



**SLOVENSKI STANDARD**  
**oSIST prEN 10242:2022**  
**01-junij-2022**

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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: **prEN 10242**

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**ICS:**

23.040.40

Kovinski fittingi

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 10242**

April 2022

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Will supersede EN 10242:1994

English Version

## Threaded pipe fitting in malleable cast iron

Raccords de tuyauterie filetés en fonte malléable

Gewindefittings aus Temperguss

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 459/SC 10.

If this draft becomes a European Standard, 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.

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**prEN 10242:2022 (E)**

## **European foreword**

This document (prEN 10242:2022) has been prepared by Technical Committee CEN/TC 459 “ECISS - European Committee for Iron and Steel Standardization”<sup>1</sup>, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10242:1994.

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<sup>1</sup> Through its sub-committee CEN/TC 459/SC 10 “Steel tubes, and iron and steel fittings” (secretariat: UNI).

## 1 Scope

This document specifies the requirements for the design and performance of threaded pipe fittings in malleable cast iron with black or hot dip galvanized surface.

These fittings are for general purposes for the transmission of fluids and gases up to the limits of pressure and temperature specified in this document. They are intended for the connection of elements threaded in accordance with EN 10226-1, sizes  $\frac{1}{8}$  to 6.

Fittings with alternative permanent coatings or permanent coatings on top of hot dip galvanizing do not fall under the scope of this document.

**NOTE** One main use is for the connection of non-alloy steel tubes according to EN 10255 and with support of the thread joint by using sealing materials according to EN 751 (all parts).

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1562, *Founding - Malleable cast irons*

EN 10204, *Metallic products - Types of inspection documents*

EN 10216-1, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10216-2, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-1, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 1: Electric welded and submerged arc welded non-alloy steel tubes with specified room temperature properties*

EN 10217-2, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10255, *Non-Alloy steel tubes suitable for welding and threading - Technical delivery conditions*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 1460, *Metallic coatings - Hot dip galvanized coatings on ferrous materials - Gravimetric determination of the mass per unit area (ISO 1460)*

EN ISO 2178, *Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method (ISO 2178)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

**prEN 10242:2022 (E)****3 Terms and definitions**

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

**3.1****fitting**

connecting piece for pipes and other piping accessories, consisting of one or more parts

**3.2****jointing thread**

thread complying with EN 10226-1

**3.3****fastening thread**

thread complying with EN ISO 228-1

**3.4****fitting size**

nominal size of the connecting (steel) pipe(s)

Note 1 to entry: See also 8.1.

**3.5****designation of thread size**

size designation of the thread in inch according to EN 10226-1

**3.6****nominal size****DN**

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

Note 1 to entry: 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.

Note 2 to entry: Nominal size (DN) should not be used for the designation of fitting size.

Note 3 to entry: The relationship between fitting size and nominal size (DN) is given in Table 3 for information.

[SOURCE: EN ISO 6708:1995, 2.1, modified – formatted parts of the definition as notes to the entry.]

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### 3.7 reinforcement

additional material on the outside diameter of an internally threaded fitting in the form of a bead

EXAMPLE

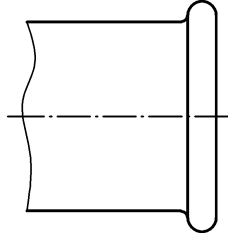


Figure 1 — Reinforcement in form of a bead

### 3.8 rib

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

### 3.9 outlet

end of a fitting for the purpose of connection with a pipe or other piping accessories

### 3.10 run

two principal axially aligned outlets of a tee or cross

### 3.11

#### branch

side outlet(s) of a tee or cross

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### 3.12

#### chamfer

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

### 3.13

#### face-to-face dimension

distance between the two parallel faces of axially aligned outlets of a fitting

### 3.14

#### face-to-centre dimension

distance between the face of an outlet and the central axis of an angularly disposed outlet

### 3.15

#### laying length






















average distance from the assembled pipe end to the axis of the fitting, or between the ends of two assembled pipes

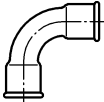
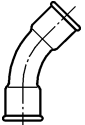
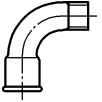
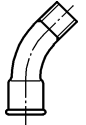
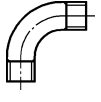


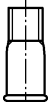




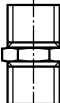

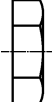


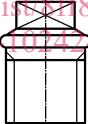

Note 1 to entry: See also 8.3.





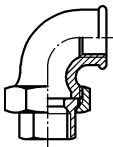
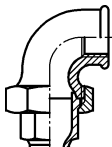
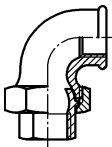
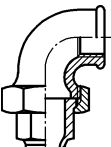


## 4 Types of fittings

Table 1 gives an index to the fitting types, patterns and symbols. The symbols allow the identification of fittings and shall 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 9	Table 10	Table 11	Table 9	Table 10	Table 11
Symbols	B1					
B Tees						
	Table 9	Table 12	Table 12	Table 13	Table 13	
Symbols	C1					
C Crosses			<p><b>iTeh STANDARD PREVIEW</b> (standards.iteh.ai)</p> <p>oSIST prEN 10242:2022  <a href="https://standards.iteh.ai/catalog/standards/sist/8ff886de-d097-493b-a453-f9498a17714f/osist-pren-10242-2022">https://standards.iteh.ai/catalog/standards/sist/8ff886de-d097-493b-a453-f9498a17714f/osist-pren-10242-2022</a></p>			
	Table 9	Table 14				
Symbols	D1	D4				
D Short bends						
	Table 15	Table 15				
Symbols	E1				E2	
E Pitcher tees Twin elbows						
	Table 15	Table 16	Table 16	Table 16	Table 15	Table 17

Types	Patterns					
Symbols	G1	G1/45°	G4	G4/45°	G8	
G Long sweep bends						
	Table 18	Table 19	Table 18	Table 19	Table 18	
Symbols	M2			M4		
M Sockets						
	Table 20	Table 20	Table 21	Table 21		
Symbols	N4			N8		
N Bushings Hexagon nipples						
	Table 22	Table 22	Table 22	Table 23	Table 23	
Symbols	P4	<p style="text-align: center; color: red; font-weight: bold;">iTech STANDARD PREVIEW (standards.iteh.ai)</p>				
P Backnuts						
	Table 24					
Symbols	T1	T8	T9	T11		
T Caps Plugs						
	Table 25	Table 25	Table 25	Table 25		

Types	Patterns			
Symbols	U1	U2	U11	U12
U Union				
	Table 26	Table 26	Table 26	Table 26
Symbols	UA1	UA2	UA11	UA12
UA Union elbows				
	Table 27	Table 27	Table 27	Table 27
Symbols	Za1	Za2		
Za Side outlet elbows and tees				
	Table 9	Table 9		

## 5 Materials

### 5.1 General

All materials of fitting body and components shall be resistant against the medium of the respective application.

NOTE In case of potable water, national hygienic requirements apply.

### 5.2 Material of the fitting

#### 5.2.1 Malleable cast iron

The material used shall be malleable cast iron conforming to EN 1562. The grade of material used shall be selected from the following grades (see Clause 7):

- grade EN-GJMW-400-5 for fittings in whiteheart malleable cast iron;
- grade EN-GJMB-350-10 for fittings in blackheart malleable cast iron.

#### 5.2.2 Other ferrous materials

Despite this requirement, any other ferrous materials which give mechanical properties at least equivalent to those malleable cast irons specified in EN 1562, shall be considered in compliance with this standard for straight fittings not larger than  $\frac{3}{8}$ , but excluding unions.

## 6 Corrosion protection

### 6.1 General

In applications where materials are susceptible to corrosion, the components shall be adequately protected as specified in 6.2.

### 6.2 Hot dip galvanizing

#### 6.2.1 General

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

Fittings with alternative permanent coatings or permanent coatings on top of hot dip galvanizing don't fall under the scope of this document.

For fittings supplied in other ferrous materials (such as carbon steel, see 5.2.2) an alternative zinc coating may be provided by agreement with the purchaser.

#### 6.2.2 Chemical composition of the hot dip zinc coating

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

antimony	(Sb)	0,01 %
arsenic	(As)	0,02 %
bismuth	(Bi)	0,01 %
cadmium	(Cd)	0,01 %
lead	(Pb)	0,1 %

NOTE The chemical composition is restricted with regard to the limitation of dangerous substances also in respect to drinking water applications. When fittings are used in potable water applications relevant national hygienic regulations apply.

#### 6.2.3 Coating mass per surface unit and layer thickness

The surface related mass of the zinc coating shall not be less than 500 g/m<sup>2</sup>, which equals to a layer thickness of 70 µm. These limits refer to the average of 5 fittings with 10 measurements each, statistically distributed across the fitting. The layer mass/thickness measured on an individual sample shall not be less than 450 g/m<sup>2</sup> (63 µm).

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

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

where

$m_A$  is the surface related mass of the zinc coating in g/m<sup>2</sup>.