

# INTERNATIONAL STANDARD

**ISO  
2531**

Fifth edition  
1998-08-15

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## **Ductile iron pipes, fittings, accessories and their joints for water or gas applications**

*Tuyaux, raccords et accessoires en fonte ductile et leurs assemblages pour  
l'eau ou le gaz*



Reference number  
ISO 2531:1998(E)

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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.

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 2531 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*, Subcommittee SC 2, *Cast iron pipes, fittings and their joints*.

This fifth edition cancels and replaces the fourth edition (ISO 2531:1991), of which it constitutes a technical revision. Its scope has been extended to include performance requirements and type testing of joints. Its style and presentation have been reviewed and improved.

Annexes A, B and C of this International Standard are for information only.

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# Ductile iron pipes, fittings, accessories and their joints for water or gas applications

## 1 Scope

This International Standard specifies the requirements and test methods applicable to ductile iron pipes, fittings, accessories and their joints for the construction of pipelines

- to convey water (e.g. potable water) or gas;
- operated with or without pressure;
- installed below or above ground.

NOTE — In this International Standard, all pressures are relative pressures expressed in bars<sup>1)</sup>.

This International Standard gives specifications for materials, dimensions and tolerances, mechanical properties and standard coatings of pipes, fittings and accessories. It also gives performance requirements for all components including joints.

This International Standard covers pipes, fittings and accessories cast by any type of foundry process or manufactured by fabrication of cast components, as well as corresponding joints, of a size range extending from DN 40 to DN 2 600 inclusive.

It is applicable to pipes, fittings and accessories which are

- manufactured with socketed, flanged or spigot ends for jointing by means of various types of gaskets which are not within the scope of this International Standard;
- normally delivered internally and externally coated.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of the publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on the International Standard 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 4179:1985, *Ductile iron pipes for pressure and non-pressure pipelines — Centrifugal cement mortar lining — General requirements*.

ISO 4633:1996, *Rubber seals — Joint rings for water supply, drainage and sewerage pipelines — Specification for materials*.

1) 100 kPa = 1 bar

ISO 6447:1983, *Rubber seals — Joint rings used for gas supply pipes and fittings — Specification for material.*

ISO 6506-1:—<sup>2)</sup>, *Metallic materials — Hardness testing — Brinell test — Part 1: Test method.*

ISO 6708:1995, *Pipeworks components — Definition and selection of DN (nominal size).*

ISO 7005-2:1988, *Metallic flanges — Part 2: Cast iron flanges.*

ISO 7268:1983, *Pipe components — Definition of nominal pressure.*

ISO 7268/Amd 1:1984, Amendment 1 to ISO 7268:1983.

ISO 7483:1991, *Dimensions of gaskets for use with flanges to ISO 7005.*

ISO 8179-1:1995, *Ductile iron pipes — External coating — Part 1: Metallic zinc with finishing layer.*

ISO 8179-2:1995, *Ductile iron pipes — External coating — Part 2: Zinc rich paint with finishing layer.*

ISO 8180:1985, *Ductile iron pipes — Polyethylene sleeving.*

ISO 10804-1:1996, *Restrained joint systems for ductile iron pipelines — Part 1: Design rules and type testing.*

EN 1092-2:1997, *Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges.*

### 3 Definitions

For the purposes of this International Standard, the following definitions apply:

**3.1 ductile iron:** Type of iron used for pipes, fittings and accessories in which graphite is present primarily in spheroidal form.

**3.2 pipe:** Casting of uniform bore, with straight axis, having either socket, spigot or flanged ends, except for flanged sockets, flanged spigots and collars which are classified as fittings.

**3.3 fitting:** Casting other than a pipe, which allows pipeline deviation, change of direction or bore. In addition, flanged sockets, flanged spigots and collars are also classified as fittings.

**3.4 accessory:** Any casting other than a pipe or fitting, which is used in a pipeline, such as:

- glands and bolts for mechanical flexible joints (see 3.13);
- glands, bolts and locking rings or segments for restrained joints (see 3.14).

NOTE — Valves and hydrants of all types are not covered by the term accessory.

**3.5 flange:** flat, circular end of a pipe or fitting, extending perpendicular to its axis, with bolt holes equally spaced on a circle.

NOTE — A flange may be fixed (e.g. integrally cast, threaded-on or welded-on) or adjustable; an adjustable flange comprises a ring, in one or several parts bolted together, which bears on an end joint hub and can be freely rotated around the pipe axis before jointing.

**3.6 collar; coupling:** Connecting piece used to join together the spigots of mating pipes or fittings.

<sup>2)</sup> To be published. (Revision of ISO 6506:1981 and ISO 410:1982)