UDC 669.14-423

October 1963

Steel Bars Steel Sections
Hot Rolled Round Edge Channels
Dimensions, Weights, Permissible Variations, Static Values

DIN 1026

Stabstahl, Formstahl; Warmgewalzter rundkantiger U-Stahl;
Maße, Gewichte, zulässige Abweichungen, statische Werte

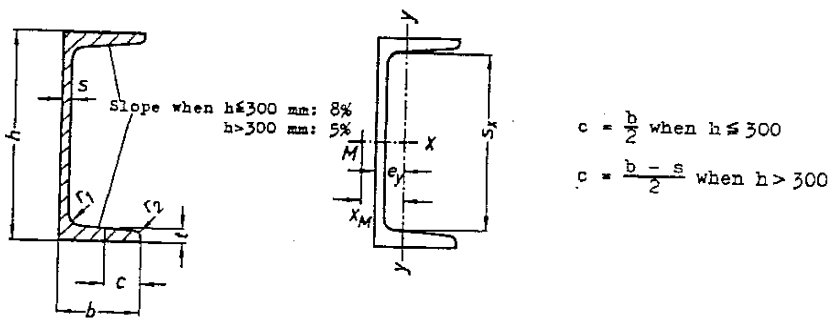
The permissible variations stated in this Standard agree with the corresponding Euronorm 24-62 - Narrow flange I-beams, channels, permissible variations.

Dimensions in mm

1. Scope

This Standard applies to hot rolled round edge channels of heights between 30 and 400 mm in the steel grades stated in Section 4.

2. Designation



Designation of a hot rolled round edge channel of a height h = 300 mm in steel according to the code number St 37-2 or material number 1.0112 according to DIN 17100:

U 300 DIN 1026 - St 37-2
or U 300 DIN 1026 - 1.0112

3. Dimensions and permissible dimension and form variations

3.1. Cross-section

3.1.1. Hot rolled round edge channels are supplied in the dimensions and with the permissible variations for height, width, web and flange thicknesses shown in Table 1.

3.1.2. The out-of-squareness k shall not exceed the values given in Table 2.

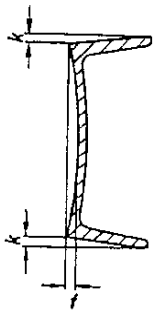


Table 2

Width b above	Width b up to	Out-of-squareness k maximum
–	100	1,0
100	110	1% of b

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

Continued on pages 2 and 3

Table 1.

Symbol U	Dimensions for h	perm. var.	b	perm. var.	s	perm. var.	t	perm. var.[1]	r_1	r_2	Cross-section F cm²	Weight G kg/m	Surface area U m²/m	Relative to bending axis[2]) x — x J_x cm⁴	W_x cm³	i_x cm	y — y J_y cm⁴	W_y cm³	i_y cm	S_x[3]) cm³	s_x[4]) cm	Distance of axis y — y e_y cm	x_M[5]) cm
30 × 15	30		15		4		4,5		4,5	2	2,21	1,74	0,103	2,53	1,69	1,07	0,38	0,39	0,42	—	—	0,52	0,74
30	30		33		5		7		7	3,5	5,44	4,27	0,174	6,39	4,26	1,08	5,33	2,68	0,99	—	—	1,31	2,22
40 × 20	40		20		5		5,5		5	2,5	3,66	2,87	0,142	7,58	3,79	1,44	1,14	0,86	0,56	—	—	0,67	1,01
40	40		35		5		7		7	3,5	6,21	4,87	0,199	14,1	7,05	1,50	6,68	3,08	1,04	—	—	1,33	2,32
50 × 25	50	±1,5	25		5		6		6	3	4,92	3,86	0,181	16,8	6,73	1,85	2,49	1,48	0,71	—	—	0,81	1,34
50	50		38		5		7	−0,5	7	3,5	7,12	5,59	0,232	26,4	10,6	1,92	9,12	3,75	1,13	—	—	1,37	2,47
60	60		30		6		6		6	3	6,46	5,07	0,215	31,6	10,5	2,21	4,51	2,16	0,84	—	—	0,91	1,50
65	65		42	±1,5	5,5		7,5		7,5	4	9,03	7,09	0,273	57,5	17,7	2,52	14,1	5,07	1,25	—	—	1,42	2,60
80	80		45		6		8		8	4	11,0	8,64	0,312	106	26,5	3,10	19,4	6,36	1,33	15,9	6,65	1,45	2,67
100	100		50		6		8,5		8,5	4,5	13,5	10,6	0,372	206	41,2	3,91	29,3	8,49	1,47	24,5	8,42	1,55	2,93
120	120		55		7	± 0,5	9		9	4,5	17,0	13,4	0,434	364	60,7	4,62	43,2	11,1	1,59	36,3	10,0	1,60	3,03
140	140	±2,0	60		7		10		10	5	20,4	16,0	0,489	605	86,4	5,45	62,7	14,8	1,75	51,4	11,8	1,75	3,37
160	160		65		7,5		10,5		10,5	5,5	24,0	18,8	0,546	925	116	6,21	85,3	18,3	1,89	68,8	13,3	1,84	3,56
180	180		70		8		11		11	5,5	28,0	22,0	0,611	1350	150	6,95	114	22,4	2,02	89,6	15,1	1,92	3,75
200	200		75		8,5		11,5		11,5	6	32,2	25,3	0,661	1910	191	7,70	148	27,0	2,14	114	16,8	2,01	3,94
220	220		80		9		12,5		12,5	6,5	37,4	29,4	0,718	2690	245	8,48	197	33,6	2,30	146	18,5	2,14	4,20
240	240		85		9,5		13	−1,0	13	6,5	42,3	33,2	0,775	3600	300	9,22	248	39,6	2,42	179	20,1	2,23	4,39
260	260		90	± 2,0	10		14		14	7	48,3	37,9	0,834	4820	371	9,99	317	47,7	2,56	221	21,8	2,36	4,66
280	280		95		10		15		15	7,5	53,3	41,8	0,890	6280	448	10,9	399	57,2	2,74	266	23,6	2,53	5,02
300	300	±3,0	100		10		16		16	8	58,8	46,2	0,950	8030	535	11,7	495	67,8	2,90	316	25,4	2,70	5,41
320	320		100		14		17,5		17,5	8,75	75,8	59,5	0,982	10 870	679	12,1	597	80,6	2,81	413	26,3	2,60	4,82
350	350		100		14		16		16	8	77,3	60,6	1,05	12 840	734	12,9	570	75,0	2,72	459	28,6	2,40	4,45
380	380		102	± 2,5	13,5	± 0,7	16	−1,5	16	8	80,4	63,1	1,11	15 760	829	14,0	615	78,7	2,77	507	31,1	2,38	4,58
400	400		110		14		18		18	9	91,5	71,8	1,18	20 350	1020	14,9	846	102	3,04	618	32,9	2,65	5,11

[1]) The permissible plus variation is limited by the permissible exceeding of weight.

[2]) J = moment of inertia, W = section modulus, i = radius of gyration, referenced in each case to the bending axis concerned.

[3]) S_x = static moment of half cross-section

[4]) $s_x = J_x : S_x$ = distance between compression and tension centres

[5]) x_M = distance of shear centre M from the y-y axis

The cross-sections, weights, surface areas and static values have been calculated from the dimensions detailed in the Table.

3.1.3. The web bow f shall not exceed the values given in Table 3.

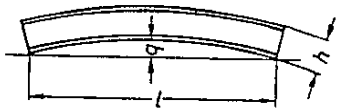
3.2. Straightness

For channels according to this Standard with heights up to 400 mm a permissible variation from straightness q of not more than 0.0015 · l is usual.

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

Table 3

Height h above	Height h up to	Web bow f maximum
–	100	0,5
100	200	1,0
200	400	1,5



4. Material

Channels according to this Standard should preferably be made of steel grades according to DIN 17100.

The grade of steel required (according to DIN 17100) shall be stated 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 kg/dm^3.

5.2. The following weight variations are permitted:

on the delivery as a whole ±4 %,
on an individual beam ±6 %.

A delivery may comprise channels with different nominal heights.

The weight variation for the purpose of this Standard is the difference between the weight actually 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).

6. Mode of delivery

6.1. Length data for deliveries of hot rolled round edge channels are contained in Table 4.

6.2. In the case of angled cuts the length shall be taken as the greatest useful length on the assumption that the ends are cut square.

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

6.4. Example of order

100 t round edge channels of height h = 300 mm in a steel according to the code number St 37-2 or material number 1.0112 to DIN 17100 in manufacturing lengths:

100 t U 300 DIN 1026 – St 37-2
or 100 t U 300 DIN 1026 – 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 dispatch shall be agreed to at the time of ordering.

7.2. Procedure

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

Table 4

Description	Length: Range	Length: Permissible variation	Length details to be given when ordering
Manufacturing length	3000 to 15000	anywhere between 3000 and 15000	none
Fixed length	to 15000	±50	required fixed length in mm
Exact length[1])	to 15000	between ±50 and ±5; the following being preferred: ±25, ±10, ±5	required exact length and required permissible variation in mm

[1]) In the case of exact lengths subject to restricted length variations the bevel produced by non-square cutting shall fall within the permissible length variations.