

electrofusion jointing

Electrofusion welding system is now considered the most highly developed and safe method for realizing polyethylene jointings. Electrofusion, thanks to its versatility, can weld together pipes or fittings with different polyethylene and different thickness as long as there is compatibility of melt flow index and raw material density.

The reference standard for electrofusion jointings is UNI 10521.

electrofusion socket and fittings

The jointing quality directly depends on strictly compliance with the following instructions.

preparation

The jointing process must be carried out in a dry and protect place. In case of adverse ambient conditions (rain, high humidity, wind) suitable measures must be taken to protect the welding operation. The ambient temperature must always be between

-5°C and +40°C

Critical element for the jointing reliability is the preparation of the pipe surface where the fitting will be welded – removal of the superficial oxidized layer and cleaning of the the pipe surface on the complete contact area of the fitting.

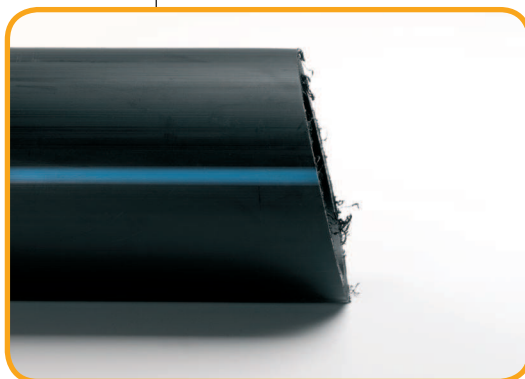
In order to achieve a quality jointing, the welding must be carried out strictly respecting the following procedures.

Check and prepare all the materials necessary for the welding process:

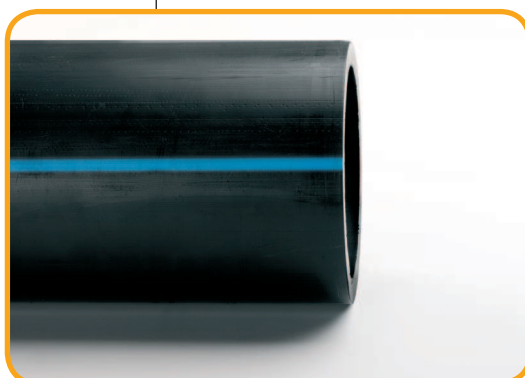
- EF control unit

1. EF fitting
2. aligning clamp
3. manual of mechanical scraper
4. pipe cutter
5. detergent
6. strong soft paper or cleaned cloth
7. indelible marker pen





Visually check that the pipe/fitting surface is free of defects such as cuts, abrasions, etc. The pipes/fittings ends to be welded must be **cut at right angle** using proper **pipe cutters**.



Avoid to use excessive ovalized pipes. In any case maximum **ovalization** cannot exceed **1,5 %** (UNI 10521) calculated as follows:

$$OV = \frac{d_{emax} - d_{emin}}{d_n} \cdot 100$$

d_e = external diameter

d_n = nominal diameter

Bending and ovalization can be reduced by unrolling the pipe at least **24 hours** before its laying and using special re-rounder.

scraping

Clean the pipe ends from dust, dirt, grease, etc.

Mark the scraping area with an indelible marker pen. The scraping area must be **10 mm** larger than the insertion depth of the fitting.



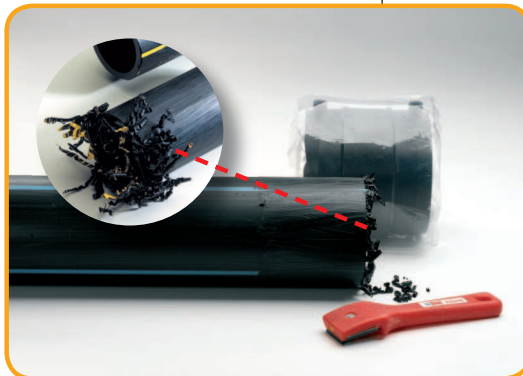
Remove the oxidized surface from the pipe, by scraping it.

The removal of the superficial oxidized layer must be done using the manual scraper supplied with the control unit, or using special mechanical pipe scrapers.

Remove an uniform surface **for a depth of approximately 0,1 mm for pipe diameter $d_n \leq 63$ mm and 0,2 mm for $d_n > 63$ mm.**

Using manual scraper, consider the procedure as correct, when an uniform PE shaving is attached to the pipe end. Then remove it by slightly rounding off (at 45° angle) the pipe end.

AVOID ABSOLUTELY other scraping equipment such as abrasive paper, rasp, emery wheels, saw blades, etc.



cleaning



Just before inserting the fitting on the pipe, clean the scraped surface using strong soft paper drenched with a suitable detergent (isopropyl alcohol or Tangit KS) to remove traces of dust, grease, etc.



Clean with the same detergent the inner surface of the fitting, which has to be removed from its protective wrapping only at the moment of use.

Do not touch with hands the just cleaned surfaces.