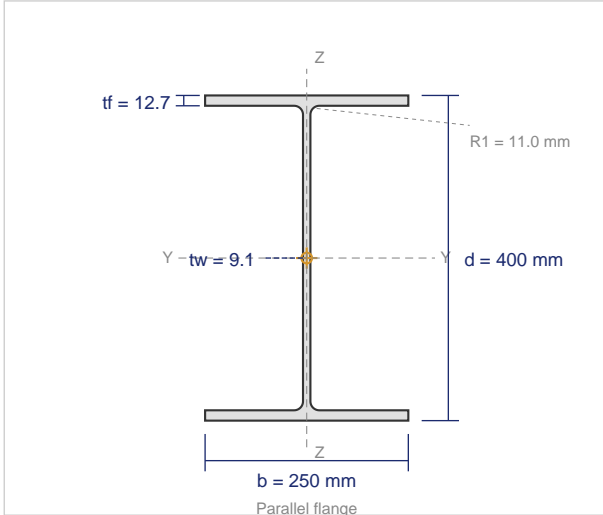


# ISHB 400

Indian Standard Heavy Beam -- IS 808 : 1989

## CROSS SECTION (Proportionally Accurate)



## DIMENSIONS

Depth (d)	400 mm
Flange Width (b)	250 mm
Web Thickness (tw)	9.1 mm
Flange Thickness (tf)	12.7 mm
Root Radius (R1)	11.0 mm
Variant	Light
Weight per Meter	72.4 kg/m
Cross-sectional Area	9227 mm <sup>2</sup>
Surface Area	1.730 m <sup>2</sup> /m

## SECTIONAL PROPERTIES

Property	About X-X Axis	About Y-Y Axis
Moment of Inertia	<b>I<sub>x</sub> = 243,298,000 mm<sup>4</sup></b>	<b>I<sub>y</sub> = 33,408,000 mm<sup>4</sup></b>
Elastic Section Modulus	<b>Z<sub>x</sub> = 1,216,500 mm<sup>3</sup></b>	<b>Z<sub>y</sub> = 267,300 mm<sup>3</sup></b>
Plastic Section Modulus	<b>Z<sub>px</sub> = 1,379,100 mm<sup>3</sup></b>	<b>Z<sub>py</sub> = 407,500 mm<sup>3</sup></b>
Radius of Gyration	<b>r<sub>x</sub> = 162.4 mm</b>	<b>r<sub>y</sub> = 60.2 mm</b>
Distance to Extreme Fibre	<b>c<sub>x</sub> = 200.0 mm</b>	<b>c<sub>y</sub> = 125.0 mm</b>
Shape Factor (Z <sub>p</sub> /Z)	<b>1.134</b>	<b>1.525</b>
Torsional Constant	<b>I<sub>t</sub> = 527,500 mm<sup>4</sup></b>	
Warping Constant	<b>I<sub>w</sub> = 1,257,500,000,000 mm<sup>6</sup></b>	
Shear Area	<b>A<sub>v</sub> = 3,640 mm<sup>2</sup></b>	

## FACTORED CAPACITY (per IS 800:2007, gamma\_m0 = 1.10)

Grade	M <sub>p</sub> X-X (kN.m)	M <sub>p</sub> Y-Y (kN.m)	Axial P <sub>d</sub> (kN)
E 250 (Fe 410W)	313.4	92.6	2097
E 350	438.8	129.7	2936
E 410	514.0	151.9	3439
E 450	564.2	166.7	3775

## APPLICABLE STANDARDS

<b>IS 808 : 1989</b>	Dimensions for hot rolled steel beam, column, channel and angle sections
<b>IS 2062 : 2011</b>	Hot rolled medium and high tensile structural steel
<b>IS 800 : 2007</b>	General construction in steel -- Code of practice
<b>IS 1852</b>	Tolerances for hot rolled structural steel sections