# 3.3 ELECTROFUSION WELDING

Electrofusion fittings are manufactured with a molded-in-place resistance wire which can be connected to suitable welding machines by means of a set of connecting wire leads.

When voltage is applied and electrical energy is circulated, this creates resistance which generates the heat needed to melt the PP-RCT material.

Energy is directly transmitted to the contact surface between the fitting and the pipe causing heat welding of the parts.

The main features of NIRON electrofusion fittings are the high quality and the reliability of the joints. After a joint is completed and is allowed to cool, the joint is homogeneous, strong, safe and reliable.
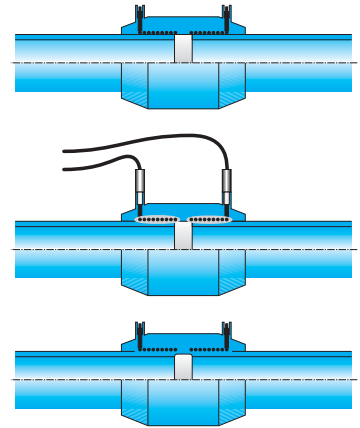
WELDING BARCODE (in conformity with standard ISO13956)

Scan the barcode with the barcode scanner or manually enter the welding parameters of time and voltage reported on the barcode. The welding procedure may be carried out by using the multifunction welding unit in automatic mode (with barcode scanner) or in manual mode. When performing automatic welding, always check time and voltage parameters on the display after scanning the barcode. In case of manual welding, use time and voltage parameters indicated on the barcode. If the welding unit selected in not a Nupi Americas unit, and does not perform welding time compensation according to ambient temperature, use the parameters on the bag label.
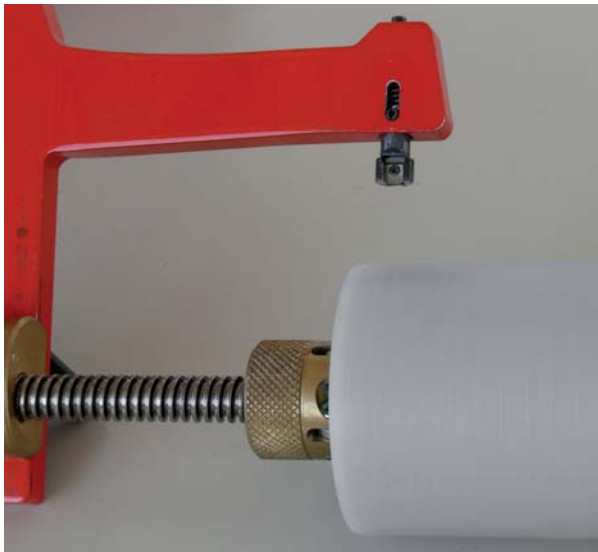
N.B.: Keep at a safe distance during the welding procedure.

Use NIRON welding units (when possible) and follow the instructions below to obtain a reliable weld.

Cut the pipes at right angles with a pipe cutter.

Scrape the pipe and the fitting spigot surface uniformly with the appropriate pipe scraper. Scrape at least ⅜" (1 cm) beyond the insertion length of the fitting to completely remove the oxidized polypropylene layer.

Mechanical scrapers are recommended. Hand scrapers can be used.

Remove any mud, dust, grease or other traces of dirt from the pipe or spigot ends of fittings to be welded and the welding area of the interior of the fitting or coupling. Use only isopropanol (Isopropyl Alcohol) and a soft clean wiping cotton cloth (note that for best results, use the purest form of Isopropyl Alcohol available, preferably 99% grade where available). Wait until the cleaned parts are completely dry.

Measure the insertion length of the pipe inside the fitting.

Mark the welding insertion depth on the pipe (equal to the length of the electrofusion fitting socket) with the appropriate marker.


Insert the pipe or spigot ends into the fitting up to the marked insertion length. When necessary, position the aligners in order to maintain the position. Be sure to avoid any mechanical stress during the welding procedure and cooling time.

AVOID ANY MECHANICAL STRESS ON THE WELDING AREA DURING THE WELDING PROCEDURE AND THE COOLING TIME.

IMPORTANT
Please refer to the user's manual of the welding machine for its correct use.
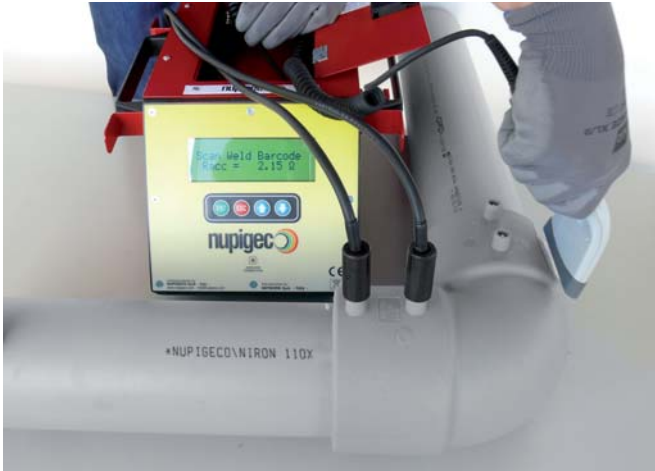
Prepare the pipe and fitting to be welded following the directions in the previous chapter. Make sure that the pipe and fitting to be welded are lined up without any possibility of movement (use a suitable aligner whenever it is possible or practical to do so).

Connect the welding cables to the fitting connectors, scan the barcode with the barcode scanner or enter the welding parameters manually.

ATTENTION!
Always check the welding parameters before starting the welding procedure.

At the end of the welding procedure, disconnect the cables and wait for the cooling time indicated on the barcode. Prior to disconnecting the cables, note the weld number and mark the coupling or fitting with the last three digits of the machine serial number and the weld number. The welding data can be downloaded using a USB pen drive or instantly printed through a printer. The exact position of the joint can be recorded with the Bluetooth GPS (only available on model E9001).

When the cooling time is over, remove any aligners that were used and start the pressure test by using the pressure test unit.