
**Plastics piping systems —
Fittings, valves and ancillaries —
Determination of gaseous flow rate/
pressure drop relationships**

*Systèmes de canalisations en plastiques — Raccords, robinets et
équipements auxiliaires — Détermination du rapport débit gazeux/
perte de charge*



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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 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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastics materials and their accessories — Test methods and basic specifications*.

This is the first version of this International Standard. This edition of ISO 17778 is prepared under Vienna Agreement so that the content is aligned with the EN 12117:1997, which will be replaced.

Plastics piping systems — Fittings, valves and ancillaries — Determination of gaseous flow rate/pressure drop relationships

WARNING — Persons using this International Standard should be familiar with normal laboratory practice, if applicable. The use of this International Standard can involve hazardous materials, operations, and equipment. This International Standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a method for determining the flow rate/pressure drop relationship of components for plastics piping systems when tested using air at 25 mbar.

NOTE 1 bar = 10^5 N/m².

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 837-1, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

3 Principle

Utilizing a constant main pressure, the flow rate through a piping component is varied between specific limits to assess the pressure drop. The average value of the air flow rate for a pressure drop appropriate to the size of the component is then determined. The value for other gases can be calculated on the basis of density differences.

NOTE It is assumed that the following test parameters are set by the standard making reference to this International Standard:

- a) the relevant value(s) for pressure drop, Δp_n (see 7.2);
- b) the relevant value to be used for ρ_{air} and the relevant temperature and pressure if not as given in 7.3;
- c) the relevant value to be used for ρ_{gas} and the relevant temperature and pressure if not as given in 7.3.

4 Apparatus

4.1 Schematic test arrangement for determination of flow rate/pressure drop relationship is shown in [Figure 1](#).

4.2 A source of air.