Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 1: Steel flanges, NPS 1/2 to 24

Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 1: Steel flanges, NPS 1/2 to 24

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 1759-1:2005 sisaldab Euroopa standardi EN 1759-1:2004 ingliskeelset teksti. Käesolev dokument on jõustatud 25.01.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 1759-1:2005 consists of the English text of the European standard EN 1759-1:2004. This document is endorsed on 25.01.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard for a single system of flanges specifies requirements for circular steel flanges in Class designations Class 150 to Class 2 500 and nominal sizes from NPS ½ to NPS 24.	**Scope:** This European Standard for a single system of flanges specifies requirements for circular steel flanges in Class designations Class 150 to Class 2 500 and nominal sizes from NPS ½ to NPS 24.

ICS 23.040.60

Võtmesõnad:

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1759-1

November 2004

ICS 23.040.60

English version

Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 1: Steel flanges, NPS 1/2 to 24

Brides et leurs assemblages - Brides circulaires pour tubes, appareils de robinetterie, raccords et accessoires, désignées Class - Partie 1 : Brides en acier NPS 1/2 à 24

Flansche und ihre Verbindungen - Runde Flansche für Rohre, Armaturen, Formstücke und Zubehörteile, nach Class bezeichnet - Teil 1: Stahlflansche, NPS 1/2 bis 24

This European Standard was approved by CEN on 30 September 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 1759-1:2004: E

Contents

Page

Foreword

This document (EN 1759-1:2004) has been prepared by Technical Committee CEN/TC 74 "Flanges and their joints" the secretariat of which is held by DIN.

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 May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

EN 1759 consists of the following parts:

— Part 1: Steel flanges;

— Part 3: Copper alloy flanges[1];

— Part 4: Aluminium alloy flanges[1].

This document includes a Bibliography.

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

[1] To be published

Introduction

When Technical Committee, CEN/TC 74, commenced its work of producing this European standard it took as its basis, the International Standard, ISO 7005-1, Steel flanges.

In taking this decision, CEN/TC 74, agreed that this standard would differ significantly from the ISO standard in respect of the following:

a) Whereas ISO 7005-1 included in its scope both the original DIN based flanges and also the original ANSI/ASME based flanges, EN 1759-1 contains only the flanges with ANSI/ASME origin (ASME B16.5). CEN/TC 74 has produced a separate series of standards, EN 1092 Parts 1, 2, 3 and 4, dealing with the DIN based flanges in PN designations;

b) In this standard, the flanges are Class designated (not PN designated as in the ISO standard) and those dimensions taken from ASME B16.5 are hard metricated.

Consequently, whilst the mating dimensions, the flange and facing types and designations are compatible with those given in ISO 7005-1, it is important to take account of the following differences which exist in EN 1759-1:

1) The use of inch bolting requires the use of suitable gaskets, not necessarily compatible with the gaskets used with ISO 7005-1 flanges (for metric bolts).

2) This standard specifies grades of ASTM steels similar to those specified in ISO 7005-1, but in addition permits the use of grades of European steels according to EN 1092-1;

1 Scope

This European Standard for a single system of flanges specifies requirements for circular steel flanges in Class designations Class 150 to Class 2 500 and nominal sizes from NPS ½ to NPS 24.

NOTE The relationship between nominal size (DN) and nominal size (NPS) is given for reference purposes in Tables 9 to 14.

This standard specifies the flange types and their facings, dimensions, tolerances, threading, bolt sizes, flange jointing face surface finish, marking, materials and pressure/temperature ratings.

This standard does not apply to flanges made from bar stock by turning, or to flanges of types 11, 12, 13, 14 and 15 made from plate material.

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.

EN 1515-1, *Flanges and their joints — Bolting — Part 1: Selection of bolting*

prEN 1515-3, *Flanges and their joints — Bolting — Part 3: Classification of bolt materials for steel flanges, class designated*

EN 10025, *Hot rolled products of non-alloy structural steels — Technical delivery conditions*

EN 10028-2, *Flat products made of steels for pressure purposes — Part 2: Non alloy and alloy steels with specified elevated temperature properties*

EN 10028-3, *Flat products made of steels for pressure purposes — Part 3: Weldable fine grain steels, normalized*

EN 10028-4, *Flat products made of steels for pressure purposes — Part 4: Nickel alloy steels with specified low temperature properties*

EN 10028-7, *Flat products made of steels for pressure purposes — Part 7: Stainless steels*

EN 10213-2, *Technical delivery conditions for steel castings for pressure purposes — Part 2: Steel grades for use at room temperature and elevated temperatures*

EN 10213-3, *Technical delivery conditions for steel castings for pressure purposes — Part 3: Steel grades for use at low temperatures*

EN 10213-4, *Technical delivery conditions for steel castings for pressure purposes — Part 4: Austenitic and austenitic-ferritic steel grades*

EN 10222-2, *Steel forgings for pressure purposes — Part 2: Ferritic and martensitic steels with specified elevated temperature properties*

EN 10222-3, *Steel forgings for pressure purposes — Part 3: Nickel steels with specified low temperature properties*

EN 10222-4, *Steel forgings for pressure purposes — Part 4: Weldable fine grain steels with high proof strength*

EN 10222-5, *Steel forgings for pressure purposes - Part 5: Martensitic, austenitic and austenitic-ferritic stainless steels*

EN ISO 887, *Plain washers for metric bolts, screws and nuts for general purposes - General plan (ISO 887:2000)*

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

ISO 4955, *Heat-resisting steels and alloys*

ISO 4991, *Steel castings for pressure purposes*

ISO 9327-1, *Steel forgings and rolled or forged bars for pressure purposes — Technical delivery conditions —Part 1: General requirements*

ISO 9327-2, *Steel forgings and rolled or forged bars for pressure purposes —Technical delivery conditions — Part 2: Non-alloy and alloy (Mo, Cr and CrMo) steels with specified elevated temperature properties*

ISO 9328-2, *Steel flat products for pressure purposes — Technical delivery conditions —Part 2: Non-alloy and alloy steels with specified elevated temperature properties*

ISO 9328-3, *Steel flat products for pressure purposes — Technical delivery conditions — Part 3: Weldable fine grain steels, normalized*

ISO 9328-5, *Steel flat products for pressure purposes — Technical delivery conditions — Part 5: Weldable fine grain steels, thermomechanically rolled*

ASME B16.5: 1996 *Pipe flanges and flanged fittings — NPS ½ through NPS 24*

ASME/ANSI B1.20.1, *Pipe threads, general purpose (inch)*

ASTM A105/A105M, *Forgings, Carbon Steel, for Piping Component*

ASTM A182/A182M, *Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service*

ASTM A203/A203M, *Pressure Vessel Plates, Alloy Steel, Nickel*

ASTM A204/A204M, *Specification for pressure vessel plates, alloy steel, molybdenum*

ASTM A216/A216M, *Steel Castings, Carbon Suitable for Fusion Welding for High-Temperature Service*

ASTM A217/A217M, *Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts Suitable for High-Temperature Service*

ASTM A240/A240M, *Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels*

ASTM A325, *High-Strength Bolts for Structural Steel Joints*

ASTM A350/A350M, *Forgings, Carbon and Low-Alloy Steel, Requiring Notch Toughness Testing for Piping Components*

ASTM A351/A351M, *Castings, Austenitic, Austenitic-Ferritic (Duplex) for Pressure-Containing Parts*

ASTM A352/A352M, *Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts Suitable for Low-Temperature Service*

ASTM A387/A387M, *Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum*

ASTM A515/A515M, *Pressure Vessel Plates, Carbon Steel, for Intermediate and Higher-Temperature Service*

ASTM A516/A516M, *Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service*

ASTM A537/A537M, *Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel*

3 Terms and definitions

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

3.1
Class
alphanumeric designation used for reference purposes related to a combination of mechanical and dimensional characteristics of a component of a pipework system. It comprises the word Class followed by a dimensionless whole number

NOTE 1 The number following the word Class does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.