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IS 3954 (1991): Hot Rolled Steel Channel Sections for General Engineering Purposes - Dimensions [CED 7: Structural Engineering and structural sections]



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भारतीय मानक
सामान्य इंजीनियरी कार्यों के लिए तप्त वेल्लित
इस्पात चैनल सैक्शन के आयाम

(पहला पुनरीक्षण)

Indian Standard

HOT ROLLED STEEL CHANNEL SECTIONS
FOR GENERAL ENGINEERING PURPOSES —
DIMENSIONS

(*First Revision*)

First Reprint MAY 1996

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Structural Sections Sectional Committee had been approved by the Civil Engineering Division Council.

IS 808 : 1989 'Dimensions for hot rolled steel beam, column, channel and angle sections (*third revision*)' covers channel sections meant for structural application. Channel sections for use in Posts and Telegraphs Department and for general use as gate channels have been covered in this standard.

This standard was first published in 1962. In this revision apart from general updating, the designation of channels has been modified. In the preparation of this standard, the Sectional Committee kept in view manufacturing and trade practices followed in the country in this field.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HOT ROLLED STEEL CHANNEL SECTIONS FOR GENERAL ENGINEERING PURPOSES — DIMENSIONS

(*First Revision*)

1 SCOPE

This standard lays down the nominal dimensions, mass and sectional properties of hot-rolled steel channel sections for general engineering purposes.

2 REFERENCES

The Indian Standard 1852 : 1985 'Specification for rolling and cutting tolerances for hot rolled steel products (*fourth revision*)' is a necessary adjunct to this standard.

3 TERMINOLOGY

3.0 For the purpose of this standard the following definitions shall apply.

3.1 Y-Y Axis — A line parallel to the axis of the web of the section and passing through the centre of gravity of the profile of the section.

3.2 X-X Axis — A line passing through the centre of gravity of the profile of the section, and at right angles to the Y-Y axis.

4 SYMBOLS

Letter symbols used in this standard have been indicated in the figure in Table 1. The letter symbols used in the figure and table shall have the meaning indicated against each as given below:

a = Sectional area in cm^2

m = Nominal mass — in $\text{kg/m} = (0.785 a)$

I_{xx} = Moment of inertia about the X-X axis

I_{yy} = Moment of inertia about the Y-Y axis

$Z_{xx} = \frac{I_{xx}}{e_{xx}}$ = Modulus of section about the
X-X axis

$Z_{yy} = \frac{I_{yy}}{c_{yy}}$ = Modulus of section about the
Y-Y axis

$r_{xx} = \sqrt{\frac{I_{xx}}{a}}$ = Radius of gyration about the
X-X axis

$r_{yy} = \sqrt{\frac{I_{yy}}{a}}$ = Radius of gyration about the
Y-Y axis

$C_{xx} = e_{xx} = \frac{h}{2}$

5 DESIGNATION

Hot rolled steel channel sections conforming to this standard shall be designated by the letters CHG followed by a figure denoting the depth of the channel in mm.

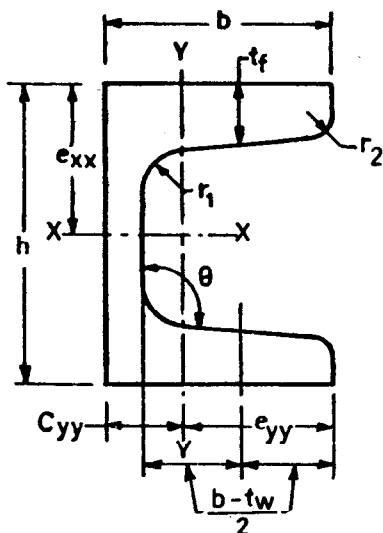
6 DIMENSIONS AND SECTIONAL PROPERTIES

6.1 The nominal dimensions and mass of channel sections shall be as given in Table 1. Sectional properties of the channel sections have also been given in Table 1 for information.

6.2 Tolerances

The rolling and cutting tolerances of the channel sections shall be as stipulated in IS 1852 : 1985.

Table 1 Sectional Properties
(Clauses 4 and 6.1)



Designation	Mass (m)	Sectional Area (a)	Depth of Channel (h)	Width of Flange (b)	Thick- ness of Web (t _w)	Thick- ness of Flange (t _f)	Slope of Flange (θ)	Radi- us at Root (r ₁)	Radi- us at Toe (r ₂)	Centre of Grav- ity (C _{yy})	Moment of Inertia		Radii of Gyration		Section Modulus	
											(I _{xx})	(I _{yy})	(r _{xx})	(r _{yy})	(Z _{xx})	(Z _{yy})
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	kg/m	cm ²	mm	mm	mm	mm		mm	mm	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³
CHG 16	0.76	0.971	16	10	3.2	3.2	95°	3.0	1.5	0.38	0.29	0.075	0.55	0.28	0.37	0.12
CHG 20	0.86	1.099	20	10	3.2	3.2	95°	3.0	1.5	0.35	0.53	0.081	0.69	0.27	0.53	0.13
CHG 40	4.82	6.144	40	32	5.0	7.5	95°	6.0	3.0	1.25	13.59	5.752	1.49	0.97	6.79	2.95

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 323 01 31, 323 83 75, 323 94 02

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices:

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	323 76 17, 323 38 41
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 60 38 43 60 20 25
Southern : C.I.T. Campus, IV Cross Road, MADRAS 600113	{ 235 02 16, 235 04 42 235 15 19, 235 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 832 92 95, 832 78 58 832 78 91, 832 78 92
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