INTERNATIONAL STANDARD

ISO 21307

Third edition
2017-12

Plastics pipes and fittings — Butt fusion jointing procedures for polyethylene (PE) piping systems

Tubes et raccords en matières plastiques — Modes opératoires d'assemblage par soudage bout à bout de tubes et raccords en polyéthylène (PE)

Reference number
ISO 21307:2017(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 4, *Plastics pipes and fittings for the supply of gaseous fuels*.

This third edition cancels and replaces the second edition (ISO 21307:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Added calculation of gauge pressure in 4.7;

— Included normative non-destructive joint integrity testing (visual examination with requirements) in 6.3;

— Updated process parameters in Tables 1, 2, A.1, B.1 and C.1.

Introduction

With the increasing use of polyethylene (PE) pipes of larger diameters and wall thicknesses there is a need for this document which provides details on three butt fusion procedures. This document is developed for the benefit of countries without a national standard or technical specification for butt fusion procedures of PE pipes. High quality butt fusion welds can be obtained with all three butt fusion procedures mentioned in this document. The choice for one of these three procedures can depend on experience, on the practical trials of the three butt fusion procedures and on availability of equipment.

Plastics pipes and fittings — Butt fusion jointing procedures for polyethylene (PE) piping systems

1 Scope

This document establishes general principles regarding the procedure used in the construction and quality assessment of butt fusion jointing of polyethylene (PE) piping system components specified in accordance with relevant ISO standards. These components are installed in accordance with the relevant codes of practice, national regulations or industry guidance. Specifically, this document specifies three butt fusion jointing procedures for PE pipes and fittings. These are:

— single low-pressure fusion jointing procedure;

— dual low-pressure fusion jointing procedure;

— single high-pressure fusion jointing procedure.

This document takes into consideration the materials and components used, the fusion jointing procedure and equipment and the quality assessment of the completed joint. It can be applied in conjunction with appropriate national regulations and standards.

NOTE 1 The references for these procedures are given in the Bibliography.[1][2][3][4][5][6] Single low-pressure fusion jointing procedure is derived from multiple procedures and agreed by experts, given in the Bibliography [1][2].

NOTE 2 The three procedures detailed in this document are based on those most commonly used. It is not the intention that one or more of these procedures be used to replace well established and verified industry based procedures.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12176-1, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 1: Butt fusion*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
heater plate temperature
measured temperature on the surface of the heater plate where the pipe or fitting wall cross-section makes contact