



**International
Standard**

ISO 11772

**Hot-rolled longitudinally profiled
steel plate**

Tôle d'acier profilée longitudinalement laminée à chaud

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Contents

| | Page |
|--|-----------|
| Foreword..... | iv |
| 1 Scope..... | 1 |
| 2 Normative references..... | 1 |
| 3 Terms and definitions..... | 1 |
| 4 Classification and designation..... | 2 |
| 4.1 Classification..... | 2 |
| 4.2 Designation..... | 4 |
| 4.3 Identification methods of LP steel plate..... | 4 |
| 5 Information to be supplied by the purchaser..... | 5 |
| 6 Dimensions, shapes, mass and permissible tolerance..... | 5 |
| 6.1 Dimensions..... | 5 |
| 6.2 Tolerances on dimensions..... | 5 |
| 6.3 Tolerances on shape..... | 5 |
| 6.3.1 Tolerance on flatness..... | 5 |
| 6.3.2 Tolerances on edge camber to length (<i>L</i>) and out-of-squareness to length (<i>L</i>)..... | 5 |
| 6.4 Mass..... | 6 |
| 7 Technical requirements..... | 6 |
| 7.1 Grades and chemical compositions..... | 6 |
| 7.2 Delivery conditions..... | 6 |
| 7.3 Mechanical properties..... | 6 |
| 7.4 Surface quality..... | 6 |
| 7.5 Internal soundness..... | 6 |
| 7.6 Others..... | 6 |
| 8 Inspection..... | 6 |
| 9 Test methods..... | 7 |
| 9.1 Dimension measurement..... | 7 |
| 9.1.1 Thickness..... | 7 |
| 9.1.2 Width..... | 7 |
| 9.1.3 Total length..... | 7 |
| 9.1.4 Flatness..... | 7 |
| 9.1.5 Edge camber..... | 9 |
| 9.1.6 Out-of-squareness..... | 9 |
| 9.2 Calculation of mass..... | 9 |
| 9.3 Internal soundness..... | 9 |
| 9.4 Others..... | 9 |
| 10 Marking..... | 10 |
| Annex A (informative) Applicable dimensions of LP steel plate to be supplied..... | 11 |
| Annex B (informative) Calculation method of nominal dimension for variable thickness section..... | 13 |
| Annex C (normative) Calculation methods of mass..... | 14 |
| Bibliography..... | 15 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 3, *Steels for structural purposes*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Hot-rolled longitudinally profiled steel plate

1 Scope

This document specifies requirements for hot-rolled longitudinally profiled steel plates (LP steel plates).

This document applies to hot-rolled LP steel plates with thickness between 4 mm and 400 mm for general structural and engineering purposes.

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.

ISO 630-1, *Structural steels — Part 1: General technical delivery conditions for hot-rolled products*

ISO 630-2, *Structural steels — Part 2: Technical delivery conditions for structural steels for general purposes*

ISO 630-3, *Structural steels — Part 3: Technical delivery conditions for fine-grain structural steels*

ISO 630-4, *Structural steels — Part 4: Technical delivery conditions for high yield strength quenched and tempered structural steel plates and wide flats*

ISO 630-5, *Structural steels — Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*

ISO 630-6, *Structural steels — Part 6: Technical delivery conditions for seismic-proof improved structural steels for building*

ISO 7452, *Hot-rolled steel plates — Tolerances on dimensions and shape*

ISO 7788, *Surface finish of hot-rolled plates and wide flats — Delivery requirements*

ISO 10474, *Steel and steel products — Inspection documents*

ISO 17577, *Steel — Ultrasonic testing of steel flat products of thickness equal to or greater than 6 mm*

3 Terms and definitions

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

ISO and IEC maintain terminology 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 longitudinally profiled steel plates LP steel plates

steel plates with regular changes in thickness along rolling direction (longitudinal direction)

3.2 equal thickness section

longitudinally profiled steel section with parallel upper and lower surfaces

3.3

variable thickness section

longitudinally profiled steel section with non-parallel upper and lower surfaces

3.4

slope

k

gradient of thickness between the two ends of variable thickness section

Note 1 to entry: The slope is calculated as follows: Half thickness of the thick end minus half thickness of the thin end of the variable thickness section, divided by the length of the variable thickness section. The unit of the slope is %.

EXAMPLE

The slope of type LP01: $k=(h_2/2-h_1/2)/L_1$

where

k is the slope of type LP01 steel plate

h_1 is the thickness of the thin end section

h_2 is the thickness of the thick end section

L_1 is the length of the LP steel plate

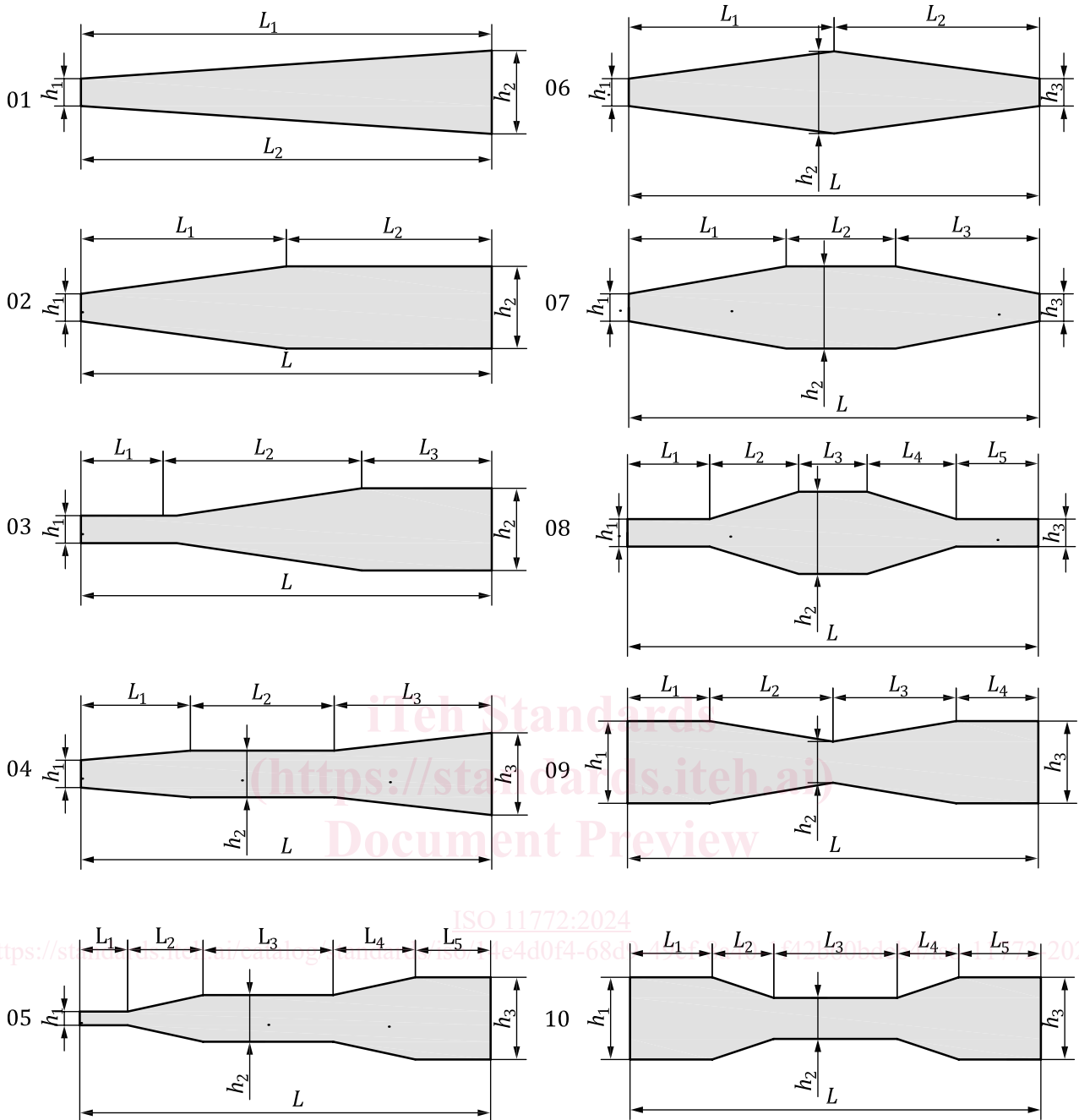
4 Classification and designation

4.1 Classification

There are 10 different commonly used types of LP steel plates, from Type 01 to Type 10. [Figure 1](#) shows the shapes of the different types. Other types of LP steel plates may also be supplied by agreement between the purchaser and manufacturer.

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Key

- 01 to 10 types of LP steel plates
- $h_1/h_2/h_3$ thickness in different sections of LP steel plate
- L total length of LP steel plate
- $L_1/L_2/L_3/L_4/L_5$ length in different sections of LP steel plate

NOTE LP plate from type 01 to 05 has the thickest and thinnest sections on both ends. LP plate from type 06 to type 10 has the thickest and thinnest sections on the middle of length.

Figure 1 — Commonly used types of LP steel plates

4.2 Designation

Designation of LP steel plates consists of steel grade, code and type number.

EXAMPLE S235-LP01

S235--A steel grade specified in ISO 630-2;

LP-- Longitudinally profiled steel plate;

01-- Type number.

4.3 Identification methods of LP steel plate

4.3.1 LP steel plate for commonly used types shall be identified by thickness × width × length as shown below.

Type 01: $h_1/h_2 \times W \times L_1$

Type 02: $h_1/h_2 \times W \times L_1/L_2$

Type 03: $h_1/h_2 \times W \times L_1/L_2/L_3$

Type 04: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3$

Type 05: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3/L_4/L_5$

Type 06: $h_1/h_2/h_3 \times W \times L_1/L_2$

Type 07: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3$

Type 08: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3/L_4/L_5$

Type 09: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3/L_4$

Type 10: $h_1/h_2/h_3 \times W \times L_1/L_2/L_3/L_4/L_5$

where

$h_1/h_2/h_3$ is the nominal thickness of different sections, in mm;

W is the width, in mm;

$L_1/L_2/L_3/L_4/L_5$ is the length in different sections, in mm.

4.3.2 When agreed between the purchaser and manufacturer, LP steel plate for commonly used types may also be identified by thickness/slope × width × length as shown below.

Type 01: $h_1/k \times W \times L_1$

Type 02: $h_1/k \times W \times L_1/L_2$

Type 03: $h_1/k \times W \times L_1/L_2/L_3$

Type 04: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3$

Type 05: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3/L_4/L_5$

Type 06: $h_1/k_1/k_2 \times W \times L_1/L_2$

Type 07: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3$

Type 08: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3/L_4/L_5$

Type 09: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3/L_4$

Type 10: $h_1/k_1/k_2 \times W \times L_1/L_2/L_3/L_4/L_5$

where

h_1 is the thickness of one end of LP steel plate, in mm;

W is the width, in mm;

$L_1/L_2/L_3/L_4/L_5$ is the length in different sections, in mm;

$k/k_1/k_2$ is the slope in different sections, in %.

4.3.3 Other identification methods may be agreed at the time of enquiry and order.

5 Information to be supplied by the purchaser

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) a reference to this document, ISO 11772:2024;
- b) the number of product standard;
- c) the steel name (grade);
- d) delivery conditions;
- e) the nominal dimensions and tolerances on dimensions and type of the LP steel plate;
- f) the quantity required;
- g) marking methods;
- h) special requirements.

6 Dimensions, shapes, mass and permissible tolerance

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6.1 Dimensions

The available dimensions of the LP steel plate for commonly used types are offered by the manufacturer (see [Annex A](#)). Other dimensions may be supplied upon the agreement between the purchaser and manufacturer. The calculation for the nominal dimensions of variable thickness sections can be done using [Annex B](#).

6.2 Tolerances on dimensions

Tolerances on thickness for the equal thickness section and variable thickness section shall conform to ISO 7452 Class D. Tolerances on full length and width shall conform to ISO 7452.

6.3 Tolerances on shape

6.3.1 Tolerance on flatness

Tolerance on flatness shall conform to ISO 7452 Class N, Other special requirements on tolerances may also be agreed at the time of enquiry and order.

6.3.2 Tolerances on edge camber to length (L) and out-of-squareness to length (L)

Tolerances on edge camber to length and out-of-squareness to length shall conform to ISO 7452.

6.4 Mass

LP steel plate shall be delivered by calculated mass (see [9.2](#)).

7 Technical requirements

7.1 Grades and chemical compositions

The chemical composition for each steel grades of LP plate shall conform to ISO 630-2, ISO 630-3, ISO 630-4, ISO 630-5 and ISO 630-6. Other steel grades may also be agreed at the time of enquiry and order.

7.2 Delivery conditions

The delivery conditions of LP steel plates shall conform to ISO 630-2, ISO 630-3, ISO 630-4, ISO 630-5 and ISO 630-6. Delivery conditions of other steel grades may also be agreed at the time of enquiry and order.

7.3 Mechanical properties

The mechanical properties for each steel grade shall conform to ISO 630-2, ISO 630-3, ISO 630-4, ISO 630-5 and ISO 630-6. The mechanical properties of other steel grades may be agreed at the time of enquiry and order.

7.4 Surface quality

The surface quality of LP steel plate shall conform to ISO 7788 Class B Subclass 1. Other requirements may also be agreed at the time of enquiry and order.

7.5 Internal soundness

If required by the purchaser, and indicated in the contract, internal soundness requirements together with the conditions of their verification must be specified at the time of enquiry and order (see [9.3](#)).

7.6 Others

By agreement between the purchaser and manufacturer, LP steel plates with other requirements may be supplied (see [9.4](#)).

8 Inspection

8.1 The type of inspection (specific or non-specific) and the type of inspection document according to ISO 10474 shall be specified at the time of order. Refer to ISO 630-1.

8.2 The inspection items, sampling quantity sampling methods and sampling frequency of LP steel plates shall conform to ISO 630-2, ISO 630-3, ISO 630-4, ISO 630-5 and ISO 630-6. For other steel grades, the requirements may be agreed at the time of enquiry and order.

8.3 From Type 01 to Type 05, sampling for mechanical properties, LP steel plates shall be sampled in the thicker end-section. When specified in product standards or order, LP steel plate may also be sampled in the thinner end-section for mechanical properties.

8.4 From Type 06 to Type 10 or similar ones, sampling for mechanical properties, LP steel plates shall be sampled in the thicker end-section. When specified in product standards or order, LP steel plate may also be sampled in the opposite position for mechanical properties.