

<b>Steel Bars</b> Hot Rolled Equal Angle Squared-edge Steel (LS Steel) Dimensions, Weights, Permissible Variations	<b>DIN</b> <b>1022</b>
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Stabstahl; Warmgewalzter gleichschenkliger scharfkantiger Winkelstahl (LS-Stahl),  
 Maße, Gewichte, Zulässige Abweichungen

Dimensions in mm

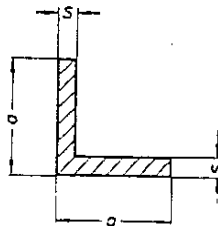
**1. Scope**

This Standard applies to hot rolled equal angle squared-edge steel (LS steel) ranging from 20 x 3 to 50 x 5 mm leg widths x leg thickness supplied as straight bars in the grades of steel according to Section 4.

This Standard does not apply to the following:

- Hot rolled round edge equal angles (see DIN 1028)
- Hot rolled round edge unequal angles (see DIN 1029)

**2. Designation**



Designation of hot rolled equal angle squared-edge steel (LS steel) of leg width  $a = 20$  mm and leg thickness  $s = 4$  mm in a steel covered by the code number St 37-2 or the material number 1.0112 according to DIN 17100:

LS 20 x 4 DIN 1022 - St 37-2  
 or LS 20 x 4 DIN 1022 - 1.0112

**3. Dimensions and permissible dimension and form variations**

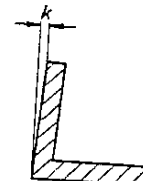
**3.1. Leg widths and leg thickness**

3.1.1. Preferred leg widths and leg thicknesses in which hot rolled equal angle squared-edge steel is supplied and the permissible tolerances are given in Table 1.

3.1.2. The out-of-squareness  $k$  shall not be greater than 1.0 mm (see Fig.).

Table 1

Symbol LS	Dimensions for		Cross sectional area $F^1)$ cm <sup>2</sup>	Weight $G$ kg/m	Surface area $U$ m <sup>2</sup> /m
	$a$ perm. var.	$s$ perm. var.			
20 x $\frac{3}{4}$	20	3	1,11	0,871	0,080
		4	1,44	1,13	
25 x $\frac{3}{4}$	25	3	1,41	1,11	0,100
		4	1,84	1,44	
30 x $\frac{3}{4}$	30	3	1,71	1,34	0,120
		4	2,24	1,76	
35 x 4	35	4	2,64	2,07	0,140
		4	3,04	2,39	
40 x $\frac{4}{5}$	40	5	3,75	2,94	0,160
		5	4,25	3,34	
45 x 5	45	5	4,25	3,34	0,180
		5	4,75	3,73	
50 x 5	50	5	4,75	3,73	0,200
		5	4,75	3,73	



<sup>1)</sup> Cross-sectional area  $F = 2as - s^2$

For Explanations see DIN-Mitteilungen Vol. 41 (1962), No. 11, pp. 517-519.

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### 3.2. Straightness

Steel angles are generally supplied in the straight-as-rolled condition. Any special straightness requirements shall be agreed to at the time of ordering.

### 4. Material

Squared-edge angles to this Standard shall preferably be made of the grades of steel according to DIN 17100.

The grade of steel required shall be indicated when ordering.

### 5. Weight and permissible weight variations

5.1. The weights stated in Table 1 have been evaluated from the cross-section on the basis of a density of  $7.85 \text{ kg/dm}^3$ .

5.2. Permissible weight variations as percentages of total weight are given in Table 2.

The weight variation for the purpose of this Standard is the difference between the actual weight supplied and the weight as calculated from the weight according to Table 1 and the metres supplied (when ordering in manufacturing lengths) or the metres ordered (when ordering in fixed lengths and exact lengths).

Table 2

Leg thickness s Nominal		Permissible weight variations on deliveries	
over	to	of 5 t and above	less than 5 t
-	4	±8%	±10,6%
4	5	±5%	± 6,6%

### 6. Mode of delivery

6.1. Length data for deliveries of squared-edge hot rolled angles are contained in Table 3.

6.2. When ordered by weight it is permissible for the length to vary between the maximum and minimum limits stated for manufacturing lengths.

### 6.3. Example of order

10 t hot rolled equal angle squared-edge steel of leg width  $a = 20 \text{ mm}$  and leg thickness  $s = 4 \text{ mm}$  in a steel according to the code number St 37-2 or the material number 1.0112 according to DIN 17100 in manufacturing lengths:

10 t Angles 20 x 4 DIN 1022 - St 37-2  
or 10 t Angles 20 x 4 DIN 1022 - 1.0112

### 7. Checking accuracy to size

#### 7.1. Scope of test

The number of bars which shall be checked for accuracy to size by measurements made at the manufacturer's works prior to despatch shall be agreed to at the time of ordering.

#### 7.2. Procedure

If arrangement for special requirements in regard to straightness has been made, also the method how to measure the straightness must be agreed to.

Table 3

Description	Length		Length details to be given when ordering
	Range	Permissible variation	
Manufacturing length	3 000 to 12 000	anywhere between 3000 and 12000	none
Fixed length	up to 12 000	±100	required fixed length in mm
Exact length	up to 12 000	under ± 100 to ± 5; the following being preferred: ± 50, ± 25, ± 10, ± 5	required exact length and required permissible variation in mm