

UDC 669.14-122.4-422.41

July 1978

Steel Bars Hot Rolled Squares for Special Purpose Dimensions, Permissible Deviations on Dimension and Form	DIN 1014 Part 2
---	-------------------------------------

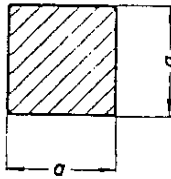
Stabstahl; Warmgewalzter Vierkantstahl für besondere Verwendung; Masse, zulässige Mass- und Formabweichungen

Dimensions in mm

1 Scope

This Standard applies to hot rolled squares intended for special purpose (e.g. for further processing by drawing, for manufacture of chains etc.) in straight bars of 17 to 103 mm side length made from the steel grades listed in Section 4.

2 Designations



Designation of hot rolled squares with a side length $a = 23$ mm made from a steel with the code number St 41-3 resp. the material number 1.0219 according to DIN 17 115:

Square DIN 1014 – St 41-3 – 23
or Square DIN 1014 – 1.0219 – 23

Instead of the denomination "square" the abbreviation "4kt" according to DIN 1353 Part 2 may be used.

3 Dimensions and permissible deviations on dimension and form

3.1 Side lengths

3.1.1 The side lengths included in this Standard and the permissible deviations on them are given in Table 1.

Table 1. Side length, permissible deviations, cross-section, weight and surface area

Side length ¹⁾ a	Perm. dev.	Cross-section cm ²	Weight ²⁾ kg/m	Surface area cm ² /m	Side length ¹⁾ a	Perm. dev.	Cross-section cm ²	Weight ²⁾ kg/m	Surface area cm ² /m
17	± 0.5	2.89	2.27	680	47	± 0.8	22.1	17.3	1880
21.5		4.62	3.63	860	52	± 1.0	27.0	21.2	2080
23		5.29	4.15	920	(57)		32.5	25.5	2280
26.5	7.02	5.51	1060	63	39.7		31.2	2520	
34	± 0.6	11.6	9.07	1360	73	± 1.3	53.3	41.8	2900
37	± 0.8	13.7	10.7	1480	83		68.9	54.1	3320
38		14.4	11.3	1520	(93)		86.5	67.9	3720
42		17.6	13.8	1680	103	± 1.5	106	83.3	4120

1) The side lengths in brackets should be avoided as far as possible.

2) See Section 5

Continued on page 2
Explanations on page 3

3.1.2 A rounding-off of the edges r as given in Table 2 is permissible for hot rolled squares according to this Standard.

Table 2. Permissible rounding-off of the edges r

Side length a		Permissible rounding-off of the edges r maximum
over	to	
	20	1.5
20	30	2
30	50	2.5
50	100	3
100		4

3.1.3 The difference between the two diagonals of a given cross-section shall not exceed 4%; the rounding-off of the edges r shall be taken into account in determining this.

3.2 Straightness

The permissible deviations as given in Table 3 apply for straightness of squares according to this Standard.



Table 3. Permissible deviations from the straightness

Side length a		Permissible deviation q from the straightness
over	to	
	26.5	Not stipulated
26.5	73	$0.004 \cdot l$
73	103	$0.0025 \cdot l$

More stringent requirements on straightness shall be agreed when ordering.

4 Material

Squares according to this Standard shall be manufactured for preference from the steel grades according to DIN 1651, DIN 17 100, DIN 17 115, DIN 17 200 and DIN 17 210.

The required steel grade shall be specified in the designation.

5 Weight

The weight given in Table 1 has been calculated on the basis of a density of 7.85 kg/dm^3 . In the case of alloy steels the density specified in the appropriate quality standards should be used for the weight calculation.

6 Mode of delivery

6.1 The data on lengths given in Table 4 apply to the delivery of hot rolled squares according to this Standard.

6.2 When ordering by weight, the length may vary between maximum and minimum dimensions specified for manufacturing lengths.

6.3 Example of order

100 t of hot rolled squares of side length $a = 23 \text{ mm}$ made from steel with the code number St 41-3 or the material number 1.0219 according to DIN 17 115 in manufacturing lengths:

100 t Square DIN 1014 – St 41-3 – 23
or 100 t Square DIN 1014 – 1.0219 – 23

7 Testing for accuracy to size

7.1 Extent of testing

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

7.2 Testing procedure

7.2.1 The side length according to Section 3.1 shall be measured at least 150 mm from the end of the bars when manufacturing lengths are supplied, and at any point when fixed or exact lengths are supplied.

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

Table 4. Types of lengths and permissible length deviations

Type of length	Side length a	Length		Details of order concerning the length
		Range 1)	Permissible deviation	
Manufacturing length 2)	≤ 63 $> 63 \leq 103$	$\geq 6000 \leq 12000$ $\geq 3000 \leq 9000$	See Section 6.2	None 2)
Fixed length	≤ 63 $> 63 \leq 103$	$\geq 6000 \leq 12000$ $\geq 3000 \leq 9000$	± 100 3)	Required fixed length in mm
Exact length	≤ 63 $> 63 \leq 103$	$\geq 6000 \leq 12000$ $\geq 3000 \leq 9000$	± 100 preferred: $\pm 50, \pm 25, \pm 10, \pm 5$ 3)	Required exact length and required permissible deviation in mm

1) Enquiries should be made to the manufacturer as to whether shorter or longer lengths can be supplied.
2) Squares can also be supplied in limited manufacturing lengths with a length range to be stated when ordering. The span between the shortest and longest length in this range must be at least 2000 mm (e.g. 6000 to 8000).
3) The total spans for the permissible deviations may, by agreement, be arranged entirely on the plus side, e.g. ${}^{+200}_0$ (instead of ± 100) in the case of fixed lengths or ${}^{+50}_0$ (instead of ± 25) in the case of exact lengths.

Explanations

In conjunction with the negotiations on the revision of Euronorm 59 – Hot rolled squares for general purpose – DIN 1014 (October 1963 issue) has also been revised. A predominant consideration was the extent to which it would be possible to reduce the number of standardized side lengths. The basis of the discussions was the statistics on ordered and delivered quantities in recent years and the content of the international standards.

The scope of Euronorm 59 and also of ISO Recommendation ISO R 1035/II (March 1969 issue, currently being revised) covers only hot rolled squares for general purpose, whereas DIN 1014 formerly covered all dimensions, i.e. used for various applications. To provide comparability with the international regulations and to give customers a better view of supply possibilities, the DIN Standard has been divided, with the agreement of all the German bodies represented, into a Part 1 – Hot rolled squares for general purpose – and a Part 2 – Hot rolled squares for special purpose (e.g. for further processing by drawing, for chain manufacture etc.). DIN 1014 Part 1 therefore is now directly comparable with the international standards, but there are still no international regulations for squares for special purpose.

The October 1963 issue of DIN 1014 contained 62 side lengths. Of these the following 17 dimensions have been deleted:

6 – 7 – 9 – 11 – 21 – 26 – 29 – 33 – 36 – 43 – 48 – 56 – 75 – 85 – 130 – 140 and 150 mm.

Part 1 covers 29 side lengths, which also appear in the new issue of Euronorm 59 (1977) with the exception of the nominal dimensions 15 – 19 – 28 – 65 and 110 mm. A further 16 side lengths for special purpose are standardized in Part 2.

In Part 1, the nominal dimensions have been subdivided into Series A and B. The side lengths in Series A should be ordered for preference. The dimensions in Series B are used to a lesser extent and in some cases they will require longer delivery dates.

In addition, the following amendments and additions have been made compared with the October 1963 issue:

1. Provision of maximum values for the difference in the length of the two diagonals (i.e. limitation of the deviations from the exact square cross-section);
2. Specification of maximum values for twist in the case of squares for general purpose (experience will have to be acquired as to the measurability of these form deviations);
3. Extension of the provisions on the permissible deviation from the straightness to side lengths over 25 to 40 mm;
4. Deletion of the details on the permissible weight deviations in accordance with the agreements in principle for steel bars of simple cross-sectional forms;
5. Adaptation of the values for the length ranges and permissible length deviations to the provisions in the new issue of DIN 1013 Part 1 and Part 2 for hot rolled round steel.