SLOVENSKI STANDARD
SIST EN 10242:1997

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Fitingi z navojem iz temprane litine

Threaded pipe fitting in malleable cast iron

Gewindefittings aus Temperguß

Raccords de tuyauterie filetés en fonte malléable

Ta slovenski standard je istoveten z: **EN 10242:1994**

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English version

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This European Standard was approved by CEN on 1994-11-10. 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.

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CEN

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

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

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Foreword

This European Standard EN 10242 "Threaded pipe fittings in malleable cast iron" has been prepared by ECISS/TC 29 of which the secretariat is held by UNSIDER.

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of an identical text or by endorsement, at the latest by May 1995, and conflicting national standards shall be withdrawn at the latest by May 1995.

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

1 Scope

This standard specifies the requirements for the design and performance of threaded pipe fittings in malleable cast iron.

These fittings are for general purposes for the transmission of fluids and gases up to the limits of pressure and temperature specified in this standard. They are intended for the connection of elements threaded in accordance with ISO 7-1, sizes 1/8 to 6.

For use in conditions outside the pressure and temperature limits specified, reference shall be made to the manufacturer.

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 revisions 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 10204	Metallic products. Types of inspection documents.
EN 29001	Quality systems - Model for quality assurance in design/development, production, installation and servicing.
EN 29002	Quality systems - Model for quality assurance in production and installation.
EN 45012	General criteria for certification bodies operating quality system certification.
prEN 1562	Malleable cast iron.
ISO 7	Pipe threads where pressure tight joints are made on the threads Part 1: Designation, dimensions and tolerances.
ISO 228	Pipe threads where pressure tight joints are not made on the threads Part 1: Designation, dimensions and tolerances.

ISO 6708 Pipe components - Definition of nominal size.

3 Types of fitting

Table 1 gives an index to the fitting types and patterns and symbols. The symbols relate to the identification of fittings and may be used for designation (see 13.1).

Table 1: Index of fitting types, symbols and index to tables and patterns

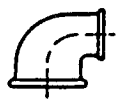
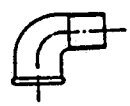
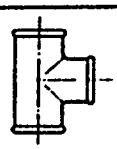
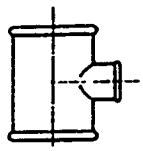
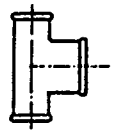
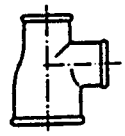
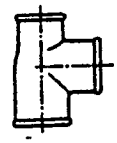
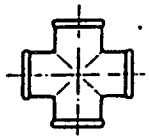
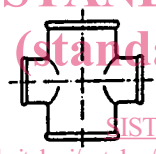
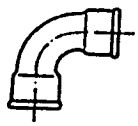
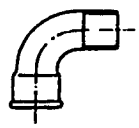
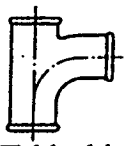
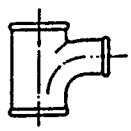
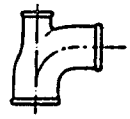
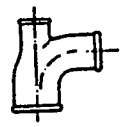
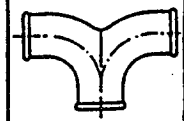
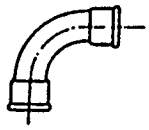
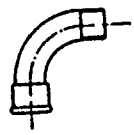
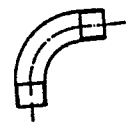
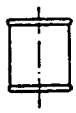
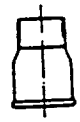
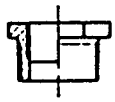
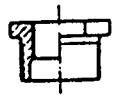
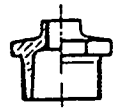
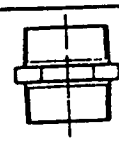
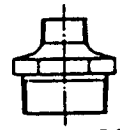
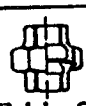
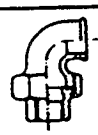
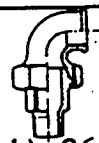
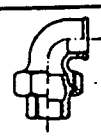
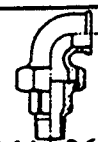
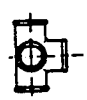
Types	Patterns					
Symbols	A1		A1/45°	A4		A4/45°
A Elbows	 Table 8	 Table 9	 Table 10	 Table 8	 Table 9	 Table 10
Symbols	B1					
B Tees	 Table 8	 Table 11	 Table 11	 Table 12	 Table 12	
Symbols	C1					
C Crosses	 Table 8	 Table 13				
Symbols	D1	D4				
D Short bends	 Table 14	 Table 14				
Symbols	E1				E2	
E Pitcher tees Twin elbows	 Table 14	 Table 15	 Table 15	 Table 15	 Table 14	 Table 16
Symbols	G1	G1/45°	G4	G4/45°	G8	
G Long sweep bends	 Table 17	 Table 18	 Table 17	 Table 18	 Table 17	

Table 1: Index of fitting types, symbols and index to tables and patterns (concluded)

Types	Patterns				
Symbols	M2		M4		
M Sockets	 Table 19	 Table 19	 Table 20	 Table 20	
Symbols	N4			N8	
N Bushings Hexagon nipples	 Table 21	 Table 21	 Table 21	 Table 22	 Table 22
Symbols	P4				
P Backnuts	 Table 23				
Symbols	T1	T8	T9	T11	
T Caps Plugs	 Table 24	Table 24	 Table 24	 Table 24	
Symbols	U1	U2	U11	U12	
U Union	 Table 25	 Table 25	 Table 25	 Table 25	
Symbols	UA1	UA2	UA11	UA12	
UA Union elbows	 Table 26	 Table 26	 Table 26	 Table 26	
Symbols	Za1	Za2			
Za Side outlet elbows and tees	 Table 8	 Table 8			

4 Terminology

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

4.1 fitting

Connecting piece, of one or more parts.

4.2 jointing thread

Thread complying with ISO 7-1.

4.3 fastening thread

Thread complying with ISO 228-1.

4.4 fitting size

Size designation of the threads of the threaded outlets as derived from ISO 7-1 (see also clause 13).

4.5 designation of thread size

Same definition as for fitting size (see 4.4).

4.6 nominal size; DN

For definition see ISO 6708.

NOTE 1: Nominal size is designated by the letters DN followed by the appropriate number.

NOTE 2: The relationship between fitting size and nominal size (DN) is given in annex D for guidance only.

NOTE 3: Nominal size (DN) should not be used for the designation of fitting size.

4.7 reinforcement

Additional material on the outside diameter of an internally threaded fitting in the form of a band or bead.

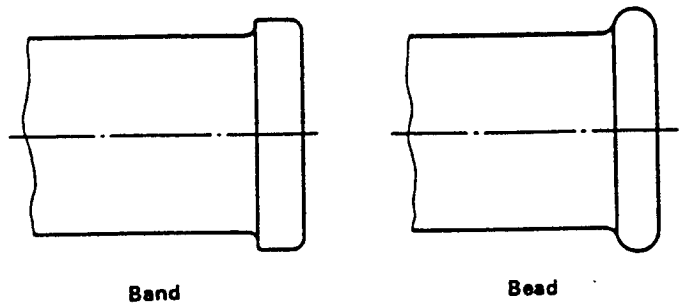


Figure 1: Forms of reinforcements

4.8 rib

Local and axially aligned additional material on the outside or inside of a fitting for assistance in assembly or manufacturing.

4.9 outlet

Internally or externally threaded end of a fitting, which connects with a tube, fitting or other component, which is threaded in accordance with ISO 7-1.

4.10 run

Two principal axially aligned outlets of a tee or cross.

4.11 branch

Side outlet(s) of a tee, pitcher tee, or cross.

4.12 chamfer

Removal of a conical portion at the entrance of a thread to assist assembly and prevent damage to the start of the thread.

4.13 face-to-face dimension

Distance between the two parallel faces of axially aligned outlets of a fitting.

4.14 face-to-centre dimension

Distance between the face of an outlet and the central axis of an angularly disposed outlet.

4.15 laying length

Average distance from the assembled pipe end to the axis of the fitting, or between the ends of two assembled pipes. (See 7.2).

5 Materials

5.1 Material of the fitting

5.1.1 *Malleable cast iron*

The material used shall be malleable cast iron conforming to prEN [190 WI 220]. The grade of material used shall be selected from the following grades depending on the design symbol chosen (see 6.1):

Grades W400-05 or W350-04 for fittings in whiteheart malleable iron

Grades B350-10 or B300-06 for fittings in blackheart malleable iron.

5.1.2 *Other ferrous materials*

Notwithstanding this requirement, any other ferrous materials which give mechanical properties at least equivalent to those malleable cast irons specified above will be allowed for straight fittings not larger than ⅜, but excluding unions.

5.2 Hot dip zinc coating

Where a protection by zinc coating is required, the zinc coating shall be applied by the hot dip process and shall meet the following requirements.

NOTE: For fittings supplied in other ferrous materials (see 5.1.2) alternative zinc coating may be provided by agreement with the purchaser.

5.2.1 *Chemical composition of the zinc coating*

The content by mass of the accompanying elements in the finished zinc coating shall not exceed the following maximum values:

aluminium	(Al)	0,1 %
antimony	(Sb)	0,01 %
arsenic	(As)	0,02 %
bismuth	(Bi)	0,01 %
cadmium	(Cd)	0,01 %
copper	(Cu)	0,1 %
lead	(Pb)	1,6 %, in individual cases 1,8 %
tin	(Sn)	0,1 %

5.2.2 *Coating mass per surface unit*

The surface related mass of the zinc coating shall be not less than 500 g/m^2, as an average of 5 fittings. This corresponds to a medium layer thickness of 70 µm. It shall be not less than 450 g/m^2 (63 µm) when it is measured on an individual sample.

The medium layer thickness $\overline{s}$ of the zinc coating in µm may be calculated by using the approximation formula

$$\overline{s} = \frac{m_A}{7,2}$$

where m_A is the surface related mass of the zinc coating in g/m^2.

5.2.3 *Surface condition of the zinc coating*

The zinc coating on the internal surface of the fitting shall be continuous, with the exception of machined black surfaces. In the special case of larger material cross-sections the iron-zinc alloy phases may grow through. The internal zinc coating shall be free from zinc blisters, zinc burrs, non-metallic remainders.