



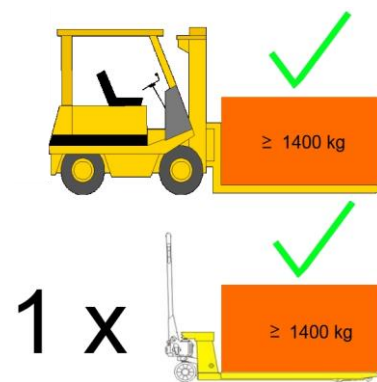
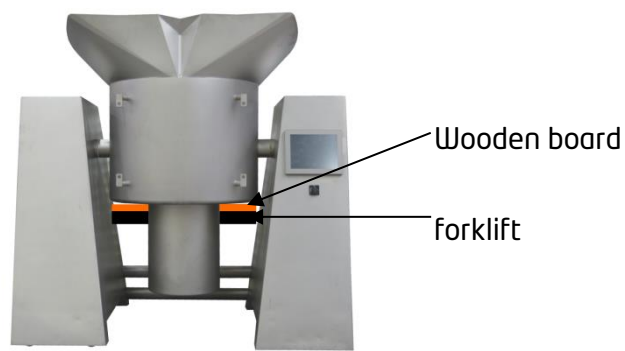
## Quick installation guide

MR 600

**RÜHLE**  
Echte Originale.

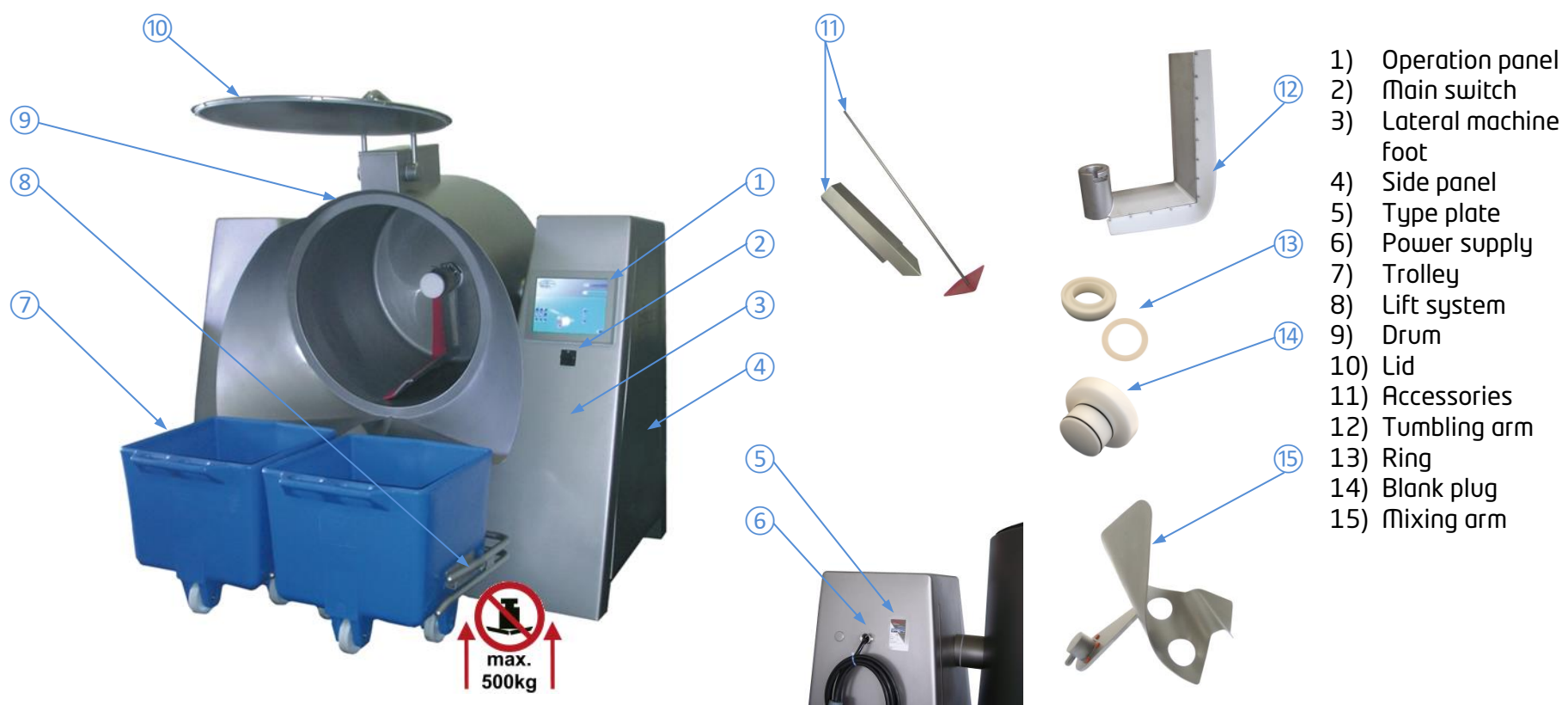
I

### • Installing the machine



II

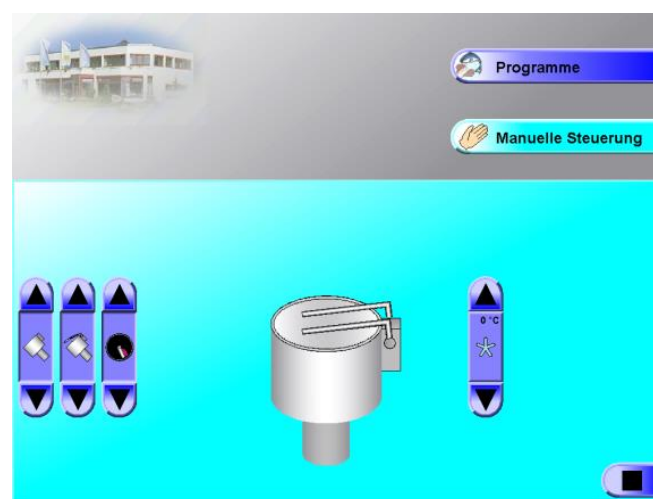
### • Operation



### • Recipe selection / recipe start



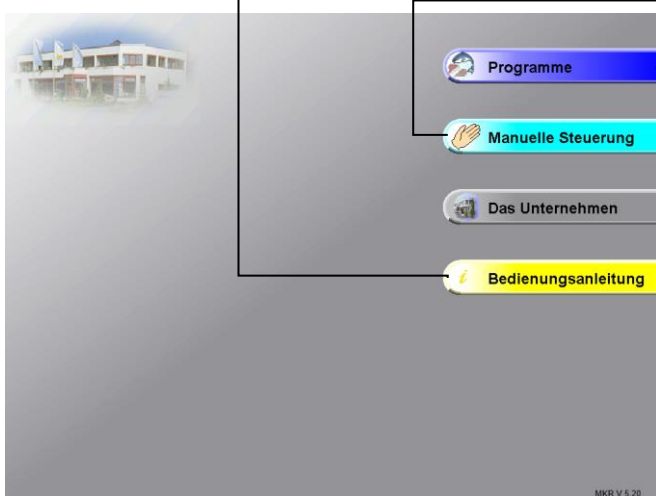
(Quick help)



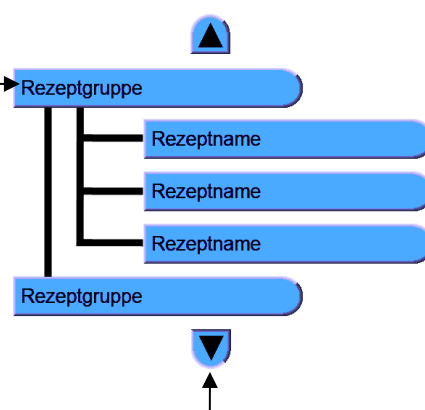
(Manual control)



(recipe start)

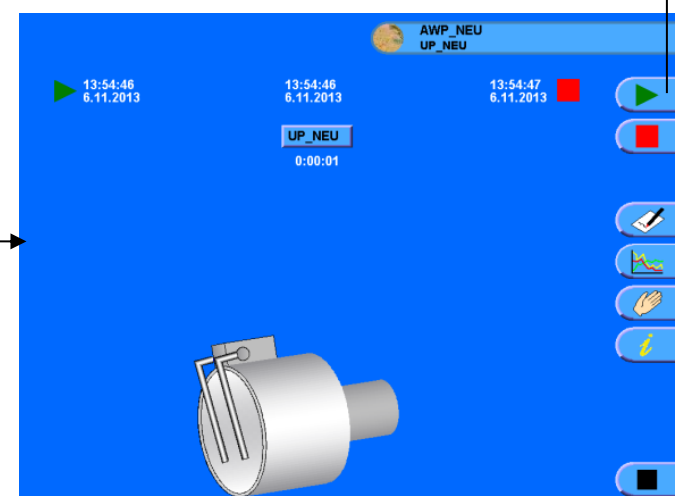


(Welcome screen)



Push button scroll recipes

(Recipe selection)



(Recipe)

## ▶ Recipe selection / recipe start

AWP\_NEU  
UP\_NEU

13:54:46  
6.11.2013

13:54:46  
6.11.2013

13:54:47  
6.11.2013

UP\_NEU  
0:00:01

Start / Pause

Stop

Phases

Recipe editor

Statistic

Manual control

Information on/off

Back

(Programming recipes)

Editor  
Passwort 0

1	2	3
4	5	6
7	8	9
0	X	✓

Factory setting password "0"

## ✍ Programming recipes

Phases overview

Inserting existing phases

Back

Inserting new phase

Copying active phase

Deleting active phase

Phase header

Time

Temperature

Revolutions tumbling arm

Vacuum

Degermination

Drum position

Lid position

AWP\_NEU  
Tumbler

1

UP\_NEU

1 mal

1 Phase

00:00:01

00:00:01

Gesamtdauer: 00:00:01 (1 Phase)

0 °C ... 0 °C

00:00:00 mit 0 1/min (max)

0.0 Umdrehungen

00:00:01

Programming recipes:

Originales AWP  
AWP\_NEU

Neues AWP  
AWP\_NEU

Kopieren Umbenennen

Neu Löschen

1) Name "new recipe"

2) Press copy

## ✋ Manual settings

Button tumbling arm  
Clockwise/Counterclockwise

Button lid position

Button drum position

Recipe selection

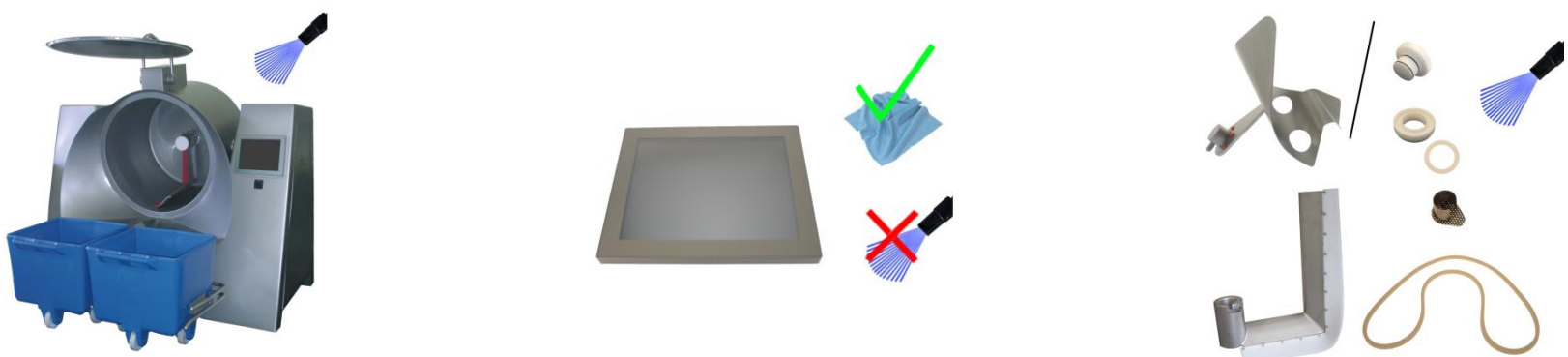
Start button refrigeration

Back

Programme

Manuelle Steuerung

## III • Cleaning





***Translation of the original instructions***

**RÜHLE - Tumbler**

***Type: MKR 600***

Rühle GmbH, Beim Signauer Schachen 10, 79865 Grafenhausen  
Germany

Tel.: +49 7748 523-11, Fax: +49 7748 523-8511

[www.original-ruehle.de](http://www.original-ruehle.de)



## ***Table of Contents***

1	Safety Instructions.....	3
1.1	Safety instructions .....	3
1.2	Remaining risk of accidents .....	6
1.3	Intended Use.....	6
2	Installation instructions .....	7
2.1	Machine transport and setup .....	7
2.2	Workplace description.....	8
2.3	Connecting the machine .....	9
3	Operating instructions .....	10
4	Cleaning instructions.....	12
4.1	Safety instructions .....	12
4.2	Cleaning agents and disinfectants.....	13
4.3	Cleaning procedure.....	13
5	Service: Care, maintenance, repair.....	15
5.1	Regular care .....	15
5.2	Regular maintenance.....	16
5.3	Repair and spare parts .....	17
6	Disposal.....	17
7	Technical documentation .....	17
7.1	Technical data .....	17
7.2	Electrical circuit diagram .....	18
8	EC Declaration of Conformity according to Directive 2006/42/EC.....	19

Status: 05 December 2022 (Version 2.2)

Changes reserved

# 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



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



Always disconnect machine from the mains during this process!



Refrigeration installer



These work activities may be carried out only by a refrigeration installer! Disregard may result in injuries.



Warning of hot surface.



Warning of suspended load.

## 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!

missioning, 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. tumbling arm; lifting aid. The machine must be shut down in the event of any damages or changes!
- b) Check the safety switch on the lid drive; to this end: Open lid all the way. - When reaching the "Open" end position the lid

and indication must remain on the display. - Now close the lid fully. - When reaching the "Closed" end position the lid and indication must remain on the display. If the lid or indication on the display do not remain, 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 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



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!

!!! All life cycles phases



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

!!! All life cycles phases



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

!!! Maintenance



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



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



Beware of hot or cold surfaces, e.g. drives, cooling, unit, etc., 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 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!
- The lifting aid may be used only for the standard trolleys provided and must not be overloaded! Lifting of persons is strictly 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 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 Tumbler.



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!

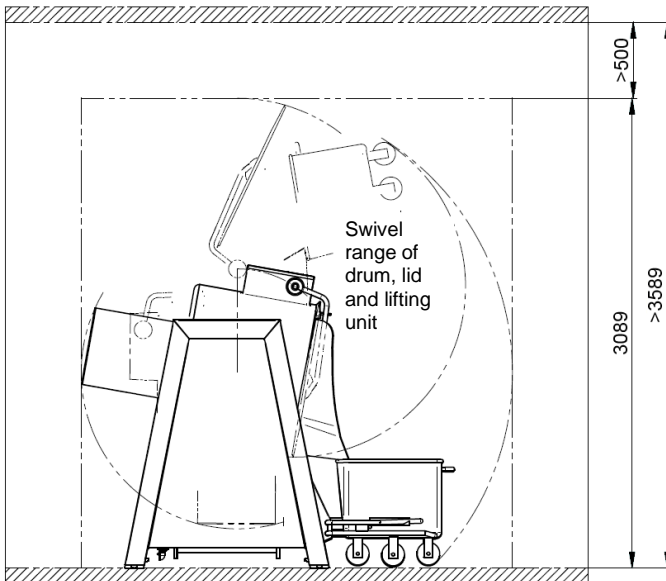
Observe the maximum filling quantity of 225 kg per standard trolley (corresponds to the max. filling capacity of the drum)!

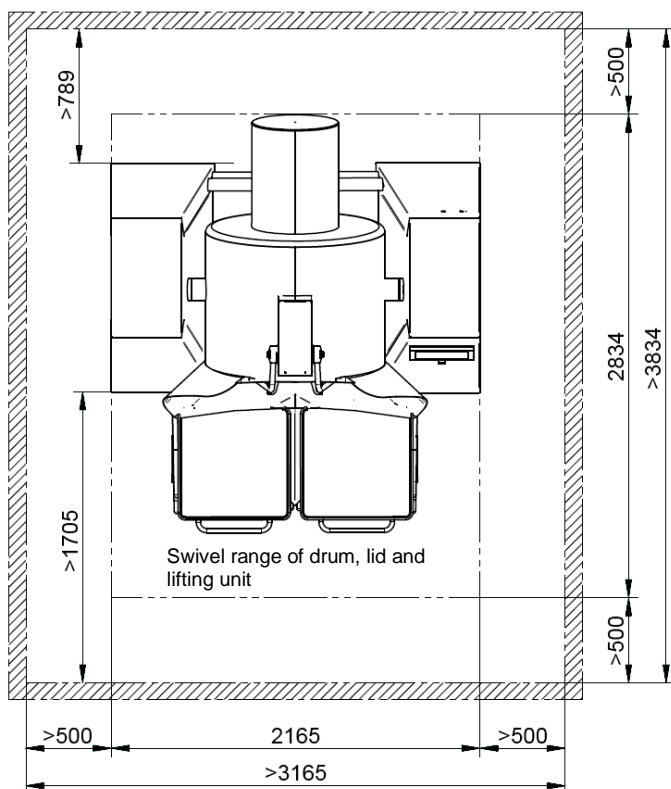
Foundation load: 6,2 kN/m<sup>2</sup>!

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 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. The machine cannot be started if the rotational field is wrong.



- 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 16A 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 Tumbler.



Follow also the safety instructions in Chapter 1.1!



Depending on the user programs, the lid and drum are moved automatically. While the program is running, no person or object may stand or be located within the working range of the machine (front distance at least 1.2 m over the entire machine width).

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.

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 exception (2-man operation):

- Installation and removal of drum lid
- Installation and removal of drum lid arms
- 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 -10 °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 both standard trolleys sit 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 as well as the mixing arm (alternative blind plug) that they are correctly locked!

No persons or interfering objects may be present 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 drum 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 gasket has been mounted correctly. Otherwise check the gasket.



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.

Within a program you may aerate the machine before the lid shall be opened.

The drum can be set to any position between -10° and 100° (= discharging position) so that it can be used for any operating process.

The control panel may only be operated by touching it with the fingers. Using any objects (e.g. blade) 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**

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

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. 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 Power-foam 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	neutral	2.0 - 5.0	15 - 30	20 - 40	daily
13302	FINK - Antisept A	Alcohol-based disinfectant		100	5	RT	
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](mailto:info@finktec.com) / [www.finktec.com](http://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 as well as the tumbling arm from the drum!
- Simply pull off the stripper rubber at the tumbling arm from the outside to the inside.
- Pull the drum lid seal off the inside of the drum lid!
- Remove the intake filter at the upper lid edge out of the bracket.

## **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!



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!



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!
- 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!

### **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 hygienic condition and function of drum lid seal!
- c) Check the lock / seat of the tumbling arm and mixing arm (or blind plug) for functioning and firm seating!
- d) Check 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 drum 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 outlined in Chapter 1.1 Safety Instructions!
- b) Test run with open machine (caution: moving parts)!
- c) Check air filter and air oil separator of the vacuum pump and replace, if necessary!
- d) Change oil of the vacuum pump!
- e) Check cooling performance of the refrigeration unit; service, if necessary, and clean condenser!
- f) Check function of pressure transmitters and temperature sensors!
- g) Inspect the hoses (vacuum system)!
- h) Check radial shaft seals for leak tightness; replace otherwise!
- i) Read the error memory (frequency converter)!

### **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 machine contains a cooling system filled with the refrigerant R404A. It must be pumped off by a refrigeration installer and must then be disposed of correctly!
2. The following components contain oil:
  - a. Lid drive
  - 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**

Connection voltage:	400 V 50/60 Hz 3-phase AC / N / PE
Power consumption:	6.8 kW
Full-load current:	14.6 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:	2165 x 3089 x 2834 mm
Machine weight:	1400 kg
Transport weight:	1700 kg
Container size:	600 litres
Max. filling:	450 litres
Refrigerant:	R404A, 0.76 kg
Speed of mixing and tumbling arm:	0 to 30 rpm
Vacuum:	0 - 95 %
Lifting aid, load capacity:	500 kg
Foundation load:	6,2 kN/m <sup>2</sup>
Emission sound pressure level:	L <sub>pA</sub> 68.9 dB(A) averaged, when idling, as per DIN EN ISO 11204, accuracy class 2, as per EN ISO 3744
Measuring instrument:	Brüel & Kjær Type 2240

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 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

The manufacturer herewith declares		that the following product	
Name:	Rühle GmbH	Type:	MKR 600
Legal form:	Lebensmitteltechnik		
Address:	Beim Signauer Schachen 10 D-79865 Grafenhausen	Designation:	Tumbler
		From series no.	0715

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
- EG 1935/2004 Regulation on materials and articles intended to come into contact with food.
- EU 10/2011 Regulation on good manufacturing practice for materials and articles intended to come into contact with food.
- EG 2023/2006 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:	01 July 2014	Address: Rühle GmbH Beim Signauer Schachen 10 D-79865 Grafenhausen
Function 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.