

Gdc^_Y]b`df]fcVb] bYdf]U[cX]hj Yý]fc_Yi dcfUVYnUWj]]n`fUh`] b]`a UHyf]Ucj .
Xi _h]`bY`]h]bYžg]j Y`]h]bYfh`Ua YUgh]a [fU]hca ž`Y`UžDJ7!! žD9žj`U_bUh] U
Wfa YbHU

Ductile iron wide tolerance couplings and flange adaptors for use with pipes of different materials: ductile iron, Grey iron, Steel, PVC-U PE, Fibre-cement

Großbereichskupplungen und flanschadapter aus duktilem Gusseisen zur Verbindung von Rohren aus unterschiedlichen Werkstoffen: Duktiles Gusseisen, Grauguss, Stahl, PVC-U, PE, Faserzement

Adaptateurs de brides et manchons a **SIST EN 14525:2005** **larges tolerances en fonte ductile destinés a etre utilisés avec des tuyaux faits de différents matériaux : fonte ductile, fonte grise, acier, PVC-U, PE, fibre-ciment**

Ta slovenski standard je istoveten z: EN 14525:2004

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SIST EN 14525:2005 **en**

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Ductile iron wide tolerance couplings and flange adaptors for use with pipes of different materials: ductile iron, Grey iron, Steel, PVC-U PE, Fibre-cement

Adaptateurs de brides et manchons à larges tolérances en fonte ductile destinés à être utilisés avec des tuyaux faits de différents matériaux : fonte ductile, fonte grise, acier, PVC-U, PE, fibre-ciment

Großbereichskupplungen und -flanschadapter aus duktilem Gusseisen zur Verbindung von Röhren aus unterschiedlichen Werkstoffen: Duktiles Gusseisen, Gusseisen mit Lamellengraphit, Stahl, PVC-U, PE, Faserzement

This European Standard was approved by CEN on 23 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.



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Foreword

This document (EN 14525:2004) has been prepared by Technical Committee CEN/TC 203 "Cast iron pipes, fittings and their joints", the secretariat of which is held by AFNOR.

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.

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.

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Introduction

This standard is in conformity with the general requirements already established by CEN/TC 164 in the field of water supply.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard :

- a) this standard provides no information as to whether the product may be used without restriction in any of the member states of the EU or EFTA ;
- b) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

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EN 14525:2004 (E)**1 Scope**

This document specifies the requirements and associated test methods applicable to wide tolerance ductile iron couplings and wide tolerance flange adaptors intended for use with pipe components made from a number of pipe materials (ductile iron, grey iron, PE, PVC-U, steel, fibre-cement), for providing a leak tight seal over a wide range of pipe external diameters :

- to convey water (e.g. potable water) ;
- with or without pressure ;
- to be installed below or above ground, inside or outside buildings.

This document is not intended to cover sewerage or gas applications, where other requirements may be necessary.

This document specifies requirements for materials, dimensions and tolerances, mechanical properties and standard coatings of ductile iron products.

This standard covers ductile iron products cast by any type of foundry process or manufactured by fabrication of cast components, as well as corresponding joints, in a size range extending from DN 40 to DN 600, for an allowable operating pressure (PFA) up to 16 bar, for fluid temperatures between 0 °C and 25 °C excluding frost. For higher temperatures, up to 50 °C, additional type testing should be carried out.

It also gives performance requirements and associated test methods for restrained and non-restrained flexible joints. Joint design and gasket shapes are outside the scope of this standard.

NOTE 1 PFA may be limited depending on pipe materials effectively connected.

NOTE 2 In this document, all pressures are relative gauge pressures, expressed in bars (100 kPa = 1 bar).

NOTE 3 EN 545 gives the specifications for the ductile iron fittings to be used with ductile iron pipes.

NOTE 4 EN 12842 gives the specifications for the ductile iron fittings to be used with PVC-U and PE pipes.

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 681-1, *Elastomeric seals – Material requirements for pipe joint seals used in water and drainage applications – Part 1 : vulcanized rubber.*

EN 805, *Water supply – Requirements for systems and components outside buildings.*

EN 1092-2, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 2 : Cast iron flanges.*

EN 10002-1, *Metallic materials – Tensile testing – Part 1 : Method of test at ambient temperature.*

EN ISO 4016, *Hexagon head bolts – Product grade C (ISO 4016:1999).*

EN ISO 4034, *Hexagon nuts – Product grade C (ISO 4034:1999).*

EN ISO 6506-1, *Metallic materials – Brinell hardness test – Part 1 : Test method (ISO 6506-1:1999).*

EN ISO 7091, *Plain washers – Normal series – Product grade C (ISO 7091:2000).*

3 Terms and definitions

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

3.1

ductile iron

cast iron used for pipes, fittings and accessories in which graphite is present substantially in spheroidal form.

3.2

fitting

casting other than a pipe which allows pipeline deviation, change of direction or bore. In addition flanged-socket pieces, flanged spigot pieces and collars are also classified as fittings.

3.3

flange

end of a pipe or fitting extending perpendicular to its axis, with bolt holes equally spaced on a circle.

NOTE A flange may be fixed (e.g. integrally cast 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 axis before jointing. See EN 545.

3.4

spigot

male end of a pipe or fitting

3.5

socket

female end of a pipe or fitting to make the connection with the spigot of the next component

3.6

gasket

sealing component of a joint

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3.7

joint

connection between the ends of two pipes and/or fittings in which a gasket is used to effect a seal

3.8

flexible joint

joint which permits significant angular deflection both during and after installation and which can accept a slight offset of the centreline

3.9

push-in flexible joint

flexible joint assembled by pushing the spigot through the gasket in the socket of the mating component

3.10

mechanical flexible joint

flexible joint in which sealing is obtained by applying pressure to the gasket by mechanical means, e.g. a gland

3.11

restrained flexible joint

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

3.12

flanged joint

joint between two flanged ends

EN 14525:2004 (E)**3.13****joint angular deflection**

angle between the axis of two connected pipeline components which a flexible joint can accommodate

3.14**joint gap**

axial distance between any point of the spigot ends of the pipes to be connected, when aligned (coupling), or, axial distance between any point of the spigot end of the pipe and the flange face, when aligned (flange adaptor) (See also 4.2.2)

3.15**depth of engagement**

distance between any point of the spigot end and the face of the socket of the coupling or the flange adaptor (See also 4.2.2)

3.16**outside diameter (OD)**

outside diameter of the pipe(s) to be connected

3.17**nominal size (DN)**

alphanumerical designation of size for components of a pipework system, which is used for reference purposes.

It comprises the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections.

[see EN ISO 6708]

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3.18**nominal pressure (PN)**

alphanumerical designation used for reference purposes related to a combination of mechanical and dimensional characteristics of a component of a pipework system.

It comprises the letters PN followed by a dimensionless number.

[see EN 1333]

NOTE All equipment of the same nominal size DN designated by the same PN number have compatible mating dimensions.

3.19**leak tightness test pressure**

pressure applied to a component during manufacture in order to ensure its leak tightness

3.20**allowable operating pressure (PFA)**

maximum hydrostatic pressure that a component is capable of withstanding continuously in service

[see EN 805]

NOTE In EN 1452 and EN 12201, the term nominal pressure (PN) at 20 °C is used in place of PFA.

3.21**allowable maximum operating pressure (PMA)**

maximum pressure occurring from time to time, including surge, that a component is capable of withstanding in service

[see EN 805]

3.22**allowable test pressure (PEA)**

maximum hydrostatic pressure that a newly installed component is capable of withstanding for a relatively short duration, in order to insure the integrity and tightness of the pipeline

[see EN 805]

NOTE This test pressure is different from the system test pressure (STP), which is related to the design pressure of the pipeline and is intended to ensure its integrity and leak tightness.

3.23**performance test**

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

3.24**wide tolerance flange adaptor**

fitting intended for use with pipes of various materials which :

- is used in a pipeline to make the connection with a spigot of a pipe or a fitting and the flange of another component of the pipeline (e.g. pipe, fitting, valve, etc.) ; and
- allows for radial and axial displacements

NOTE Some flange adaptors are designed such that they can be slid over the pipes in order to facilitate easy assembly.

3.25**wide tolerance coupling**

fitting intended for use with pipes of various materials which :

- is used in a pipeline to make the connection between two spigots of pipes, fittings or valves, etc. , and,
- allows for radial and axial displacements.

NOTE Some couplings are designed such that they can be slid over the pipes in order to facilitate easy assembly.

3.26**wide tolerance stepped or reducer coupling**

wide tolerance coupling intended for use with pipeline components of different nominal sizes.

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4 Technical requirements

4.1 General

4.1.1 Diameter range

The wide tolerance couplings are defined by the minimum and maximum outside diameters of the pipes to be connected. Within this diameter range, the performance shall be guaranteed at the manufacturer's declared PFA.

The wide tolerance flange adaptors are defined by the DN and the PN of the flange and by the minimum and maximum outside diameters of the pipes to be connected. Within this diameter range, the performance shall be guaranteed at the manufacturer's declared PFA.

The minimum working range of outside diameters for wide tolerance couplings and wide tolerance flange adaptors is given in Table 1.

Table 1 – Minimum working diameter range

Maximum OD or DN of the pipes to be connected		Minimum working diameter range (mm)
OD (mm)	DN	
OD ≤ 110	DN ≤ 100	10
110 < OD ≤ 225	100 < DN ≤ 200	15
225 < OD ≤ 315	200 < DN ≤ 300	20
315 < OD ≤ 400	300 < DN ≤ 400	25
400 < OD ≤ 630	400 < DN ≤ 600	30

The working range defined by the minimum and the maximum outside diameter range shall be specified by the manufacturer.

Informative Annex A gives the outside diameters of existing pipes, according to current ISO, EN or national standards.

The preferred PFA's are 6 bar, 10 bar and 16 bar.

4.1.2 Surface condition and repairs

Wide tolerance couplings and wide tolerance flange adaptors shall be free from defects and surface imperfections which could lead to non-compliance with clauses 4 and 5.

When necessary, couplings and flange adaptors may be repaired, for example by welding, in order to remove surface imperfections and localised defects which do not extend through the entire wall thickness, provided that :

- the repairs are carried out according to the manufacturer's written procedure ;
- the repaired couplings and flange adaptors comply with all the requirements of clauses 4 and 5.