

AGRU Pipe & Fitting Systems

Electrofusion Fittings Installation Manual



The Plastics Experts.

1.



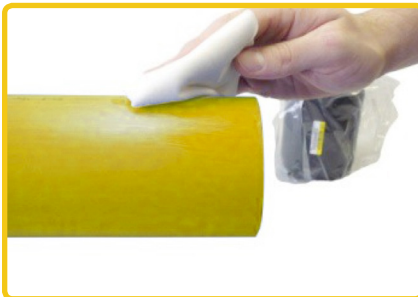
Protect the welding area against direct sunlight and rain. If necessary install a welding tent or similar cover. The welding zones of the e-coupler / e-fitting and the

inside and outside of the pipe must be dry during the entire welding process. Welding while media leaks from the pipe is not allowed. Cut pipe at right angles by means of a proper cutting tool and mark the entire pipe surface (witness lines) to be scraped with longitudinal and/or circumferential lines.

Markers should be visible on the pipe color being used. For black pipe, a silver colored Sharpie®, or equivalent, permanent marker works well.

Pipes and fittings should be at an ambient temperature before welding (between -10 C / 14 F and +45 C / 113 F).

2.



Clean the pipe of dirt with a dry cloth within the insertion length.

If the pipe is oval in the welding area (>1.5% of the outer diameter, max. 3 mm / .125 in) re-rounding tools must be used.

3.



Scrape the outside diameter of pipe carefully, to the depth to be inserted into the fitting, by means of a rotary scraping tool to remove the oxide layer (~0.2 mm / .008 in).

If a fitting is welded instead of a pipe, the welding area must be cleaned and scraped like pipe. After scraping do not touch the scraped area

with your hands. Take precautions to prevent the scraped ends from being contaminated. Do not unpack the electrofusion fitting until it is to be assembled for welding.

4.



Clean the welding areas shortly before welding with a disposable lint free wipe and isopropanol (isopropyl alcohol with a concentration of at least 90%) with the only other

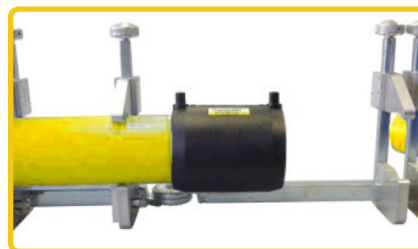
ingredient being water) or a prepackaged wipe saturated with isopropanol (with the same requirements). Cleaning clothes are not suitable due to potential contamination. The welding area must be dry before assembling the joint.

5.



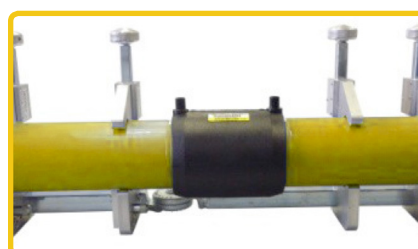
Mark the insertion length.

6.



Assemble the joint by sliding the fitting onto the prepared pipe end until it reaches the marks for insertion depth.

7.



If a second part must be welded with the socket (pipe or fitting), it should be prepared as described in point 1 - 6.

Insert the second pipe end (or fitting) into the coupling and clamp both components with the clamping device, so that no force is applied to the joint assembly and pipe / fitting and the coupling can be turned freely.

The pipe and coupling assembly should remain clamped and stationary during the entire welding process including the clamped cooling time.

8.

Electrofusion fittings can be welded without the use of a clamping device if allowed by federal, state, and local regulations. The working instructions must correspond with applicable industry standard. The joint assembly must keep the coupling and pipe / fittings stationary and free of stress during welding and cooling. If that is not possible a suitable clamping device must be used.

9.



Connect welding leads to fitting. The welding parameters are read by means of a bar code pen or scanner. The sequence of the welding process is listed in the manual

of the welding machine used. **After the welding process, the required cooling time must be met.**

If the welding process is interrupted (e.g. in case of a power failure), it is permissible to re-weld the fitting once, after it is cooled down completely 95 °F (<35 °C).

10.



If the welding process was executed it is shown by the pop up indicators which should extend approximately (0.125 in) 3mm. A welding

protocol should be made by means of an automated logging or a hand-written log.

Attention: It is required that the weldability between the welding components is proven by performing welding tests under the given conditions on site.

11.

Installation at low temperatures

For installations at lower temperatures (from -10 C / 14 F to 5 C / 50 F) the following issues have to be fulfilled: The cleaner must be evaporated completely! Dew or frost formation must be avoided.

Non-compliance of this installation guideline as well as the following safety instructions may lead to serious accidents, damages to health and property.

- Local standards and regulations concerning occupational health and safety must be followed. If available, the security and safety plan on the construction site must be adhered to.
- During the entire installation procedure appropriate safety shoes must be worn.
- While working in a trench and/or the possible danger of falling objects (e.g. rockfall) an appropriate hard hat must be used.
- When working with scraping tools it is recommended to wear cut resistant gloves.
- PE cleaners are highly flammable. Fumes from cleaning agents can form potentially explosive mixtures. Keep away from ignition sources. Do not smoke. Avoid open flames and other sources of ignition. Keep the container of the PE cleaner tightly closed.
- If pipes are not cut rectangular and/or not completely inserted into the e-fitting the heat generated by the resistance wire can not be passed on to the pipe. This may result in overheating, uncontrolled melt formation or self ignition.
- In general it is recommended to keep a safety distance of at least 6 feet to the e-fitting during the welding process. If this is impossible appropriate personal protective equipment is necessary (long sleeved clothes, gloves and sealed protective glasses).