
**Cast iron drainage pipes and fittings —
Spigot series**

Tuyaux et raccords salubres en fonte — Série à bouts unis

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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

ISO 6594 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 second edition cancels and replaces the first edition (ISO 6594:1983), which has been technically revised.

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Introduction

The distinctive character of discharge pipelines is that products flow through them in a single direction under the force of gravity; they are thus laid on a slight slope in the direction of flow. As a result, they include descending, vertical, oblique or slightly sipping components, but exclude any horizontal or ascending components.

This International Standard consists of sections covering technical specifications, dimensions, and control and compliance testing.

The technical specification applies to cast iron drainage pipes and fittings used for the discharge of waste water, sewage, rainwater and for ventilation. Thirteen of the nominal sizes used in various countries have been selected.

NOTE The nominal size, DN, is a number which permits classification of the pipes and fittings; it is only loosely related to the inside diameter.

For the dimensions and masses, only the most commonly used sizes of the various pipes and fittings were selected. This International Standard does not exclude the use of sizes which may be specified in national standards.

If the nominal masses of finished products (pipes, fittings and accessories) are given in manufacturer's catalogues, the lower deviation is not permitted to exceed the value specified in 3.10.

The tests and controls provided in the final section are intended to be carried out to check compliance with the requirements given in the other two sections. [ISO 6594:2006](https://standards.iteh.ai/catalog/standards/sist/7236d4bd-ac40-429d-8509-89dc2e664859/iso-6594-2006)

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Cast iron drainage pipes and fittings — Spigot series

1 Scope

This International Standard specifies the characteristics of cast iron drainage pipes and fittings used for the installation of:

- discharge pipes for waste and sewage,
- rain water pipe systems, and
- ventilation pipe systems.

The technical specification is applicable to the range of nominal sizes, DN: 40 – 50 – 70 – 75 – 100 – 125 – 150 – 200 – 250 – 300 – 400 – 500 – 600. Where applicable, national standards and/or regulations could clarify, and possibly restrict, the field of application of the pipes and fittings covered.

In addition, this International Standard gives the dimensions for the most commonly used pipe and fitting sizes.

It also provides control testing and test methods for checking compliance with the technical specification and the dimensional and other requirements.

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2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 185, *Grey cast irons — Classification*

3 Technical specification

3.1 Type of ends and their jointing

Cast iron drainage pipes and fittings are of the spigot type without sockets.

The pipes and fittings may be assembled using various types of joints whose characteristics and tolerances shall be specified in the national standards or, failing these, in manufacturer's catalogues.

In order to achieve satisfactory assembly, each end shall present a free length corresponding at least to the values of Table 1. See Figure 1.

Table 1 — Minimum free lengths

Nominal size DN	Minimum free length <i>l</i> mm
40	25
50	25
70 ^a	30
75 ^a	30
100	35
125	40
150	45
200	56
250	66
300	76
400	76
500	76
600	76

^a The range of nominal sizes and their classification differ slightly from one country to another. The use of DN 70 or DN 75 is subject to national standards or regulations.

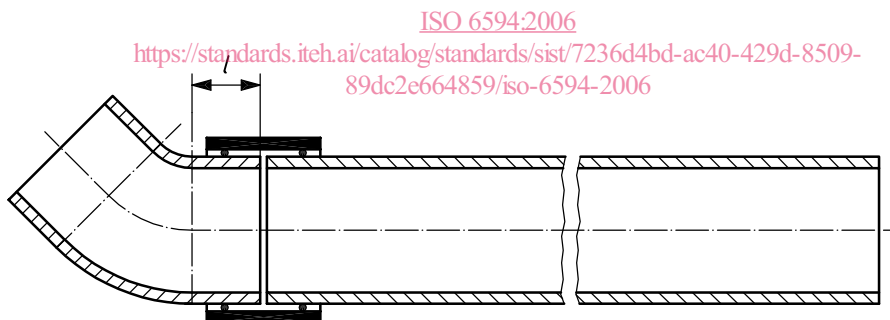


Figure 1

3.2 Quality of cast iron

The quality of the type of cast iron used for drainage pipes and fittings shall be at least 150, in accordance with ISO 185, and have a phosphorous content of less than 0,9 %.

3.3 Quality of pipe and fittings

Drainage pipes and fittings shall be sound and free from surface and other defects which would impair performance or service life.

When fractured, the castings shall show a fine, grey, close and regular grain. Pipes and fittings with small imperfections that are unavoidable due to the manufacturing processes and which are not harmful in any way to their usage shall not be rejected.

Drainage pipes and fittings shall be capable of being cut with the tools normally used for installation.

3.4 Marking

Drainage pipes and fittings shall carry a durable manufacturer's mark.

The pipes shall carry this manufacturer's mark and the indication of the nominal diameter at least once per metre of length.

Where possible, the fittings shall have their nominal diameter and, if necessary, the angle of deviation, cast on.

The marking shall be effected outside the region of the joint of the spigot (see 3.1).

3.5 Range of nominal sizes

The range of nominal sizes is ¹⁾:

40 – 50 – 70 – 75 – 100 – 125 – 150 – 200 – 250 – 300 – 400 – 500 – 600

3.6 External diameters and tolerances

The external diameters of drainage pipes and fittings and the tolerances applicable are given in Table 2.

Table 2 — External diameters and tolerances

Nominal size DN	External diameter, DE, of pipe body mm	Tolerance on external diameter, DE mm
40	48	+2 -1
50	58	+2 -1
70 ^a	78	+2 -1
75 ^a	83	+2 -1
100	110	± 2
125	135	± 2
150	160	± 2
200	210	± 2,5
250	274	± 2,5
300	326	± 2,5
400	429	+2 -3
500	532	+2 -3,5
600	635	+2 -4

^a The range of nominal sizes and their classification differ slightly from one country to another. The use of DN 70 or DN 75 is subject to national standards or regulations.

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3.7 Thicknesses and tolerances

Table 3 gives the minimum and nominal thicknesses of drainage pipes and fittings, spigot series. See Figure 2. Maximum thicknesses are not specified.

Table 3 — Nominal and minimum thicknesses of pipes and fittings

DN	Thickness <i>e</i> mm			
	Pipe		Fitting	
	nom.	min.	nom.	min.
40	3,0	2,5	3,7	2,5
50	3,5	3,0	4,2	3,0
70 ^a	3,5	3,0	4,2	3,0
75 ^a	3,5	3,0	4,2	3,0
100	3,5	3,0	4,2	3,0
125	4,0	3,5	4,7	3,5
150	4,0	3,5	5,3	3,5
200	5,0	4,0	6,0	4,0
250	5,5	4,5	7,0	4,5
300	6,0	5,0	8,0	5,0
400	6,3	5,0	8,3	5,0
500	7,0	5,2	9,0	5,2
600	7,7	5,8	9,7	5,8

^a The range of nominal sizes and their classification differ slightly from one country to another. The use of DN 70 or DN 75 is subject to national standards or regulations.

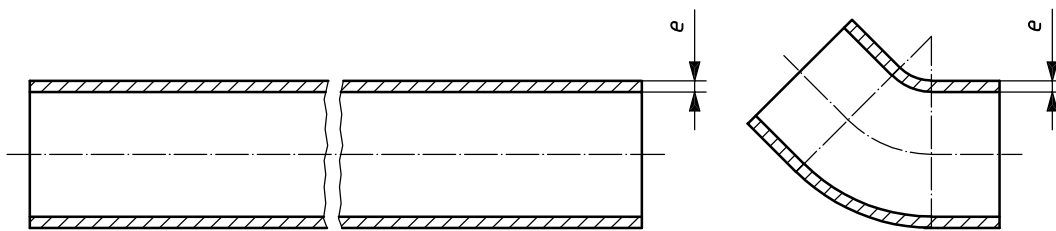


Figure 2

3.8 Lengths and tolerances

The normal manufacturing lengths of the pipes and fittings, and their tolerances, are given in Clause 4.

3.9 Tolerances on angles

The tolerances on the angles of the bends and branches are fixed at ± 2° throughout.

3.10 Masses and tolerances

The negative tolerance with respect to the mass, if indicated in the manufacturer's catalogue, shall be:

- 15 % for pipes;
- 15 % for fittings.

Positive tolerances are not specified, but components whose mass is greater than indicated shall be accepted, provided they satisfy all other requirements of this International Standard.

3.11 Protection

Unless otherwise specified, drainage pipes and fittings shall be supplied coated internally and externally.

The coatings shall dry rapidly, shall not be sticky, shall adhere well, shall not chip and shall be sufficiently resistant to temperature under normal conditions of use, transportation and storage of the products.

The external coatings shall, in addition, be suitable for the application of finish coatings.

4 Dimensions

4.1 Pipe

Symbol:



Tolerance on L of 3 m: ± 20 mm, for all diameters. See Figure 3.

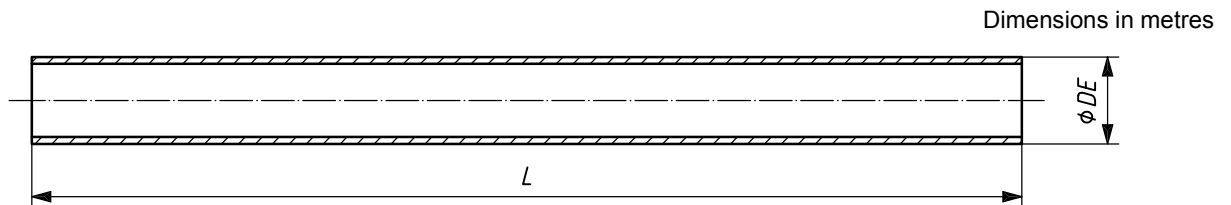


Figure 3