

**PERFLEX**<sup>®</sup>  
Innovative Dental Technologies

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# SMART 101

## INJECTION MOULDING MACHINE

OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL

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## 1 GENERAL INFORMATION

This manual has been made by PERFLEX Ltd. with the purpose of making easier the use and maintenance of the equipment.

PERFLEX Ltd. is free from any responsibility arising from damages or changes produced by the misuse of the equipment.

All the equipment contain a copy of this manual, therefore all the instructions included in the technical information should be carefully carried out so as to guarantee a correct performance.

Disregard the instructions included herein should imply the breakup of the warranty.

In case of any claim, please quote type of the equipment, model and number of series (Follow the warranty instructions).

## 2 INTRODUCTION

This manual is property of the:

### **SMART 101 INJECTION MOULDING MACHINE**

Complete the certificate of warranty and send it to PERFLEX LTD, OR YOUR LOCAL DEALER that implies an important step.

The equipment should be immediately sent to the dealer if you find damages produced by the transportation when putting aside the packing.

Please follow the instructions included herein to install it.

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### 3 PACKING DESCRIPTION

- **SMART 101 INJECTION MOULDING MACHINE.**
- Power cord.
- Certificate of warranty.
- Certificate of warranty.
- Use and maintenance manual.

### 4 SAFETY PRECAUTIONS

**Important:** The **SMART 101 INJECTION MOULDING MACHINE** must be used by trained people ONLY.

It must be used by people trained in the materials pressure technic.

Be sure to heed all the warnings to work with this equipment.

Warning: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

The equipment is connected to a 220 V. power source.

Keep electrical current with ground connection.

Turn on the injector furnace by pressing the green switch and set program: temperature and time desired for the type of material then press arrow up 1 "run" will appears on the panel its means the program is: ON

To stop the program press the arrow down 0 will appears its means: OFF

When the value of the programmed temperature arrived to the set point put the lubricated cartridge with it's cap facing outwards into the oven.

Set the timer at 6 min before injection time is set, when the timer alarm, place the fl ask into the furnace chamber.

When the machine alarms inject by pressing 2 seconds the green round button "inject" button.

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Stop alarm by pressing the lateral arrow, and set the timer at 3 min to cool the flask, release/open the handle to the end and press backwards and forwards, (green inject button) to release the flask

Please remove flask with protection gloves to avoid burns.

**Lubricate the cartridge ALLWAYS with U-tube GEL LUBRICANT – High resistance temperature lubricant, before insertion into the machine.**

## **5 DESCRIPTION**

The **SMART 101 INJECTION MOULDING MACHINE** is the result from the conscious work together with the modern dental laboratories and a detailed study regarding the technological innovation within produced in the pneumatic and the electronic field. This equipment is ready to solve the requirements of dental laboratories in charge of the injection of thermoplastic to produce flexible prostheses, partials and totals, buccal protectors, etc.

This equipment is compound by a pneumatic system of thrust, a cylinder heated with the seat correspondent to the cartridge selected (cylinder for the cartridge of diameter 22 or 25 mm. with the correspondent piston).

Contains a lid protection where is located the port cartridge to avoid different accidents during the work process.

**WE DELIVER THE MICROINJECTOR WITH ONLY ONE CARTRIDGE PORT OF 25 MM.**

In the left lateral is located the connector for the entrance of air pressure (Connector 3/8") and the power source.

**SEE VIEW OF CONNECTIONS IN PAGE 11-12**

Connect the power cord to a 220 V. power source.

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## 6 INSTALLATION

Though during packing and preparation for shipment, all precautions have been taken to prevent damage during transport, it is important to check the condition of the machine after removing it from the packing. In the event of any damage, immediately notify the supplier.

It is best not to throw away the packaging as this may be useful if the machine has to be sent back for checking or overhauling.

Place the equipment on the work area and then carry out the connections.

Connect the line of the compress air with the hose of 3/8”.

Connect the power cord to the equipment and to the 220 V. power source.

### **ENVIRONMENT CONDITIONS:**



Operating temperature: 5 °C a 40 °C

Operating humidity: 30 % a 95 %

Pressure: 500 hPa a 1060 hPa



## 7 USE AND MAINTENANCE

### THE OPERATION OF THE TEMPERATURE CONTROLLER:

- Turn on the equipment with the switch that is located in the left lateral. The temperature controller indicates in the display the value of the process temperature, and can be fit using these keys\_  

With these keys you can change all the parameters that were selected.

### THE OPERATION LEVEL:

<p><b>SP</b> (set point)</p>	<p><b><u>Temperature indicator:</u></b></p> <p>When you turn on, the control indicates in the display the value of the temperature of process. The value of the temperature that you wish can be adjusted with switches for increase or decrease temperature:  </p> <p>To enter in the next parameter you have to pressure the <b>P</b> switch. This allows you to change <b>rAtE</b>.</p>
<p><b>rAtE</b></p>	<p><b><u>Speed of temperature increment:</u></b></p> <p>Allows the user to define the characteristics of the temperature increment of the process, from the actual value to the programmable in <b>SP</b> value. The define value in <b>°C / minutes</b>. WE RECOMMEND VALUE = 100</p> <p><u>To enter in the next parameter you have to pressure the <b>P</b> switch.</u> <u>This allows you to change <b>t SP</b>.</u></p>

<b>t SP</b>	<p><b><u>Time of maintenance of the select temperature :</u></b></p> <p>Time in minutes that the process has to be in the temperature selected in SP.</p> <p>In relation with the material that you use, we recommend the value from 10 to 15 minutes.</p> <p>To enter in the next parameter you have to pressure the <b>P</b> switch. This allows you to change run.</p>
<b>run</b>	<p><b>run</b> shade that allows activating or deactivating the performance of the control of the process.</p> <p><b>0 - DOES NOT ACTIVATE THE EXIT.</b></p> <p><b>1 - ACTIVATE TE PROGRAM.</b></p>

<b>PERFLEX FN. - FLEXI NYLON</b>
Temperature: 260°C.
Time: 11 Min.
Pressure: 9.5 Bar.
<b>PERFLEX T.CRYSTAL</b>
Temperature: 280 °C HOT FLASK
Time: 11 Min.
Pressure: 9.5 Bar.
<b>PERFLEX AF. - ACRY-FREE</b>
Temperature: 270 °C
Time: 20 Min.
Pressure: 9.5 Bar.
<b>PERFLEX AC. - ACETAL</b>
Temperature: 250 °C
Time: 20 Min.
Pressure: 9.5 Bar.



TABLE OF POSSIBLE FAILURES	
FAILURES	CAUSES
It does not start	<ul style="list-style-type: none"> <li>• Bad connected power cord.</li> <li>• Defective Fuse</li> </ul>
Poor pressure	<ul style="list-style-type: none"> <li>• See the feed of the tablet air.</li> <li>• Bad working of the compressor.</li> </ul>
Poor temperature	<ul style="list-style-type: none"> <li>• Resistance is broken.</li> <li>• Verificate the temperature selected in the controller.</li> </ul>

**Maintenance:**

Effectuate the cleaning of the injection machine after each process to verify that any rests of plastic material were remaining in the equipment. (They can damage the normal conditions of the injection).

## 8 TECHNICAL SPECIFICATIONS

Power Source: 220 V (Optional 110 V)

Frequency: 50 Hz

Power: 660 W

Fuse: 3 Amp. (Measures: diameter 5 x 20 mm)

**Maximum Pressure: 10 bar.**

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**EXTERNAL DIMENSIONS OF THE EQUIPMENT:**

Height : 260 mm.

Width: 750 mm.

Depth : 250 mm.

Weight : 25 Kg.

**EXTERNAL DIMENSIONS OF THE CARTRIDGE PORT:**

Diametre : 25 mm.

Profondeur : 140 mm.

**9 OPTIONAL SPARE PARTS**

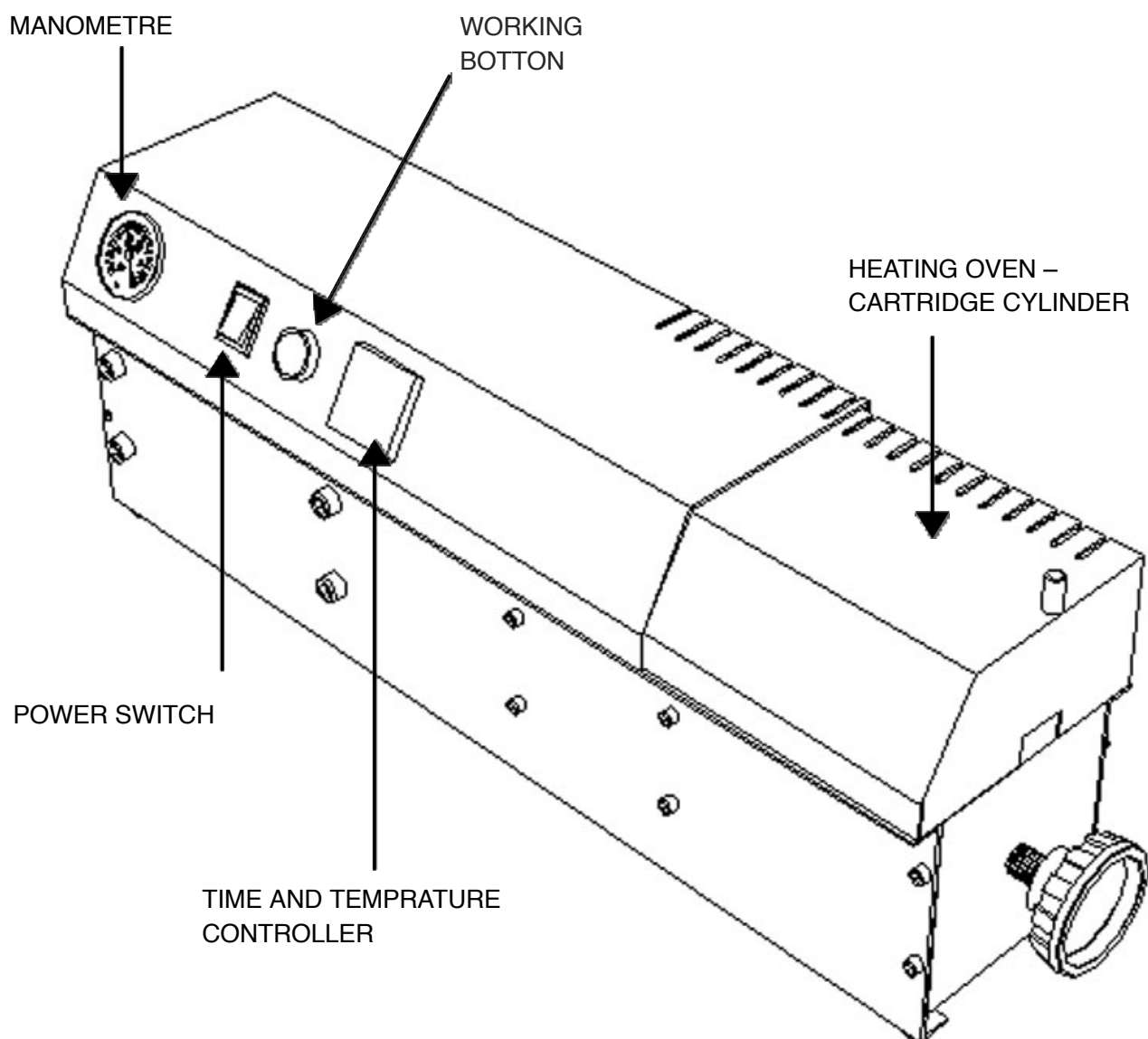
Piston for a cylinder, cartridge thrust.

**10 OPTIONAL ACCESSORIES**

Regulator of air pressure.

## 11 SCHEMA DES CONNECTIONS

### SIDE AND FRONT VIEW

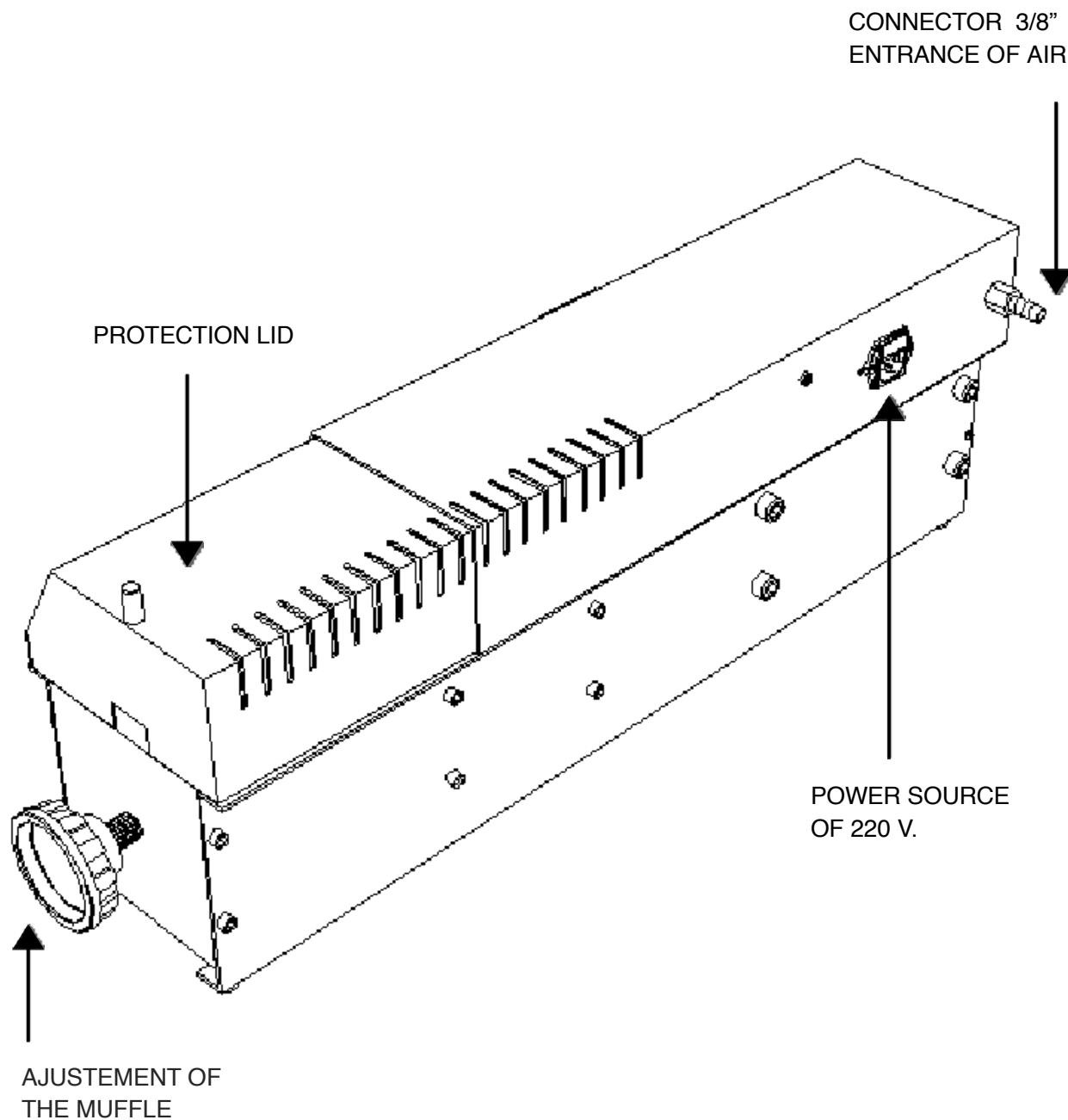


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SIDE AND BACK VIEW



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