

UDC 669.14-423.4-122.4 : 620.1 : 621.753.1

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Steel Bars Hot Rolled Sharp-edged T-bars Dimensions, Weights, Permissible Deviations	DIN 59 051
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Stabstahl; Warmgewalzter scharfkantiger T-Stahl; Masse, Gewichte, zulässige Abweichungen

Supersedes
October 1963
edition

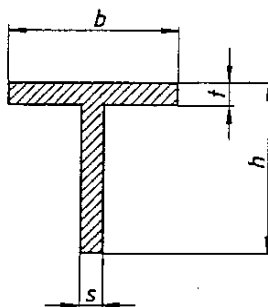
As it is current practice in standards published by the International Organization for Standardization (ISO), the comma has been used throughout as a decimal marker.

Dimensions in mm

1 Field of application

This Standard applies to hot rolled sharp-edged T-bars with parallel flanges and webs in the dimensional range specified in Table 1 and produced from the steel grades indicated in Section 4.

This Standard does not apply to hot rolled round-edged T-bars (see DIN 1024).

2 Designation

Designation of a hot rolled T-bar, sharp-edged (TPS), of depth $h = 30$ mm produced from a steel with code number St 37-2 or material number 1.0037 according to DIN 17 100:

T-profile DIN 59 051 – St 37-2 – TPS 30
or T-profile DIN 59 051 – 1.0037 – TPS 30

The term "T-profile" may be replaced by the symbol "TPS" according to DIN 1353 Part 2.

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3 Dimensions and permissible deviations of dimension and form

3.1 Cross section

3.1.1 Hot rolled sharp-edged T-bars according to this Standard are supplied in the dimensions and with the permissible dimensional deviations indicated in Table 1.

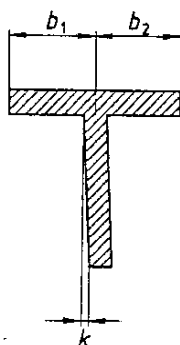
Table 1. Dimensions, permissible deviations, cross section, weight and surface area

Symbol TPS	Dimensions for								Cross section ¹⁾ cm ²	Weight kg/m	Surface area m ² /m
	<i>h</i>	per. dev.	<i>b</i>	per. dev.	<i>s</i>	per. dev.	<i>t</i>	per. dev.			
20	20		20		3		3		1,11	0,871	0,080
25	25		25		3,5		3,5		1,63	1,28	0,100
30	30	± 1,0	30	± 1,0	4	± 0,5	4	± 0,5	2,24	1,76	0,120
35	35		35		4,5		4,5		2,95	2,31	0,140
40	40		40		5		5		3,75	2,94	0,160

The cross sections, weights and surface areas have been calculated from the dimensions indicated in the Table.
¹⁾ Cross section = $b \cdot t + h \cdot s - s \cdot t$

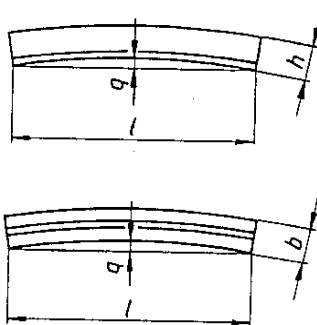
3.1.2 The permissible deviation from squareness *k* is 1 mm.

3.1.3 The eccentricity of web $m = \frac{b_1 - b_2}{2}$ must not exceed 1 mm.



3.2 Straightness

The permissible deviation from straightness *q* is $0,004 \cdot l$.



More stringent requirements on straightness must be agreed on ordering.

4 Material

Hot rolled T-bars according to this Standard are preferably made of steel grades according to DIN 17 100. The required steel grade must be indicated in the designation.

5 Weight and permissible weight deviations

5.1 The weight stated in Table 1 has been calculated on the basis of a density of 7,85 kg/dm³.

5.2 The permissible lower deviation of the theoretical weight is given in Table 2. The values apply to a single bar (testing according to Section 7.2.2). The permissible upper deviation of the theoretical weight results from the permissible dimensional deviations according to Table 1.

Table 2. Permissible weight deviations

Symbol	Permissible lower deviations of the theoretical weight
TPS	%
20 and 25	10
30 to 40	8

6 Deliverable lengths

6.1 Length details for deliveries of hot rolled sharp-edged T-bars are given in Table 3.

Table 3. Types of lengths and permissible length deviations

Type of length	Length		Length details to be given on ordering
	Range	per. dev.	
Fixed length	$\cong 6\ 000 \cong 12\ 000$	± 100 1)	required fixed length in mm
Exact length	$\cong 6\ 000 \cong 12\ 000$	$< \pm 100$ 1), 2)	required exact length and required permissible deviation in mm
1) When agreed upon, the total range for the permissible deviations may lie either entirely on the plus side or entirely on the minus side, e.g., $+^{200}_0$ (instead of ± 100) for fixed lengths or $_{-50}^0$ (instead of ± 25) for exact lengths. 2) Values must be agreed on ordering.			

6.2 Examples for ordering

a) 20 t of hot rolled sharp-edged T-bars TPS 30 of a steel with code number St 37-2 or material number 1.0037 according to DIN 17 100 in fixed lengths of 6000 mm:

20 t T-profile DIN 59 051 – St 37-2 – TPS 30 x 6000

or 20 t T-profile DIN 59 051 – 1.0037 – TPS 30 x 6000

b) 10 t of hot rolled sharp-edged T-bars TPS 25 of a steel with code number St 37-2 or material number 1.0037 according to DIN 17 100 in exact lengths of 6500 mm with a required permissible length deviation of ± 25 mm:

10 t T-profile DIN 59 051 – St 37-2 – TPS 25 x 6500 ± 25

or 10 t T-profile DIN 59 051 – 1.0037 – TPS 25 x 6500 ± 25

7 Testing dimensional accuracy

7.1 Extent of testing

When an acceptance test is agreed, also the number of bars which shall be tested for dimensional accuracy at the manufacturer's works must be agreed upon.

7.2 Test procedure

7.2.1 When testing the straightness according to Section 3.2, the dimension q must be measured over the full length of the bar.

7.2.2 The testing of the deviation of weight (see Section 5.2) is carried out on a bar taken from the lot, the weight and length of which must be determined as exactly as possible. The weight determined by weighing must be brought into relation with the theoretical weight to be calculated for the measured length of the bar (see Table 1).

Standards referred to

DIN 1024	Steel bars; hot rolled round-edged T-bars; dimensions, weights, permissible deviations, static values
DIN 1353 Part 2	Abbreviations of terms for semi-finished products
DIN 17 100	Steels for general structural purposes; quality standard

Former editions

DIN 1022: 07.40; DIN 1612: 09.24, 01.32, 03.43x; DIN 59 051: 06.59, 10.63

Amendments

Compared with the October 1963 edition, the following amendments have been made:

- a) The designations (Sections 2 and 6.2) have been adapted to the stipulations in DIN 820 Part 27.
- b) Concrete data about the permissible deviations from straightness have been included in Section 3.2.
- c) The permissible lower deviations of the nominal weight for a single bar indicated in Table 2 replace the former deviations of weight.
- d) The manufacturing lengths not used any longer have been deleted in Table 5.

Explanations

Together with the new version of the dimensional standard on hot rolled round-edged T-bars (DIN 1024), also the conditions of delivery for sharp-edged T-profiles have been revised. This subsequent edition of DIN 59 051 has been adapted, as far as possible, to the breakdown of DIN 1024.