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Metallic flanges —

Part 2:
Cast iron flanges

Brides métalliques —

Partie 2: Brides en fonte

Reference number
ISO 7005-2:1988 (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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7005-2 was prepared by Technical Committee ISO/TC 5, *Ferrous metal pipes and metallic fittings*.

This part of ISO 7005, together with parts 1 and 3, cancel and replace ISO 2084 : 1974, ISO 2229 : 1973 and ISO 2441 : 1975.

ISO 7005 will consist of the following parts, under the general title *Metallic flanges* :

- Part 1 : Steel flanges
- Part 2 : Cast iron flanges
- Part 3 : Copper alloy and composite flanges
- Part 4 : Aluminium and aluminium alloy flanges

Annexes A and B of this part of ISO 7005 are for information only.

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Introduction

Various flange systems based on differing design criteria have been in use throughout the world for many years. Given the increasing difficulties arising from such a situation, this International Standard has been based on a single series of metallic flanges. ISO 7005 will be published in four parts as follows:

Part 1: Steel flanges

Part 2: Cast iron flanges

Part 3: Copper alloy and composite flanges

Part 4: Aluminium and aluminium alloy flanges

This part of ISO 7005 is based on the American and European cast iron flange systems which have been combined to produce one International Standard with some changes to the dimensions specified in the two systems.

The materials specified in American (ANSI) standards and International Standards have been retained. Because, at this time, the International Standards for cast iron materials do not specify pressure/temperature (p/T) ratings, the ratings for the materials specified have been based on those given in comparable national standards.

In the American system, flanges are designated by a Class rating but in this part of ISO 7005 the relevant Class ratings are designated by nominal pressure (PN) ratings. The equivalent designations are as follows:

Classes 125 and 150: ISO PN20

Classes 250 and 300: ISO PN50

The ratings used in the European system remain as ISO PN2,5, ISO PN6, ISO PN10, ISO PN16, ISO PN25 and ISO PN40.

ISO PN20 and ISO PN50 grey cast iron and ductile cast iron flanges are designed to be interchangeable with flanges to ANSI B16.1 (grey cast iron) and ANSI B16.42 (ductile cast iron). They are not identical but are deemed to comply with the dimensions specified in ANSI B16.1 and ANSI B16.42 as appropriate (see 2.7).

Flange details in all four parts of ISO 7005 are such that flanges having the same PN and nominal size (DN) values and compatible flange facings will mate together when using metric bolting. Tolerances on dimensions are given for guidance in annex A.

To avoid any possible confusion in giving descriptive names to flanges, all flanges are designated by type numbers and flange facings are designated by a letter.

Users of this part of ISO 7005 should satisfy themselves that the flanges comply with any statutory requirements.

Metallic flanges —

Part 2: Cast iron flanges

Section 1: General

1.1 Scope

This part of ISO 7005 for a single system of flanges specifies requirements for circular grey, malleable and ductile cast iron flanges in the following nominal pressure ratings:

Series 1*	Series 2*
ISO PN10	ISO PN2,5
ISO PN16	ISO PN6
ISO PN20	ISO PN25
ISO PN50	ISO PN40

This part of ISO 7005 specifies the types of flanges and their facings, dimensions, bolt sizes, surface finish of faces, marking, testing, inspection and materials together with associated pressure/temperature ratings.

NOTES

1 Attention is drawn to the need to refer to the pressure/temperature rating tables for the permissible working pressures, particularly for flanges of ISO PN20 and ISO PN50.

2 Dimensions of gaskets will be the subject of a future International Standard.

1.2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7005. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7005 are encouraged to investigate the possibility of applying the most recent editions

of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 185 : 1988, *Classification of grey cast iron.*

ISO 887 : 1983, *Plain washers for metric bolts, screws and nuts — General plan.*

ISO 1083 : 1987, *Spheroidal graphite cast iron — Classification.*

ISO 2531 : 1986, *Ductile iron pipes, fittings and accessories for pressure pipelines.*

ISO 5922 : 1981, *Malleable cast iron.*

ISO 6708 : 1980, *Pipe components — Definition of nominal size.*

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

ASTM A 126 : 1984, *Gray iron castings for valves, flanges, and pipe fittings.*

ASTM A 395 : 1980, *Ferritic ductile iron pressure-retaining castings for use at elevated temperatures.*

1.3 Definitions and designations

1.3.1 Definitions

For the purposes of this part of ISO 7005, the definitions of nominal size (DN) as given in ISO 6708, and nominal pressure (PN) as given in ISO 7268, apply.

NOTE — In this part of ISO 7005, nominal pressure is designated by the letters "ISO PN" followed by the appropriate reference number.

* Series 1 ratings are the basic ratings; series 2 ratings have limited application.