TECHNICAL REPORT

ISO/TR 13950

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Plastics pipes and fittings — Automatic recognition systems for electrofusion

Tubes et raccords en matières plastiques — Procédés de reconnaissance automatique d'un électrosoudage

Reference number
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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 main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 13950, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids,* Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications.*

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Annexes A to G form an integral part of this Technical Report.

This study was undertaken by working group ISO/TC 138/WG9 at the request of the manufacturers of electrofusion fittings.

The purpose of the study was to collect together all the automatic recognition systems for electrofusion and to draw up a description of these different systems, attempting to harmonize the terminology used.

This document has been drawn up on the basis of pre-standardization work carried out by an expert group (PC3) within GERG (European Gas Research Group).

If necessary, a performance standard may be added to this document at a later stage.

Introduction

The electrofusion process for the assembly of thermoplastic pipes consists of heating the interface between the pre-assembled pipe and fitting using electrical energy. This is generated by a heating element which forms part of the fitting. The temperature will eventually reach a level high enough to ensure the fusion of the solid material.

The two melted surfaces are then pressed together for a given time. The fusion occurs during cooling by the recrystallization of the material through the interface.

Because of the difficulties encountered by ISO/TC 138/SC 4 with the standardization of the fusion parameters and dimensions of the electric connections of thermoplastic electrofusion fittings on one hand, and because of the growing number of products on the market on the other, users considered it preferable to establish rules for the manufacture of fusion machines usable with the different products.

To ensure the correct operation of these machines, and to limit user errors, it was decided to focus on the automatic identification of the fusion parameters.

This document presents the automatic recognition systems available today.

Any manufactured electrofusion fittings using one of these identification methods must be compatible with one of the systems described in this document.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this Technical Report may involve the use of patents (see clause 5).

ISO takes no position concerning the evidence, validity and scope of these patent rights.

The holders of these patent rights have assured ISO that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world.

Attention is drawn to the possibility that some of the elements of this Technical Report may be the subject of patent rights other than those identified in clause 5. ISO shall not be held responsible for identifying any or all such patent rights.

Plastics pipes and fittings — Automatic recognition systems for electrofusion

1 Scope

This document describes the 6 systems examined and specifies for each one the characteristics enabling the energy supply to be delivered automatically to the thermoplastic electrofusion fittings used in pipe connection, in compliance with the appropriate ISO standards.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 7810:1995, *Identification cards — Physical characteristics.*

ISO/IEC 7811-1:1995, *Identification cards — Recording technique — Part 1: Embossing.*

ISO/IEC 7811-2:1995, *Identification cards — Recording technique — Part 2: Magnetic stripe.*

ISO/IEC 7811-3:1995, *Identification cards — Recording technique — Part 3: Location of embossed characters on ID-1 cards.*

ISO/IEC 7811-4:1995, *Identification cards — Recording technique — Part 4: Location of read-only magnetic tracks — Tracks 1 and 2.*

ISO/IEC 7811-5:1995, *Identification cards — Recording technique — Part 5: Location of read-write magnetic track — Track 3.*

3 Definitions

For the purposes of this Technical Report, the following definitions apply.

3.1 **fitting:** Accessory for the connection by fusion of thermoplastic pipes and/or other accessories.

3.2 **socket:** Female part of a fitting in which the fusion is performed.

3.3 **coupler:** Fitting constituted by two sockets.