UDC 669.14-422.42

April 1967

Steel Bars
Hot Rolled Flat Steel for General Purpose
Dimensions, Weights, Permissible Variations

DIN 1017 Part 1

Stabstahl; Warmgewalzter Flachstahl für allgemeine Verwendung, Maße, Gewichte, zulässige Abweichungen

The figures for permissible variations stated in this Standard agree with the corresponding data in Euronorm 35 - 62 - Hot rolled steel bars for general purposes, permissible variations - except that up to width 35 the permissible variation on width is ± 0.75 instead of ± 1.0.

Dimensions in mm

1. Scope

This Standard applies to hot rolled flat steel in cross-sections b × s ranging from 10 mm × 5 mm to 150 mm × 60 mm in the grades of steel according to Section 4.

This Standard does n o t apply to the following:

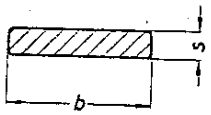
Hot rolled spring steel for laminated springs (see DIN 4620)

Flat wire rod (see DIN 59110)

Hot rolled strip steel (see DIN 1016)

Hot rolled wide flats (see DIN 59200)

2. Designation



Designation of hot rolled flat steel of width b = 40 mm and thickness s = 12 mm in a steel covered by the code number USt 37 - 2 or to material number 1.0112 according to DIN 17100:

Flat 40 × 12 DIN 1017 - USt 37 - 2
or Flat 40 × 12 DIN 1017 - 1.0112

Instead of designation "Flat", the simplified form "Fl" according to DIN 1353 Part 1 (at present circulating as draft, August 1966 edition) may be used.

3. Dimensions and permissible dimension and form variations

3.1. Widths and thicknesses

3.1.1. The widths and thicknesses in which flat steel is preferentially supplied, and the permissible variations on these dimensions, are contained in Table 1 (identifiable through indication of weight); the dimensions to be preferred in the case of high-grade steels are specially identified (see also DIN-Mitt.44 (1965) No.8, pp. 377-378).

For hot rolled flat steel for special purpose, see DIN 1017 Part 2

Continued on pages 2 and 3

Width[1][2] b	permissible variation	Thickness s[1][2]																							
		5	6	6,5	7	8	9	10	11	12	13	14	15	16	17	18	20	22	25	30	35	40	50	60
		permissible variation																							
		±0,5																±1,0					±1,5		
		Weight in kg/m																							
10	±0,75	0,393	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11		0,432	0,518	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12		0,471	0,565	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13		0,510	0,612	0,663	0,714	0,816	(0,918)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14		0,550	0,659	—	0,769	0,879	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15		0,589	0,707	—	0,824	0,942	—	1,18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16		0,628	0,754	0,816	0,879	1,00	1,13	1,26	1,38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17		(0,667)	0,801	—	0,934	1,07	—	—	1,47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18		0,707	0,848	(0,918)	(0,989)	1,13	1,27	1,41	(1,55)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19		(0,746)	(0,895)	—	(1,04)	(1,19)	1,34	—	1,64	—	1,94	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20		0,785	0,942	1,02	1,10	1,26	1,41	1,57	—	1,88	2,04	—	2,36	—	—	—	—	—	—	—	—	—	—	—	—
22		0,864	1,04	1,12	1,21	1,38	—	1,73	1,90	2,07	2,25	2,42	(2,59)	—	2,94	—	—	—	—	—	—	—	—	—	—
25		0,981	1,18	1,28	1,37	1,57	—	1,96	—	2,36	2,55	2,75	2,94	3,14	—	—	—	—	—	—	—	—	—	—	—
26		1,02	1,22	1,33	1,43	1,63	—	2,04	—	2,45	2,65	2,86	3,06	3,27	—	3,67	4,08	—	—	—	—	—	—	—	—
28		1,10	1,32	1,43	1,54	1,76	—	2,20	—	2,64	2,86	3,08	—	3,52	—	3,96	—	—	—	—	—	—	—	—	—
30		1,18	1,41	1,53	1,65	1,88	2,12	2,36	—	2,83	3,06	3,30	3,53	3,77	—	4,24	4,71	5,18	5,89	—	—	—	—	—	—
32		1,26	1,51	1,63	—	2,01	—	2,51	—	3,01	(3,27)	3,52	3,77	4,02	—	—	5,02	5,53	6,28	—	—	—	—	—	—
35		1,37	1,65	1,79	1,92	2,20	—	2,75	—	3,30	3,57	3,85	4,12	4,40	—	4,95	5,50	6,04	6,87	—	—	—	—	—	—
38	±1,0	1,49	1,79	1,94	—	2,39	—	2,98	—	3,58	3,88	4,18	4,47	4,77	—	—	5,97	6,56	7,46	—	—	—	—	—	—
40		1,57	1,88	2,04	2,20	2,51	2,83	3,14	—	3,77	4,08	4,40	4,71	5,02	—	5,65	6,28	6,91	7,85	9,42	—	—	—	—	—
45		1,77	2,12	2,30	2,47	2,83	—	3,53	—	4,24	4,59	4,95	5,30	5,65	—	—	7,07	7,77	8,83	10,6	—	—	—	—	—
50		1,96	2,36	2,55	2,75	3,14	3,53	3,93	—	4,71	5,10	5,50	5,89	6,28	—	7,07	7,85	8,64	9,81	11,8	—	15,7	—	—	—
55		2,16	2,59	2,81	—	3,45	—	4,32	—	5,18	5,61	6,04	6,48	6,91	—	7,77	8,64	9,50	10,8	13,0	—	—	—	—	—
60		2,36	2,83	3,06	3,30	3,77	4,24	4,71	—	5,65	6,12	—	7,07	7,54	—	8,48	9,42	10,4	11,8	14,1	16,5	18,8	(23,6)	—	—
65		2,55	3,06	3,32	—	4,08	4,59	5,10	—	6,12	6,63	—	7,65	8,16	—	—	10,2	11,2	12,8	15,3	—	20,4	—	—	—
70		2,75	3,30	3,57	3,85	4,40	—	5,50	—	6,59	7,14	—	8,24	8,79	—	9,89	11,0	12,1	13,7	16,5	19,2	22,0	27,5	—	—
75		2,94	3,53	3,83	—	4,71	—	5,89	—	7,07	7,65	—	8,83	9,42	—	—	11,8	—	14,7	17,7	20,6	23,6	—	(35,3)	—
80	±1,5	3,14	3,77	4,08	4,40	5,02	—	6,28	6,91	7,54	8,16	—	9,42	10,0	—	—	12,6	—	15,7	18,8	(22,0)	25,1	31,4	(37,7)	—
90		3,53	4,24	4,59	—	5,65	6,36	7,07	7,77	8,48	9,18	—	10,6	11,3	—	12,7	14,1	—	17,7	21,2	—	28,3	35,3	42,4	—
100		3,93	4,71	5,10	—	6,28	—	7,85	8,64	9,42	10,2	11,0	11,8	12,6	—	—	15,7	—	19,6	23,6	—	31,4	39,3	47,1	—
110	±2,0	—	—	—	—	6,91	7,77	8,64	9,50	10,4	11,2	12,1	13,0	13,8	—	—	17,3	—	21,6	25,9	—	34,5	43,2	—	—
120		—	—	—	—	7,54	—	9,42	(10,4)	11,3	12,2	—	14,1	15,1	—	—	18,8	—	23,6	28,3	—	37,7	47,1	56,5	—
130	±2,5	—	—	—	—	8,16	9,18	10,2	11,2	12,2	13,3	14,3	15,3	16,3	—	—	20,4	—	25,5	30,6	—	40,8	51,0	—	—
140		—	—	—	—	8,79	—	11,0	—	13,2	—	—	16,5	17,6	—	—	22,0	—	27,5	33,0	(38,5)	44,0	55,0	—	—
150		—	—	—	—	9,42	—	11,8	13,0	14,1	15,3	16,5	17,7	18,8	—	—	23,6	—	29,4	35,3	—	47,1	58,9	70,7	—

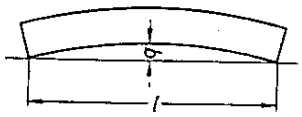
[1]) Only those sizes for which weights are indicated above are covered by the provisions of this Standard. Sizes for which the weights are indicated in brackets should be avoided where possible.

[2]) For high-grade steels those dimensions are used preferably for which the weights are printed in a scanning field.

3.2. Straightness

Flat steel according to this Standard shall be straight to within the permissible variations according to Table 2.

Straightness requirements more stringent than the above shall be agreed to at the time of ordering.



4. Material

Flat steel according to this Standard shall preferably be made of the grades according to DIN 17100, DIN 17200, DIN 17210 and DIN 1651.

The grade of steel required shall be indicated when ordering.

Table 2

Cross-sectional area mm²		Permissible variation q from straightness
over	to	
—	1000	$0{,}004 \cdot l$
1000	—	$0{,}0025 \cdot l$

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 kg/dm³.

5.2. Permissible weight variations as percentages of total weight are given in Table 3.

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 3

Thickness s Nominal value		Permissible weight variation on deliveries	
over	to	of 5 t and above	less than 5 t
—	5	±6 %	±8 %
5	60	±4 %	±5,3 %

6. Mode of delivery

6.1. Length data for deliveries of hot rolled flat steel are contained in Table 4.

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. Examples of orders

100 t hot rolled flat steel of width b = 40 mm and thickness s = 12 mm in steel according to the code number USt 37 - 2 or material number 1.0112 according to DIN 17100 in manufacturing lengths:

100 t Flat 40 × 12 DIN 1017 - USt 37 - 2

or 100 t Flat 40 × 12 DIN 1017 - 1.0112

7. Testing of accuracy to size

7.1. Scope of test

The number of bars which shall be tested 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

7.2.1. The thickness and width according to Section 3.1 shall be measured at a distance of not less than 150 mm from the end of the bars when delivery is made in manufacturing lengths, and at any point desired when delivery is made in fixed lengths and exact lengths.

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

Table 4

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