



# SLOVENSKI STANDARD SIST EN 10028-6:1997

01-december-1997

D`cý Uj`Y`Yb]`nXY\_]`nUñU bY`dcgcXY!\* "XY.`JUf]j UXfcVbcnfBUj`Y`Už  
dcVc`ýUbU

Flat products made of steels for pressure purposes - Part 6: Weldable fine grain steels, quenched and tempered

Flacherzeugnisse aus Druckbehälterstählen - Teil 6: Schweißgeeignete Feinkornbaustähle, vergütet

Produits plats en aciers pour appareils a pression - Partie 6: Aciers soudables a grains fins, trempés et revenus

ITeH STANDARD PREVIEW  
(standards.iteh.ai)  
SIST EN 10028-6:1997  
<https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99ff-d8e9d484ef52/sist-en-10028-6-1997>

Ta slovenski standard je istoveten z: EN 10028-6:1996

**ICS:**

77.140.50 Ú[[ z aãb\|^} ãã å^|\ ãã Flat steel products and semi-products  
][ [ã å^|\ ã

SIST EN 10028-6:1997 en

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 10028-6:1997](#)

<https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99ff-d8e9d484ef52/sist-en-10028-6-1997>

EUROPEAN STANDARD

EN 10028-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1996

ICS 11.140.50

Descriptors: flat product, plate, strip, steels, welded construction, heat treatment, quenching, tempering, pressure equipment, specifications, chemical composition, grades:quality, designation, mechanical properties, tests

English version

**Flat products made of steels for pressure purposes - Part 6: Weldable fine grain steels, quenched and tempered**

Produits plats en aciers pour appareils à pression - Partie 6: Aciers soudables à grains fins, trempés et revenus

Flacherzeugnisse aus Druckbehälterstählen - Teil 6: Schweißgeeignete Feinkornbaustähle, vergütet

**STANDARD PREVIEW**  
(standards.iteh.ai)

SIST EN 10028-6:1997

[https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99ff-](https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99ff-d8e9d484cf52/sist-en-10028-6-1997)

[d8e9d484cf52/sist-en-10028-6-1997](https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99ff-d8e9d484cf52/sist-en-10028-6-1997)

This European Standard was approved by CEN on 1996-11-19. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

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

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

## Contents

	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	4
4 Dimensions and tolerances on dimensions	4
5 Calculation of mass	4
6 Designation and ordering	5
7 Classification into grades	5
8 Requirements	5
8.1 Steelmaking process	5
8.2 Delivery condition	5
8.3 Chemical composition	5
8.4 Mechanical properties	5
8.5 Surface condition	5
8.6 Internal soundness	5
8.7 Weldability	5
9 Testing	6
9.1 Type and content of inspection documents	6
9.2 Tests to be carried out	6
9.3 Number of tests	6
9.4 Selection and preparation of samples and test pieces	6
9.5 Test procedures	6
9.6 Re-tests	7
10 Marking	7
Annex A (informative) National A-deviations	12

NOTE: The clauses marked with two points (..) contain information relating to agreements which may be made at the time of enquiry and order.



## Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 22 "Steels for pressure purposes - Qualities", the secretariat of which is held by DIN.

Annex A contains national A-deviations specifying the restrictions for the application of this European Standard in Sweden.

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 June 1997, and conflicting national standards shall be withdrawn at the latest by June 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

SIST EN 10028-6:1997

<https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99fd8e9d484ef52/sist-en-10028-6-1997>

## 1 Scope

This part of EN 10028 specifies the requirements for flat products for pressure equipments made of liquid quenched and tempered steels as listed in table 1.

Other parts of this European Standard are:

- EN 10028-1 Flat products made of steels for pressure purposes - General requirements
- 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 10028-5 Flat products made of steels for pressure purposes - Part 5: Weldable fine grain steels, thermomechanically rolled
- EN 10028-7 Flat products made of steels for pressure purposes - Part 7: Stainless steels

## 2 Normative references

This European Standard incorporates by dated or undated references 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 10020 Definition and classification of grades of steel
- EN 10028-1 Flat products made of steels for pressure purposes - Part 1: General requirements;
- IC 2 Weldable fine-grained structural steels; Recommendations for processing, in particular for welding (EURONORM Information Circular).

## 3 Definitions

See EN 10028-1.

## 4 Dimensions and tolerances on dimensions

See EN 10028-1.

## 5 Calculation of mass

See EN 10028-1.

## 6 Designation and ordering

See EN 10028-1.

## 7 Classification into grades

7.1 This European Standard covers the steel grades given in table 1 in four series:

- a) the basic series (P...Q);
- b) series with elevated temperature properties (P...QH);
- c) series with low temperature properties down to -40°C (P...QL1);
- d) series with low temperature properties down to -60°C (P...QL2).

7.2 In accordance with EN 10020 all the steels covered in table 1 are alloy special steels.

## 8 Requirements

### 8.1 Steelmaking process

See EN 10028-1. iTeh STANDARD PREVIEW

### 8.2 Delivery condition (standards.iteh.ai)

The products complying with this European Standard are supplied in the liquid quenched and tempered condition.

### 8.3 Chemical composition

8.3.1 The data in table 1 apply for the chemical composition according to the cast analysis.

8.3.2 The product analysis may deviate from the specified values of the cast analysis given in table 1 by the values given in table 2.

### 8.4 Mechanical properties

The values given in tables 3 to 5 apply (see also EN 10028-1).

### 8.5 Surface condition

See EN 10028-1.

### 8.6 Internal soundness

See EN 10028-1.

### 8.7 Weldability

8.7.1 The steels specified in this European Standard shall be suitable for welding processes in current use (see notes 1 to 3 below).

**8.7.2** The manufacturer shall, if requested, provide the purchaser with data on suitable welding conditions determined on the basis of weld procedure tests.

NOTE 1: With increasing product thickness and strength level cold cracking can occur. Cold cracking is caused by the following factors in combination:

- the amount of diffusible hydrogen in the weld metal;
- microstructure of the heat affected zone;
- tensile stress concentrations in the welded joint.

NOTE 2: When using recommendations as laid down, for example in IC 2 or in any relevant national standard, the recommended welding conditions and the various welding ranges of the steel grades can be determined depending on the product thickness, the applied welding energy, the design requirements, the electrode efficiency, the welding process and the weld metal properties.

NOTE 3: Excessive post weld heat-treatment (PWHT) conditions may decrease the mechanical properties.

It is therefore recommended that the purchaser seeks, at the time of enquiry and order, the advice of the manufacturer and considers, where appropriate, the verification of the mechanical properties on simulated post weld heat treated samples.

## **9 Testing**

### **9.1 Type and content of inspection documents**

See EN 10028-1.

### **9.2 Tests to be carried out**

See EN 10028-1.

### **9.3 Number of tests**

See EN 10028-1.

### **9.4 Selection and preparation of samples and test pieces**

See EN 10028-1.

### **9.5 Test procedures**

See EN 10028-1.



**9.6 Re-tests**

See EN 10028-1.

**10 .. Marking**

See EN 10028-1.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 10028-6:1997](https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99fd8e9d484ef52/sist-en-10028-6-1997)

<https://standards.iteh.ai/catalog/standards/sist/268d058a-2949-41fc-99fd8e9d484ef52/sist-en-10028-6-1997>