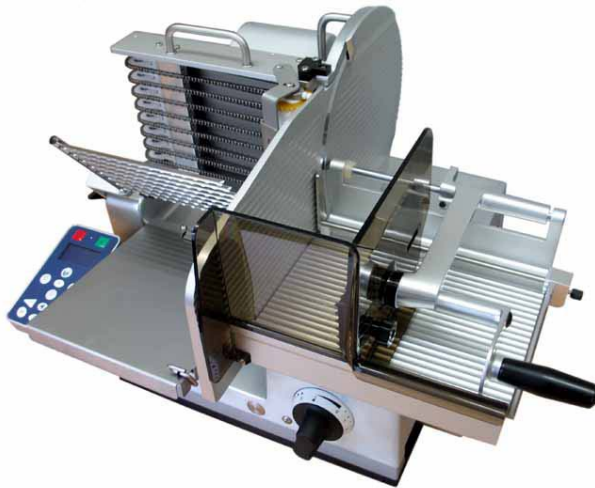


OPERATING MANUAL (original)

Semi-Automatic Slicing Machine



☐ **HA 800**

☐ **HA 810**

Machine No. :
Year of construction :

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**EC DECLARATION OF
CONFORMITY**

GRAEF

GEBR. GRAEF GMBH + CO. KG, DONNERFELD 6, D- 59757 ARNSBERG

We herewith declare that the design of the following machine

Slicing Machine

Types

HA 800, HA 810

In the design supplied by us complies with the provisions of the following EC directives:

EC Machine Directive	2006/42/EG
EC EMC Directive	2004/108/EG
EC Low Voltage Directive	2006/89/EG

The following harmonized standards and technical specifications have been applied:

EN 1974
EN 61000-6-2
EN 61000-6-3
EN 61000-4-[2,3,4,5,6,11]
EN 61000-3-2
EN 55022

Name of the authorized representative: Reinhard Graef

Address of the authorized representative: see manufacture's address

Changes to the machine not authorized by GRAEF invalidate the present declaration.

Arnsberg, 11 December 2009

Hermann Graef
- Managing Director -

1 General Information

1.1 Safety – Notes on the Warranty

The semi-automatic models HA 800 and HA 810 are equipped with safety devices. They have been tested for safety.

Nevertheless, hazards cannot be entirely excluded if the machine is used improperly or not as intended.

These hazards may endanger:

- The health of the user
- The machine and other property of the operator

All persons charged with installing, operating, servicing and repairing the machine must

- Be trained/instructed for the task
- Follow these operating instructions to the letter.

1.1.1 Set-up and Instruction

Store and transport machines in their original packaging until they are set up.

The GRAEF dealer is responsible for set-up and start-up as well as for providing instructions on how to operate, clean and service the machine.

Customer installation and start-up, incorrect operation, modifications and removal of the safety equipment are excluded from our area of liability.

! Important!

The installation and instruction must be confirmed by your authorised

■ GRAEF dealer.

The slicing machines weigh approx. 56 kg.

Two adults are required to lift and carry the machine.

The centre of gravity is in the rear third of the machine, where the motor is located.

Always lift and carry the machine by the machine housing.

- For longer company-internal transport routes:
use a suitable handcart.
- Take off removable parts such as chain frame, tray and beater before transport.

- Secure the carriage by inserting paper or cardboard between the thumb guard and the stop plate.
- Set the slicing thickness below "0" by turning the slicing thickness control to the limit position.

1.1.1.1 Set-up site requirements

The base must fulfil the following requirements:

- It must be sufficiently stable, strong, level, flat and non-slip.
- It must be of sufficient height to allow slicing while standing.
- It must meet the space requirements listed in "Workspace" (see Technical Data).
- It must be located away from busy corridors.
- It must not be close to any doors.
- It may not be in the swinging area of a door, nor in the entrance area of a door.
- When using Nirosta tables, Resopal supports or similar materials: Ensure that there is no oil or grease on the surface.
- Ensure sufficient lighting of at least 300 lux

1.1.1.2 Unpacking the machine

Caution!

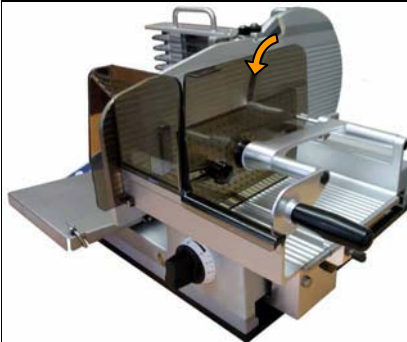
The machine may only be unpacked and set up by authorised customer service / sales personnel. Check the required working space (with the machine switched off!):

- Hold the last slice clamp by the handle
- Lift up the last slice clamp
- Move the carriage all the way forward and back

If the carriage or last slice clamp comes into contact with other objects, you must provide a larger work space.

1.1.1.3 Electrical connection

- Check if the local supply voltage conforms to the specifications indicated on the rating plate. If it does not, you may not connect the machine.
- The electrical socket must comply with the VDE (Association of German Electricians) regulations.



- For rotary current models (400 V), check that the running direction of the blade is correct.
- The blade must move downwards in direction of the carriage as shown in the illustration.
- If the running direction is incorrect, use a screwdriver to turn the phase change in the network adapter plug by 180°.

- Moisture: Degree of protection IP 33! High humidity or condensation can damage the machine.
- Lay and connect the power supply cord so that no-one can fall or trip over it.
- The machine is designed for use in sales rooms.

1.1.2 Proper Use

The HA 800 / HA 810 semi-automatic slicers are exclusively intended for slicing only the following types of food:
sausage / meat / ham / cheese.

Do not attempt to slice frozen foods.

Do not attempt to slice vegetables or food with bones.

Remove any metal braces on the goods to be sliced.

Unauthorised modifications to the machine are prohibited for safety reasons.

The operating, maintenance and service instructions described in this instruction manual must be strictly observed.

1.1.3 Natural Wear

Natural wear is not covered by our warranty or liability.

1.1.4 Potential Sources of Danger



Caution!

Danger of injury!

Never reach into the area of the moving carriage.



Caution!

Danger of injury!

The blade is sharp and can sever body parts.

Your fingers, and especially your thumb, are at risk. For this reason, never reach into the space between the last slice clamp and the blade or the limit stop if the limit stop plate is not completely closed. When the machine is not in use, the stop plate must always be set to the zero position.



Caution!

Injury through electric shock.

The machine operates with a mains voltage of 230 V or 400 V and must therefore not be opened. The protective earth conductor system must be connected in any case, otherwise there is a risk of severe electric shocks.



Caution!

Hazards posed by the chain frame.

Never put your hands near the chain frame during operation. The spikes can cause serious injury.

The placing arm that removes the sliced food moves very quickly and can injure hands or other parts of the body in case of contact.



Caution!

Risk of injury.

In the area of the food holder, there is a risk of injury posed by the spikes and the food holder suddenly dropping when inserting the product.



Caution!

Risk of injury.

When mounting parts which can be removed for cleaning.

1.1.5 Workplace

Only operate the machine if you are in a standing in a secure position.

Stand in front of the machine so that the power ON/OFF button is facing you.

Keep your workplace clean at all times.

The machine must be positioned on a solid, even and stable base that can support the weight of the machine and the dynamic forces of the moving parts.

1.1.6 Authorised Users

The machine may only be operated by people

who have read and understood the operating instructions

who have been instructed thoroughly by the operator

who have been instructed on the dangers of the machine and the hygiene regulations.

The machine may only be serviced and repaired by authorised specialists.

Take precautions to prevent unauthorised persons from using, cleaning or servicing the machine.

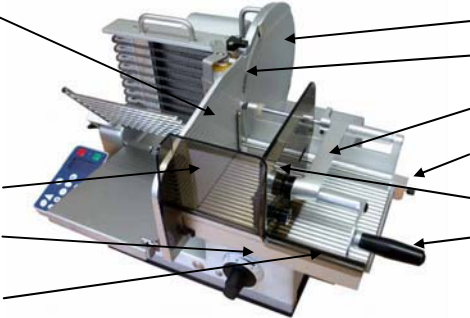
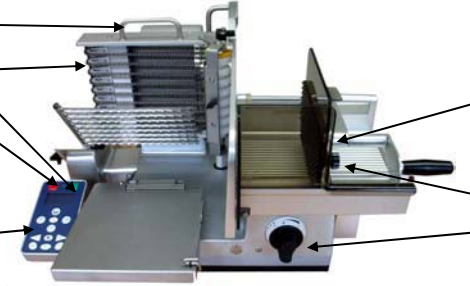
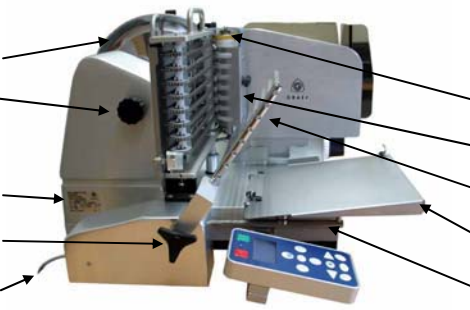
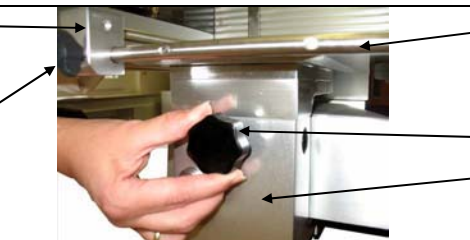
1.1.7 Protective Clothing and Equipment

Wear close-fitting clothes when operating the machine. Please also observe the hygiene regulations. When executing cleaning or maintenance work in the area of the knife, be sure to wear cut-resistant gloves with pulse protection.

When transporting the machine, be sure to always wear steel-toe-boots.

2 Description

2.1 Designation of the Machine Parts

Stop plate		Blade cover plate
		Blade
		Last slice clamp
		Guide rail
Thumb/finger guard		Pusher guard
Carriage		Last slice clamp handle
Carriage handle		
Chain frame handle		
Chains		
On button		Last slice clamp plate
Off button		
Operating console		Knurled nut
		Slice thickness control
Blade guard ring		
Thumb wheel		Pressing roller
		Scraper comb
Type plate		Placing arm (removable beater)
Placing arm star grip		Tray
Power cable		Tray guide
Guide rail		Slicing guide rail
Locking screw		
		Bearing block star grip
		Bearing block

HA 810 Special Features		
Thumb guard		Last slice clamp
Hand rail		
Last slice clamp handle		Vario-Slice carriage
Bearing block star grip		Tilting lever

2.2 Protective Devices

Device	Function
Off button	Switches the machine off immediately.
Blade guard ring	Prevents accidental contact with the blade.
Limit stop lock	Locks the limit stop when the carriage has been tipped off the machine.
Thumb/finger guard	Prevents accidental contact with the blade.
Chain frame cover	Prevents access to the back or catching in the chain tips running to the blade.
Undervoltage mechanism	Prevents the machine from starting up again after an interruption to the power supply, such as a power cut.
Blade sharpener with guard cover	Prevents accidental contact with the blade.

2.3 Technical data

		HA 800	HA 810
Dimensions	L x W x H	600 x 840 x 450 mm	600 x 840 x 500
Workspace	L x W x H	700 x 900 x 640 mm	
Space occupied	L x W	Minimum: 480 x 440 mm	
		Ideal: 540 x 440 mm	
Weight	W	approx. 56 kg	
Blade diameter	D	300 mm	
Blade speed	N	229 rpm	
Dimensions with chain frame	L x H	Max. 250 x 180 mm	
		Min. 30 x 30 mm	
Dimensions without chain frame	L x H	Max. 260 x 195 mm	
Carriage length	L	300 mm	
Largest distance between last slice clamp and blade (clamping distance)	L	150 mm	155 mm
Tray size	L x W	300 x 255	
Length of tray run	T	160 mm	
Slice thickness	T	0.5 - 10 mm	
Slicing speed maximum	V	Max. 160 strokes per minute	
Noise level acc. To EN ISO 11204, at idling	Leq	< 69 dB (A)	
Vibration total value		< 2,5 m/s ²	

Power consumption	P _i [W]	See type plate
Frequency	f [Hz]	
Current	I [A]	
Voltage	U _N [V]	

2.4 Basic Machine Equipment

Semi-automatic slicing machine models HA 800 and HA 810 differ in terms of size and some characteristics of the carriage.

All models share the same basic features:

General

- Smooth, accessible high quality anodized surfaces
- Stove-enamelled finished lower part
- Hard-chrome plated $\varnothing$ 300 mm blade with a narrow blade guard for ideal slicing results
- Locked blade cover plate
- Slicing parameters as listed in the "Technical Data" table
- Operating console that is clearly laid out and easy to reach with waterproof membrane keypad

Standard placing programs

- Stacking: up to 4 stacks
- Long fanning: up to 4 rows
- Cross fanning: up to 4 rows
- Circular placing

Variable starting program

- It is possible to determine which program is to appear after switching on, and to store this information by pressing a button.

Carriage size differences:

- HA 800 → Carriage with 150 mm clamping distance (advance distance between blade and endpiece holder)
- HA 810 → Carriage with 155 mm clamping distance (advance distance between blade and endpiece holder)

Carriage characteristics:

- HA 810: In a tilted position, small cutting material can be sliced without the guide rail.

2.5 Options

Important!

You can order the following options in addition to the basic equipment of the slicing machine when you place your order. This means that none of the following equipment is part of models HA 800 or HA 810. Please check your order documentation to see which of these options are part of your machine.

2.5.1 Additional Menu Standard Functions

- Automatic calibre recognition (*only HA 800*)
 - Automatic cross section recognition of the food to be sliced
 - Automatic adaptation of distances for optimum utilisation of the selected placing pattern
- Placing format (*only HA 800*)
 - A placing pattern (L x B) can be entered to adjust to the selected packaging (tray, film and so on)
- Carriage position recognition for Vario-Slice carriage (*HA 810 only*)
 - Optimum placing of product on the tray
- Counting mode
 - Specification of the number of portions
 - Specification of breaks during which the food to be sliced is taken off the tray in continuous mode
 - Specification of continuous mode as a standard function

2.5.2 PLU Programming

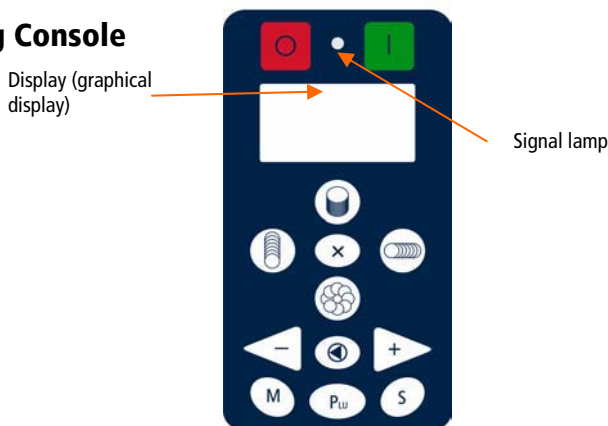
(Optional for all models)

- Storing up to 100 PLU with the following parameters:
 - Placing type (stacking, fanning, ...)
 - Number of stacks, rows
 - Number of slices
 - Number of portions
 - Initial position of the placing pattern (cutting material positioning on the tray surface)
 - Distance between stacks, rows

3 Operation

3.1 Operating Controls

3.1.1 Operating Console



Symbol	Designation	Function
	Main "OFF" switch	Switches off the machine.
	Main "ON" switch	Switches on the machine. The machine is ready for slicing.
	Signal lamp	Shows that the machine is ready for operation.
	Graphical display (only display!)	Indicates number of slices, cutting program, PLU, slice thickness, menu program (PLU programming, maintenance intervals etc.).
	X button	Generates 2, 3 or 4 stacks or rows.
	Stacking button	- Selects the stacking function. - Stores the set data (tray dimension, number of slices, cutting mode, ...) when pressed until a beep is emitted.
	Cross fanning button	- Selects the cross fanning function. - Stores the set data (tray dimension, number of slices, cutting mode, ...) when pressed until a beep is emitted.
	Long fanning button	- Selects the long fanning function (press 1x briefly). - Stores the set data (number of slices, slicing mode, ...) when pressed until a beep is emitted.
	Circular fanning button	- Selects the circular fanning function. - Stores the set data (number of slices, slicing mode, ...) when pressed until a beep is emitted.

	Minus button	- Reduces the edited value. - Moves UP in the selection menu. - Reduces the carriage strokes during operation.
	Reset button	- Cancels the active cutting program. - Resets to zero. - Moves up within the menu hierarchy. - Confirms an entry.
	Plus button	- Increases an edited value. - Moves down in the selection menu. - Increases the carriage strokes during operation.
	Menu button (<i>only HA 800</i>)	Calls subprograms.
	PLU button (<i>only VA 800</i>)	Switches on PLU mode, the Plus/Minus buttons can then be used to select the PLUs.
	Carriage stroke button (<i>only VA 800</i>)	On pressing this button, the carriage speed (lifting speed) can be controlled using the Plus/Minus buttons.
	Button combination M + PLU	- Programs PLUs (new/change/delete). (<i>only VA 800</i>) - Changes the standard placing program (PLU 0000).

Explanation of the values and symbols in the display		
Slice count		Portion specifications in continuous mode "EL" (No display in normal mode)
PLU (0000 = Standard program)		Placing function (stacking, fanning, ...)
S: Set value slicing thickness (Display only in PLU mode)		Current value of the stack/row
D: Current slicing thickness		Number of stacks/ rows placed in one layer (can be set using the "X" button)

Other Operating Controls		
	Slice thickness control	• Sets the slice thickness. • Sets the limit stop lock (carriage removable) • Sets the sharpening mode (completely opened)
	Last slice clamp	• Clamps and feeds the food to be sliced to the blade.
	Guide rail	• Fixes food product on the carriage. • Calibre scanning • Optimum use of placing surface

3.2 Programs

You can either work in the standard mode or access specially defined placing programs using PLU. The standard mode makes it possible to combine basic functions such as stacking, long-fanning, cross-fanning or circular fanning with the following parameters: number of slices and number rows/stacks.

3.2.1 Slicing in the Standard Mode (PLU 0000)



3.2.1.1 Stacking

The stacking function enables stack heights of up to 60 mm.

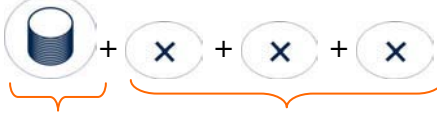
This function is selected by simply pressing the stack button. The display shows the symbol for stacking. You can preset the number of slices using the +/- buttons. If multiple stacks are desired, you can increase the number of stacks with the X button. Up to 4 stacks are possible.

When making preparations, it is recommended to set the slice counter to "000". In this way, the maximum stack height is always achieved.

If stacks are to be generated on portioning units (foils, PE trays, foam trays, trays etc.), you can enter the outer dimensions of the portioning units L x W for central placing.

(Option only HA 800: the machine then uses the calibre recognition option to calculate the best placing point.)

Example:

 Select "Stacking" function = + 3 x "X button" = 4 stacks	
---	--



3.2.1.2 Long Fanning

The long fanning function is for placing the individual slices in rows parallel to the stop. The number of rows can be set using the "X" button. Up to 4 rows are possible with the standard program. When making preparations, it is recommended to set the slice counter to "000". The machine then fans multiple layers on top of each other.

If rows are to be generated on portioning units (foils, PE trays, foam trays, trays etc.), you can enter the outer dimensions of the portioning units L x W for central placing. (Option only HA 800: the machine then uses the calibre recognition option to calculate the best placing point.)

Example:

 Select "Long fanning" function = 3 x "X button" = 4 rows	
---	--



3.2.1.3 Cross Fanning

The cross fanning function is for placing the individual slices in rows parallel to the chain frame. The number of rows can be set using the "X" button. Up to 4 rows are possible with the standard program. When making preparations, it is recommended to set the slice counter to "000". The machine then fans multiple layers on top of each other. If rows are to be generated on portioning units (foils, PE trays, foam trays, trays etc.), you can enter the outer dimensions of the portioning units L x W for central placing. (Option only HA 800: The machine then uses the calibre recognition option to calculate the best placing point.)

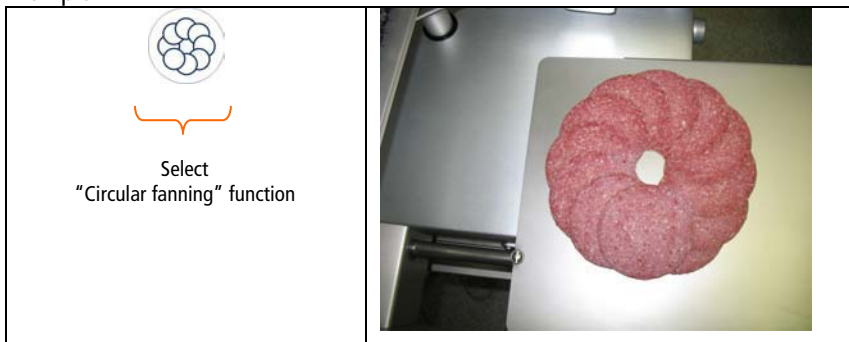
Example:



3.2.1.4 Circular Fanning

Circular fanning enables the slices to be placed in a circular pattern. The diameter of the circle can be altered by adjusting the tray dimensions. In this way, oval placing patterns are also possible.

Example:



3.2.2 Offset Function (Machines without Calibration Recognition)

On machines without calibration recognition, the "Offset function" can be used to slightly adjust the laying position on the tray, for example, a stack can be placed on the left, in the centre or on the right of the tray.

Example:

 The stacking function has been selected. If the function button (stacking) is pressed again, three bars appear in the display.	 The plus "+" and minus "-" buttons can be used to change the position of the highlighted bar and the laying position of the cutting material is moved on the tray correspondingly.
---	---

OFFSET FUNCTION	CHANGE OF LAYING POSITION
Stacking	Left, centre, right
Long fanning	Left, centre, right
Cross fanning	Rear, centre, front
Circular fanning	Larger Ø, medium Ø, smaller Ø

3.3 Using the Paper Clamp

	Press down the lever on the right of the tray to the back. Lay the paper (or film) on the tray and push to the stop limits.
	Pull the lever to the front and the paper (or film) is clamped.

3.4 Slicing

Clean the machine completely, following the cleaning procedures, before you start slicing.

Preparing the carriage:

	• Bring the carriage to the initial position. • Take hold of the handle of the last slice clamp and swivel it upwards.
--	--



- Push the guide rail towards the last slice clamp as far as required by the food to be sliced.



- Place the sausage to the wall of the carriage and hold in position with your left hand.
- Using the right hand, pull the guide rail until about 4 mm before the food product and tighten the locking screw (mini wing).



- Switch on the machine.



CAUTION!

The carriage is supported by a servo-drive as soon as you push it towards the blade.

	• Use the slicing thickness control to set the slicing thickness. The value shown in the display is the slice thickness in mm.
	• Select the placing program and specify the number of slices with the +/- buttons if necessary.
	• Take hold of the handle of the last slice clamp and swivel it to the "down" position. • Push the food to be sliced against the rail and push the carriage towards the blade. If the food to be sliced is smaller than 150 mm, use the last slice clamp.

3.5 HA 810 with Vario-Slice Carriage

The Vario-Slice carriage allows you to slice round products, especially narrow ones, in a tilted position without a guide rail. The procedure for slicing corresponds to that with the standard carriage.

3.5.1 Tilting the Carriage to the V Position



- Press the Off button to switch off the machine.
- Hold the carriage with your left hand by the black handle.
- Swivel the rocker arm on the right towards you so that the carriage unlatches.



- Using your left hand, tilt the carriage to the V position until you hear the carriage latch in. Let go of the lever while you tilt the carriage.
- You can now slice the product in the same way as in the normal position.



CAUTION!

The carriage is supported by a servo-drive as soon as you push it towards the blade.

IMPORTANT!

In the tilted position, the laying position on the tray is different to what it is in the normal position.

3.5.2 Tilting the Carriage to the Normal Position



- Press the Off button to switch off the machine.
- Hold the carriage with your left hand by the black handle and hold the carriage steady before you unlatch the rocker arm.
- Swivel the rocker arm on the right towards you so that the carriage unlatches.
- Caution! Do not allow the carriage to drop down.



- Using your left hand, tilt the carriage to the V position until you hear the carriage latch in. Let go of the lever while you tilt the carriage.

3.5.3 Cutting with the VS Carriage

- Swivel up the last slice clamp.
- Insert the product to be sliced.
- Lower the last slice clamp.
- If the food to be sliced is long, place the last slice clamp on the food. If the food is short (shorter than 155 mm), place the last slice clamp behind the food.
- Switch on the machine.
- Pull the carriage towards yourself if the display has not yet been enabled, i.e. you can only see the GRAEF logo.
- Select the program.
- Open the stop with the slicing thickness control (the slice thickness can be read off at the display).
- Slicing now proceeds like on a manual machine; in other words, press the food gently against the stop and push the carriage towards the blade.

• CAUTION!

The carriage is supported by a servo-drive as soon as you push it towards the blade.

3.6 The Start Program

The start program determines which placing function the machine will display when it is switched on. You should select the program setting that is most commonly used.

All values that can be changed using the function buttons described above – number of slices, function, – can be saved by pressing the corresponding function key for 2-3 seconds until the beep sounds. The last stored function is called again when the machine is switched on again.

Example:

START Program	P1	P2	P3
Select function	Stacking 	Circular fanning 	Long fanning 
Number of slices	10  	10  	8  
Number of rows/stacks	2 	1 	3 
Press for 2-3 seconds			

If programming is done in the sequence P1→P2→P3, the following happens after switching on the machine:

“Long fanning” function, 3 rows of 8 slices, which is program “P3”.

On changing functions, i.e. by pressing a different button, e.g. Stack, the placing pattern is set for the corresponding function.

The example above would result in the following stacking pattern: 2 stacks of 10 slices.

It is possible to save the various parameters of a function individually by pressing the corresponding function button for a long time. However, as already mentioned, the most recently saved program is always the START program.

3.7 Changing the Standard Program (PLU=0000)

In addition to simple variants, like changing the

- Slice count
- Number of stacks/rows (1-4)
- Carriage stroke speed (slices per minute, only for fully automatic machines)

it is possible to adjust the following parameters

- Positions on the tray
- Placing format (option)
- Calibre mode (option)
- Counting mode (option)

in additional menus.

3.7.1 The “M+PLU” Additional Menu

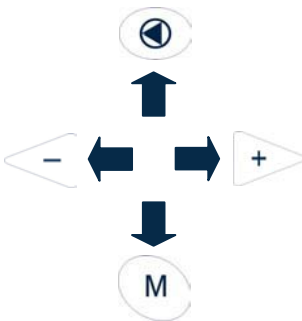
Access the program menu by pressing buttons M+PLU. Here, in the “STANDARD” menu item, you can change the basic functions relating to fanning distances and positioning on the tray. Select “Reset” to return all functions to the default settings at any time.

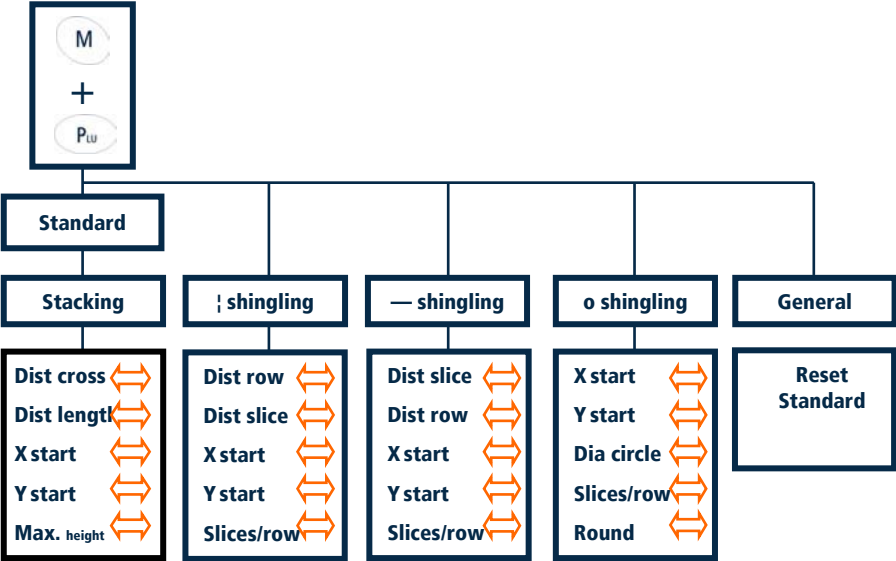


IMPORTANT!

Always press and hold the “M” button and then press the “PLU” button in addition.

Navigation in the M+PLU





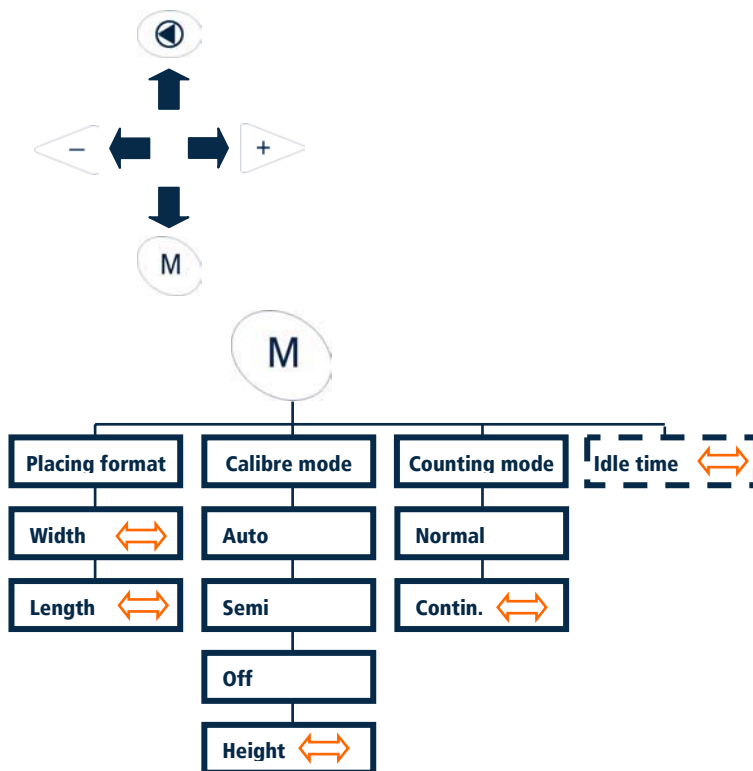
Parameter	Description	Possible settings / Remarks
Stacking, ! shingling, — shingling		
Dist trans (Delta X)	Crosswise distance: distance to the next stack in X	Stacking
Dist row	Row distance: distance to the next row	Long fanning
Dist slice	Slice distance: distance to the next slice	Cross fanning

Dist length	Lengthways distance: distance to the next slice in Y	Stacking									
Dist slice	Slice distance: distance to the next slice	Long fanning									
Dist row	Row distance: distance to the next row	Cross fanning									
X start	Moves the initial placing point in X-direction	Stacking, long fanning, cross fanning									
Y start	Moves the initial placing point in Y-direction	Stacking, long fanning, cross fanning									
Max. height	Maximum stacking height	Only in stacking mode									
Slices	Slices per row or fan	Not in stacking mode									
Special circular fanning features											
Dm	Diameter of the circle through the central points of the slices (partial diameter) Note: The outer diameter of the "DA" circular fan is the result of the cutting material calibre DK + Dm Example: Salami DK = Ø 60 Set semi-circle Dm = 100 <table><tr><td>DK</td><td></td><td>60</td></tr><tr><td>Dm</td><td>+</td><td>100</td></tr><tr><td>DA</td><td>=</td><td>160</td></tr></table>	DK		60	Dm	+	100	DA	=	160	
DK		60									
Dm	+	100									
DA	=	160									
X start (X0)	Smallest distance of the y axis to the slice circle = start position in X										
Y start (Y0)	Smallest distance of the x axis to the slice circle = start position in Y										
Round	Select option "0" or "1" "0=oval or circle" or "1= circle"	In option "0" it is also possible to create oval shapes by changing the length and width in the placing format menu. Option "1" always has the placing format of a geometrical circle.									

3.7.2 The “M” Additional Menu (OPTION HA 800)

You can access the placing format/ calibre mode/counting mode menu items by pressing the  button. If the continuous mode function is activated in the counting mode, the “Idle time” menu item appears additionally.

Navigation in “M” menu:



3.7.2.1 Placing Format (Option HA 800)

The machine can determine the calibre of the food placed on it. It bases all its calculations on a round calibre. You can therefore specify the placing format, i.e. the area in which the sliced food is to be placed, through the parameters "Length (L)" and "Width (W)".

If, for example, you enter $W = 200$ $L = 200$, the sliced food will be placed on a square of dimensions 200 mm x 200 mm.

Example:

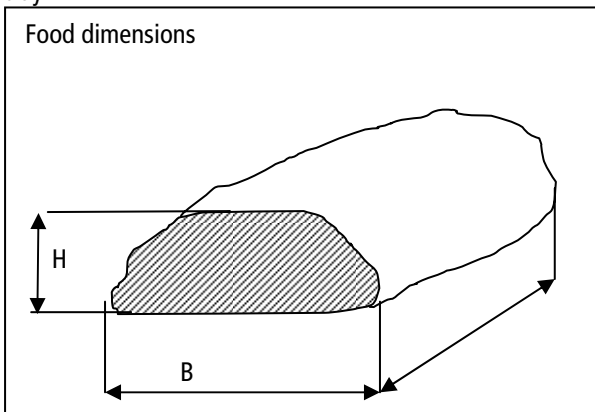
You want to portion salami decoratively on a tray with dimensions 210 x 210 mm.

To make sure that the tray is covered completely, you make the following settings:

Width 210 mm

Length 210 mm

The circular fan therefore has a 210 mm outside diameter and is placed centrally onto the tray.



3.7.2.2 Calibre mode (Option HA 800)

The machine has a calibre recognition function. Its calibre measuring device measures the greatest length of the cross section of the product parallel to the carriage section.

This value is used for subsequent tasks

- Positioning on the tray
Exact placing on packaging such as film, paper or a tray

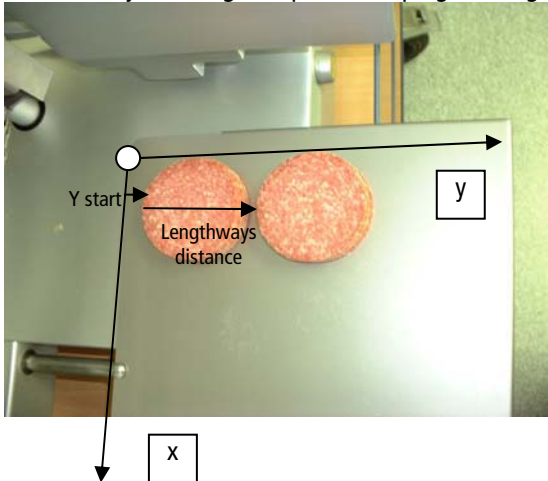
You can use the menu controls to set the calibre recognition function to different modes:

a) Activation of calibre recognition "Auto"

In this mode, the placing pattern is calculated automatically using the parameters, product width (B) and preset tray dimensions. The fanning distance, the distance between rows and the initial placing position on the tray are calculated by the software.

b) "Semi" Mode

In this function, the placing positions in "X" are calculated by the calibre recognition. Parameters in "Y", such as fanning distance for long fanning, are predetermined values that can only be changed in parameter programming.



c) Deactivate "OFF"

The machine now operates with the preset fanning distance and initial placing position of the placing pattern. The carriage travel remains constant, regardless of the calibre.

d) Partial activation "Height XXX "

Some products (flat, long products such as bacon) require the specification of the product height. The calibre recognition only registers the product width and assumes that product height and width are identical. The machine operates with numerical values in steps of 5 mm. These values can be selected with the arrow keys.

Example: A piece of bacon with a height of approx. 40 mm is assigned the value 40.

3.7.2.3 Counting mode

The counting mode specifies whether a placing pattern based on the specified basic functions is to be placed once (normal mode) or is to be repeated (continuous mode).

Example for normal mode:

Basic function settings

Stacking – 10 slices – 4 stacks (= pressed "X button" 3 times)

When it is started, the machine slices 4 stacks of 10 slices and places them on the table. Then the machine stops.

Example for continuous mode:

Basic function settings

Stacking – 10 slices – 4 stacks (= pressed "X button" 3 times)

When it is started, the machine places 4 stacks of 10 slices on the table.

The machine then returns to its initial position and repeats the cutting process. It continues to do this until one of the following events happens:

- The specified number of portions has been sliced.
- All of the food has been sliced or

the operator has cancelled the slicing process.

You can specify the portions in continuous mode (repeat mode).

To do this, use the +/- buttons to specify the number of portions.

If you specify "0", the machine will repeat the process until the food has been sliced or the operator cancels the slicing process.

Another way to modify the continuous slicing mode is to add pauses between individual layers. The pauses can be used to remove one layer from the table and add a new film or tray for a new layer on the tray.

3.7.2.4 Idle Time

This menu item only appears if the continuous mode is active.

This is where you can define the pauses between the individual layers by using the +/- buttons.

3.7.3 Slicing in the PLU Mode

Customer-specific placing patterns can be stored in the PLU programs.

Specify "Slicing in Standard Mode" when you are preparing the machine and when you feed in the food to be sliced.

From the program selection onwards, proceed as follows:

- Press the PLU button.
- Use the arrow buttons (plus/minus) to select the desired PLU program number.
- Use the slicing thickness control to adjust the slice thickness stored in the PLU.
- Use the yellow Start button to start the cutting process.

NOTE To access the standard mode (PLU 0000) again from the PLU mode, press the PLU button and then press the Reset button immediately.	
---	--

You can select the following functions in PLU mode:

Buttons	Function
	Change the idle time between two placing patterns.
	Change the portions.
	Change the stroke speed. <u>Only for fully automatic machines.</u>

3.7.4 Programming a PLU

Access the program menu by pressing buttons M+PLU.

IMPORTANT!

! Always press and hold the "M" button and then press the "PLU" button in addition.

Use the -/+ button to select "PLU".
Press the M button to confirm.

The following menu appears:

PLU MENU
new
change
delete

Here you can access the "PLU" menu item, where you can create, change or delete placing patterns.

Example: "new"

Use the arrow keys to navigate to "new".
Confirm your selection with the M button.

New PLU
PLU: 1

The following menu appears:

Use the +/- buttons to change the preset value to the desired PLU.
Confirm your selection with the M button.

You can now program the selected PLU:

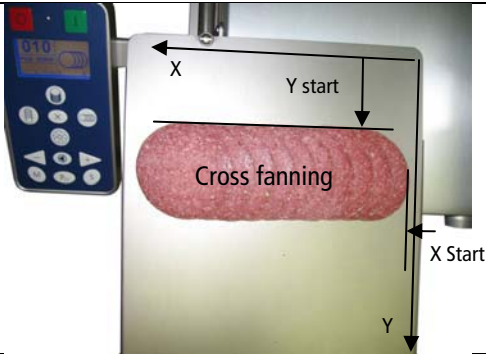
PLU 1

Mode	Stacking
X number	2
Slices	10
Pattern	Lengthwise
Portions	1
X start	0
Y start	10
Dist cross	0
Dist length	100
Strokes / min	50
Thickness	10
Idle time	0

Use the +/- buttons to select the individual parameters (mode, X number, slices, arrangement, ...).

Pressing the M button then takes you to the editor where you can determine the value using the +/- buttons.

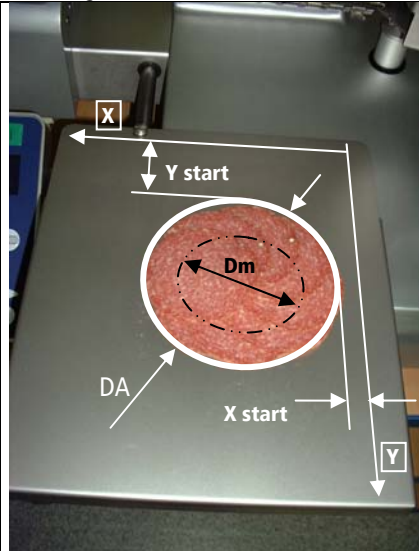
Pressing the reset button takes you back to the menu for the selected PLU.

Overview of PLU Parameters (Designation in brackets = old designation before March 2007)		
Parameter	Description	Possible settings / Remarks
Mode	Selection of basic placing program	Stacking Long fanning Cross fanning Circular fanning
X number (Multi)	Number of rows/ stacks	1 to 4 Circular fanning: no parameter available
Slices (Preselection)	Number of slices per stack, row, circle	
Pattern	Only in stacking mode. Determines the offset direction / pattern if there are several stacks.	Lengthwise: stack offset in y-direction Crosswise: stack offset in y-direction Square: stack is arranged on the corners of a square.
Portions (Tray)	Number of packing units, portions	With packing machine: specification of the number of packing units. Without packing machine: specification of the number of layers that can be sliced onto each other.
X start (X0)	Moves the initial placing point in X-direction.	
Y start (Y0)	Moves the initial placing point in Y-direction.	
Dist cross (X-Delta)	Crosswise distance: distance to the next stack in X	Stacking
Row dist (X-Delta)	Row distance: distance to the next row	Long fanning
Slice dist (X-Delta)	Slice distance: distance to the next slice	Cross fanning
Dist length (Y-Delta)	Lengthways distance: distance to the next slice in Y	Stack mode
Slice dist (Y-Delta)	Slice distance: distance to the next slice	Long fanning
Row dist (Y-Delta)	Row distance: distance to the next row	Cross fanning

Strokes / min (Speed)	Carriage speed in strokes /min	Only for fully automatic machines
Thickness	Indication of desired thickness. It is indicated on the display next to the S.	To enable the entry with the +/- buttons without needing decimals, the value to be entered is factored by 10. In other words, entering " 9 " is equivalent to a slice thickness of 0.9 mm.
Idle time	Definition of the idle time between two portions. This enables the operator to take goods from the tray without needing to start the machine again.	Input is made in steps of 0.5 s. Maximum idle time: 120 s

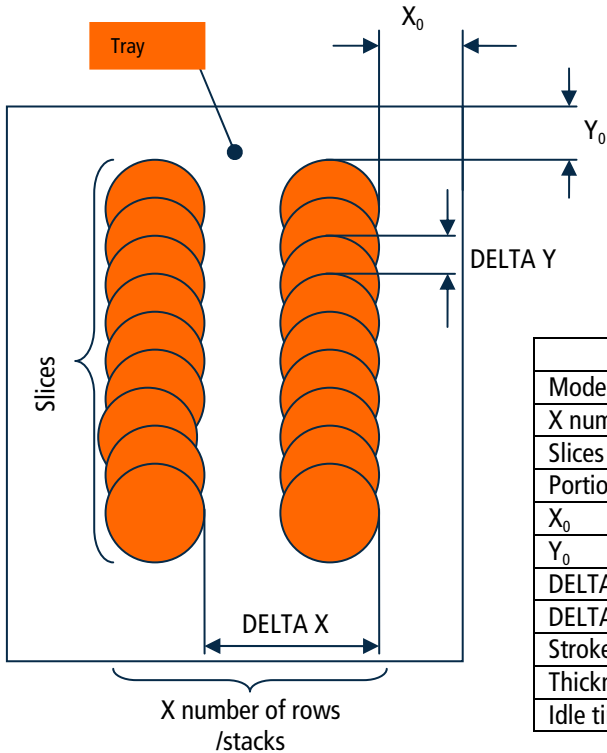
Special circular fanning features

Dm	Diameter of the circle through the central points of the slices (partial diameter) Note: The outer diameter of the "DA" circular fan is the result of the cutting material calibre DK + Dm Example: Salami DK = Ø 60 Set semi-circle Dm = 100 <table><tr><td>DK</td><td></td><td>60</td></tr><tr><td>Dm</td><td>+</td><td>100</td></tr><tr><td>DA</td><td>=</td><td>160</td></tr></table>	DK		60	Dm	+	100	DA	=	160
DK		60								
Dm	+	100								
DA	=	160								
X start (X0)	Smallest distance of the y axis to the slice circle = start position in X									
Y start (Y0)	Smallest distance of the x axis to the slice circle = start position in Y									



Example: Programming PLU "10"

Long fanning, 2 rows of 9 slices, with fanning distance 20, row distance 100, 1 portion, slice thickness 1.8 mm, slices per minute 50 (=strokes/min)



PLU 10	
Mode	Long fanning
X number	2
Slices	9
Portion	1
X ₀	45
Y ₀	20
DELTA X	100
DELTA Y	20
Strokes / min	50
Thickness	18
Idle time	0

4 Cleaning

The cleaning schedule is the basis for all cleaning procedures.



WARNING!

Rotating blade can cause serious injuries.

Do not reach into the blade. To

clean, switch off the machine and pull out the mains plug beforehand.

When cleaning the blade, always wear protective gloves with wrist guards.



CAUTION!

The carriage is a moving part.

IMPORTANT!

Follow the specified sequence when cleaning. Do not use any abrasive cleaners when cleaning the machine. These scratch metallic surfaces and impair hygiene and slicing performance. Use only the cleaners and disinfectants that have been approved by us, diluted as specified.

Do not use any harsh or abrasive cleaners or disinfectants.

Never use a high-pressure or steam cleaner.

Failure to observe any of these points will invalidate any warranty claims.

4.1 Preparing for Cleaning

- Press the red Off button (O button)
- Pull the mains cable from the electrical socket.
- Turn the adjusting knob for setting the slicing thickness clockwise past "0" to the limit stop.



CAUTION!

The spikes on the last slice clamp plate and the chain can cause injuries.

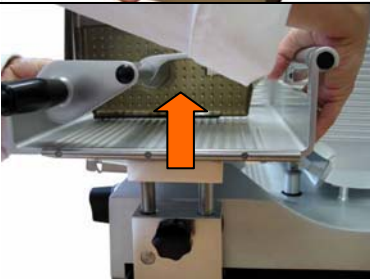
IMPORTANT!



Do not lay removed parts on top of each other as this may damage parts. Only clean the beater and the chain frame with the brush provided. Do not press too hard.

4.1.1 Disassembly of the Removable Parts

	Tray: • Lift the tray as shown in the picture. • Move the tray towards the operator and remove it from the machine.
	Placing arm: • Remove the star grip while fixing the placing arm to the beater rod. • Take the placing arm from the machine.
	Chain frame: • Swing the pressing roller away from the limit stop with your right hand. • Pull the chain frame upwards by the handle with your left hand and remove it from the machine.

	Guide rail: • Swivel up the last slice clamp as preparation. • Pull the guide rail to the carriage wall with your right hand. • Hold the guide rail as illustrated in the picture and lift it until the guide piece jumps out of the guide. • Remove the guide rail from the carriage.
	Last slice clamp (spike plate): • Swivel up the last slice clamp as preparation. • Loosen the black knurled nut by a few turns. • Pull the plate upwards and swing the lower holding bolt out of the slot.
	Taking off the carriage: • The limit stop must be completely closed. • The carriage must be pulled to the initial position. • Fold down the last slice holder. • Release the star grip. • Pull out the carriage carefully upwards.
	

	Blade cover plate: • Secure the blade clover plate from falling with your right hand. • Loosen the thumb wheel and pull it slightly out of the guide.
	• Carefully lift the blade cover plate away from the blade with both hands and put it to one side.

4.2 Cleaning the Different Parts of the Machine

4.2.1 Blade and Blade Ring

	WARNING! The blade is sharp! Only clean it when the carriage is tilted out and the limit stop is closed. • Push a dampened cleaning cloth between blade and blade protection ring from the front. • Using both hands, pull the cleaning cloth against the blade guard ring once or twice.
	



- Press a damp cloth against the blade surface and wipe off the blade slowly from the centre to the edges.
- Clean the rear side of the blade in the same way.
- Rub the blade dry with a clean cloth in a similar fashion.

4.2.2 Carriage



- Clean the bottom of the carriage with a damp cleaning cloth when it is tilted out.
- Remove the food remains from the carriage surface and then clean it according to the cleaning plan.



Last slice clamp plate:

- Use the brush to clean the spiked side.
- Wipe the smooth back with a cleaning cloth.

4.2.3 Chain Frame

	• Place the chain frame on its back on the table. • Remove the wing bolt.
	• Gently swing the guide comb out and place it on the side.
	• Swing the pressing roller to the side as shown on the picture. • Use a brush and cleaning liquid to clean the pressing roller. • Turn the pressing roller and fix it again by the gear wheel so that you can clean the whole roller. • Use the same procedure on the chain drive cylinder.
	• Carefully clean the scraper fingers while the pressing roller is swung away.

	• Gently jerk the protective cover out of its holding clips and swivel it away from the chains. • Clean the cover with a cleaning cloth on all sides. CAUTION! The chain tips can cause injuries!
	• Hold the chain frame by its handle. • Use a brush to clean the chains. • Move the chains forward by turning the drive cylinder to clean every part of the chains.
	• Put the placing arm on its side on the table. • Use the brush to clean the fingers gently. • Use the same procedure on the back. ! IMPORTANT! Bending the fingers can cause problems during the placing of the slices!

Clean the removable and non-removable parts according to the cleaning schedule.

4.3 Cleaning Schedule

Work Steps	Cleansers	Procedures	Cleaning Equipment	Note
1 Preparatory measures		Close the slicing thickness control. Pull out the mains plug.		
2 Disassembly of removable parts		See operating instructions.		
3 Rough manual cleaning		Remove remaining food with plastic spatula.	Plastic spatula; also for the removable parts.	Start directly.
4 Cleaning	2% e.g. Henkel "P3 sterile" Goldschmidt "Somplex detsan" "Somplex F"	Pre-rinse thoroughly with water (max. 40 °C), wait approx. 20 min.	Brush, pan, cleaning cloth, hand spraying device	All detached and fixed machine parts
4 a Disinfection as additional measure	e.g. Henkel P3 alcodes or Goldschmidt 0.5-2% TEGO 2000 TEGO IMC	Spray manually. Do not exceed the time for allowing the product to act as specified in its data sheet.	Disposable cleaning cloth, hand sprayer	Additional safety distance when spraying approx. 30 cm
4 b Acid cleaning additional measure	Max. 3%, e.g. Henkel "P3-riskan" Goldschmidt "Somplex Schaum sauer"	Foam up manually, allow to act for max. 12 min	Brush Hand sprayer	To remove lime scale if necessary
5 Rinse	Tap water	Max. temperature 50 °C	Disposable cleaning cloth Hand sprayer Water hose	Rest of machine Detached parts Detached parts
6 Check		Look for visible dirt.		
7 Dry		Rub dry, allow to dry in the air.	Disposable cleaning cloth	Machine, detached parts, separate where possible
8 Care	Oils for use in the food industry with H1 certification, e.g. Henkel P3 oil	Apply by spraying or rubbing.	Disposable cleaning cloth, hand sprayer	Rinse all components that have touched food before you start work.
9 Assembly		In reverse order to disassembly (operating manual)		Personnel must have clean and disinfected hands.
10 Precautionary measures	Cover machine if the surrounding area is to be cleaned with spraying devices or high-pressure equipment to protect it from water			

4.3.1 Cleaning Procedure

Take appropriate action to prevent pollution to the environment when you use hand sprayers.

The information refers to single-shift operation.

You must also observe the safety and product data sheets that were included with the cleansers and disinfecting agents.

If you do not observe them you may damage the machine.

We will not accept any warranty claims if cleaning agents not approved by Graef are used.

Never clean detachable parts in a dishwasher.

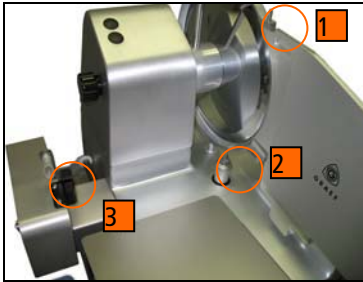
Assembling the removed machine parts:

Assemble all the removed parts in the reverse order after cleaning.

Check carefully that all parts are fitted and fixed correctly. Parts that have been improperly fastened can become loose during operation and cause damage to the machine, or, even worse, injure the operator.

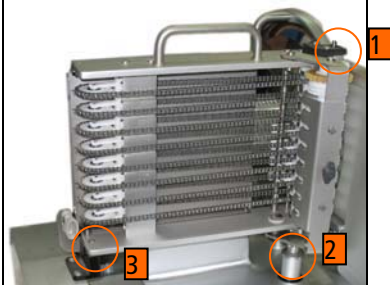
4.4 Assembly

Please observe the following during assembly!



When you mount the chain frame, make sure

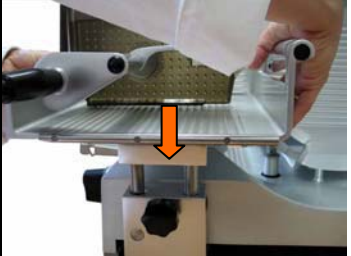
- That it is carefully attached at all three holding points.
- If necessary, turn the clutch hub (2) manually until the coupling engages.
- When placing on the pressing roller swing it away from the stop limit.



- Correct position 1



- Correct position 2

	• Correct position 3
	Carriage: • Insert the carriage bolt in the bearing block and push the carriage carefully to the working position.
	 CAUTION! Press the carriage on the bearing block by hand and make absolutely sure you tighten the star grip. A loose carriage can cause injuries to the operator, damage the machine and result in poor slicing performance.
	 CAUTION! Tighten the star grip on the placing arm. A loose arm can cause problems and damage the machine.
	• Slide the tray in recess side first (1) under the holding piece as far as possible, then push it down onto the holding bolt.  CAUTION! Ensure that the tray fits properly and tightly to prevent it from falling down during operation.

5 Maintenance

5.1 Sharpening the Blade



WARNING!

Rotating blade can sever fingers! Only sharpen the blade with the sharpener provided. The sharpener has been adjusted for this machine and must be used for this machine only.

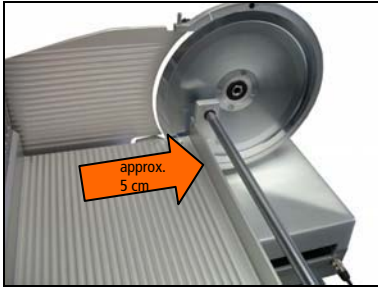
The machine number and the number on the sharpening device must be identical.

The blade may only be sharpened by personnel who have been trained to do so.

5.1.1 Description of the Blade Sharpener

	Adjusting wheel
	Scale: • 0 =attaching position • 1 = sharpening position • 2 = honing position
	Blade sharpener housing
	Protective cover
	Clamp arms
	Knurled screw
	Honing stone
	Sharpening stone
	Blade sharpener mounting

5.1.2 Preparing the Machine

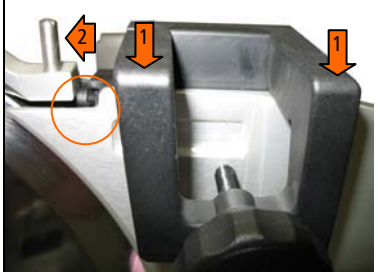


- Thoroughly clean the machine and the blade.
- Remove the last slice clamp, the guide rail, the feed carriage (VA 802 only), the blade cover plate, the beater and the chain frame.
- Put the last slice clamp down on the carriage and move this to right, as far away as possible from the blade.
- Push the carriage about 5 cm towards the blade.
- Turn the slice thickness control for the slice thickness to the "S" marking for sharpening.

5.1.3 Sharpening the Blade



- Set the blade sharpener to position "0" using the adjusting knob.



- Put the blade sharpener on the limit stop.
- Both clamp arms (1) must touch the stop edge at the top.
- Push the sharpener towards the blade until the bolt head (2) touches the blade ring.
- Place the blade sharpener with the thumb wheel on the limit stop.



IMPORTANT!

The blade can only be sharpened accurately if the sharpener is positioned exactly.

- Switch on the machine with the green On button.
- Turn the adjusting knob to the grinding position "1".
- Grinding begins.
- The duration of grinding depends on the condition of the blade.



- Grind until a slight cutting ridge is formed.
- Switch off the machine with the red Off button.
- Slide a sharpened pencil slowly to the cutting edge as illustrated.
- Do you feel any resistance at the blade cutting edge? That is the cutting ridge produced from sharpening.
- If no edge has been formed, repeat the steps described above.



- If a cutting ridge has formed on the blade edge, turn the adjusting knob to the deburring position 2.
- Allow the machine to run for a few revolutions (2-3 seconds) until the ridge is removed.
- After deburring, switch off the machine with the red Off button.



Taking off the blade sharpener:

- Turn the adjusting knob of the blade sharpener to position "0".



IMPORTANT!

The blade sharpener may only be taken off in this position. Otherwise the blade and the sharpener could be damaged!

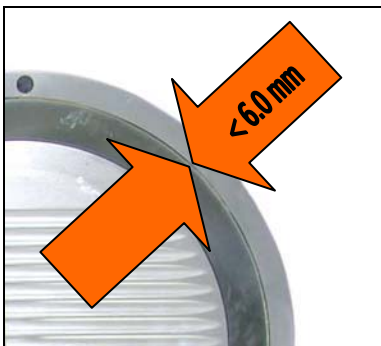
- Undo the knurled screw on the blade sharpener and carefully lift it off.
- Turn the slice thickness control as far as it will go in a clockwise direction.
- Clean the blade and the machine.
- Put the detached last slice clamp, guide rail, feed carriage (VA 802 only), beater and chain frame back on the machine.

5.2 Changing the Blade



WARNING !

The blade is sharp! It can cause serious injury even when it is not moving. The blade may only be replaced by authorised GRAEF service personnel.



CAUTION!

The blade must be replaced: when the distance between the blade guard ring and the blade is larger than 6 mm.

5.3 Lubricating

Use only the GRAEF special lubricating oil with H1 certification that is included in delivery.



Chain frame:

- 2-3 drops in each of the 8 tensioning roller bearings.



Linear guide rod:

- Lubricating interval:
As required, whenever the last slice clamp is difficult to move.



Tray gear rack:

- Drip some lubricant onto the surface of the rack and rub in with a cotton cloth
- Lubricating interval:
At least once a week

6 Faults and Operating Errors



CAUTION!

Switch off the machine immediately if it emits unusual noises, malfunctions or if you suspect it could cause injuries.

Call customer service if you cannot solve the problem yourself.

<i>Fault</i>	<i>Cause</i>	<i>Measure</i>
Carriage stops during operation	Carriage blocked, for example, by bone.	Switch off the machine and pull out the mains plug. Pull back the carriage Remove the blockage.
Carriage cannot be taken off	- The carriage is not in the initial (starting) position. - Slicing thickness control not below "0".	- Bring the carriage to the initial position. - Turn the thickness control below "0".
Bad slicing, slices are frayed	Blade is blunt.	Sharpen the blade.
Poor sharpening results	- You are using the wrong blade sharpener. - Grinding disks are greasy.	- Use the blade sharpener that was supplied with the machine. The correct blade sharpener will have the same serial number as the machine! - Replace the grinding discs with new original ones. Clean the blade and machine completely before you start slicing.
Placing arm makes noises and / or jams in the chains	- Star grip is loose. - Chain frame is not properly in place. - Fingers are bent.	- Tighten the star grip. - Check whether the chain frame is properly seated in all three holders. - Carefully straighten the fingers until they no longer collide with the chains.
Blade cannot be ground	The clearance between the blade and the blade guard ring is larger than 6 mm.	Replace the blade.
The last slice clamp is difficult to move	The last slice clamp bar is dry or dirty.	Clean off residues, lubricate with a few drops of oil and distribute oil by moving the pusher backwards and forwards.

<i>Fault</i>	<i>Cause</i>	<i>Measure</i>
The slices are uneven	• The food is not held properly in place by the food holding bar. • Chain frame is not properly in place. • The placing arm is not properly screwed on.	• Use the guide rail. • Check that the chain frame is firmly in position. • Tighten the star grip.
Placing program cannot be changed	• Program (not 0000) selected.	• Press the PLU button and then the Reset button; "PLU 0000" appears in the display.
Slices, of bacon for example, are placed too closely together in fanning mode	• Calibre mode is set to AUTO.	• Switch to SEMI or HIGH mode.
Calibre recognition without function	• Guide rail is not placed on the carriage. • Calibre mode is set to OFF.	• Mount the guide rail. • Switch to AUTO, SEMI or HIGH calibre mode.
Sliced product does not reach the Chain and collects between the pressing roller and the scraper	• Product residue has accumulated on the scraper, preventing sliced material from passing through.	• Take off the chain frame. Clean the product residue from the scraper. Check whether the scraper touches the blade.

7 Service

IMPORTANT!

Only use genuine GRAEF spare parts.

The use of other parts will invalidate the warranty (see also the declaration of conformity)

Contact your GRAEF customer service If you require service or spare parts.