

OPERATION- AND MAINTENANCE MANUAL



INDUSTRIAL SLICING- AND PORTIONING MACHINE TYPE IC

IC 700-1100/24
IC 700-1100/24B
IC 700-1100/24BS
IC 700-1100/24BSL
IC 700/36

⇒ IC 700/36B

Ma. No. 030914

Table of Contents

1	General
1.1	Warranty information
1.2	Field of application
1.3	Final danger
1.4	Table of comparison
1.5	Copyright
2	Safety and safety installations
2.1	Safety symbols
2.2	General safety regulations
2.3	Safety installations
2.4	Daily safety inspection
3	Technical description
3.1	Dimensions
3.2	Technical Data
3.3	Description of function
3.4	Controls
3.4.1	Keypad / Display
3.4.2	Icons
3.4.3	Display
3.5	Environmental influences
4	Installation
4.1	Set up
4.2	Electrical connection
4.3	Service menu
4.3.1	Display settings
4.3.2	Machine settings
4.3.3	Statistics
4.3.4	Hardware settings
4.3.5	Password protection
4.3.6	Help menu
4.3.7	Single cut

- 5 Operation**
 - 5.1 Trial operation**
 - 5.2 Positioning of product**
 - 5.3 Cutting process**
 - 5.4 Programming**
 - 5.4.1 Creating a program**
 - 5.4.2 Open program**
 - 5.4.3 Copy program**
 - 5.4.4 Rename program**
 - 5.4.5 Delete program**
 - 5.5 Product menu**
 - 5.6 Input error messages**
 - 5.7 Switching to double-blade operation**
 - 5.8 Inspecting the blades**
 - 5.9 Slicing with frame**
 - 5.10 Rectifying faults**
 - 5.11 Fault messages**

- 6 Cleaning and care of the appliance**
 - 6.1 Preparing for cleaning**
 - 6.2 Cleaning and disinfection**
 - 6.3 Care**

- 7 Maintenance and Inspection**
 - 7.1 How to change the blade**
 - 7.2 Greasing the knife shaft bearings**
 - 7.3 Maintenance of feed**
 - 7.4 Changing forward belt**
 - 7.5 Exchanging of the conveyor belt**
 - 7.6 Maintenance of the electrical system**
 - 7.7 Adjustment of the motor brake**

- 8 Special features**
 - 8.1 Inlay belt**
 - 8.2 Automatic flap opener**

- 9 Spare part list (Enclosure)**

EC declaration of conformity

As defined by machinery directive 2006/42/EC, Annex IIA

1. Machine manufacturer MHS SCHNEIDETECHNIK GMBH
 Seestraße 7
 D- 74232 Abstatt
2. Device type: Description: INDUSTRIAL SLICING AND PORTIONING MACHINE
 Type: IC
 Machine No.: 030914

Herewith we declare that the supplied model of INDUSTRIAL SLICING AND PORTIONING MACHINE Type IC complies with the following provisions applying to it:

EC- directives

- EC- Machinery Directive 2006/42/EC, Annex 1
- EC- Electromagnetic compatibility Directive EMC, 2004/108/EC

Applied harmonised standards in particular

- EN ISO 12100-1+2
- EN ISO 13857
- EN 953
- EN 13849-1
- EN 983
- EN 1088
- EN 1672-2
- EN ISO 14121-1
- EN 61000-6-2+4
- EN 60204-1
- EN 13870

Other standards and directives

- Directive 1935-2004
- Directive 10/2011

Person authorised to compile the technical file

- Christoph Stöcker, Seestraße 7, D-74232 Abstatt

The machines of type IC are exclusively use to cut foods, for instance sausages, bacon, meat, cheese and fish. Another application is not allowed.

This declaration will cease to be valid, if there are made an alteration at the machine, which has not been agreed with MHS.

Issuer: Christoph Stöcker
Place, Date: Abstatt, 01st Jan. 2013

Signature: 

1. GENERAL

Dear customer,

This operation and maintenance manual makes it easy for you to get to know the Slicing and Portioning machine **IC** and how to use it properly. This manual contains important information and instructions which help make it possible to operate the Slicing and Portioning machine safely, correctly, and economically. Your attention and consideration of the material contained in this manual will help to reduce potential danger, repairs and out of operation time as well as extending the dependability and life-expectancy of the machine.

It is necessary to comply with all safety requirements before bringing the machine into operation.

The general safety and accident prevention regulations as well as those from local trade and professional associations must be abided by at all times. All safety instructions from this manual are to be observed. Only qualified and trained personnel are allowed to operate the Slicing and Portioning machine. The machine may only be used according to regulations.

We can no longer uphold our guarantee obligations as specified in the terms of delivery in the case when maintenance work is negligibly or improperly executed. Only our original spare parts guarantee quality and exchangeability. We draw your attention to the fact that we assume no liability for damage or operational disturbances resulting from failure to comply with the guidelines and instructions set out in this Operation and Maintenance Manual.

The recognised technical regulations for safe and correct work procedures must be complied with in addition to the accident prevention regulations expressed in this manual, those regulations valid in the country where the machine is to be used and to those regulations mandatory at the workplace.

Should you have any questions which are not sufficient answered by this manual, please turn to our customer service.

MHS Schneidetechnik GmbH

Seestrasse 7
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1.1 WARRANTY INFORMATION

The warranty period is 12 months from time of commissioning or 3,000 hours of operation. It excludes wear parts.

Compliance with the terms of the warranty assumes servicing by **MHS** every 1,000 hours of operation, at the owner's expense.

Wear parts, such as the blades, belts, rollers (see Spare part list), are not covered by the warranty. Our machines are designed for single-shift operation.

Unauthorised modifications or improper use of the machine/unit by the operator shall void the warranty.

1.2 FIELD OF APPLICATION

The machine is intended for single-shift cutting of meat and sausage in cooked, raw or frozen condition, in accordance with the technical data contained in this operation and maintenance manual. This includes chapter 3.2, Technical Data. The lower limit temperature of -4 C for the cutting product must be strictly observed. The quality of the cut which can be achieved is determined by the product being cut and the cutting parameters. Alternative or additional uses of the machine count as improper use. The manufacturer or supplier shall not be held liable for any damage resulting from such use. The risk shall be borne solely by the user.

Proper usage also includes compliance with all safety regulations and following specifications on maintenance and cleaning tasks.

The unit must not be operated without the conveyor belt fitted.



The machine is intended exclusively for use in a commercial environment.

1.3 FINAL DANGER

The machine is designed according the standards for chop cutting machines, however the following final dangers lasts:



- **Working on the drive, danger of squeezing, retracting and cutting**
- **Grab into the output side, danger of cutting off of fingers or hand or grasping and retracting / squeezing into**
- **Working at the blade, danger of cutting**
- **Working in wrong blade operation, danger of cutting**
- **Automatic Flap opener, danger of hits and strokes**

1.4 TABLE OF COMPARISON

The following table shows you the model which was delivered to you. Comments in the chapters to follow will help you when operating and servicing the machine.


	Model		Model
IC 700/24		IC 1100/24	
IC 700/24B		IC 1100/24B	
IC 700/24BS		IC 1100/24BS	
IC 700/24BSL		IC 1100/24BSL	
IC 700/36			
IC 700/36B	x		


1.5 COPYRIGHT

The description remains in all details property of **MHS Schneidetechnik GmbH**. Copies also in detail needs a permission of us.

2. SAFETY AND SAFETY INSTALLATIONS

2.1 SAFETY SYMBOLS

	The Danger! Symbol is used in this Operation and Maintenance Manual to warn the user in situations where high danger to life and limb exist. Pay utmost attention to these instructions and work with particular care in these cases. Pass on all work safety instructions to other users.
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	Only authorized electricians are allowed to carry out work on the electrical control and switching units or on any other electrical parts of the machine. All safety elements must be tested for complete functionality upon completion of the maintenance or service. Only after fulfilling these requirements the worker can be released for production use.
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ATTENTION!	This manual uses “ATTENTION!” to bring particular attention to situations in which the guidelines, regulations, directions, and work procedures are to be strictly observed in order to prevent damage or destruction of the Slicing and Portioning Machine and components.
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IMPORTANT!	“IMPORTANT” pertains to special information regarding the economical use of the Slicing and Portioning Machine or to particular technical requirements the user must regard.
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2.2 GENERAL SAFETY REGULATIONS

The Slicing and Portioning Machine **IC** are operationally safe according to the guideline of the council of the European community (2006/42/EG) and according to the requirements of the valid accident prevention regulations.

The Slicing and Portioning Machine can be dangerous when used improperly and applied unduly in a way in a way contrary to instructions. For this reason, the safety precautions and regulations must be adhered to by those responsible for installation, operation, maintenance and repair of the Slicing and Portioning Machine.

The following laws, rules and regulations ensuring work protection and safety are to be complied with:

- Guidelines on the use of work equipment

All other commonly valid laws and associated regulations concurring accident prevention and environmental protection are, in addition to those outlined in this manual, to be complied with and instructed.

Such duties could, for example, concern the handling of dangerous materials or the making available/wearing of protective personal gear.

All safety and precautionary measures are to be observed when using the Slicing and Portioning Machine.



Only authorized and trained personnel older than 14 years are allowed to operate, clean, maintain and install the Slicing and Portioning Machine. These persons should be specially instructed regarding the potential dangers involved.

The operator must ensure that unauthorized persons are not allowed to work on the machine.

Work on the machine/unit's electrical equipment may only be performed by an electrician or by properly instructed personnel under the direction and supervision of an electrician, in accordance with electro technical standards.



Work to be performed on the electrical control and switching unit and/or electrical installation work on the machine may only be carried out by an authorized electrician. After such work is complete, the function of all safety equipment must be checked by this specialist and the unit approved for use. Only then may the machine/unit be used again for production.

Personnel must be qualified to work in their assigned area and role, and must undergo regular training. This operation and maintenance manual may be used as the basis for such training. The training sessions must be documented by the operator.



No modifications may be carried out on the safety equipment during care or maintenance work. Care or maintenance work may only be performed when the machine is switched off and safeguarded against being switched back on without permission.

If the machine/unit is fully shut down for maintenance or repair work, it must be safeguarded against being switched back on unexpectedly:

Switch the master switch “OFF” and lock!

When work is being performed on the unit's electrical system, the mains plug must also be pulled out and the unit checked for zero potential. The plug must be protected against water with a protective cap.

After care and maintenance work are complete, any protective covers which have been removed or opened must be set back in their original position.



The machine/unit may only be used in a technically sound condition, in the proper manner, with the appropriate awareness of safety and any hazards, and in following the operation and maintenance manual.



It poses no risk of fire from external sources, and no risk of explosion. The unit may not be operated in explosive atmospheres. If the machine catches fire, personnel should keep their distance due to the risk of suffocation.

Particularly faults which may impact on safety must be rectified immediately.

If the operator notices changes in the operating behaviour of the machine/unit, they are obliged to bring it to an immediate stop and to inform the person responsible of the fault.

Additions or modifications which alter the technical characteristics of the machine/system or impair the function of safety equipment may only be made following written approval from the manufacturer.

Before switching on the machine/unit, ensure that no-one will be put in danger by the machine as it starts up.

In addition, the regulations concerning safety at work in force where the machine is used and in the country of operation must be observed.

2.3 SAFETY INSTALLATIONS

In order to protect the operator, the machine/unit is equipped with safety devices to guarantee smooth operation and to safeguard the user from nearby hazards:

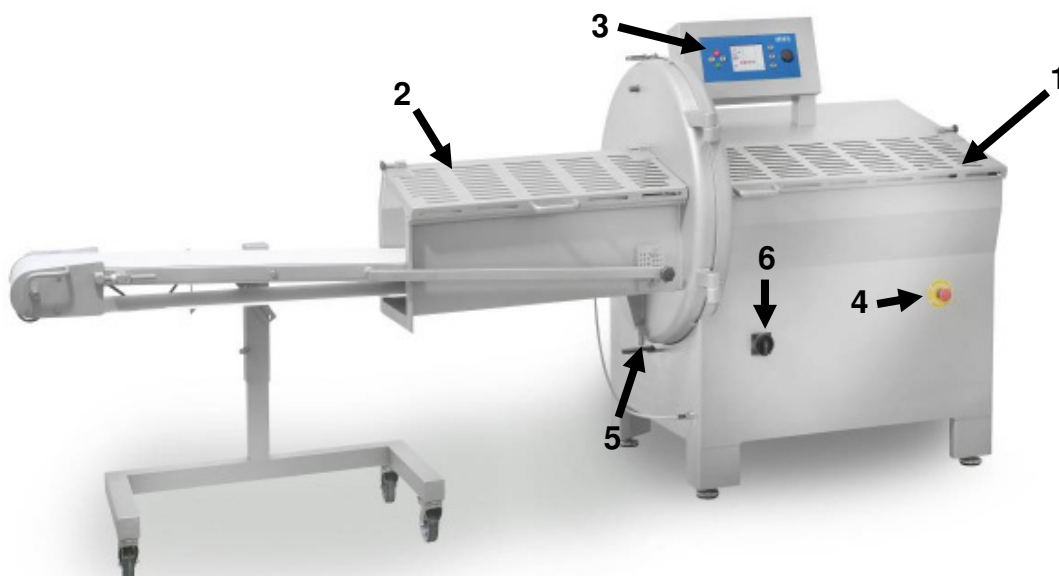
Operation:

- Protective cover for infeed belt / insertion side (1)
- Protective cover for removal belt / removal side (2)
- Stop button on display (3)
- EMERGENCY STOP button (4)

Maintenance:

- Locking mechanism on blade housing (5)
- Master switch (6)

Protective covers on the removal belt (2), insertion side (1) and cutting chamber (5)



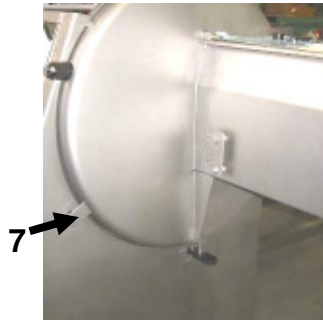
The machine is equipped with **protective covers** (1+2) in the vicinity of the cutting chamber, which prevent the user from unintentional interference and immediately put the machine out of action when opened.

The **STOP button** (3) on the machine's display (see 3.4) allows operation to be interrupted at any point in the cutting process. The machine can be put back into operation at any time.

The **EMERGENCY STOP button** (4) puts the machine out of operation. It can only be restarted after the Emergency Stop button has been unlocked.

The **Master switch** (6) puts the machine out of operation. It can only be restarted after the Master switch has been unlocked. After unlocking the switch and pressing the arrow button, the gripper (optional) opens and returns to its home position. Leftover material must be removed by hand. Optionally, the gripper can travel forwards after unlocking, eject the leftover material, and only then return to the home position.

Locking cutting area (7)



The cutting area is protected against forbidden opening by a coded security switch.

2.4 DAILY SAFETY INSPECTIONS

Before taking the machine in production the following safety functions are to be inspected daily for defective behaviour and functional capability. Please take care about the regulation of VGB 77.

The corresponding work will be described and demonstrated by installation of the new machine (see ch. 5.1)





To be inspected defective behaviour and functional capability:

Preparation:

Main switch „ON“
Close cutting area
Close output + input flap
Check that the blade operation corresponds to the blade that is installed


Function check:

In preparation for the function check, switch on the machine at the master switch.
Close all flaps and doors, unlock EMERGENCY STOP.

<p>Activate EMERGENCY STOP, start the machine with the Start button. EMERGENCY STOP message appears. Unlock EMERGENCY STOP – message disappears.</p>	 <p>EMERGENCY STOP! Locked</p>
<p>Open INSERTION SIDE flap, start the machine with the Start button. Message appears. Close INSERTION FLAP – message disappears.</p>	 <p>FLAP OPEN! Insertion side</p>
<p>Open REMOVAL SIDE flap, start the machine with the Start button. Message appears. Close REMOVAL FLAP – message disappears.</p>	 <p>FLAP OPEN! Removal side</p>
<p>Open BLADE HOUSING doors, start the machine with the Start button. Message appears. Close BLADE HOUSING – message disappears.</p>	 <p>FLAP OPEN! Blade door</p>

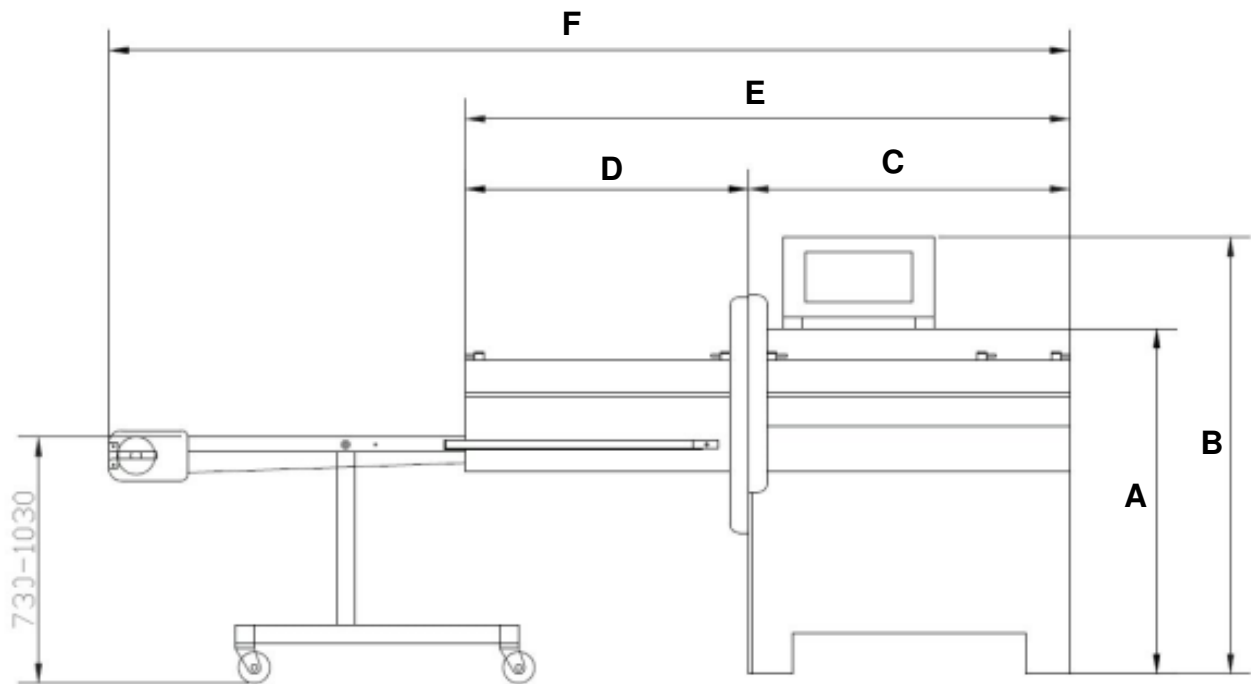
After this function check has been performed, it is guaranteed that the safety circuit is in working order and that the machine is ready for use.

If, during the function check, the machine does not switch off or on consistently, the master switch must be immediately set to “OFF” and the machine must be secured. The safety circuit must be tested and repaired by an authorised electrician. Only once the machine has been subjected to another function check by the specialist may it be approved for use.

	<p>All metal parts which could be touched by the user or by maintenance personnel are integrated into the protective earth system. A test of the protective earth conductor and the insulation resistance have been performed. The protective earth system must always be connected, otherwise persons who touch parts which have become live due to faults can suffer serious electric shocks, resulting in life-threatening injury or death.</p>
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3. TECHNICAL DESCRIPTION

3.1 DIMENSIONS



Type	Width	Height A	Height B	Input C	Output D	Machine length without belt E	Machine length with belt F*
IC 700/24	970 mm	1100 mm	1420 mm	1020 mm	900 mm	1920 mm	
IC 700/24B	970 mm	1100 mm	1420 mm	1020 mm	900 mm	1920 mm	3065 mm
IC 1100/24	970 mm	1100 mm	1420 mm	1420 mm	900 mm	2320 mm	
IC 1100/24B	970 mm	1100 mm	1420 mm	1420 mm	900 mm	2320 mm	3465 mm
IC 700/36	1175 mm	1215 mm	1450 mm	1020 mm	900 mm	1920 mm	
IC 700/36B	1175 mm	1215 mm	1450 mm	1020 mm	900 mm	1920 mm	3065 mm

Subject to alterations

* this measure is changing according the variable executions of the belts.

3.2 TECHNICAL DATA

Data	IC 700/24B	IC 1100/24B	IC 700/36B	Dimension
Throughput:	300 up to 10 mm			slices/minute thickness
Dimensions: (Length x Width x Height)	See ch. 3.1			mm mm mm
Recommended space:	2,5-3,5			m ²
Weight:	350	400	530	kg
Max. input length:	700	1100	700	mm
Cross section:	250 x 220	250 x 220	360 x 220	mm
Slice thickness:	min. 0,5 max. 700	min. 0,5 max. 1100		mm mm
Setting accuracy:	+/- 0,1			mm
Connection: (Option)	5,8 (7,0) 3~400 (3~230) 50 (60)		7,5 3~230 50 (60)	kW V Hz
Structural material:	Machine and blade are manufactured in corrosion resistant stainless steel. The housing is protected against splashing water.			
Process able goods:	Meat, chops, bacon, fish, cheese and sausage products up to -4°C Additional products on request.			
Min. temperature of product to be cut	- 4			°C
Drive blade:	3 phase gear motor			
Knife speed:	120-300 (60-300)			rpm
Advance:	Servo motor + toothed belt			
Operational noise emission:	>72			dB(A)
Storage conditions:	-10°C – +45			°C
Operating conditions:	+5°C – +25			°C

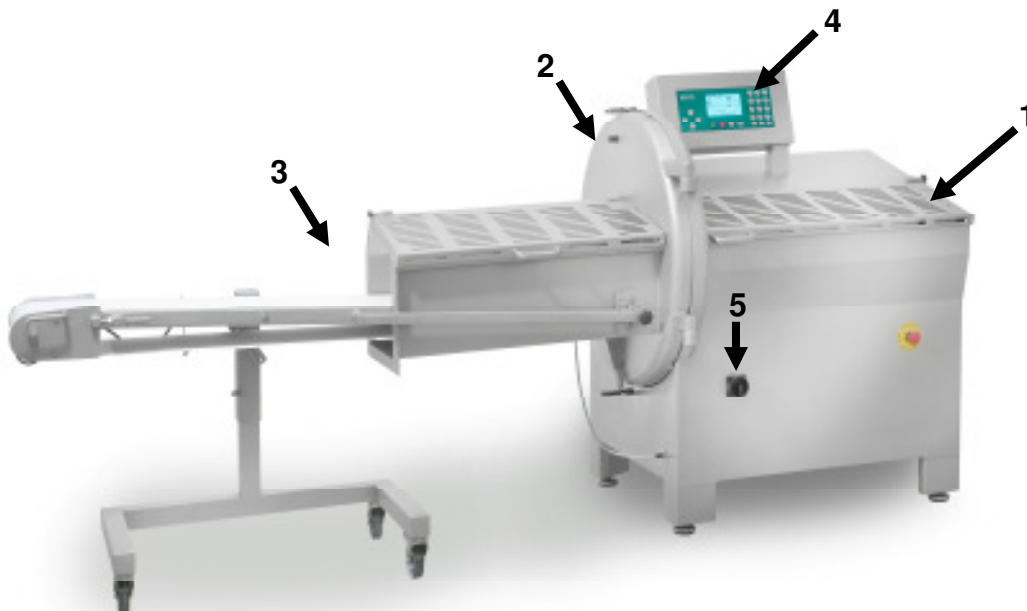
All precision and throughput parameters are approximate value and could be influenced by the adjustment of the programs and the processed goods.

3.3 DESCRIPTION OF FUNCTION

The **IC**-type slicing and portioning cutter allows you to cut meat, chops, bacon, fish, cheese and sausage products into slices of a predetermined thickness. Depending on the application, this is performed with a rotating, straight or serrated, single or double blade.

In addition, the machine/unit is divided into various areas/components:

- 1- Transport of the cutting product with the product gripper
- 2- Cutting zone with rotating blade
- 3- Removal area with optional conveyor belt
- 4- Cutting parameter setup (see chapters 3.4 + 5, Controls + Operation)
- 5- Master switch



1. Transport of the cutting product by the gripper.

The cutting product which has been inserted into the cutting chamber is held by the gripper. The gripper moves towards the cutting zone. A light barrier detects the leading edge of the cutting product and the control unit calculates the total length from the distance to the gripper. The value is processed in the cutting program.

2. Cutting zone with rotating blade

Depending on the feed rate of the gripper and the specified speed of the blade, the cutting product can be cut into slices of different thicknesses.

3. Removal area with optional discharge belt

Once the cutting operation is complete, the slices can be removed. On machines with discharge belt, the slices fall on the removal belt and are removed at the specified transport speed.

4. Control unit, cutting parameter setup via the display






The control system determines all the parameters for the unit. These can be entered on the unit display. The functions and the different cutting programs are explained in chapter 3.4, Controls, and in Chapter 5, Operation.

3.4 CONTROLS


When the machine is switched on at the master switch, the following screen appears on the display:



3.4.1 TASTATUR / ANZEIGE






















LEFT SIDE	RIGHT SIDE
 Start program	 3x function keys (depending on the icons on screen)
 Stop program	Rotary pulse encoder (DIG)
 Advance infeed belt	
 Reverse infeed belt	

Switching/modifying entry fields

The main functions (right side of the screen) can be accessed directly via the associated function keys .

By turning the rotary pulse encoder (DIG), you can select the entry fields, and after pressing the DIG, the setting can be modified (the background colour changes!). Pressing the DIG again confirms the entry.

3.4.2 ICONS

	Working menu button		Programming menu button		Service menu button
	Confirm button		Cancel button		Update program button
	Next page button		Previous page button		Save button
	Create program		Open program		Copy program
	Rename program		Delete program		
	Screen settings		Machine settings		Statistics
	Hardware settings		Password protection		Help
	Notices / Fault messages				

3.4.3 DISPLAY

The display is divided into 2 main areas.

Part 1 (left area) displays the actual output range.

Part 2 (right area) displays the changing key functions, as explained in the section above

OUTPUT RANGE

KEYPAD FUNCTIONS





3.5 ENVIRONMENTAL INFLUENCES

This machine can be used in meat processing companies without any kind of restrictions.

4. INSTALLATION


The **MHS-service** personnel is responsible for the transport, set-up, and installation of the Slicing and portioning machine as described in the Installation manual.

	<p>The machine has to be operated with all safety equipment intact as described in the safety instructions (see section 1.2). Failure to abide with these regulations can result in danger of being exposed to moving knives and shafts etc. In order to eliminate all danger to life and limb it is necessary to execute daily functional inspection of all protectional guards and apparatus. Only after a positive result to this inspection the machine can be set into operation.</p>
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	<p>Only the specially trained MHS-service personnel are allowed to set-up and install the machine. MHS will not be held liable for any damage occurring through customer installation.</p>
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The slicing and portioning machine comes equipped with a power cord and plug. The customer is to ensure a proper compliance with electrical power supply regulations.

4.1 SET UP



	<p>The machine has to be aligned in such a way that no vibrations of tilting may occur. The machine may not be lifted or carried by means of the output channel.</p>
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For setting up the machine or for carrying the machine to an another place the belts have to be removed.


4.2 ELECTRICAL CONNECTION

The machine is configured ex factory to an operating voltage of 400 V, 50 Hz AC three phase current (clockwise field of rotation). Check the field of rotation of the mains connection!

For further information regarding protection of the connection refer to the type plate.

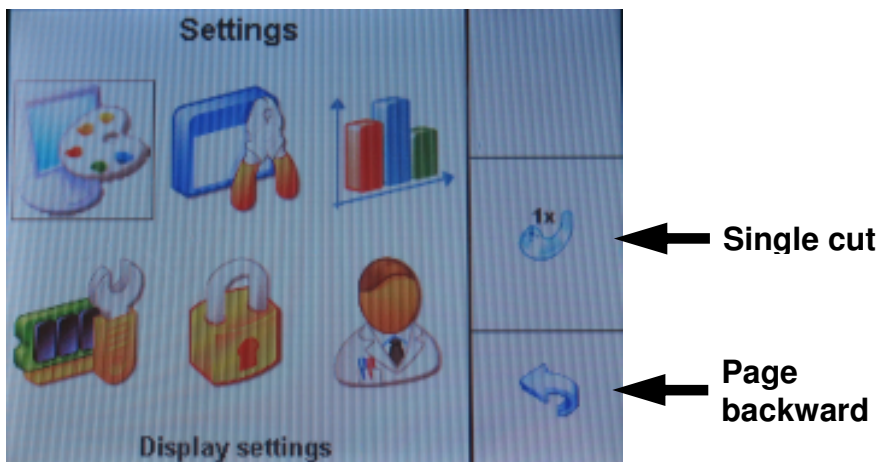
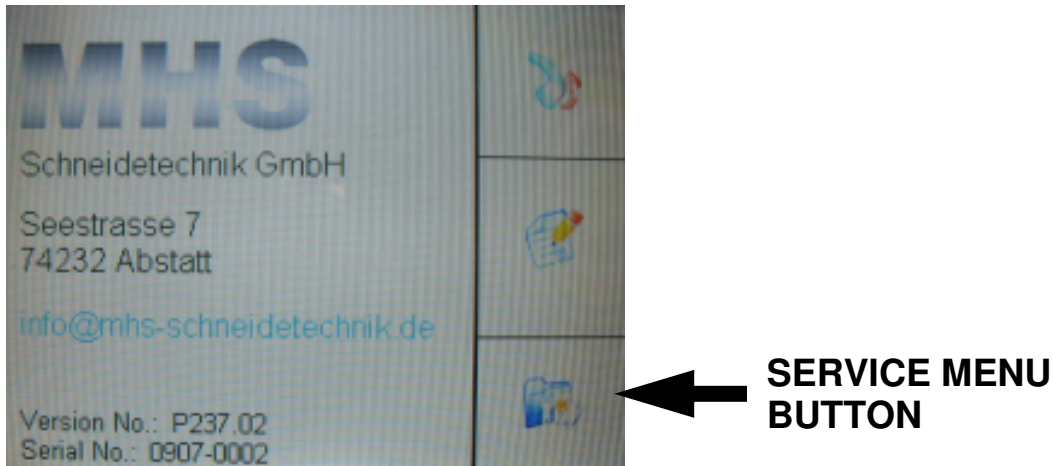
	<p>The machine must be connected to a protective system in order to protect against hazardous electric shocks which could lead to life-threatening injuries or death!</p>
	<p><u>Information for machines with a frequency converter (optional):</u></p> <p>Frequency converters are equipped with an internal EMC filter, which can lead to an increased leakage current of over 3.5mA. If the installation specifications include upstream protection by means of a "residual current device" (RCD) then single-phase machines require an RCD of "type A" and three-phase machines require an RCD of "type B" (universal current RCD).</p> <p>Furthermore, it is also recommended that the machine be additionally safeguarded at a separate socket on the mains side with an automatic circuit breaker of "type C16 A" for increased start-up currents. Too many consumers connected to the mains power can otherwise cause the breaker to trip when the machine is switched on.</p> <p>Observe the information on the type plate! In case of further questions please contact the manufacturer.</p>
<p>CAUTION!</p>	<p>When switching the machine on for the first time always ensure the correct rotational direction of the blade</p> <p>The rotational direction of the blade must be such that the blade turns anti-clockwise in the cutting shaft.</p> <p>If this is not the case then an electrician must change the direction of rotation.</p>

For other mains voltage, the connections must be changed in accordance with the manufacturer's specifications and the corresponding electrical parts are to be exchanged.








	<p>Work to be performed on the electrical control and switching unit and/or electrical installation work on the machine may only be carried out by an authorized electrician. After such work is complete, the full function of all safety equipment must be checked by the specialist before the machine may be approved for production once more.</p>
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4.3 SERVICE MENU

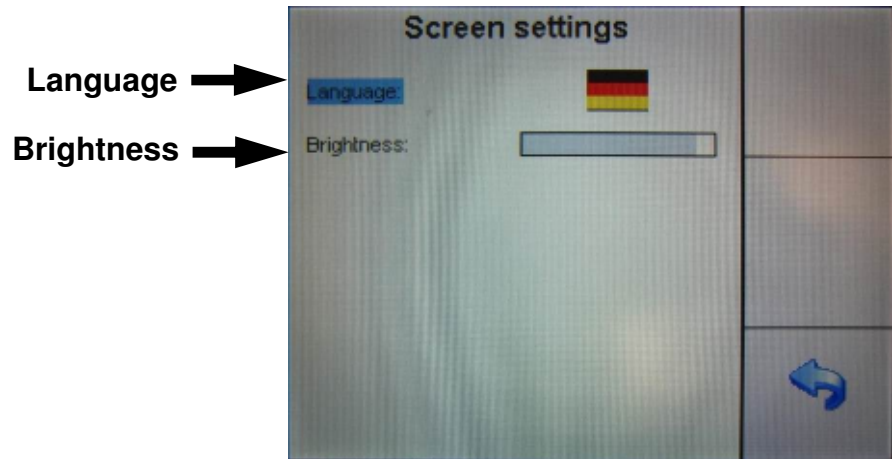
A wide range of machine settings can be made from the Service menu. The menu is accessed by pressing the “Service menu” button.



Functions in the Service menu:

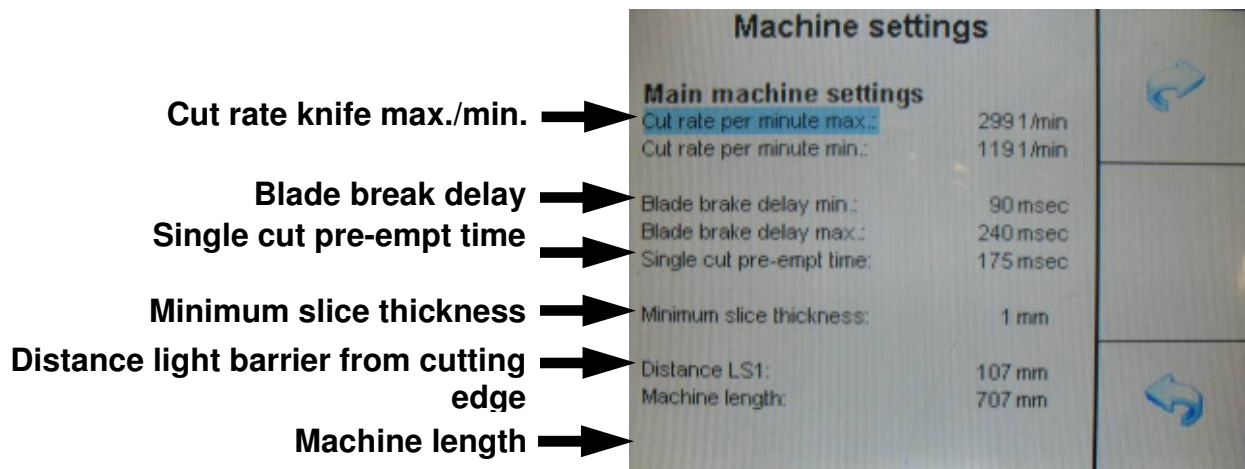
-  Display settings
-  Machine settings
-  Statistics
-  Hardware settings
-  Password protection
-  Help
-  Single cut

4.3.1 DISPLAY SETTINGS



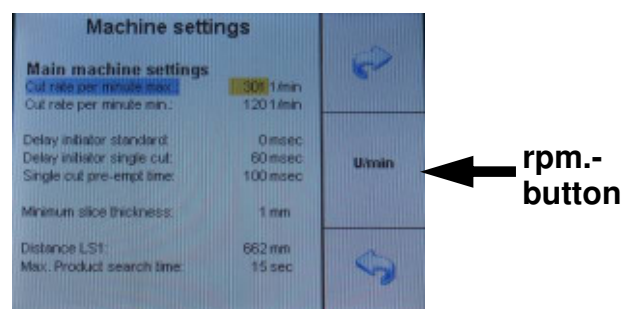
4.3.2 MACHINE SETTINGS

A wide range of machine parameters can be set up from the Machine settings menu. The menu can be protected against unauthorized access with a password.



The **speeds (min./max.) of the blade drive** can be detected automatically.

To do this, activate one of the two fields by pressing the DIG (rotary pulse encoder). The measurement can then be started by pressing the “rpm” button. By turning the DIG it is possible to change the setting manually. Pressing the DIG again accepts the value.

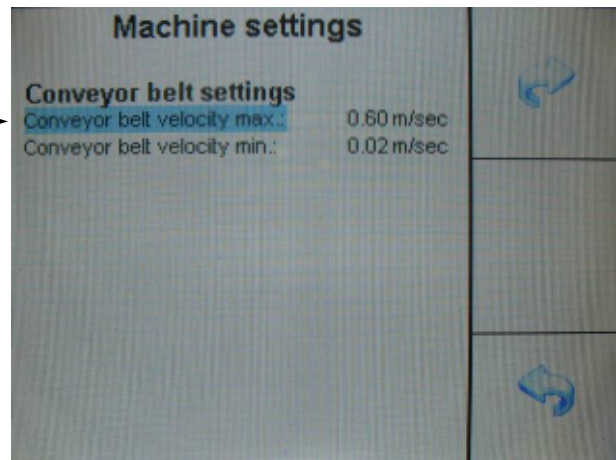


The value **“Brake delay”** (Delay Initiator) is used to modify the braking point of the blade drive for different blade geometries, in order to prevent the blade from coming to a stop in the cutting chamber. This is achieved by entering one braking time for the minimum blade speed and one for the maximum.

The value **“Single cut pre-empt time”** is used in single-cut operation to start the blade drive preemptively, in order to correct the cut thickness of the first slice.

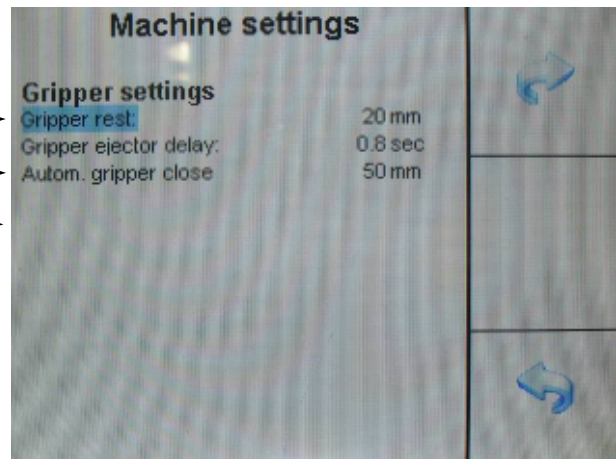
Discharge belt settings:

Conveyor belt velocity min./max. →



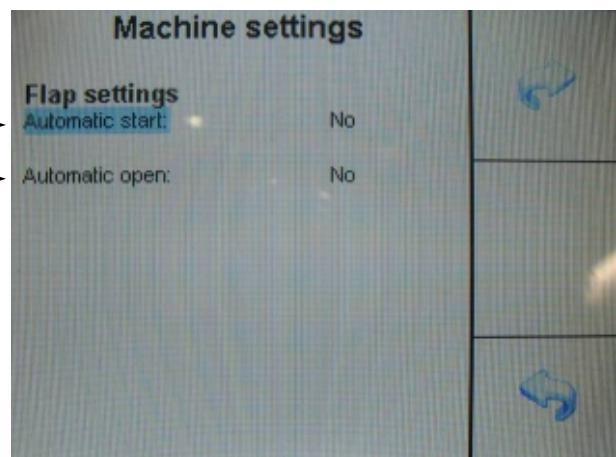
Gripper settings:

Gripper rest: →
 Gripper ejector delay: →
 Automatic gripper close: →



Insertion flap settings:

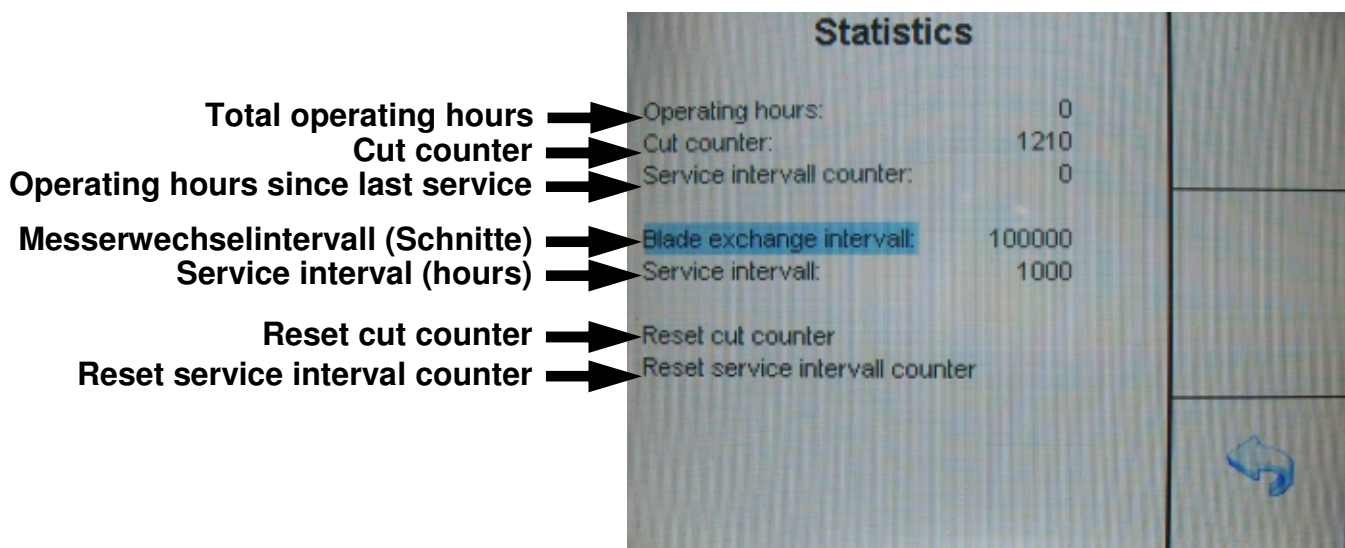
Automatic start →
 Automatic flap opener →



4.3.3 STATISTICS

Various information on the hours of operation, servicing, and blade usage times can be accessed from the Statistics menu.

- Total operating hours: Total hours of operation of the machine in hours
- Cut counter: Number of cuts made by the blade since last blade replacement
- Service interval counter: Operating hours since last service
- Blade exchange interval: Number of cuts between blade replacements
- Service interval: Number of hours between servicing
- Reset cut counter: Reset the cut counter after blade replacement
- Reset service interval counter: Reset the service interval operating hours counter (may only be performed by authorised service personnel)

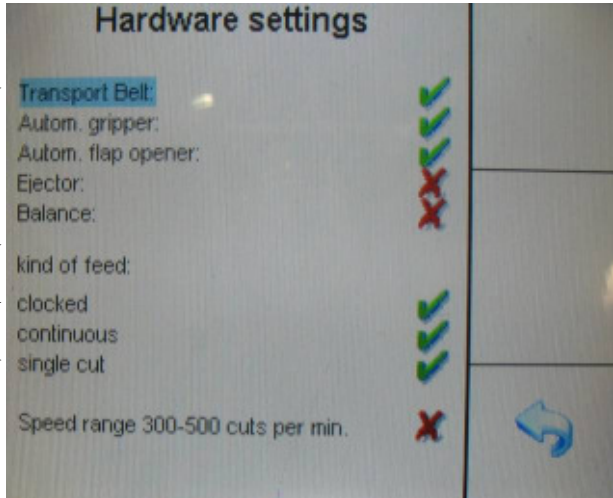


4.3.4 HARDWARE SETTINGS

The equipment features of the machine can be selected from the Hardware settings menu, e.g. select or deselect light barrier.

In addition, feed types can be selected or deselected (disabled).

The menu can be protected against unauthorised access with a password.



The screenshot shows the 'Hardware settings' menu with the following items and their status:

Setting	Status
Transport Belt:	Enabled (Green checkmark)
Autom. gripper:	Enabled (Green checkmark)
Autom. flap opener:	Enabled (Green checkmark)
Ejector:	Disabled (Red X)
Balance:	Disabled (Red X)
kind of feed:	Enabled (Green checkmark)
clocked	Enabled (Green checkmark)
continuous	Enabled (Green checkmark)
single cut	Enabled (Green checkmark)
Speed range 300-500 cuts per min.	Disabled (Red X)

Annotations on the left side of the screenshot:

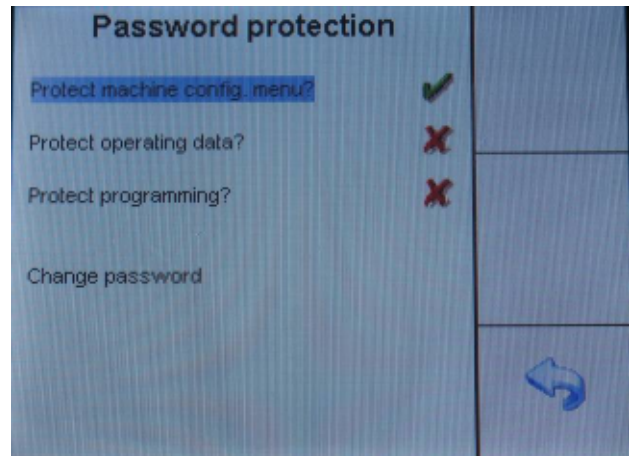
- Machine equipment** → points to the 'Transport Belt' setting.
- Clocked operation** → points to the 'clocked' option under 'kind of feed'.
- Continuous operation** → points to the 'continuous' option under 'kind of feed'.
- Single-cut operation (special equipment!!!)** → points to the 'single cut' option under 'kind of feed'.
- Enable speed range up to 500 rpm. (special equipment!!!)** → points to the 'Speed range 300-500 cuts per min.' setting.

4.3.5 PASSWORD PROTECTION

Password protection for a number of submenus can be selected or deselected from the "Password protection" menu.

It is also possible to modify the individual passwords from here, though this requires you to know the old password.

1. Protection „Machine settings“
2. Protection „Hardware settings“
3. Protection „Operation menu“
4. Protection „Programming menu“

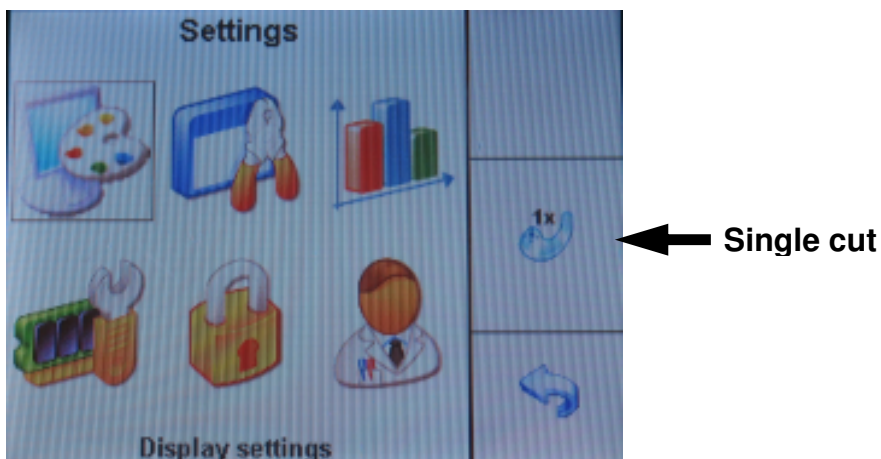


4.3.6 HELP MENU

Not activated

4.3.7 SINGLE CUT

By pressing the "Single cut" button, the blade drive is actuated for a single revolution. This function is used for blade calibration after replacement.



5. OPERATION



The machine may only be operated in compliance with all safety requirements, and when safety equipment is fully functional.

If such regulations are not observed, the user risks being injured by the blade. In order to rule out a risk to life and limb for the user, a function check of protective devices must be performed on a daily basis, before the machine is used. The machine may only be operated if it passes this inspection. In the case of faults, the machine must be immediately set out of operation and secured to prevent unauthorised switching on, then the repair service must be informed.



When handling the blade, you must take the utmost care, because there is a high risk of cutting yourself. Wear cut-resistant gloves! Wear safety shoes!

5.1 TRIAL OPERATION

After connecting the plug to the mains, the machine is ready for operation, and can be switched on at the master switch. The cutting process is triggered via the Start button.

You are recommended to first let the machine go through a trial run without the cutting product inserted, in order to avoid damage. The protective devices must be inspected during this test (see chapter 2.3f).

5.2 POSITIONING OF PRODUCT

The long, straight side of the cutting product must be positioned against the front raised edge of the insertion chamber. When cutting chops, ensure that the ribs are positioned against the front raised edge.

The contact surface of the gripper can be changed using a lever and locking device.

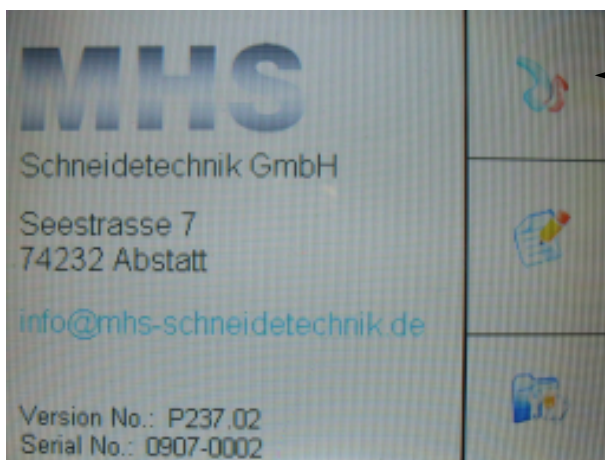


Hazard due to being caught or drawn in, avoid wearing clothing with wide cuffs when working in the vicinity of infeed belts/discharge belts

5.3 CUTTING PROCESS

In order to use the machine, it is first necessary to select a program. To do this, select the Working menu button.

NOTE!	Working programs can be created and modified in the Programming menu (see chap. 5.4). Smaller changes, i.e. slice thickness or blade speed, can also be carried out from the Working menu.
--------------	---



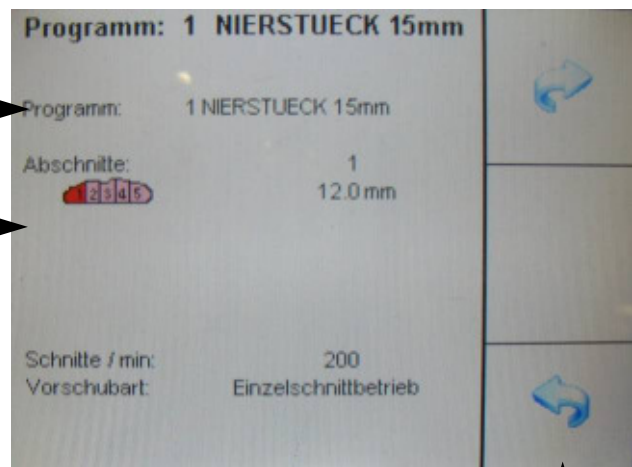
**WORKING
MENU
BUTTON**

**Next
page**

Page 1 of the Working menu shows the currently selected working program.

**Currently selected
program number and
name**

**Quick overview of key
cutting data, such as
slice thickness and
blade speed**

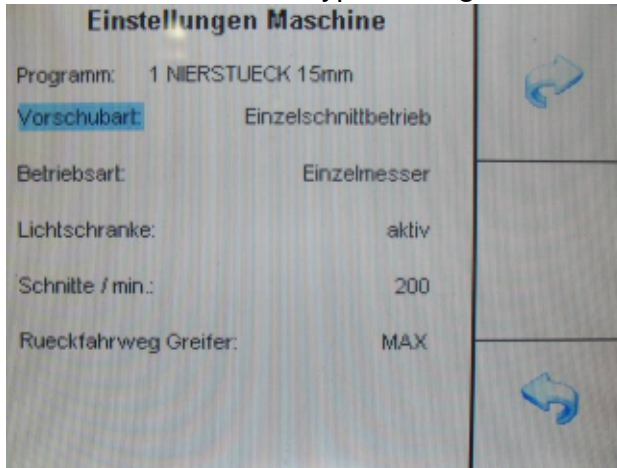


**Previous
page**

Pushing the rotary pulse encoder (DIG) activates your selection of program. By turning the DIG, you can select a stored program. Pressing the DIG again confirms the program selection. The working program can now be used for production. The quick overview makes it easier for you to locate the right working program.

When scrolling through the pages of the working menu, the screens appear as follows.

Blade-drive and feed-type settings



Feed type: Selection of the feed technique and cutting type (Continuous, Clocked, Single cut)

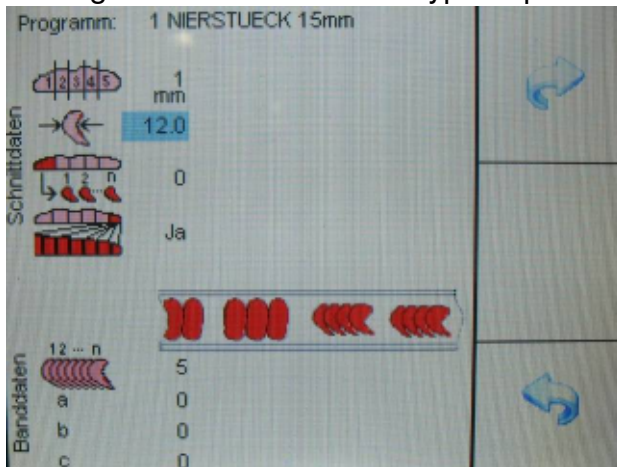
Operating mode: Blade form

Light barrier: For measuring the product before cutting (active/inactive)

Cuts/min.: Number of cuts per minute (60 – 300)

Reversing distance: Limit on the reversing distance of the gripper (0 to MAX).

Cutting data and data on the type of production.



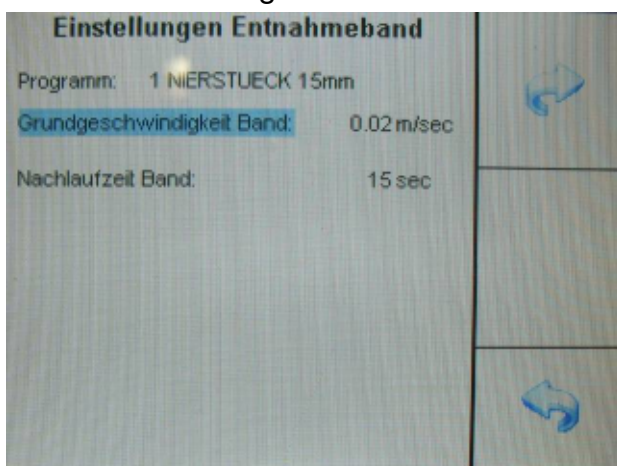
Cutting data:

1. g/mm choice (optional)
2. Section
3. Slice thickness
4. Number of slices
5. Distribute remaining slice Active for section (Yes/No)

Belt data:

- a. Distance between slices
- b. Distance between stacks
- c. Distance between sections

Additional discharge belt data



Belt base speed:

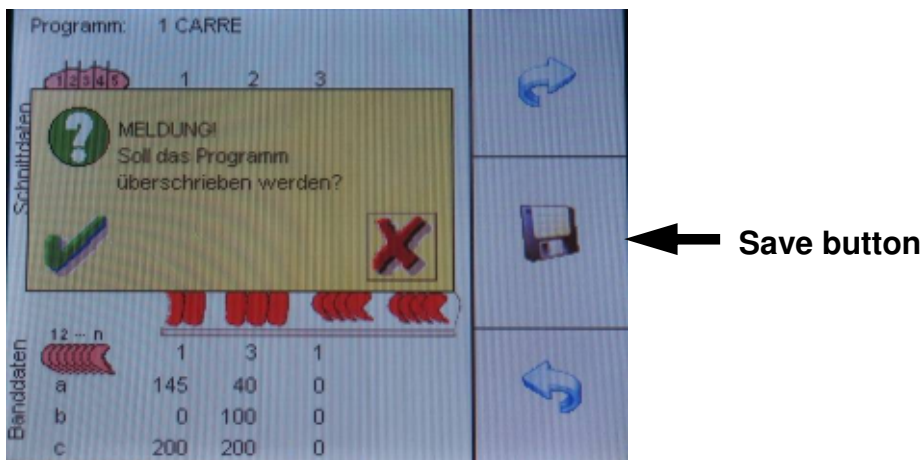
Belt run-on time:

Time that the discharge belt runs on for after the machine has been stopped.

By turning the DIG, you can select a setting to modify. Then by pressing the DIG, you can modify the setting. Pressing the DIG again accepts the value.

To save changes to one or more settings in the program, you must press the “Save” button. You will need to confirm the message “Do you want to overwrite the program ?” (with the green tick).

If you do not wish to save the program, it is also possible to start the machine without saving. However, your change(s) will only be retained until you leave the Working menu or the machine is switched off.



To start the machine:

The machine is started via the Start button on the display:

The Start button only works when all protective covers are closed and a program has been selected.

When the machine is started, the following steps are triggered:

1. The gripper conveys the positioned cutting product in the direction of the blade.
2. The cutting blade works in the cutting chamber.
3. The discharge belt starts to convey the product.

Operation is interrupted with the Stop button.

CAUTION!	<p>Do not interrupt operation of the machine by activating the safety flaps or the EMERGENCY STOP button! (except in emergency situations)</p> <p>These actions cause increased wear to the motor brake.</p>
-----------------	--

Distribution of the remaining slice

The machine is capable of **automatic distribution of the remaining slice**, i.e. after the cutting process has begun, the length of the cutting product is measured and slice thickness is then optimised so that the product can be cut with the minimum of waste.

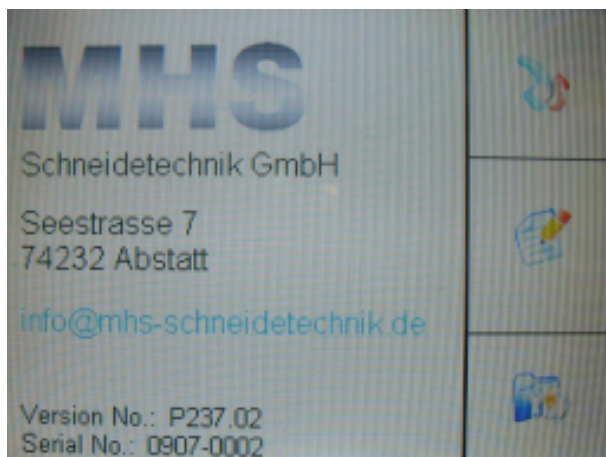
5.4 PROGRAMMING

In order to use the machine, working programs must be created.

New programs can be created, or changes made to existing programs in the Programming menu. To do this, select the "Programming menu" button.

The menu can be protected against unauthorised access with a password (see chap. 4.3.5)

NOTE!	<p>In order to use the machine, the appropriate programs must be called up and activated in the Working menu.</p> <p>Changes which are made in programming mode only take effect after the program is activated in the Working menu (see chap. 5.3).</p> <p>Smaller changes, i.e. slice thickness or blade speed, can also be carried out right from the Working menu.</p>
--------------	--



← **PROGRAMMING MENU BUTTON**

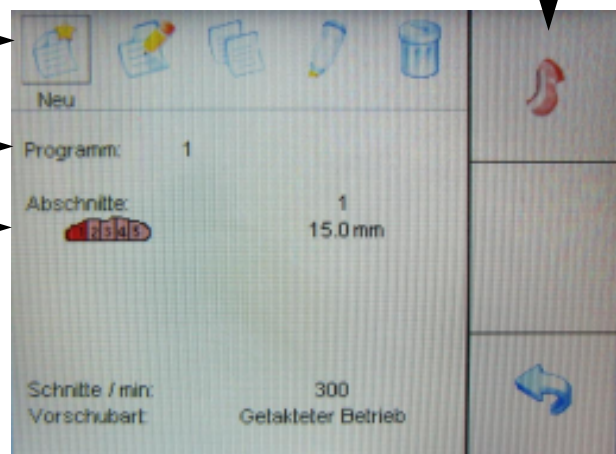
Product menu
(s. chap. 5.5)

Page 1 of the Programming menu

Selection of function →

Currently selected program number and name →

Quick overview of key cutting data, such as slice thickness and blade speed →



↑ **Exit the Programming menu**

By turning the rotary pulse encoder (DIG), you can either select your choice of program or, in the function selection area, select a function.

Pressing the DIG activates the selected function.

By turning the DIG, you can select a stored program in the program selection area. Pressing the DIG again confirms the program selection. The working program can now be used for production. The quick overview makes it easier for you to locate the right working program.

Functions available for selection:



Create program



Open program



Copy program



Rename program



Delete program

5.4.1 CREATING A PROGRAM



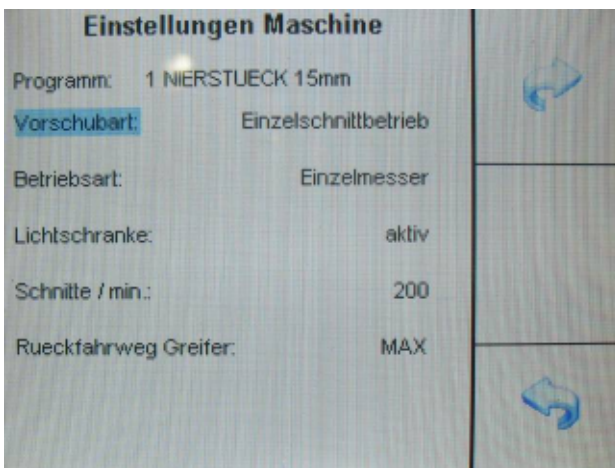
- Creates a new program.

Move the cursor to the “Create program” icon and confirm by pressing the DIG.

The program will be created in the next available storage slot, then a window opens asking you to supply a new name for the program.

After entering the name or cancelling name entry, you can enter the cutting parameters.

Blade-drive and feed-type settings



Feed type: Selection of feed technique and cutting type (Continuous, Clocked, Single cut)

Operating mode: Blade form

Light barrier: For measuring the product before cutting (active/inactive)

Cuts/min.: Number of cuts per minute (60 – 300)

Reversing distance: Limit on the reversing distance of the gripper (0 to MAX in mm)

When it comes to the feed type, there are three different techniques.

- Continuous operation
Constant blade speed with constant product feed, e.g. for cutting at smaller slice thicknesses (< 10mm) and a higher blade speed (>200 rpm), for bacon, etc.
- Clocked operation
Constant blade speed with incremental product feed, e.g. for cutting at medium slice thicknesses (8-20mm) and a higher blade speed (>200 rpm), for chops, neck, etc.
- Single-cut operation (special equipment)
Synchronised blade rotation at a constant product feed rate, e.g. for cutting a lower number of medium to large-thicknesses slices (<200 slices/min.), the blade is always at maximum speed in this working mode, predominantly in section operation or for separating the product slices.

Cutting informations and details about the product output.

Programm: 1 CARRE		1	2	3	4	5
		mm	mm	mm	mm	mm
Schnittdaten	→	10.0	14.9	200.0	0.0	0.0
	↓	1	0	1	0	0
	Nein	Ja	Nein	Nein	Nein	
Banddaten	12 - n	1	3	1	0	0
	a	12	40	0	0	0
	b	0	100	0	0	0
	c	200	200	0	0	0

Cutting data:

1. g/mm choice (optional)
2. Section
3. Slice thickness
4. Number of slices
5. Distribute remaining slice Active for section (Yes/No)

Belt data:

- Number of slices per stack
- Distance between slices
- Distance between stacks
- Distance between sections

Programm: 1 CARRE		1	2	3	4	5
		mm	mm	mm	mm	mm
Schnittdaten	→	10.0	14.9	200.0	0.0	0.0
	↓	1	0	1	0	0
	Nein	Ja	Nein	Nein	Nein	

Product sections – up to 5 sections are programmable (e.g. 3))

Slice thickness – 0.5 to 999mm

Number of slices per section

Activate distribution of remaining slice for section

NOTE!

If a 0 is entered for parameters “Slice thickness” or “Number”, the corresponding value is calculated (only if the light barrier is active!).

NOTE! If parameters “Slice thickness” and “Number” are set to 0, the corresponding section is not active.

For example:

Section:	Slice thickness	Number	Distribute remaining slice
1	10.0mm	1	deactivated
2	14.0mm	0	activated
3	200.0mm	1	deactivated
4	0	0	deactivated
5	0	0	deactivated

Section 1: One slice of 10.0mm (first cut)

Section 2: X slices of 14.0mm, Distribute remaining slice active
 X can be obtained from a calculation based on the measured total product length)
 Distribute remaining slice divides any remaining piece of the product over the number of slices to be cut, by adjusting the slice thickness accordingly.

Section 3: One slice of 200.0mm (remaining piece)

Section 4: 0 slices of 0mm → Section not active

Section 5: 0 slices of 0mm → Section not active



Blattendaten	1	3	1	0	0
a	12	40	0	0	0
b	0	100	0	0	0
c	200	200	0	0	0

Number of slices per box/stack

a. Distance between slices within a stack

b. Distance between one stack/box and the next

c. Distance between sections on the discharge belt

Additional discharge belt data



Belt base speed:

Belt run-on time:

Time that the discharge belt runs on for after the machine has been stopped.

5.4.2 OPEN PROGRAM



- Opens an existing program for editing and modifying the parameters.

First use the DIG to select the program to be opened. Then move the cursor to the “Open program” icon and confirm by pressing the DIG.

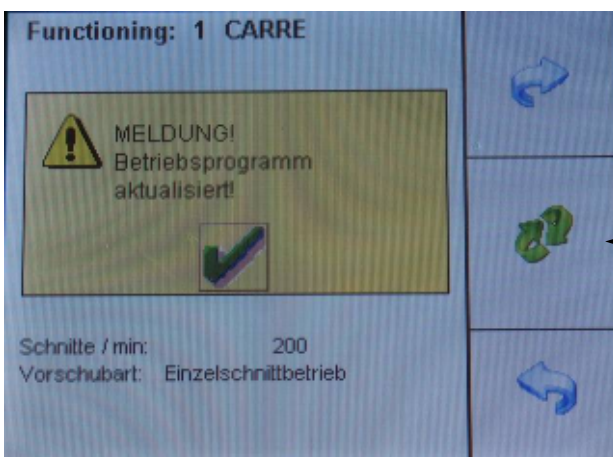
This function can be used to modify or reset all parameters. It is also possible to modify the number of product sections.

For information on programming and modifications, see also chap. 5.4.1 “Creating a program”.

NOTE!

From this function, it is not possible to modify either the storage slot number or the program name. To do this, select the “Rename program” function.

Modifications which are made to the current working program from within this function are not carried directly over into the working program.



In order to apply the changes to the working program, exit the Programming menu and switch to the Working menu.

Update program

Pressing the “Update program” button causes the changes to be carried over to the working program.

5.4.3 COPY PROGRAM



-Copies an existing program.

First use the DIG to select the program to be copied. Then move the cursor to the “Copy program” icon and confirm by pressing the DIG.

The existing program is copied and stored in the next available storage slot. Then you can give the new program a name.

5.4.4 RENAME PROGRAM



- Opens an existing program for the purpose of changing its name.

First use the DIG to select the program to be renamed. Then move the cursor to the “Rename program” icon and confirm by pressing the DIG.

Enter a new name for the program.

NOTE!	The storage slot number cannot be modified and is retained even after the program name has been altered.
--------------	---

5.4.5 DELETE PROGRAM

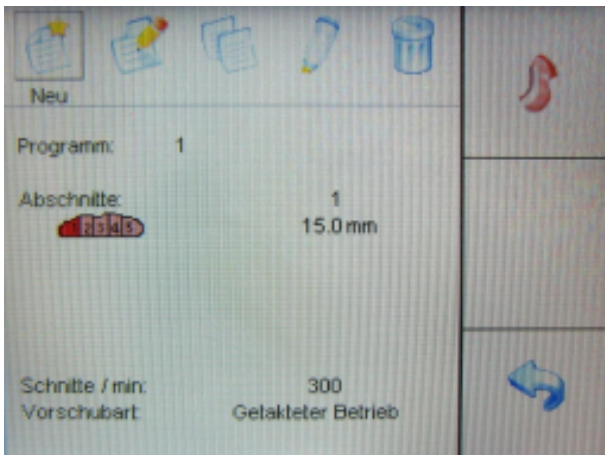


- Deletes an existing program.

First use the DIG to select the program to be deleted. Then move the cursor to the “Delete program” icon and confirm by pressing the DIG.

5.5 PRODUCT MENU

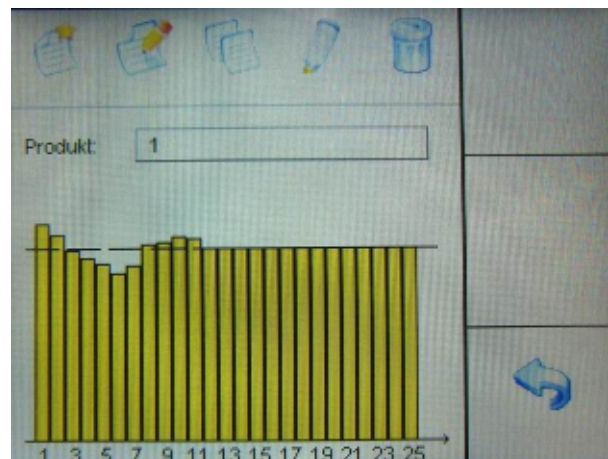
In the product menu different products could be saved with their typical shape.



← **Product menu**

Product number / Name →

Product shape →



Functions available for selection:



Create program



Open program



Copy program



Rename program

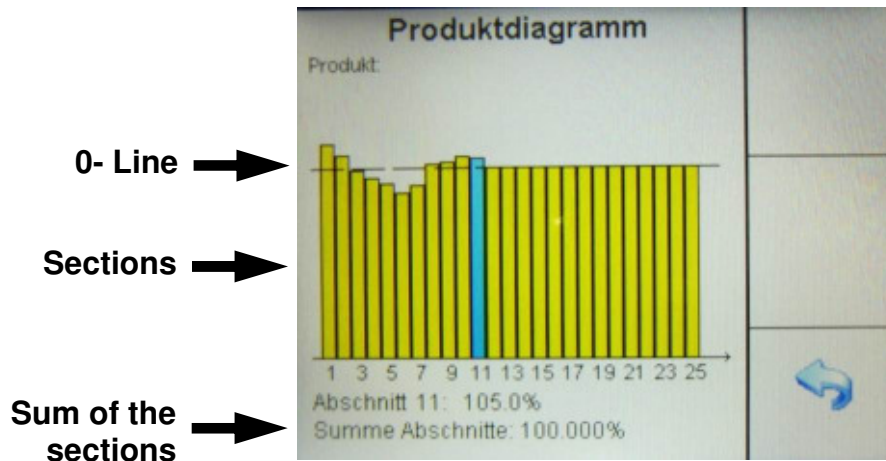


Delete program

By turning the DIG, you can select a stored program in the program selection area. Pressing the DIG again confirms the program selection.

Input of the product shape

The product shape (Product diagram) is diagramed in 25 sections:



By turning the DIG, you can select the section.

By pressing the DIG the sections will be chosen. The value can be changed from 60 – 140%.





The sum of all sections must have 100%.

NOTE!

The sum of the sections must have 100%

5.6 INPUT ERROR MESSAGES

The following messages are displayed after incorrect parameter values are entered!

Display / Fault	Cause	
 <p>MESSAGE! Product too short for this program!</p>	Product length too short for processing with the parameters entered	Insert a longer product or adjust the entered parameters to match the product length
 <p>MESSAGE! Discharge belt has stopped in a particular section, product is jammed.</p>	Discharge belt –Distance value within one section set to 0	If necessary, increase the distance value
 <p>INPUT ERROR! Slice thickness too large for continuous operation!</p>	Slice thickness too large for continuous operation	Reduce slice thickness or select a different feed type
 <p>INPUT ERROR! Slice thickness can only be calculated for 1 section!</p>	The slice thickness or number is set to 0 in 2 sections	The number or thickness of slices must only be set to 0 in one section


5.7 SWITCHING TO DOUBLE-BLADE OPERATION

NOTE!	Use of a double blade must be approved by MHS or an authorised dealer. It may only be used <u>without</u> a counterweight
--------------	--

CAUTION!	A double blade may only be used in continuous operation.
-----------------	---

After the program is installed, the blade fitted, and the counterweight removed from the blade shaft, the machine can be used in double-blade operation

You should check that the selected blade program suits the blade fitted. If the machine is operated in double-blade mode with a single blade, or in single-blade mode with a single blade, the blade may remain stationary in the insertion chamber.

	If the machine is run with the wrong blade setting, a stationary blade in the cutting chamber may pose an increased danger.
---	--


5.8 INSPECTING THE BLADES

NOTE!	Each time before the machine is switched on, and after each change of product, the blades must be inspected for damage, sharpness and dirt.
--------------	--

A good and straight cut surface can only be achieved on the slices of meat with a blade which is ground sharp and cleanly whetted. If a blade has meat residue stuck onto it, it must be soaked in hot water and washed off.

Please do not clean with a sharp object or spatula.

After opening the cutting chamber, while holding down the “Release brake” button, the blade can be rotated by turning it by hand to the appropriate installation area (see chapter 6, Maintenance; Installation, Removal, Cleaning)

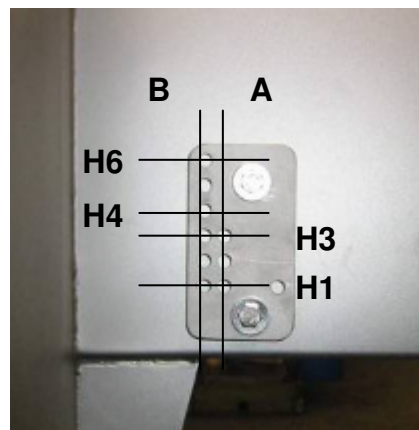
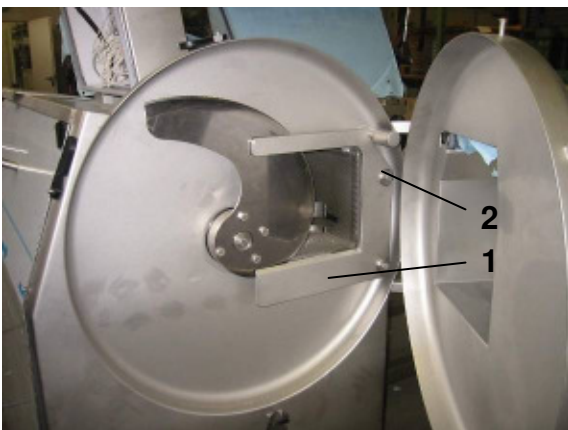
	When handling the blade, you must take the utmost care, because there is a high risk of cutting yourself. Wear cut-resistant gloves! Wear safety shoes!
---	--

5.9 SLICING WITH CUTTING FRAME (only for machine with conveyor belt)

ATTENTION!	Any changes of components have to be executed very carefully. If components aren't mounted carefully damages or even destruction of the machine could be the result.
-------------------	---

COMMENT!	Using a frame is only recommended when bone in products and frozen products is being cut.
-----------------	--

The frame (1) is mounted in the cutting area with two screws (2) and it then supports the goods to be cut at the end of the bay.



The outward conveyor belt has to be fixed at position A in relation to the positions H1 and H3. The corresponding height depends on the angle of inclination of the outward conveyor belt in relation to the difference between outward conveyor belt and cutting bay. Position B with its regulation device H1 - H6 of the outward conveyor belt was designed for the use without frame.

5.10 RECTIFYING FAULTS










IC-type industrial cutters are normally free of malfunctions, and operate in compliance with the regulations and instructions listed in the operation manual.


If faults occur, we recommend first checking the following points before informing the Service department:

Troubleshooting table

No	Display / Fault	Cause	Remedial measure
1.	Machine does not start up	Flaps not closed	Open and close the flaps again Master switch "OFF" – "ON"
		Open the cutting chamber	Lock the cutting chamber with the bolt
		Emergency Stop locked	Unlock Emergency Stop
2.	After switching on the machine, the display remains dark	Ambient temperature too cold	Display becomes legible after a 5 min. delay or by adjusting the brightness on the back of the electronics module
3.	Unclean cutting / bone splinters present	Blunt blade	Sharpen blade
		Wrong cutting temperature selected	Adjust the cutting product temperature
		Wrong blade	Use a serrated blade for chops and a straight blade for all other products
4.	Uneven slices	Product loose	Close and lock gripper
		Feed guide loose	Inform Service dept.
		Bone splintering	Blunt blade; replace
5	After switching on, the display goes dark and then lights up again; the machine does not run	Blade drive jammed, e.g. with bone splinters or material between the counter frame and the blade	Open blade chamber and remove remnants, if necessary remove the counter frame
6.	Blade remains stationary in the working chamber	Wrong blade program selected or wrong blade fitted	Reconcile the fitted blade with the blade program
		Wrong setting for "Motor-brake switch-on delay" in the Service menu	Check settings (see chap. 4.3.2)
		Motor brake misadjusted	Readjust motor brake

5.11 FAULT MESSAGES

Display / Fault	Cause	Remedial measure
 <p>EMERGENCY STOP! Locked</p>	EMERGENCY STOP button pressed	Unlock EMERGENCY STOP button and confirm with the DIG (rotary pulse encoder)
 <p>FLAP OPEN! Insertion side</p>	Protective cover on insertion side / infeed belt open or not properly closed	Open protective cover on insertion side / infeed belt and properly close it
 <p>FLAP OPEN! Removal side</p>	Protective cover on removal side / discharge belt open or not properly closed	Open protective cover on removal side / discharge belt and properly close it
 <p>FLAP OPEN! Blade door</p>	Blade housing open or not properly closed	Open blade housing / blade guard door and properly close it
 <p>FAULT! Evaluation unit</p>	One of the protective covers is not properly closed or fault in the evaluation module	Close protective covers -> if this does not resolve the problem, please contact MHS or your specialist retailer
 <p>WARNING BLADE! The blade must be ground or replaced!</p>	Cut counter has reached its notification limit	Regrind and/or replace the blade. Reset the cut counter (see chap. 4.3.3)
 <p>WARNING SERVICE! Have the machine serviced!</p>	Operating hours have reached their notification limit for servicing	Have MHS or an authorised specialist retailer perform servicing work (see chap. 4.3.3)
 <p>FAULT! Blade-drive motor</p>	Fault on the blade drive motor and/or on the frequency convertor	Please contact MHS or your specialist retailer
 <p>FAULT! Infeed-belt stepping motor</p>	Fault on the stepping motor and/or on the power amplifier	Please contact MHS or your specialist retailer

 <p>FAULT! Discharge-belt drum motor</p>	<p>Fault on the drum motor of the discharge belt and/or on the frequency convertor</p>	<p>Please contact MHS or your specialist retailer</p>
<p>Product is not fed in</p>	<p>Feed belt or feed motor defective</p>	<p>Inspect feed belt Please contact MHS or your specialist retailer</p>
<p>Fault on "<i>Description</i>" button</p>	<p>"<i>Description</i>" button defective</p>	<p>Replace button</p>

Should malfunctions still occur which cannot be eliminated please contact our service department or your contract dealer immediately:

Here is the address of our service department:

MHS Schneidetechnik GmbH

Seestraße 7
D-74232 Abstatt

Tel.: +49 (0) 7062 / 9789 - 610
Fax: +49 (0) 7062 / 9789 - 619

E- Mail: service@mhs-schneidetechnik.de

Please give the following information to the service department or contracted workshop:

- The type of malfunction
- Machine model /type
- Machine number and
- Type/model of defective part

In this way it can be guaranteed that repairs that are possibly necessary can be performed by competent specialists as quickly as possible.

6. CLEANING AND CARE OF THE APPLIANCE



ATTENTION! Imminent danger of electric shock

6.1 PREPARING FOR CLEANING

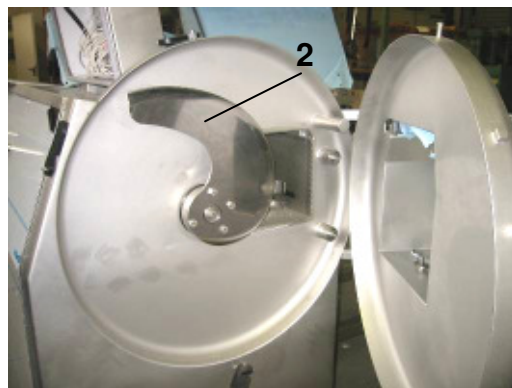


Before starting cleaning and disinfecting the main and the main/danger switches must be off and locked. Plug off all connectors of the forward feed conveyor belt and out feed belt and lock it at the backside of the machine.

ATTENTION!

The connectors of the conveyor belt have to be plugged of and protected with the cap to avoid that water is getting inside. Danger of short-circuit by taking the machine in operation!

Then all flaps and the door have to be opened.



Remove cutting frame (1, only with conveyor belt) and blade (2) with attached 17mm wrench. (UVV regulations).



Due to the extreme amount of danger involved, utmost caution is urged when working with the blade! Always wear cut-proof gloves! E.g. metal threaded gloves due to the danger of gliding off and a possible injury of the legs.

6.2 CLEANING AND DISINFECTION

NOTE!	Note the proper concentration, required reaction time and temperature of the cleaning agents and disinfectants as well as the associated care instructions for applying the solutions (see Cleaning agent datasheets in Appendix). Always store items required for cleaning (brushes) in a clean and dry place. Regulations on water pollution, i.e. disposing of cleaning agent solution via the sewerage system and any reactions - e.g. in the grease trap - biodegradability of cleaning agents and disinfectants or breaking up by mechanical means and other measures, must be observed.
--------------	---

CAUTION!	Power washers may be used for cleaning. The jet may only be directed towards visible surfaces and components. Particularly the conveyor belts and seals must not be sprayed directly. Leaking seals can lead to bearing damage. Plugs and sockets must be sealed with protective caps.
-----------------	---

NOTE!	Failure to observe these restrictions on cleaning can lead to the exclusion of guarantee and warranty claims.
--------------	--

Perform cleaning work in accordance with the following cleaning schedule.

Cleaning schedule table

Steps	Procedure	Equipment	Notes
General cleaning, removal of remnants from production	Manual, temperature max. 50 °C	Water hose, brush	Start immediately after end of production
Clean the small parts Gripper, blades, flap	After thoroughly pre-rinsing, spray with water (max. 60 °C depending on temperature fat softens) or clean manually, reaction time approx. 15 min.	Low-pressure device, brush, collection pan	
Thoroughly pre-rinse	Low pressure < 30 bar Temperature 60 °C depending on temperature fat softens	Low-pressure device, water hose	Include small parts
Visual inspection for cleanness	-	-	-
Alkaline cleaning	Spray, approx. 15 min. reaction time, temperature 40-50 °C	Low-pressure device	Daily, don't forget small parts

Acidic cleaning	Spray, approx. 15 min. reaction time, manual, mechanical	Low-pressure device, spray bottle, brush for removing limescale deposits	Perform if necessary instead of alkaline cleaning
Rinse	Low pressure < 30 bar temperature 50-60 °C	Low-pressure device, water hose	Whole machine and small parts
Inspect	Visually	-	Threaded connections, welding seams, corners, recesses, slots in the food handling area and spray area
Disinfect	Spray, approx. 30 min. reaction time	Low-pressure device, spray gun	Whole machine and small parts after completion of all cleaning tasks to be performed in the vicinity
Wash down	Low pressure < 30 bar	Low-pressure device, water hose	Wash down acc. to FI HVO Annex 2,II, 4
Dry	-	-	-
Care measure	Spray	Spray gun	Machine external surfaces

The safety covers, gripper and belts can be removed for cleaning purposes and then cleaned separately. The cleaning agents and disinfectants used must be suitable for the following materials: PUR and PVC (belts), 1.4301 and POM (machine), and 1.2391 (blades)

The information given in the cleaning schedule relates to single-shift operation.


CAUTION!

Chlorine cleaners can damage seals and conveyor belts. Keep reaction times short and amount low.


6.3 CARE

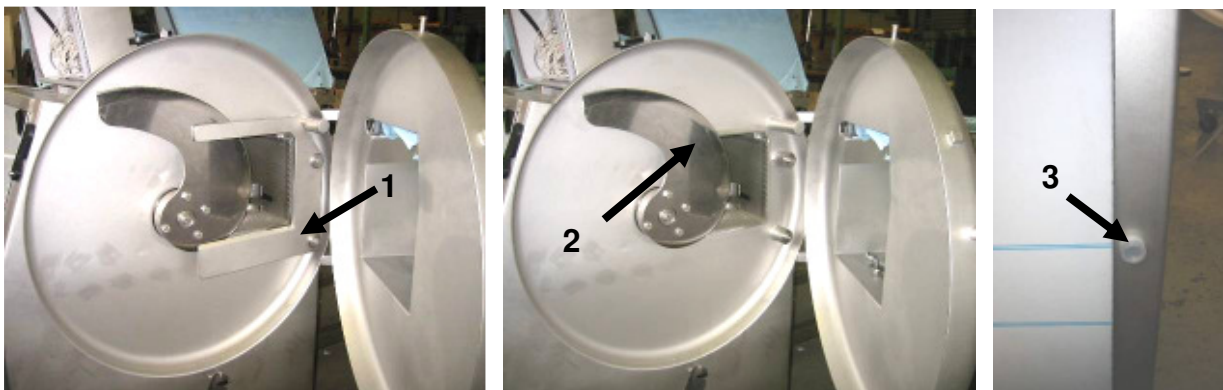
All other parts are maintenance free and need no additional care.

7. MAINTENANCE AND INSPECTION

	<p>No modifications may be carried out on the safety equipment during care or maintenance work. Care or maintenance work may only be performed when the machine is switched off and safeguarded against being switched back on without permission. Such work may only be carried out by trained personnel (fitter or electrician).</p>
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7.1 HOW TO CHANGE THE BLADE

	<p>When handling the blade, you must take the utmost care, because there is a high risk of cutting yourself. Wear cut-resistant gloves! For instance these could be gloves reinforced with metal thread. Do not wear gloves featuring metal-ring mesh, because the risk of these slipping off if the blades are worn is too great, and injury may be caused to the feet or legs.</p> <p>Wear safety shoes!</p>
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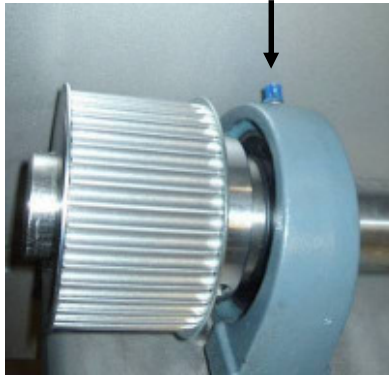


After the frame (1) is removed with the enclosed open-ended spanner (size 17), the blade (2) must be detached from the flange and carefully removed (observe accident prevention regulations). After fitting the new blade, press the “Release brake” button (3, on the side of the machine/unit at knee height) and move the blade by hand through one rotation in order to check that it moves freely.

After replacing the blade for one with a different contour, the settings must be adjusted accordingly in the Service menu / Machine settings (chap. 4.3.2).

7.2 GREASING OF THE KNIFE SHAFT BEARINGS

The pedestal bearings have to be greased every 1000 elapsed hours or twice a year at the grease nipples.



Grease nipple back bearing



Grease nipple front bearing

7.3 MAINTENANCE OF FEED



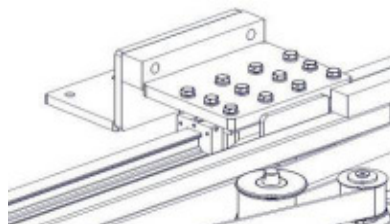
When changing or readjusting the guide rail or the runner block the machine has to be locked and switched off. The machine must be unplugged. No humidity should get inside the inner machine.

COMMENT!

When changing or readjusting the guide rail or the runner block the grab has to be in the starting position.

The backside cover has to be removed.

The runner block has to be greased via the flat type lubricating nipple twice a year when the machine runs in single shift. Once a month the guide rail has to be checked for mechanical wear on the contact surface, the runner block has to be checked for damages and the seals of the runner blocks have to be checked.



7.4 CHANGING FORWARD BELT

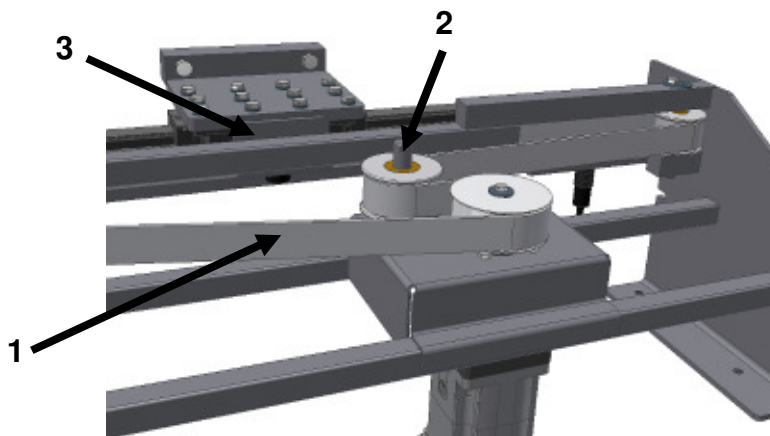


The belt tension has to be checked once a month.

The belt tension can be corrected using the eccentric. The belt tension is correct when the belt has give on its longest side.



When changing or readjusting the guide rail or the runner block the machine has to be locked and switched off. The machine must be unplugged.
No humidity should get inside the inner machine.




In order to replace the feed belt (1), detension the belt with the eccentric (2). After undoing the bolts (3) on the feed carriage, the feed belt can be removed.

7.5 EXCHANGING OF THE CONVEYOR BELT



After the outward leading conveyor belt has been moved outside the machine the transmission roller is moved upwards or downwards. Then the belt is released and can be removed sideward's.

7.6 MAINTENANCE OF THE ELECTRICAL SYSTEM

	<p>Only authorized electricians are allowed to carry out work on the electrical control and switching units or on any other electrical parts of the machine. All safety elements must be tested for complete functionality upon completion of the maintenance or service. Only after fulfilling these requirements can the packer be released for production use.</p> <p>When testing, repairing, or adjusting the electrical system, it is necessary to have the main/danger switches in the off position (check while working) and to always proceed according to the appropriate regulations. When performing live current tests of the electrical system, make sure that no unauthorized person can come into contact with open electrical parts (consider the ambient humidity)!</p>
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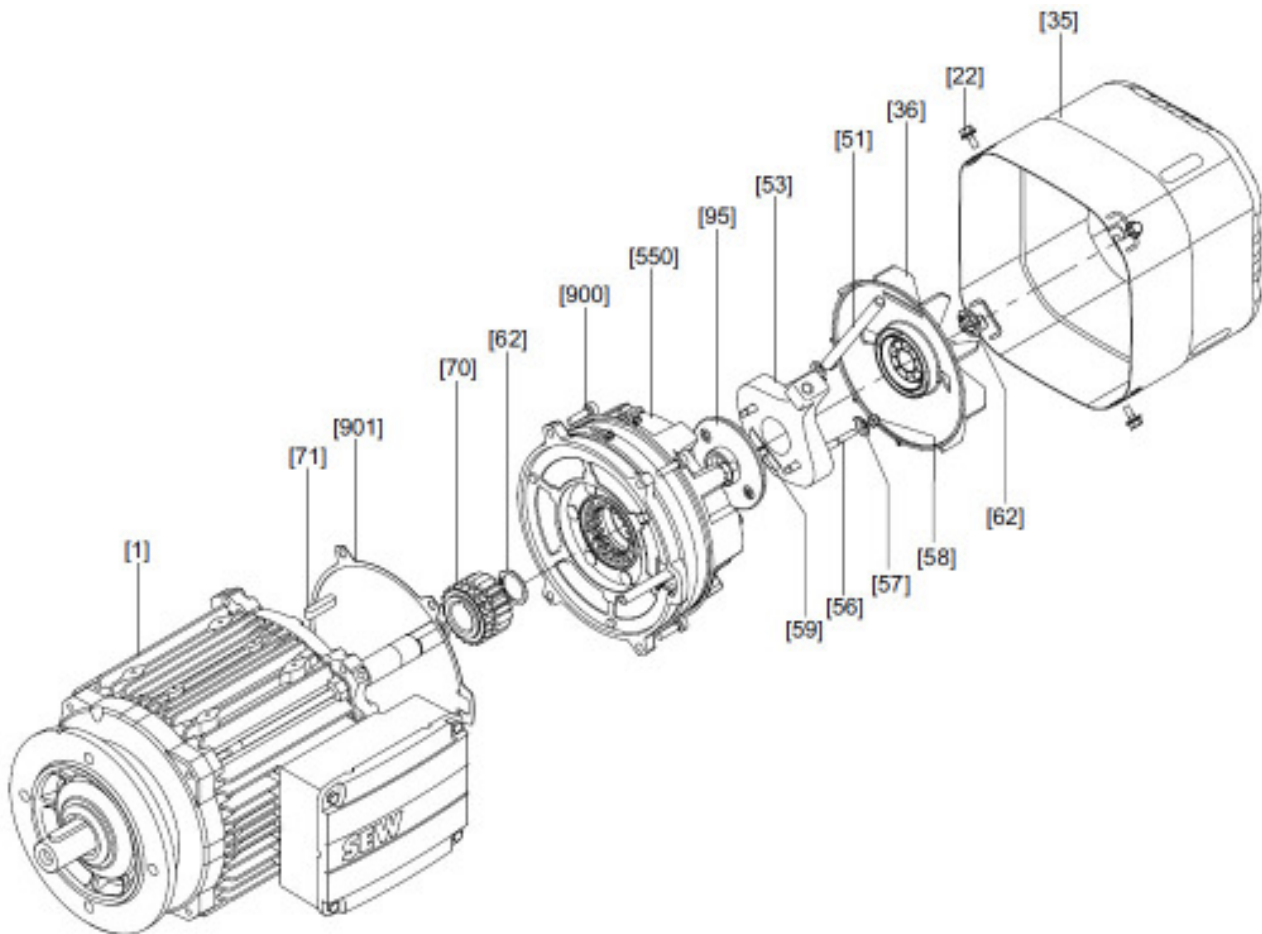
ATTENTION!	<p>Safety elements are not allowed to be made ineffective or bypassed. The electrical system (electric box) must be kept locked during machine operation. The electric box must never be washed with a high pressure washer.</p>
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All electrical control systems must endure local mechanical and electrical conditions. Wear on moveable parts is dependent upon frequency of usage, total usage time, contamination from surrounding conditions, degree of protection, and part age. Therefore, to increase longevity, it is necessary to perform routine maintenance on the entire electrical system. The time intervals between maintenance checks depend upon the operating conditions. They can fit in with the relative operating schedule and conditions but should not, as a rule, exceed one month in length.

The following should also be checked in addition to the normal maintenance routine:

- check of the electrical isolation and protective apparatus in accordance with regulation
- continuity check of the connection between the control circuit and earthed conductor
- total test of the safety circuits for flawless functioning by a specialist (§70 UVV-VBG19)

7.7 ADJUSTMENT OF THE MOTOR BRAKE



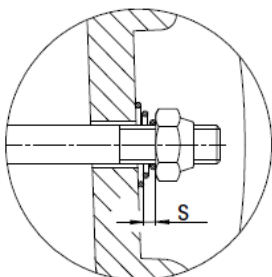
Brake replacement:

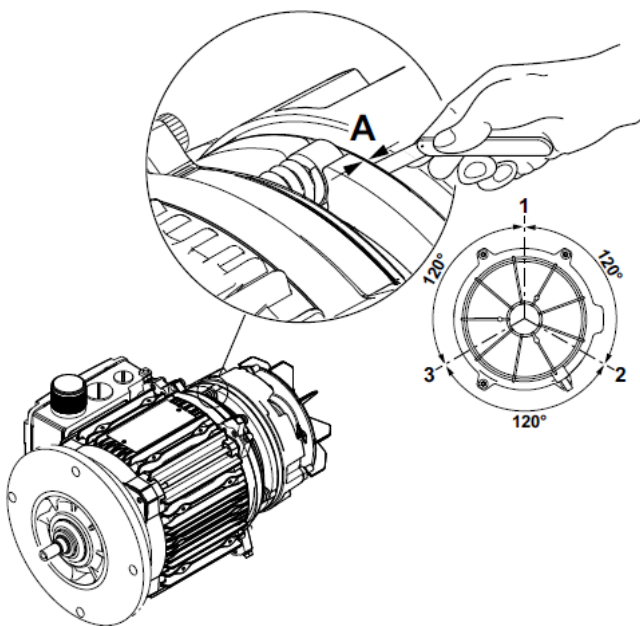
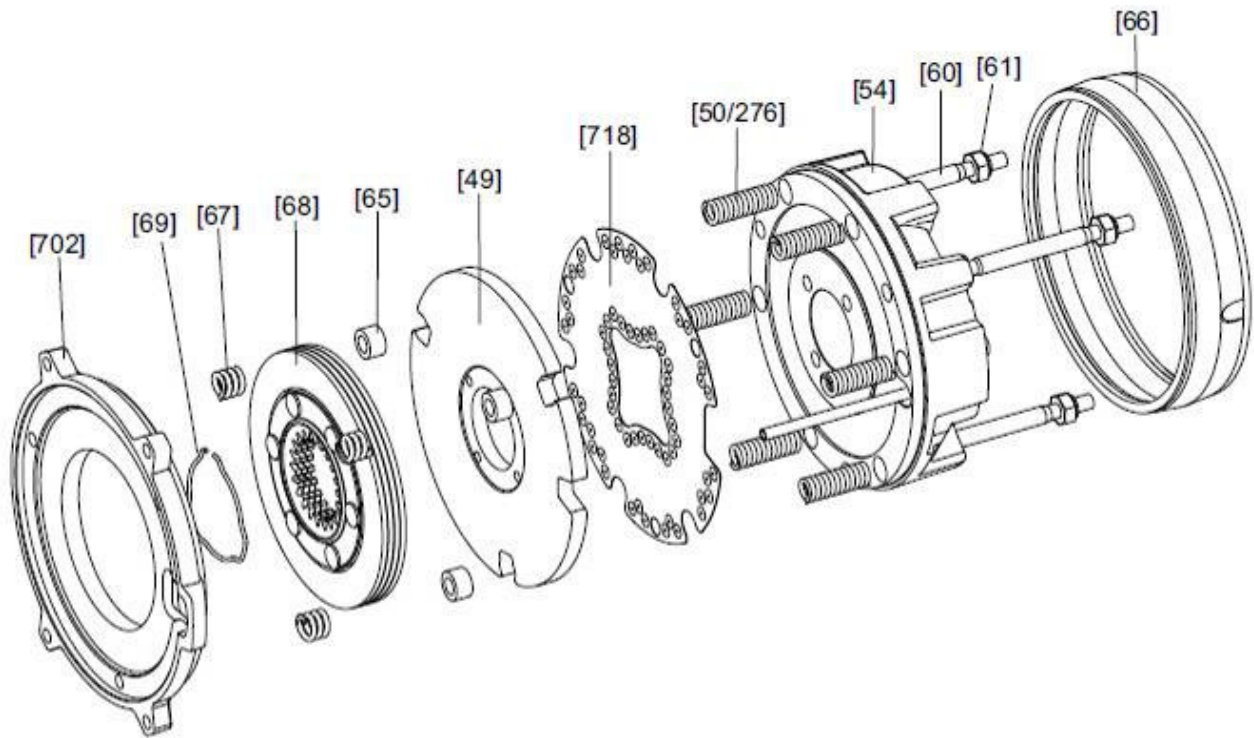
Dismantling:

Dismantle the fan cover (35), the locking ring (62) and the fan (36). Dismantle the terminal box cover and remove the brake cable from the rectifier. Loosen the screws (900) and remove the brake from the end plate.

Assembly:

Observe the alignment of the seal (901). Connect the brake cable of the new brake. Attach the new brake, ensure that the cams of the friction disc are aligned correctly. Re-seal the shaft. To do this, replace the seal ring (95), lubricate the seal lip with grease. Tighten the screws (900). (If ventilating manually: Use adjusting nuts to adjust the end clearance "s" between conical springs (flattened) and adjusting nuts to 1.5mm.)





Checking the air gap:

The nominal gap (A) is preset in the new brake. Therefore, you only have to carry out a check for the correct size (see table) using a feeler gauge and a check for uniformity after assembly. Dismantle the fan cover (35). Move the sealing strip (66); to do this, loosen the strip clamp and vacuum out the grit if necessary. Measure the nominal gap at three places offset by 120° between the anchor plate (49) and the damping plate (718). Corrections can be made by turning the adjusting nut (61) accordingly.

Brake	Nominal air gap A	Tolerance	Maximum air gap A max.
BE5	0.25 mm	+0.05 mm	0.90 mm

8. SPECIAL FEATURES

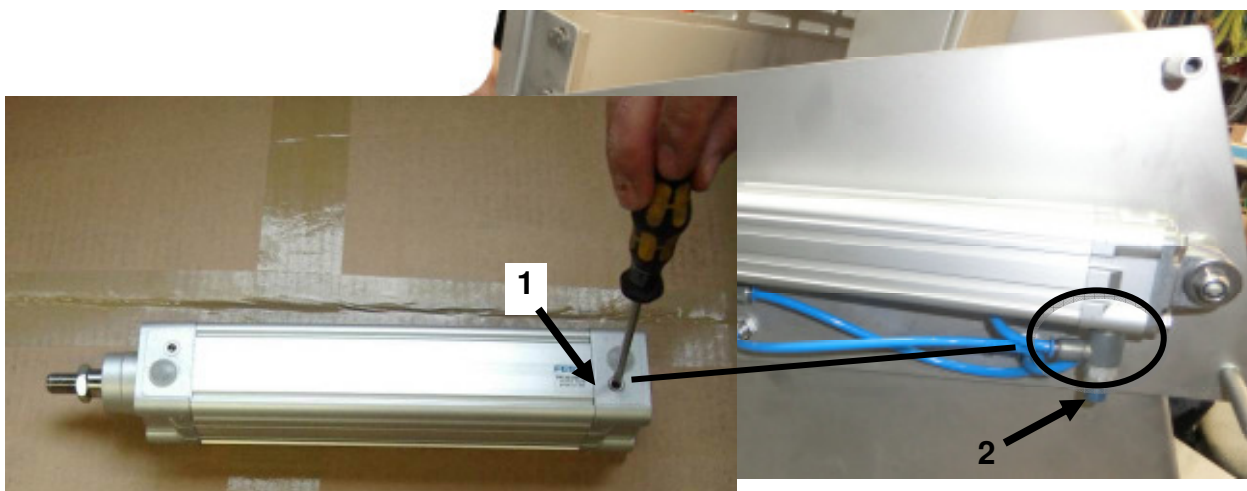
8.1 INLAY BELT

The inlay belts for the forward feed are made for supporting the feed of fragile products. The inlay belts can be removed for cleaning.

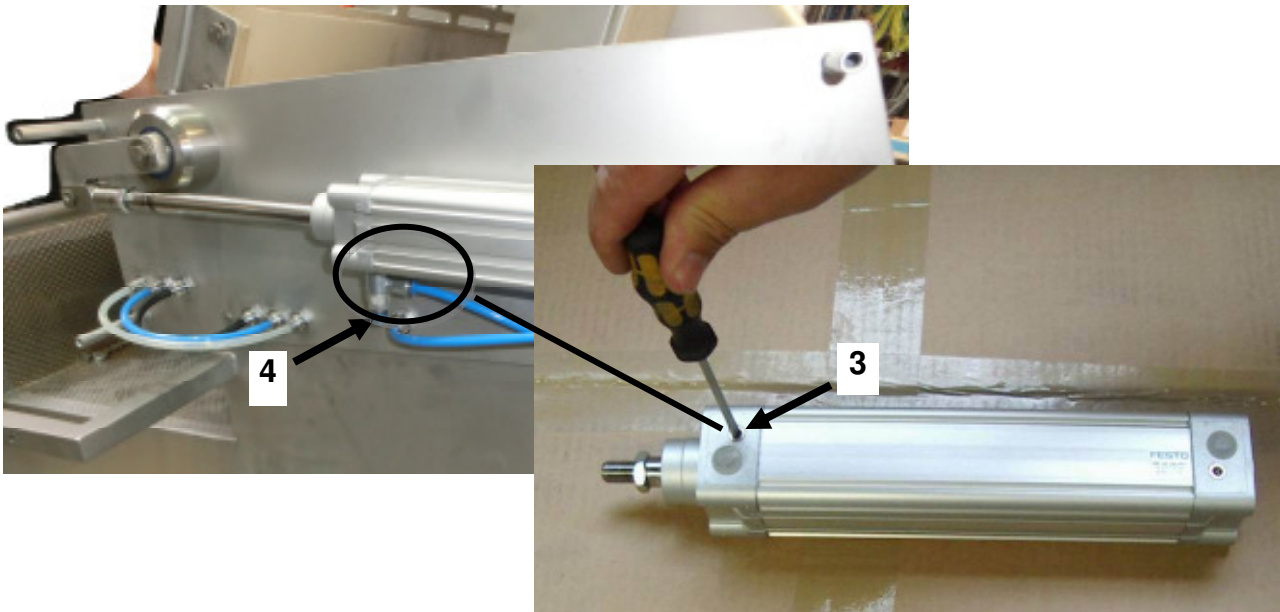


8.2 AUTOMATIC FLAP OPENER

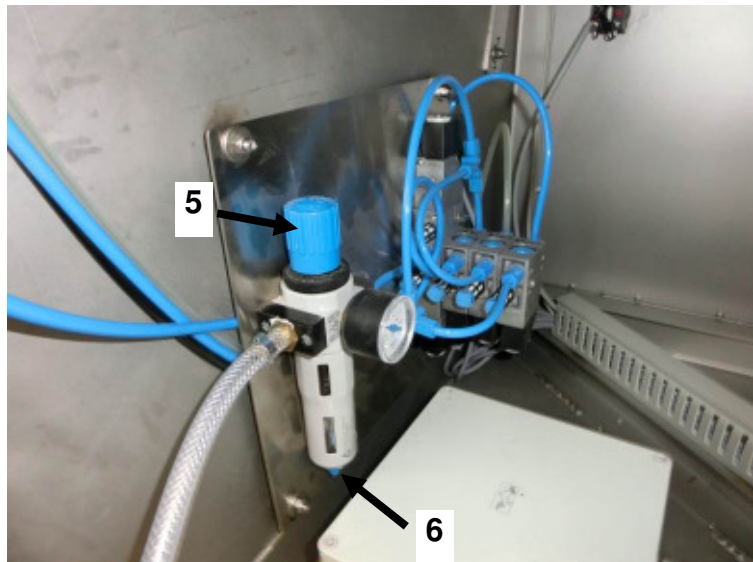
1. Adjusting the end-of-stroke damping for flap close.
2. Adjustment of cylinder speed when closing protection flap



3. Adjusting the end-of-stroke damping for flap open
4. Adjustment of cylinder speed when opening protection flap



5. Pressure regulation valve for adjusting of the system pressure.



6. Air-Water separator: remove water frequently (see gauge glass) from the separator by opening the fitting.

ATTENTION!

**Do not run flap opener without damping on the pressure side and on the outgoing side. Flap will open immediately and crash against the end- position.
Flap won't open or close completely if damping is too high / valve is closed.**

9. SPARE PART LIST

Enclosed, please find the spare part list including the corresponding pictures of the machine.