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TOLERANCES FOR FLAT-ROLLED STEEL PRODUCTS



AS/NZS 1365:1996
Tolerances for flat-rolled steel products 17pp F
Specifies dimensional tolerances for flat-rolled steels in the form of wide slabs, plate and floorplate rolled on a reversing mill, hot-rolled plate, floorplate, sheet and strip, rolled on a continuous mill and cold-rolled sheet and strip. It does not apply to stainless, high alloy and quenched and tempered steels. Two classes of tolerance (A and B) are specified; Class B being the more stringent.
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Australian Foundry Institute
Australian Institute of Steel Construction
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
Institute of Metals and Materials, Australasia
Institute of Steel Services Centres of Australia
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This standard was issued in draft form for comment as DR 85256.

STANDARDS AUSTRALIA

Amendment No. 1
 to
 AS 1365—1986
Tolerances for flat-rolled steel products

REVISED TEXT

The 1986 edition of AS 1365 is amended as follows; the amendment should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Table 3.2.

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Page 7 Table 3.2

Delete the lower portion of the Table applying to Untrimmed edge condition and *substitute* the following plate widths and tolerances:

Untrimmed	< 2400 ≥ 2400	All thicknesses	
		Plus	Minus
		80	0
100	0		



AUSTRALIAN STANDARD

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PREFACE

This edition of this standard was prepared under the direction of the Association's Committee on Iron and Steel by its panel on tolerances for flat-rolled steel products. It is intended to serve as a basis for committees dealing with hot-rolled and cold-rolled steels, excluding stainless steels, high alloy steels and quench and tempered steels.

The scope of the standard in this edition has been extended to cover slabs, plate and floorplate, with the intention that committees dealing with wide flat-rolled steel products will use AS 1365 for tolerance requirements.

Attention is drawn to the different classes of tolerance offered for thickness, width, length and flatness, designated as Classes A and B, within the different sections. It should be noted that any particular class of tolerance is defined by product type, by manufacturing process, or by method of measurement, as given in each of the tables, and it is emphasized that purchasers should determine precisely which tolerance class will meet their requirements. Those requiring further information on the use of the different tolerance classes are referred to the suppliers.

The tolerances are compatible with those in proposed documents issued by subcommittees under the jurisdiction of Technical Committee 17, Steel, of the International Organization for Standardization (ISO).

The drafting panel recognized that tolerances for thickness and flatness for low alloy steels and unalloyed carbon steels over 0.25 percent carbon need to be wider because of the inherent nature of the material, and because of this the tolerances specified herein have been used as a base to which a standard increment of tolerance has been added to make this standard applicable to most steels.

Development of an alternative means of expressing flatness tolerances is leading to specifying the steepness ratio, as given in Appendix A, in lieu of the tables given in this standard. However, because of a lack of experience with this form of expressing flatness, and its practical application, Appendix A has been included only as a guide to the intended development of flatness tolerances in future revisions of AS 1365.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
TOLERANCES FOR FLAT-ROLLED STEEL PRODUCTS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies dimensional tolerances for steels, other than stainless, high alloy and quench and tempered steels, as follows:

- (a) Wide slabs (Section 2).
- (b) Plate and floorplate rolled on a reversing mill (Section 3).
- (c) Hot-rolled plate, floorplate, sheet, and strip rolled on a continuous mill (Section 4).
- (d) Cold-rolled sheet and strip (Section 5).

NOTE: Widths and thicknesses given in tables do not necessarily indicate availability in Australia, and enquiries in this regard should be directed to suppliers.

1.2 REFERENCED DOCUMENTS. The following standard is referred to in this standard:

AS 2706 Numerical Values—Rounding and Interpretation of Limiting Values

1.3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

1.3.1 Cold-rolled sheet—a cold-rolled product of any width or thickness, supplied in cut lengths. Edges are untrimmed or trimmed.

1.3.2 Edge Camber—the greatest deviation of a side edge from a straight line.

1.3.3 Edge conditions.

1.3.3.1 Trimmed edge—the resulting edge produced by the removal of material by mechanical means or gas cutting. Also referred to as sheared or slit edges.

1.3.3.2 Untrimmed edge—the edge produced by rolling between horizontal rolls, with or without vertical edging rolls. Also referred to as mill or universal edges.

1.3.4 Floorplate—a hot-rolled product supplied in cut lengths or in coils, having a rolled raised pattern at regular intervals on one surface, with width greater than or equal to 600 mm. Edges are either trimmed or untrimmed.

NOTE: Floorplate is produced by—

- (a) rolling through a continuous mill, with a nominal thickness greater than or equal to 2.00 mm. Supplied as coils or as cut lengths from coil; or
- (b) cutting from a parent plate, being the product of a slab rolled through a reversing mill, with nominal thickness greater than 4.50 mm.

1.3.5 Hot-rolled sheet—a hot-rolled product supplied in cut lengths and produced by cutting from a coil rolled on a continuous mill. Width is greater than or equal to 600 mm, and the nominal thickness less than 3.00 mm. Edges are trimmed or untrimmed.

1.3.6 Longitudinal—the direction of greatest extension of the steel during rolling.

1.3.7 Plate—a hot-rolled product supplied in cut lengths with width greater than or equal to 600 mm.

Edges are either trimmed or untrimmed.

NOTE: Plate is produced by cutting—

- (a) from a parent plate, being the product of a slab rolled through a reversing mill, with nominal thickness greater than 4.50 mm; or
- (b) from a coil rolled through a continuous mill, with nominal thickness greater than or equal to 3.00 mm.

1.3.8 Strip—a continuously-rolled product of any width and thickness, supplied in coil form. Edges are trimmed or untrimmed.

1.3.9 Transverse—the direction at right angles to the direction of the greatest extension of the steel during rolling.

1.3.10 Wide slab—a semi-finished rolled or continuously-cast flat product, with a rectangular cross-section. The thickness is greater than 100 mm and the width to thickness ratio is not less than 4:1.

1.4 MEASUREMENT OF FLATNESS. The product, resting under its own weight, is placed on a flat horizontal surface in such a way that any deviation from the flat surface is in the centre of the product, not at the ends. Deviations with respect to flatness which allow a straightedge to rest on at least two points on the product surface are determined by measuring the distance between the product and a straightedge. (Fig. 1.1.) Only that portion situated between two consecutive points of contact is taken into consideration. The straightedge may be placed in any direction.

Where two points of contact do not exist, the deviation may be determined by measuring the distance between the flat horizontal surface and the bottom surface of the product (Fig. 1.2).

1.5 MEASUREMENT OF EDGE CAMBER. The product is laid on a flat horizontal surface and a straightedge of 2000 mm length is placed on the concave side edge. The maximum distance between side edge and straightedge (C) is then measured (see Fig. 1.3).

NOTE: For geometrical reasons, edge camber varies in proportion to the square of the straightedge length.

1.6 INTERPRETATION OF SPECIFIED LIMITING VALUES. For the purpose of assessing compliance with this standard, the specified limiting values shall be interpreted in accordance with the 'rounding method' described in AS 2706, i.e. the observed or calculated value shall be rounded to the same number of figures as in the specified limiting value and then compared with the specified limiting value. For example, for specified limiting values of 2.5, 2.50, and 2.500, the observed or calculated value would be rounded respectively to the nearest 0.1, 0.01, or 0.001.

For examples of interpretation of specified values in accordance with the rounding method, see AS 2706, Appendix B.