

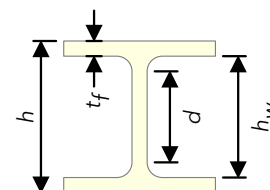
EC3 Design : Class 1 - H

References are to EN1993-1-1:2005 unless otherwise stated.

Section properties (shape)

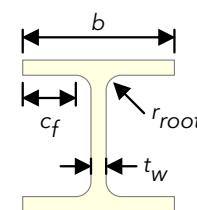
Designation	Shape	Manufacture	
125 x 100 H	Doubly Symmetrical I	Rolled	Hot-Finished

Depth h mm	Width b mm	Thicknesses		Root radius r _{root} mm
		Web t _w mm	Flange t _f mm	
125	100	6.1	5	8

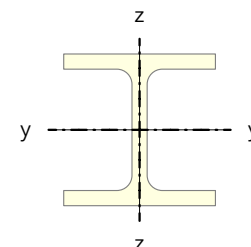


Section properties (derived)

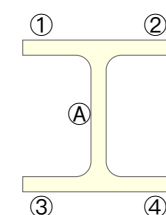
Gross area A cm ²	Second moments of area		Product moment of area I _{yz} cm ⁴	Torsional constant I _T cm ⁴
	Major I _y cm ⁴	Minor I _z cm ⁴		
17.573	454.83	83.695	0	2.3611



Elastic section moduli (minima)		Plastic section moduli		Torsional section modulus W _t cm ³
Major W _{el,y,min} cm ³	Minor W _{el,z,min} cm ³	Major W _{pl,y} cm ³	Minor W _{pl,z} cm ³	
72.773	16.739	83.274	26.34	4.7221



Shear centre		Warping constant I _w dm ⁶
Horizontal y _o mm	Vertical z _o mm	
0	0	0.003



Material properties

Steel grade	Modulus of elasticity E kN/mm ²	Modulus of rigidity G kN/mm ²	Yield stress f _y N/mm ²	Ultimate stress f _u N/mm ²
S275	210	81	275	430

Member geometry properties

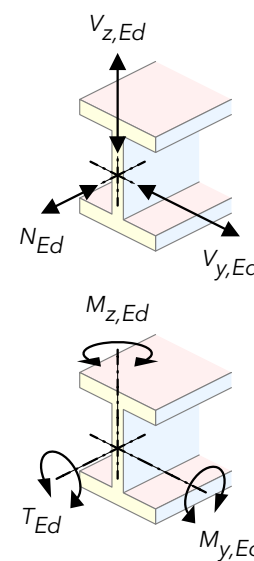
Restrained lengths		
Geometrical axes		Torsional
Major L_y m	Minor L_z m	
7	3	L_T m 5

Buckling length ratios		
$k_{cr,y}$	$k_{cr,z}$	$k_{cr,T}$
1.000	0.900	0.800

Buckling lengths, $L_{cr} = k_{cr} L$		
$L_{cr,y}$ m	$L_{cr,z}$ m	l_T m
7	2.7	4

Design forces (F_d)

Axial N_{Ed} kN	In plane of web		Torsion T_{Ed} kN.m	In plane of flange	
	Shear $V_{z,Ed}$ kN	B.M. $M_{y,Ed}$ kN.m		Shear $V_{y,Ed}$ kN	B.M. $M_{z,Ed}$ kN.m
17 (C)	11	0.13	0.3	5	0.7



National Annex (Generic)

Global partial factors of resistance			Factor for shear area η
Of cross-section γ_{M0}	To instability γ_{M1}	To tensile fracture γ_{M2}	
1.00	1.00	1.25	1.00

Design Summary : Class 1 - H

Class	Local					Buckling			Overall
	Axial	Torsion	Bending	Shear	Utilisation	Flexural	L-T	Stability	
Class 1	0.04	0.40	0.36	0.10	0.40	0.11	0.01	0.21	ACCEPT
	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	