



Structural steel equal and unequal leg angles

Tolerances on shape and dimensions
English version of DIN EN 10056 Part 2

DIN
EN 10056
Part 2

Gleichschenklige und ungleichschenklige Winkel aus Stahl;
Grenzabmaße und Formtoleranzen

This standard, together with the March 1994 editions of DIN 1028 and DIN 1029, supersedes the October 1976 edition of DIN 1028 and the July 1978 edition of DIN 1029.

European Standard EN 10056-2: 1993 has the status of a DIN Standard.

A comma is used as the decimal marker.

National foreword

This standard has been prepared by ECISS/TC 11.

The responsible German body involved in its preparation was the *Normenausschuß Eisen und Stahl* (Steel and Iron Standards Committee), Technical Committee *Warmgewalzte Profilerzeugnisse*.

The specifications made in the present standard had previously been covered separately, in DIN 1028 and DIN 1029. The form of this standard differs from that commonly used in Germany. The requirements for both nominal size and the relevant tolerances had been split up into the two DIN Standards, one covering equal and the other, unequal angles, but here, only the latter are specified in this one product standard, although they apply to both products.

Specifications regarding the nominal size ranges for equal and unequal angles are currently in preparation, and will be published in Part 1 of this European Standard (cf. clause 1).

The DIN Standards corresponding to the European Standard and EURONORMs referred to in clause 2 of the EN are as follows:

| | |
|-------------|--------------|
| EN Standard | DIN Standard |
| EN 10079 | DIN EN 10079 |
| EURONORM 56 | DIN 1028 |
| EURONORM 57 | DIN 1029 |

Standards referred to

(and not included in **Normative references**)

| | |
|--------------|---|
| DIN EN 10079 | Definition of steel products |
| DIN 1028 | Hot rolled equal angles with rounded toes; dimensions, mass and static parameters |
| DIN 1029 | Hot rolled unequal angles with rounded toes; dimensions, mass and static parameters |

Previous editions

DIN 1612: 09.24, 01.32, 03.43; DIN 1028 Part 1: 07.26, 07.40; DIN 1028 Part 2: 07.26, 07.40; DIN 1028: 07.59, 10.63, 10.76; DIN 1029 Part 1: 10.26, 12.36, 07.40; DIN 1029 Part 2: 10.26, 01.39, 07.40; DIN 1029: 07.59, 10.63, 07.78.

Amendments

In comparison with the October 1976 edition of DIN 1028 and the July 1978 edition of DIN 1029, the following amendments have been made.

- Nominal size ranges and static values are no longer specified.
- Some of the tolerances specified for thickness have been amended (cf. table 1).
- The tolerance on mass is closer.

EN comprises 3 pages.

4.23.50

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Descriptors: Iron and steel products, angle irons, structural steels, dimensional tolerances, form tolerances.

English version

**Structural steel equal and unequal leg angles
Tolerances on shape and dimensions**

Cornières à ailes égales et à ailes
inégales en acier de construction;
tolérances de formes et de dimensions

Gleichschenklige und ungleich-
schenklige Winkel aus Stahl;
Grenzabmaße und Formtoleranzen

This European Standard was approved by CEN on 1993-08-30.

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.

This European Standard exists 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

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Foreword

This European Standard has been prepared by ECISS/TC 11 'Sections: Tolerances and dimensions', the Secretariat of which is held by BSI.

The discussions within ECISS/TC 11 were based on

EURONORM 56-77 Hot rolled equal angles (with radiused root and toes)

and

EURONORM 57-78 Hot rolled unequal angles (with radiused root and toes)

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by March 1994 at the latest.

In accordance with the GEN/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 and the United Kingdom.

1 Scope

This Part of this European Standard specifies tolerances on the shape, dimensions and mass of hot rolled structural steel equal and unequal leg angles. The sizes of these angles are given in EN 10056-1. These tolerances do not apply to stainless steel equal and unequal leg angles.

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 10056-1 | (at present at the stage of draft) Structural steel equal and unequal leg angles. Part 1: Nominal size ranges |
| EN 10079 | Definition of steel products |
| EURONORM 56-77 | Hot rolled equal angles (with radiused root and toes) |
| EURONORM 57-78 | Hot rolled unequal angles (with radiused root and toes) |

3 Definitions

For the purposes of this European Standard, the definitions given in EN 10079 apply.

4 Tolerances on shape and dimensions

4.1 Leg length (a or b)

The nominal leg length shall be within the tolerances given in table 1.

For unequal leg angles, the longer leg length, a , shall be used.

4.2 Section thickness (t)

The nominal section thickness shall be within the tolerances given in table 1.

4.3 Out-of-squareness (k)

The out-of-squareness of the section shall not exceed the values specified in table 1.

For unequal leg angles, the longer leg length, a , shall be used.

4.4 Deviation from straightness (q)

The deviation from straightness shall not exceed the values specified in table 1.

For unequal leg angles, the longer leg length, a , shall be used.

5 Tolerance on mass

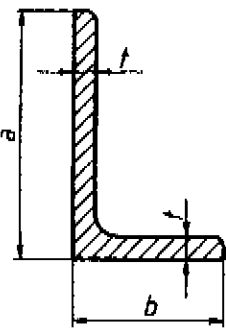
The deviation from the nominal mass of any angle shall not exceed $\pm 6\%$ for thicknesses, t , not exceeding 4 mm, or $\pm 4\%$ for thicknesses, t , over 4 mm.

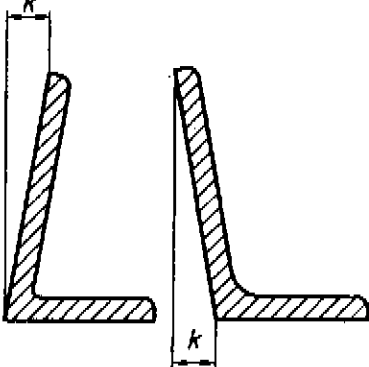
The deviation from the nominal mass is the difference between the actual mass of the angle and the calculated mass. The calculated mass shall be determined using a density of 7,85 kg/dm³.

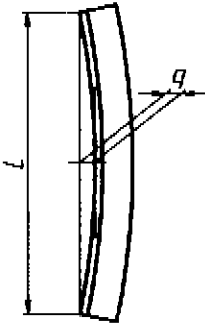
6 Tolerance on length

The tolerance on ordered length shall be ± 50 mm, or $+^{100}_0$ mm where minimum lengths are required.

Table 1: Tolerances on dimensions, squareness and straightness of structural steel equal and unequal leg angles

| Dimensions  | Leg length, <i>a</i> | | Section thickness, <i>t</i> | |
|---|----------------------|---------------------------------------|-----------------------------|--------------|
| | Nominal size mm | Tolerance on <i>a</i> and <i>b</i> mm | Nominal size mm | Tolerance mm |
| | $a \leq 50$ | $\pm 1,0$ | $t \leq 5$ | $\pm 0,50$ |
| | $50 < a \leq 100$ | $\pm 2,0$ | $5 < t \leq 10$ | $\pm 0,75$ |
| | $100 < a \leq 150$ | $\pm 3,0$ | $10 < t \leq 15$ | $\pm 1,00$ |
| | $150 < a \leq 200$ | $\pm 4,0$ | $t > 15$ | $\pm 1,20$ |
| | $a > 200$ | $+ 6,0$ $- 4,0$ | | |

| Squareness  | Out-of-squareness, <i>k</i> | |
|--|-----------------------------|-------------|
| | Leg length, <i>a</i> mm | <i>k</i> mm |
| | $a \leq 100$ | 1,0 |
| | $100 < a \leq 150$ | 1,5 |
| | $150 < a \leq 200$ | 2,0 |
| | $a > 200$ | 3,0 |

| Straightness  | Tolerance on straightness, <i>q</i> | | | | |
|---|-------------------------------------|--|---------------------------|--------------------|-------------|
| | Leg length, <i>a</i> mm | Tolerance over full leg length, <i>L</i> | Tolerance over any length | | |
| | Leg length, <i>a</i> mm | | Leg length, <i>a</i> mm | Relevant length mm | <i>q</i> mm |
| | $a \leq 150$ | 0,4% of <i>L</i> | $a \leq 150$ | 1500 | 6 |
| | $150 < a \leq 200$ | 0,2% of <i>L</i> | $150 < a \leq 200$ | 2000 | 3 |
| | $a > 200$ | 0,1% of <i>L</i> | $a > 200$ | 3000 | 3 |

Annex A (informative)

Straightness measurement

Straightness measurement requires the use of a straight edge from which deviations in section straightness are measured. A taut string line is an acceptable straight edge, provided that deviations in the horizontal plane only are measured. Measurement shall be carried out as follows: The angle is placed on one leg on a flat surface, and the string is taken from the flat surface to the toe of the other (unconstrained) leg. The width of the gap between the string and the unconstrained leg shall be measured.