
WATER INDUSTRY SPECIFICATION

WIS 4-32-08

June 2016: Issue 4
(Amendment August 2023)
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UK Water Industry

SPECIFICATION FOR THE FUSION JOINTING OF POLYETHYLENE PRESSURE PIPELINE SYSTEMS USING PE80 AND PE100 MATERIALS

FOREWORD

This Amendment to WIS 4-32-08 June 2016: Issue 4 has been prepared by the UK Water Industry's Standards Board in consultation with the Water Industry and the British Plastics Federation (BPF) Pipes Group.

Reference to a European Standard, British Standard, Water Industry Specification or any other specification applies equally to any equivalent specification. This specification includes the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

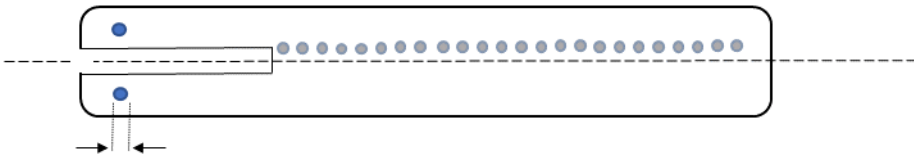
It has been assumed in the drafting of this specification that the execution of its provisions is entrusted to appropriately qualified and experienced people. Operators are to be trained under a formal programme covering the execution of jointing procedures. Operators should be assessed for competence prior to undertaking such work and reassessed periodically thereafter.

Information contained in this specification is given in good faith. Neither Water UK nor BPF Pipes Group can accept any responsibility for actions taken by others as a result.

SCOPE

This amendment forms an integral part of the Specification and replaces elements of the original as indicated below.

Clause	Amendment
6.1.2	Bullet point g) Delete reference to BS EN 12201-3 and replace with BS EN 12201-2.
8.3	Delete Clause 8.3 and replace with: <p>8.3 Assessment of electrofusion assemblies – socket fittings ≥ 90 mm</p> <p>8.3.1 Test method</p> <p>Electrofusion assemblies made using socket fittings where the socket to be tested is 90mm or greater, shall be tested in accordance with BS ISO 13954: 1997 +A1: 2020 with the following modification:</p> <ul style="list-style-type: none"> • Samples shall be prepared in accordance with 8.3.2 of this amendment. • Sample preparation described in 8.3.2 takes precedence in contracts and in any dispute. <p>NOTE 1: A 'double cantilever' assembly consistently leads to failure at the weld interface and facilitates quantitative and qualitative assessment through the weld. The 'single cantilever' assembly described in ISO 13954 is more likely to cause failure in regions of high ductility and there is a risk that brittle sections of the weld go undetected.</p> <p>Assemblies may alternatively be tested using the decohesion test defined in Clause 6 of BS EN 12814-4: 2018. The following modification is permitted:</p> <ul style="list-style-type: none"> • The diameter of the holes as given in 5.2.3 of BS ISO 13954 : 1997 + A1: 2020 <p>Assemblies made using pipes / fittings of 90mm with SDR 17 or greater, may alternatively be tested to clause 8.4 of IGN 4-32-08: Issue 4.</p> <p>8.3.2 Sample preparation - double cantilever assembly</p> <p>a) Following jointing and cooling to $(23 \pm 2)^{\circ}\text{C}$, samples shall be cut from the fused socket joint at four equidistant positions around the circumference of the joint.</p> <p>b) The test pieces shall be cut in half across the centre of the coupler to produce eight test pieces.</p> <p>c) The cut side of the sample shall be parallel over its whole length and symmetrical about the axis formed by the weld interface.</p> <p>d) For sockets up to and including 180, the sample width shall be 20mm. For greater diameters, the sample width shall be 30mm.</p> <p>e) Holes shall be drilled in the vertical plane to permit location of metal pins, see Figure 6. One hole shall be drilled through the pipe wall and one hole through the electrofusion fitting wall, both located as close to the joint interface as possible.</p> <p>Note: The diameter of the holes is given in 5.2.3 of BS ISO 13954 : 1997 + A1: 2020.</p>

Clause	Amendment
<p>8.3 (Cont.)</p>	<p>Figure 6 Double cantilever sample preparation</p>  <p>8.3.2 Pass / fail criteria</p> <p>When tested to 8.3.1, the electrofusion assembly shall conform to the requirement for decohesive resistance for electrofusion socket fittings given in Table 4 of BS EN 12201-3: 2011 + A1: 2012.</p> <p>The requirement is given as:</p> <ul style="list-style-type: none"> Length of initiation rupture $\leq L_2 / 3$ in brittle failure, where L_2 is the heated length within a socket as declared by the manufacturer to be the nominal length of the fusion zone (i.e. the length between the first and last winding of the electrofusion socket).
<p>9</p>	<p>Add:</p> <p>BS EN 12814-4 Testing of welded joints of thermoplastics semi-finished products. Part 4: Peel test.</p> <p>Replace:</p> <p>ISO 13954 by BS ISO 13954</p>