

INTERNATIONAL STANDARD

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Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) —

Part 3: Fittings

*Systèmes de canalisation en matières plastiques pour les applications
industrielles — Poly(fluorure de vinylidène) (PVDF) —*

Partie 3: Raccords



Reference number
ISO 10931-3:1996(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10931-3 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 3, *Plastics pipes and fittings for industrial applications*.

ISO 10931 consists of the following parts, under the general title *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF)*:

- *Part 1: General*
- *Part 2: Pipes*
- *Part 3: Fittings*
- *Part 4: Valves and auxiliary equipment*
- *Part 5: Fitness for system purpose*
- *Part 6: Recommendations for installation*

Annex A of this part of ISO 10931 is for information only.

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Introduction

ISO 10931, which is divided into six parts (see Foreword) specifies the properties of pipes and piping system components made of poly(vinylidene fluoride) (PVDF) for industrial applications. It includes recommendations for installation (see ISO 10931-6) and is intended to be used by authorities, design engineers, testing and certification institutes and manufacturers. This part of ISO 10931 covers characteristics of fittings.

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Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) —

Part 3: Fittings

1 Scope

This part of ISO 10931 specifies the characteristics of fittings made from poly(vinylidene fluoride) (PVDF) for industrial applications which include the conveyance of water and chemicals in liquid and gaseous form.

It also specifies the parameters for the test methods referred to in this part of ISO 10931.

It is applicable to PVDF fittings intended for the conveyance of fluids under pressure at temperatures up to 150 °C. However, for applications above 120 °C, which depend on the crystalline melting point of the PVDF material, the advice of the suppliers of the fittings should be sought.

This part of ISO 10931 is applicable to fittings for the following types of joints:

- butt fusion;
- socket fusion;
- mechanical.

It is applicable to fittings manufactured by moulding and/or by machining, or by jointing segments of pipes.

NOTE — For information about the resistance of PVDF materials to chemicals, see ISO/TR 10358.

2 Normative references

The following standards contain provisions which, through reference to this text, constitute provisions of this part of ISO 10931. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10931 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 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Designation, dimensions and tolerances.*

ISO 1167:—¹⁾, *Thermoplastics pipes for the transport of fluids — Resistance to internal pressure — Test method.*

ISO 3663:1976, *Polyethylene (PE) pressure pipes and fittings, metric series — Dimensions of flanges.*

ISO/TR 9080:1992, *Thermoplastics pipes for the transport of fluids — Methods of extrapolation of hydrostatic stress rupture data to determine the long-term hydrostatic strength of thermoplastics pipe materials.*

1) To be published. (Revision of ISO 1167:1973)

ISO 9631:1991, *Rubber seals — Joint rings for hot water supply pipelines up to 110 °C — Specification for the material.*

ISO 10931-1:—²⁾, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Part 1: General.*

ISO 10931-2:—²⁾, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Part 2: Pipes.*

ISO 11922-1:—²⁾, *Thermoplastics pipes for the transport of fluids — Dimensions and tolerances — Part 1: Metric series.*

3 Definitions

For the purposes of this part of ISO 10931, the definitions given in ISO 11922-1 and ISO 10931-1 and the following definitions apply.

3.1 fitting: Item which connects two or more pipes and/or fittings together and may perform some other function.

3.2 butt fusion fitting: Fitting having one or more ends of the same dimensions as those of the connecting pipe, with which the joint is made by heating and melting the end faces of the fitting and the pipe with a heated tool, followed by pressing both faces together, under controlled conditions.

3.3 socket fusion fitting: Fitting which incorporates one or more sockets of such dimensions that a satisfactory joint can be made by applying heat to the outer wall of the pipe end and to the inner part of the fitting socket, followed by immediate insertion of the pipe end into the socket.

3.4 Mechanical fittings

3.4.1 compression fitting: Fitting with which a joint is made by compression of a ring or sleeve on the outside wall of the pipe, with or without additional sealing elements and with or without an internal pipe support.

3.4.2 flanged fitting: Fitting having at least one end consisting of a flanged joint.

Connection is made by means of a mating flange, fused on the end of the pipe. The flanges are mechanically held together under pressure and sealed by means of an elastomeric gasket.

4 Material

4.1 The material from which the fittings are made shall be a PVDF homopolymer of category 1, conforming to ISO 10931-1.

4.2 Clean reworked PVDF material produced during the manufacture and works testing of products conforming to this part of ISO 10931 may be used in limited amounts, provided it is derived from the same compounds as that being used for the relevant production, and the final products conform to the applicable requirements of this part of ISO 10931.

5 Appearance

When viewed without magnification, the internal and external surfaces of the PVDF fitting shall appear smooth, clean and free from scoring, cavities and other surface defects likely to affect its performance.

6 Geometric characteristics

6.1 Diameter

The nominal inside diameter of a PVDF fitting shall correspond to and be designated by the nominal outside diameter (d_n) of the connecting pipes which conform to ISO 10931-2.

6.2 Angles

The nominal angle for a PVDF elbow shall be either 45° or 90°, and the nominal angle for PVDF tees and crosses shall be 90°.

6.3 Dimensions of different types of fittings

6.3.1 Butt fusion fittings

The dimensions and tolerances for PN10 and PN16 butt fusion fittings of PVDF shall be in accordance with tables 1 and 2 respectively and with figure 1.

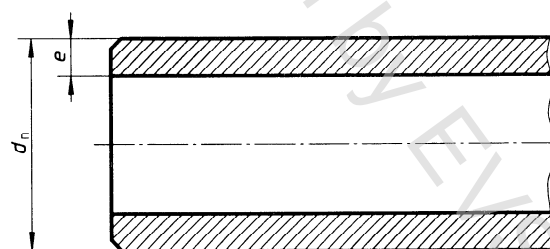


Figure 1 — Butt fusion fitting

²⁾ To be published.