



# Hotflex Heater Installation and Operation Guideline



Typical Technical Specifications:	
Min Bending Radius	R 10mm Internal
Max Temperature	700C (1292F)
High Volt Stability	1000VAC
Insulation Resistance	$\geq 5M@500VDC$
Leakage Current	$\leq .5mA @ 253VAC$
Wattage Tolerance	$\pm 10\%$
Max Voltage	250VAC
Diameter Tolerance	Nominal $\varnothing \pm 0.10mm$
Length Tolerance	$\pm 1.5\%$

Dear Customer,

Thank you for your trust in Hotset heating elements.

Hotset heaters stand out due to their wide range of high performance features. Therefore they can be designed for individual applications and manufactured for optimum performance.

Hotset heaters are quality products – at every stage of their development and manufacturing they have to reach and pass our high quality standards.

This high standard of quality guarantees the long-lasting and reliable operation of the heaters when used in compliance within the following guidelines.

And of course if you have any further questions please feel free to contact us.

## Installation:

- Installation should only be performed by people trained in electrical hookup.
- Do not hold onto the heater with a set screw or other clamping method that can deform the case.
- Only use Non-Electrically conductive sprays and pastes for installation.
- We recommend that an installation plate be used to hold the heater into the groove during operation. This is most

important when you are pressing the heater into the groove as it can lift out with thermal cycling.

- Always use a soft plastic hammer when forming into the groove to avoid deforming the casing.
- When bending first find the center point of the groove and begin the bending at the center mark on the heater towards the screw terminals.
- The heater will stretch during forming – please refer to the expansion factors below for correct beginning length.
- Be careful not to bend smaller than the minimum R10 or the heater may break open. If this happens the heater can no longer be used.
- Be careful not to bend the heater at the same point several times as it will also break open and fail.
- Do not attempt to bend the first 30mm of each end of the heaters cold sections.

## Temperature controllers:

- Temperature Controllers have to be matched to the heaters amp load with an appropriate thermocouple sensor input.
- Only use controllers that include a “Soft Start” function. This will allow the heater to burn off any moisture inside before applying full voltage.

## Connections:

- Installation must protect lead connection areas from liquids and gasses to avoid short circuits.
- If using a separate thermocouple be sure that the TC is not electrically grounded to the heater casing which could cause a feedback to the controller inputs.
- Watch sharp edges along the lead wire path.
- Be mindful of the maximum temperature of the lead wires during planning to avoid melting during operation.
- Voltage differences have a dramatic effect on wattage output and heater life. Be sure the voltage is correct for the heater design. You will find the designed voltage stamped onto the heater.

## Operation:

- All installations must be electrically grounded.
- Do not touch the heating element while in use – they get very hot.
- Please mount the heater so that there is no chance of fire from flammable material.

## Storage:

- Store at room temperature in a dry location.

# Installation using the Casting Compound

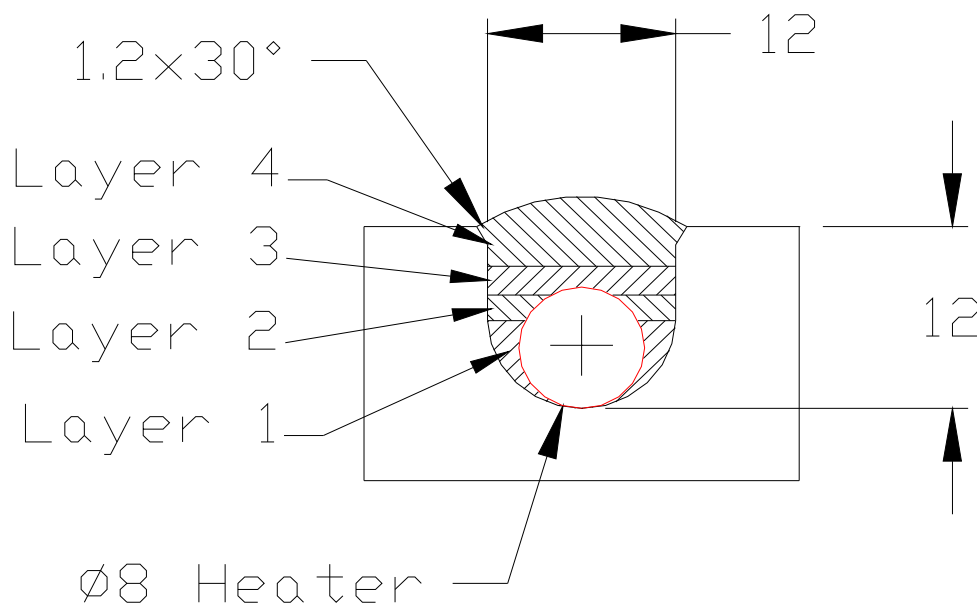
This two component compound is thermally conductive and is used during installation of a Tubular Heater into an oversized groove. This compound is best used when applied in 4 to 6 layers.

It is not necessary to use this compound with the Hotflex heater unless the groove size is too large to allow for a press fit. For oversized grooves it is preferred to use the compound with the Hotflex.

## Instructions:

1. Groove and heater must be clean of grease. Best if the surfaces are cleaned with a solvent first. Be careful to not get the solvent around the ends of the heater (terminal ends)
2. Mix VM1000 casting powder and BM1000 binding agent according to the labels directions. Form a paste that is not too thin but does not trap air bubbles. Mix in proportions of 100% powder and 55-65% binding agent (% by weight).
3. Apply up to three layers and allow each layer to dry for approximately 20 minutes at room temperature.
4. Where needed apply a further 1 to 2 layers and allow to dry at room temperature.
5. Dry in an oven at 95F for 6 to 16 hours, then heat to 356F for 2 hours.
6. Rough spots on the casting compound can be removed afterwards by and with a grinding stone. Wait until the compound is fully cured before grinding.
7. If a repair is needed the compound will bond to the old layers well without treatment.
8. Mixing tools can be cleaned in tap water.
9. The compound will swell during curing. Do not fill to the top of the groove. You want to put just enough compound in to cover the heater approximately 2mm.

Note: The casting compound is electrically conductive. Do not allow it to come into contact with the terminal ends.

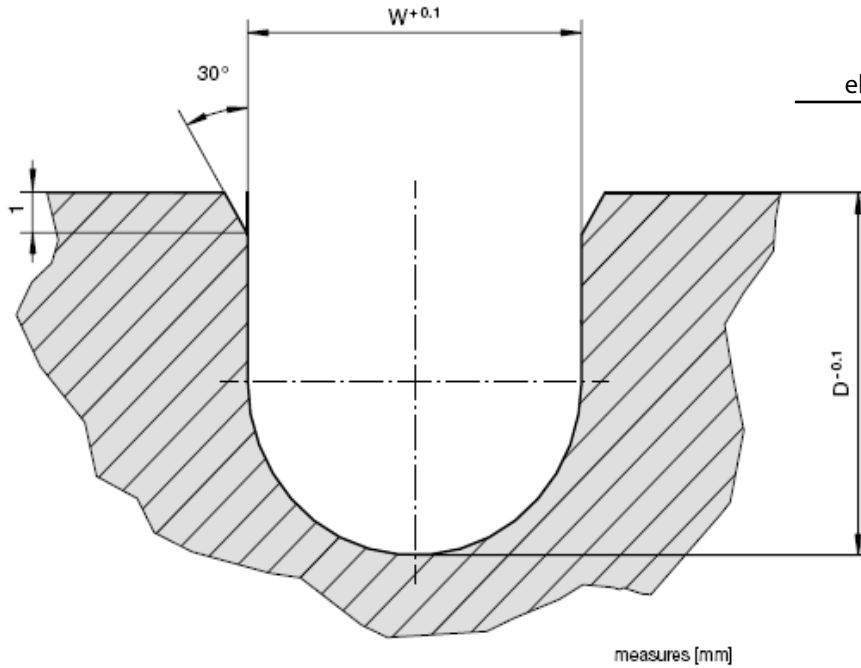


**Layered Compound Application**

# Installation by Pressing into a Groove

Please see below for suggested groove design for installing a Hotflex by pressing only. These are for the Ø 8.0 heater – increase dimensions by 0.5mm if using the Ø 8.5 heater. Dimensions are in mm.

Please note the points on the main page about forming concerns before attempting installation.



Hotflex® element Ø [mm]	Groove dimension [mm] (Width [W] x Depth [D])
6.5 ±0.1	6.0 +0.1 x 6.5 +0.1
8.0 ±0.1	7.7 ±0.05 x 8.0 ±0.1
8.2 ±0.1	7.9 ±0.05 x 8.2 ±0.1
8.5 ±0.1	8.2 ±0.05 x 8.5 ±0.1

Proposal for groove geometry

## Expansion factors

(Pressed and Potted Installation)

When calculating the starting length of the Hotflex needed please multiply the length needed by the factors in the table below. The heater will grow during installation so this will shorten the starting length to compensate.

Diameter	R 6.5	R 10	R 12.5	R 15	> R 15
6.5 mm	.98	.98	.97	.97	.98
8.0 mm		.92	.93	.94	.96
8.2 mm		.92	.93	.94	.96
8.5 mm		.94	.95	.95	.96
6 x 6 mm	.97	.97	.97	.97	.98
8 x 8 mm		.95	.95	.96	.97

\* factors revised 8/19/05