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**Restrained joint systems for ductile  
iron pipelines — Design rules and  
type testing**

*Assemblages verrouillés pour canalisations en fonte ductile — Règles  
de conception et essais de type*



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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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document 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 10804-1:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

- the positive internal pressure type test in the configuration of minimum design radial gap has been introduced for joints restrained by gasket with hard anchor teeth;
- the references and presentation have been reviewed and improved.

# Restrained joint systems for ductile iron pipelines — Design rules and type testing

## 1 Scope

This document specifies the design rules and type testing for restrained joint systems to be used on ductile iron pipelines complying with ISO 2531 and ISO 7186, in order to determine their mechanical properties and leaktightness.

## 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.

ISO 6708, *Pipework components — Definition and selection of DN (nominal size)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6708 and the following apply.

ISO and IEC maintain terminological 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

#### **restrained joint**

joint in which a means is provided to prevent separation of the assembled joint

### 3.2

#### **allowable operating pressure**

##### **PFA**

maximum internal pressure, excluding surge, which a component can safely withstand in permanent service

### 3.3

#### **allowable maximum operating pressure**

##### **PMA**

maximum internal pressure, including surge, which a component can safely withstand in service

### 3.4

#### **type test**

proof-of-design test which is performed once and repeated only after change of design

### 3.5

#### **allowable angular deflection**

angular deflection that a joint between two components can safely withstand in service under the *allowable operating pressure (PFA)* (3.2)