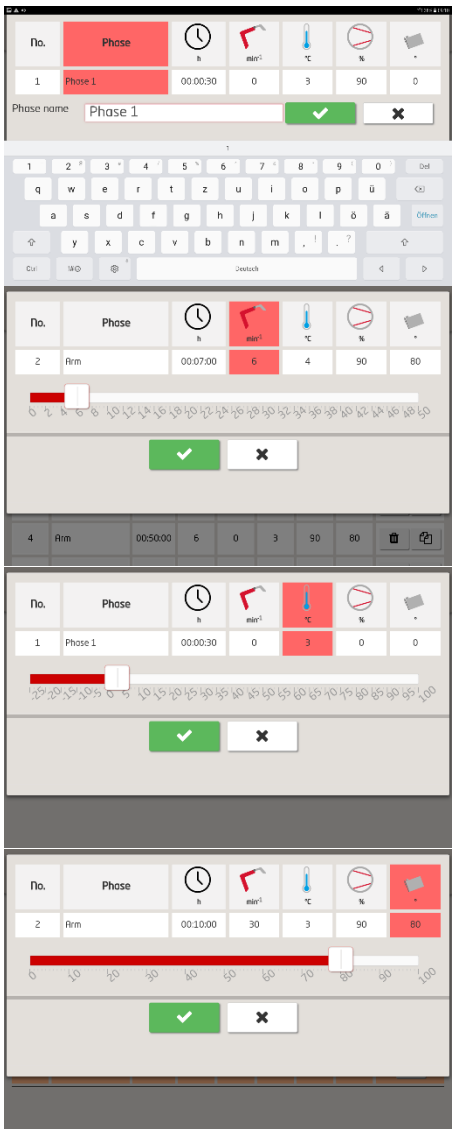
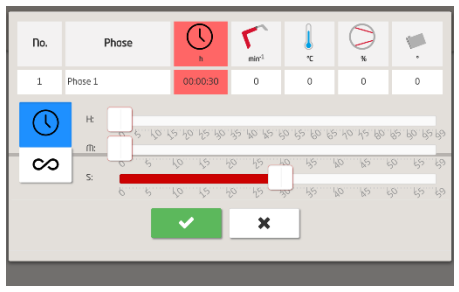
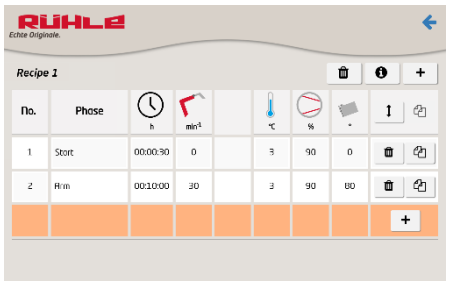
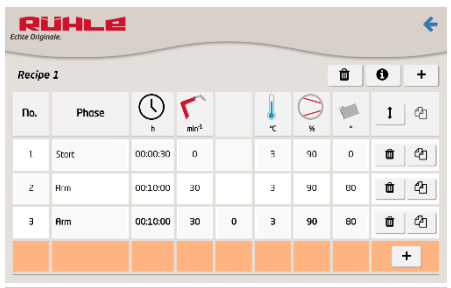
• Programming / Programming recipes

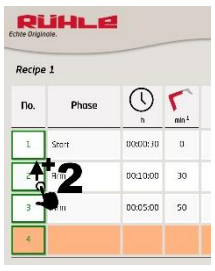


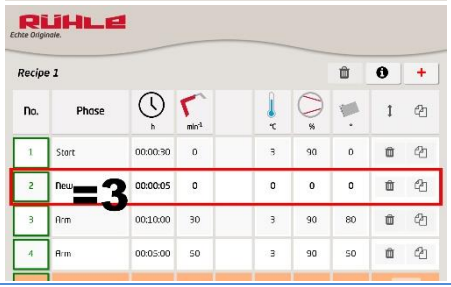


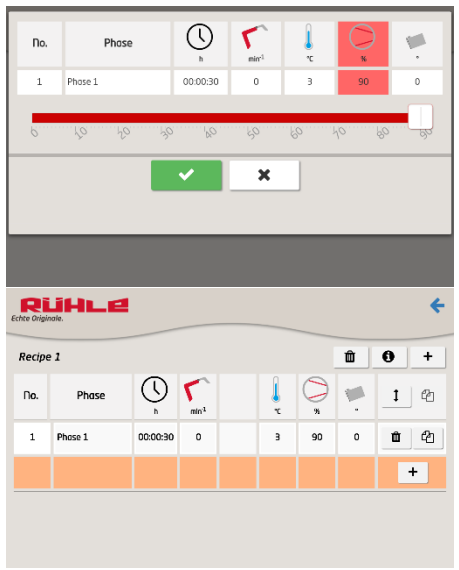


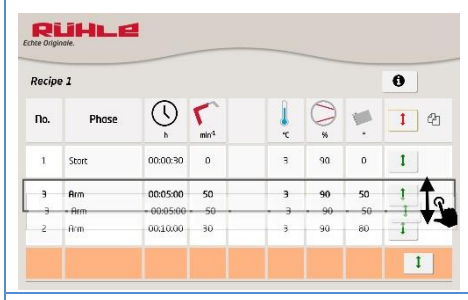












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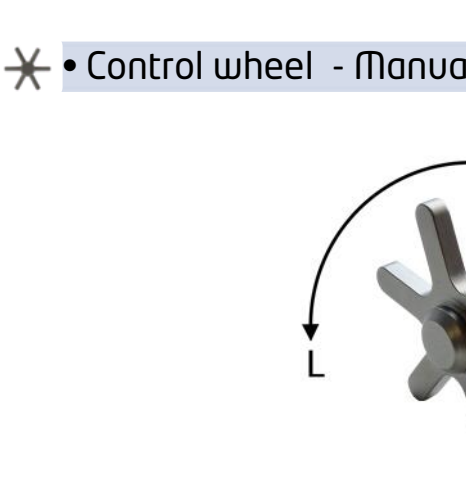
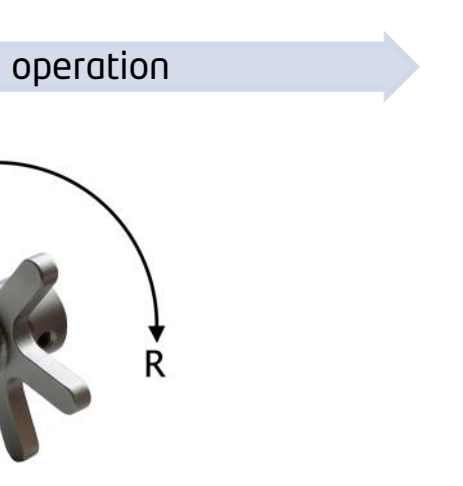
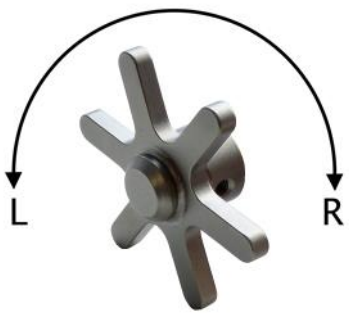




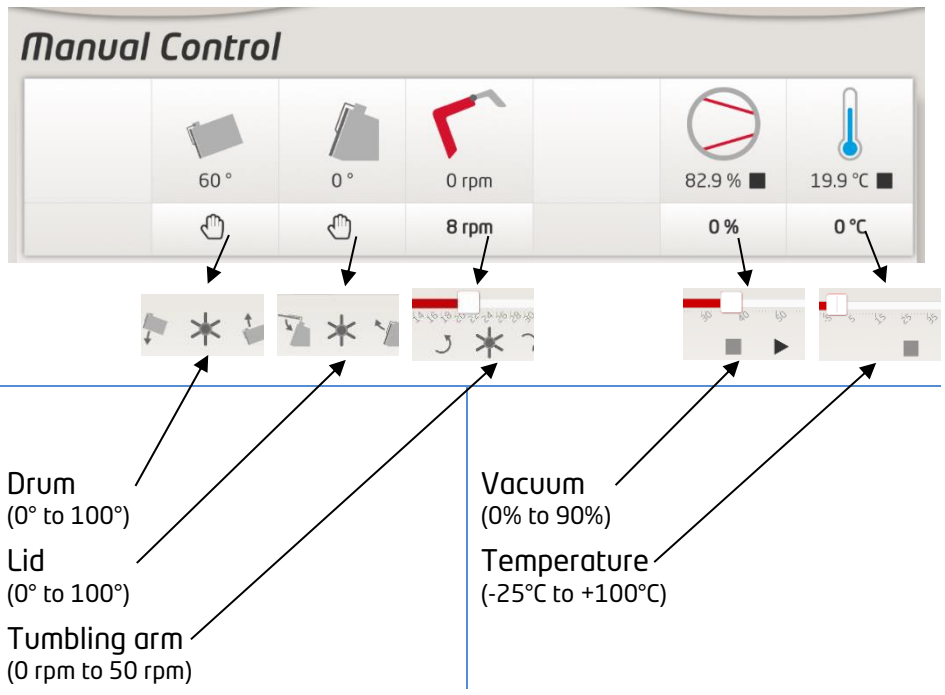
Modifying recipes

• Control wheel - Manual operation



Limit stop left	Limit stop right
Lid close	Lid open
Swing drum down	Swing drum up
Tumbling system counterclockwise	Tumbling system clockwise

III • Manual settings



IV • Cleaning

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Translation of the original instructions

RÜHLE - Tumbler

Type: MPR 220 Turbo

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Subject to change

1 Safety instructions

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

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 low temperature/frost.

Warning of hot surface.

Warning of suspended load.

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

!!! A **supervisor** (responsible person) must be assigned to 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 intended and safe transport, commissioning, setup, operation, cleaning, decommissioning, care/maintenance as well as dismantling/disposal!

c) Ensure 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 engineer!

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 511!
(e.g. gloves against cold)

Wear protective clothing according to EN ISO 13688! (e.g. appropriate aprons/coats/overalls)

Cleaning; care/maintenance; dismantling:

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

Use light breathing masks according to EN ISO 149!
(e.g. simple breathing mask protection class FFP1)

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)

Care/maintenance

Wear ear protectors according to EN 352-1!
(e.g. earmuffs)

[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.]

!!! 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. tumbling arm; lifting aid. The machine must be shut down in the event of any damage or changes!

b) Check the safety switch on the lid drive; to this end:
- Turn the manual switch control until the lid has reached the end position "Open" and then turn for a further 5 seconds. The lid must remain still and there must be no error message displayed.
- Afterwards, "Close lid" and proceed as for "Open". If the lid does not remain still or an error message appears, the machine must be shut down immediately! Error messages of the control system must be heeded!

!!! To **shut down** the machine the main switch must be turned to "0 – OFF" and the power plug pulled out of the socket! Take the Tablet PC from the bracket and switch it off permanently. Secure the machine against further use!

!!! The **supervisor** must arrange for the repair of the non-functional safety device by a Rühle service engineer. Until the corresponding parts have been repaired, the supervisor must ensure that the machine or parts of the machine are not put into operation under any circumstances!

!!! 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 maintenance" 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.
Disconnect the power plug for maintenance work!

!!! Do not modify the machine.

!!! Only use Rühle spare parts and accessories.

!!! 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

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

No person or object may be present or located in the working area of the machine while the program is running!

Work on the cooling unit and cooling system may only be carried out by a refrigeration installer!

Temperatures to -25 °C may be produced in the drum. Wear hand protection!

Staying under the lifting aid (standard trolley support) is strictly prohibited, and the standard trolleys provided must be used!

There is a risk of tipping if the machine base does not touch the set-up surface!

!!! Maintenance

Touching electrical components may cause serious injuries or death.
Work on electrical equipment of the machine may only be carried out by qualified technicians! Always disconnect machine from the mains during this process!

The protective covers may be removed only while performing maintenance (control cabinet, side cover)!

The start-up alarm (horn) is extremely loud while the side cover is off. Wear hearing protection!

Beware of hot or cold surfaces, e.g. drives, cooling, unit, during maintenance work!

1.3 Intended use

The Tumbler has been solely designed for mixing, salting/seasoning, marinating and tumbling meat products and salads. 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
- for a single tablet PC with the RÜHLE application software (via Browser, IP address)!

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

Misuse:

- Any use other than the use listed above is strictly prohibited and is considered misuse!
- Operating the machine in explosive atmospheres is prohibited!
- Handling/processing products and materials which are not foodstuffs is prohibited!
- The lifting aid may be used only for the standard trolleys provided and must not be overloaded! Lifting of persons is strictly prohibited!
- Connecting several tablet PCs with a machine is prohibited!

2 Installation instructions

Installation and commissioning of the machine may only be carried out in the presence of a Rühle service technician or by persons authorised by Rühle.
Rühle GmbH Lebensmitteltechnik accepts no liability for any damage resulting from failure to comply 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 Tumbler.

The machine and machine parts must be transported by 2 persons (1 person to operate the floor truck/1 person to supervise transport).

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

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

Make sure the machine base has contact with the setup surface and is then tightened!

Ensure that the machine is stable!

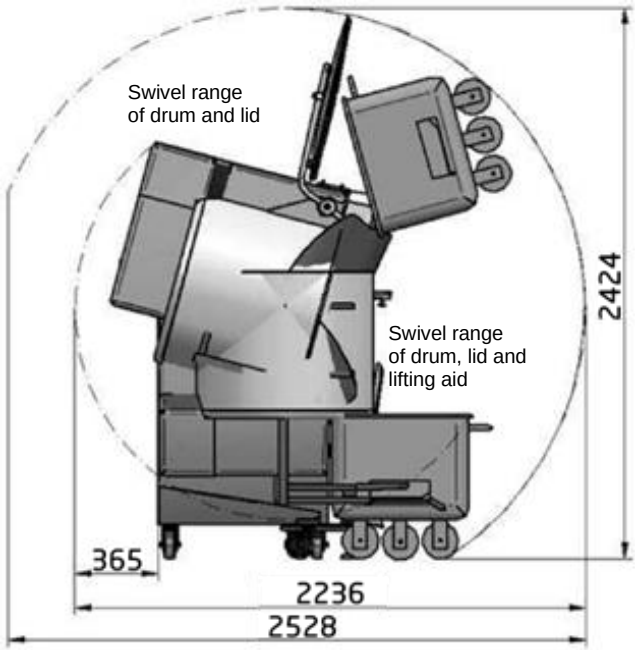
Observe the maximum filling quantity of 160 litre per standard trolley (corresponds to the max. filling capacity of the drum)!

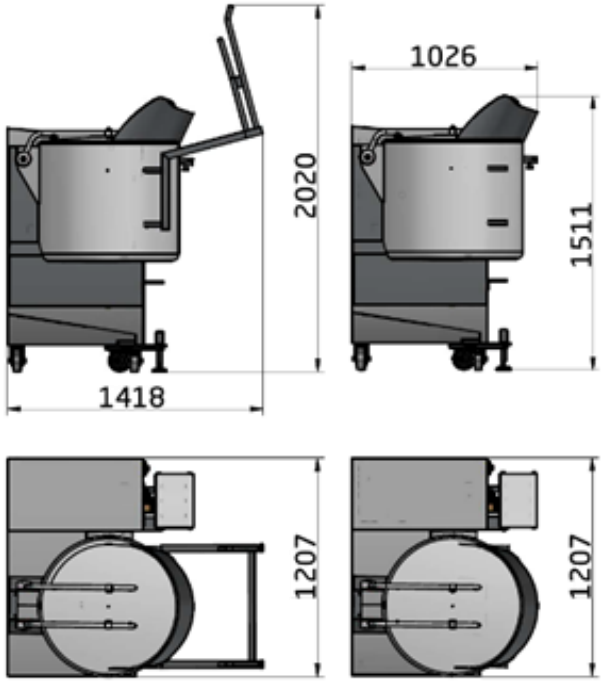
Foundation load: 8,9 kN/m²!

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

2.2 Workplace description

The work area around the machine 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 shut down until a damaged power supply line has been repaired!

Check the power supply line regularly!

Check the correct direction of the rotary field by starting the machine. A message appears on the tablet PC if the rotating field is wrong!

- In this case, an electrician has to change the rotating field inside the mains plug.
- The power supply to the machine must be fuse-protected with 16 A and protected with an AC/DC sensitive RCD (type B).

3 Operating instructions

Please refer to the brief instructions supplied with your machine for the operation of your Tumbler.

Also observe Chapter 1 Safety instructions!

Make sure that you are connected to the right machine with your tablet PC!

Depending on the application programs, the drum is moved automatically. While the program is running, no person may stand within the working range of the machine (front distance at least 1.2 m over the entire machine width).

Before the drum moves automatically, a 5 second alarm (horn) sounds.

If the power fails when a user program is being executed the machine will react as follows when the power supply is reinstated: it will start up again automatically and the program will continue from that point at which it was interrupted by the power failure. The startup warning (horn) will sound before this restart.

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

When using this machine, no other person may be present near the machine. The exception (2-man operation):

- Installation and removal of lid
- Installation and removal of lid holder
- Installation and removal of tumbling arm
- Installation and removal of mixing arm
- Installation and removal of protective gearbox cover
- Transport of machine and machine parts

Depending on the user programs, temperatures down to -25 °C may be generated in the drum. Take the corresponding precautions.

Do not touch the tumbling arm/mixing arm with your hands or any object when they are moving! Their rotational speed while the lid is open is restricted for safety reasons!

Make sure before each lifting operation that the standard trolley sits correctly in the standard trolley support of the lifting aid!

No persons or objects may be present in the swivel range of the drum!

When emptying the drum corresponding appropriate precautions must be taken to ensure that no person stands in the discharge area of the machine!

Make sure when mounting (or adjusting) the tumbling arm and the mixing arm (alternative blind plug) that they are correctly locked!

No person may stand in the swivel range of the lid!

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!

If the drum is inclined downwards and you aerate the drum or even open the lid, the goods will fall out of the machine.

Each time before you start working, make sure that the lid seal has been inserted correctly. For this, check during program start whether a pressure loss is indicated on the pressure display (if the machine can create a vacuum). If this is the case, the seal has been mounted correctly. Otherwise check the seal.

Please refer to the brief instructions supplied with your machine regarding the manual operation of the manual switch control.

The lid cannot be opened when there is a vacuum in the machine or if it has not yet been fully aerated.

If you interrupt a program by pressing “Pause”, you will be prompted to aerate when “Open lid” is actuated. Only after the drum has been evacuated will you be able to open the lid by actuating it again.

The drum can be set to any position between 0° and 100°

(= discharging position) so that it can be used for any operating process.

The tablet PC may only be operated by finger touch or with a stylus. Using any objects (e.g. knife) for operation is prohibited!

4 Cleaning instructions

The Tumbler has been designed to allow for complete cleaning of 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 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 to remove contamination (e.g. protein, limescale) 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 as described in Chapter 1.1!

Cleaning with high-pressure cleaners
is permitted only for:

- all outside surfaces,
- drum,
- lid and lid seal,
- intake filter and air intake pipe,
- tumbling arm,
- mixing arm and
- blind plug

The tablet PC and its holder must be cleaned manually and not exposed to any 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. No.	Product name	Description	pH value	Concentration for application [%]	Exposure times [min]	Temperatures [°C]	
15207	FINK - Spül ASS	Alkaline foam cleaner, mild	alkaline	1.0 - 5.0	5 - 15	20 - 50	daily
19402	FINK - Superfettlöser	Alkaline foam cleaner		0.5 - 5.0	5 - 20	20 - 50	
10030	FINK - FC 30	Cleaning and disinfection, combined		1.0 - 3.0	5 - 15	20 - 50	
18556	FINK - FC Powerfoam A2	Alkaline foam cleaner		1.5 - 3.0	5 - 20	20 - 50	
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 disinfectant	neutral	100	5	RT	daily
13304	FINK - Antisept E	Alcohol-based disinfectant		100	5	RT	

18803	FINK - Alu-Reiniger	Acid foam cleaner	acid	2.0 - 5.0	5 - 15	20 - 50	Once in 2 weeks
17043	FT 43 SR	Acid foam cleaner		1.0 - 5.0	5 - 15	20 - 50	
18550	FINK - FC Power-foam S1	Acid foam cleaner		1.0 - 2.0	5 - 20	20 - 50	
17310	Ökoron® 10	Disinfectant, acid		0.3 - 1.0	20 - 30	5 - 70	
17307	Ökoron® 7S	Disinfectant, acid		0.5 - 2.0	1 - 20	5 - 60	
17312	Ökoron® 12	Acid disinfection		0.5 - 3.0	5	Cold	
17313	Ökoron® 13	Acid disinfection, foamable		0.1 - 1.0	5	45	
17900	Ökoron® SR	Ecological cleaner	acid	1.0 - 5.0	15 - 20	20 - 55	daily
*)	13308, FINK - 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.

Cleaning preparations:

- To ensure optimum cleaning, some components of the machine must be removed.
- Remove the mixing arm and the tumbling arm from the drum!
- Simply pull off the stripper rubber at the tumbling arm from the outside to the inside.
- Pull the lid seal off the inside of the lid!
- Remove the intake filter at the upper lid edge out of the bracket.
- Remove the tablet PC from the holder and close it.[1] Fold up the holder!

[1] depending on the version of the tablet holder

5 Service: care, maintenance, repair

Any work related to any kind of 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, maintenance and repair. The respective qualification certificate must be issued explicitly for the corresponding task.

Also observe Chapter 1 Safety instructions!

Only qualified technicians may carry out repairs on the cooling system of the machine!

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

Reaching into the inside of the machine by opening the side covers is strictly prohibited when performing “Regular care” activities!

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 converters 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
  - ➢ Replacing seal rings

Use of lubricants – others

- AUTOL TOP 2000, high pressure grease with synthetic base oil (soap basis)
  Personal protective equipment:

Protective gloves (EN 374), eye protection (EN 166), protective clothing (EN 14605), protective mask (EN 1731)

- Replacement of moving parts, e.g. drive for swivelling the drum, flange drive tumbling arm

[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! The supervisor must immediately initiate rectification 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 the hygienic condition and function of lid seal!
c) Check that the lock/seat of the tumbling and mixing arm (or blind plug) is functioning and tight and secure!
d) Check the hygienic condition of the stripper rubber on the tumbling arm!
e) Clean air intake pipe thoroughly!
f) Check the drum positioning; contact Rühle service if necessary!
g) Check the lifting aid (standard trolley support)!
h) Check the lid holder!

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 described in Chapter 1.1 Safety instructions!
b) Carry out a test run with open machine (caution: moving parts)!
c) Check the air filter and air oil separator of the vacuum pump and replace, if necessary!
d) Change the oil in the vacuum pump!
e) Check the cooling performance of the cooling unit; service, if necessary, and clean condenser!
f) Check the function of pressure transmitters and temperature sensors!
g) Inspect the hoses (vacuum system)!
h) Check the radial shaft seals for tightness; replace otherwise!
i) Read out the error memory (frequency converter)!

5.3 Repairs 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.

Contact our Service Hotline at +49 7748-523-11 for spare parts or malfunctions. Please keep the machine type and number to hand.

6 Disposal

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

1. The machine contains a cooling system filled with the refrigerant R452A. It must be pumped off by a refrigeration installer and then disposed of correctly!
2. The following components contain oil or lubricant:
    a. Lid drive (lubricating grease)
    b. Tumbling arm drive
    c. Slewing gear
    d. Vacuum pump
    e. Compressor (cooling unit)

    All gears/motors except for the compressor are equipped with oil draining screws. The compressor must be drilled open for draining the oil.

7 Technical documentation

7.1 Technical data

Supply voltage:	400 V 50/60 Hz 3~/N/PE
Power consumption:	4.2 kW
Full-load current:	10.7 A
Back-up fuse max.:	16 A
Protection class:	IP54
Protection class:	1
Ambient temperature:	+2 to 40 °C
Dimensions, W x H x D:	1207 x 1511 x 1026 mm
Work space, W x H x D:	1207 x 2424 x 2528 mm
Machine weight:	720 kg
Transport weight:	915 kg
Drum size:	220 litres
Filling max.:	160 litres
Refrigerant:	R452A, 0.75 kg
Speed of mixer and tumbling arm:	0 to 50 rpm
Vacuum:	0-90%
Lifting aid, load capacity	180 kg

Foundation load:	8,9 kN/m²
Emission sound pressure level:	$L_{pA} \leq 70$ dB(A)
Measured according to:	DIN EN ISO 11201
	in case of uncertainty K_{pA} 2.5 dB
Measured when:	idling without product, at maximum speed

The data on the type plate principally applies; it is located at the rear of the machine next to the power supply line. In case of deviations, please contact the manufacturer for a written confirmation of the data!

If your country requires an RCD as protective measure, an RCD (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

The manufacturer hereby declares		that the following product	
Name, legal form:	Rühle GmbH Lebensmitteltechnik	Type:	MPR 220 Turbo
Address:	Beim Signauer Schachen 10 79865 Grafenhausen Germany	Designation: from serial no.:	Tumbler 0001

complies with all relevant provisions of the Directive indicated above, including any changes that are valid at the time of this 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 machines – Part 1: General requirements
- EC 1935/2004
- EU 10/2011
- EC 2023/2006

  Regulation on materials and articles intended to come into contact with food.
- Regulation on good manufacturing practice for materials and articles intended to come into contact with food.

	Signed by:	Person authorised for the documentation:	
Place of issue:	D-79865 Grafenhausen	Name:	Jürgen Stegerer
Date of issue:	28 October 2019	Address:	Rühle GmbH Beim Signauer Schachen 10 79865 Grafenhausen Germany
Position of the signing person in the company:	Management		
Name of the signing person:	Mr. Claus Rühle		
Signature:			

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