

User's guide

English

Plastic bending machine

HR 220-300



 **SHANNON**

Plastic bending machine

HR 220-300



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Introduction

Congratulations on purchasing the **Shannon HR 200-300** plastic line heater.
Read this Guide completely before installing and using the device.

We want to keep in contact and to know how you find the
HR 200-300 plastic line heater. We are always willing to advise on the use of the
device and its accessories.

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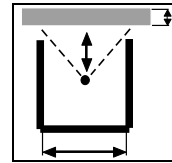
The **Shannon HR** line heater is a device for the production of items for the plastic sheet processing industry.

- o The device has one adjustable heating element as standard. The temperature of which can be adjusted by an electronic control.
- o The filament of the heating element on the working surface is adjustable in height.
- o The piece of work can be heated from one side and it is possible to bend sheet up to 5 mm thickness.
- o The working surface is made of scratch-resistant solid core material, to support the plastic sheet.

When heated, thermoplastics become so flexible that they can be shaped. When a plastic sheet is heated to its softening point in a narrow zone, it can be bent to any angle desired.

The bending radius is determined by the width of the heated zone. The zone is determined by the thickness of the material, the type of heating element and the distance between the plastic and the filament.

Every plastic has its specific softening point. By co-ordinating the temperature, heated zone and heating time all kinds of thermoplastic can be processed.



type	HR 220	HR 300
Assembly		
Control unit	1	
Heating element	1	
Electrical		
Control unit		
Voltage	220/240 V~	
Power	1000 VA	
Fuses	5 AT x2	
Connection	CEE 7/4 16A 2P+A	
Filament		
Voltage	0-30 V~	0-45 V~
Current	0-16 A~	
Network connection	CEE 7/4 16A 2P+A	
Network circuit breaker	16 A	
Mechanical		
Dimensions		
Length	2250 mm	3050 mm
Depth	440 mm	
Height	120 mm	
Weight	30 Kg	50 Kg
Lifetime filament	±500 uur	
Functional		
Bending with	2250 mm	3050 mm
Sheet thickness	1 - 5 mm	
Temperature range Filament	20-550 °C	
Filament height adjustment	1 - 6 mm	
Ambient		
Temperature	18-30 °C	
Humidity of the air	50-80 % (niet condensierend)	
Miscellaneous		
Set of socket screw keys	1 x 2 mm	
Spare fuses	4 x 6,3x32 5 AT	
Spare filament	2 x Ø1,6x 2350 mm	2 x Ø1,6x 3150 mm

SAFETY INSTRUCTIONS:



To ensure safety when using the device you should read this User's Guide carefully and follow the safety instructions closely.



Attention!

The device contains parts which are hot. Touching them will cause burns.



Allow hot parts to cool sufficiently (at least 10 minutes) before touching them.



Never touch the filament or the reflector when the device is in operation.

Always wear close-fitting clothing.

Be particularly careful of sleeves and always tie back long hair.

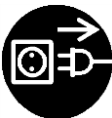
Never leave objects on the working surface.

The device may only be used for heating narrow zones in flat plastic sheet.

Any other use could lead to very hazardous situations or cause damage to the device!



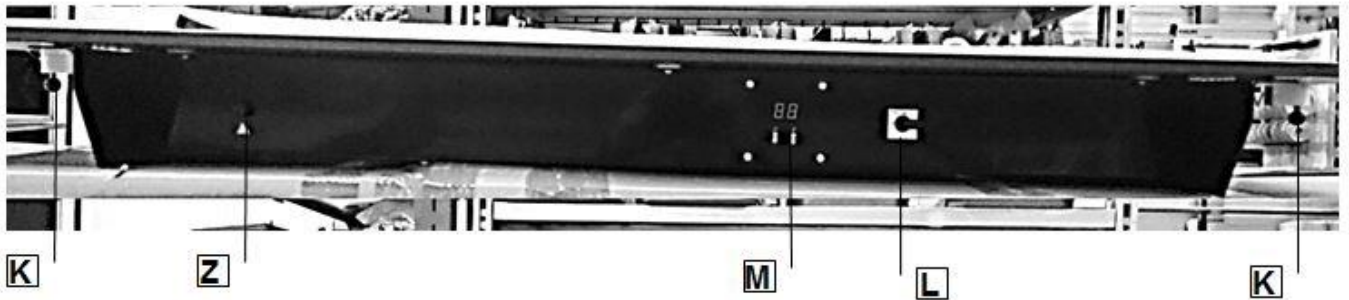
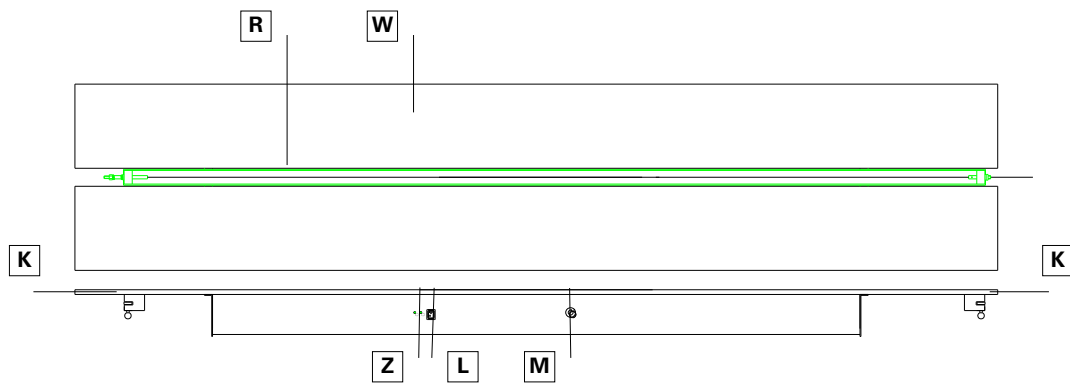
Before commissioning and servicing always check the connection cable and plug for defects.



When servicing switch off the device and remove the plug from the socket.

Never leave the device unattended without switching it off.

4.1 VIEW



- K** Moving knob.
- L** Switch on/off.
- M** Temperature setting.
- R** Heating element.
- W** Working surface.
- Z** Fuses (at the back or front).

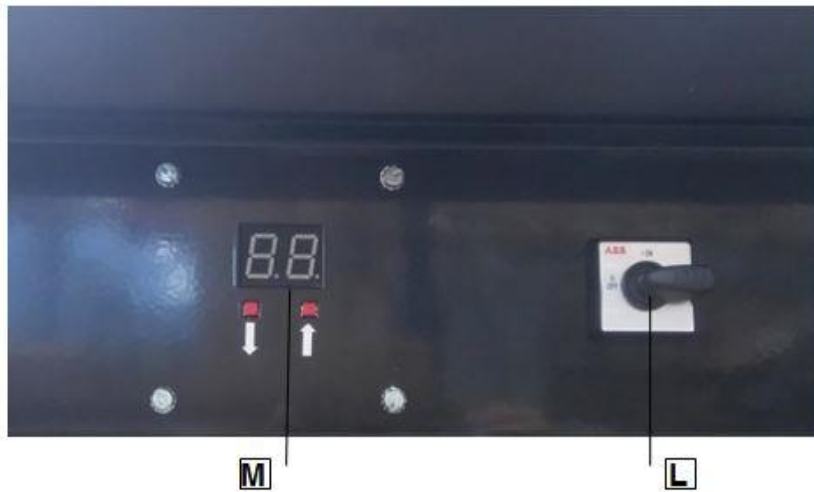
The device contains an electronic control with which the temperature of a filament is set (**M**). This setting is displayed in % (0%-99%)

5.1 ASSEMBLY

1. Place the device on a level floor with sufficient space around and above the device.
2. Ensure there is adequate ventilation and lighting at the workplace.
3. Avoid draughts, in order to prevent uneven heating.

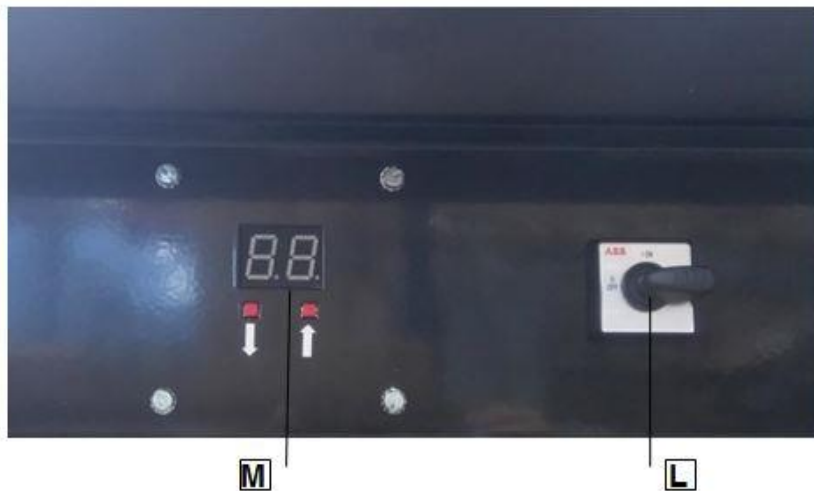
5.2 CONNECTING MAINS VOLTAGE

1. Check that control unit are in position O (switch L).
2. Plug in the device.



6.1 PREPARATION

1. Clear the working surface (**W**).
2. Check that the heating element is connected to the control unit.
3. Check that no scraps of material remain in the reflector.
4. Turn the potentiometer (**M**) in the control units to "0".



6.2 SWITCHING ON HEATING ELEMENT

1. Switch on control unit with switch (**L**).

6.3 SETTING TEMPERATURE

The temperature of the filament can be set using the temperature control.

1. When turning on the on/off switch, the display will show the value that was last saved (keeping the machine on a certain value for >20 seconds will make it remember this value).
2. Press the right button (arrow up) to increase the value, up to 99 (keeping this pressed in will make the value cycle much faster)
3. Press the left button (arrow down) to decrease the value, down to 00 (keeping this pressed in will make the value cycle much faster)
4. Press both buttons at the same time to go directly to 00. Doing this also resets the machine.

6.4 TROUBLE SHOOTING

This machine does not cause for a lot of problems.
The display will give an error message if something is wrong.

Error message	Meaning	Solution
E1	The wire is loose (not connected)	Turn off the machine, check the filament, and reset the machine (see §9.1 for changing filament) Note: Between the values 00 and 04, this fault cannot be detected
E2	The wire is loose (spark detection)	Check the connection of the filament Check the filament, and reset the machine This fault can also be reset by the arrow down button (see §9.1 for changing filament)
E9	Broken circuit board	Contact the supplier for a new circuit board
Empty display	No power	Alert a maintenance engineer Check the fuse (see §10.1) Check the power supply cable Contact the supplier if necessary

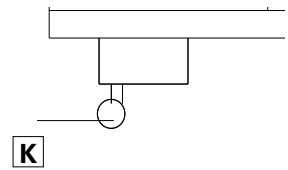
7.1 SAFETY PRECAUTIONS

Always take the following safety precautions before adjusting the heating element:



1. Switch off the heating element (Switch **L**).
2. Clear the working surface (**W**).
3. Allow the heating element to cool for at least **10** minutes.

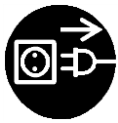
7.2 FILAMENT HEIGHT



1. Adjust the height of the filament using the knurled nut (**K**).
These can be reached from the sides. Make sure that the filament height is the same on both sides.
2. Start up the device again as in Section 6.

This device needs little maintenance. Remove loose dirt from the device once in a while.

8.1 SAFETY PRECAUTIONS



1. Switch of the device (switch L).
2. Clear the working surface (W).
3. Remove the plug from the socket.

8.2 PROFILES

The heating element works more effectively when they are clean. Remove dirt and deposits from the heating element regularly. Blow away loose dirt and brush them clean.

9.1 SAFETY PRECAUTIONS

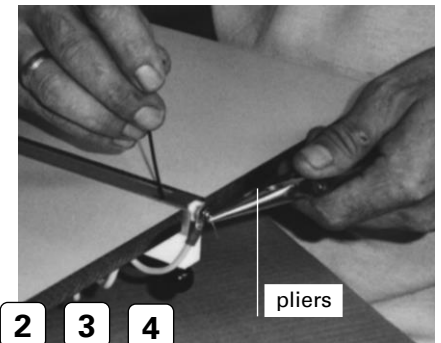
Before tensioning and changing the filament always take the following safety precautions:

1. Clear the working surface (**W**).
2. Switch off the control units one at a time (switch **L**).
3. Allow the heating elements to cool for at least **10** minutes.



9.2 TENSIONING

1. Move the filament to the lowest position (**K**).



2. Hold the end of the wire on the right with pliers and undo screw in the wire pin.
(Use socket screw key **no. 2**)
3. Pull the wire taut with pliers and tension the spring.
4. Tighten the socket head screw firmly again.

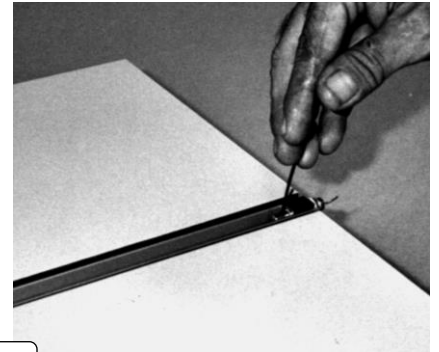
5. Cut off the end of the filament. Always leave **8-10** mm projecting in order to be able to tension the filament again. Bend the projecting piece down.



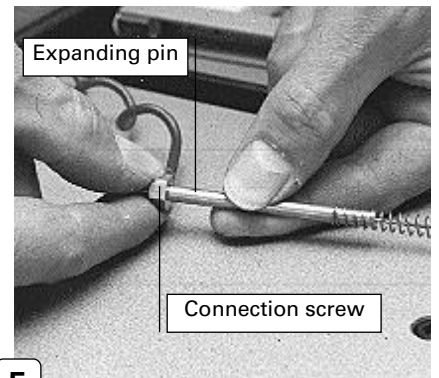
Attention! The end of the filament is sharp.

9.3 CHANGING

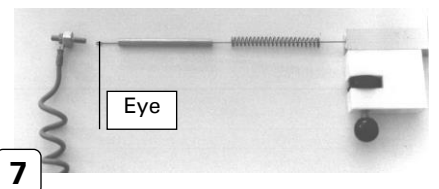
1. Move the filament to the lowest position (K).
2. Unscrew socket head screw in the wire pin on the right.
(Use socket screw key **no. 2**).



3. On the left side slide the expanding pin with the spring out of the pin block. **2**
4. Slide the spring off the expanding pin.
5. Unscrew the expanding pin from the connection screw (incl. connection wire).



6. Remove filament from the expanding pin and the wire pin. **5**
7. Slide a new filament into the expanding pin and make sure that the eye is pulled well into the pin.

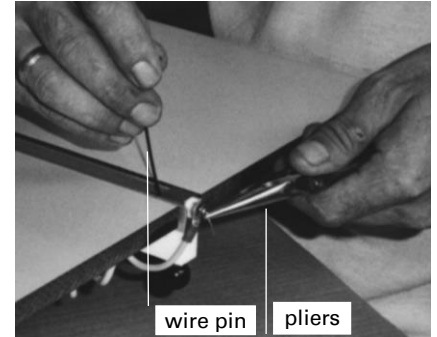


8. Screw the expanding pin onto the connection screw (incl. connection wire) and attach firmly. **7**

Take care not to damage the expanding pin. Tightening firmly by hand is sufficient.



9. Slide the spring over the filament and slide the filament through to the expanding pin.
10. Slide the filament with expanding pin through the white insulation sleeve of the pin block and pull it through as far as possible.
11. Then insert the end of the filament in the wire pin. Pull it taut and tension the spring with pliers.



11

12. Tighten the socket head screw.
(Use socket screw key **no. 2**).
13. Switch on the device and the control unit corresponding to the replaced filament (switch **L**).
Then turn the temperature control display (**M**) to the highest position (position **99**).

The filament will then glow red.

13



Never touch the filament and the reflector when the device is in operation.

14. Take hold of the end of the filament with pliers and loosen the socket head screw one turn.(Use socket screw **no. 2**).
15. Pull the filament taut and tighten the socket head screw. Check that the filament is straight. If not, repeat this operation.

A maintenance engineer should **always** be alerted when a fuse blows. Do not replace the fuse until the short circuit has been corrected.

10.1 SAFETY PRECAUTIONS

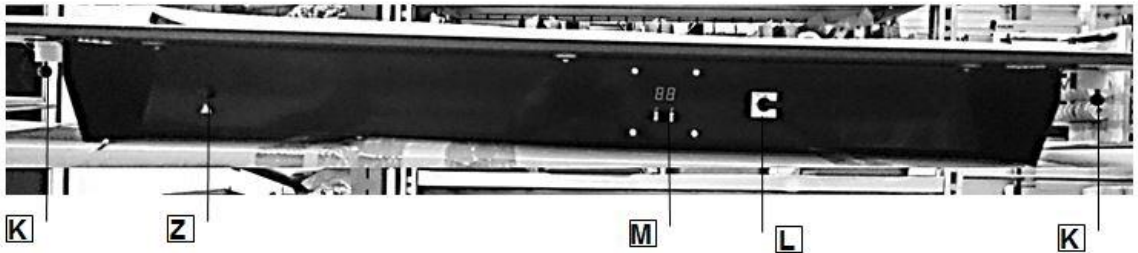
Before replacing a fuse always take the following safety precautions:

1. Clear the working surface (W).
2. Switch the device off (switch L).
3. Remove plug from socket.
4. Allow the heating element to cool for at least **10** minutes.



10.2 CONTROL UNIT FUSE

1. The fuses are at the back or front of the device.



2. Open the fuse holder (Z). Turn to the left. The fuse will come out.
3. Replace the fuse, in the reverse order.

N.B. Fuse **6,3x32mm**; 1 pieces a control unit. (see chapter 2).

OPTIONS

Service Contract

Shannon offers you an opportunity to take out a service contract. Let us tell you about it.

Spares

	HR 220	HR 300
Part	Size/value	Size/value
Filament	Ø1,6 x 2.350 mm	Ø1,6 x 3.250 mm
Fuse	5 AT	
Wire tensioning set	1.6 mm	

ACCESSORIES

Shannon BV can supply various accessories and production equipment for the processing of plastic sheet.

Working width of reducing set

Working width of reducing set for heating one or more zones per bending line.

Foil bending profile

A contact profile with anti-stick coating suitable for bending thin sheets from 0.3 - 2 mm.

Profile lengths: 500, 650, 1000 en 1250 mm
Ridge widths: 1 to 10mm
Number of ridge widths: single and double
Special versions: on request

Mould

In which to allow the bent product to cool. Adjustable to any desired angle.

Available lengths: 650, 1.250, 2.200 and 3.000 mm.

EQUIPMENT

FLAME POLISHING EQUIPMENT

To provide a glossy finish to edges, holes and slots in clear acrylic sheet up to 12 mm. thickness.

DIAMOND POLISHING MACHINES

To professionally provide a glossy finish to edges of acrylic sheet up to 20 mm. and 100 mm. thickness.

Bending machines

Type HR	Standard ; 1 regulating unit and 1 underreflector with heating wire that is adjustable in height Working lengths; 500, 1.250, 2.200 and 3.000 mm.
Type HRT	Standard ; 2 regulating units and 2 underreflectors with heating wire that is adjustable in height. Reflectors and stop adjustable with scale calibration. Easily extendable up to 4 regulating units with 4 underreflectors. Working lengths; 650, 1.250, 2.200 and 3.000 mm.
Type HRK	Standard ; 4 regulating units and 4 adjustable under reflectors with heating wire that's adjustable in height. 2 upperreflectors, pneumatic pressuresystem and stop, all adjustable. Easily extendable up to 4 regulating units with 4 under- and 4 upperreflectors. Working lengths; 650 and 1.250 mm.
Type HRP	Standard ; 4 regulating units and 2 adjustable under reflectors with heating wire that is adjustable in height. 2 upperreflectors, pneumatic pressuresystem and stop, all adjustable. Easily extendable up to 4 regulating units with 4 under- and 2 upperreflectors. Working lengths; 2.200 and 3.000 mm.
Type HRP	Standard ; 4 regulating units and 2 adjustable under reflectors with heating wire that is adjustable in height. 2 upperreflectors, pneumatic pressuresystem and stop, all adjustable. Easily extendable up to 8 regulating units with 4 under- and 4 upperreflectors. Working lengths; 2.200 and 3.000 mm.
Type HRT/D	Standard ; automatic feed- and transport system for equal heating of big productions. 2 regulating units and 2 adjustable underreflectors with heating wire that is adjustable in height. 2 adjustable parallel stops. Can also be used as a normal HRT machine. Easily extendable up to 4 regulating units and 4 underreflectors. Working length; 3.000 mm.
Type HRP/D	Standard ; automatic feed- and transport system for equal heating of big productions. 4 regulating units and 2 adjustable underreflectors with heating wire that is adjustable in height. 2 upperreflectors, pneumatic pressure system, rollers and parallel stops, all adjustable. Can also be used as a normal HRP machine Easily extendable up to 8 regulating units with 4 under- and 4 upperreflectors. Working length; 3.000 under and 2.000 mm. upper.
Type FBM	Standard ; automatic bending- and transportsystem for big productions of thin foils (0,4 tot 1 mm.) 2 regulating units with 2 upperreflectors with an adjustable distance between from 45 mm. up to 420 mm. Also provided with a vacuum feed system

SERVICE AND WARRANTY

Shannon gives one year's warranty on all parts with the exception of the filaments and/or heating elements.

This warranty is inclusive of parts, call-out charge and labour.

The maximum replacement time for the control units is one working day. The user will then have to install and remove the unit himself.