

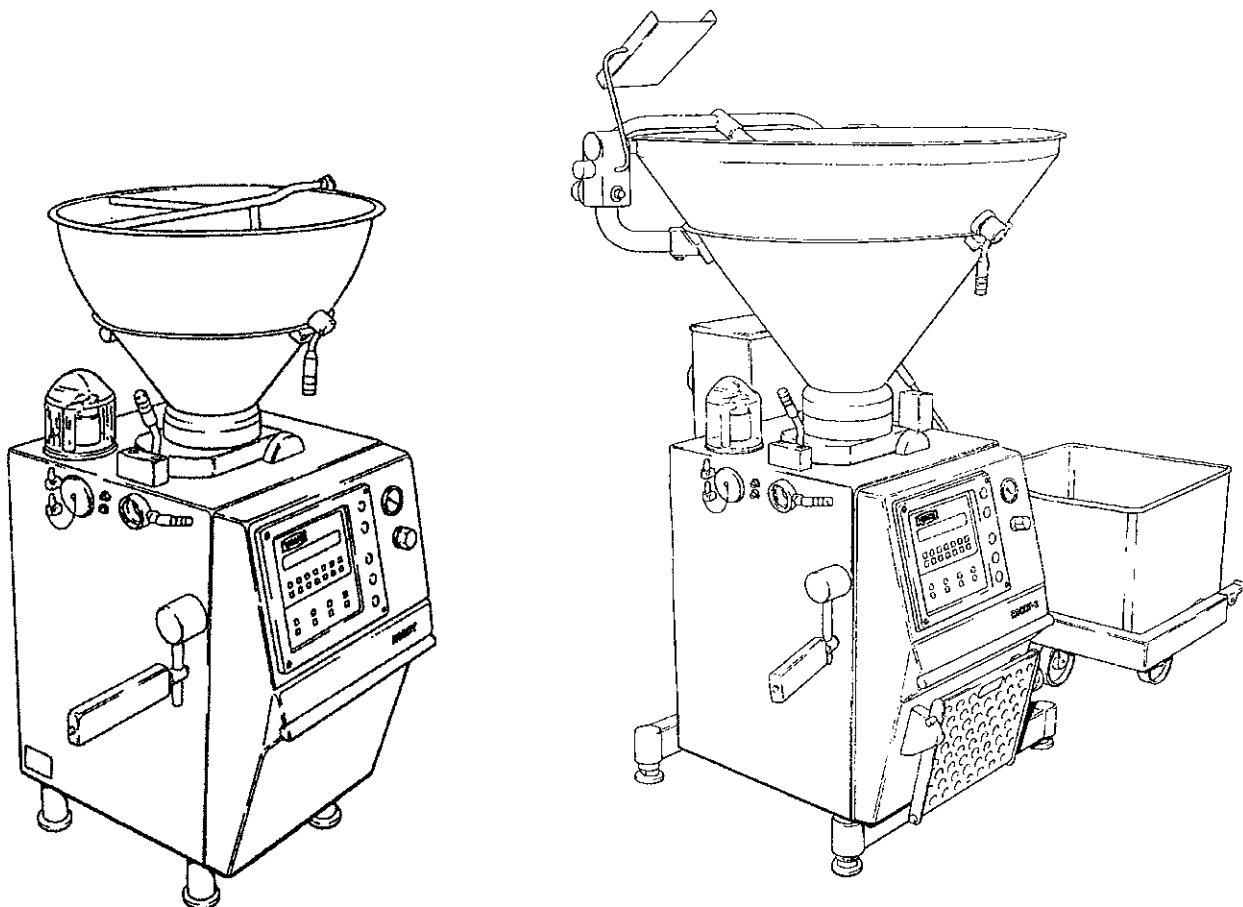
ROBBY ROBBY-2

Model 134

Model 135

**Continuous
Vacuum Filler**

Operating Instructions



MASCHINENBAU GMBH

- Foreword -

By purchasing the

ROBBY/ROBBY-2

continuous vacuum filler, you have selected a VEMAG product which will help you to work economically and improve your products.

Three versions of the machine are available:

- a portioning machine
- a portioning and linking machine
- a straight-filling machine

These versions are described in the instructions which follow.

It is important to comply properly with safety instructions and regulations so as to avoid injury to persons or damage to the machine.

If you have any questions regarding machine operation or applications, do contact VEMAG. We welcome all enquiries, suggestions and ideas.

A regular maintenance service guarantees the reliability, high performance, long service life and optimum resale value of your machine when you decide to purchase your next VEMAG machine.

**You *must* read the safety instructions in Chapter 1
before commissioning the machine!**

**We reserve the right to make technical modifications
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1 Safety instructions

Applications

ROBBY and ROBBY-2 continuous vacuum fillers are available as

- portioning machines
- portioning and linking machines.
- straight-filling machines.

Proper use:

The machine is designed and built for filling, portioning and linking meat products and other foodstuffs. Other products may only be processed with the agreement of VEMAG.

Operators:

The ROBBY and ROBBY-2 are constructed in accordance with the state of the art and on delivery conform to the Accident Prevention Regulations for Butcher Machines ("UVV Fleischereimaschinen").

Nevertheless, the machines may present a risk if:

- they are not used in accordance with these operating instructions,
- they are used by untrained personnel
- they are not carefully cleaned and maintained to the specification.

General safety instructions

Any person working with or on the machine must have read and understood these operating instructions, in particular the chapter entitled "Safety instructions".

The machines may be used only by trained and authorised personnel.

Responsibilities during operation must be clearly defined and observed.

- The ROBBY and ROBBY-2 may only be used if they are in perfect working order.
- The machine must be disconnected from the mains without fail before any work (cleaning, maintenance, repair) is carried out. Failure to comply with this instruction carries the risk of electrocution.
- With the machine switched on, check daily that the safety devices on the hopper, the feed element and - if the machine has one - the lifting and tipping device and step are working properly:
 1. Open the entire hopper.
 2. Only for machines with 80 l hopper:
tip back the upper part of the hopper.
 3. Fold out the step (option).

In each of these cases, the safety devices must switch off the machine. If this does not occur, the machine may not continue to be operated. Contact your VEMAG service agent.

- Overriding safety devices is not permitted, otherwise there is a risk of death or injury.
- Defects in safety devices must be reported and rectified immediately.
- Conversions, attachments and other modifications to the machine not approved by VEMAG are not permitted for safety reasons.

1.1 Special safety instructions

Electrical connection

The electrical connection must be made by a specialist electrician. The machine should be connected via a main switch which can be switched off and which is in the line from the mains to the electrical connection of the machine. The main switch must be allocated to the machine in such a way as to rule out any confusion, and correspond to the requirements of DIN VDE 0113 Part 1 or EN 60 204 Part 1, electrical equipment for industrial machinery.

When working on the drive or electrical system, the machine *must* be disconnected from the mains.

The electrical equipment is inside the machine frame and protected by additional covers. This protects against splashes in accordance with IP 65.

ON switch

The machine can only be switched on using the ON switch (Fig. 1-1, 1). In the event of a power failure or switch-off by a safety device, the ON switch must be operated again.

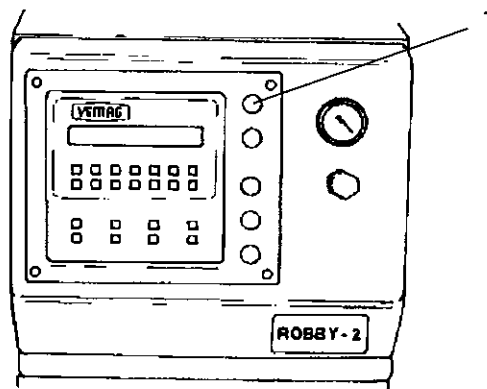


Fig. 1-1

Equipment sockets

Moisture or corrosion on the contacts can lead to switching errors. Equipment sockets and plugs must therefore always be clean and dry. Unused sockets must be tightly sealed off using the protective cap.

Hopper

The feed element is a danger area. The hopper is therefore designed as a safety hopper and prevents access to this area.

WARNING!

**The machine must be switched off before opening the whole hopper.
The upper part of the hopper must be closed.**

Opening the hopper:

- Release the hopper upper locking lever (Fig. 1-2, 1). On machines with an 80 l hopper, a safety switch shuts down the drive for the filling machine when the upper part of the hopper is opened (not applicable for machines with 150 l and 230 l hoppers).
- In order to open the feed element, the entire hopper can be opened (Fig. 1-3) after releasing the lower locking lever (Fig. 1-2, 2).

When the entire hopper is open, the machine is protected by a safety switch. It can only be restarted after the entire hopper has been closed. On machines with an 80 l hopper, the upper part of the hopper must also be closed in order to start the machine.

WARNING!

When the upper part of the hopper is open, ROBBY-2 machines with 150 l and 230 l hoppers can also be started if the main body of the hopper is closed.

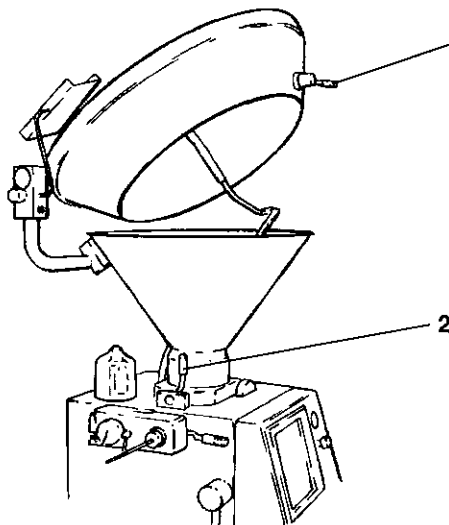


Fig. 1-2

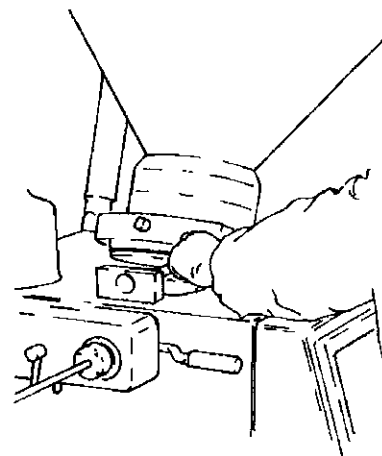


Fig. 1-3 Opening the whole hopper
(switch off machine beforehand)

150 and 230 litre hopper (option)

The upper part of the hopper is provided with cushioning to prevent it inadvertently falling shut. A built-in spring makes it easy to open the whole hopper after the locking mechanism has been released.

**Fold-out step
(option on
machine with 80
litre hopper)**

In order to make it easier to clean the hopper and the feed device, the machine with an 80 litre hopper can be equipped with a fold-out step (Fig. 1-4). The 150 l and 230 l machines are fitted with a step as standard. When the step is folded out, a safety switch switches off the drive.

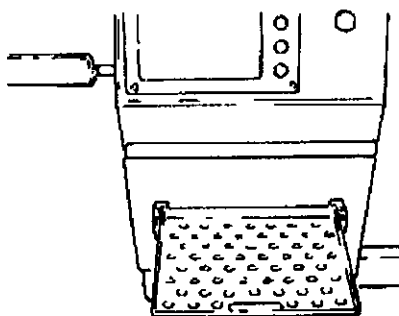


Fig. 1-4

The machine can only be switched on again when:

- the entire hopper is closed (on machines with an 80 l hopper, the upper part of the hopper must also be closed),
- the step is folded away (option), and
- the ON button is actuated.

WARNING!

**Do not use a ladder or any step other than that attached to the machine.
Failure to comply carries the risk of injury!**

**Lifting and tipping
device (option)**

Machines with 150 litre and 230 litre hoppers can be equipped with a lifting and tipping device.

WARNING!

**It is forbidden to be in the area of the device
Do not deposit any objects in the area of the device.
Risk of injury!**

**The lifting and tipping device may not be operated
when the upper part of the hopper is open!
Failure to comply with this requirement may result
in damage to the machine.**

Trolley hoist:

The trolley hoist of the lifting and tipping device is set at the factory with the machine feet screwed in and on a level floor.

If the floor is at an angle or the machine feet are screwed out, the stop parts on the lifting and tipping device must be reset. For precise instructions see

Trolleys:

Only trolleys to DIN 9797 with a capacity of 120 l are permissible for machines with the 150-l hopper.

For machines with a 230-l hopper, trolleys to DIN 9797 with a capacity of 200 litres must be used.

The trolley (Fig. 1-5, 1) must be pushed into the frame of the lifting and tipping device up to the stop (Fig. 1-5, 3). Only then can the locking lever engage to keep the trolley positively in the frame.

To remove the empty trolley, the locking lever (Fig. 1-5, 2) is released with the foot.

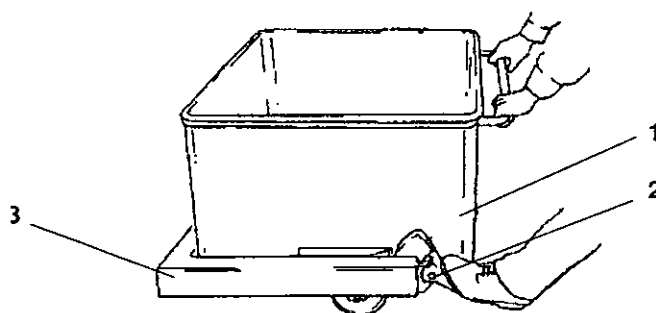


Fig. 1-5

Drive

The drive parts are entirely enclosed within the machine frame. The covers can only be removed using tools.

WARNING!

The machine may only be operated with the covers properly closed.

When working on the drive:

before opening the covers, the machine *must* be disconnected from the mains supply. Failure to comply with this may result in death or injury!

Feed element

The rotary vane pump is only accessible with the hopper tipped right open, and therefore secured by the hopper safety switch.

To install and remove the rotor, only rotor lifting tool 134.030-060 (Fig. 1-6, 1) should be used.

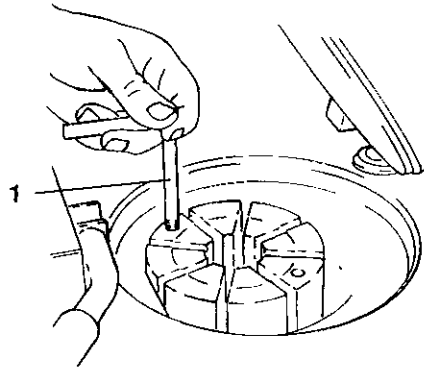


Fig. 1-6

Filling and linking

The operator must check during operation that the locknut (Fig. 1-7, 1) for the linking drive is firmly and properly seated. Failure to comply with this carries the risk of injury.

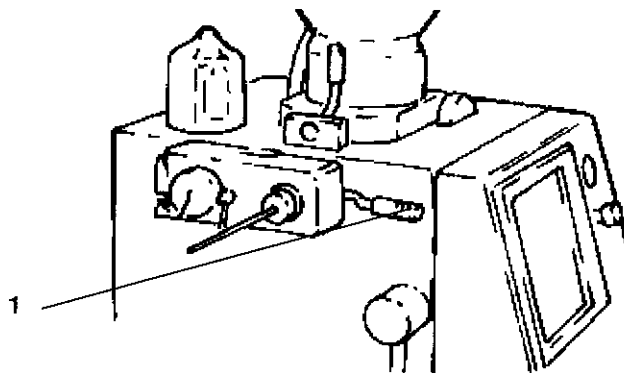


Fig. 1-7

Setting the vacuum

If the vacuum is set to a value less than 90%, then under certain circumstances the feed element can create a higher vacuum than the vacuum pump. This may allow air to enter the product.

Remedy: set the vacuum to the highest value and reduce the filling speed.

2 Brief description

ROBBY

Overview of machine

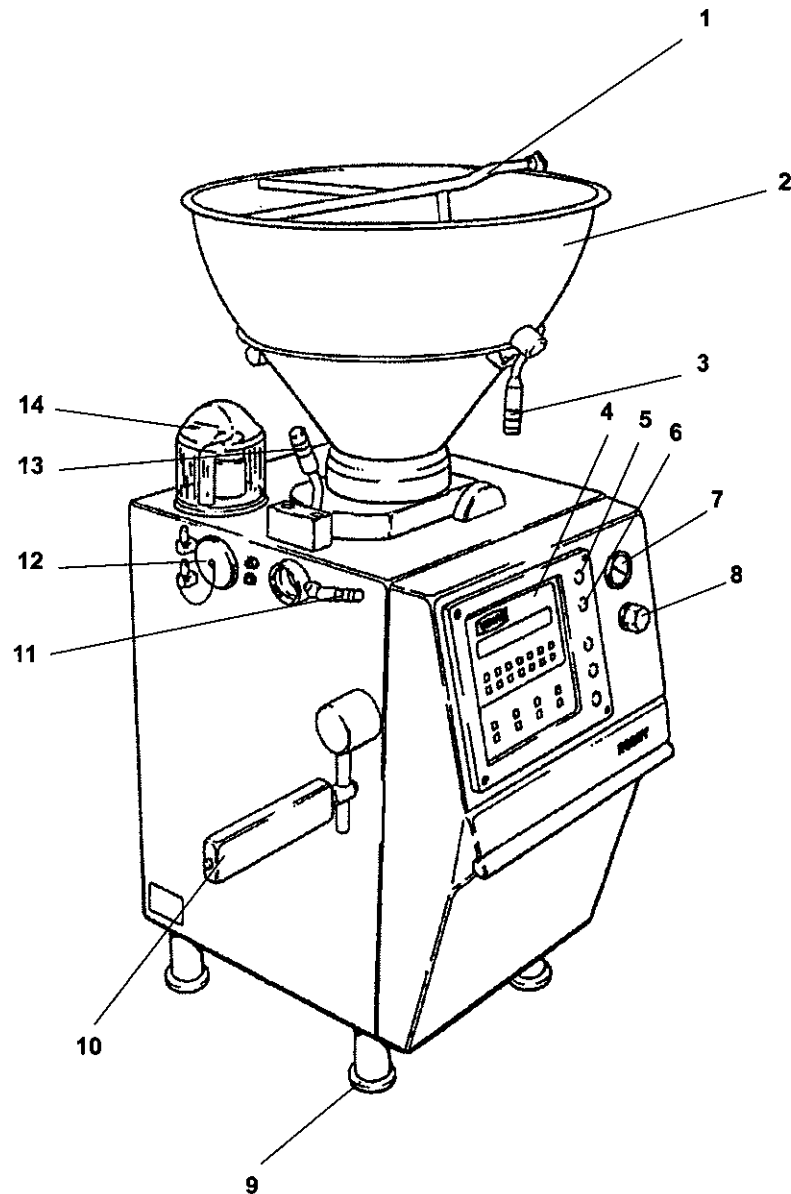


Fig. 2-1: Overview of the ROBBY

- | | | | |
|---|----------------------------------------------------|----|--------------------------------------------|
| 1 | Stopper | 8 | Vacuum control knob |
| 2 | Hopper | 9 | Feet (adjustable in height) |
| 3 | Hopper locking lever
(for upper part of hopper) | 10 | Knee lever |
| 4 | Control panel | 11 | Locknut |
| 5 | PC 880 portioning computer | 12 | Connection point |
| 6 | ON switch (machine ON) | 13 | Hopper locking lever
(for whole hopper) |
| 7 | OFF switch (machine OFF) | 14 | Vacuum sight glass |
| | | | |

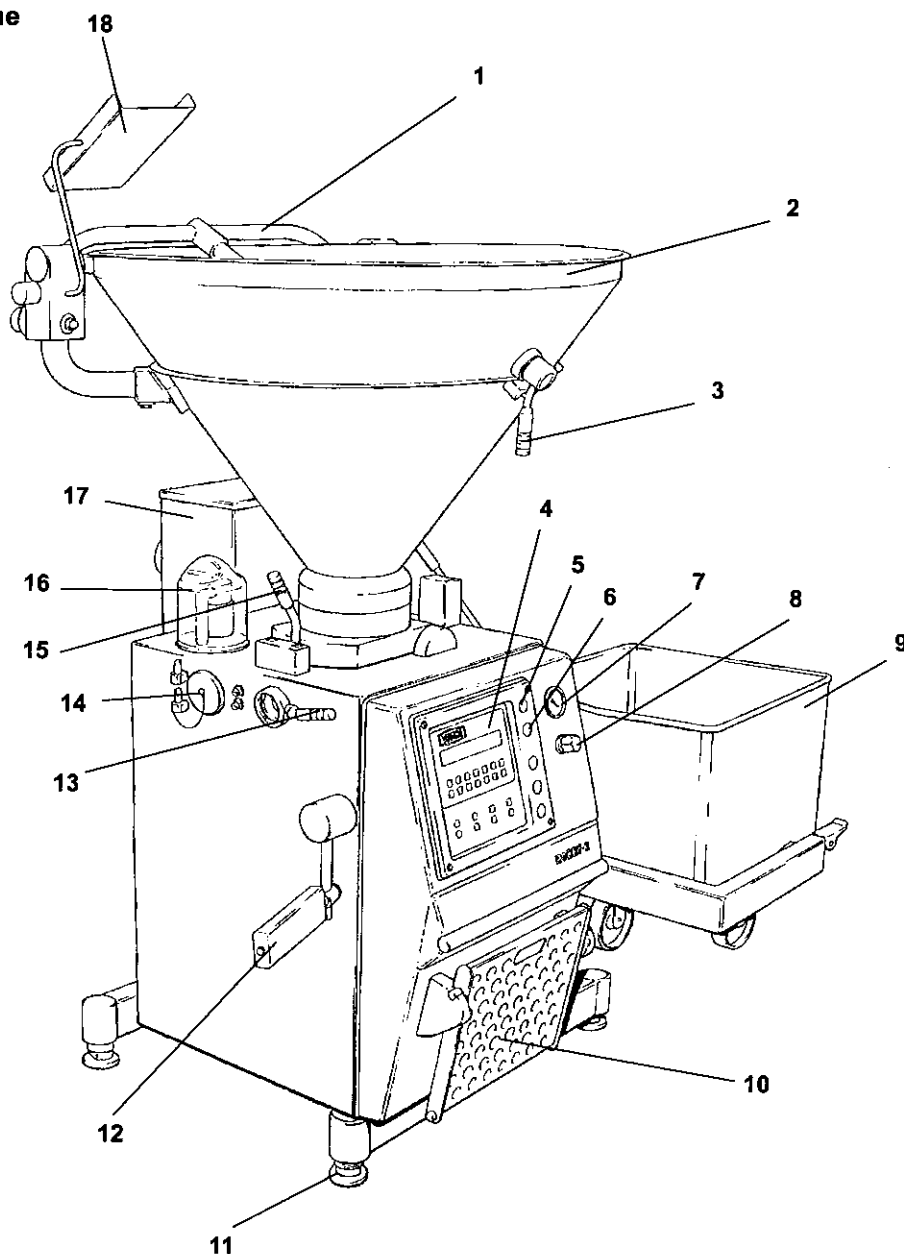
ROBBY-2**Overview of machine**

Fig. 2-2: Overview of the ROBBY-2

1	Stopper	11	Feet (adjustable in height)
2	Hopper	12	Knee lever
3	Hopper locking lever (for upper part of hopper)	13	Locknut
4	Control panel PC 880 portioning computer	14	Connection point
5	ON switch (machine ON)	15	Hopper locking lever (for whole hopper)
6	OFF switch (machine OFF)	16	Vacuum sight glass
7	Vacuum display	17	Lifting and tipping device (option)
8	Vacuum control knob	18	Mirror (for 150 and 230-l hopper)
9	Trolley (option)		
10	Fold-out step (option)		

Hopper

The machines are equipped with a split hopper. The upper part of the hopper can be tipped back to allow the hopper to be fed or cleaned (Fig. 2-3). When the upper part of the hopper is closed, the whole hopper can be tipped open once the locking lever has been released (Fig. 2-4).

For safety reasons the machine *must* be switched off before the hopper is opened.

The machine may not be restarted until the hopper is completely closed.

On the ROBBY-2, the 150-I and 230-I hoppers are equipped with a mirror to check the contents of the hopper.

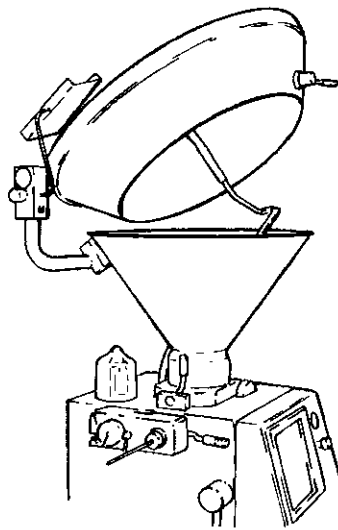


Fig. 2-3

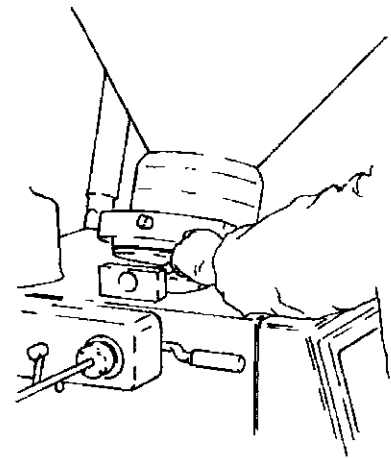


Fig. 2-4 Opening the whole hopper
(turn machine off beforehand)

Adjustable feet

To compensate for unevenness in the floor, the feet of the machine can be adjusted in height (Fig. 2-5). The outlet height can be varied by up to 40 mm upwards using the feet.

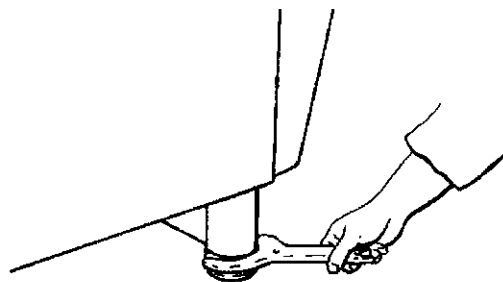


Fig. 2-5

Controls

The following controls can be found on the machine (Fig. 2-6):

- 1. PC 880 portioning computer control panel (see PC 880 operating instructions)
- 2. ON switch (machine ON)
- 3. OFF switch (machine OFF)
- 4. Vacuum display
- 5. Vacuum control knob
- 6. Control for lifting and tipping device (option on ROBBY-2)
 - 6a UP
 - 6b STOP
 - 6c DOWN

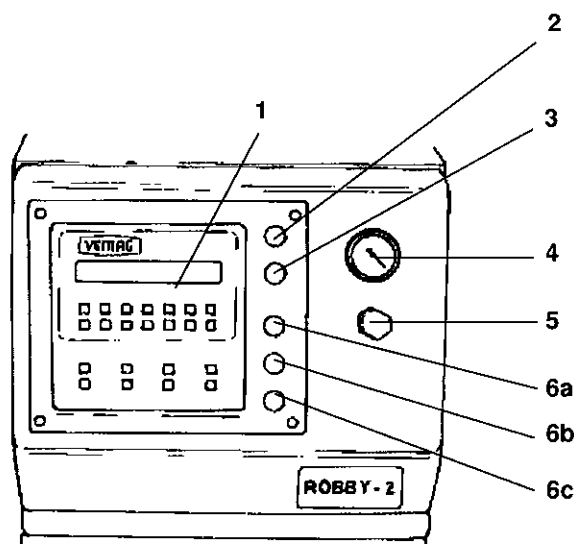


Fig. 2-6

Feed screw and stopper

In the lower part of the hopper, the product is compressed by the feed screw and fed in the direction of the rotary vane pump. It is transported into the chambers of the rotary vane pump with the aid of the vacuum. When filling raw sausage, the stopper in the upper part of the hopper is also used (only with the hopper closed).

Feed element

The rotary vane pump consists of a housing, a rotor and vanes. The pump pumps the same volume for every rotation. The air in the product is drawn out by the vacuum system.

Portioning

The product can be ejected either continuously or in individual portions. When portioning, the number of revolutions of the rotor is a measure of the weight of the individual portion. The individual portions can be linked in the pauses between portions.

Knee lever

The filling process is switched on and off using the knee lever. It can be adjusted to suit different heights of operator.

Emergency control

Should the electronics fail, the machine can be operated using emergency control.

ROBBY: open the angled machine cover, unscrewing 5 screws in the process (Fig. 2-7, 1).

ROBBY-2: open the back of the machine housing (Fig. 2-8, 1), unscrewing 4 screws in the process.

There is a rocker switch in the upper left-hand corner on the back of the control panel and this must be switched on. (0: emergency control OFF, 1: emergency control ON).

Start the machine using the knee lever. If the PC 880 display is intact, the message "EMERGENCY CONTROL" appears. The machine can straight-fill at approx. 50% of nominal speed in this operating mode, or the hopper can be run empty.

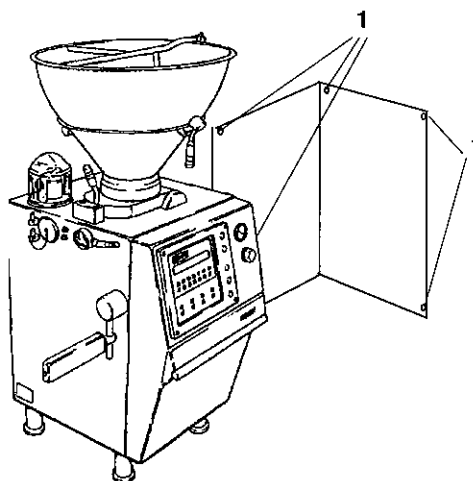


Fig. 2-7

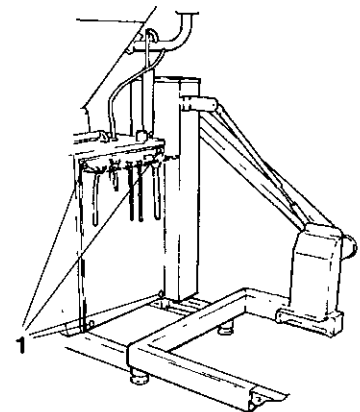


Fig. 2-8

**Linking gear
(option)**

The linking gear can be swivelled in front of the outlet and locked in position using the locknut (Fig. 2-9). It can be kept in place and removed easily using the two bearing journals on the machine frame.

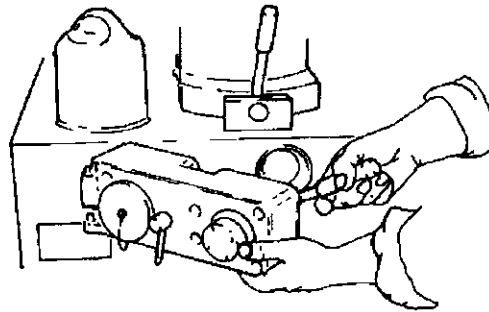


Fig. 2-9

3 Installation

Location

The machine must stand firmly on all four feet. If necessary, the adjustable feet can be used to compensate for any unevenness in the floor (Fig. 3-1). The screwed feet enable the height of the outlet to be adjusted by 40 mm.

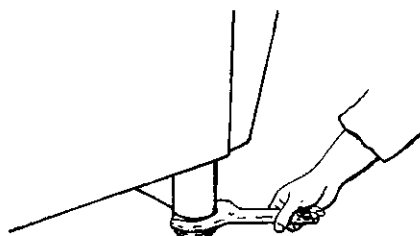


Fig. 3-1

Electrical connection

WARNING!

The electrical connection may only be made by authorised specialist personnel or specialist companies.

The electrical connection must be made by an electrical specialist. The machine is to be connected via a main switch which can be switched off and which is in the line from the mains to the electrical connection of the machine. The main switch must be allocated to the machine in such a way as to rule out any confusion, and correspond to the requirements of DIN VDE 0113 Part 1 or EN 60 204 Part 1, electrical equipment for industrial machinery.

When working on the drive or electrical system, the machine *must* be disconnected from the mains.

The electrical equipment is inside the machine frame and protected by additional covers. This protects against splashes in accordance with IP 65.

Connection line:

the ROBBY is equipped with a 4 x 4 mm² copper cable (3 x phase, 1 x earth wire) and the ROBBY-2 with a 4 x 6 mm² copper cable (3 x phase, 1 x earth wire).

The connection values are specified in Chapter 8 - TECHNICAL DATA.

Checking direction of rotation of motor

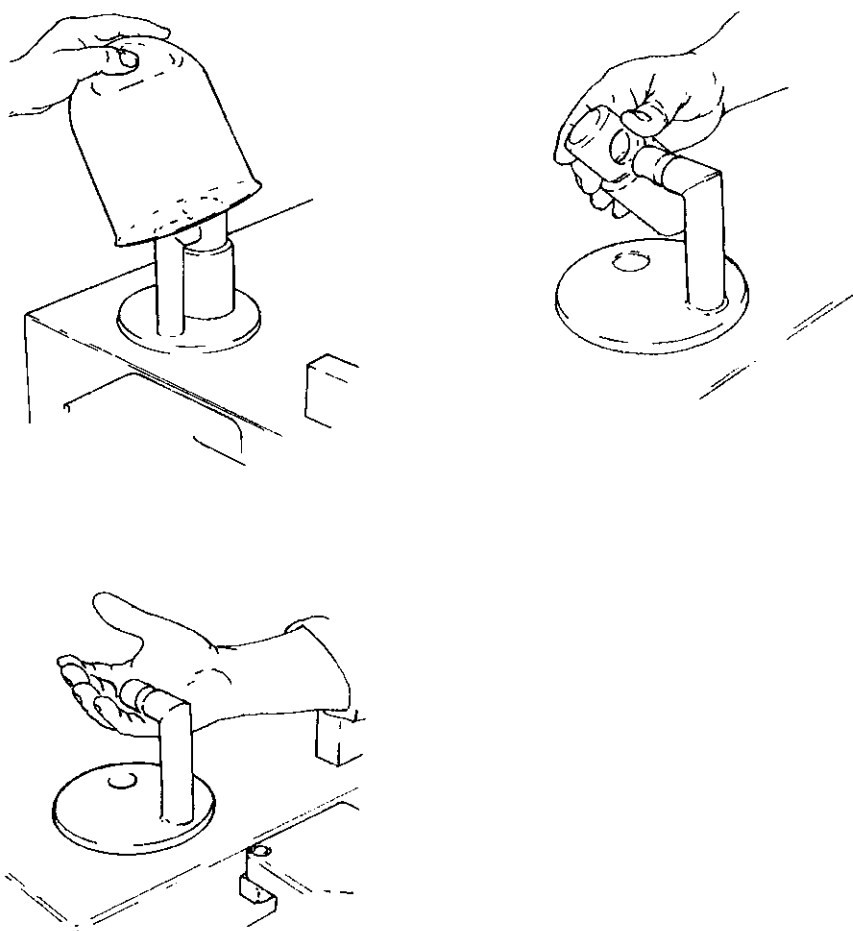
WARNING!

After the electrical connection has been made, you must check whether the individual phases of the alternating current supply are connected in accordance with the specification. If the phases are incorrectly wired, the motors start up in the wrong direction of rotation.

The machine may not be operated for over 10 seconds in the wrong direction of rotation!

This is how to check the direction of rotation of the motor:

- Take off vacuum sight glass (Fig. 3-2)
- Grasp vacuum valve at the top on the plastic part and draw off horizontally (Fig. 3-5)
- Switch the machine on.
- Air must be drawn in through the vacuum line which has been freed (Fig. 3-4). If this is the case, the direction of rotation is correct.
- If no air is drawn in, the phases must be changed over
- To do so, switch machine off and disconnect from the mains.
- Check again as described.

*Fig. 3-4*

Lifting and tipping device (option on ROBBY-2)

Setting up the trolley hoist

The trolley hoist of the lifting and tipping device is set at the factory with the feet of the machine screwed in and on a level floor (filling height = 1000 mm).

If the floor is at an angle or if the feet of the machine are screwed out, the stop parts on the lifting and tipping device must be reset to obtain the correct entry height for the trolley:

- Adjust the 4 feet on the machine using the WAF 30/46 universal spanner, order no. 134.030-010, so that they rest firmly on the ground.
- Release the stop bar (Fig. 3-5, 1 and 3-6, 1) by unscrewing two bolts (Fig. 3-5, 2) with the WAF 17 spanner (order no. 134.069.120-171).
- Push the stop bar in the direction of the machine.

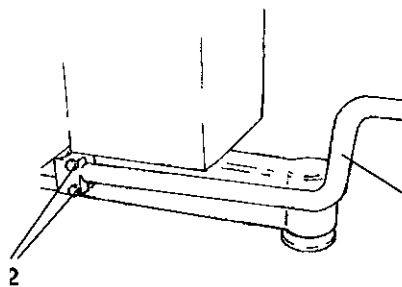


Fig. 3-5

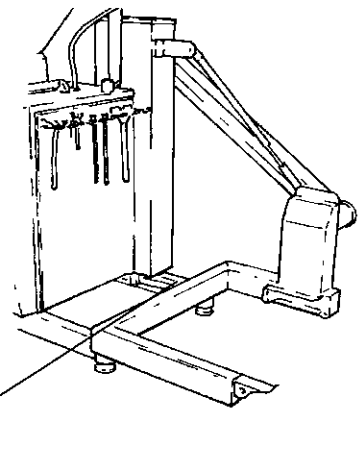


Fig. 3-6

Adjusting entry height

- to set the correct trolley entry height, take off the top cover of the lifting and tipping device.
- Lower stop (Fig. 3-7, 1): unscrew locknut (WAF 30) and turn the stop down anti-clockwise using an Allen key (WAF 10). Check entry height. The trolley hoist must be horizontal.
- If the entry height is correct, tighten up locknut again. The factory setting of the tipping position is retained.
- Close the cover.

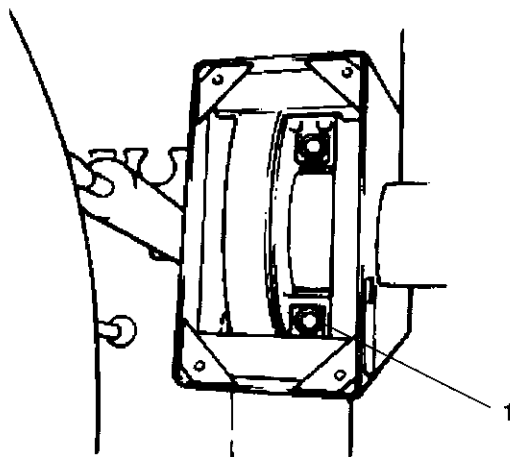


Fig. 3-7

Adjusting trolley hoist (Fig. 3-8, 5):

- Unscrew stop bolt (Fig. 3-8, 6) and locknut (3-8, 7) using the WAF 30 universal spanner (order no. 134.030-010).
- Adjust the trolley hoist (Fig. 3-8, 5) so that it is horizontal at the new entry height.
- Tighten the stop bolt and the locknut securely.

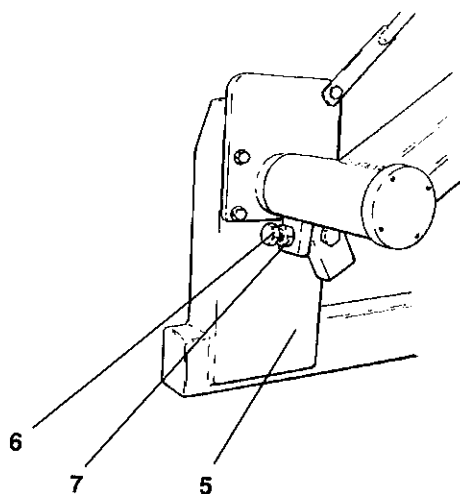


Fig. 3-8

- When the lift and the trolley hoist are adjusted after the rearrangement, the stop bolt (Fig. 3-9, 1) is tightened back up to a distance "a" of 5 to 10 mm from the trolley hoist (Fig. 3-9, 3) and reattached with the bolts (Fig. 3-9, 2).

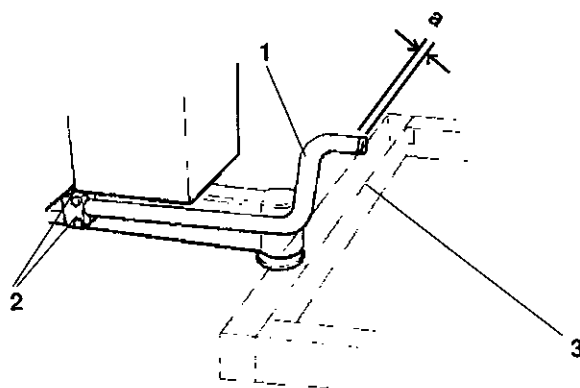


Fig. 3-9

Machine cover

WARNING!
Before switching on the machine, all the machine covers must
be screwed on.
Failure to comply carries the risk of injury!

4 Setting up

Installing the rotor and fitting the vanes in the rotor

The oiled rotor is inserted in the hollow shaft up to the stop (Fig. 4-1) using the rotor lifting tool (order no. 134.030-060). The oiled vanes are inserted by hand into the slits provided in the rotor (Fig. 4-2). Do not use a rubber mallet for this!

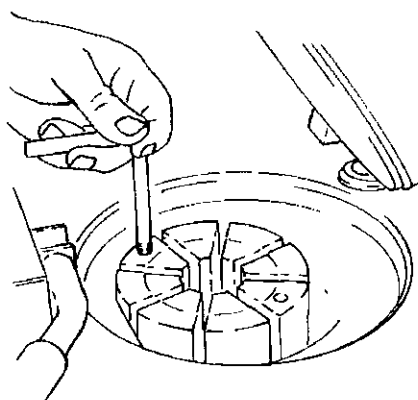


Fig. 4-1

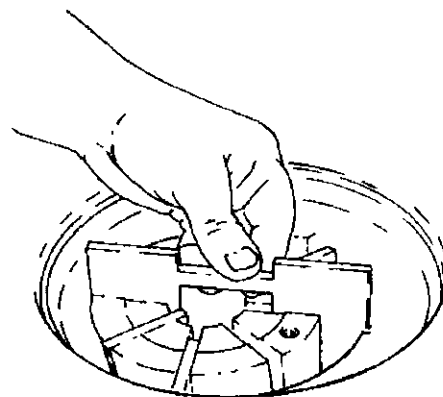
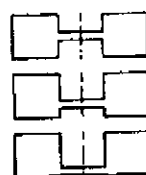
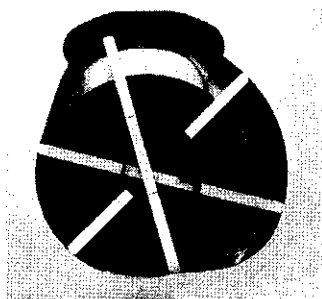


Fig. 4-2

Depending on the number of chambers in the rotary vane pump, the vanes are inserted as follows:

Rotary vane pump with 6 chambers



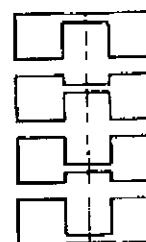
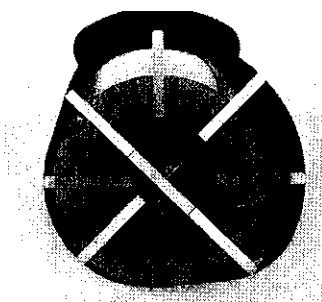
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* 134.233-040

134.233-030

Rotor
134.231-010

Rotary vane pump with 8 chambers



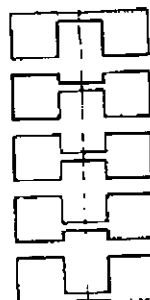
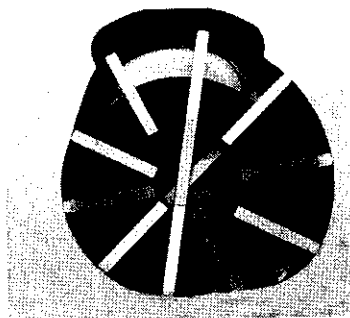
134.233-030

134.233-040

134.233-040

134.233-030

Blank vanes
134.232-070Rotor
134.232-010

Rotary vane pump with 10 chambers

134.233-030

134.233-040

134.233-050

134.233-040

134.233-030

Rotor
134.233-010

Before the hopper is closed, check whether the rotor and the vanes finish flush with the housing. When all the components contact the base of the housing, the hopper can be closed.

Vacuum system

- Pull the cleaning shut-off plug off the standpipe and put it on the holder on the hopper hinge (Fig. 4-3).
- Put the protective screen on the vacuum float valve and push the valve onto the standpipe (Fig. 4-4).
- Put the vacuum sight glass on.

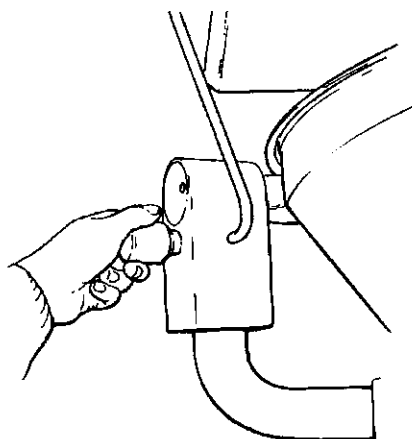


Fig. 4-3

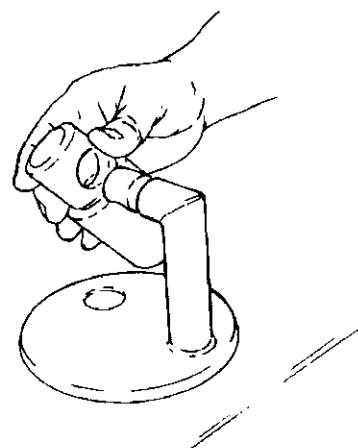


Fig. 4-4

Note:

If the vacuum is set to a value less than 90%, then under certain circumstances the feed element can create a higher vacuum than the vacuum pump. This may allow air to enter the product.

Remedy: set the vacuum to the highest value and reduce the filling speed.

Liver sausage plug

The liver sausage plug (Fig. 4-5,1) is used only for liquid products.

- Push the liver sausage plug into the opening to the feed element and secure it with the clip on the vacuum float valve.

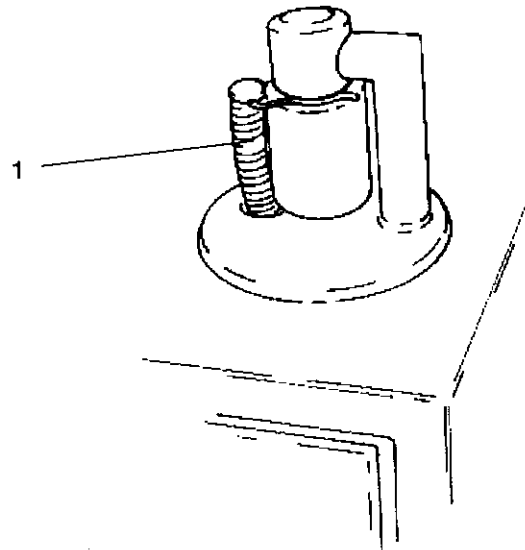


Fig. 4-5

Using the filling horn

Select the filling horn with the largest possible diameter in relation to the calibre of the casing.

For selection of filling horns, see Chapter 9.

The filling horn is attached with the locknut (Fig. 4-6, 1).

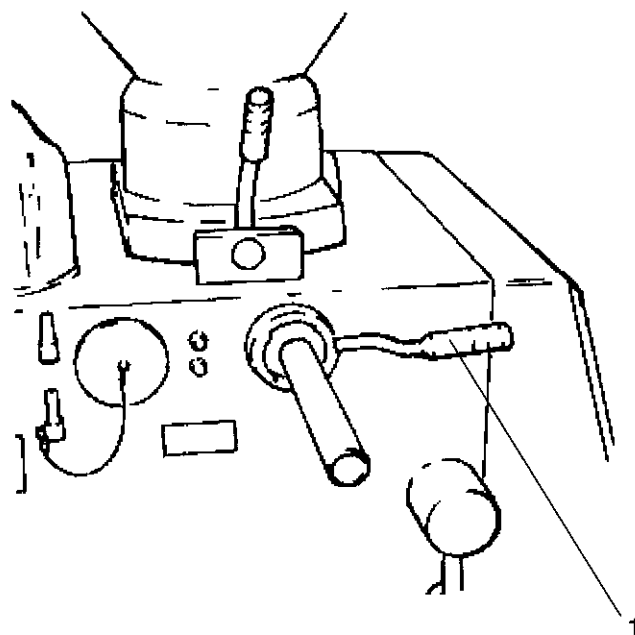


Fig. 4-6

Using the linking horn

Select a linking horn with the largest possible diameter and shortest possible length. For selection of linking horns, see Chapter 9.

- Insert the linking horn in the linking head.
- Hold the linking head firmly either with the universal spanner (order no. 134.030-010 or by pulling the locking lever on the underside of the linking gear (Fig. 4-7). **ATTENTION! Left-hand thread!**
- Screw up the linking nut with the guard ring spanner (order no. 892.031-000).

Direction of rotation at the linking nut:

Tighten: anti-clockwise

Unscrew: clockwise

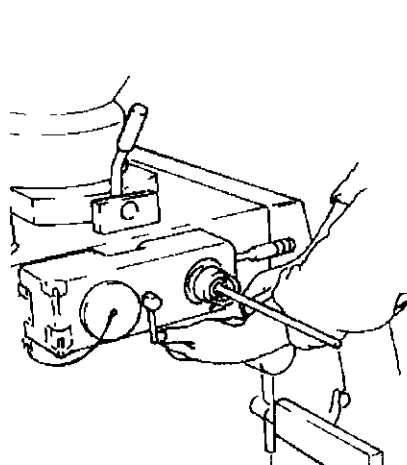


Fig. 4-7

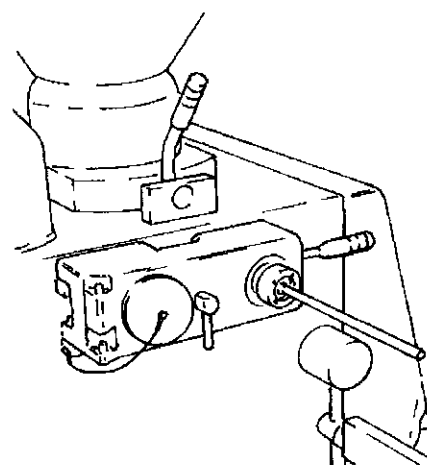


Fig. 4-8

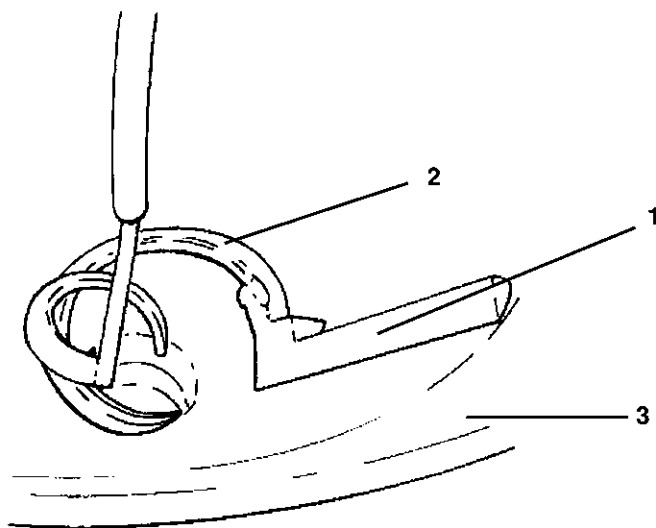
Using the scraper

For product which tends to stick to the hopper wall (3), a scraper can be installed in the hopper.

The short scraper must be used to process raw sausage.

Installation:

- Push the scraper (Fig. 4-9, 1) onto the retaining bolt on the feed screw (Fig. 4-9, 2) and engage.

**Using the stopper**

The stopper (Fig. 4-10, 1 and 4-11, 1) is used in combination with the short scraper when filling raw sausage.

ROBBY: the stopper is inserted into two bores directly on the upper part of the hopper and tightened with the screwed spindie (Fig. 4-10, 2) on the outer edge of the hopper.

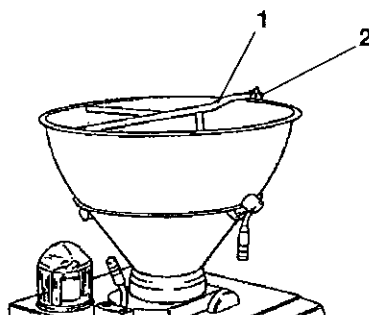


Fig. 4-10

ROBBY-2: the hook on the stopper is put onto 2 bolts on the hopper bracket, and each is locked with a clamping handle (Fig. 4-11).

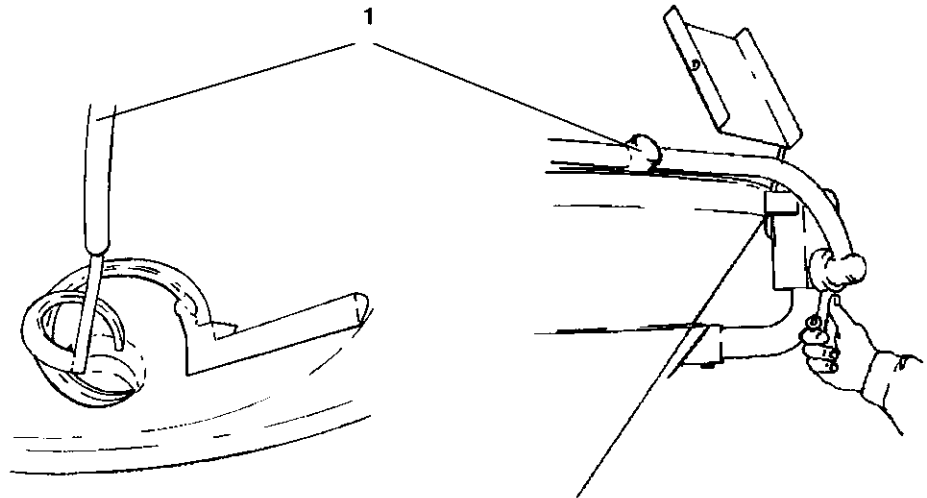


Fig. 4-11

Adjusting the knee lever

The knee lever can be adjusted in terms of height, angle and reach to suit the operator (Fig. 4-12).

Adjusting height and angle:

- After unscrewing the hexagonal nut (WAF 30), the height (H) and angle (W) of the knee lever can be adjusted.

Adjusting reach:

- The knee lever plate can be brought forward or pushed back on the lever shaft to give different reaches. The plate can also be taken off completely.

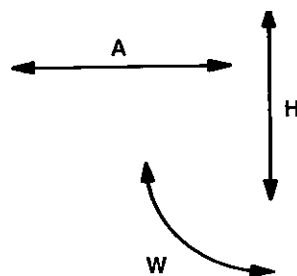


Fig. 4-12

5 Cleaning

The machine must be cleaned daily. The following procedure is recommended:

WARNING!

The machine must be switched off using the OFF switch before cleaning work is commenced.

The machine must also be disconnected from the mains by switching off the main switch on the wall. Failure to comply carries the risk of injury.

5.1 Removing parts to be cleaned

Removing the filling horn

- Unscrew locknut and remove the filling horn.

Removing the rotor and vanes

- To remove the rotor, the rotor lifting tool is screwed into one of the two dismantling bores (Fig. 5-1).
- The rotor is lifted up slightly and the vanes can be removed (Fig. 5-2).

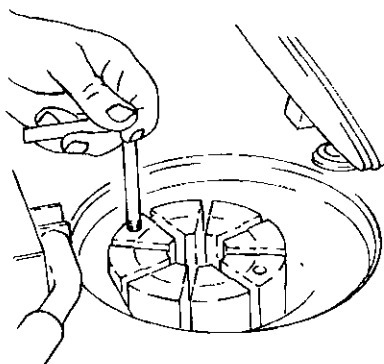


Fig. 5-1

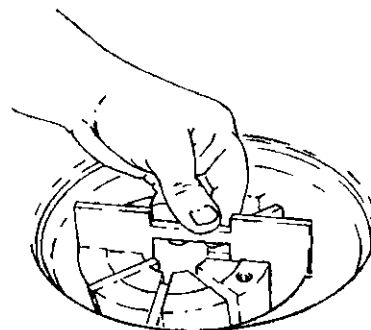


Fig. 5-2

- After the vanes have been removed, the rotor can be taken out completely.

Shutting off the vacuum system

This is how you shut off access to the vacuum pump:

- Take off the vacuum sight glass and remove the float valve from the standpipe (Fig. 5-3).
- Take the shut-off plug for the standpipe off the bracket on the hopper hinge (Fig. 5-4) and put it on the standpipe (Fig. 5-5).

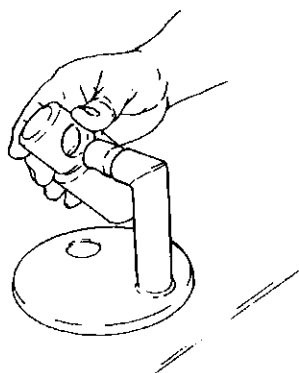


Fig. 5-3

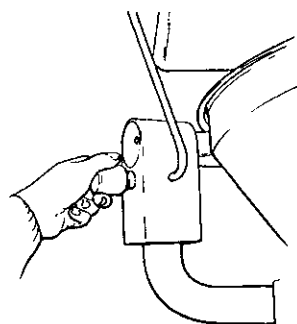


Fig. 5-4

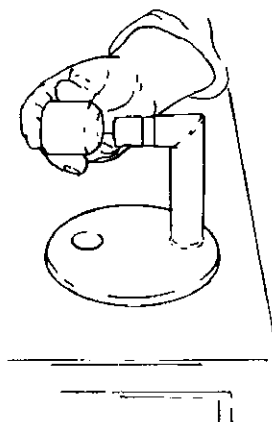


Fig. 5-5

Removing the stopper and scraper

To remove the stopper, the hopper must be closed.

ROBBY:

- Unscrew the screwed spindle on the outer edge of the hopper (Fig 4-10).
- Lift the stopper out of the two attachment bores on the upper part of the hopper.

ROBBY-2

- Unscrew the two locking clamps (5-6, 1) on the hopper bracket and draw the stopper off the two bolts.

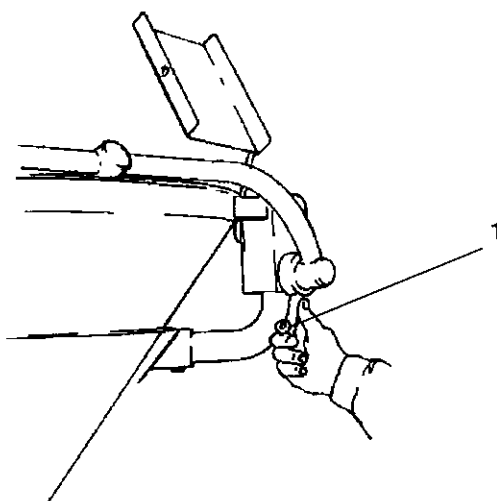


Fig. 5-6

- The scraper is taken off its bracket with the hopper open.

Removing the linking horn

To remove the linking horn:

- Lock the linking head by pulling on the locking lever on the underside of the linking gear (Fig. 5-7).

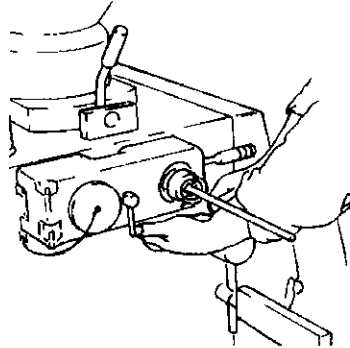


Fig. 5-7

- Unscrew the linking nut with the guard ring spanner (order no. 892.031-000). ATTENTION! Left-hand thread: Unscrew clockwise.
- Remove the linking horn.
- Unscrew the locknut anti-clockwise (approx. 60°) until the linking gear is free and can be swivelled away (Fig. 5-8).

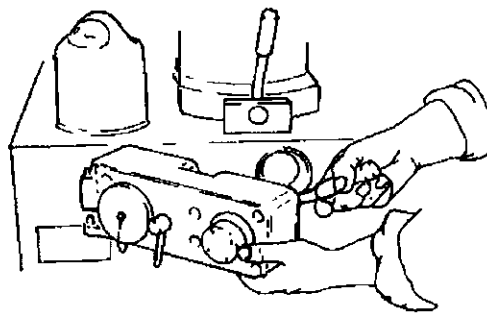


Fig. 5-8

- Turn the locknut in the vertical position (so that the handle points upwards or downwards) until the bayonet lugs of the linking gear are free and the locknut can be taken off the linking gear.

5.2 Cleaning

Clean the machine, the linking gear, the feed screw and all the components removed thoroughly with hot water and a brush and then dry them.

The machine is suitable for cleaning with low-pressure cleaning equipment (max. 30 bar).

WARNING!

**Do not clean the feed element when still assembled.
Do not aim the jet of the cleaning equipment directly at the sealing
elements and the control panel.
Failure to comply carries the risk of injury.**

You must observe:

- the distance of the mouthpiece from the surface of the machine specified in the operating instructions of the cleaning equipment
- current and product-specific hygiene regulations

Cleaning summary

Details refer to single shift operation

What has to be done?	Cleaning agent	Process	Equipment	Notes
Rough cleaning, removal of product residues (if necessary, remove small pieces first)		by hand, mechanically	spatula, scraper (Schlesinger) Clean M10 thread in rotor with a bottle brush	Begin directly after production ends
Thorough initial rinse	water	• water jet max. 25 bar, temperature max. 60° C, depending on fat softening point	low-pressure equipment, hose	Clean small parts at the same time
Visual check of cleanliness		• visual		
Alkaline cleaning	free of activated chlorine, alkaline, concentration, depending on degree of contamination, as low as possible and in accordance with manufacturer's instructions	• foam or clean by hand, leave to act for approx. 15 minutes	low-pressure foam equipment (max. 25 bar), hand spray, brush, bowl	Carry out daily, clean small parts at the same time
or instead: acid cleaning to remove lime deposits	free of activated chlorine, acid, concentration, depending on degree of contamination, as low as possible and in accordance with manufacturer's instructions	• foam or clean by hand, leave to act for approx. 15 minutes	low-pressure foam equipment (max. 25 bar), hand spray, bowl	Frequency as required
Rinse	Drinking water	• water jet max. 25 bar, temperature 50 to 60° C	low-pressure equipment, hose	Whole system and small parts
Visual check of cleanliness		visual		Pay special attention to feed system, small parts
Disinfect (after all the cleaning measures in the room have been completed)	disinfectant free of activated chlorine, concentration, depending on degree of contamination, as low as possible and in accordance with the manufacturer's instructions	• spray, foam, leave to act in accordance with manufacturer's instructions	low pressure equipment (max. 25 bar), hand spray	Whole system and small parts
Rinse off	drinking water	• water jet max. 25 bar	low-pressure equipment, hose	Rinse off in accordance with Meat Hygiene Order, Appendix 2, II, 4
Drying and polishing	edible oil	• spray	hand spray	Particularly feed system

5.3 Greasing and assembly

- Grease or oil all the removed, cleaned and dried components apart from the vacuum system parts with bacon rind or lard, or a corrosion-inhibiting oil or grease which is approved for use in the foodstuffs industry. The seals in the feed unit drive (Fig. 5-9) and the feed element (Fig. 5-10) must be lubricated once a week with grease which is approved for contact with foodstuffs.
- Connect the grease gun supplied to the lubricating nipple and effect two pump strokes with the feed running.

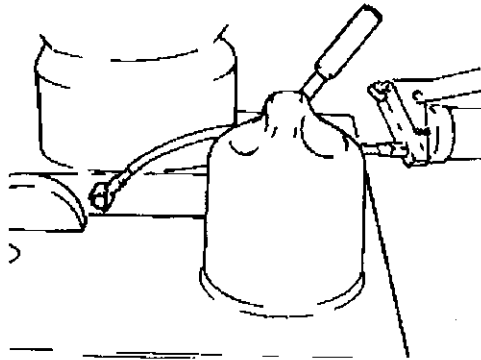


Fig. 5-9

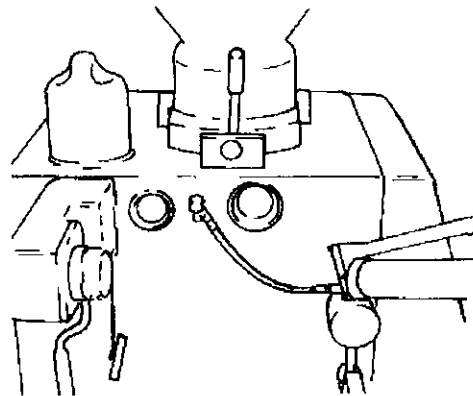


Fig. 5-10

- Remove the grease which escapes at the relief bores.

After cleaning and greasing, reassemble the individual parts in reverse sequence.

It is advantageous to leave the parts overnight and not to reassemble the machine until work starts the next morning.

6 Troubleshooting

WARNING!

Work on the electrical control may only be carried out by a suitably trained specialist.

Fault	Cause	Remedy
Machine will not start, display reads: "START MACHINE PLEASE"	a) Escaping from the side, b) hopper, or c) hinged housing.	Hold down ON button until source of fault appears in the display. Check the item indicated. If the machine still fails to start, call VEMAG Service.
Main motor and vacuum motor not running	<ul style="list-style-type: none"> • No mains voltage • Main switch not on • Fuse F23/F24/F25 defective • Main drive or vacuum drive overheated 	<p>Have machine back-up fuse changed by electrician</p> <p>Switch on main switch</p> <p>Have fuses on control panel changed by electrician</p> <p>Fan not running; have fuse F30 on the control panel changed by electrician.</p> <p>Vacuum pump full of water; check (fault shown in display)</p>
Vacuum motor running, but main motor is not	<ul style="list-style-type: none"> • Hopper not closed, feed element open 	Make machine ready for operation (faults shown in the display)
Main motor is running but vacuum motor is not	<ul style="list-style-type: none"> • Contactor K5 defective 	Have contactor changed by electrician
Main motor running, but feed unit drive is not	<ul style="list-style-type: none"> • Fuse F51 defective • Knee lever switch incorrectly set or defective 	<p>Have fuse on power unit changed by electrician (fault shown in display)</p> <p>Have knee lever switch checked by electrician and adjusted or replaced if necessary</p>

Fault	Cause	Remedy
	<ul style="list-style-type: none"> • Fuse F2/F3/F4/F5/F6/F9 defective or F33 on control panel defective • Proportional amplifier, relief valve, power electronics component or Portiomat defective • Feed system blocked • Encoder or wiring for encoder defective 	<p>Have fuses on power supply unit or control panel changed by electrician (fault shown in display)</p> <p>Have the parts indicated in the "Cause" column replaced by an electrician</p> <p>Remove blockage</p> <p>Have the parts indicated in the "Cause" column checked by an electrician (fault shown in display)</p>
Machine feeds continuously	<ul style="list-style-type: none"> • Knee lever defective • Relief valve defective • Portioning component or power electronics component defective, proportional amplifier defective 	<p>Have parts in the "Cause" column checked by an electrician</p> <p>Call VEMAG service</p> <p>Have parts replaced by electrician</p>
Display does not light up	<ul style="list-style-type: none"> • Fuse F1/F8 defective • Fuse F31/F32 defective • Display, power supply or Portiomat component defective • Plug connections between Portiomat power electronics component or power electronics component and control panel have worked loose 	<p>Have fuse on power supply unit changed by electrician</p> <p>Have fuse on control panel changed by electrician</p> <p>Have the parts indicated in the "Cause" column replaced by electrician</p> <p>Have plug connections checked by electrician</p>

Fault	Cause	Remedy
Linking failed or unsatisfactory	<ul style="list-style-type: none"> • Wiring defective, valve 43 defective • Power component or Portiomat defective • Fuse F50 defective 	<p>Have wiring checked by electrician</p> <p>Replace the parts indicated in the "Cause" column</p> <p>Have fuse on power unit changed by electrician (fault shown in display)</p>
Vacuum level not reached, vacuum unstable instabil	<ul style="list-style-type: none"> • Leak in the vacuum system • Oil in the pump contaminated • De-oiler contaminated 	<p>Check vacuum system</p>
Lifting/tipping device not working	<ul style="list-style-type: none"> • Lift motor not actuated • Component of the lifting and tipping device defective • Contactor K1 defective • Valve Y1 defective 	<p>See under "Main motor and vacuum motor not working" and "Vacuum motor running, but main motor is not".</p> <p>Check switches S8, S9, S10, see Chapter 2, "Controls".</p> <p>Check fuses F1, F2, F3, F4. These are located in the lift housing on a separate lift control.</p> <p>Replace parts</p>

Fault	Cause	Remedy
Air trapped in product	• Worn vanes	Check vanes
	• Vacuum fluctuating or too low	Check vacuum system for leaks. If the vacuum gauge is fluctuating, the vacuum pump is taking in air. Check whether the float in the valve is jammed. If the vacuum is set to a value less than 90%, then under certain circumstances the feed element can create a higher vacuum than the vacuum pump. This may allow air to enter the product. Remedy: set the vacuum to the highest value and reduce the filling speed.
	• Too much air blended in	Use mixing speed during the final cutting phase
	• Vacuum system blocked	Check complete vacuum system for free flow.
	• Feed unit not working properly	Check function position
Weight fluctuations	• Worn vanes	Check vanes
	• Vacuum too low, vacuum unstable (vacuum gauge fluctuating)	Close vacuum control knob
	• Digital encoder defective	Replace digital encoder
	• Component defective	Replace component
	• Feed not working properly	Check function position

Fault	Cause	Remedy
Drop in output	<ul style="list-style-type: none"> • Vanes worn • Vacuum too low • Feed unit not working properly 	<p>Check vanes</p> <p>Check vacuum setting. The vacuum should be set so that there is not yet any product in the vacuum pot.</p> <p>Check function.</p>
Raw sausage smears	<ul style="list-style-type: none"> • Insufficient vacuum, vacuum unstable • Product temperature too high (depends on product) • Feed not working properly 	<p>Check vacuum system for leaks (see Chapter 8)</p> <p>Reduce temperature</p> <p>Check function.</p>

7 Maintenance

WARNING!

The machine must be switched off using the OFF switch before any maintenance work is carried out. The machine must also be disconnected from the mains by switching off the main switch on the wall. Failure to comply carries the risk of injury.

Apart from daily cleaning, the machine needs very little maintenance.

To maintain the drive mechanism, the cover of the machine must be taken off. It is then easy to carry out all the necessary maintenance work.

The lubricants and quantities of lubricant required are given in Chapter 9.

7.1 Maintenance plan - brief overview

The PC Portiomat automatically indicates the maintenance due and shows the number of hours given in the "operating hours" column.*

Maintenance interval (with single shift operation)	or after every ... operating hours	Machine part	What has to be done?
weekly	20	Feed unit drive seals	<ul style="list-style-type: none"> Lubricate 2x a week with the machine running. Use only high-performance grease which is approved for contact with food-stuffs and is resistant to cleaning agents and disinfectants
	20	Feed element seal	
	40	Vacuum pump	<ul style="list-style-type: none"> Check air filter in front of vacuum pump for contamination Check oil level
monthly	160	Hydraulic drive	<ul style="list-style-type: none"> Check oil level
	160	Transmission	<ul style="list-style-type: none"> Check oil level
	160	Vacuum pump	<ul style="list-style-type: none"> Check air de-oiling element Check gas ballast valve
quarterly	500	Vacuum pump	<ul style="list-style-type: none"> Change oil
six-monthly	1000	Vacuum pump	<ul style="list-style-type: none"> Clean suction flange Clean fan hood
	1000	Lifting and tipping device (option)	<ul style="list-style-type: none"> Check oil level
annually	2000	Hydraulic drive	<ul style="list-style-type: none"> Change oil Change filter cartridge
	2000	Transmission	<ul style="list-style-type: none"> Change oil
	2000	Vacuum pump	<ul style="list-style-type: none"> Change air de-oiling element
	2000	Lifting and tipping device (option)	<ul style="list-style-type: none"> Change oil Grease chain Have chain checked for wear

* Please note: all the maintenance work contained in the number of operating hours must be carried out at once: e.g. when "2000 operating hours" are shown, the maintenance work for 1000, 500, 40 and 20 operating hours must be carried out as well.

7.2 First-time maintenance work

Hydraulic drive - changing the oil:

The hydraulic oil should be replaced after the first 1000 operating hours or six months, and every 2000 operating hours thereafter, but at least every two years (see Chapter 7.7).

Hydraulic drive - changing the filter cartridge:

The filter cartridge of the hydraulic drive must be replaced every time the oil is changed (see Chapter 7.7).

Changing the transmission oil:

The transmission oil must be changed for the first time after one year and at the latest every 2 years thereafter (see Chapter 7.7).

Vacuum pump - changing the oil:

The oil in the vacuum pump must be changed for the first time after 100 operating hours, and at the latest every quarter thereafter (see Chapter 7.5).

7.3 Weekly maintenance

Feed unit drive seals and feed element seal

Feed unit drive seals and feed element seal:

- With the machine running, lubricate the feed screw drive (Fig. 7-1) and the feed element seal (Fig. 7-2) with edible grease until grease escapes from the relevant relief bores.
To do so, connect the grease gun supplied to the appropriate lubricating nipple.

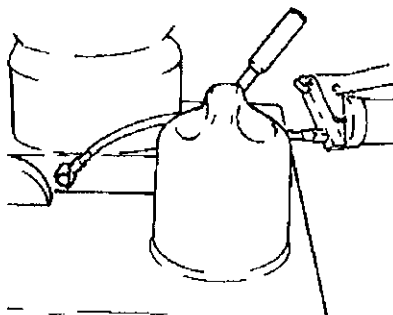


Fig. 7-1

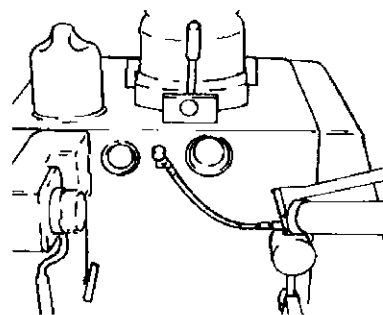


Fig. 7-2

If no grease or only highly-contaminated grease escapes at the relief bore, the seals must be checked by trained service personnel and replaced if necessary.

Vacuum pump

Air filter of the vacuum pump:

An air filter (Fig. 7-3, 1) is installed in the intake line of the vacuum pump.

- Check the filter cartridge weekly for contamination and replace if necessary.

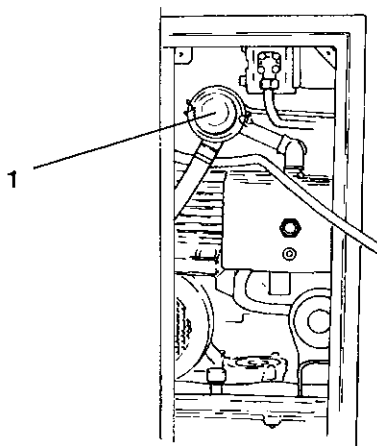


Fig. 7-3

Oil level in the vacuum pump:

The oil level of the vacuum pump is checked at the oil sight glass (Fig. 7-4, 3). If the oil level drops below the MIN mark next to the oil sight glass, the oil should be replenished.

- Pour in oil until the oil level has reached the MAX mark.
For grade of oil see Chapter 9.3.

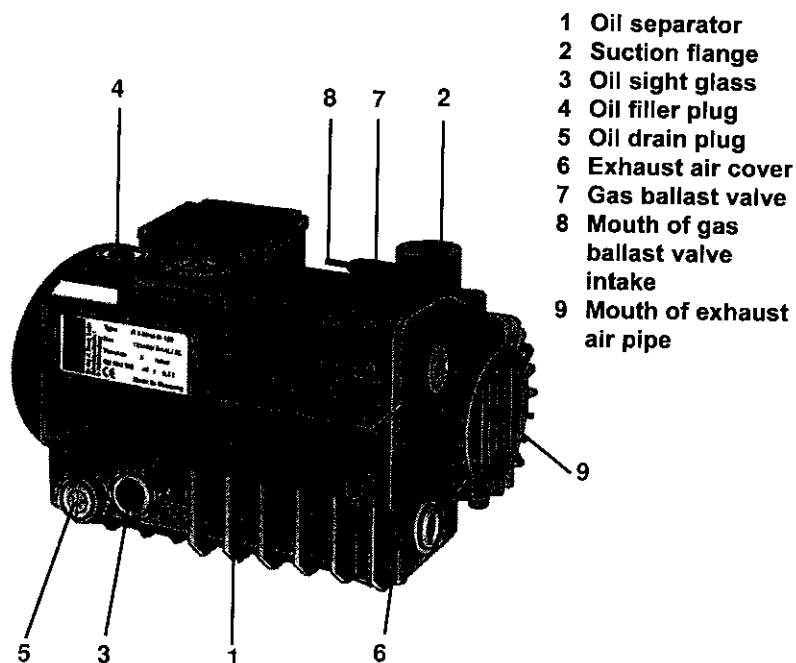


Fig. 7-4

If the oil level is too high when checked, water has accumulated in the oil reservoir. This can occur if the machine is operated for only brief periods or if water has entered the suction line of the vacuum pump during cleaning. If necessary, change the oil.

Hint: when cleaning, put the shut-off plug on the standpipe (see Chapter 5.1 - Shutting off vacuum system).

Contaminated oil should always be changed.

7.4 Monthly maintenance

Hydraulic drive:

The oil level in the hydraulic drive must be checked monthly. The dipstick with MIN/MAX markings (Fig. 7-5, 1) which is attached to the cover of the venting plug (Fig. 7-5, 2) is used for this. If oil has been lost, then hydraulic oil should be added as described in Chapter 9. Considerable or continuous lack of oil indicates a leak which must be eliminated.

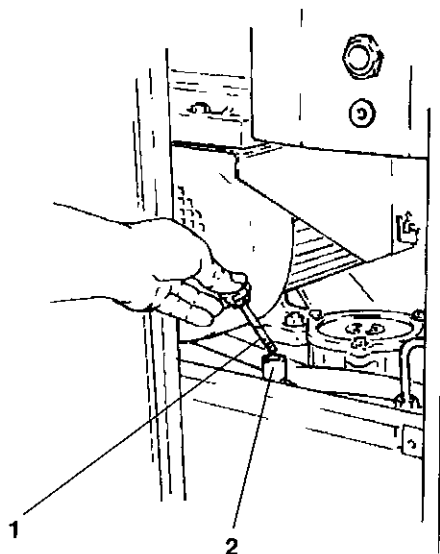


Fig. 7-5

Transmission

The oil level in the hydraulic transmission must be checked monthly. The oil sight glass (Fig. 7-6, 1) must be half-filled with oil.

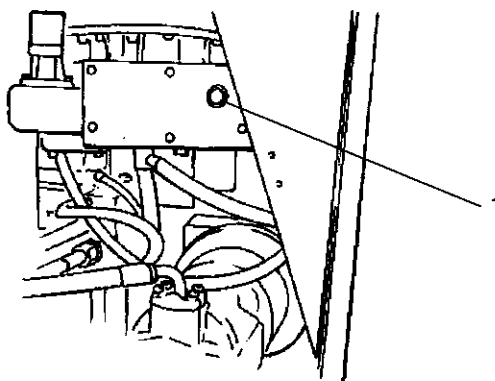


Fig. 7-6

Vacuum pump**De-oiling element in the vacuum pump:**

The de-oiling element must be checked monthly.

If atomised oil escapes from the mouth of the exhaust air pipe (Fig. 7-7, 9) when the vacuum pump is operated, the air de-oiling element must be changed (see annual maintenance).

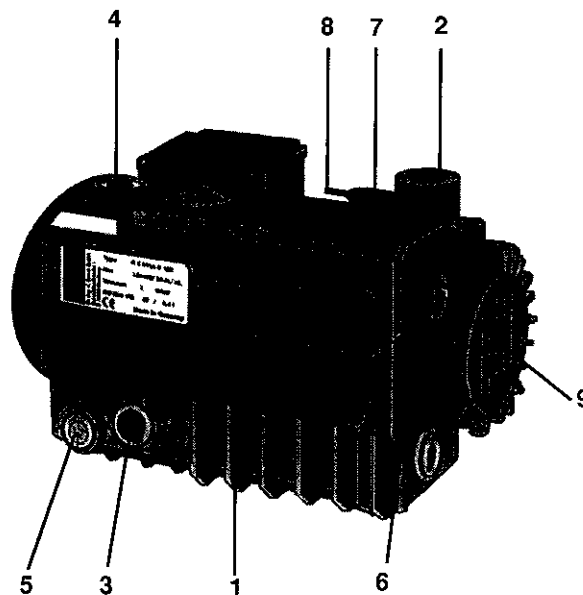


Abb. 7-7

Gas ballast valve (Fig. 7-7, 7) of the vacuum pump:

When the pump is operating, air must be drawn in at the mouth of the free intake (Fig. 7-7, 8). If no air is drawn in, the gas ballast valve must be taken off the small tube and replaced with a new one.

7.5 Quarterly maintenance

Vacuum pump

The oil in the vacuum pump must be changed every 500 operating hours. This corresponds to 3 months in single-shift operation. The relevant grades of oil are given in Chapter 9.

- Unscrew oil drain plug (Fig. 7-8, 5) and drain off the old oil.
- When the reservoir is empty (drips approx. every 5 seconds), screw oil drain plug in tightly again.
- Pour new oil in through the oil filler plug (Fig. 7-8, 4).

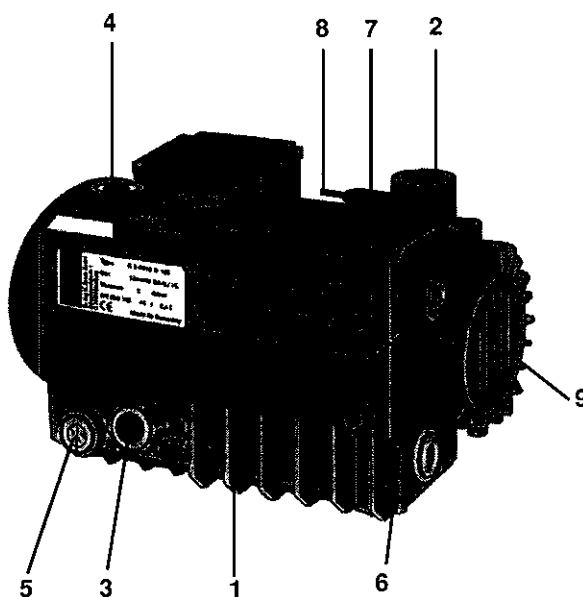


Fig. 7-8

7.6 Six-monthly maintenance

Carry out all the maintenance which is required weekly, monthly and six-monthly.

Vacuum pump

Clean suction flange of the vacuum pump:

- To clean the screen in the suction flange (Fig. 7-9, 2), the four fastening screws should be unscrewed and the suction flange taken off.
- Remove screen and blow out with compressed air.

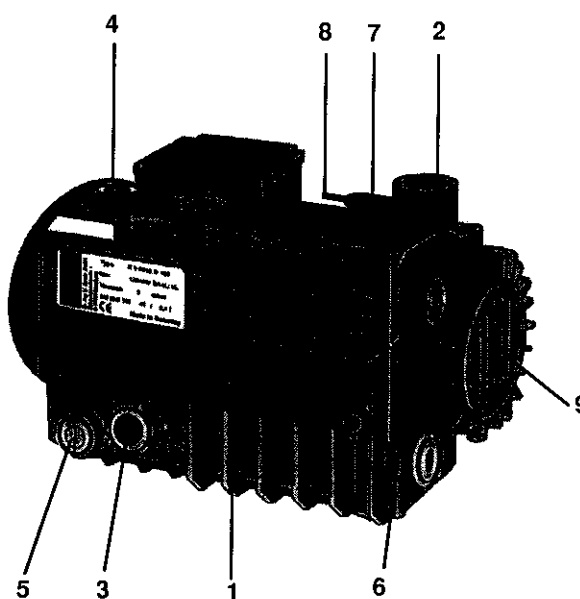


Abb. 7-9

Clean fan hood of the vacuum pump:

The fan hood must be checked regularly for contamination. Contamination of the hood hinders the supply of cooling air and can lead to the vacuum pump overheating.

**Lifting and
tipping device
(option)**

The oil level of the lifting and tipping device must be checked six-monthly on the dipstick (Fig. 7-10, 1). The arm of the lifting and tipping device must be at the bottom.

If the oil level drops to the lower marking, oil should be poured in until the oil level reaches the upper marking.

Considerable or continuous lack of oil indicates a leak which *must* be eliminated.

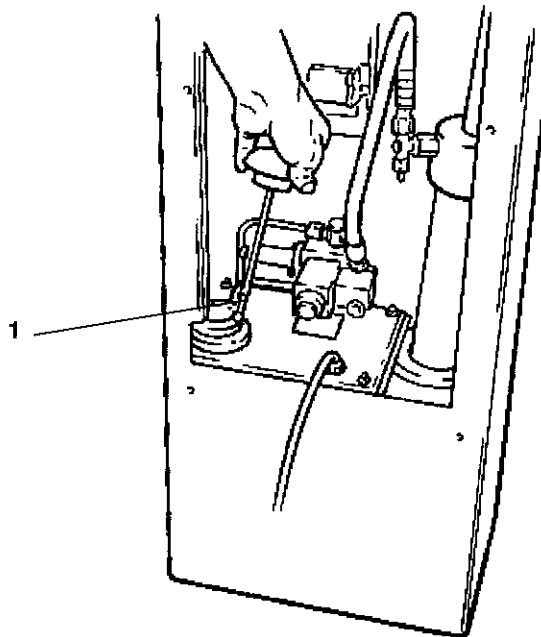


Fig. 7-10

7.7 Annual maintenance

Carry out all the maintenance which is required six-monthly.

Hydraulic drive

Hydraulic drive - changing oil and filter cartridge

The hydraulic oil must be replaced every 2000 operating hours, at the latest every 2 years.

The filter cartridge must be changed every time the oil is changed.

- Unscrew the oil drain plug in the tank (Fig. 7-11, 1 - WAF 24) and allow the used oil to drain into a container which can hold over 40 litres.
- When the tank is empty (drips approx. every 5 seconds) screw the oil drain plug back in.
- Unscrew the cover of the return line filter (Fig. 7-11, 2) and change the filter cartridge.
- Pour new hydraulic oil (40 litres) into the tank through the filter cartridge.
- Close the cover of the return line filter.

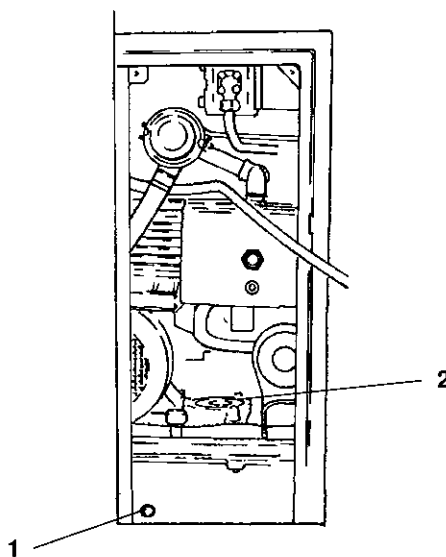


Fig. 7-11

Vacuum pump

The air de-oiling element of the vacuum pump must be changed once a year.

- Unscrew the four screws on the exhaust air cover (Fig. 7-12, 6) with an Allen key (WAF 4) and take off the cover.
- Take the wire filter out and unscrew bolt (M4x12).
Caution! Do not drop bolt into pump housing!
- Take off the spring and withdraw the air de-oiling element.
- Insert the new de-oiling element; the old O-ring can be reused.
- Reassemble in reverse sequence. A new seal must be used to seal the exhaust air cover.

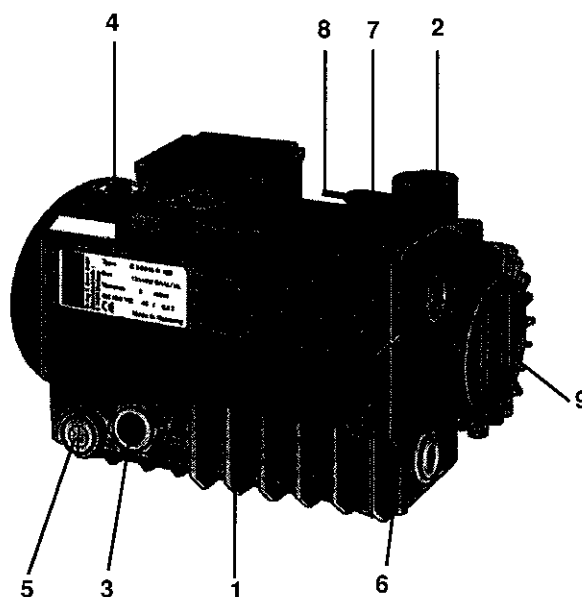


Fig. 7-12

Transmission Transmission - changing the oil

The transmission oil should be changed for the first time after one year, and every two years thereafter.

- Unscrew the oil drain plug of the transmission (Fig. 7-13, 1 - WAF 24) and drain the used oil into a container which can hold over 2.5 litres.
- When the transmission is empty (drips approx. every 5 seconds) screw the oil drain plug back in.
- Unscrew the flange of the encoder (Fig. 7-13, 2 - WAF 13) and pour the oil into the opened transmission. The oil should come up to the centre of the oil sight glass (Fig. 7-13, 3).
- Secure the flange of the encoder. Press the flange slightly so that the gear of the encoder engages without play in the pinion of the motor.

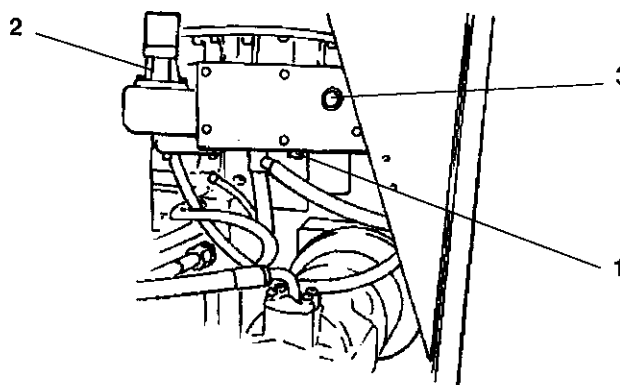


Fig. 7-13

Lifting and tipping device (option)**Changing the oil:**

The hydraulic oil of the lifting and tipping device must be changed once a year. For quantity and type of lubricant, see Chapter 9.

- Open the oil drain plug (Fig. 7-14, 1) and drain off the oil.
- Tighten oil drain plug back up and open cover (Fig. 7-14, 2).

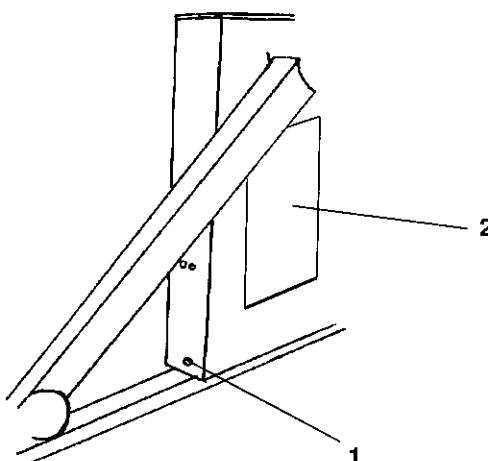


Fig. 7-14

- Pour in the quantity of oil required through the opening in the venting plug (Fig. 7-15, 1).

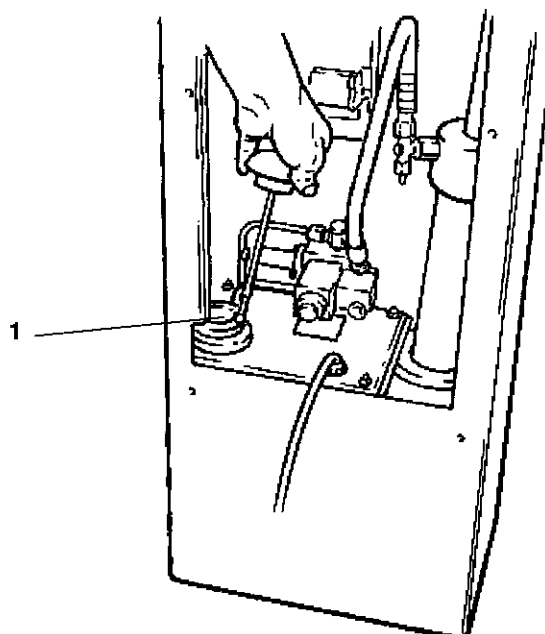


Fig. 7-15

Grease lift chain:

The lift chain of the lifting and tipping device (Fig. 7-16, 1) must be checked for corrosion damage and greased with chain lubricating grease.

In the event of corrosion damage, the chain must be replaced immediately by VEMAG service personnel.

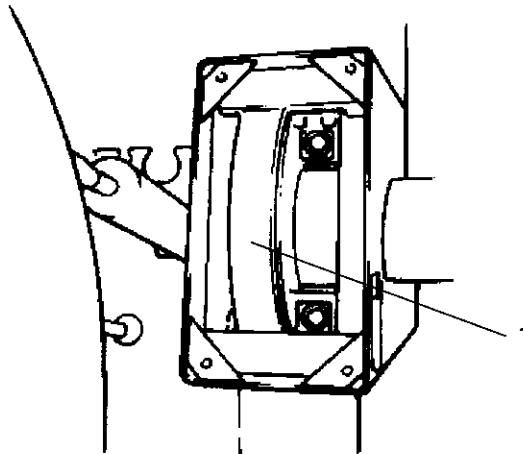


Abb. 7-16

Check lift chain:

The lift chain of the lifting and tipping device (Fig. 7-16, 1) must be checked for wear once a year by a trained specialist and, if necessary, replaced.

8 Technical data

IMPORTANT!

Give the machine number when making enquiries with our agents or contacting customer service direct.

The rating plate can be found on the front of the machine in the lower left-hand corner. The machine number is also stamped into the back of the swivel housing next to the feed unit release mechanism.

8.1 Technical data - ROBBY

Filling output	up to 2,600 kg/h
Filling pressure	max. 40 bar
Portion weight	5 to 60,000 g, adjustable in 0.1 g or 1 g steps
Rotary vane speed:	0 - 100%, infinitely adjustable
Number of links	0 - 5, infinitely adjustable

Rating of vacuum pump
with oil circulation
lubrication system: 15 m³/h

Hopper capacity 80 l

Weight approx. 430 kg

Noise emission

There is no risk of damage to hearing.
Continuous sound level < 70 dB (A)

Nominal output	4 kW AC
Main motor	3 kW AC
Vacuum pump	0.65 kW AC

Mains voltage	Frequency	Nominal current	Back-up fuse
380 to 400 V	50 Hz	9.7 A	20 A
220 to 230 V	50 Hz	17 A	25 A
380 to 460 V	60 Hz	9 A	20 A
220 to 265 V	60 Hz	15 A	25 A

Remote control voltage:

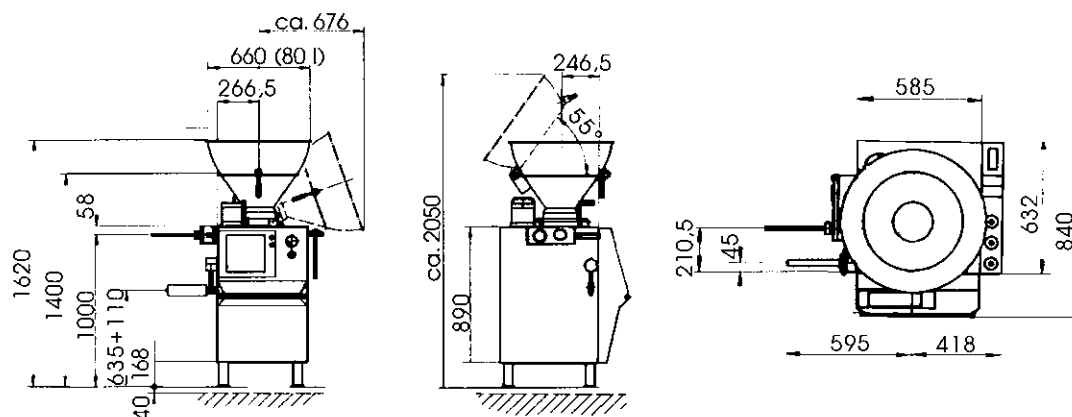
At the 24 V DC remote control socket:

permissible external voltage for floating contacts is max. 24 V AC/DC, 1 A.

Supplied with 4 m connecting cable, 4 mm².

Back-up fuse and main switch to be provided by customer.

8.2 Dimensions - ROBBY



8.3 Technical data - ROBBY-2

Filling output	up to 3,000 kg/h	
Filling pressure	max. 40 bar	
Portion weight	5 to 60,000 g, adjustable in 0.1 g or 1 g steps	
Rotary vane speed:	0 - 100%, infinitely adjustable	
Number of links	0 - 5, infinitely adjustable	
Rating of vacuum pump with oil circulation lubrication system:	15 m ³ /h	
Hopper capacity	80, 150, 230 l	
Weight with lifting and tipping device	80 l hopper: 150 l hopper: 230 l hopper:	approx. 460 kg approx. 750 kg approx. 800 kg

Noise emission

There is no risk of damage to hearing.
Continuous sound level < 70 dB (A)

Nominal output	6 kW AC
Main motor	4 kW AC
Vacuum pump	0.65 kW AC

Mains voltage	Frequency	Nominal current	Back-up fuse
380 to 400 V	50 Hz	14 A	25 A
220 to 230 V	50 Hz	26 A	35 A
380 to 460 V	60 Hz	13 A	25 A
220 to 265 V	60 Hz	23 A	35 A

Remote control voltage:

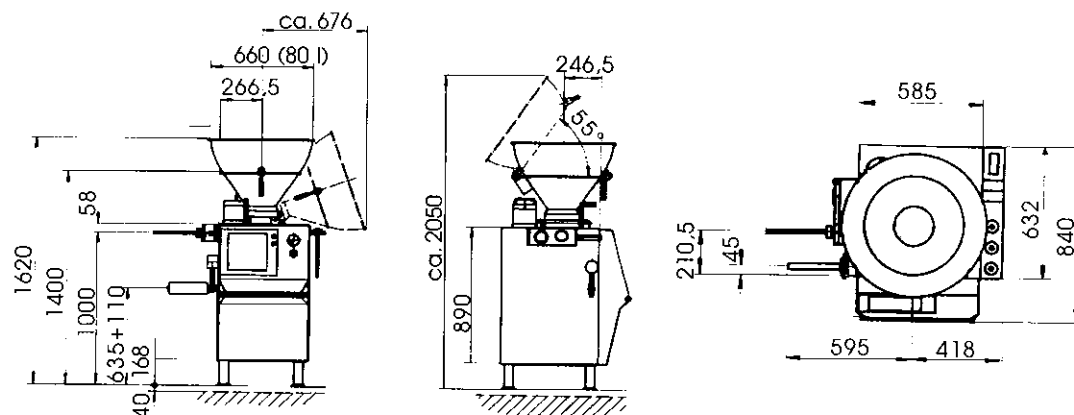
At the 24 V DC remote control socket:
permissible external voltage for floating contacts is max. 24 V AC/DC, 1 A.

Supplied with 4 m connecting cable, 6 mm².

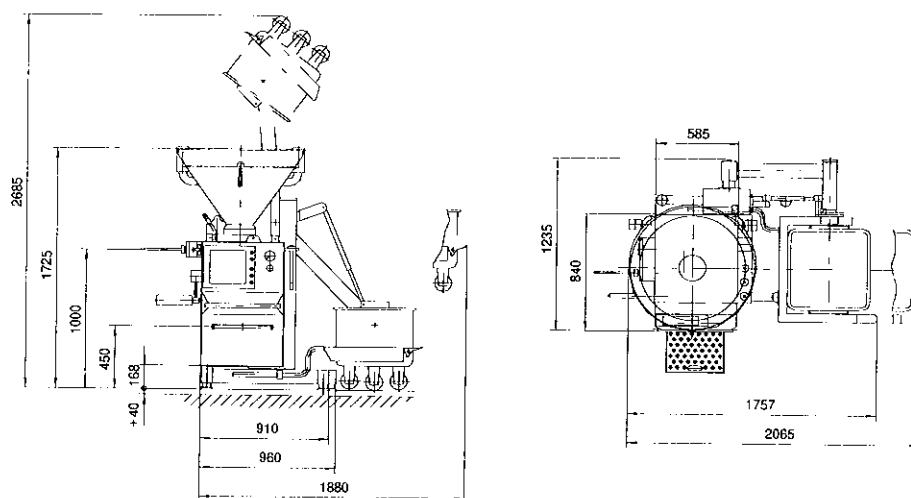
Back-up fuse and main switch to be provided by customer.

8.4 Dimensions - ROBBY-2

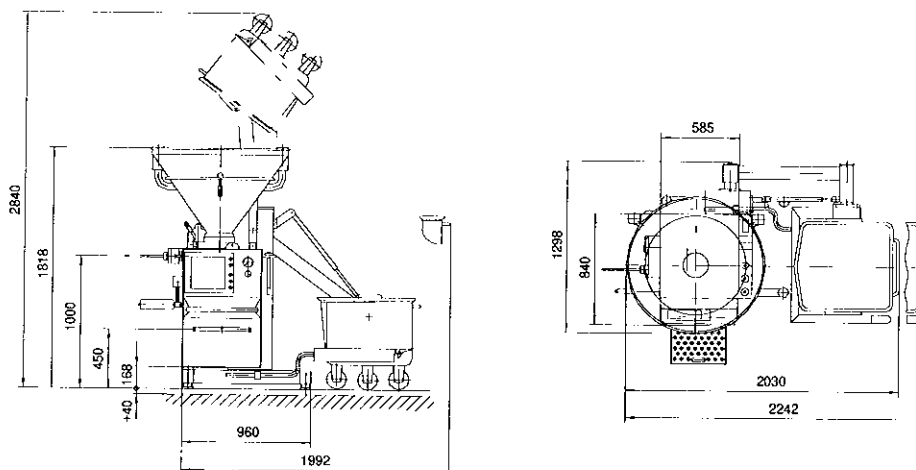
80 l hopper



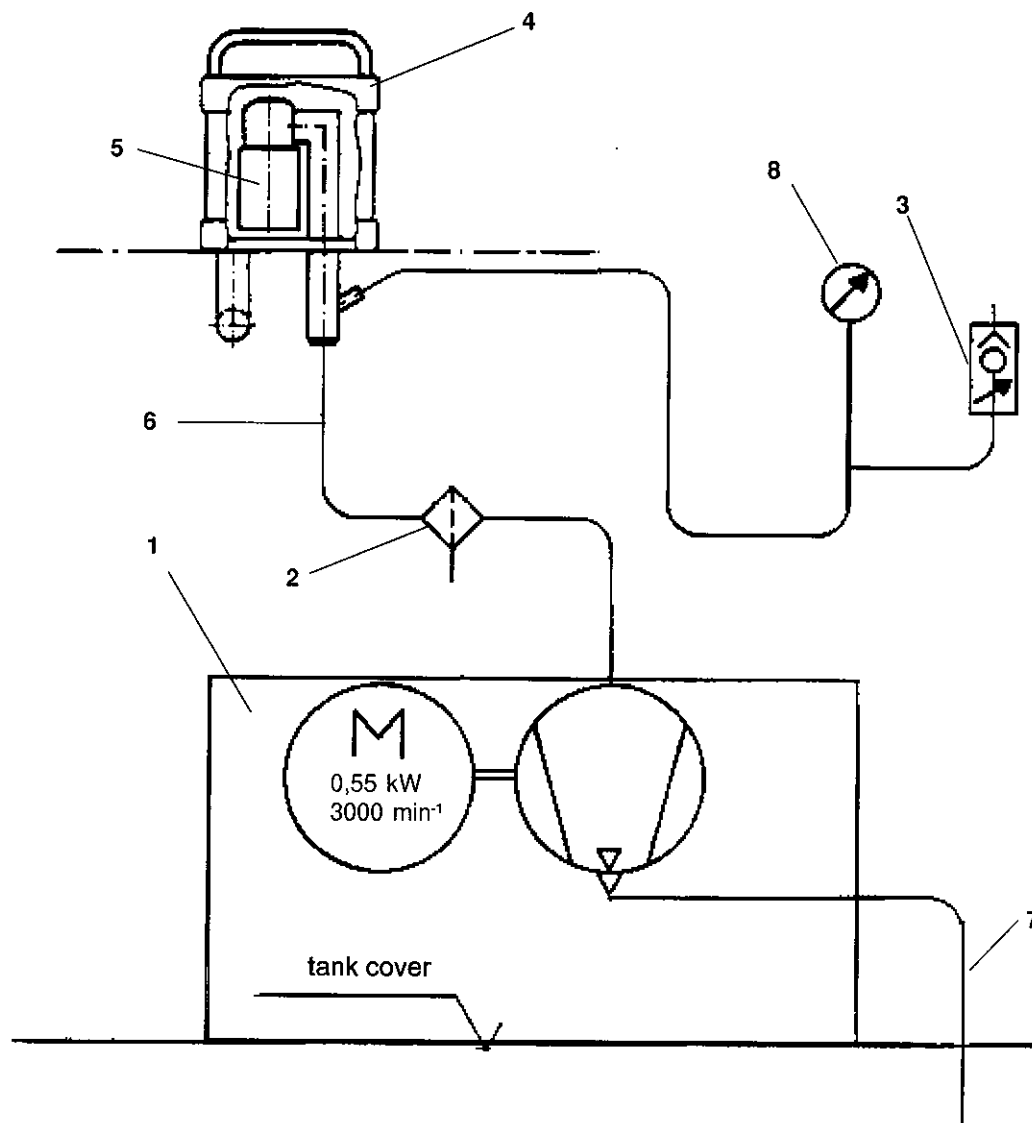
150 l hopper



230 l hopper



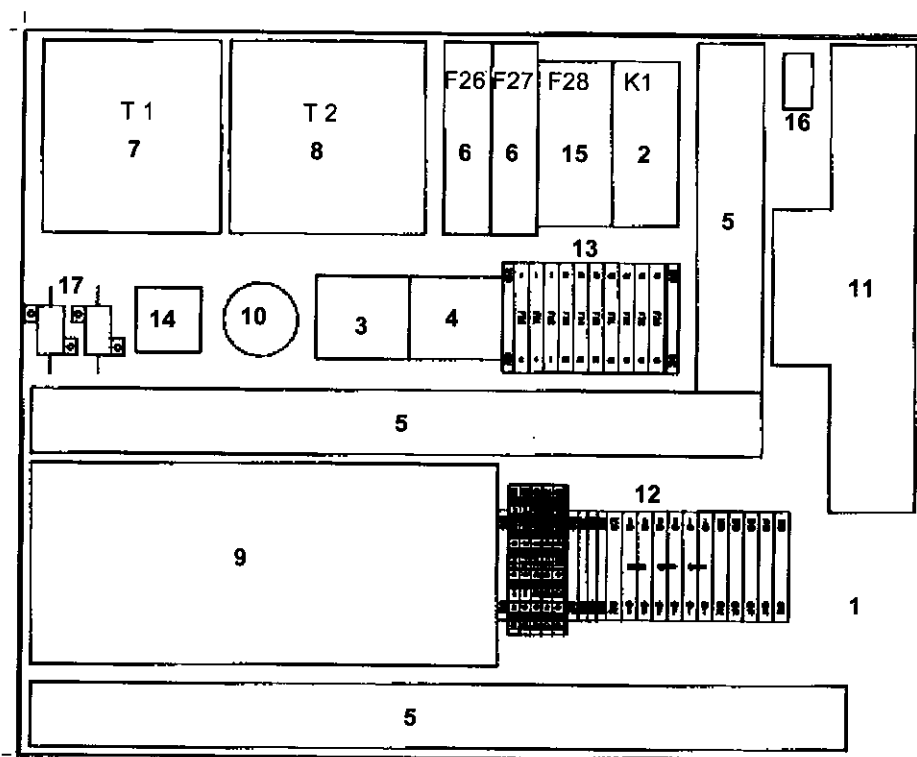
8.5 Diagram of the ROBBY/ROBBY-2 vacuum system



- 1 Vacuum pump compact unit
- 2 Air intake filter
- 3 Control valve
- 4 Vacuum sight glass

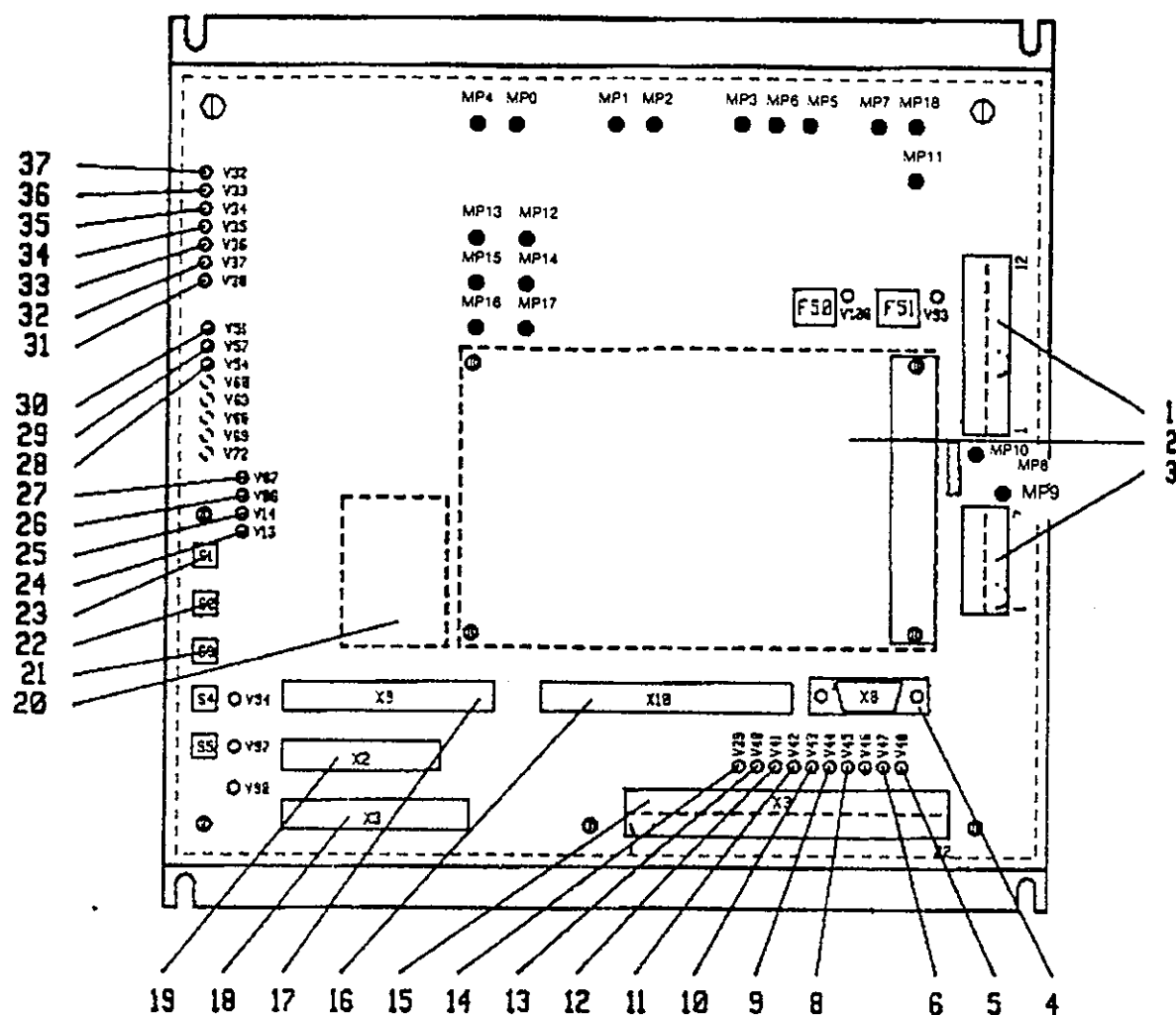
- 5 Float valve with screen
- 6 Suction line
- 7 Exhaust air hose
- 8 Vacuum gauge

8.6 Electrical control system - ROBBY/ROBBY-2



- | | |
|-----------------------------------------------------|------------------------------------------------------------------|
| 1 Complete control panel | 9 Terminal module component |
| 2 Main drive contactor (K1) | 10 Capacitor |
| 3 Oil cooler contactor (K2) and control transformer | 11 Power supply component |
| 4 Vacuum drive contactor (K5) | 12 Strip terminal |
| 5 Cable duct | 13 Fuse holder (F20, F21, F22, 23, F24, F25, F30, F31, F32, F33) |
| 6 Thermistor - motor protection (F26/F27) | 14 Bridge rectifier |
| 7 Mains transformer (T1) | 15 Safety trip |
| 8 Control transformer (T2) | 16 Switch for emergency control |
| | 17 Resistors for emergency control |

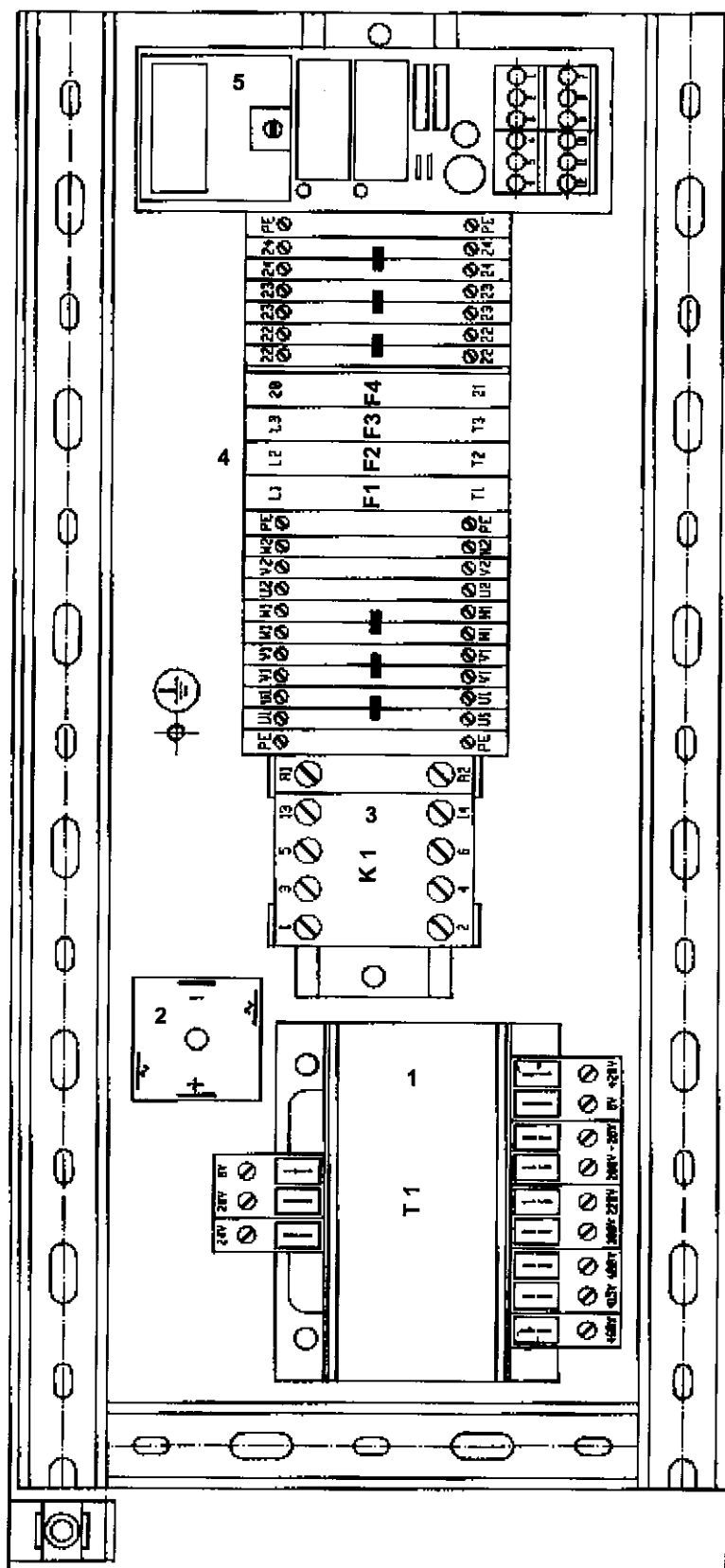
8.7 Power electronics - ROBBY/ROBBY-2



- | | | | |
|----|---------------------------------------|----|-----------------------------------------------------------------------|
| 1 | Plug for valves | 22 | Test: Suck-back |
| 2 | Relief valve control | 23 | Test: Filling |
| 3 | Plug for encoder | 24 | LED: AC remote control contact |
| 4 | Plug strip terminal X8 | 25 | LED: Feed system |
| 5 | LED: Oil temperature monitor | 26 | LED: Encoder for filling
direction |
| 6 | LED: Main drive motor thermistor fuse | 27 | LED: Encoder for pulses |
| 7 | LED: Vacuum motor thermistor fuse | 28 | LED: Delayed portioning signal
(for Coex) to remote control socket |
| 8 | LED: Main contactor K1 (Safety chain) | 29 | LED: Linking or portioning signal to
remote control socket |
| 9 | LED: Mains voltage V+24V | 30 | LED: Portioning or clipping signal to
remote control socket |
| 10 | LED: Mains voltage LE-15V | 31 | LED: Suck-back |
| 11 | LED: Mains voltage LE+15V | 32 | LED: PC enabled |
| 12 | LED: Mains voltage PC-15V | 33 | LED: Clipping |
| 13 | LED: Mains voltage PC+15V | 34 | LED: Remote control |
| 14 | LED: Mains voltage F+24V | 35 | LED: Knee lever |
| 15 | Plug for voltage supply | 36 | LED: Linking |
| 16 | Plug for PC inputs | 37 | LED: Portion |
| 17 | Plug for PC outputs | 38 | MP1 to MP18: Measuring points |
| 18 | Plug for remote control inputs | | |
| 19 | Plug for remote control outputs | | |
| 20 | Coding card | | |
| 21 | Test: Linking | | |

8.8 Electrical control, lifting and tipping device (option)

- 1 Mains transformer
- 2 Bridge rectifier
- 3 Motor contactor
- 4 Terminal strip
- 5 Lifting and tipping device component



9 Appendix: Tools, accessories, spare parts, lubricants

9.1 Summary: filling and linking horns available

Horn	Filling horns		Linking horns		
Dia.	to DIN 9798	with crowned outlet	with beading & plain outlet	with beading and lip*	with crowned outlet
8	901.100-080			906.400-08X	
9	901.100-090			906.400-09X	
10	901.100-100			906.400-10X	
11			906.200-116	906.400-11X	
12	901.100-120		906.200-126	906.400-12X	906.500-121
13	901.100-130		906.200-136	906.400-13X	
14	901.100-140		906.200-146	906.400-14X	906.500-141
15	901.100-150		906.200-156	906.400-15X	
16	901.100-160	901.500-165	906.200-166	906.400-16X	906.500-161
18	901.100-180	901.500-180	906.200-186	906.400-18X	
20	901.100-200	901.500-200	906.200-206	906.400-20X	906.500-201
22	901.100-220	901.500-220	906.200-226		906.500-221
23	901.100-240	901.500-240	906.200-246	906.400-24X	906.500-241
28	901.100-280	901.500-280			
30	901.100-300	901.500-300			
35	901.100-350	901.500-350			
40	901.100-400	901.500-400			
45	901.100-450				
50	901.100-500				
55	901.100-550				
60	901.100-600				

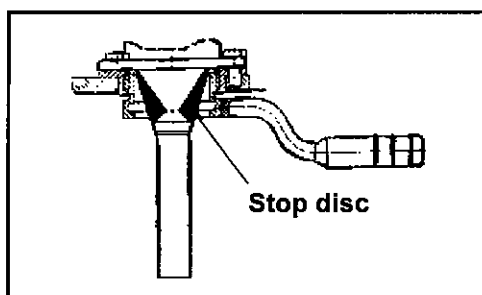
* insert instead of the "X":

for casing holding device, short version = final digit "6" (total length of horn 305 mm);
long version = final digit "5" (total length of horn 405 mm)

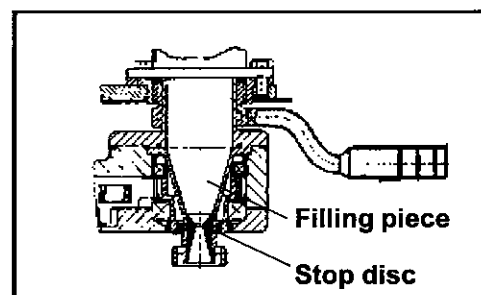
9.2 Summary: tools, accessories, spare parts

	Use	Order number
Rotor lifting tool	Rotor, vanes	134.030-060
WAF 46/30 universal spanner	WAF 46 screw feet WAF 30 linking head	134.030-010
Guard ring spanner (only with linking gear)	Linking nut Guard ring	892.031-000
Shut-off plug	Shut off vacuum standpipe	140.500-350
Liver sausage plug	Shut off vacuum pipe	134.021-001
10 mm stop disc	Linking with linking gear	931.231-010
12 mm stop disc	Straight filling	931.601-226
High-pressure grease gun with hand lever	Lubrication	067.064-002
14 mm filling piece	Linking with linking gear	931.571-427
Food grease (2 400-g cartridges)	Lubrication Feed Transmission seal	052.008-026
Brush for bushing	Cleaning vacuum pipe	096.013-401
Washing brush	Cleaning	096.014-002
Tool strip	Store accessories	134.031-000
Oil	Vacuum pump	052.001-003
Blank vanes	Rotary vane pump	134.232-070
Filter set (not standard)	Vacuum pump	090.190-011
Spare vanes	Rotary vane pump	134.233-050
Air filter cartridge	For suction line of Pico C 75 vacuum pump	096.090-004
Filter cartridge	For H 814 hydraulic system return line filter	093.913-402
Float valve	In vacuum sight glass	126.550-000
Screen	For float valve	126.501-002
Synchronous belt drive		066.404-201
Industrial atomizer 750 ml	Care of feed element	067.287-501
Bone oil (750 ml)	Care of feed element	052.001-021

Filling horn with stop disc 931.601-226



Linking gear with filling piece 931.570-007



9.3 Lubricants

Transmission

Transmission:

Oil capacity - ROBBY: 1.4 litres

Oil capacity - ROBBY-2: 2.4 litres

Oil grades: viscosity class ISO VG 46 to DIN 51519
quality HLP to DIN 51524, e.g. Shell Tellus T 46,
order no.: 052.001-010

Hydraulic system

Hydraulic system:

Tank capacity: 42 litres

Oil grades: viscosity class ISO VG 46 to DIN 51519
quality HLP to DIN 51524, e.g. Shell Tellus T 46,
order no.: 052.001-010

Vacuum pump

Vacuum pump:

Oil capacity: 1.1 litres

Oil grades: viscosity class ISO VG 46 to DIN 51519
quality VCL to DIN 51506, e.g. **Energol RC 100**
order no.: 052.001-018

If the oil grade is changed, the oil reservoir must be completely emptied.

Feed unit seal and feed element seal

Feed unit seal and feed element seal:

High-performance grease which is approved for contact with foodstuffs,
e.g.: Elkalub GLS 367/N2, order number 052.008-026

Drive mechanism

Drive mechanism:

Roller bearings and transmission grease, drop point 200° C,
e.g. Aviatocon MEF-05, order no.: 052.008-008

Lifting and tipping device (option)

Lifting and tipping device:

Oil capacity: 10 litres

Oil grades: viscosity class ISO VG 46 to DIN 51519
quality HLP to DIN 51524, e.g. Shell Tellus T 46,
order no.: 052.001-010

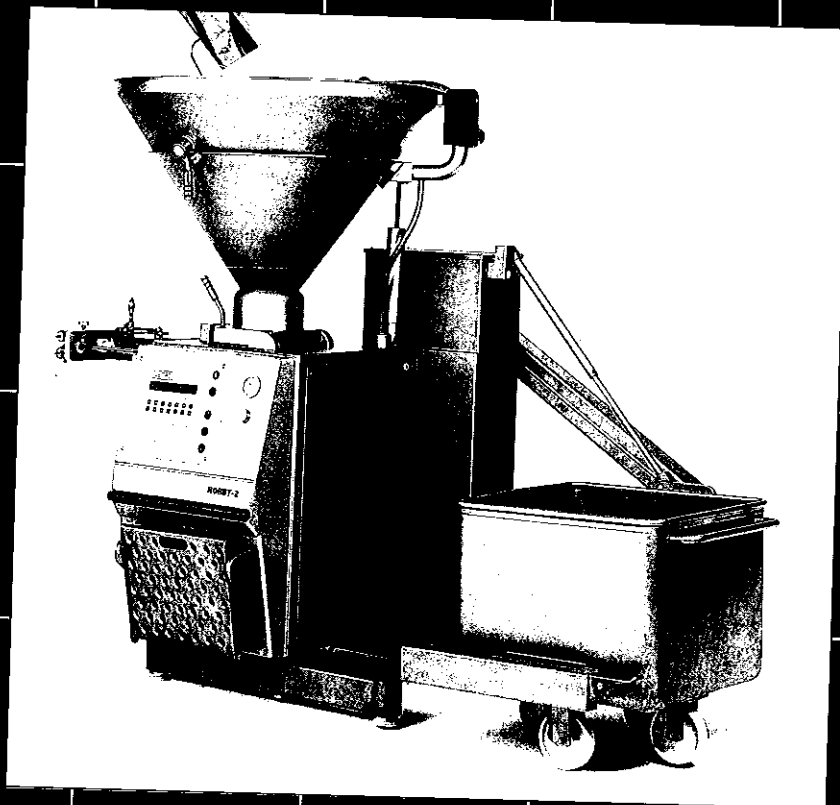
Chain:

Grease required: approx. 100 g

Type of grease: Molycote MKL 32, order no.: 052.008-021

Chain lubricating grease with anti-corrosive action, drop point 245 to 275° C.

VEMAG



Portioning computer PC 880

Operating instructions



**MASCHINEN- UND
ANLAGENBAU GMBH**

About this manual

These operating instructions will cover all information necessary for the operation of the portioning computer PC 880. If any question should arise which cannot be answered by means of this manual, please contact the VEMAG service any time. We will be pleased about your suggestions.

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Subject to technical alterations

Issue: 12/97
Version: 5.3.2 EN

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0. Foreword

The PC 880 is a highly efficient portioning computer which is used in all VEMAG filling machines of the new generation.

Its wide range of functions enables an individual match with your product and thus an optimal production procedure.

You can start portioning as soon as the respective weight has been entered since the filling program is already initialized with average values for twist-linking, clipping or dividing.

You have 100 programs at your disposal so individual product data entries can be permanently stored under the respective product name.

The PC 880 enables you to select the language in which you wish to have the displays appear.

Apart from the basic functions, the PC 880 is initialised for the following options:

- testing the twist-linking horn
- coextrusion devices
- portioning devices
- check weighers
- hanging machines
- pressure control

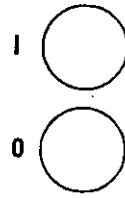
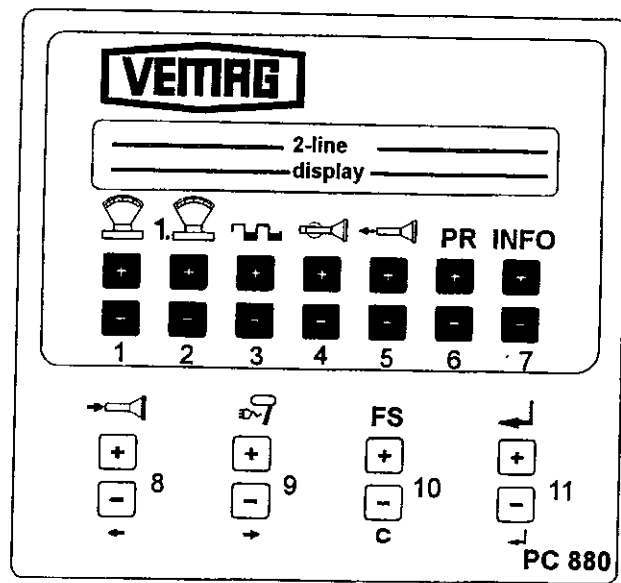
An automatic display tells you when maintenance is necessary.

The PC 880 also provides precise information as to the machine's performance quality and any errors which might occur.

We recommend that you start with the sections "Straight Filling" or "Creating a Filling Program".

→ ch. 1.1 or 1.3

You will notice very soon that the PC 880 will make your work easier.



1. Introduction

1.1 Straight filling

For straight filling you have 10 programs at your disposal (programs 00 to -09) into all of which you can store settings.

- Press the ON switch
- Use INFO 20 to select the desired language.
- By pressing [-] 10 key you can directly access program 00.
By pressing [-] 6 key you can select any program from 00 to -09.
The display shows "PORTIOMAT SWITCHED OFF". Now only the keys for SPEED, INFO, REVERSE, MODE and PROGRAM NUMBER are active.
- Use the 5 keys to select the desired filling speed.
- Use the 9 keys to select the desired mode. The knee lever or a remote control contact now starts and stops filling directly.
- Start the filling process with the knee lever. Stop when product comes out of the horn.
- Set the desired vacuum on the vacuum control valve next to the operating console.



Attention!

Solid products require a high vacuum. For liquid product, care must be taken that this does not get into the vacuum duct.

1.2 Portioning

For portioning you have programs 01 to 90 at your disposal.

Filling program 01 is used for special feed screws or testing. This program does not include the calculation and storage of product weights according to actual and set weight.

Allocate program numbers to the individual filling types. This will allow you to set the values for each filling type just by selecting the desired program number with the correct values stored.

- By using the 6 keys you select the portioning program you require.

1.3 Creating a filling program

- Use INFO 20 (7 keys) to select the desired language.
- Press the 6 keys to select the program number.
- Only with ROBOT HP: Use [+] 10 key to indicate the feed screw being used.
- Use [+] 10 key to select the KNEE-I mode.

- Press [+] 1 key. "NEW FILLING QUANTITY?" appears in the display and "NEW WEIGHT" in the INFO field. If the program has already been used, select INFO 00 (7 keys).
→ ch. 2.3 (INFO 00)
- Use the 1 keys to enter the required product weight. You can make your entries faster by using cursor keys 8 and 9. The weight set appears in the upper line of the display over the 1 keys. The display now shows you for example: "100.0 ENTER FILLING QUANTITY".
- To make selection easier for you, standard values for the other parameters automatically appear and are differentiated according to twist-linking, dividing and clipping. The filling machine is now prepared for portioning.
- Now operate the knee lever and do a sample filling. The display shows the values you have set in the lower line of the display.
- To optimise your filling program: Make the necessary weight and time adjustments, set back suction and correct the first portion.
When correcting weight, your desired product weight always remains in the lower line of the display whilst the corrected weight is displayed in the upper line. All modifications to the set values are automatically stored and adjust the filling machine to the last-used values when this program is selected on subsequent occasions.
- Use INFO 4 to enter the product name. This will make it easier for you to find the desired program on subsequent occasions.

1.4 Using a filling program

- Use the 6 keys to select the desired program number and start portioning immediately. The filling machine now works with the same set values as it did in the portioning last carried out with this program.

1.5 Portioning and twist linking/dividing

- Install the twist-linking gear and a twist-linking horn or the dividing unit (e.g. pneumatic cutting unit) to the outlet.
- Use the 6 keys to set the machine to portioning.
- Use the 4 keys to set the number of twist-links or the time for the dividing unit, respectively.

2. Operation

2.1 Controls

The PC 880 has 11 basic functions, operated using 22 keys.

The significance of the individual keys is apparent from the symbols allocated to them and it also appears as text in the display above.

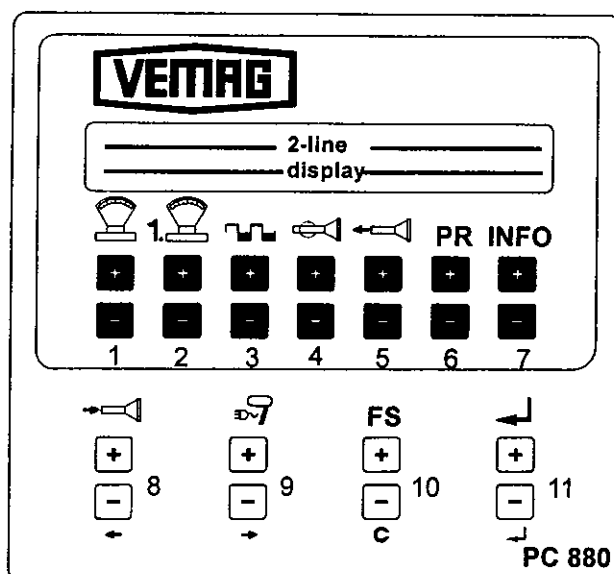


Fig. 2-1
Operating panel PC 880

2.2 Operating the keys



Press the [+] key to increase value.



Press the [-] key to reduce value.

Pressing a key once = stepwise change of values

Holding down a key = continuous value change with increasing speed

Upper keyboard

If you press one of the [+] keys 1 to 7 you are using the functions of the upper keyboard.

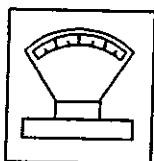
- Product weight [+] 1 key
- First portion [+] 2 key
- Pause time [+] 3 key
- Twist-linking/dividing time [+] 4 key
- Filling speed [+] 5 key
- Program selection [+] 6 key
- Info [+] 7 key

Lower keyboard

When you press one of the [+] keys 8 to 11 you are using the functions of the lower keyboard.

- Back suction [+] 8 key
- Drive mode [+] 9 key
- Feed system [+] 10 key
- Entering [+] 11 key
- Special key functions
→ ch. 2.5

2.3 Description of the upper keyboard



Product weight (key 1)

Display: **WEIGHT**

Use this key to set and correct the desired product weight in 0.1 or 1 gramme steps across a range of 5 - 60,000 grammes.

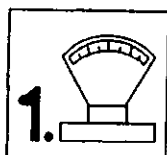
Operate [+] 1 key. The previous product weight or the display "+000.0" for correction appears. In addition, a cursor is shown at the 1-gramme position. You can now use the 1 keys to make the desired setting. To shorten the procedure in the case of greater adjustments you can position the cursor at the appropriate number of the product weight using the [-] keys 8 and 9 and then carry out the desired adjustment.

→ INFO 00 and ch. 2.5 (keys 8 and 9)

If a higher weight is set upwards of 1000 g set weight, resolution is automatically changed from 0.1 to 1 gramme steps. The 0.1 g resolution is possible only for feed systems with 48 mm pitch and for the ROBBY, ROBBY-2 and ROBOT DP.

Depending on the type of machine, product weights under 200 g can only be portioned at a limited speed. The maximum possible speed is automatically set when the weight is made smaller. The message "WEIGHT LIMITED SPEED" appears.

Correction is only possible within certain limits. These are 75% for the first time, 25% for the second time and for further corrections 12.5%. Once these limits are reached, the message "GRAMME ADJUSTMENT LIMIT" appears.



First Portion (key 2)

Display: **WEIGHT**

Use this key to set and correct the weight of the first portion to compensate for weight lacking due to relaxation of the product in the filling horn.

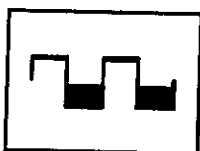
Setting the added weight is in 1-gramme steps from 0 to 999 grammes. A negative number can be entered if the first portion is to be reduced. This number depends on the pre-set portion weight and the respective speed. The negative number will not be accepted if the reduction of the first portion should make it necessary to decrease the filling speed.

The adding of weight to the first portion takes place according to the back suction setting:

BACK SUCTION = "OFF" The set weight is added to the first portion after ca. 4 seconds pause until re-start via knee lever or remote control.

BACK SUCTION = "000" The set weight is added to the first portion on each re-start via knee lever or remote control.

BACK SUCTION = "030" The set weight is added to the first portion on completion of back suction (in this case 30 g) and re-start via knee lever or remote control.



Pause time (key 3)

Display: **PAUSE**

Use this key to set the pause time desired between the individual portions.

The pause time is set in 1 ms steps from 50 to 6,000 ms. If [+] 3 key is pressed once, the cursor which appears can be positioned on the relevant number of the pause using the [-] keys 8 and 9. The pause can be altered using the 3 keys. The minimum pause time is automatically limited as a function of filling speed, of advance and delay clip signal and of twist-linking or dividing delay. If in such cases you reach this minimum limit when reducing the pause, the following messages may appear in the display:

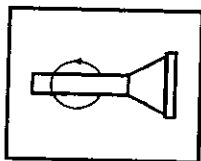
"CLIP-DELAY LIMITED PAUSE"

"TWIST-DELAY LIMITED PAUSE"

"PRECLIP/SPEED LIMITED PAUSE"

"SPEED LIMITED PAUSE"

"SPEED/TWIST-TIME LIMITED PAUSE"



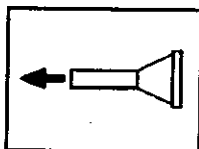
Twist-linking - dividing - clipping - remote control (key 4)

Display: **TWIST - REMOTE - CLIP**

The PC 880 recognises the desired mode via the remoter control socket and automatically indicates the correct unit.

For twist-linking, the number of twists is shown; for dividing, remote control or clipping tasks the control time is shown in ms. The control time can be adjusted in steps of 1 ms, the number of twist links by 0.1 revolution.

You can also use [-] 4 key to switch the function off.

**Filling speed (key 5)**Display: **SPEED**

Use this key to set the desired filling speed of the portion.

The setting is in per cent. The maximum feed rate depends among other things on the feed element and the filling machine type. The speed is limited automatically as a function of product weight, so as to guarantee exact portioning.

Depending on the type of machine, product weights under 200 g can be portioned only at a limited speed. Whilst the weight is reduced the maximum possible speed is set automatically, and the message "WEIGHT LIMITED SPEED" appears.

A minimum pause is also dependent on speed, and if the pause is too short when the speed is set, it will automatically be increased to the minimum value. In this case the message "SPEED LIMITED PAUSE" appears.

In Program 00 (straight filling) the speed can be altered in steps of 0.1%. Fine adjustment is thus possible if you wish to adjust the weight by changing the speed (e.g. Cartridge pack applications). This speed alteration may also be carried out automatically with a suitable weighing scale. To switch to the 0.1% resolution, use the [-] 9 key to move the cursor to the right.

**Program selection (key 6)**Display: **PR**

Use this key to set the straight filling or portioning modes.

You have 10 programs (00 to -09) at your disposal for straight filling and 90 filling programs (01 to 90) for portioning.

In order to use programs -01 to -09, proceed as follows:

- Press [+] and [-] 6 keys (PR) at the same time.
- Select program 00 or the smallest program possible.
- Press [+] 11 key. "++" appears instead of "PR".
- With [-] 6 key (PR) you can open as much programs for straight filling as is required (e.g. to -05).
- Press [-] 11 key. "--" appears instead of "PR".
- Press [+] and [-] 6 keys (PR) at the same time to terminate programming. You can now use the programs up to -05 for straight filling.

If you have to limit the range again (e.g. to program 00), proceed as follows:

- Press [+] and [-] 6 keys (PR) at the same time.
- Select program 00.
- Press [-] 11 key. "--" appears instead of "PR".
- Press [+] and [-] 6 keys (PR) at the same time to terminate programming.

Filling program 01 is used for special feed screws or testing. This program does not include the calculation and storage of product weights according to actual and set weight.

When selecting a filling program in conjunction with coextrusion devices, the message "T-COEX NEGATIVE!" may appear in the display. This shows that the start of the portion has been delayed and thus maximum portioning performance cannot be achieved.

INFO

Info (key 7)

Enables selection of the desired information or special functions.

All inactive functions are skipped to enable speedier access to the information you require.

You can yourself determine which functions may be used. At the same time you can protect existing settings.

- Simultaneously press [+] and [-] 7 keys. The display shows the selected INFO and the corresponding number. The status ("ON" or "OFF") is shown below these.
- Use [+] 11 key to set "ON" status and [-] 11 key to set "OFF" status.
- Repeat this procedure for all functions and close by simultaneously pressing [+] and [-] 7 keys.

INFO 00

INFO 00 Enter new weight

Display: **NEW WEIGHT**

This function is intended to prevent inadvertent alteration of set values. The product weight can only be reset with it subject to the following conditions:

- Directly in an unused program,
- in all other cases after a program switch and selection of INFO 00. The query "NEW FILLING QUANTITY?" then appears in the display.

INFO 1

INFO 1 Portion counter

Display: **PIECES**

The portion counter continuously counts the portions filled.

The maximum number of portions is 999,999. Once this number is exceeded, the display starts again at 0. Each filling program has its own portion counter, which means that the number of portions filled can be established for all filling programs over a longer period.

The counter can be returned to zero using the [-] 10 key. The question "DELETE?" appears in the display to ensure you wish to proceed. Deletion has to be confirmed using the [-] 11 key.

→ ch. 2.5 (Special key functions)

Entering a new nominal weight (1 keys) also results in the counter being deleted.

INFO 2

INFO 2 Filling quantity

Display: **WEIGHT**

Here you can read off the total quantity filled, calculated from the number of portions and the product weight.

Filling quantities of up to 999,999 kg are displayed. Once this figure is exceeded, the display starts again at zero. The filling quantity is reset with the portion counter (key 10).

INFO 3

INFO 3 Vacuum display

Display: **VACUUM**

Displays the vacuum set.

If you switch to other Infos, the display automatically switches back the vacuum display after a certain filling time.

This INFO is not activated if the machine has a mechanical vacuum gauge.

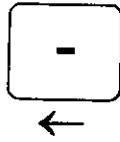
INFO 4

INFO 4 Product texts

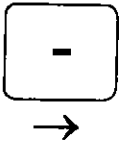
Display: **TEXT**

For the entry of product-related data, e.g. product names.

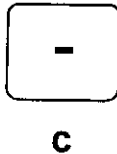
- Use key 6 to select the program you require.
- Selecting INFO 4 (key 7) erases the first line of the display and the message "Text" appears at the top right and at the bottom right an "A".
- By operating [+] 11 key the alphabet from A-Z, a space and the figures 0 to 9 are displayed.
- If you press [-] 11 key the letter/number displayed will then be incorporated into the first line. The position in the first line where it will be inserted is indicated by a line (cursor).
- To correct incorrect entries, the cursor can be moved and the text corrected using the following keys.
→ ch. 2.5 (Special key functions)



[-] 8 key: cursor to the left



[-] 9 key: cursor to the right



[-] 10 key: erases the symbol above the cursor.



[-] 11 key: adds the symbol from line 2 above the cursor.

The product text is briefly displayed each time the program is changed. Filling program data can be changed even if the text display is selected.

INFO 5

INFO 5 Twist-linking delay

Display: **TW.DEL**

Use 11 keys to set the desired twist-linking delay.

Start of twist-linking can be delayed up to 2.55 s using this INFO. This effects a relaxation pause between the end of the portion and the start of twist-linking. The pause time is automatically adapted to this.

INFO 6

INFO 6 Portion-stop

Display: **STOP**

Switches off portioning after a preselected number of pieces (max. 3000).

Re-start using the knee lever or remote control. Switching off is activated if a value greater than zero is entered. It acts in all operating modes except Coex-B.

2 modes can be selected using [-] 11 key: AUTOMATIC RESET, if the pause between 2 portions is greater than 4 s, or RESET only when the selected number of pieces is reached. For this mode an "N" must be inserted before the number of pieces selected.

INFO 7

INFO 7 Speed of feed screw

Display: **INFEED**

Three speeds can be selected for the feed screw. The appropriate one is set automatically once the double screw has been selected with key 10. At level 0, the feed screw can be switched off. (Not adjustable on ROBBY and ROBBY-2 as the feed is mechanically coupled). On the ROBOT HP 10 from version 06/94 onwards, the feed is mounted hydraulically on a fixed transmission to the double screw drive.

INFO 8

INFO 8 Advance or delay clip pulse

Display: **T-CLIP**

Starts the clipper before or after the end of the portion.

The time can be freely selected between -1270 ms to +1270 ms. The pause time is automatically adjusted. The advance is limited by the speed and the portion size. "0" means clipping at the end of the portion.

When setting the advance for the clipper, the minimum for the pause may be reached. In this case, the message "PAUSE LIMITED PRECLIP" appears.

For small portion weights or a higher speed, the advance is also limited. In this case, the message "WEIGHT/SPEED LIMITED PRECLIP" appears.

INFO 9

INFO 9 Service

Display: **WAKE**

Service display to call up information for VEMAG service engineers.

This display indicates the level of precision at which the filling machine is operating. The displayed value corresponds to a resolution of 0.1 g.

INFO 10

INFO 10 Copy filling program

Display: **COPY**

Use [+] 11 key to select the program number into which the current filling program is to be copied. The copy is produced using [-] 11 key.

→ ch. 2.5 (Special key functions)

INFO 11

INFO 11 Double outlet

Display: **D-OUT**

The display "D-OUT" appears after selection if the special plug for the double outlet is plugged in. The speed is set for one outlet with 57% of the filling speed set.

Filling speed is reached using both outlets. The relationship for one and two-outlet mode can be varied between 25% and 75% using the 11 keys.

INFO 12

INFO 12 Align twist linking horn

Display: **T-HORN TEST?**

For checking alignment of the twist-linking horn.

Using the knee lever, twist-linking can be started to check alignment of the twist-linking horn. During twisting, the display changes to "T-HORN TURNS". If the knee lever is kept depressed for longer than 4 s, the program is automatically discontinued. The test can be restarted once the knee lever has been released.

INFO 13

INFO 13 Coextrusion

Display: **T-COEX**

The delay or advance time for coex machine B can be set on the A machine using the 11 keys.

Settings can be between -500 and +500 ms. If a negative time is entered (advance for the B machine), then when the filling program is selected, the message "T-COEX NEGATIVE!" appears in the display.

INFO 14

INFO 14 Pneumatic portioning valve

Display: **T-PORT**

This function is activated when the special plug for the portioning valve is plugged into the remote control socket.

Using the 11 keys, the start of the portion can be delayed between 10 ms and 999 ms after the portioning valve has opened. The basic value set is 100 ms. In the "OFF" position, the portion is not commenced until an additional switch signals the complete opening of the portioning valve.

INFO 15

INFO 15 Number of portions for scales 877

Display: **NOSCAL**

This entry tells the PC 880 how many portions will be laid on the scales 877 for checking. The computer calculates the weight of one portions from this information for checking.

INFO 16

INFO 16 Printing out report for scales 877

Display: **REPORT**

PRINT?

Using the [-] 11 key, this function prints out a report of the weighing activities by scales 877. The display changes to "REPORT - BUSY" and "RESULTS BEING PRINTED".

INFO 17

INFO 17 Special controls

Display: **OPTION**

Here a special control signal for external machines can be selected for remote control output P<>A or g<>h.

The following functions are possible:

- FILL:** The output is switched on from the first portion until the end of the last portion.
- SIGNAL:** This option is set automatically if scales 877 are connected. The output is switched on to request the operator by means of a signal to place another sample on the scales.
- DEBONE:** Selection of this option opens INFO 24 of the same name
 → INFO 24
- CUTOFF:** In KNEE-II mode the application of the remote control bridge A-D leads to abortion of the portioning (e.g. pneumatic portioning valve).

INFO 18

INFO 18 Tendency control

Display: **TENDEN**

OFF
PULS
XX.X G
XX.X %

Tendency control can be used for an external set of scales or an operator to carry out weight or speed corrections. Correction is effected with one each of the external contacts in positive or negative alignment.

Weight correction is possible in filling programs 02 to 90.

In "PULS" mode, the weight is altered once every time an external contact closes. The size of the alteration can be freely selected when entering the weight using the cursor position: (e.g. 0000.0 = 1 g/pulse).

In "XX.XG" mode, the alteration weight is related to 1 s closing time of an external contact (e.g. 02.0G means: to reach a correction of 4 g, the scales must keep the control contact closed for 2 s).

The speed correction in "PULS" mode is possible in programs 00 to -09 (straight filling) and in programs 02-90. The speed is altered by 0.1% every time an external contact closes.

In "XX.X%" (only in programs 00 to -09) mode, the change in speed is related to 1s closed time of an external contact (e.g. 03.0% means: in order to achieve a correction of 6%, the scales must keep the control contact closed for 2 s). If the speed is changed in this way, the message "SPEED CORRECTED" appears.

INFO 19

INFO 19 Portions/minute

Display: P/MIN

This info enables you to look at the portioning output of the filling machine in the filling program being used.

INFO 20

INFO 20 Dialogue language

Display: LANGUAGE

Use the 11 keys to select the language in which the PC 880's displays are to be shown. The following languages are available:

Danish, German, English, Finnish, French, Hebrew, Dutch, Hr, Italian, Norwegian, Polish, Portuguese, Russian, Swedish, Spanish, Czech, Hungarian, Yu.

INFO 21

INFO 21 Date and time (optional)

Display: TIME

This function is only available in conjunction with a special RAM module. When used with a check weigher, the evaluations can be printed out with date and time.

INFO 22

INFO 22 Smooth start (not available for all machines)

Display: TSTART

If the filling machine initially feeds the product too quickly you can use this function to set an additional delay (e.g. +030 ms) to ensure smoother delivery of the product.

INFO 23

INFO 23 Increasing the 1st twist-linking time

Display: **1.TWIS**

This function enables an increase of the 1st twist-linking time in ms. With ROBBY and ROBBY-2 the 1st pause will thereby also be automatically prolonged.

INFO 24

INFO 24 Removal of bone particles in conjunction with the Sausage Grinder 980

Display: **DEBONE**

Portioning in the selected program is broken off as soon as the set quantity in kg has been reached. The accumulated bone particles are discharged via a valve.

- Change to PR 00 via the [-] 10 key.
- Use the 1 keys to enter the time in ms during which the valve is to remain open.
- By pressing [+] 10 key you can switch back to the filling program.

Preparation has now been completed and the portioning can begin. An illuminated display on the valve will indicate when you should discharge the bone particles. Program 00 has in the meantime been automatically selected.

- Activate the knee lever once.
- By operating the [+] 10 key you can switch back to the filling program.

Enter the settings for program 00 (straight filling) in exactly the same way except that you enter the filling time (in minutes) instead of the filling quantity.

INFO 25

INFO 25 CUTTING UNIT

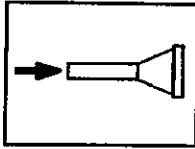
Display: **CUTTER**

This function controls an optional cutting unit. Using the 11 keys, you can set three different operating modes:

- OPEN: At the end of the portion the cutter does not close the outlet.
- CLOSE: At the end of the portion the cutter closes the outlet.
- OFF: The function is not available.

The portion is started only after the cutter has released the outlet.

2.4 Description of the lower keyboard



Back suction (key 8)

Display: **REVERSE**

Sets a quantity to be sucked back to prevent product escaping from the filling horn after the portion is finished.

0 = no back suction, 50 = quantity to be sucked back in grammes. The quantity to be sucked back is displayed with an additional "B" alternating with the first portion. In program 00, the "B" appears as a message next to the speed.

Machines which are not equipped with the standard filling horn holder but have a larger opening to the feed screw, may not effect back suction for safety reasons. In this case, back suction is blocked hydraulically and electrically. When the machine is switched on or the function entered, the following message appears: "BACK SUCTION BLOCKED B5".

The back suction influences the size of the first portion. In the case of very short interruptions, adding weight to the first portion is not always desired. Adding to the first portion is useful when back suction is set. This is differentiated as follows:

Back suction = "OFF"	The set weight is added to the first portion after ca. 4 seconds pause until re-start via knee lever or remote control.
Back suction = "000"	The set weight is added to the first portion on each re-start via knee lever or remote control.
Back suction = "030"	The set weight is added to the first portion on completion of back suction (in this case 30 gr) and re-start via knee lever or remote control.



Drive mode (key 9)

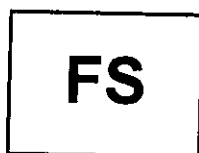
Knee lever selection

KNEE-I:	The feed element runs only as long as the knee lever is depressed.
KNEE-II:	The feed element starts running when the knee lever is briefly operated. The feed element stops when the knee lever is operated again.
REMOTE-END:	Remote control via socket when the portion is finished. If no external equipment is connected, it is possible to work in this mode as with the Knee-I function.
REMOTE-STOP:	Remote control via socket with portion interrupted. If no external equipment is connected, it is possible to work in this mode as with the Knee-I function.
COEX-B:	This setting applies only to the B-machine (inner filling). Regardless of the pause set, a new inner filling is not started until after the outer filling has begun. If the inner filling is longer than the outer filling, the message: "PORTION END NOT REACHED" appears in the display.

In Coex-B, only one portion is filled with the knee lever held down. The next portion does not commence until the knee lever is released and then operated again.

PRESS:

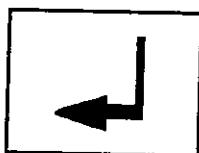
Controls product pressure in conjunction with a pressure sensor which is installed in a special transition piece. This function can only be adjusted if the sensor amplifier is present and program 0 was selected. The pressure control can be switched on via the knee lever or remote control.

**Feed system (key 10)**

Display: **SCREW**

Selects different double screws (not on ROBBY, ROBBY-2 and ROBOT DP).

[-] 10 key has another function: it is possible to jump straight from a filling program into program 00 (straight filling). If [+] 10 key is operated again later, you return to the previous filling program. If you wish to alter the feed screw, then you must first operate [+] 10 key.

**Entering (key 11)**

These keys are allocated to the INFO function and make it possible to select and enter the symbols, values or functions desired for:

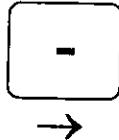
INFO 4	Product texts
INFO 5	Twist-linking delay
INFO 6	Portioning-stop
INFO 7	Speed of feed screw
INFO 8	Advance or delay clip pulse
INFO 10	Copy filling program
INFO 11	Double outlet
INFO 13	Coextrusion
INFO 14	Pneumatic portioning value
INFO 15	Number of portions for scales 877
INFO 16	Print report for scales 877
INFO 17	Special controls
INFO 18	Tendency control
INFO 20	Dialogue language
INFO 22	Smooth start
INFO 23	Increasing the 1st twist-linking time
INFO 24	Filled quantity or time for the DEBONE function
INFO 25	Cutting unit

2.5 Special key functions



Key 8 moves the cursor to the left

- to select a text position (INFO 4) when entering text,
- to select a number position when setting weight,
- to select a number when setting pause,
- for selection of a number position when speed is set in PR 00.



Key 9 moves the cursor to the right.

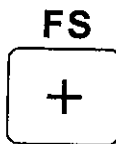
→ key 8



C

[-] 10 key

- erases the portion of text above the cursor in INFO 4,
- prepares erasure for portion counter (INFO 1) and quantity counter (INFO 2),
- enables direct jump to PR 00, straight filling.



[+] 10 key enables

- direct jump to the previous filling program,
 - change to the functions of the lower keyboard and thus selection of the double screw.
- key 10 (feed system)

3. PC 880 and external auxiliary equipment (optional)

- Clipper
- Pneumatic double outlet 889
- Pressure control
- Coex 891
- Coex 892
- Coex 893
- Coex 894
- Pneumatic portioning valve 863
- Scales 877
- Special functions:
 - Program blocking
 - Use of metal detectors
 - Messages regarding maintenance required on the filling machine
 - Direct jump to program 00 (straight filling)

3.1 Working with a clipper

- Connect the clipper to the HP machine via the remote control socket.
- Set up a filling program as described in ch. 1.3. Select REMOTE-END mode.
- In the case of particularly large portions, it is recommended that the REMOTE-STOP mode be selected.
- The length of the clipping signal is set with the twist-linking time. Choose a time between 100 and 250 ms.
- Adapt the pause time to the working speed of your clipper. Start with 450 ms.
- Subsequently you can increase production speed by entering an advance for the clipping signal (INFO 8, "T-CLIP", e.g. -50 ms). The pause time set previously is automatically reduced.

3.2 Working with the pneumatic double outlet 889

- First connect the double outlet's special remote control plug to the filling machine.
- Now set up a filling program as described in ch. 1.3.
- Select REMOTE-STOP or REMOTE-END modes.
- Select a filling speed which corresponds to your wishes when both knee levers are operated.
- If only one knee lever is operated, the filling speed is 57% of the filling speed previously set.
- This percentage dependency can be adapted using INFO 11 "D-OUT".

3.3 Working with pressure control

A prerequisite for operating the ROBBY, HP or DP machine with pressure control is the complete assembly of the pipework and the correct initial loading (3.5 to 5 bar air pressure) of pressure compensation vessel 865.

- First select program 0 and the PRESS mode.
- Select the feed pressure (e.g. 60 = 6.0 bar) using the 5 keys.
- Operate the knee lever or remote control contact after the hopper has been filled with product.

First the filling machine slowly begins to fill the pipework. The message "FILLING SYSTEM!" appears in the display. Once a minimum pressure has been reached, the machine switches over to pressure control and sets the feed pressure desired.

The message "FEED PRESSURE:....bar" appears in the display, showing the current pressure in the pipework.

If the hopper is accidentally run empty, the pressure control automatically switches off and the message "HOPPER EMPTY?" appears in the display.

The pressure control is also turned off automatically if no product is removed for longer than 3 min.

If the machine cannot reach the pressure selected for indeterminate reasons, the message "FEED PRESSURE TOO LOW" appears (e.g. pipe connection open, wrong feed screw and thus too little feed output). In this case too, pressure control is switched off after a few seconds.

If pressure control has been switched off automatically, it has to be restarted with the knee lever or remote control contact as described.

3.4 Working with Coex 891

- Connect the plug of the coex portioner 891 to the standard remote control sockets of the A and B machines.
- Select straight filling for both machines (PR 0 "PORTIOMAT SWITCHED OFF").

The operating mode required for both machines is remote control with interruption of portioning (on HP and DP machines, ROBBY and ROBBY-2 REMOTE-STOP mode).

3.5 Working with Coex 892

The A and B machines each require an auxiliary coex socket.

- Connect machines A and B using the coex sockets.
- Connect the inner seal to the standard remote control socket of the B machine.
- Set up a filling program on the A machine for outer filling with twist-linking.
→ ch. 1.3 (Creating a filling program)

- Select knee lever mode KNEE-I or KNEE-II.
- If the A machine is an HP, DP, ROBBY or ROBBY-2, then adjust the position of inner filling by selecting the delay time for the start of the B machine using INFO 13 "T-COEX".
- If the B machine is an HP, DP, ROBBY or ROBBY-2, then select the COEX-B mode.
- Now create a filling program on machine B for inner filling. It is not necessary to set the pause.

Quantity and shape of the inner filling are dependent only on the weight and speed set.

If the A machine interrupts control of the B machine before it was able to complete a portion, then the message "PORTION END NOT REACHED" appears in the display of the B machine. If the A machine completes a portion before the B machine has been started, the message "T-KOEX TOO LONG" appears.

3.6 Working with Coex 893

The A and B machines each require an auxiliary coex socket.

- Connect machines A and B using the coex sockets.
- Connect the diaphragm to the standard remote control socket of the A machine and the inner seal to the standard remote control socket of the B machine.
- Select straight filling (PR 0) "PORTIOMAT SWITCHED OFF" for the A machine.

The mode required for the A machine is remote control with interruption of portion (on HP and DP machines, ROBBY or ROBBY-2 REMOTE-STOP mode).

- If the A machine is an HP, DP, ROBBY or ROBBY-2, then adjust the position for inner filling by selecting a delay time for the start of the B machine using INFO 13 "T-COEX".
- If the B machine is an HP, DP, ROBBY or ROBBY-2, then select the COEX-B mode.
- Now create a filling program on the B machine for inner filling. It is not necessary to set the pause.

Quantity and shape of the inner filling are dependent only on the weight and speed set.

If the A machine interrupts control of the B machine before it was able to complete a portion, then the message "PORTION END NOT REACHED" appears in the display of the B machine. If the A machine completes a portion before the B machine has been started, the message "T-KOEX TOO LONG" appears.

3.7 Working with Coex 894

The A and B machines each require an auxiliary coex socket.

- Connect the A and B machines using the coex remote control sockets.
- Select straight filling (PR 0) "PORTIOMAT SWITCHED OFF" or a filling program for machine A.

The operating mode required for the A machine is KNEE-I or KNEE-II.

- If using a clipper, select remote control mode (on HP, DP, ROBBY or ROBBY-2 REMOTE-STOP or REMOTE-END modes).
- If the A machine is an HP, DP, ROBBY or ROBBY-2, set the position of the inner filling by selecting the delay time for the start of the B machine using INFO 13 "T-COEX".
- If the B machine is an HP, DP, ROBBY or ROBBY-2, then select the COEX-B mode.
- Now set up a filling program on the B machine for inner filling, or select straight filling. It is not necessary to set the pause.

Quantity and shape of the inner filling are dependent only on the weight and speed set.

If the A machine interrupts control of the B machine before it was able to complete a portion, then the message "PORTION END NOT REACHED" appears in the display of the B machine. If the A machine completes a portion before the B machine has been started, the message "T-KOEX TOO LONG" appears.

3.8 Working with the pneumatic portioning valve 863

- First connect the special remote control plug of the portioning valve to the remote control socket of the filling machine.
- Now set up a filling program as described in ch. 1.3.
- Select KNEE-I or KNEE-II modes.
- Initially select 200 ms for the pause.
- Using INFO 14 "T-PORT", determine the start of the portion as a function of the degree of opening of the portioning valve.

Initially select a time of 100 ms.

3.9 Working with the digital check weigher 877

3.9.1 Setting up

- First place the 877 check weigher on as level a surface as possible and level the position with the aid of the level indicator.
- Then connect the mains plug and the data line to the filling machine. After the filling machine is switched on, the message "*****SCALE IS ACTIVE*****" appears in the display, and on the printer, the text "VEMAG PC 880 WEIGHT CONTROL" appears. This ensures that data exchange is functioning.

3.9.2 Checking the check weigher

At the start of a production day, the scales should be checked for correct function.

- To do this, select PR 00 and follow the test steps of the report printer. If the check weigher is functioning properly, the printout "SCALE CALIBRATED AND READY FOR WORK" appears.

Note that the data are not transferred until the "g" appears next to the weight on the scales display.

3.9.3 Enter the number of samples and start

When you select the filling program desired (PR 02 to PR 90), INFO 15 "NOSCAL" appears at the same time.

- At this point, use the 11 keys to enter the number of portioned pieces you would like to put on the scales at each weighing.
- Then enter as usual the weight of one portion and the usual values for pause, clipping time, speed etc.
- Start production with the knee lever or clipper and put the third portion on the scales. The PC 880 will then undertake automatic correction.
- Repeat the process twice, by which time the nominal weight should have been reached. The report printer will list every subsequent weight sample and the PC 880 will keep the average weight constant.

3.9.4 Evaluations and messages

Evaluation of the weight samples put on can be started using INFO 16 "REPORT PRINT?" and the [-] 11 key.

Automatic printout of report for the check weigher 877 is triggered as a function of product weight and resolution in accordance with the following table:

<u>Weight (g)</u>	<u>Resolution (g)</u>	<u>Print after ... portions</u>
5.0 - 500.0	0.1	99
500.1 - 1000.0	0.1	40
1001 - 5000	1	99
5001 - 10000	1	40
10001 - 16000	1	15

If the filling program is changed without printing the evaluations beforehand, this occurs automatically.

The operator is reminded both by the display ("PUT ON NEW SAMPLE PLEASE") and by an acoustic signal when 10 kg (or upwards of 400 g- portions, 25 portions) have been filled.

In the case of large deviations from the nominal weight, 2 messages may appear: "TOO LIGHT" or "TOO HEAVY" (in this case, the weight is only accepted if the portion is put on a second time) or "+- 12.5%" (in this case, the weight is not accepted). In the case of extreme deviations, the message "CHECK FEED SYSTEM OR NUMBER OF SAMPLES PUT ON SCALE" also appears.

The scales are tared automatically at every start (e.g. with the knee lever) or during portioning if the weight shown on the scales without a sample on them is between +1 g and + 10 g or is less than -1 g. Weights displayed between -1 g and +1 g are tared only by activating the knee lever or by a remote control start.

3.10 Special functions

3.10.1 Program blocking

The filling machine can optionally be equipped with program blocking. This means that the operator can then alter only the following parameters on any filling program:

- Weight correction
- First portion
- Back suction quantity
- Mode
- Portion counter

If program blocking is switched on, then the message "PROGRAMMING BLOCKED" appears after the machine is switched on.

3.10.2 Use of metal detectors

To enable the interruption of portioning in KNEE-II mode by a metal detector, the remote control connector should be configured as follows:

- Break contact of metal detector to A and C,
- bridge between A and D and between S and L,
- set INFO 14 (T-PORT) to "OFF".

We recommend the following configuration in REMOTE-END or REMOTE-STOP mode:

- If using a clipper, remove the A-D bridge in the connector.
- Run a break contact of the metal detector to contacts A and D of an additional remote control connector.

3.10.3 Messages regarding maintenance required on the filling machine

After the machine is switched on, the following message may appear in the display: "CARRY OUT MAINTENANCE NO: ..."
"START MACHINE PLEASE".

The number shown means that specific maintenance has to be carried out on the machine to ensure that it functions properly in the long term. Please let your service engineer know the number.

The meaning of the number should be taken from the operating instructions of the relevant filling machine. Subsequently turn the machine off and then on again.

3.10.4 Direct jump from one filling program to PR 00 (straight filling)

It is possible to jump straight from one filling program into program 00 (straight filling) using [-] 10 key. This is intended to make it easier to empty the machine when the product is changed. Operating [+] 10 key switches you back to the previous program. If INFO 1 (portion counter) was set in the filling program the query "DELETE?" will appear in the display when [-] 10 key is pressed. Press this key again to switch to PR 00.

4. Error messages

Error message in the display		Procedure
ERROR: VOLTAGE LE+5 V FUSE	F4	Change fuse on mains supply
ERROR: VOLTAGE LE+15 V FUSE	F5	ditto
ERROR: VOLTAGE LE-15 V FUSE	F6	ditto
ERROR: VOLTAGE F+24 V FUSE	F9	ditto
ERROR: VOLTAGE PC+15 V FUSE	F2	ditto
ERROR: VOLTAGE PC-15 V FUSE	F3	ditto
ERROR: VOLTAGE V+24 V FUSE	F33	Change fuse on connector block
ERROR: VOLTAGE FS-VALVE FUSE	F51	Change fuse on power electronics
ERROR: VOLTAGE TWIST/RINGG.-VALVE	F50	Change fuse on power electronics
ERROR: FILLING PROGRAM DELETED		Put in program again, contact service agent
ERROR: HYDR. PUMP MOTOR OVERLOAD	F26	Check cooling, contact service agent
ERROR: VACUUM PUMP MOTOR OVERLOAD	F27	Check vacuum pump and oil level, clean
ATTENTION! SAFETY CIRCUIT OPEN FILLING HORN HOLDER	B1, B2, F28	Filling horn holder or swivelling plate not closed
ATTENTION! SAFETY CIRCUIT OPEN STEP	S4, B4, B7	Fold in step
ATTENTION! SAFETY CIRCUIT OPEN HOPPER	S5, B5	Close hopper
ATTENTION! SAFETY CIRCUIT OPEN CONVEYOR	B1	Close lower part of hopper (only on ROBBY)
PROVISIONAL DRIVE	S6	"Provisional drive" selected on key-operated switch
ERROR: OIL LEVEL AT TANK TOO LOW	B6	Check oil level in hydraulic tank, check hydraulic system for oil leakage
ERROR: OILTEMPERATURE TOO HIGH	B10	Contact service agent, load may be too high, insufficient cooling
ERROR: ENCODER FEED SYSTEM BLOCKED? SUPPLY?		Check phase-sequence, foreign body in feed system, replace encoder or contact service agent
ERROR AT UPPER KEY AREA		Contact service agent, poss. change keyboard
ERROR AT LOWER KEY AREA		Contact service agent, poss. change keyboard
REMOTE CONTROL ACTIVE!		Remote control contact activated although KNEE-I or KNEE-2 is set
PLEASE CONTACT SERVICE AGENT		Contact service agent

5. Messages

Message in the display	Description
PORTIOMAT SWITCHED OFF	Straight filling
GRAMME ADJUSTMENT LIMIT	Product weight
WEIGHT LIMITED SPEED	Product weight
CLIP - DELAY LIMITED PAUSE	Pause time
TWIST - DELAY LIMITED PAUSE	Pause time
PRECLIP / SPEED LIMITED PAUSE	Pause time
SPEED LIMITED PAUSE	Pause time
SPEED / TWIST-TIME LIMITED PAUSE	Pause time
SPEED LIMITED PAUSE	Filling speed
NEW FILLING QUANTITY?	INFO 00 + 1.3 Creating a filling program
DELETE?	INFO 01 + Direct jump to PR00
N	INFO 06
PAUSE LIMITED PRECLIP	INFO 08
WEIGHT / SPEED LIMITED PRECLIP	INFO 08
**T-COEX NEGATIVE!	INFO 13
SPEED CORRECTED	INFO 18
B	Back suction
BACK SUCTION BLOCKED B5	Back suction
FEED PRESSURE	Working with pressure control
HOPPER EMPTY?	Working with pressure control
FEED PRESSURE TOO LOW	Working with pressure control
T-KOEX TOO LONG	Working with Coex 892, 893, 894
PORTION NOT FINISHED	Drive mode Coex-B
***** SCALE IS ACTIVE *****	Working with the 877 scale
SCALE CALIBRATED	Working with the 877 scale
PUT ON NEW SAMPLE PLEASE	Working with the 877 scale
<<<<<<<<< TOO LIGHT	Working with the 877 scale
TOO HEAVY >>>>>>>>>	Working with the 877 scale
CHECK FEED SYSTEM OR NUMBER OF SAMPLES PUT ON SCALE	Working with the 877 scale
PROGRAMMING BLOCKED	Special function Program blocking

Message in the display	Description
PERFORM MAINTENANCE NO: BRIDGE A-D MISSING	Special function Maintenance on the filling machine The remote control connector is incomplete or has no contact

[illegible]

