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**VEMAG (HP7E /HP10E/HP12E/HP15E/ HP20E MODELS)**

**1.1 DESCRIPTION OF VEMAG & HOPPER**

The filler is equipped with a hopper for pouring in product for filling. The hopper is fitted with a safety device which switches off the machine when the hopper is open. A mirror attached to the hopper allows the contents to be checked.

**WARNING!**

To prevent injury, switch off the machine before doing any work on the hopper. Then switch off the main switch to disconnect the machine from the mains. Do not climb onto the machine to check the hopper contents or for cleaning and maintenance purposes, use only the step provided. Under no circumstances use a ladder or other aid to get at the hopper of the machine.

Proceed especially carefully when opening and closing the hopper to prevent injury (risk of crushing). Grasp the hopper only at the flange to tip it over carefully. Do not open the hopper as long as the lifting and tipping device is in its limit position.

**NOTE:** The hopper is fitted with cushioning as a partial counterweight to prevent the hopper falling shut under its own weight.

**1.2 CONTROL PANEL**

The following controls are arranged on the control panel on the front of the machine.

* On switch (1).
* OFF switch (2).
* UP key (3) for lifting/tipping device.
* STOP key (4) for lifting/tipping device.
* DOWN key (5) for lifting/tipping device.
* Vacuum display (6).
* Vacuum control valve (7).

ON KEY – switches on the drive of the machine.

OFF KEY – Switches off the drive of the machine.

UP KEY – Raises the trolley hoist of the lifting/tipping device. In the top end position above the hopper. The trolley is automatically tipped and emptied. After 30 seconds have elapsed, the trolley hoist can be lowered again using the DOWN key. If it is to be lowered before that, the STOP key has to be pressed first.

STOP KEY – This key stops the trolley hoist of the lifting/tipping device

**1.3 HOPPER DISASSEMBLY FOR CLEANING**

* Unlock the 2 locking levers (1) on the hopper housing and carefully tip the hopper backwards. Hold the hopper firmly by flange (2) as you do so.
* Remove the scraper in the hopper if present.
* Push back the three slidding sleeves (3) in the hopper flange , holding the feed screw (4) steady with the other hand. Carefully twist the feed crew out of the hopper flange.
* Remove the sealing ring (1) from the hopper flange (2). Use the appropriate tool at the cleaning plug (3) .
* Guide the feed screw (1) into the hopper in such a way that the three sliding sleeves (2) are located behind the shoulder (3) of the hopper flange.
* Push the sliding sleeves outwards so that they engage behind the shoulder, holding the feed screw steady with the other hand.
* Carefully press the sealing ring into the appropriate groove in the hopper insert. Fit the sealing ring without greasing it.
* Lubricate the sealing ring (4) in the hopper insert by hand.
* Turn the feed screw so that the sliding sleeves can engage in the recesses of the catch ring (5).
* Close the hopper and lock the two locking levers (6) on the hopper housing.

**1.4 DAILY MAINTENANCE OF SEALS USING LUBRICATION TECHNIQUES**

The feed unit seals must be lubricated daily every time they are cleaned. Use only high-performance grease which is safe for food use.

* Carefully press the sealing ring into the appropriate groove in the hopper flange. Fit the sealing ring without greasing it.
* Lubricate the sealing ring (1) and the sliding ring (2) in the hopper flange by hand before the feed screw is fitted.
* Guide the feed screw (1) into the hopper in such a way that the three sliding sleeves (2) are located behind the shoulder (3) of the hopper flange.
* Push the sliding sleeves outwards so that they engage behind the shoulder, holding the feed screw steady with the other hand.
* Carefully press the sealing ring into the appropriate groove in the hopper insert. Fit the sealing ring without greasing it.
* Lubricate the sealing ring (4) in the hopper insert by hand.
* Turn the feed screws so that the sliding sleeves can engage in the recesses of the catch ring (5).
* Close the hopper and lock the two locking levers (6) on the hopper housing.

**1.5 LOCK THE MEAT TROLLEY IN SAFE POSITION**

* Operator must always remove obstacles close to the Trolley hoist.
* Always check that the trolley hoist is on the ground, and slighty push the cart to the trolley hoist.
* Ensure the locking lever (1) is locked in with the cart before it’s ascends to the hopper.
* Always make frequent check’s that the locking lever (1) is properly locked and is holding the cart/trolley securely in the trolley hoist.
* Never stay close to the trolley whilst it goes up and down the hopper.

**FORMING MACHINE FM250**

**Special safety instructions**

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**WARNING!**

To prevent injury, switch off the machine before any work (assembly, dis-mantling, cleaning, maintenance, repair) is carried out on it. Then pull out the mains plug to disconnect the machine from the mains.

There is a risk of cuts from the blade of the forming machine. Do not put a finger or any other object in the intake area of the blade. Proceed with extreme caution with any cleaning and maintenance work on the blade to avoid injuries from cuts.

There is a risk of trapping at the conveyor belt and flattening belt of the forming machine. Make sure that clothing or hair are not drawn in by the conveyor belt or flattening belt.

There is a risk of crushingfrom the forming machine hoods. Proceed with extreme caution when opening and closing the hoods to prevent injury.Always open the hoods to their final position.

Perform the following measures before starting up the machine each time:

* Check that the machine is in proper working order.
* Check that the safety devices provided on the machine covers and on the connection to the filler are working properly.

NOTE : If you find any damage contact MAINTENANCE.

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**2. DESCRIPTION**

The forming machine can be used to shape products from meat and vegetable mixes which hold their shape.

The forming machine is connected directly to a VEMAG filler. A grinder in between ensures a

final cut immediately before the product is shaped and isolated. A flattening belt gives the products the desired final height as they run on a conveyor belt. The isolated products are then passed on for further processing.

The forming machine is controlled via the portioning computer of the vacuum filler. The operator can vary the size of the product by making weight corrections on the portioning computer. Forming nozzles which are simply pushed on allow a wide variety of shapes of product (e.g. round, cylindrical, disc-shaped or even individual shapes) to be made.

The forming machine FM250 can be operated with the following fillers:

• ROBOT 500 • HPE-series

**2.1 Overview of the FM 250**

The forming machine consists of machine housing (1), cutting unit (2), conveyor belt (3) and flattening belt (4). The forming machine can be moved on its casters (5).

**2.2.1 Forming and cutting unit**

The cutting unit consists of a nozzle (1) and a support ring (2) for shaping the product and a sickle – shaped blade (3) for cutting the portions. The forming machine is connected to the grinder (optional) via the expansion pipe (4).

**Special Safety Instructions**

To prevent injury, always switch off the machine before any work (assembly, dis-mantling, cleaning, maintenance, repair) is carried out on it. Then pull out the mains plug to disconnect the machine from the mains.

There is a risk of cuts from the blade of the forming machine. Do nut put a finger or any other object in the intake area of the blade. Proceed with extreme caution with any cleaning and maintenance work on the blade to avoid injuries from cuts.

There is a risk of trapping at the conveyor belt and flattening belt of the forming machine. Make sure that clothing is not drawn in by the conveyor belt or flattening belt.

There is a risk of crushing from the forming machine hoods. Proceed with extreme caution when opening and closing the hoods to prevent injury.

Perform the following safety checks before each start-up:

1. Check that the machine is in proper working order.
2. Check that the safety devices provided on the machine covers and on the connection to the filler are working properly.
3. Notify maintenance if there are safety concerns or machine damage.

**WARNING!**

There is a risk of cuts from the blade of the forming machine. Do not put a finger or any other object in the intake area of the blade. Proceed with extreme caution with any cleaning and maintenance work on the blade to avoid injuries from cuts.

**2.2.2 Conveyor belt**

Conveyor belt (1) takes separate portions away for subsequent processing.

**2.2.3 Flattening belt**

Flattening belt (1) is used to help bring the product in its separate portions to the desired diameter and thickness.

**2.2.4 Controls**

The following controls are arranged in the control panel on the front of the machine:

* ON button (1)
* OFF button (2)
* START button (3)
* STOP button (4)
* Speed controller for conveyor belt and flattening belt ( ROBOT 500 only )

**4.4 Fitting the forming nozzle and the support ring**

A forming nozzle plus associated support ring is used depending on the product.

* Grease the contact surfaces of the forming nozzle and the sealing ring in the connecting pipe lightly before fitting the forming nozzle.
* Insert forming nozzle (1) in the connecting pipe (2). Grove (3) must be located in the appropriate key in the connecting pipe.
* Tighten up union nut (1) using sickle spanner (2).

**4.5 Fitting the expansion pipe**

An expansion pipe is placed between the connecting pipe and the meat grinder. The expansion pipe depends on the filler used.

* Grease the contact surfaces of the connecting pipe and the expansion pipe lightly before fitting the expansion pipe.
* Insert expansion pipe (1) in the connecting pipe (2) Support (3) must point towards housing (4) of the cutting unit.
* Tighten up union nut (1) using sickle spanner (2).

NOTE:

The forming machine is equipped with a safety setting which takes the form of a sensor in the cutting unit interrogating a magnet in the expansion pipe. This ensures that the forming machine cannot be operated without a filler.

**4.6 Connecting to the filler**

The expansion pipe is connected via a flange on the sausage grinder or separation grinder. The flange depends on the grinder used.Spare parts catalogue for forming machine 250.

* Insert flange (1) in the sausage grinder or separation grinder (2).
* Tighten up union nut (1) using sickle spanner (2).
* Grease the contact surfaces of the flange and the sealing ring in the expansion pipe lightly before fitting the expansion pipe.
* Push the forming machine in front of the grinder in such a way that expansion pipe (1) is located in flange (2).
* Tighten up union nut (3) using sickle spanner (4).

**4.7 Adjusting the conveyor belt**

The height of the conveyor belt must be adjusted to suit the forming nozzle and the product. The threaded spindle for adjusting height has a scale.

Adjust the level of conveyor belt (1) with the aid of right-hand handle (2) on the height adjusting mechanism in such a way that the belt is located approximately at the level of the bottom edge of forming nozzle (3). The products discharged from the forming nozzle must drop cleanly onto the conveyor belt.

**4.8 Adjusting the flattening belt.**

The height of the flattening belt must be adjusted depending on the desired diameter and thickness of the product. The threaded spindle for adjusting height has a scale.

* Adjusting the level of flattening belt (1) with the aid of left-hand handle (2) on the height adjusting mechanism is such a way that the distance between the flattening belt and conveyor belt (3) corresponds to the product thickness desired before subsequent processing.

**4.9 Adjusting the scrapers**

The conveyor belt and flattening belt are equipped with one scraper each.

* Undo wing nuts (1) and push scraper (2) towards the belt until it almost toches belt (3).
* Then tighten the nuts back up.

**NOTE:** Do not press the scrappers hard against the belts to prevent damage to the belts. There should be a slight gap between the scraper and the belt.

**10. Collecting product residues**

A crate can be placed under the collection hopper to collect product residues.

* Push a crate (1) between the rails (2) under collection hopper (3).

**Starting production with the forming machine**

To start production with the forming machine, proceed as follows:

* Set up the filler and the forming machine for the product to be portioned.
* Switch on the filler at the main switch and press the ON button on the control panel of the machine.
* Press ON button (1) and then START button (2) on the control panel of the forming machine.

**NOTE**: It is essential to check that the safety devices on the filler are working properly.

It is essential to check that the safety devices are working properly.

* Open the two machine covers one after the other.
* Start the forming machine without connecting it to the filler via the safety device.

The machine must switch off automatically in each case.If the machine does not switch off, you may not continue working with the machine. In this case notify MAINTENANCE.

If the forming machine switched off automatically after the machine cover was opened, the machine cover was opened, the machine cover needs to be opened and closed again once to start the machine.

* Fill the hopper of the filler with the product( meat ) from the meat grinder.
* Press REMOTE – STOP mode for the knee lever of the filler. In this mode, the filler is controlled by the forming machine.

The following steps are required to start production with the forming machine:

* Set filling weight of meat.
* Set pause.
* Set blade pulse.
* Set filling speed.
* Set speed of conveyor belt and flattening belt.

**SETTING FILLING WEIGHT**

**STEPS INCLUDE:**

Select a filling program on the portioning computer of the filler.

Enter filling weight (= specified weight) on the portioning computer.

Press the START button and allow the machine to portion about 5 portions.

Press the STOP button to stop the machine.

Weigh the 4th portion and enter the difference from the specified weight as the weight correction on the portioning computer.

Repeat this process until the weight of the 4th portion corresponds to the specified weight.

**Setting pause;** Enter a value for the pauses between the individual portions on the portioning computer.

**Setting blade pulse;** Enter a value for blade pulse (= clipping pulse) on the portioning computer.

**Setting filling speed;** Enter a value for filling speed on the portioning computer.

**Setting the speed of the conveyor belt and the flattening belt;** The speed of the conveyor belt and the flattening belt is set on the portioning computer of the filler.

**NOTE:** If the filling speed of the filler is altered, the speed of the conveyor belt also needs adapting to suit.Adjust the speed of the flattening belt to the value for the conveyor belt. Depending on the product, it may be necessary to adapt the speed for the flatenning belt.

**6. Cleaning and safety**

The forming machine must be cleaned daily.

* To prevent injury, switch off the machine before any cleaning work.

Then pull out the mains plug to disconnect the machine from the mains.

* Press the OFF button on the control panel of the filler and switch off the main switch.
* Disconnect the connecting cable between the forming machine and the filler.
* Disconnect the water hose from the forming machine.
* Disconnect the connecting cable of the forming machine from the inhouse connection.
* Remove all bins.
* Open the machine covers.

**6.2.3 Connection to the filler**

Undo union nut (1) using sickle spanner (2).

Pull the forming machine off the grinder.

Undo union nut(1) using sickle spanner (2).

Pull flange (1) out of sausage grinder or separation grinder (2).

**6.2.4 Expansion pipe**

* Undo union nut (1) using sickle spanner (2).
* Pull expansion pipe (1) out of connecting pipe (2).

**FORMING NOZZLE AND SUPPORT RING**

* Undo union nut (1) using sickle spanner (2).
* Pull forming nozzle (1) out of connecting pipe (2).

**REGRINDING THE CUTTING BLADE**

The blade of the forming machine needs to be reground regularly. The lifetime of the blade depends on the product.

Grind the blade as soon as you notice cutting performance dropping

Undo nut (1) using universal spanner (2). Hold the hub steady as you do so using spanner (3).

Pull the blade off the hub carefully.

**SAFETY WHEN REGRINDING**

There is a risk of cuts from the blade. Proceed with extreme caution when fitting and removing the blade to prevent injury.

Regrinding of the blade must be done by a trained maintenance technician.

**8. Troubleshooting table**

|  |  |  |
| --- | --- | --- |
| **Fault** | **Cause** | **Remedy** |
| Machine not running. | Machine cover(s) not closed.  Connection to filler ( safety device not correct).  Start button not pressed. | Close machine cover(s).  Connect forming machine to grinder of filler using the expansion pipe.  Press ON button.  Press START button. |
| Filler not portioning. | Remote control cable not connected.  Plug of remote control cable corroded.  Incorrect mode selected for kee lever. | Connect cable to remote control socket of the filler.  Replace plug and protect from moisture.  Select REMOTE-STOP mode. |
| Product shape not right. | Wrong nozzle used.  Wrong support ring used.  Flattening belt incorrectly used. | Use control nozzle.  Use correct support ring.  Adjust flattening belt so that the relationship between product diameter and height is correct. |
| Product smearing. | Blade blunt.  Blade set not correctly clamped (sausage grinder or separation grinder).  Cuttingtools blunt or not plane (sausage grinder or separation grinder).  Hole plates flexing (sausage grinder or separation grinder). | Regrind or replace blade.  Clamp blade set as per specification.  Remove blade set and thoroughly clean all components – especially the hole plates.  Check that plates and blade are plane and regrind if necessary.  Maintain the specified grinding dimensions to prevent flexing. |
| Weight flunctuations. | Filler portioning not working properly. | Check the portioning on filler. |

**PATTY PAPER INTERLEAVER (PPI -200) OPERATION AND SAFETY**

**Controls and Indicators**

The model PPI-200 Inteleaver controls and indicators are located in three places on the machine:

* Main Electrical Enclosure Interleaver.
* Front Operator Station Interleaver.
* Main Electrical Enclosure Stacker.
* Stacker Junction Box.

NOTICE There is an electrical lockout device ( LOCK - OUT - TAG – OUT ) located on the main cabinets of each machine.

NOTE: The above diagrams are representative only. Layout, dimensions and components may vary.

**Interleaver Operator Station Controls and Indicators**

|  |  |  |
| --- | --- | --- |
| CONTROL/INDICATOR | TYPE | DESCRIPTION |
| POWER OFF – ON SWITCH  FUNCTION SELECTOR SWITCH  FUNCTION CHANGE SWITCH  EMERGENCY STOP | Two-position selector switch.  Three- positon selector switch.  Two position momentary selector switch.  Two position-maintained push button. | In the ON position , AC power is applied to CI, which supplies control power to the motor control driver relays.Also acts as ready to start and fault indicator.  Three position switch that selects the three adjustable functions; paper length, product position and conveyor/paper feed speed control.  Two position switch to increase or decrease the function selected by the Function Selector Switch.  Removes power from drives when pushed. |

**FIGURE 4-2 Stacker Main Electrical Enclosure Controls and Indicators**

**Table 4-2 Stacker Operator Station Controls and Indicators**

|  |  |  |
| --- | --- | --- |
| **CONTROL/INDICATOR** | **TYPE** | **DESCRIPTION** |
| POWER ON/OFF SWITCH  START/JOG PUSH BUTTON  INFEED CONVEYOR SPEED CONTROL.  RECIPE SELECT SWITCH  E-STOP | Two position selector switch.  Momentary push button.  10K OHM potentiometer.  Four position selector switch.  Two position maintained push button. | In the ON position, AC power is applied to C1, which supplies control power to the motor control driver relay, and powers up all drives. Also acts as ready to start and fault indicator.  Two functions, starts the meat stacker and after the stacker is started, jogs the exit conveyor.  Controls the speed of the infeed conveyor for the stacker.  Selects various production process variables and selects washdown.  Disables all drives. |

**NOTE: *EMERGENCY STOP ( E-STOP ) switch is located on the Stacker Control Box.***

**SYSTEM POWER UP-INTERLEAVER**

Do not start the PPI- 200 interleaver until a careful inspection of the conveyors is made.

1. Be sure nothing is on or obstructing the conveyors.
2. Verify Main Power Disconnect is ON ( should remain on to keep the controls active).
3. Rotate power switch to the ON position
4. Power Switch illuminates after a delay indicating the interleaver is ready for operation.
5. The Emergency Stop push button should be pulled out.
6. Push the Start Push Button located on the former. The Conveyor should ramp up to the programmed speed.
7. Push the Stop Push Button on the former to stop.

**SYSTEM POWER UP-STACKER**

Do not start the PPI-200 Stacker until a careful inspecton of the conveyors is made. Be sure nothing is on or obstructing the Conveyors or Stacker.

1. Verify Main Power Disconnect is ON (should remain on to keep the environmental controls active).
2. Rotate power switch to the ON position.
3. Power switch lluminates and flashes until stacker is ready to operate.
4. The Emergency Stop push button should be pulled out.
5. Push the Start/Jog Push Button located on the Stacker Main Electrical Enclosure. The Conveyor should ramp up to the programmed speed.
6. Push the E-Stop Push Button to stop.

**1st SHIFT PRE-PRODUCTION PROCEDURE**

To help prevent paper jams during start-up, machine operator should ensure that all components, conveyors and stacking systems are clean, dry, and free of obstructions.

1. Remove bags from cabinets and sensors.
2. Run all conveyors for 10 – 15 minutes to remove excess water.
3. Remove all covers/guards.
4. Check for obstructions in the paper path. Remove any obstructions observed.
5. From the top of the conveyor, use high pressure air to blow off all excess water.
6. Use paper towels to wipe off remaining water.
7. Replace covers/guards.

**PRE- PRODUCTION SETUP PROCEDURE FOR INTERLEAVER**

Preparing the interleaver for production operation involves loading paper and entering the operating parameters.

1. Verify that the Main Power Disconnect is ON for both the interleaver and stacker. Turn the switch on the Main Panel to the ON position.
2. Load paper and verify that the switch is OFF before PAPER threading.
3. Carefully inspect all conveyor, sensors and components are dry and free of obstructions before you switch on main control panel.
4. Verify that the light on the Main Control Panel switch is ON steady and not flashing.
5. Check if the Emergency Stop push button can be pulled out.
6. Press START on the Former and the Stacker. The conveyors will ramp up to the programmed speed.
7. Next step before full production operation, is to start production feeding on a test basis and adjust product position and infeed conveyor speeds for the best paper feeding and stacking results.
8. The Interleaver and Stackers ready for production.

**KEYS TO BETTER PRODUCTION**

1. Follow proper POWER UP procedures.
2. Ensure program parameters / recipes are set up and selected.
3. Inspect : Do not start the system until a careful inspection of conveyors is made.Be sure nothing is on or obstructing the Conveyors or Stacker and that the paper is loaded.
4. START CONVEYORS – Press required start buttons.
5. Test feed product to verify adjustments and conveyor positions:
6. Activate product photo eye to check for proper paper feeding.
7. Adjust product position control to adjust the front-to-back positioning of paper.
8. Test stacker & exit conveyor operation:
9. Block photo eye to ensure proper paddle movement.
10. Push JOG button to advance exit conveyor and simulate complete stack.

**NOTE:**

* Keep the meat patty placed properly on the paper, as it should be centered on the paper.
* Pick up any stray pieces of meat that are not on the paper.
* Clean off any wax build-up daily in the paper path area for smooth paper feeding.

**STOPPING INTERLEAVER OR STACKER**

Use E-STOP to stop the interleaver or stacker and the stop on the Former to stop the interleaver.

**PAPER LOADING AND PAPER THREADING ON THE PPI**

1. Stop the PPI system.
2. Remove any paper in the paper feed section to avoid getting paper trapped and causing a start up fault.
3. Remove safety covers, if so equipped.
4. Remove the used paper core.
5. Put a roll of paper on the paper roll shaft such that it feeds rom the bottom of the roll.
6. Do not clamp the new roll of paper,between the shaft collars, it must move freely on the paper shaft.
7. Feed a length of paper from the roll by turning the roll by hand. Ensure the leading edge has a clean cut before lacing the paper.
8. Feed the paper from the top of the roll, lace around the dancers, then feed the paper to the bottom of the lower roller and turn the roller by hand to pull the paper just above the bottom roller or turn the air off and feed the paper above the bottom roller and turn the air on to clamp in place. NOTE: Feed the paper just above the bottom roller ( pull roll) not all the way to the top of the conveyor.
9. Start the Interleaver.
10. Activate the paper feed photo eye and note the first few pieces of paper exiting the paper feed area.

**IMPORTANT SAFETY TIP:** *BE SURE TO REPLACE GUARDS BEFORE YOU ACTIVATE THE PAPER FEED SECTION.*

**PAPER LOADING DIAGRAM**

PAPER /FILM THREADING

PRODUCT FLOW

PAPER NIP (IDLER ROLL)

PAPER NIP ( TEAR ROLL)

PERFORATING KNIFE

KNIFE BACKUP ROLL

PAPER FEED (IDLER ROLL)

PAPER FEED ( PULL ROLL)

GRAVITY LOAD DANCER

SPRING LOAD DANCER

GUIDE BAR

PAPER ROLL

**THE REPAK (RE20)**

* 1. **FUNCTION**

The Repak RE20 is exclusively designed for the packaging of regular foodstuffs( meat patties ) and officially registered drugs ( both must meet the local presciptions and laws applicable locally) in airtight, closed film packaging. In oder to achieve this the machine works as follows:

Film is stretched between two chains on the infeed side of the machine. The first processingof the film takes place in the form die. Here a shape is produced in the film by vacuum forming. In the next part of the machine, the loading area, the shaped film is filled with the product to be packaged. Another film is stretched over the top of the product and sealed around it. During the sealing process the product can, if so desired, be vacuum pumped or filled with gas.Subsequently the various packages are cut loose from one another and, if required,holes are made in the packaging so that it can be hung up on a rack. The packaged products are removed from the machine via a conveyor belt or a chute.

* 1. **PARTS OF THE REPAK**

A diagrammatic figure of the machine is given below. The machine consists of the following main parts.

1. Bottom film unwind unit.
2. Forming station.
3. Sealing station.
4. Control panel.
5. Control cabinet
6. Top film unwind unit
7. Cross cutting unit.
8. Longitudinal cutting unit.
9. Conveyor belt.
10. Drive system.
11. Lifting system.
12. Vacuum pump.

The REPAK can also be fitted with other peripheral equipment, such as metal detectors, inclined conveyors, printing equipment etc.

* 1. **The Control Panel**

The machine is mainly run from the control panel fitted to the control cabinet.All the machine’s functions, such as temperature or choice of packaging program, can be operated via the touch screen.

**1.4.1 REPAK PERFORMANCE AND EFFICIENCY**

The REPAK can achieve an average of 16 cycles/min. The duration of a program is affected by:

* The dimensions of the packaging (length, width and height);
* The type of film used;
* The safety pauses between the stages;
* The final vacuum required in the packaging.

The condition for the machine to operate correctly is constant quality of water, compressed air, the vacuum equipment and the gas. This means, for example, that if the cooling water has a higher temperature this will lead to less cooling and badly shaped packaging. And the condition of the air in the space where the machine is situated is important.

**2. General safety measures**

The following are general safety instructions on how to use the machine by the operator:

* Before using the machine, read the manual.
* Operating the machine should be done by a trained operator.
* Never leave the machine turned on and unsupervised.
* In dangerous situations, always press the emergency button immediately.
* After pressing the emergencybutton always make sure that the work environment is safe to operate before switching the machine back on for production.
* After production, turn off the power and air supply. Shutting off the air supply immobilizes the moving parts and the blades.
* Repairs are to be carried out by a trained maintenance personnel in the company or exclusively by Repak.
* Use the built in safety systems and maintain them. Making changes to or adding short circuits to these systems is forbidden and cancels all warranties.
* Do not operate machine unless all protective safety covers and side plates are present and in place.
* Never must you remove safety covers during production.
* Wear protective clothing the edges of the film can be very sharp and cause wounds.

**2.1 Identification of danger zone symbols on Repak**

The Repak has several danger zones. A danger zone is an area where various types of danger are present that can seriously wound the person operating the machine.

**2.2 Emergency Stop Switch ( E-STOP )**

The E-stop button is meant to be used in situations where dangers occur in the process of production, requiring the machine to be stopped immediately. The E-stop is mounted on the front of the control panel and can be identified by its RED color and YELLOW edge.

When the emergency switch is pressed, the machine stops its cycle immediately, pressure drops in the equipment and cylinders and the equipment opens up.

The maintenance/technical department should be called in to resolve any technical problems. To re-start the machine the E-stop has to be pulled out and reset cleared from the machine, before production can continue.

**3. Operation of the Repak**

The food packaging is achieved when two sets of films are melted together along the edges to create a closed package.

The process starts when the film is fed in, with the bottom film (Forming film) being unrolled. The film is also stretched between the transport chains. The chain moves the film forward in stages, known as stroke lengths. The first stage is the shaping stage. Here the film is first fixed between the top part of the mould and the bottom part. The upper plate has a temperature of between 80-120 degree Celsius and ensures that the film can be shaped

**3.1 Bottom film unwind unit**

The bottom film is unwound from a roll attached to the machine.

At point A the chain clips open, close again at point B and clamp the film on both sides. The

Unwinding of the film is braked by the cover that rests on the roll so that the film does not roll off. If necessary, the cover can be weighted with extra weights. An infeed roller positions the film properly in the chain clips.

**3.2.5 Product support bars**

The product support bars are situated in the loading area.

These aluminum profiles prevent the (filled) film from sagging too much. The packaging also requires support following the loading area. This is achieved with shorter product support bars.

**3.2.8 Sealing station**

In the sealing station the filled packages are sealed with top film. The filled packages are drawn into the sealing station and closed by the sealing die bottom part. The bottom part is raised by the same type of lifting gear used in the forming station. First the bottom part seals the outer edge of the package and creates a vacuum on the outside of the package. Then, depending on the type of packaging, a preservative gas is fed into the bottom part via hollow blades. The contents of the package can also be placed under vacuum. Following this, the packaged product is closed by melting the upper and bottom film together. The sealing station opens and the filled package is moved on.

**3.2.9 Cross cutter**

Cross cutting involves separating the sealed packages from one another in a crosswise direction. The machine is fitted with a guillotine-type longitudinal cutter. The guillotine cross cutter consists of a plate that is raised and lowered by a pneumatic cylinder. At its highest position, the film is clamped and a blade in the upper part of the guillotine cuts the packaging loose in a crosswise direction on the conveyor belt.

**3.2.10 Longitudinal cutter**

The longitudinal cutter cuts the packages loose from one another in the direction of their transport.The cutting is performed by a number of rotating blades. The blades are adjustable and are fixed to a shaft driven by an electric motor. The longitudinal cutter separates the product completely from the film. The remains of the film that are left in the chain clips are removed by a removal and folding system. Safety when maintaining or cleaning the cutter:

* Take care when replacing the blades. Even blunt blades can cause wounds.
* Always place the blade shaft in the protective covering supplied.
* Always place the blades on one side in a safe place.
* Always take hold of the blade shaft on the outside.

**4. CONTROL PANEL**

The machine is fitted with a rotating control panel mounted on the cabinet.

The panel consists of an on/off switch, an emergency stop switch and a touch screen. Practically all the functions required for the packaging process are operated from the touch screen. The wide-ranging settings are discussed

**4.1 How the touch screen works**

A touch screen is a VDU that can display all manner of figures and text, just like a PC monitor. But instead of having a separate keyboard, the touch screen allows the user to operate the machine simply by touching the icons displayed on screen.

The machine has a great many functions and settings, all of which are organised in menus to provide a logical overview. A menu is a collection of buttons and data displayed on the touch screen. The machine’s menus are put together below:

**Operator menu**

All underlying menus can be accessed from the operator menu simply by touching the name of the menu of your choice on the touch screen. A menu consists of a combination of the following four groups:

A Read-out functions, such as the machine status display: these provide information about the machine’s current status.

B The retrieval functions such as the menu options buttons: after touching them the user gains access to the menu chosen.

C The write functions, such as the inputting of parameters ( temperature,times etc.): after touching these, parameters can be changed using the keypad.

D On/off functions, such as the function keys: these work like a normal switch and show by change of color the status of the function ( on-off ). Buttons with a yellow edging are ‘off’ and buttons that are completely green are ‘on’.

**5. Safety instructions while operating the machine**

* Machine operators working the REPAK must always read an operations manual.
* Observe the warnings on display panel and follow instructions.
* In dangerous situations always press the E-stop ( emergency stop) button immediately.
* Once the E- stop button has been pressed, the machine may not be turned on again until the unsafe situation has been corrected.
* Before starting the machine place all protective covers and side plates in their correct positions.
* When turning off the main switch always use a lock( Lock out/ tag out ) in order to prevent unforeseen switching on or off by other persons.

**5.1 Emergency switch**

When danger threatens, always press the emergency switch immediately. The emergency switch is on the front of the control panel and can be recognized by its red color and a yellow edge. When the emergency switch is pressed, all dangerous movements are immediately halted and all the equipment opens. Once the dangerous situation has been corrected , the machine can be re-set by turning the red button out.

NOTE: When the emergency switch halts the machine the machine power is not switched off.

Never leave the machine unattended when turned on.

**5.2 Turning on the machine**

Staged plans have been drawn up for turning the machine off and on. The plans include all the actions that have to be performed for turning the machine on. The machine has 3 operational modes:

* Automatic operation. The machine repeats the packaging process continuously and stops when a set number of strokes have been performed or the process is terminated manually.
* Film infeed. This mode is used when a new roll of bottom or top film is being put in position. In this mode only the chain transport is active.
* Single step. In this mode the machine performs 1 stroke.

**6. Safety checks before the machine is turned on**

|  |  |  |
| --- | --- | --- |
| **No.** | **ACTION** | **REMARK** |
| **1.** | Format parts must be in place. | Check the connections for the format parts. |
| **2.** | Cover plates must be in place. | Each plate has its own unique place and can only be positioned in a certain way. |
| **3.** | Check cooling water supply: the tap must be turned on |  |
| **4.** | Check compressed air supply: the tap must be turned on. | Open external supply taps if necessary. |
| **5.** | Check protective gas supply: the tap must be turned on. |  |
| **6.** | Check that there is film present. | Never lift the rolls of film without help. Handle with extreme caution when carrying. |
| **7.** | The waste film removal system must be properly maintained. | Check waste cans on side. |
| **8.** | Carry out a visual and manual check to see that the plugs and other couplings are properly fitted in the sockets. | - |
| **9.** | Adjust the height of the conveyor belt to suit the packaging. | Adjust the height using the rotating switch under the belt. Also use the lock nut. |
| **10.** | Activate the required modules and peripherals via the control panel. | - |
| **11.** | Ensure that the peripherals are ready and, if necessary, are connected up. | - |
| **12.** | Is the control panel displaying error messages? | Clear errors on the screen and call for technical support. |

1. **Forming film set-up**

|  |  |  |
| --- | --- | --- |
| **No.** | **ACTION** | **REMARK** |
| **1.** | Make sure you put the machine in film infeed mode. | Use operator menu. |
| **2.** | Rise the film guide against the infeed roller. | Make sure it does not fall back. |
| **3.** | Place the roll of film on its shaft. | Use caution when lifting film roll. |
| **4.** | Replace the film guide on the film roll. | - |
| **5.** | Line up the film roll. | Fix it with lock nut, make sure that the setting button does not turn while being locked. |
| **6.** | Weigh the film guide down, if needs be, using extra weights. | Use help when lifting heavy weights. |
| **7.** | Place the film along the film rollers. | Roll out sufficient film. |
| **8.** | Place the film in the chain clips. | Draw the film tight when positioning it. |
| **9.** | Feed the film into the machine a fewstrokes. | Check that the film is not running crooked in the machine.Use the slow transport button next to the film infeed roll to feed the film in slowly. |
| **10.** | Choose the required operational mode and activate the machine. | - |