

Assessment tests. Welded joints in Polyethylene Systems for water and gas piping

ceis provides an accredited test service to carry out tests on welded joints, meeting the needs of certification bodies, water and gas utilities, engineering companies, building companies and other companies or professionals in the plastic welding sector.



Peel test

Tensile test

Crushing test

Pipes and fittings made of polyethylene (PE) have the advantage that they can be butt welded together or joined by means of electrofusion welded fittings generating joints that are absolutely sealed and resistant to tensile strength.

Part 5: "Fitness for purpose of the system" of standards UNE EN 1555 and UNE EN 12201 show the tests to be carried out on welded joints of PE piping systems for the conduction of gas fuels, water and sewerage under pressure.

Peel test according to ISO 13954

The standard describes the method to assess the resistance to decohesion of electrofusion welded joints of PE fittings with a nominal diameter greater than or equal to 90mm.

A series of 4 machined adherends each starting from strips regularly spaced around the circumference of the electrofusion welded joint are subject to a tensile test at a constant speed.

The test is carried out until the complete separation of the parts occurs, recording the place where the failure takes place (in the pipe, in the mouth, among the filaments or on the joint plane) and the type of failure found, whether ductile or brittle.

Tensile test according to UNE ISO 13953

The standard describes a method to assess the tensile strength and the failure type of the PE fitting and/or pipe failure that are butt welded and have a nominal diameter greater than or equal to 90mm.

A series of adherends regularly spaced around the circumference of the electrofusion welded joint are subject to a tensile test at a constant speed. The test focusses the effort on the fusion plane in order to cause the failure.

During the test, the force applied to the elongation until complete failure of the adherend occurs is recorded. At the end of the test, the surface of the failure is analysed, identifying the type of failure, whether ductile or brittle.

Crushing Test according to ISO 13955

The standard ISO 13955 describes the method to assess resistance to decohesion of electrofusion welded joints of PE fittings with pipes that have a nominal diameter from 16 to 225mm.

Sectors directly extracted from the joint to be tested are subject to a compression test at a constant speed until the internal sides of the adherend are in contact with each other.

After the test, both sides of the adherend are analysed, recording the place where the failure takes place and the type of failure found, whether ductile or brittle.

Fluid Distribution Systems

We have

- 155 pressure channels
(up to 100 bar and \varnothing 315 mm)
- 50 test bays for temperature cycles
- Crack propagation
- Thermal emission
- Chromatograph
- Leaktightness
- Optical ICP
- RCP



The most complete equipment together with the great experience of our technicians enables us to offer you a wide variety of tests, as well as the ability to come up with global solutions according to your needs.

If you need to assess:

- Plastic piping systems (PVC, PP, PPE)
- Multilayer pipe
- Plastic fittings
- Flexible connections
- Raw materials
- Copper pipes

We offer you

- Analysis of pathologies
- Conformity assessment
- On-site reception
- Development of standards
- Training