



BSI Standards Publication

Malleable cast iron fittings with compression ends for polyethylene (PE) piping systems

National foreword

This British Standard is the UK implementation of EN 10284:2025. It supersedes BS EN 10284:2000, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/110, Steel Tubes, and Iron and Steel Fittings.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Malleable cast iron fittings with compression ends for polyethylene (PE) piping systems

Raccords en fonte malléable avec extrémités à
compression pour systèmes de canalisation en
polyéthylène (PE)

Tempergußfittings mit Klemmanschlüssen für
Polyethylen(PE)-Rohrleitungssysteme

This European Standard was approved by CEN on 17 November 2025.

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European foreword

This document (EN 10284:2025) has been prepared by Technical Committee CEN/TC 459 “ECISS - European Committee for Iron and Steel Standardization”¹, the Secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2026 and conflicting national standards shall be withdrawn at the latest by June 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10284:2000.

This document includes the following significant technical changes with respect to EN 10284:2000:

- aqueous liquids and pressurized air have been added for possible applications;
- the range of pipe sizes covered and pipe thread sizes have been changed;
- clauses for dangerous substances have been added;
- notes have been added for awareness of possible national regulations for potable water application;
- Clause 2 “Normative references” has been updated;
- Clause 3 “Terms and definitions” has been revised;
- Clause 5 “Materials” has been updated; specifically, material symbol B has been removed;
- requirements for hot dip galvanizing have been revised;
- Clause 7 “Design” has been revised;
- Clause 8 “Performance requirements” has been revised and extended;
- Clause 9 “Test requirements” has been completely revised;
- Clause 11 “Designation of fittings” has been revised; specifically, examples of designation;
- Annex A “Examples of design” has been removed;
- Annex B “Quality assurance system” has been removed and replaced by references to EN ISO 9001;
- new annex has been added for “surface protection – salt spray test”.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

¹ Through its sub-committee CEN/TC 459/SC 10 “Steel tubes, and iron and steel fittings” (secretariat: UNI).

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies the requirements for the design, performance and testing of fittings made of malleable cast iron (see also Clause 5 “Materials”) with compression ends for polyethylene piping systems.

This document applies to piping systems in polyethylene (PE) materials for different application fields, such as supply and distribution of gas, water for general purposes (irrigation, etc.) as well as for human consumption, aqueous liquids and pressurized air.

NOTE Products complying with this document used for water applications intended for human consumption are expected to comply with the relevant national, regional or local regulatory provisions applicable in the place of use. Due to the variety and dynamic of the requirements, it is advisable to check the compliance.

The malleable cast iron fittings specified in this document are of compression end type for the connection of PE pipes or of transition type with combined compression ends for pipes in different materials or with combined compression and threaded ends in conformance with EN 10226-1. Their range of sizes covers nominal outside diameters of PE pipes d_n 16 mm to d_n 110 mm (DN 10 to DN 100) and pipe thread sizes 3/8 to 4.

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.

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 681-1, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 682, *Elastomeric Seals — Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids*

EN 1555-2, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

EN 1562, *Founding — Malleable cast irons*

EN 10204, *Metallic products — Types of inspection documents*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-3, *Pipes threads where pressure tight joint are made on the threads — Part 3: Verification by means of limit gauges*

EN 10344, *Malleable cast iron fittings with compression ends for steel pipes*

EN 12201-2, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 2: Pipes*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 228-2, *Pipe threads where pressure-tight joints are not made on the threads — Part 2: Verification by means of limit gauges (ISO 228-2)*

EN ISO 1167-1, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1)*

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies (ISO 1167-4)*

EN ISO 1460, *Metallic coatings — Hot dip galvanized coatings on ferrous materials — Gravimetric determination of the mass per unit area (ISO 1460)*

EN ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method (ISO 2178)*

EN ISO 3458, *Plastics piping systems — Mechanical joints between fittings and pressure pipes — Test method for leaktightness under internal pressure (ISO 3458)*

EN ISO 3459, *Plastic piping systems — Mechanical joints between fittings and pressure pipes — Test method for leaktightness under negative pressure (ISO 3459)*

EN ISO 3501, *Plastics piping systems — Mechanical joints between fittings and pressure pipes — Test method for resistance to pull-out under constant longitudinal force (ISO 3501)*

EN ISO 3503, *Plastics piping systems — Mechanical joints between fittings and pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending (ISO 3503)*

EN ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO 15875-2, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X) — Part 2: Pipes (ISO 15875-2)*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 13951, *Plastics piping systems — Test method for the resistance of plastic pipe/pipe or pipe/fitting assemblies to tensile loading*

ISO 19899, *Plastics piping systems — Polyolefin pipes and mechanical fitting assemblies — Test method for the resistance to end load (AREL test)*

3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

fitting

connecting piece for pipes and other piping accessories, consisting of one or more parts

3.2

compression fitting

connecting piece for pipes and other piping accessories, equipped with minimum one compression end, sealing by elastomeric gaskets on a smooth walled pipe end

3.3

transition fitting

fitting jointing different types of pipe and/or comprising different types of outlet

3.4

end-load resistant joint

joint which can resist axial loads without additional external mechanical pipe support

3.5

non-end-load resistant joint

joint which cannot resist axial loads without additional external mechanical pipe support

3.6

fitting size

size designation of the nominal outside diameter, d_n , of the connecting PE pipe or of the size of the jointing thread

3.7

fitting body

main pressure-bearing part of a fitting

3.8

outlet

end of a fitting for the purpose of connection with a pipe by a compression end or other threaded piping accessories

3.9

run

two principal axially aligned outlets of a tee

3.10

branch

side outlet of a tee

3.11

compression end

end in which a mechanical joint is formed by tightening of a nut or fastening of a flange to compress a grip or locking ring onto the outside wall of the tube to create a pressure tight connection

Note 1 to entry: The assembled joint should be understood as being demountable.

Note 2 to entry: The purpose of a compression end is to connect pipe and fitting body using a compression system, consisting of a body and a nut or flange, by using appropriate tools.