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March 1994

Hot rolled I and H sections
(IPE series)
Dimensions, mass and static parameters

DIN
1025
Part 5

Warmgewalzte I-Träger; mittelbreite I-Träger, IPE-Reihe; Maße, Masse, statische Werte

This standard, together with DIN EN 10 034, supersedes March 1965 edition.

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

Dimensions in mm

1 Scope and field of application

This standard specifies hot rolled I and H sections ('H sections', for short) that have parallel flanges and narrower flanges than the sections specified in DIN 1025 Part 2 (IPE series), preferably made from DIN EN 10 025 steel. Such sections have a height from 80 to 600 mm.

This standard does not cover:

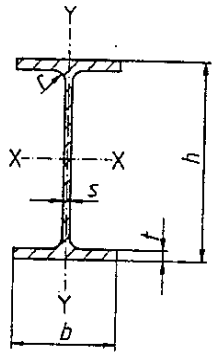
a) hot rolled I sections (I series, with a smaller ratio of flange width to web height; cf. DIN 1025 Part 1);

b) hot rolled I and H sections (IPE and IB series, with thicker webs and flanges and/or tapered flanges; cf. DIN 1025 Part 2);

c) hot rolled I and H sections (IPBl series, with thin webs and flanges, but shorter; cf. DIN 1025 Part 3);

d) hot rolled I and H sections (IPBv series, with thicker webs and flanges; cf. DIN 1025 Part 4).

2 Designation



The standard designation shall give, in the following order:

a) name of product (H section);

b) DIN number (DIN 1025);

c) material designation or number;

d) section symbol in accordance with table 1.

EXAMPLE:

A hot rolled H section complying with this standard (IPE series), made from steel grade S235JR (material number 1.0037) as specified in DIN EN 10 025, with a height, *h*, of 360 mm shall be designated:

H section DIN 1025 – S235JR – IPE 360

or H section DIN 1025 – 1.0037 – IPE 360

Continued on pages 2 and 3.

Table 1: Dimensions, mass and static parameters for H sections (IPE series)

Section symbol IPE	Dimensions for h	b	s	t	r	Section area, F, in cm^2	Mass, G, in kg/m	Surface area, U, in m^2/m	Static parameters[1] x–x I_x cm^4	W_x cm^3	i_x cm	y–y I_y cm^4	W_y cm^3	i_y cm	S_x [2] cm^3	s_x [3] cm
80	80	46	3,8	5,2	5	7,64	6,0	0,328	80,1	20,0	3,24	8,49	3,69	1,05	11,6	6,90
100	100	55	4,1	5,7	7	10,3	8,1	0,400	171	34,2	4,07	15,9	5,79	1,24	19,7	8,68
120	120	64	4,4	6,3	7	13,2	10,4	0,475	318	53,0	4,90	27,7	8,65	1,45	30,4	10,5
140	140	73	4,7	6,9	7	16,4	12,9	0,551	541	77,3	5,74	44,9	12,3	1,65	44,2	12,3
160	160	82	5,0	7,4	9	20,1	15,8	0,623	869	109	6,58	68,3	16,7	1,84	61,9	14,0
180	180	91	5,3	8,0	9	23,9	18,8	0,698	1320	146	7,42	101	22,2	2,05	83,2	15,8
200	200	100	5,6	8,5	12	28,5	22,4	0,768	1940	194	8,26	142	28,5	2,24	110	17,6
220	220	110	5,9	9,2	12	33,4	26,2	0,848	2770	252	9,11	205	37,3	2,48	143	19,4
240	240	120	6,2	9,8	15	39,1	30,7	0,922	3890	324	9,97	284	47,3	2,69	183	21,2
270	270	135	6,6	10,2	15	45,9	36,1	1,04	5790	429	11,2	420	62,2	3,02	242	23,9
300	300	150	7,1	10,7	15	53,8	42,2	1,16	8360	557	12,5	604	80,5	3,35	314	26,6
330	330	160	7,5	11,5	18	62,6	49,1	1,25	11770	713	13,7	788	98,5	3,55	402	29,3
360	360	170	8,0	12,7	18	72,7	57,1	1,35	16270	904	15,0	1040	123	3,79	510	31,9
400	400	180	8,6	13,5	21	84,5	66,3	1,47	23130	1160	16,5	1320	146	3,95	654	35,4
450	450	190	9,4	14,6	21	98,8	77,6	1,61	33740	1500	18,5	1680	176	4,12	851	39,7
500	500	200	10,2	16,0	21	116	90,7	1,74	48200	1930	20,4	2140	214	4,31	1100	43,9
550	550	210	11,1	17,2	24	134	106	1,88	67120	2440	22,3	2670	254	4,45	1390	48,2
600	600	220	12,0	19,0	24	156	122	2,01	92080	3070	24,3	3390	308	4,66	1760	52,4

[1] I = moment of inertia, W = section modulus, i = radius of gyration (subscripts x and y denoting the relevant axis).
[2] S_x = moment of first order of half the cross section.
[3] $s_x = I_x : S_x$ = distance between centre of pressure and centre of tension.
The values specified for cross-sectional area, mass, surface area and static parameters have been specified as a function of the other dimension.

3 Dimensions and mass

3.1 Hot rolled H sections shall have the dimensions specified in table 1.

3.2 The nominal length shall be specified at the time of ordering.

3.3 The values of mass specified in table 1 have been calculated taking the density as 7,85 kg/dm³.

4 Tolerances on shape and dimensions

The dimensions of sections are subject to the tolerances specified in DIN EN 10 034.

5 Material

Sections shall preferably be made from DIN EN 10 025 steel, the particular steel grade being specified at the time of ordering.

Standards referred to

DIN EN 10 025 Hot rolled unalloyed structural steel products; technical delivery conditions
DIN EN 10 034 Structural steel I and H sections; tolerances on shape and dimensions

Other relevant standards

DIN 1025 Part 1 Steel sections; hot rolled I beams; dimensions, mass, limit deviations and static values
DIN 1025 Part 2 Hot rolled I and H sections (IPB and IB series); dimensions, mass and static parameters
DIN 1025 Part 3 Hot rolled I and H sections (IPBl series); dimensions, mass and static parameters
DIN 1025 Part 4 Hot rolled I and H sections (IPBv series); dimensions, mass and static parameters

Previous editions

DIN 1025 Part 5: 07.59, 03.65.

Amendments

In comparison with the March 1965 edition, the following amendments have been made.

a) All specifications with regard to tolerances have been deleted, a reference being made instead to DIN EN 10 034.
b) The references to standards have been updated.

Explanatory notes

With the publication of European Standard EN 10 034, it became necessary to revise the DIN Standards on I and H sections. Since the European Standard deals with tolerances on shape and dimensions, the scope of the present standard has been restricted to nominal sizes and the associated static parameters, these having been taken without revision from the previous edition. At the European level, ECISS/TC 11 is currently reviewing standardized sizes for sections and bearing piles with parallel flanges. Upon publication of the relevant European Standard, DIN 1025 Parts 2 to 5 will be withdrawn.

International Patent Classification

F 16 S 003/00
E 04 B 001/24
E 04 C 003/04