

Symbol	Values	Unit	Symbol description	Section
MEMBER: 2 Column_2 ; COORDINATE: x = 0.50 L = 13.70 m				
Cross-section properties: DBL 914x305x289				
Ax	36800	mm ²	Cross-section area	
Ay	19712	mm ²	Shear area - Y-axis	
Az	18077	mm ²	Shear area - Z-axis	
J	0	mm ⁴	Torsional constant	
Iy	10080000000	mm ⁴	Moment of inertia of a section about the Y-axis	
Iz	18700000000	mm ⁴	Moment of inertia of a section about the Z-axis	
Zy	21756961	mm ³	Elastic section modulus about the Y-axis	
Zz	28593272	mm ³	Elastic section modulus about the Z-axis	
D	927	mm	Height of cross-section	
B	308	mm	Width of cross-section	
T	32	mm	Flange thickness	
t	20	mm	Web thickness	
ry	523	mm	Radius of gyration - Y-axis	
rz	713	mm	Radius of gyration - Z-axis	
Material:				
Name			S355	
py	355.00	MPa	Design strength of material	(Table 6)
Red_fact.	1.00		PY reduction factor	(Table 8)
Section classification				
b/T	4.81		Compressed beam flange slenderness	(Figure.3)
UNS	Plastic		Beam flange type	(Table 7)
d/t	44.26		Compressed web slenderness	(Figure.3)
STI	Slender		Web type	(Table 7)

Symbol	Values	Unit	Symbol description	Section
Sec_class	Slender		Section type	(3.5.2)

Buckling analysis parameters**About the Y axis of cross-section**

Ly	27.40	m	Member theoretical length	(4.7.1)
Ley	27.40	m	Member effective length	(4.7.2)
LAy	52.35		Member slenderness	(4.7.3.1)
ay	3.50		Robertson constant	(App.C.2)
ny	0.13		Perry factor	(App.C.2)
pey	738.18	MPa	Euler strength	(App.C.1)
Fly	594.72	MPa	Fi coefficient for calculating pc	(App.C.1)
pcy	292.01	MPa	Critical compression strength	(App.C.1)
Pcy	10745.84	kN	Compressive strength	(4.7.4)

About the Z axis of cross-section

Lz	27.40	m	Member theoretical length	(4.7.1)
Lez	23.40	m	Member effective length	(4.7.2)
LAz	32.83		Member slenderness	(4.7.3.1)
az	5.50		Robertson constant	(App.C.2)
nz	0.10		Perry factor	(App.C.2)
pez	1877.65	MPa	Euler strength	(App.C.1)
Flz	1207.86	MPa	Fi coefficient for calculating pc	(App.C.1)
pcz	317.71	MPa	Critical compression strength	(App.C.1)
Pcz	11691.87	kN	Compressive strength	(4.7.4)

Lateral buckling analysis parameters

Le	23.40	m	Member lateral buckling effective length	(4.3.5)
LAe	32.83		Lateral buckling slenderness	(4.3.7.5)
n	1.00		Slenderness correction factor	(Table 13)
GAlpha	-0.86		Coefficient for calculating u	(App.B.2.5.1)

Symbol	Values	Unit	Symbol description	Section
u	1.01		Buckling parameter	(App.B.2.5.1)
x	32.64		Section torsional index	(App.B.2.5.1)
PSi	0.00		Section monosymmetry index	(App.B.2.5.1)
N	0.50		Coefficient for calculation of v	(App.B.2.5.1)
v	0.99		Coefficient related to member slenderness	(App.B.2.5.1)
LAlt	32.85		Equivalent slenderness	(App.B.2.5.1)
LAI0	30.20		Limiting equivalent slenderness	(App.B.2.5.1)
nlt	0.02		Perry factor	(App.B.2.3)
Me	46680.29	kN*m	Elastic critical moment	(App.B.2.2)
FIB	28193.55	kN*m	Coefficient for calculating Mb	(App.B.2.2)
Mb	8642.44	kN*m	Lateral torsional buckling resistance moment	(App.B.2.2)

Internal forces in characteristic points of a section

Fc	1514.77	kN	Axial compressive force Ft	(4.7)
my	1.00		Coefficient for equivalent M_y moment	(4.3.7.6)
My	367.29	kN*m	Bending moment My	(4.2)

Limit forces

Pc	13064.00	kN	Member compression resistance	(4.7.4)
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About the Y axis of cross-section

Mcy	7723.72	kN*m	Moment capacity with shear load	(4.2.5)
Mey	7723.72	kN*m	Elastic capacity moment	(4.2.5)

Ratio:

RAT	0.18		Efficiency ratio	Section OK
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