USER'S MANUAL

FILLING AND SEALING

AUTOMATIC MACHINE

MOD. PXG-2

MODEL... PXG-2...
NUMBER... PL 700635
PRODUCTION DATE... 2017
## CONTENTS

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## ANNEXES
1 Delivery Set

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PXG-2 machine as an assemble</td>
<td>1 PCs.</td>
</tr>
<tr>
<td>2</td>
<td>The frame legs support</td>
<td>10 PCs.</td>
</tr>
<tr>
<td>3</td>
<td>Air feeding tube</td>
<td>1 PCs.</td>
</tr>
<tr>
<td>4</td>
<td>Tools and spare parts box</td>
<td>1 PCs.</td>
</tr>
<tr>
<td>5</td>
<td>Outlet conveyor</td>
<td>1 PCs.</td>
</tr>
<tr>
<td>6</td>
<td>Manual</td>
<td>1 PCs.</td>
</tr>
<tr>
<td>7</td>
<td>Product feeding hopper</td>
<td>1 PCs.</td>
</tr>
</tbody>
</table>

2 The Machine Purpose and Production Versions of the Machine

Filling and sealing automatic Machine model PXG-2, further “machine” is intended for dosed filling and hermetic sealing of products in plastic containers. The machine tightly seals containers with the membrane cut from a roll. The customer’s specification includes the product description and containers sizes. The machine is provided with the appropriated filling assembly.

3 Technical Data

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Output PCs per minute</td>
<td>40-45</td>
</tr>
<tr>
<td>3.2</td>
<td>Nominal air pressure, bar</td>
<td>6-8</td>
</tr>
<tr>
<td>3.3</td>
<td>Consumed power, watt</td>
<td>3500</td>
</tr>
<tr>
<td>3.4</td>
<td>Power supply line voltage, volt</td>
<td>~3x(200-230) V</td>
</tr>
<tr>
<td>3.5</td>
<td>Control panel voltage</td>
<td>24 DC</td>
</tr>
<tr>
<td>3.6</td>
<td>Dimensions, mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- length</td>
<td>2913</td>
</tr>
<tr>
<td></td>
<td>- width</td>
<td>063</td>
</tr>
<tr>
<td></td>
<td>- height</td>
<td>2311</td>
</tr>
<tr>
<td>3.7</td>
<td>Weight, kg</td>
<td>~2200</td>
</tr>
</tbody>
</table>
4.1 Unpack the machine.

4.2 Take the machine frame legs out of the box. Screw the legs into the special holding holes placed at the frame corners. Adjust the machine level by means of the legs rotating (pic.1). When the machine will reach the horizontal position, screw the contra-bolts. Therefore the machine legs will be fastened relatively to the frame.

4.3 Release the machine from the packing materials and cut off all the plastic straps, holding the movable parts of the machine during the transportation.

4.4 Inspect the machine and make sure that all the mobile parts are released and there are no strange subjects at the machine.

4.5 Connect the hopper, outlet conveyer and outlet table to the machine in accordance with the appropriate marking.

4.6 Inspect the machine and make sure that all the wires are connected and that they have not been damaged during the transportation. Make sure that there is the suitable electric voltage in the electric socket, prior to switch on the machine (see technical data). Make sure that there is the earth in the electric socket. Insert the machine’s plug into the socket. Switch on the general switcher. At that the indicating lamp will light up at the power supply unit (inside the cabinet), and the computerized controller screen will be switched on as well. If the above mentioned has not been performed, it's necessary to switch off the machine and to invite a technician.

4.7 Check the pneumatic system tubes integrity. Inspect the machine and make sure, that all pneumatic tubes are connected and that they have not been damaged during transportation and adjustment. It is necessary to feed the pressed air to the machine and to switch on electric supply (see p. 4.6) at that all the machine’s assemblies will get in their initial position. Inspect the machine once more and check the tubes and connections make sure that there is no air leakage. If you find the air loss, disconnect the pressed air from the machine and eliminate the fault reason.

4.8 Perform the machine connection to the plant earth system by means of the earth bolt placed under the electric cabinet on the frame.

Initial adjustment and starting without the assistance of appropriate specialist is forbidden!!!
5. DESCRIPTION OF THE CONSTRUCTION AND OF THE PERFORMANCE PRINCIPLES

5.1 Description of the construction.
The machine (pic. 1) consists of the welded frame on which the following assemblies are mounted:
  - Cassettes shifting assembly
  - Vertical shifting lifts
  - Cassettes for containers travel
  - Containers feeding assembly
  - Fillers
  - Containers’ sealing assembly – (PAO)
  - Final sealing
  - Cups closing assembly
  - Press
  - Final product ejection assembly
  - Final product outlet conveyer
  - Electric cabinet
  - Regulated legs

All mechanisms are activated by pneumatic cylinders. Film rewinding assembly, spices fillers mixer and final product outlet conveyer are activated by electric motors. The machine operation is carried out by means of the programmed controller.
The machine’s frame is provided with easy removable panels with magnetic interlocks and safety guarding.

5.2 The operating elements placement at the electric cabinet panel (see pic.)
Electric cabinet (pic. 1) consists of following elements:
  - Metallic carcass of the cabinet
  - Computer’s screen
  - General power supply switcher “Power”
  - Emergency stop button “Emergency Stop” – press the button to null the pressure and to switch off electric supply
  - Button “Start”
  - Button “Stop”
  - Lamp “Emergency” gives the signal, that the “Emergency Stop” button is pressed or that the machine emergency stop is occurred.
  - Lamp “Alarm” gives the sealing assembly heaters fault signal
  - Thermostats of the containers sealing assembly
5.3 Programmed controller’s description

The machine provided with the programmed controller PLC. Computer’s screens and their operation order:

5.3.1. “Main screens”

The main screens appear on the controller’s display after the machine switch on. The menu intended for changeover to the auxiliary screens is performed on this screen.
Main

Station – the machine single assemblies switch on/off
Parameter – parameters setting and changing screens
Tuning – setting screens
Options – the maintenance screens
Heater 1 – heater PAO - switch on/off
Heater 2 – heater final sealing - switch on/off
Rewind – film rewind on the PAO assembly switch on/off
Counter – produced product counter
Clr – counter value-breaking button
Speed – Cups/min

To changeover to required screen, choose an appropriate screen by means of arrows.
The main screens appear on the controller’s display after the machine switch on.
5.3.2 “State” screens

These screens are intended for the machine’s single assemblies’ switch on/off.

In order to switch on/off machine’s single assemblies it is necessary to press appropriate buttons on the controller’s panel. At that condition symbol “Off” or “On” on the screen will change.

“Cups” – cups feeding assembly
“Filling” – filling
“Filler Lift – the lift of the filling assembly
“Filling - 2” – filling 2
“Gas” – gas feeding
“Auger” – the Auger filler
“Sealing 1” – containers sealing – PAO assembly
“Band” – film rewind after signal of photo eye
“Sealing 2” – containers final sealing on the PAO assembly
“Cups Close” – plastic lid closing assembly
“Press” – plastic lid closing assembly

Counter – produced product counter
Clr – counter value-breaking button
5.3.3 Parameters Screens

These screens are intended to change the machine single assembly's parameters. Current parameter's title and its name are performed on the screen

<table>
<thead>
<tr>
<th>Parameter 1</th>
<th>Parameter 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cups Holders Open Time</td>
<td>Crane Close Time</td>
</tr>
<tr>
<td>Cups Holders Close Time</td>
<td>Crane Open Time</td>
</tr>
<tr>
<td>Cups Blowing Time</td>
<td>Valve Open Time</td>
</tr>
<tr>
<td>Cups Vacuum Off Delay</td>
<td>Valve Close Time</td>
</tr>
<tr>
<td></td>
<td>Filler Lift Down Delay</td>
</tr>
<tr>
<td></td>
<td>Gas On Time</td>
</tr>
</tbody>
</table>

In order to change the value enter the new one and press the “<J”  Once the “<J” button was not pressed the value will not be changed  Press the “<-” to cancel the “ENTER”

PARAMETER'S LIST AND THEIR DESCRIPTION:

Attention!!!
Parameters value stipulated in the table are approximated and need additional correction during adjustment

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Default value, sec</th>
<th>Actual value sec</th>
<th>Parameter description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cups Holder Open Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the chokes opening on the containers feeding device</td>
</tr>
<tr>
<td>Cups Holder Close Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the chokes closing on the containers feeding device</td>
</tr>
<tr>
<td>Cups Blowing Time</td>
<td>00.20</td>
<td></td>
<td>Time required for blowing on the</td>
</tr>
<tr>
<td>Description</td>
<td>Time</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Cups Vacuum Off Delay</td>
<td>00.20</td>
<td>Time required for the vacuum presence on the vacuum pad under containers feeding assembly</td>
<td></td>
</tr>
<tr>
<td>Crane Close Time</td>
<td>00.10</td>
<td>Time required for the choke closing on the filling assembly</td>
<td></td>
</tr>
<tr>
<td>Valve Open Time</td>
<td>00.10</td>
<td>Time required for the valve opening on the filling assembly</td>
<td></td>
</tr>
<tr>
<td>Valve Close Time</td>
<td>00.10</td>
<td>Time required for the valve closing on the filling assembly</td>
<td></td>
</tr>
<tr>
<td>Crane Open Time</td>
<td>00.10</td>
<td>Time required for the choke opening on the filling assembly</td>
<td></td>
</tr>
<tr>
<td>Filler Lift Down Delay</td>
<td>00.10</td>
<td>Time delay required for the lift getting down on the filling assembly</td>
<td></td>
</tr>
<tr>
<td>Gas On Time</td>
<td>00.80</td>
<td>Time required for the gas feeding</td>
<td></td>
</tr>
<tr>
<td>Pao Vacuum Time</td>
<td>00.40</td>
<td>Time required for the vacuum presence on the PAO</td>
<td></td>
</tr>
<tr>
<td>Pao Sealer Time</td>
<td>00.20</td>
<td>Time required for the PAO assembly performance</td>
<td></td>
</tr>
<tr>
<td>Rewind Time</td>
<td>00.60</td>
<td>Time required for the film total rewind</td>
<td></td>
</tr>
<tr>
<td>Reverse Time</td>
<td>01.20</td>
<td>Time required for the film rewind backwards</td>
<td></td>
</tr>
<tr>
<td>After Band Delay</td>
<td>00.20</td>
<td>Time delay to the film rewind after signal from photo eye</td>
<td></td>
</tr>
<tr>
<td>Sealing 2 Time</td>
<td>00.60</td>
<td>Time required for the final sealing</td>
<td></td>
</tr>
<tr>
<td>Press Time</td>
<td>00.20</td>
<td>Time required to lids closing</td>
<td></td>
</tr>
<tr>
<td>Exit Vacuum Off Time</td>
<td>00.20</td>
<td>Time required for vacuum switch off on exit assembly</td>
<td></td>
</tr>
</tbody>
</table>
5.3.4 Tuning screens

This screen is intended to inspect the machine single assembly's performance order and as well to regulate containers feeding assembly.

![Tuning Screen](image)

After switch on the “Test All”, containers step by step movement will start and all previously switched on assemblies will perform their operation (see p. 5.3.)

After switch on the “Lift Up”, cassettes will move to one position, and lifts (see picture 1) will go up and will be fixed in upper position. It is necessary for adjustment of the containers feeding assembly.

After switch on the “Filling -1” switch on the filler-1 will perform its operation
After switch on the “Filling 2” switch on the filler 2 will perform its operation
After switch on the “Auger 1” switch on the Auger 1 will perform its operation
After switch on the “Auger 2” switch on the Auger 2 will perform its operation
At the “Sealing 1” switch on the sealing element of the PAO, assembly will perform its operation
At the “Sealing 2” switch on the final sealing assembly will perform its operation
At the “Cups Closer” switch on the cups closer will perform its operation
At the “Press” switch on the lids closing assembly will perform its operation

In order to switch off the above modes and to take the machine back into its initial position press the buttons on the control panel in accordance with the or press the “Stop” button on the electric cabinet panel.
5.3.5 Maintenance screens

**Main**

- **Washing 1**
- **Dose 1**
- **Washing 2**
- **Dose 2**

“Washing 1” – switches on washing mode of the filler 1. It is necessary for product leftovers producing at the end of the working shift and for the machine maintenance. Press the 1 button repeatedly to get out of this mode.

“Washing 2” – switches on washing mode of the filler – 1-2. It is necessary for product leftovers producing at the end of the working shift and for the machine maintenance. Press the 1 button repeatedly to get out of this mode.

“Dose 1”

This screen is intended to adjust the fillers pistons in upper position and allows the dose regulation.

“Dose 2”

This screen is intended to adjust the fillers pistons in upper position and allows the dose regulation.

5.3.6. “Faults”

If there are any faults in the machine operation process, the fault report will appear on the current screen including the fault code. At the same time the machine will be stopped and the “Stop” button will blink. To continue the machine performance it is necessary to eliminate the fault reason, and then to press the “Stop” button.

When the fault will be eliminated the machine can be started by the “Start” button

<table>
<thead>
<tr>
<th>Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUPS MISSING</td>
</tr>
<tr>
<td>Press Stop to Clear</td>
</tr>
</tbody>
</table>

5.4 The machine initial position

- The machine is mounted and connected to all systems as per p. 4
- Electric supply is switched on and the pressed air is fed.
- Containers are set in appropriated magazines.
- Cassettes are stopped
- Plastic lids pressing assembly is in the upper position.
- Containers’ ejection assembly is in initial position.

5.5. Operating principle of the plastic containers carrying cassettes step-type shifting. (pic 4)

- Initial position of cassettes and mechanisms see at pic. 4-1
- Pneumatic cylinders 1 and 2 move upper and lower level cassettes up to the catches 3 and 4, which corresponds to their change for one step (pic 4-2)
- During the moving grabs 5, 6 and 7, 8 (pic 4-2) are drawn out and hold cassettes at the upper level.
- When cylinders 1 and 2 rods get back to initial position (rods drawn in) lifts 9 and 10 go up, at that lift 9 takes up the cassette from the lawyer level, and lift 10 surface becomes the upper level cassette support (pic 4-3).
- Prior to lifts lifting grabs 7 and 8 draw into their sockets, and lift 9 easily lifts cassettes to the upper level.
- When lifts reach the upper position grabs 7 and 8 draw out to support the lifted cassette at the upper level, and grabs 5 and 6 draw back into their sockets, making the passage for the cassette to the lower level by means of the lift 10 (pic 4-4)
- Lifts 9 and 10 get to their initial position after moving cassettes by vertical.
- The system got back to its initial position and it is ready for the next cycle. (pic 4-5)

Thus we get a system, which consists of cassettes, shifting step-type by guides at two levels up to catches in closed cycle. Mechanisms’ step-by-step movement and their positions see on the picture 4.

6. THE MACHINE ADJUSTMENT

The machine’s single assemblies switch on/off, test mode start up, and all timers setting are carried out on the controller’s screen (see p.5.3)
Prior to the machine start up it is necessary to check its mounting integrity.
Perform following operation:
6.1 Check the set air pressure at the machine inlet.
The compressor manometer’s pressure must be 8 bar, the air preparation blocks manometers pressure must be 6 bar. If required regulate by appropriate pressure regulators, at that the compressor must be switched on at 7 bar and switched off-at 9 bar.
6.2 The main swicher “Power” (pic.2) set in position “1”
Release the button 4 “EMERGENCY STOP”
6.3. Switch on heaters swicher “Heater” in the “On” position. Then set the temperature at the thermostats (pos.9 pic.2) in the interval of 200 – 280 C
(determine by an experience)

6.4 After switch on the power supply the “Main Screen” will appear on the controller’s display (see p. 5.3)
Changeover to the screen “Tuning” (see p. 5.3), and switch on the machine in test mode. Thus you will check the cassettes shifting mechanisms integrity. Then switch on all assemblies and make sure in their complete performance integrity relatively to each other.

6.5 Repeat the operation 6.4 few times and make sure that all assemblies operate smoothly without any strikes in closed cycle.

6.6 Start the machine in the “Start” mode.

6.7 Let the machine perform in this mode for few minutes, make sure in its performance order and stop it by means of the “Stop” button.

6.8 If required perform following regulations:

6.8.1. Containers feeding assembly adjustment (see pic.5)
Fill the plastic containers assembly (pic 1) with containers up to guide's level, start the machine and check an accuracy of containers one by one feeding into cassettes.

If required perform following regulations:

Changeover to the “Tuning” screen (see p. 5.3) and press the button “Lift up”. When lifts will be fixed in upper position, regulate a height of the plate 1 such a way to put the containers bottom onto the lift 5 surface as per the picture. The regulation must be carried out by means of the plate 1 shift along supports 2 by turning handle 3 and further fixation by handle 4.
The regulation is considered as accomplished when containers can be separated one by one from the common pile.

6.8.2 Plastic lids assembly’s regulation (see pic. 6)
Feel the plastic lids’ assembly (pic 1) up to the guides’ level. Start the machine; make sure that lids are fed accurately onto the upper edge of containers
Adjust the assembly, if required. The assembly’s adjustment means the adjustment of the cylinder’s rod shift rate. The shift rate is regulated by throttles (down) and (up). Throttles are placed on the cylinder itself. Avoid the strong strikes at the rod’s shift up and down. A lid, grabbed by the vacuum pad, must freely get out from the magazine and the pile must not fall down, which is provided by jaws 3. Regulate jaws getting out by the bolt 5. Release the bolt and then turn cylinder’s 4 rod.

After the regulation accomplishment fix the rod by the bolt 5. If required the regulation can be carried out by shifting the axle with the vacuum pad 1 up and down by means of the catch 2 turning.
The regulation can be considered as accomplished when lids get out freely from the magazine, and when they are fed onto the container without any deformation.

6.8.3 Adjustment of the membrane sealing and cutting assembly.
The cylinder rod’s shifting rate is regulated by throttles (up) and (down). The cylinder must operate smoothly without any strikes. When the cylinder is in the upper position, magnetic indicators’ contacts, which are placed on cylinders, must be closed. Indicators’ placement regulation is carried out by means of
indicators shifting along cylinders’ axle. Switch on heaters on the controllers’ screen (see p.5.3) let them 20 minutes for heating, set a temperature in the interval of 200 – 280 C by thermostats 9 (pic 2). Set the sealing timer on the controller’s screen for the “Sealing Time” in the interval of 0.8 – 1.5 sec. (see p.5.3)

The adjustment can be considered as accomplished in following cases:
- cylinder operates smoothly without any strikes;
- when the cylinder’s piston is in upper position, magnetic indicator’s contacts close and a membrane is sealed tightly to a container along all perimeters.

Elements of the film wind and rewind assemblies of the PAO assembly pic. 8
- Press roller
- Photoelectric eye for the film mark detection
- Blocks of sealers and knives
- Bolt intended for fixing the plate with sealers on the axle
- Key for the bolt (missing on the picture)
- A catch intended to fix plates with sealers blocks in upper position
- Film waste rewinding axle
- Tape brake
- A cassette with containers placed exactly under sealers.

Set the film in accordance with following order pic 8:
- take off the tape brake, take off the axle, take off the mobile cone, arrange a film roll on the axle and fix it by mobile cone. The stable cone has to be arranged once and must not be rearranged.
- Mount the axle with the roll on the supports. Mount the tape brake
- Release the bolt by the key
- Lift plates with sealers blocks and fix them by the catch
- Draw the film as per the diagram
- Take down plates with sealers blocks and fix them with the bolt by the key Take down the roller
- Thus the film drawing process is accomplished.

6.8.4 Filling assembly’s adjustment (see pic.3)

Filler’s performance principle (pic 3)
Pneumatic cylinder 8 draws pistons 6 downwards, at that pneumatic cylinder 4 closes outlet hole of filling head 5, and cylinder 3 turns turning valve 2 and connects cavities of the filler’s cylinders with the product hopper 1.
Product’s sucking is performed. A dose value is adjusted by the shift of the end of the rod 13 till the catch 10, regulated by the handle 12 and fixed by the handle 11. The sucking rate is regulated by means of the throttle.
The rate of the sucking process must be regulated such a way when the rod’s end reaches the catch 10 in the machine’s automatic mode (open the throttle 15 turning the handle anti – clockwise).
After getting the command for filling pneumatic cylinder 4 opens the valve 5, the piston 6 goes upwards, at that turning valve closes and cuts the product inlet hole.
The set dose fills the container. Filling rate is regulated by means of the throttle.

Adjustment of the filler.
Switch on a dose regulation mode (see p. 5.3) When the filler’s rod will be fixed in drawn in position, it’s necessary to release support handle 11 (see pic.3) and to place the catch 10 at the required height (turn the handle 12). Fix the reached position by the handle 11. Then press the “Dose” button on the controller’s screen, at that the end of the rod 13 will reach the catch 10.
Check the issued dose. If required repeat above described operations to reach required results.

7 The machine operating order.
7.1 Machine start in operating mode is carried out after executing of all procedures as per p.4 and p.6
7.2 Make sure that all assemblies are switched at the controller’s screen (see p.5.3)
7.3 Start machine by pressing “Start” button
7.4 During the machine operation it is necessary to inspect containers presence.
Feed the appropriate magazines, if required. At containers’ lack the machine will count ten empty cassettes and will stop. If there is no containers, none assembly will perform operation.
7.5 In order to stop the machine press the “Stop” button. Machine will accomplish the operation cycle and will stop.
7.6 Press the “Emergency Stop” button for the machine emergency stop. At that electric supply will be switched off immediately and air pressure will be broken.

8 Troubleshooting

<table>
<thead>
<tr>
<th>No</th>
<th>Malfunction</th>
<th>Reason</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Containers are not fed from the magazine</td>
<td>Containers are not separated from the pile</td>
<td>Check the containers’ separation from the pile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pneumatic cylinder of the magazine is fault</td>
<td>Avoid the moisture getting to the pile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gap between the lower container’s bottom and the lift surface in upper position is set insufficient</td>
<td>Check Pneumatic Cylinders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carry out regulations as per p 6.8. (pic.5)</td>
</tr>
</tbody>
</table>
| 8.2  | Insufficient sealing of the membrane cut from the roll to container | The heater is not hot enough | Choose the suitable temperature depended on the lids and containers material  
Membrane's bubbling caused by steam because of the high heating temperature and of the seal fault  
Insufficient duration of heating contact  
Product is burnt at the heater | Make sure that the pressure at the manometer is 6 bar  
Press “Emergency” stop and put the cassette at its place |
| 8.3  | Cassettes do not shift | There is no pressed air in system  
Cassette stocked at the upper level during going down | The level indicator doesn’t perform its operation; product sucking pump is not switched on.  
Regulate the indicator’s sensitivity (regulation screw is on front part of the indicator)  
Regulate the filler as per p.6.8  
Change the seal of the filling head valve | |
| 8.4  | Insufficient performance of the filler | The filler doesn’t issue a dose  
The filler’s regulation is fault  
There is a drop on the filler’s nozzle (defected net in the filler’s end) | Eliminate the fault reason | |
| 8.5  | The fault report appears on the screen | The fault reason appears on the controller’s screen | |

### 9 The Machine Maintenance

9.1 Prior to the machine daily starting it is necessary to perform the following operations:
- Place cups and lids into appropriated magazines  
- Start the machine as per p. 7  
Perform the adjustment operation as per p.6 if there is found any faults in its function  
9.2 After the machine function completion it is necessary to perform the following
operations:
- Remove the product leftovers from the cassettes if there are any.
- Check the heater’s surface and clean it if needed
- Remove cups and lids leftovers from the magazines
- Clean the filler’s details from the product leftovers
- Process all product form the product hopper.
- Fill the hopper with the hot water,
- Switch on the machine in the cleaning rate. Switch on the “WASH” mode on the computers maintenance screen. as per p. 5.3.
- In this mode the filler starts to function nonstop. The rest assemblies do not function. Look for the clean water running from the nozzle
- Process all water in the hopper
- Disconnect electric supply and air
- Remove all the straps from the filler and disassemble it
- Put all parts into vessel with 1% caustic sodium (NaOH) solution at 65° for 20 minutes
- Wash all parts of the filler in hot soap solution
- Wash all parts in clean water and dry them
- Blow all assemblies of the machine with pressed air.
- Assemble the machine in contra order

**Filling system details cleaning with the waste is forbidden!!!**
**Cleaning the machines details inside the frame with the water is forbidden!!!!!!**
**Cleaning the outside of the machine with the solution of caustic soda (NaOH) is forbidden!!!!!!!**

9.3 Bearings lubrication
Bearings are normally packed with a high quality bearing grease. However, bearings will require periodic greasing. Bearings should be greased with NLGI #3 bearings grease or similar at least once per month.
Lubrication points see pic.

9.4 Maintenance plan

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily:</td>
<td>Cleaning</td>
</tr>
<tr>
<td>Monthly:</td>
<td>Lubricate lubrication points on the operating side with a small amount of ball bearing grease. Monthly perform preventive inspection of the machine’s thread connections and tight them if required.</td>
</tr>
<tr>
<td>Half-yearly:</td>
<td>Check entire electrical system including connection cable.</td>
</tr>
<tr>
<td>Annually:</td>
<td>Check all bearings. Replace drive belts when wear is noticeable. Clean, check and if necessary replace the seals. Finally test run.</td>
</tr>
<tr>
<td>Biannually:</td>
<td>Replace drive belts.</td>
</tr>
</tbody>
</table>
10. **SAFETY RULES**

10.1 The machine may be operated only by trained personnel, who are familiar with the registration certificate and safety rules.
10.2 Running the machine with damaged earth is prohibited.
10.3 The machine repair is forbidden unless power supply and compressed air are disconnected.
10.4 Repairs and adjustments must be performed by high skilled personal.
10.5 Be careful during the repairing to avoid your hands’ traumas.
10.6 Cooling the heater with water is prohibited. If necessary, cool it with compressed air.
10.7 It is forbidden to open the machine’s safety guarding during the machine performance. If it still has happened the machine will stop immediately.

11. **WARRANTY**

11.1 The warranty period amounts to 12 months starting the day of its commissioning, however, it cannot exceed 15 months from the date of shipping, and that is only if the machine is handled by this instruction manual.
11.2 The warranty covers all parts and equipment damaged due to manufacturer's fault,
11.3 A warranty period having been over, the supplying company undertakes to provide services to the machine according to prices set out in the contract of insurance to be concluded annually.
11.4 Repairs or substituting parts within the warranty period does not mean any extend of the warranty period.
11.5 The warranty is voided unless any changes in electric, mechanical or pneumatic parts were carried out under agreement with the supplier, or if the machine was transferred to a third part.
11.6 The warranty does not cover mechanical rubber goods with high wearing capacity and the heating elements.
11.7 The manufacturer is entitled to alter the machine design even if such alterations are not specified in this certificate, provided they do not deteriorate technical characteristics, but eased adjustment of the machine.
# RECOMMENDED SET OF SPARE PARTS FOR THE MACHINE PXG-2

**SERIAL NUMBER PL700635**

<table>
<thead>
<tr>
<th>POS.</th>
<th>TITLE</th>
<th>MARKING (SIZE)</th>
<th>UNIT</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suction cup</td>
<td>158979 VASB 40_1 4 SI Exit</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Timing Belt</td>
<td>3MR-390-15</td>
<td>Sealing -PAO</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Seal Ring</td>
<td>C063193P</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Seal Ring</td>
<td>Dichtring-3A-1.5in</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Seal Ring</td>
<td>Dichtring-3A-2in</td>
<td>Filler</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Seal Ring</td>
<td>Dichtring-3A-3in</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Seal Ring</td>
<td>EGMO-2in-838124-Ring</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Seal Ring</td>
<td>Etem-Menagev-D10</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Heater</td>
<td>Heater 0.5inx2.5in Angle</td>
<td>Sealing -PAO</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Heater</td>
<td>Heater 0.5x3in Angle</td>
<td>Sealing -PAO</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Heater</td>
<td>Heater-3.5in-05in-straight</td>
<td>Sealing - 2</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>Heater</td>
<td>Heater-4in-0.5in-straight</td>
<td>Sealing - 2</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>Spring M-441</td>
<td>M-441</td>
<td>Sealing -PAO</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>O-Ring</td>
<td>O-Ring 29.51x5.33(OV321)</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>O ring 325</td>
<td>O-Ring 37.47x5.33[UV325]</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>O-Ring</td>
<td>O-Ring 47x5,33 N328</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>O-Ring</td>
<td>O-Ring 53.57x3.53(N227)</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>O-Ring</td>
<td>O-Ring 9,12x3,53(N204)</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>O-Ring</td>
<td>O-Ring44x36x4</td>
<td>Filler</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>O-Ring</td>
<td>Oring16x8x4</td>
<td>Lift</td>
<td>8</td>
</tr>
<tr>
<td>21</td>
<td>Suction Cup</td>
<td>Plab-F30-1_8-PA Cups feeding</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>O-Ring</td>
<td>Record 1in</td>
<td>Sealing -PAO</td>
<td>12</td>
</tr>
<tr>
<td>23</td>
<td>Termocabel &quot;Ring M6&quot;</td>
<td>TK-M6</td>
<td>Sealing -PAO</td>
<td>8</td>
</tr>
<tr>
<td>24</td>
<td>Seal Ring</td>
<td>U-30</td>
<td>Sealing -PAO</td>
<td>2</td>
</tr>
</tbody>
</table>
MOBILE CONE

BOILT

STABLE CONE

ROLLS AXLE

PRESS ROLLER

PNEUMATIC CYLINDER

TAPE BREAK

FOIL WASTE
REWIND AXLE

BLOCK OF BLISTERS
AND KNIVES

LUBRICATE ONCE
PER MONTH
FILM SETTING ORDER
ON THE PAO
1. ON/OFF CONTROL

Typical Application Examples

**Changing Parameters**

Indicates that there is a parameter. Keep on pressing the mode key until the desired parameter is selected.

**Changing Set Values**

Use the \( \text{①} \) or \( \text{②} \) keys to change the set value displayed in the setup menu.

**Display**

- **E5AN**
  - No. 1 display: \( 25 \)
  - No. 2 display: \( 0 \)
- **E5EN**
  - No. 1 display: \( 25 \)
  - No. 2 display: \( 0 \)
- **E5CN**
  - No. 1 display: \( 25 \)
  - No. 2 display: \( 0 \)
- **E5GN**
  - No. 1 display: \( 25 \)
  - No. 2 display: \( 0 \)

**Typical Example**

**Setup procedure**

1. **Power ON**
2. Set control specifications
3. Set alarm type
4. Set input specifications
5. Check that control is ON/OFF control.
6. Check input type.
7. Check alarm type.
8. Press \( \text{②} \) key for at least three seconds. Control stops.
9. Press \( \text{②} \) key for at least one second. Control starts.
10. **Process value/set point**
11. Press keys to set set point to “100°C.”
12. Check operation state
13. Make sure that control is running.
14. Set alarm values
15. Press keys to set alarm value to “20°C.”
16. During run
   - **Alarm type 1**
   - **Alarm value 1**
17. During stop
   - **Alarm type 1**
   - **Alarm value 1**
18. **Start operation**

**Note:** On the E5EN/E5GN, the \( \text{②} \) Key is the \( \text{③} \) Key.
2. PID CONTROL USING AUTO-TUNING

Changing Parameters

Changing Set Values

Display

E5AN

E5EN

E5CN

E5GN

Typical Example

Input type: 4 T thermocouple -200 to 400°C
Control method: PID control
ST (self-tuning): OFF
Calculate PID constants by AT (auto-tuning).
Alarm type: 2 upper limit
Alarm value 1: 30°C (For setting deviation)
Set point: 150°C

Setup procedure

Power ON

Power ON

Process value/ set point

Press key for at least three seconds. Control stops.

Set input specifications

Press keys to select input type.

In PID control

Press keys to select PID control.

To cancel ST

Press keys to set ST to OFF.

Control period (heat) (unit: seconds)

Check the control period.

Check alarm type

Check alarm type

Alarm 1 type (upper-limit alarm)

Press key for at least one second.

Operation level

Set the set point

During AT execution

Press key for less than one second.

AT execution

While AT is being executed, SP will flash. After AT execution,

Execute AT (auto-tuning).

To execute AT

Set to OFF for executing AT and to OFF for stopping AT.

Press key for less than one second.

Start program execution

Make sure that set point is "150°C."

Process value/ set point

During run

Make sure that control is running.

Set operation status

Press keys to set alarm value to "30°C."

Start operation

During AT execution

Alarm Value 1

Press key for less than one second.

Alarm type:

Alarm 1 type

Press key for at least one second.
Specifying Setting after Turning ON Power

OUTLINE OF OPERATION PROCEDURES

Key Operation

In the following descriptions, all the parameters are introduced in the display sequence. Some parameters may not be displayed depending on the protect settings and operation conditions.

Note:
1. Of these levels, the initial setting level, communications setting level, advanced function setting level and calibration level can be used only when control has stopped. Note that control is stopped when these four levels are selected. When switched back to the operation level from one of these levels, control will start.
2. For the calibration mode, refer to the relevant Operation Manual (H100 or H101).
3. On the E5EN/E5GN, the Key is the Key.

DESCRIPTION OF EACH LEVEL

Operation Level
This level is displayed when you turn the power ON. You can move to the protect level, initial setting level and adjustment level from this level.

Normally, select this level during operation. During operation, the process value, set point and manipulated variable can be monitored, and the alarm value and upper- and lower-limit alarms can be monitored and modified.

Adjustment Level
To select this level, press the key once for less than one second. This level is for entering set values and offset values for control. This level contains parameters for setting the set values, AT (auto-tuning), communications writing enable/disable, hysteresis, multi-SP, input shift values, heater burnout alarm (HBA) and PID constants. You can move to the top parameter of the operation level or initial setting level from here.

Initial Setting Level
To select this level, press the key for at least three seconds in the operation level. This level is for specifying the input type, selecting the control method, control period, setting direct/reverse action and alarm type. You can move to the advanced function setting level or communications setting level from this initial setting level. To return to the operation level, press the key for at least one second. To move to the communications setting level, press the key once for less than one second.

Protect Level
To select this level, simultaneously press the and keys for at least 3 seconds. This level is to prevent unwanted or accidental modification of parameters. Protected levels will not be displayed, and so the parameters in that level cannot be modified.

Communications Setting Level
To select this level, press the key once for less than one second in the initial setting level. When the communications function is used, set the communications conditions in this level. Communicating with a personal computer (host computer) allows set points to be read and written, and manipulated variables to be monitored.

Advanced Function Setting Level
To select this level, you must enter the password (“-169”) in the initial setting level. You can move only to the calibration level from this level.

This level is for setting the automatic return of display mode, MV limiter, event input assignment, standby sequence, alarm hysteresis, ST (self-tune) and to move to the user calibration level.

Calibration Level
To select this level, you must enter the password (“1201”) in the advanced function setting level. This level is for offsetting deviation in the input circuit.

You cannot move to other levels by operating the keys on the front panel from the calibration level. To cancel this level, turn the power OFF then back ON again.
**SPECIFICATION SETTING AFTER TURNING ON POWER**

### Initial Setting Level

This level is used for setting basic specifications of the Temperature Controller. Using this level, set the input type for selecting the input to be connected such as the thermocouple or platinum resistance thermometer and set the range of set point and the alarm mode.

The move from the operation level to the initial setting level, press key for three seconds or more.

The initial setting level is not displayed when "initial/communications protection" is set to "2." This initial setting level can be used when "initial setting/communications protection" is set to "0" or "1."

The "scaling upper limit," "scaling lower limit," and "decimal point" parameters are displayed when an analog voltage input is selected as the input type.

To return to the operation level, press the key for longer than one second

* Not displayed as default setting.
## INPUT TYPE

When using a thermocouple input type, follow the specifications listed in the following table.

<table>
<thead>
<tr>
<th>Input type</th>
<th>Specifications</th>
<th>Switch setting</th>
<th>Input temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermocouple</td>
<td>K</td>
<td>0</td>
<td>–200 to 1300°C / –300 to 2300°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>–20.0 to 500.0°C / 0.0 to 900.0°F</td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>2</td>
<td>–100 to 850°C / –100 to 1500°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>–20.0 to 400.0°C / 0.0 to 750.0°F</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>4</td>
<td>–200 to 400°C / –300 to 700°F</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>5</td>
<td>0 to 600°C / 0 to 1100°F</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>17</td>
<td>–199.9 to 400.0°C / –199.9 to 700°F</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>6</td>
<td>–100 to 850°C / –100 to 1500°F</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>7</td>
<td>–200 to 400°C / –300 to 700°F</td>
</tr>
<tr>
<td></td>
<td>U</td>
<td>18</td>
<td>–199.9 to 400.0°C / –199.9 to 700°F</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8</td>
<td>–200 to 1300°C / –300 to 2300°F</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>9</td>
<td>0 to 1700°C / 0 to 3000°F</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>10</td>
<td>0 to 1700°C / 0 to 3000°F</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>11</td>
<td>100 to 1800°C / 300 to 3200°F</td>
</tr>
<tr>
<td>Non-contact temperature sensor ES1A</td>
<td>K10 to 70°C</td>
<td>12</td>
<td>0 to 90°C / 0 to 190°F</td>
</tr>
<tr>
<td></td>
<td>K60 to 120°C</td>
<td>13</td>
<td>0 to 120°C / 0 to 240°F</td>
</tr>
<tr>
<td></td>
<td>K115 to 165°C</td>
<td>14</td>
<td>0 to 165°C / 0 to 320°F</td>
</tr>
<tr>
<td></td>
<td>K160 to 260°C</td>
<td>15</td>
<td>0 to 260°C / 0 to 500°F</td>
</tr>
<tr>
<td>Analog input</td>
<td>0 to 50mV</td>
<td>16</td>
<td>One of following ranges depending on the results of scaling: 1999 to 9999, 199.9 to 999.9</td>
</tr>
</tbody>
</table>

**Note:** The initial settings are: 0: –200 to 1300°C / –300 to 2300°F.

When using the platinum resistance thermometer input type, follow the specifications listed in the following table.

<table>
<thead>
<tr>
<th>Input type</th>
<th>Specifications</th>
<th>Switch setting</th>
<th>Input temperature range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platinum resistance thermometer</td>
<td>Pt100</td>
<td>0</td>
<td>–200 to 850°C / –300 to 1500°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>–199.9 to 500.0°C / –199.9 to 900.0°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>0.0 to 100.0°C / 0.0 to 210.0°F</td>
</tr>
<tr>
<td></td>
<td>JP100</td>
<td>3</td>
<td>–199.9 to 500.0°C / –199.9 to 900.0°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>0.0 to 100.0°C / 0.0 to 210.0°F</td>
</tr>
</tbody>
</table>

**Note:** The initial settings are: 0: Pt100 –200 to 850°C / –300 to 1500°F.
ALARM 1 AND ALARM 2

For the alarm 1 and alarm 2, select alarm types out of the 12 alarm types listed in the following table. (The alarm 3 for E5AN/E5EN, which has three alarms, can also be selected from this table.)

<table>
<thead>
<tr>
<th>Set value</th>
<th>Alarm type</th>
<th>Alarm output operation</th>
<th>When X is positive</th>
<th>When X is negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Alarm function OFF</td>
<td>Output OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Upper- and lower-limit (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upper-limit (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Lower-limit (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Upper- and lower-limit range (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Upper- and lower-limit with standby sequence (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Upper-limit with standby sequence (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lower-limit with standby sequence (deviation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Absolute-value upper-limit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Absolute-value lower-limit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Absolute-value upper-limit with standby sequence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Absolute-value lower-limit with standby sequence</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as “L” and “H.” Following operations are for cases when an alarm set point is “X” or negative.

*2: Set value: 1, Upper- and lower-limit alarm

*3: Set value: 4, Upper- and lower-limit range

*4: Set value: 5, Upper- and lower-limit with standby sequence

*5: Set value: 5, Upper- and lower-limit with standby sequence alarm. Always OFF when the upper-limit and lower-limit hysteresis overlaps.

Set the alarm types for alarm 1 and alarm 2 independently in the initial setting level. The default setting is 2 (upper limit). With the E5AN/E5EN, perform settings similarly for alarm 3.

Example: When the alarm is set ON at 110°C/F or higher.

When the absolute-value alarm is selected

(For alarm types 8 to 11)
The alarm value is set as an absolute value from the alarm value of 0°C/F.
PARAMETERS

Parameters related to setting items for each level are marked in boxes in the flowcharts and brief descriptions are given as required. At the end of each setting item, press the mode key to return to the beginning of each level.

**Display**

- **E5AN**
  - No. 1 display
  - No. 2 display

- **E5EN**
  - No. 1 display
  - No. 2 display

- **E5CN**
  - No. 1 display
  - No. 2 display

- **E5GN**
  - No. 1 display
  - No. 2 display

**Note:** To select advanced function setting level, you must enter the password ("-169") in the initial setting level.