USER’S MANUAL

FILLING AND SEALING

AUTOMATIC MACHINE

MOD. PXG

MODEL... PXG
NUMBER... PL 700565
PRODUCTION DATE...2013
## CONTENTS

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Recommended spare parts 17

## ANNEXES
1 Delivery set

<table>
<thead>
<tr>
<th>№</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PXG 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 conveyer</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, 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>№</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Nominal air pressure, bar</td>
<td>6-8</td>
</tr>
<tr>
<td>3.2</td>
<td>Consumed power, watt</td>
<td>2500</td>
</tr>
<tr>
<td>3.3</td>
<td>Power supply line voltage, volt</td>
<td>~3x(200-230) V</td>
</tr>
<tr>
<td>3.4</td>
<td>Control panel voltage</td>
<td>24 DC</td>
</tr>
</tbody>
</table>

3.5  | Dimensions, mm                        |             |
     | - length                               | 3100        |
     | - width                                | 1000        |
     | - height                               | 2160        |

3.6  | Weight, kg                             | ~1800       |
4 The machine preparation for the performance

The machine mounting and its initial adjustment is carried out by the manufacturer’s representative or by a trained specialist.

**Initial adjustment and starting without the assistance of appropriate specialist is forbidden !!!**

The following operations have to be performed prior to the machine starting:

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 conveyor 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.
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)
- Perforation assembly
- Final product ejection assembly
- Final product outlet conveyer
- Electric cabinet
- Regulated legs

All mechanisms are activated by pneumatic cylinders. Film rewinding assembly, 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 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.

Work – work screen
Station – the machine single assemblies switch on/off
Parameter – parameters setting and changing screens
Tuning – setting screens
Options – the maintenance screens
Heater – heater - switch on/off
Rewind – film rewind on the PAO assembly switch on/off

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. “Work” screens
Following elements are performed on this screen:

**Work**

- Pump
- Home
- Main

Pump – the pump on the filling assembly
Home – start the outlet conveyor “zero” positioning mode
The menu intended for changeover to the auxiliary screens is performed on this screen.

5.3.3 “State” screens

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

**Station**

- Cups
- Filling
- Fill Lift
- Sealing
- Gas
- Band
- Puncher 1-2
- Puncher 3
- Main

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
“Fill Lift” – the lift of the filling assembly
“Sealing” – containers sealing – PAO assembly
“Gas” – gas feeding on the PAO assembly
“Band” – film rewind after signal of photo eye on the PAO assembly
“Sealing 2” – containers sealing 2
“Puncher 1-2” – containers punching 1-2
“Puncher 3” – containers punching 3
5.3.4 Parameters Screens

These screens are intended to change the machine single assembly's parameters. In order to change the value enter the new one and press the "<↓" button. Once the "<↓" button was not pressed the value will not be changed. Press the "<" to cancel the "ENTER"

<table>
<thead>
<tr>
<th>Parameters-1</th>
<th>Parameters-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cups Holders Open Time</td>
<td>Sec Valves Open Time</td>
</tr>
<tr>
<td>Cups Holders Close Time</td>
<td>Sec Valves Close Time</td>
</tr>
<tr>
<td>Cups vacuum Off Delay</td>
<td>Sec Cranes Open Time</td>
</tr>
<tr>
<td>Cranes Close Time</td>
<td>Filler Lift Down Delay</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters-3</th>
<th>Parameters-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacuum Time</td>
<td>Sec After Band Delay</td>
</tr>
<tr>
<td>Sealer-2 Down Delay</td>
<td>Sec</td>
</tr>
<tr>
<td>Sealing Time</td>
<td>Sec</td>
</tr>
<tr>
<td>Rewind Time</td>
<td>Sec</td>
</tr>
<tr>
<td>Reverse Time</td>
<td>Sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puncher-2 Time</td>
</tr>
<tr>
<td>Puncher-3 Time</td>
</tr>
<tr>
<td>Pump On Delay</td>
</tr>
<tr>
<td>Pump Off Delay</td>
</tr>
</tbody>
</table>

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 Vacuum Off Delay</td>
<td>00.20</td>
<td></td>
<td>Time required for the vacuum presence on the vacuum pad under containers feeding assembly</td>
</tr>
<tr>
<td>Cranes Close Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the choke closing on the filling assembly</td>
</tr>
<tr>
<td>Valves Open Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the valve opening on the filling assembly</td>
</tr>
<tr>
<td>Valves Close Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the valve closing on the filling assembly</td>
</tr>
<tr>
<td>Cranes Open Time</td>
<td>00.20</td>
<td></td>
<td>Time required for the choke opening on the filling assembly</td>
</tr>
<tr>
<td>Fill Lift Down Delay</td>
<td>00.20</td>
<td></td>
<td>Time delay required for the lift getting down on the filling assembly</td>
</tr>
<tr>
<td>Gas Time</td>
<td>00.80</td>
<td></td>
<td>Time required for the gas feeding on the PAO</td>
</tr>
<tr>
<td>Vacuum Time</td>
<td>00.80</td>
<td></td>
<td>Time required for the gas feeding on the PAO</td>
</tr>
<tr>
<td>Sealer 2 Down Delay</td>
<td>00.40</td>
<td></td>
<td>Time delay to second pneumatic cylinder performance on PAO</td>
</tr>
<tr>
<td>Sealing Time</td>
<td>00.80</td>
<td></td>
<td>Time required for the PAO assembly performance</td>
</tr>
<tr>
<td>Rewind Time</td>
<td>00.60</td>
<td></td>
<td>Time required for the film total rewind</td>
</tr>
<tr>
<td>Reverse Time</td>
<td>01.20</td>
<td></td>
<td>Time required for the film rewind backwards</td>
</tr>
<tr>
<td>After Band Delay</td>
<td>00.20</td>
<td></td>
<td>Time delay for the film rewind after signal from photo eye</td>
</tr>
<tr>
<td>Puncher -1 Time</td>
<td>00.60</td>
<td></td>
<td>Time required for the puncher 1 performance</td>
</tr>
<tr>
<td>Puncher -2 Delay</td>
<td>00.20</td>
<td></td>
<td>Time delay to puncher 2 start</td>
</tr>
<tr>
<td>Puncher -2 Time</td>
<td>00.60</td>
<td></td>
<td>Time required for the puncher 2 performance</td>
</tr>
<tr>
<td>Puncher -3 Time</td>
<td>00.60</td>
<td></td>
<td>Time required for the puncher 3 performance</td>
</tr>
<tr>
<td>Pump On Delay</td>
<td>01.20</td>
<td></td>
<td>Time delay required to start up the</td>
</tr>
</tbody>
</table>
5.3.5 Tuning screens

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

<table>
<thead>
<tr>
<th>Tuning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test All</td>
</tr>
<tr>
<td>Lifts Up</td>
</tr>
<tr>
<td>Filling 1-2</td>
</tr>
<tr>
<td>Filling 3-4</td>
</tr>
<tr>
<td>Sealing</td>
</tr>
<tr>
<td>Puncher 1-2</td>
</tr>
<tr>
<td>Puncher 3</td>
</tr>
<tr>
<td>Main</td>
</tr>
</tbody>
</table>

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 “Lifts 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-1-2” the filler-1-2 will perform its operation
After switch on the “Filling-3-4” the filler-3-4 will perform its operation
After switch on the “Sealing” foil sealing and cutting assembly will perform its operation
After switch on the “Puncher 1-2” punching 1-2 assembly will perform its operation
After switch on the “Puncher 3” punching 3 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.
5.3.6 Maintenance screens

**Options**

- Washing 1
- Washing 2
- Dose 1
- Dose 2
- Main

“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 button repeatedly to get out of this mode.

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

“Dose 1” “Dose 2”
This screen is intended to adjust the fillers pistons in upper position and allows the dose regulation.

5.3.7. “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
- 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 switcher “Power” (pic.2) set in position “1”
Release the button 4 “EMERGENCY STOP”
6.3. Switch on heaters switcher “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 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.

6.8.3 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.

Filler’s regulation.
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 and foil 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>
</table>
| 8.1 | Containers are not fed from the magazine | Containers are not separated from the pile  
Pneumatic cylinder of the magazine is fault  
Gap between the lower container’s bottom and the lift surface in upper position is set insufficient | Check the containers’ separation from the pile  
Avoid the moisture getting to the pile  
Check Pneumatic Cylinders  
Carry out regulations as per p 6.8. (pic.5) |
| 8.2 | Insufficient sealing of the membrane cut from the roll to container | The heater is not hot enough  
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 | Choose the suitable temperature depended on the foil and containers material  
Set the suitable heating temperature at the thermostat  
Choose the suitable contact duration  
Clean the heater |
| 8.3 | Cassettes do not shift | There is no pressed air in system  
Cassette stocked at the upper level during going down | Make sure that the pressure at the manometer is 6 bar  
Press “Emergency” stop and put the cassette at its place |
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)

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

8.5 The fault report appears on the screen

The fault reason appears on the controller’s screen

Eliminate the fault reason

9 The Machine maintenance

9.1 Prior to the machine daily starting it is necessary to perform the following operations:
- Place cups into appropriated magazine
- 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 leftovers from the magazine
- 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

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></th>
<th>Daily:</th>
<th>Monthly:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lubricate lubrication points on the operating side with a small amount of ball bearing grease.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clean, check and if necessary replace the seals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Half-yearly:</strong> Check entire electrical system including connection cable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Annually:</strong> Check all bearings. Replace drive belts when wear is noticeable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clean, check and if necessary replace the seals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finally test run.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Biannually:</strong> 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 Its 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**

**SERIAL NUMBER PL700565**

<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>Heating element</td>
<td>6”x1/2” Straight</td>
<td>Sealing -PAO</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Ring thermocouple</td>
<td>TK - M6</td>
<td>Sealing</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Set springs:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- short</td>
<td>M-441</td>
<td>Sealing -PAO</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>- long</td>
<td>M-1131</td>
<td>Sealing -PAO</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>O-Ring</td>
<td>10x16x3</td>
<td>Sealing -PAO</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Sealing ring</td>
<td>C063192V</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Sealing ring</td>
<td>EGMO-2in-838124-Ring</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>O-Ring</td>
<td>16x8x4</td>
<td>Lift</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>O-Ring</td>
<td>23,4x3,53(N213)</td>
<td>Fillers head</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>O-Ring</td>
<td>34,52x3.53(N220)</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>O-Ring</td>
<td>30x5(11BY31)</td>
<td>Sealing -PAO</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>O-Ring</td>
<td>Record 1”</td>
<td>Sealing -PAO</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>Dichtring</td>
<td>3A-1”</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>Dichtring</td>
<td>3A-2”</td>
<td>Filler</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>Dichtring</td>
<td>3A-6”</td>
<td>Filler</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Dichtring</td>
<td>3A-4”</td>
<td>PAO</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Silicon vacuum pad</td>
<td>Piab-F30-1 8-PA</td>
<td>Cups feeding</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>Timing Belt B=15mm</td>
<td>390-3MR</td>
<td>Sealing -PAO</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>Membrane</td>
<td>Membrane-T-1797</td>
<td>Filler</td>
<td>4</td>
</tr>
</tbody>
</table>
MOBILE CONE
ROLLS AXLE
TAPE BREAK
PRESS ROLLER
MOBILE CONE
PHOTO EYE
BOLT
FOIL WASTE
REWIND AXLE
BLOCK OF BLISTER
AND KNIFE
PNEUMATIC CYLINDER
FILM SETTING ORDER
ON THE PAO
WASHER AND KNIFE PLACING ORDER

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>WASHER HEIGHT POS 1</th>
<th>WASHER HEIGHT POS 2</th>
<th>WASHER HEIGHT POS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORATION</td>
<td>10.8</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td>CUTTING</td>
<td>10.8</td>
<td>10.7</td>
<td>10.9</td>
</tr>
</tbody>
</table>
CUTTING AND SEALING
ASSEMBLY - PAO
LUBRICATION POINTS
Pic.22
LUBRICATE ONCE PER MONTH
Digital position indicators direct drive

DD51

AN  AR  FN  FR

DD51 - AN - 00.50 - D - GR

Anti-órária  Orácia  Arancio  Grigio
Anti-clockwise  Clockwise  Orange  Grey
Antihoráire  Horáire  Orange  Gris
On request and for sufficient quantities completely sealed to protection class IP67 according to IEC529. The completely sealed unit is guaranteed by the ultrasonic welding between the case and its support, by the window directly moulded on the case, by the internal case frontal seal ring, and by a brass bushing with double seal ring inside the rear cavity of the support.

**Accessories to be ordered separately:**

Steel: reduction sleeves RB51 (AISI 303 stainless steel available on request and for sufficiently large quantities), spacer plate BS51 (code CE.85900).

**Installation instructions:**

Pull out the indicator and drill a Ø 6 mm by 10 mm deep hole with centre distance of 22 mm from the spindle.

Zero set the spindle.

Re-fit the zeroed indicator onto the spindle and make sure the rear pin locates into the hole.

Tighten the socket head grub screw.

**Installation example:**

![Illustration of installation example]

**Table of the possible combinations**

**Special options on request**

Special readings after one revolution (for use with spindles having their pitch in mm or inches), stainless steel insert, special reduction sleeves.
Operation

■ INITIAL SETUP

On previous Controllers, sensor input type, alarm type and control period were set on DIP switches. These hardware settings are now set in parameters in setup menus. The ▼ and ▲ keys are used to switch between setup menus, and the amount of time that you hold the keys down for determines which setup menu you move to. This section describes two typical examples.

Note: On the E5EN/E5GN, the ▼ Key is the ▲ Key.

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 ▼ or ▲ keys to change the set value displayed in the setup menu.

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

Typical Example

Input type: 0 K thermocouple -200 to 1300°C
Control method: ON/OFF control
Alarm type: 2 upper limit
Alarm value 1: 20°C (For setting deviation)
Set point: 100°C

Change only the alarm value 1 and set point. The rest must be left as default settings.

Setup procedure

Power ON
Check input type.
Check that control is ON/OFF control.
Check alarm type.
Press key for at least three seconds. Control stops.

Start operation

Press keys to set set point to "100°C."
Make sure that control is running.
Press keys to set alarm value to "20°C."

Start operation

Power ON

Process value/ set point

Press Q key for at least one second. Control starts.

Process value/ set point

During run

During stop
## 2. PID CONTROL USING AUTO-TUNING

### Typical Example

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

### Setup procedure

1. **Power ON**

### Operation level

1. **Process value/set point**
   - Press key for at least three seconds. Control stops.

### Value setting level

1. **Input type**
   - Press keys to select input type.
2. **Self-tuning**
   - Press keys to set ST to OFF.
3. **Control period (heat) (unit: seconds)**
   - Press key for less than one second.
4. **Alarm 1 type**
   - Press key for at least one second.

### Operation level

1. **Process value/set point**
   - After AT execution.
2. **Set the set point**
   - To execute AT
3. **AT execution**
   - While AT is being executed, SP will flash. After AT execution.
4. **Alarm value 1**
   - Press key for less than one second.

### Setting level

1. **Process value/set point**
   - During AT execution.
2. **Set operation status**
   - Make sure that control is running.
3. **Set alarm values**
   - During AT execution.
4. **Alarm value 1**
   - During run.

### Changing Parameters

- **E5AN/E5EN/E5CN/E5GN** indicates that there is a parameter. Keep on pressing the mode key until the desired parameter is selected.

### Changing Set Values

- **No. 1 display**
  - Use the or keys to change the set value displayed in the setup menu.

- **No. 2 display**

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

- **No. 1 display**
  - **No. 2 display**
**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 \( \text{key} \) 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 \( \text{key} \) 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></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>0</td>
<td>–200 to 1300 (°C)</td>
<td>–300 to 2300 (°F)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>–20.0 to 500.0 (°C)</td>
<td>0.0 to 900.0 (°F)</td>
</tr>
<tr>
<td>J</td>
<td>2</td>
<td>–100 to 850 (°C)</td>
<td>–100 to 1500 (°F)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>–20.0 to 400.0 (°C)</td>
<td>0.0 to 750.0 (°F)</td>
</tr>
<tr>
<td>T</td>
<td>4</td>
<td>–200 to 400 (°C)</td>
<td>–300 to 700 (°F)</td>
</tr>
<tr>
<td>E</td>
<td>5</td>
<td>0 to 600 (°C)</td>
<td>0 to 1100 (°F)</td>
</tr>
<tr>
<td>U</td>
<td>17</td>
<td>–199.9 to 400.0 (°C)</td>
<td>–199.9 to 700 (°F)</td>
</tr>
<tr>
<td>L</td>
<td>6</td>
<td>–100 to 850 (°C)</td>
<td>–100 to 1500 (°F)</td>
</tr>
<tr>
<td>U</td>
<td>7</td>
<td>–200 to 400 (°C)</td>
<td>–300 to 700 (°F)</td>
</tr>
<tr>
<td>U</td>
<td>18</td>
<td>–199.9 to 400.0 (°C)</td>
<td>–199.9 to 700 (°F)</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
<td>–200 to 1300 (°C)</td>
<td>–300 to 2300 (°F)</td>
</tr>
<tr>
<td>R</td>
<td>9</td>
<td>0 to 1700 (°C)</td>
<td>0 to 3000 (°F)</td>
</tr>
<tr>
<td>S</td>
<td>10</td>
<td>0 to 1700 (°C)</td>
<td>0 to 3000 (°F)</td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>100 to 1800 (°C)</td>
<td>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)</td>
</tr>
<tr>
<td></td>
<td>K60 to 120°C</td>
<td>13</td>
<td>0 to 120 (°C)</td>
</tr>
<tr>
<td></td>
<td>K115 to 165°C</td>
<td>14</td>
<td>0 to 165 (°C)</td>
</tr>
<tr>
<td></td>
<td>K160 to 260°C</td>
<td>15</td>
<td>0 to 260 (°C)</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</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>thermometer Pt100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>–200 to 850 (°C)</td>
<td>–300 to 1500 (°F)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>–199.9 to 500.0 (°C)</td>
<td>–199.9 to 900.0 (°F)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.0 to 100.0 (°C)</td>
<td>0.0 to 210.0 (°F)</td>
<td></td>
</tr>
<tr>
<td>JPt100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>–199.9 to 500.0 (°C)</td>
<td>–199.9 to 900.0 (°F)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.0 to 100.0 (°C)</td>
<td>0.0 to 210.0 (°F)</td>
<td></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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>When X is positive</td>
</tr>
<tr>
<td>0</td>
<td>Alarm function OFF</td>
<td>Output OFF</td>
</tr>
<tr>
<td>1^{1}</td>
<td>Upper- and lower-limit (deviation)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upper-limit (deviation)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Lower-limit (deviation)</td>
<td></td>
</tr>
<tr>
<td>4^{1}</td>
<td>Upper- and lower-limit range (deviation)</td>
<td></td>
</tr>
<tr>
<td>5^{1}</td>
<td>Upper- and lower-limit with standby sequence (deviation)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Upper-limit with standby sequence (deviation)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lower-limit with standby sequence (deviation)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Absolute-value upper-limit</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Absolute-value lower-limit</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Absolute-value upper-limit with standby sequence</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Absolute-value lower-limit with standby sequence</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.”

*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 an alarm type other than the absolute-value alarm is selected

(For alarm types 1 to 7)
The alarm value is set as a deviation from the set point.

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.

Password input
Set value "1201"

Advanced function setting level

Calibration level
Password input
Set value "-169"

Control stops.

Initial setting level
Less than 1 second
key

Communications setting level

Protect level
The time taken to move to the protect level can be adjusted by changing the "Move to protect level time" setting.

Adjustment level
1 second
key

Power ON
Operation level
Less than 1 second
key

Display flashes when key held down for more than 1 second.

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.