

# Assembly Instructions

## GC-Flex® Flexible Tubular Heating Element



Dear valued Customer,

Thank you very much for purchasing GC-flex – the world's most advanced flexible tubular heater improving heat transfer performance and eliminating expansion factors associated with installation.

With the GC-flex, the flexible tubular heating element from GC-heat, you have purchased a product that can be bent into different shapes and can therefore heat even most complicated contours.

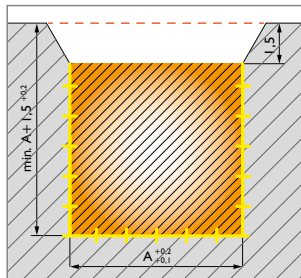
The following assembly instructions have been created to show, step by step, the easy and efficient installation process to ensure optimal performance of your GC-flex heater.

**1** The GC-flex has been designed to eliminate elongation factors of the heater during the installation process. Elimination of these expansion factors eliminates guesswork – the length of your groove determines the correct GC-flex heater length regardless of the number of bends you form with the heater.

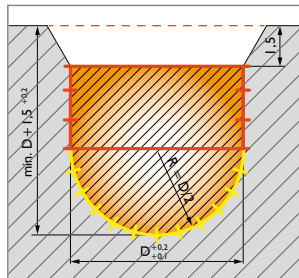
**2** To avoid damaging the outer sheath, it is recommended to design the groove according to the drawing below. There should be no sharp edges. Damages to the outer sheath such as dents, or small cuts are purely aesthetic, and do not impact product performance or span of lifetime of the heater. The heater is designed with several layers of protective material between the core heater and your groove.

### Groove Cross Section

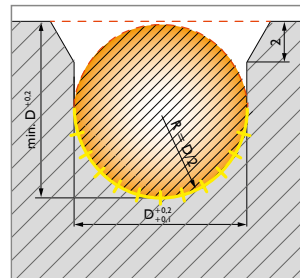
GC-flex square



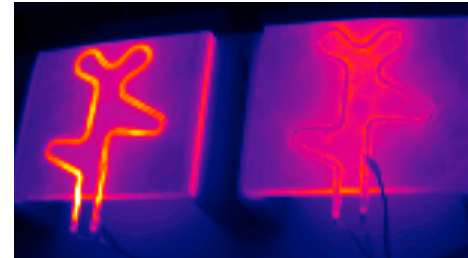
GC-flex D-Shape



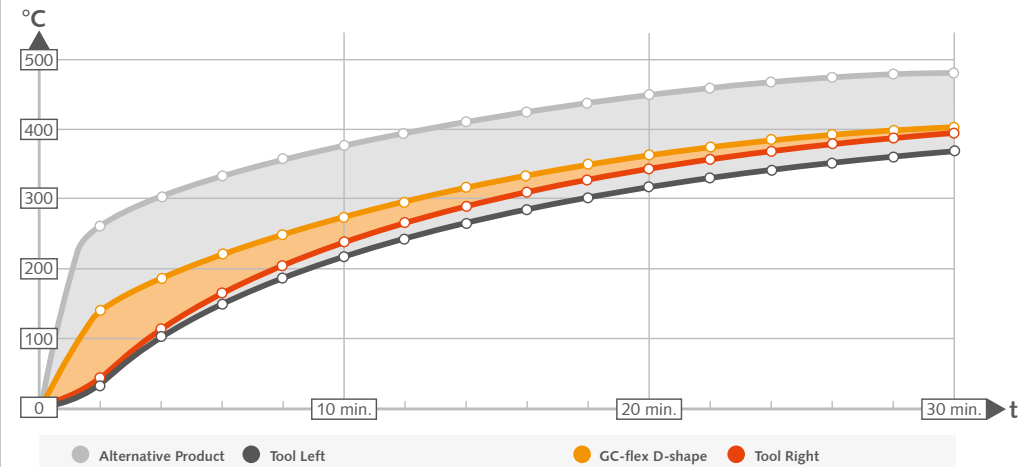
GC-flex round



### Heat test: alternative product (left) vs. GC-flex D-shape (right)



Pictures taken with a thermal imaging camera clearly show the superior heat transfer of the GC-flex D-shape installed with the GC-flex tool set, compared to an alternative heater. The GC-flex D-shape doesn't overheat and the tool is heated up quicker.



Due to optimized heat transfer the difference in temperature between the GC-flex D-shape and the tool being heated is minimal. With the alternative heater the difference after 30 minutes is still approximately 100°C.

made  
in  
Germany



### GC-heat Gebhard & Castiglia GmbH & Co. KG

Industriestrasse 34  
D-51545 Waldbroel

Phone: +49 2291 796-0  
Fax: +49 2291 796-66

eMail: flex@gc-heat.de  
Web: www.gc-heat.de

**3** Please observe the following minimum bending radii while installing the GC-flex (measured to the middle of the GC-flex).

Nominal Size	4x4 square	Ø 6,5 round 6,5 D-shape 6x6 square	Ø 8,5 round 8,5 D-shape 8x8 square	Ø10,0
mm	10	12	16	16

Our GC-flex bending hammers are designed in such a way as to always ensure that the minimum bending radius is not underrun.

**4** GC-flex tool set



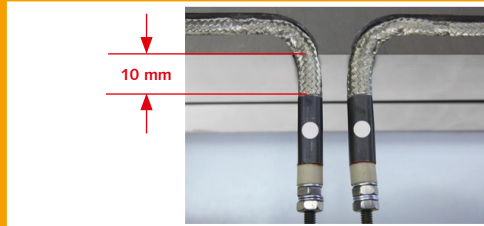
For bending the GC-flex we recommend our GC-flex tool set. This will allow the GC-flex to be seated optimally into the groove, resulting in maximum heat transfer.

**5** The GC-flex has a mark in the middle as installation must always start with this mark at the center of the groove, working from the middle to the ends of the heater. This ensures a properly sized heater that will not have heated section sticking out at either end.



**6** The braided metal sheath of the GC-flex should not be bent within the first 10mm of the connection area.

For correct installation of the "GC-flex D-shape", the flat upper side is marked by a white dot on the connection heads.



**7** Installation:

- 1) Make the first bend (if necessary) in the middle of the GC-flex (image A).
- 2) Lay the middle of the (bent) GC-flex on the middle of the groove and strike in the GC-flex (image B). It is important to make sure that the GC-flex may not be hammered over the edge.



**3)** During the bending process with the GC-flex bending hammer always bend on the ball-bearing rollers (picture C). It is important to make sure that the GC-flex is pre-bent only once per bend of the groove.

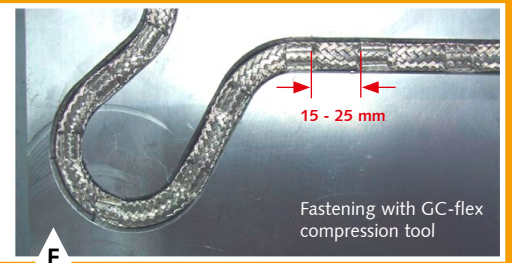


**4)** In order to ensure optimum heat transfer, it is necessary to fix the GC-flex after bending into the groove approximately every 15 mm (picture F). In contrast to the assembly, the fixing is performed from the groove exit towards the center of the groove. Therefore please use "GC-flex compression tool" that matches the diameter of your GC-flex.

**5)** This is also available as a pneumatic hammer attachment (2 - 2.5 bar) (image E).

Compressing with the "GC-flex compression tool" is possible up to 8% of the nominal diameter. When compressing with the GC-flex compression tool (air), be sure to hold it vertically (90°) on the GC-flex (image D). Place the radius so that the contour fits the GC-flex outer diameter, centered within the groove.

Using the GC-flex bending hammer, firmly strike each position. When using a pneumatic hammer, the GC-flex should be "massaged" into place for up to 3 seconds per position.



**8** When connecting to the grub screw, the nut should be fixed by a locknut and torqued to a maximum of 3 Nm.

**9** For electrical connections use heater lead wire with insulation rated for your application temperature. For ease of installation and service, GC-heat offers a reusable insulated connector specifically designed for the GC-flex.

**10** Caution: Similar to other electric heaters, the GC-flex generates heat while in operation. The tool will hold residual heat after operation concludes. Take appropriate precautions with operating temperature and electrical connections.