DIN EN ISO 21809-1 External Coatings for Buried or Submerged Pipelines/ Polyolefin coatings (3-layer PE and 3-layer PP) â€“ Impact Test â€“ Testing Equipment

Description

E.1 General
The test shall consist of verifying the strength of the coating by the impact of a punch of defined shape falling directly onto the coating from a fixed height and at a fixed temperature. Carry out the test on pipes or cut samples. Do not carry out this test on pipes with a diameter of less than 50 mm.

E.2 Equipment
E.2.1 Drop-weight testing machine, consisting of the following:
âŽ¯ Straight guide made of steel, aluminum or plastic, rigid and non-deformable, of inside diameter between 40 mm and 60 mm, at least as long as 1,30 m and containing a smooth and even inside surface. Provide the guide with
âŽ¯ support and levelling devices (for example two spirit levels for the horizontal plane and a plumb line for the vertical plane),
âŽ¯ graduated rod, which makes it possible to determine the drop height to an accuracy of 5 mm. Other guides may be used by agreement.
âŽ¯ Hard steel punch, with a hemispherical head, free from notches, porosity or other surface irregularities
and with a diameter of 25 mm Â± 1 %.
âŽ¯ Fix a small metal rod of 6 mm in diameter perpendicular to the flat face of the head and in its centre,
where this rod shall be long enough to hold the additional weights required for the tests. Equip the punch
with a suitable system for raising it to the required height; the mass of the assembly shall be appropriate
to the energy being checked and shall be accurate Â± 2 %.
âŽ¯ Weights, formed by metal discs (preferably made of stainless steel) with an outside diameter fitting the
internal diameter of the straight guide and incorporating a central hole of a suitable diameter; the mass of each disc shall be accurate to Â± 2 %.

E.3 Procedure
E.3.1 The test shall be carried out at a temperature of 23 Â°C Â± 3 Â°C. If provisions have been made to
perform this test outside this temperature range, adapt the method described, if necessary, to the agreement between the applicator and the purchaser.
E.3.2 The coated pipe shall be placed on a rigid and stable horizontal support and shall, if necessary, support the pipe interior to reduce its elastic response.
E.3.3 A holiday detection test shall be carried out prior to the impact test (see Annex B) to identify the

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defective points and avoid making the impact at these locations.
E.3.4 For each point of impact, the drop-weight testing machine shall be installed perpendicular to the coating surface so that the loaded punch can fall freely without friction or resistance. Ten impacts shall be carried out, allowing the weight corresponding to the specified energy to fall from a height of 1 m. The points of impact shall be selected to avoid any protruding welds. Furthermore, the distance from the points of impact to the end of the pipe shall be at least 1,5D and at least 50 mm apart between the axes of the impacts.
E.3.5 The holiday detection test shall be performed at each location (see Annex B).
E.3.6 The hard steel punch shall be checked every 30 impacts. If damaged, it shall be replaced.



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Impact Tester According to ISO 21809-3

- Steel guide with inner diameter according to the standard
- Guide length of 1.4 m
- Includes leveling device
- Graduated rod for easy height adjustment
- Rigid base for sample placement
- Hemispherical impact head of 25mm diameter
- Head with a 6mm diameter mass holder
- Mass holder and hemispherical head assembly weight is 1 KgÂ± 0,005 kg
- 10 pcs of mass discs with an inner hole of 6.5mm and outside diameter of 24mm
- Release of weight is manual
- Easy adjustment of mass drop height

Category

1. Equipment for Standards
2. Standards