



Auto Thermo injection FlexoPlast

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Dear Customer

We thank you for your selectivity and trust in purchasing domestically produced products, and we are pleased that after continuous efforts, we have been able to manufacture FlexoPlast device and put it at your disposal.

This product has been designed by our technical and engineering team of experienced and committed people in the fields of mechanical, electronics and computer engineering, and by utilizing updated technology and building upon 25 years of experience in manufacturing dental equipment, this product has reached production of export index quality.

In designing the product, three principles of accuracy, reliability and safety performance and also user friendly have been considered, so in order to correctly and completely utilize product features, we ask you to read the instruction manual carefully and if you have any questions or you need more information, contact the after-sales unit.

The instruction manual is a comprehensive reference for the efficient and safe use of the product. Following the instructions of this manual has a great role in reducing consumable costs, avoiding risks and ultimately increasing product life. The instruction manual should always be kept near the product and the user should periodically read it.

Please impart us with your constructive guidance, so that we can benefit from your comments, recommendations, and gain knowledge about your needs.

**We hope that you will find using FlexoPlast to be an enjoyable and successful experience,
Polaris Engineering and Manufacturing**



FlexoPlast

Introduction

(1-1) How to use the manual

This manual presents the instructions about use, installation, and maintenance of Flexoplast made by Polaris Co. It should be noted that:

- The product should be used according to the instructions of this manual. Thus, all parts of it should be read carefully before starting and installing the tool. Special attention should be paid to the highlighted parts. (see section 2-1).
- Observing the instructions of the manual assures the health and safe operation of the tool.
- Manual is an integral part of the product. Thus, it should always come with the product and should be used optimally as a reference for use during the operation of the product. It should be available even during the sale of the product, or even when it is not used.
- In case of losing or damaging the manual, get a replacement one from the after-sales service department of Polaris Co.

The following are explained in detail in this manual:

- Installation and start-up of the product
- Operation details of the product and its parts
- Maintenance program
- Primary safety and preventive details

(1-2) Terminology and signs

Knowledge of signs meanings is of great importance. A list of signs has been introduced in the following for initial recognition and reference to them if necessary.



Danger!

Indicates compulsory warnings.



Warning!

Indicates functional recommendations.



Forbidden!

Indicates forbidden activities.



Caution!

Refers to user instructions of the tool.



General Information

(2-1) Company liabilities

Polaris Co. is not liable for any problem involving the following: Failure to follow the instruction manual (incorrect use of the product), repair by an unauthorized person and part replacement without coordination with the after-sales service department, failure due to power fluctuations.

(2-2) Guarantees

Guarantee of this product includes repairs, supply, and replacement. If used appropriately, the guarantee of Polaris Co, covers all main parts of the device for 18 month.

Following cases and parts are not covered by guarantee:



- power fluctuations
- incorrect transportation of device
- inappropriate and frequent use of device despite having obvious flaws
- not observing the maintenance instructions
- power cable
- any repair or replacement by unauthorized persons.
- main and display keys

Commutation fees of company representatives to install or repair during guarantee period will be received from buyer at site.



The device can't be used before installation and insurance of correct operation of protective parts.



It is highly recommended that user has a general knowledge of this manual before using this device. The cases which appear to be operation flaws in the device should be registered by user and they should be sent to the after-sale service department.



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- Authorized representatives of Polaris Co.
These persons are endorsed by the company to work on the device under any operational circumstances. They are also authorized to do any electrical and mechanical adjustment/repair, maintenance program and authorized parts replacement.



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Device Introduction

(3-1) Main parts description

The major parts of the Flexoplast include the following:

1. Muffle adjustment handle
2. Folding muffle holder
3. Heating and injection compartment (cartridge diameter should be 25 mm)
4. Muffle support
5. Pneumatic pressure adjustment regulator
6. Air pressure indicator gauge
7. Air hose input
8. Jack with fuse
9. Main device key

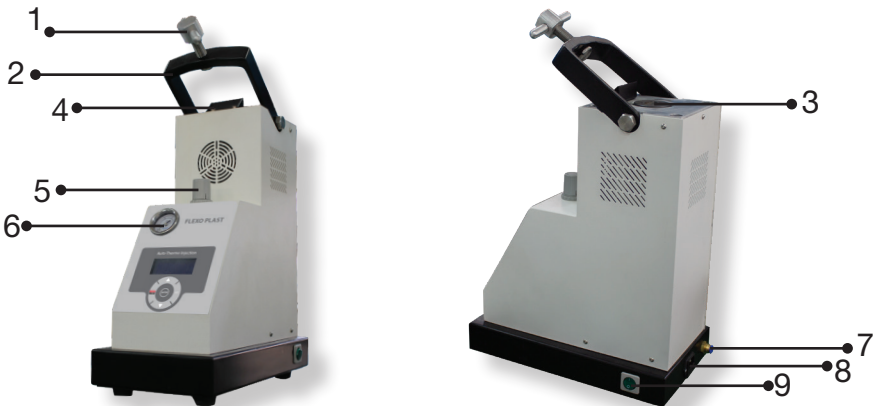


Fig-1 Different parts of the FlexoPlast

(3-2) Panel description

1. Device digital screen
2. Up button
3. Down button
4. Set button
5. Start/Stop button
6. Enter button

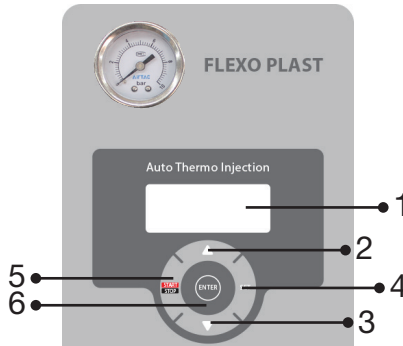


Fig-2 Panel

- 1.Up button:



Used for increasing the value of adjustable parameters.

- 2.Down button:



Used for decreasing the value of adjustable parameters.

- 3.Set button:



Used for entering settings to change parameters.

- 4.Start/Stop button:



Used for starting and stopping injection operation.

- 5.Enter button:



Used for storing changes in settings.



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Technical Features

(4-1) Technical features and operation rules of device

Polaris Co. products are manufactured based on the latest technologies and are of the highest qualities. The most recent design and manufacturing methodologies are employed to increase the lifetime and quality of products.

The device described in this manual is a -6bar electronic Flexoplast. This device provides the following functions:

- Evaporation with a pressure indicator
- The boiling water storage is filled manually.
- Electronic control of the storage water level, switch off and alarming with an alarm light when the water level is below the allowable level
- Functional switch pressure
- Dual safety devices
- Secondary switch pressure turning the heater off at a pressure of 8 bar
- Warning light
- Safety valve
- Stainless steel boiling storage with a capacity of 4 liters
- Safety fuse

(4-2) Technical details

Technical specifications of the Flexoplast are given in Table 1:

Feed Source	220 v – 50/60 Hertz
Power	800 w
Device Height	635 mm
Device Width	200 mm
Device Depth	340 mm
Approximate Weight	30 kg

Table 1 The device technical specifications

Accessories

The device box includes Flexoplast device, electricity cable, and this instruction manual.

Part	Units
Muffle plus Allen wrench	1
Hose	4 meters
Manual	1
Silicon cast separator spray	1
Power cable	1

Table 2 A list of product accessories



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**Transportation and
installation**

In order to avoid accidents, it is really important to follow the following instructions during the installation and fixing of equipment. All steps are explained in detail:

(5-1) Unboxing

Having received the device, make sure that the main box is sealed and intact. Otherwise, inform the after-sales service department of Polaris Co, or its authorized representatives.

(5-2) How to move the device

1. Unplug the device from power
2. Unplug the compressed air input from the device
3. The device should always be in a vertical position when moving. For safety and preventing any damages caused by not paying attention to technical information please refer to section 2-4. Never move the device when it is on and wait for the heating compartment to cool down before moving and make sure that the air feed is disconnected.



Failure to follow the aforementioned instructions results in device being damaged, and Polarsi Co, won't be held liable.

(5-3) environmental circumstances

It is important to choose an appropriate environment with following conditions during installation and operation for personal safety, correct operation and long lifetime.

Workplace temperature: 0-40°C

Maximum humidity: 75%



The device should not be used in a place where there is danger of explosion or firing

The light of the place should be high enough so that all parts of the device can be seen clearly.



The device should never be exposed directly to sunlight or humidity of rain, etc.

Perform the following steps before using the device:

1. Flexoplast device is designed to be put on a stable desk, parallel to land. All parts of the working desk should be checked for stability.

2. After checking the input power of the device and urban electricity connect the plug of the device to the outlet (the working voltage of the device is based on 220 v electricity)



The single-phase urban electricity source should conform to the device's feeding source specifications.

(5-4) device installation

1.Remove the device from package carefully. For this purpose remove all surrounding protectors (plastofoams) and remove the Flexoplast and put on a fully-flat standard laboratory table in a way that the surrounding area of the Flexoplast is empty for a minimum of 25cm. Make sure that the surface of the table and its legs are not metal.



If the table surface or legs are metal and in contact with earth, there is a risk of electrocution. Therefore put the Flexoplast device on wooden or fiberglass desks.

2.Keep the Flexoplast away from direct sunlight.

3.The user should connect the device to a feeding source with a proper connector.



Do not use an adapter for electrical connections.

4.The user should use an electrical protector (transformer) before the outlet to prevent the contact of overload or indirect current with the protective parts of the device.

It is recommended for the electrical system of the laboratory to have earth connection.



It is recommended for the environment electronic system to have a ground connection part.



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Preliminary Use

(6-1) Device Launch

Step 1: Turning the device on

Set the main button of the device on (1). The temperature will increase gradually to reach the programmed temperature.

Step 2: Spraying the cartridge

Select the proper cartridge. Open the container and spray the tube and the entire section except for the base and its cover using the silicon cast separator.



Spray a little of cast separator inside the interior of the heating compartment.

Step 3: Installing the cartridge

Put the tube inside the heating compartment. Please note that the head of the tube is marked with a circle on its center and the head should be facing up and the end of the tube should be down.

Step 4: Installing the muffle

Put the muffle on the device in a way that its hole is facing down. Use the adjustment handle to fix the muffle in place. Adjustment of the heat of the device according to the instruction by the cartridge manufacturer:



After adjusting each parameter press Enter to save the information.

Step 5: Activating Injection Cycle

Press Start. If the temperature of the device is close to the adjusted temperature then the device will start operating and show the passing of the first time.

After the completion of the first time, the device performs the injection operation and simultaneously the second time is decreased and then after the completion of the time the device's alarm will sound, indicating pressing Stop. By pressing Stop the injection process will complete.

Step 6: Removing the cartridge from the device



At this time turn the adjustment handle and the folding muffle support will be rested on the front of the device, then using a non-rubber glove or cloth hold the muffle and at the same time hold the up button for a few seconds. At this time the piston is activated manually and moves upwards to remove the muffle from the device.

After removing the cartridge from the device by moving the piston down and putting it down, hold the Down button for a few seconds so the piston moves downwards to its position.

Step 7: Turning the device off

For turning the device off, put the main device key on 0.



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Product Application

(7-1) Full Device Launch

1. Connect the air input to the compressor using a hose with an outer diameter of 6mm (original) for providing compressed air. Make sure that the hose connection is tight.



Recommended pressure for the air pressure of the injection device in compressed and regulated mode is 5-7 bar. If a change is needed, use the pressure change instructions under the “Device Application” section of the manual.



The minimum regulated pressure of compressor’s air output should be 7 bar in a way that the required pneumatic pressure is provided during blowing. In case of any doubts in this regard please contact the service center of the manufacturer of your compressor.



It is recommended that air supply is provided using a hose with a length of less than 5m. Longer length may disrupt the air supply during injection even if the pressure on gauge is 5-7 bar. In order to determine the lack of supply during injection make sure that the pressure gauge does not fall below 4 bar during injection.

2. Connect the supplied power cable first to the outlet on the back of the device and then to the wall outlet.

3. Programming the device (adjusting injection parameters)

A) Polyamide injection parameters



The Flexoplast device is pre-programmed in the factory according to parameters required for polyamides.

Polyamide Parameters	Parameter Value
Temperature	280°C
Melting Time (Injection Stage)	15 minutes
Injection Maintenance Time	30 seconds

(7-1) Full Device Launch



Parameters are according to Flexoplast materials. For other materials please refer to their technical specifications.

Adjustment of First Time (Melting or Heating Stage)

For this purpose first press Set. The screen of the device will show the settings for adjustable parameters. You can choose your desired parameter using the Set button and then use the up and down keys to change the adjustable parameters. At the end in order to save the changes press Enter so the word Saving is shown on the screen.

Adjustment of Second Time (Injection Maintenance Stage)

Adjusting the second time is similar to the adjustment of the first time.

Temperature Adjustment

Temperature adjustment is performed similar to first and second time adjustment.

Air Pressure Adjustment

Air pressure is provided regulated. If you need to adjust the air pressure you may do so manually. For this purpose pull the regulator handle upwards and move left or right to increase or decrease the pressure. When the ideal pressure is achieved pull the regulator handle down until the pressure gauge shows a stable pressure.



It is recommended to test the device before putting it into use and working with it (without cartridge and muffle). For this purpose press and hold the up key for a few seconds to perform the injection manually and see if the device pressure has reached the ideal level. It should be noted that after performing this procedure you need to hold the Down button for a few seconds to move the piston down to its pre-injection position.

4. Injection procedure

Step 1: Turning the device on

Put the main device button on 1. The preliminary temperature starts rising gradually to reach the programmed temperature (increase of preliminary temperature to programmed temperature takes about 10 to 15 minutes.)

Step 2: Spraying the cartridge

Choose the proper cartridge. Open the container and fully spray the container and the tube except for its bases and cover it with the silicon cast separator.

Before doing this step, spray a small amount of the separator inside the heating compartment.

Step 3: Inserting the cartridge

Insert the cartridge inside the heating compartment.

When installing the cartridge inside the heating compartment make sure that the head of the cartridge which is marked with a circle on its center is facing up and that the end of the tube is facing down.

Step 4: Inserting the muffle

Put the muffle on the Flexoplast device in a way that its hole is down. Then fix the muffle using the adjustment handle tight in its place.

Step 5: Activating the injection cycle

Press Start. If the temperature of the heating compartment is close to the programmed temperature then the heating stage starts and the screen shows the passing of the first time.

Two minutes before the completion of the melting process, the device will automatically play three warning alarms. This is a pre-warning for making sure about the proper function of the compressor and the supply of ideal

air pressure.

Step 6: Automatic injection

After the first adjusted time is completed, the injection of materials starts automatically (pre-programmed factory time is 15 minutes which may be changed), and the display shows the passing of the second time.

Step 7: Completion of injection (Automatic expansion)

After the second adjusted time is complete, the piston automatically moves down. At this time the device alarm becomes activated and will keep on playing until the muffle is removed from the device.

Step 8: Removing the muffle

Now the injection operation is complete and the next step is freeing the muffle. At this time turn the adjustment handle and put the folding muffle holder forward. Then using a cloth or non-rubber glove hold the muffle and press the Up key for a few seconds (exit). At this time the piston will be moving manually and the words “Jack Going Up” will show on the screen and the piston moves up to remove the muffle from the device.

After removing the muffle in order to move the piston down and put it on the down position, press and hold the Down key for a few seconds. At this time the words “Jack Going Down” will display on the screen and the piston will move down to the down position.

After the completion of the working cycle, the display shows “Stand By” and the device is ready for the next injection.

Step 9: Turning the device off

Put the main switch of the device on 0.



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Safety

(8-1) General Safety

The user should fully read the recommendations and warnings in this section and must follow them at all times. Following these instructions guarantee the fault-free performance of the device in long-term.

- Only the individuals trained by the installation and launch team of Polaris Co. are authorized to use the product.

Do not touch the heating compartment when the device is on. Before using the device, make sure that all device components are installed properly.

Never use a defected device.

If the auxiliary equipment of the device are defected you are not authorized to use the device. If used, the function of the device will face problems and the product's guarantee will become null. Therefore before using make sure that the auxiliary parts are working.

- The working environment should be clean, free of any obstructions and fully lighted.

- In case any defects are observed in the performance of the device please immediately stop using it and unplug the device from power and contact the after sale services department of the company and report the issue.

- Do not open the electrical and pneumatic parts of the device.

- Never replace the power supply or other parts directly connected to the plug.

- The device should never be used for purposes other than those defined for it.

- Never use gasoline or flammable solvents as cleaning agent. Always use non-flammable, non-corrosion and non-toxic agents.

(8-2) Safety Measures of the Device

To improve safety, Polaris Co. always uses raw materials with guaranteed long-term quality through advanced production procedures.

The quality control process and carried out in three stages for entering items, middle control and final control through multiple checkpoints to minimize the chance of error or defect of the device.

The device is also equipped with a protective fuse.

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Maintenance

(9-1) Cleaning

Clean the body of the device with a dry cloth. If needed, you may dampen the cloth with a small dose of water or a non-fat solvent (only for the body).

The user should always keep the device clean and free from dirt, water or other unnoticed solvents.

Clean the heating compartment in high temperature. For this purpose create a cleaning device with absorbent paper and long pliers. Insert the cleaning device inside the heating compartment and clean the remaining objects inside the compartment.

Keeping the outer parts of the muffle which lays on the injection device clean is strongly recommended since the wax and other remaining materials may get inside the muffle during the operation and contaminate the material and damage the injection piece.

Cleaning the heating compartment should be performed once per day or more if needed for full clearance of the heating compartment.

Cleaning should be performed after each working session when the device is turned off and stable.

If there is a need to clean the interior of the device at the user's discretion, please contact the after sale services department of the company.

Before cleaning the exterior of the device, always turn the device off by putting the main switch on off. Never clean the device while connected to an electrical outlet.

Never use flammable, corrosive, alkali or toxic solvents for cleaning the device.

(9-2) Periodical Maintenance

Periodical inspection and cleaning of the device should be performed based on the device's usage. It is recommended for the user to state the amount of application and usage of the device after installation of the company experts and ask for the proper time for periodical inspection and cleaning of the device. If during periodical inspections some parts of the device are found to be worn out or damaged, the user should be able to recognize them and contact the after sale services department of the company for obligatory maintenance and service.

Periodical services are performed by the company at the discretion of the user. A maximum time interval of 12 months is recommended for periodical maintenance and repair.

If the user finds any defects or issues with the device, the user should install a warning sign on the device to indicate that it's under repair and maintenance and that the device should not be used (EC warning signs may be purchased through related shops).

Cleaning, periodical maintenance and proper use of the device are some of factors and affect and guarantee the life and safety of the device.

In case of defect, the device should never be used before the defection is resolved.

Safety and protective parts of the device should never be removed from the device unless for repair or maintenance.

(9-3) Technical Maintenance Issues

On the back of the device below the jack there is a 5A fuse for the main electricity of the device. In case of any problems you may replace the fuse according to the details provided on the device.

Follow these steps to replace the protective fuse of the device:

1. Place the main switch of the device on off (0).
2. Remove the cable from the back of the device and remove the lower part of the jack according to the following picture and replace the fuse.



Calling the aftersales services Unit of Polaris Co.

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