Äärikud ja nende ühendused. PNtähistusega ümmargused äärikud torude, ventiilide, liitmike ja lisavarustuse jaoks. Osa 2: Valumalmist äärikud

Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges



#### **EESTI STANDARDI EESSÕNA**

#### **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 1092-
2:1999 sisaldab Euroopa standardi EN
1092-2:1997 ingliskeelset teksti.

Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 1092-2:1999 consists of the English text of the European standard EN 1092-2:1997.

This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

#### Käsitlusala:

Käesolev standard määrab kindlaks nõuded kõrgtugevast malmist, hallmalmist ja tempermalmist ümmarguste äärikute jaoks nimiläbimõõduga DN 10 kuni DN 4000 ja nimirõhuga PN 2,5 kuni PN 63. Standard määrab kindlaks äärikute ja nende otspindade tüübid, mõõtmed ja tolerantsid, poldisuuruse, ühendatavate otste pinnaviimistluse, märgistuse, testimise, kvaliteedi garantii ja materjalid koos kaasnevate surve/temperatuuri (p/T) määradega.

#### Scope:

ICS 23.040.60

**Võtmesõnad:** kõrgtugev valumalm, mittelegeermalm, mõõtmed, mõõtmetolerantsid, märgistus, pinnatingimused, tehnilised andmed, tempermalm, toruäärikud, tähistus, tööstuslik torustik, valumalm

Hinnagrupp T

### EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 1092-2

April 1997

ICS 23.040.60

Descriptors: Pipework, flanges, cast iron.

#### **English version**

Flanges and their joints

# Circular flanges for pipes, valves, fittings and accessories, PN designated

Part 2: Cast iron flanges

Brides et leurs assemblages – Brides circulaires pour tuyaux, appareil de robinetterie, raccords et accessoires, designées PN – Partie 2: Brides en fonte Flansche und ihre Verbindungen – Runde Flansche für Rohre, Armaturen, Formstücke und Zubehörteile, nach PN bezeichnet – Teil 2: Gußeisenflansche

This European Standard was approved by CEN on 1996-12-29.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## CEN

European Committee for Standardization Comité Européen de Normalisation Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Cont	Contents			
Foreword				
Introduction				
1	Scope	5		
2	Normative references	5		
3 3.1 3.2 3.3 3.4 3.5 3.6 3.7	Definitions flange DN (Nominal size) PN ductile iron grey iron malleable iron joint	6 6 6 6 7 7 7		
4 4.1 4.2 4.3 4.4 4.5	Designation and types Range of DN Range of PN designations Types of flanges Standard designation Information to be supplied by the purchaser	7 7 7 7 8 8		
5 5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9	General requirements Flange material Repairs by welding Bolting Gaskets Pressure/Temperature (p/T) ratings Dimensions Flange facings Spot facing or back facing Tolerances Marking and stamping Quality assurance  ex A (normative): Information to be supplied by the purchaser ex B (informative): Notes to tables 6 to 12  ex C (informative): Bibliography	9 9 9 9 10 11 11 12		
5.10	Marking and stamping Quality assurance	13 13		
Annex A (normative): Information to be supplied by the purchaser 42				
Annex B (informative): Notes to tables 6 to 12				
Anne	ex C (informative): Bibliography	43		

#### **Tables**

- Numerical values of the surface finish parameters (R<sub>a</sub> and R<sub>z</sub>) of flange jointing Table 1: faces
- Synoptic table for ductile iron flanges Table 2:
- Synoptic table for grey iron flanges Table 3:
- Synoptic table for malleable iron flanges Table 4:
- Table 5: Dimensions for type B flange facings
- Table 6: Dimensions of PN 2,5 flanges
- Table 7. Dimensions of PN 6 flanges
- Table 8: Dimensions of PN 10 flanges
- Table 9: Dimensions of PN 16 flanges
- Table 10: Dimensions of PN 25 flanges
- Table 11: Dimensions of PN 40 flanges
- Table 12: Dimensions of PN 63 flanges
- Table 13: Tolerances on dimensions
- Table 14: Materials and assigned PN values
- Table 15: Pressure/Temperature ratings for high strength ductile iron flanges
- Table 16: Pressure/Temperature ratings for low strength ductile iron flanges
- Table 17: Pressure/Temperature ratings for grey iron flanges
- Table 18: Pressure/Tempeature ratings for malleable iron flanges

#### **Figures**

- Figure 1: Types of flanges
- Figure 2: Flange facing types A and B
- Figure 3: Dimensions of PN 2,5 flanges
- Figure 4: Dimensions of PN 6 flanges
- Figure 5: Dimensions of PN 10 flanges
- Figure 6: Dimensions of PN 16 flanges
- Figure 7: Dimensions of PN 25 flanges
- Figure 8: Dimensions of PN 40 flanges
- Figure 9: Dimensions of PN 63 flanges

#### **Foreword**

This European Standard has been prepared Technical Committee CEN/TC 74 'Flanges and their joints', the secretariat of which is held by DIN.

EN 1092 will consist of the following six parts:

Part 1: Steel flanges

Part 2 : Cast iron flanges

Part 3: Copper alloy flanges

Part 4: Aluminium alloy flanges

Part 5: Flanges in other metallic materials

Part 6: Non-metallic flanges

This standard is related to ISO 7005-2: 1988 and ISO 2531: 1991 in respect of flanges having the same PN designation. The types of flanges and their mating dimensions are compatible with those flanges of the same DN and PN given in ISO 7005-2: 1988 and ISO 2531: 1991.

The mating dimensions of the flanges of this standard are compatible with those flanges of other materials in accordance with the other parts of EN 1092.

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 October 1997, and conflicting national standards shall be withdrawn at the latest by October 1997.

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

#### Introduction

The product which is in permanent or temporary contact with water, intended for human consumption, does not adversely affect the quality of the drinking water and does not contravene the EC Directives and EFTA Regulations on the quality of drinking water.

#### 1 Scope

This standard specifies requirements for circular flanges made from ductile, grey and malleable cast iron for DN 10 to DN 4000 and PN 2,5 to PN 63. (See 4.1 and 4.2).

This standard specifies the types of flanges and their facings, dimension and tolerances, bolt sizes, surface finish of jointing faces, marking, testing, quality assurance and materials together with associated pressure/temperature (p/T) ratings.

#### 2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revision of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 545	Ductile iron pipes, fittings, accessories and their joints for water pipelines - Requirements and test methods
prEN 1092-1 : 1994	Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated Part 1: Steel flanges
EN 1333 : 1996	Pipework components - Definition and selection of PN
EN ISO 6708 : 1995	Pipework components - Definition and selection of DN (nominal size) (ISO 6708 : 1995)
EN ISO 9002: 1994	Quality systems - Model for quality assurance in production, installations and servicing (ISO 9002 : 1994)
ISO 185: 1988	Classification of grey cast iron
ISO 468: 1982	Surface roughness - Parameters, their values and general rules specifying requirements
ISO 887: 1983	Plain washers for metric bolts, screws and nuts - General plan

ISO 2531: 1991 Ductile iron pipes, fittings and accessories for pressure

pipelines

ISO 2632-3: 1979 Roughness comparison specimens

ISO 5458: 1987 Technical drawings - Geometrical tolerancing - Positional

tolerancing

ISO 5922: 1981 Malleable cast iron

ISO 7005-2: 1988 Cast iron flanges

#### 3 Definitions

For the purposes of this standard, the following definitions apply:

**3.1 flange:** Flat circular end of a pipe component extending perpendicular to its axis, with bolt holes equally spaced on a circle (see figure 1).

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

3.2 DN (Nominal size) : See EN ISO 6708 : 1995.

NOTE: A numerical designation of size which is common to all components in a piping system. It is a convenient round-number for reference purposes and is only loosely related to manufacturing dimensions.

**3.3 PN**: See EN 1333 : 1996.

NOTE: A numerical designation of flanged components which is a convenient roundnumber for reference purposes. All components of the same nominal size DN designated by the same PN have compatible mating dimensions.

3.4 ductile iron: A cast iron in which graphite is present substantially in spheroïdal form.