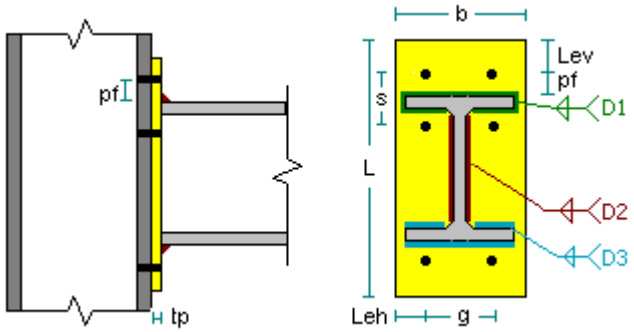
CONEXIÓN VIGA-COLUMNA IPE 240

Data

Connection ID : 3

GENERAL INFORMATION

Connector



MEMBERS

Configuration

Exists opposite connection	:	No

Beam

General

Beam type	:	Prismatic member
Beam section	:	IPE 240
Beam material	:	A572 Gr50
Horizontal angle (deg)	:	0
Vertical angle (deg)	:	0
Include beam stiffener	:	No

Column

General

Support section	:	IPE 240
Support material	:	A572 Gr50
Column end	:	Yes

MOMENT END PLATE

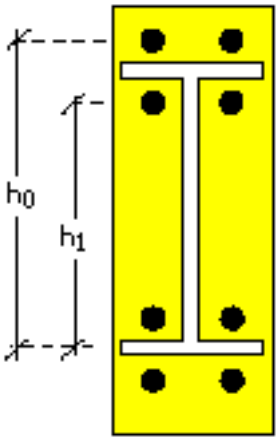
Connector

Four/Eight bolts on tension	:	4 tension bolts
B: Width	:	120 mm
L: Length	:	400 mm
tp: Plate thickness	:	10 mm
Plate material	:	A36
Fy	:	0.248 kN/mm2
Fu	:	0.4 kN/mm2
Hole type on plate	:	Standard (STD)

Beam side

Top flange weld type	:	Full penetration
D1: Weld size to top beam flange (1/16in)	:	4
Bottom flange weld type	:	Fillet
Bottom beam flange weld	:	E70XX
D3: Weld size to bottom beam flange (1/16in)	:	3
Welding electrode to beam web	:	E70XX
D2: Weld size to beam web (1/16in)	:	3

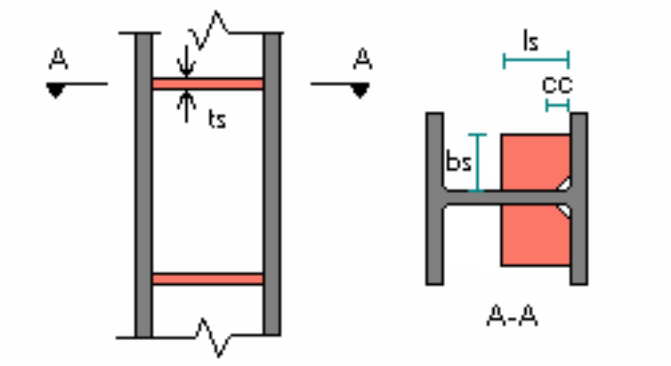
Support side



Bolts	:	1/2" A325 N
Hole type on support	:	Standard (STD)
g: Gage - transverse center-to-center spacing	:	70 mm
Lev: Vertical edge distance	:	40 mm
Leh: Horizontal edge distance	:	31.75 mm
pfi: Distance from first interior bolt centerline to the ...	:	40 mm
pfo: Distance from the outer bolt centerline to the b...	:	40 mm
Distance to bolt H0	:	275.1 mm
Distance to bolt H1	:	185.3 mm

STIFFENERS

Transverse stiffeners



Section	:	PL 12.7x55x220.4
Position	:	Both
Full depth	:	Yes
Length	:	220.4 mm
bs: Transverse stiffeners width	:	55 mm
cc: Corner clip length	:	25.4 mm
cc: Corner clip width	:	25.4 mm
ts: Transverse stiffener thickness	:	12.7 mm
Material	:	A36
Weld type	:	Full penetration

Column web panel zone stiffeners

Stiffener type	:	Without stiffener

Results

DEMANDS

	Beam			Right beam		Left beam		Column	Panel	
Description	**Ru**	**Pu**	**Mu**	**PufTop**	**PufBot**	**PufTop**	**PufBot**	**Pu**	**Vu**	**Load type**
	[KN]	[KN]	[KN*m]	[KN]	[KN]	[KN]	[KN]	[KN]	[KN]	

Wu	-2.65	2.00	-3.90	17.94	-15.94	0.00	0.00	-11.10	16.34	Design

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
Extended end plate						
Vertical edge distance	[mm]	40.00	19.05	120.00	✔	Sec. J3.5
Horizontal edge distance	[mm]	31.75	19.05	120.00	✔	Sec. J3.5
Vertical bolt spacing (external flange)	[mm]	89.80	33.87	--	✔	Sec. J3.3
Vertical bolt spacing (internal flange)	[mm]	89.80	33.87	--	✔	Sec. J3.3
Horizontal center-to-center spacing (gage)	[mm]	70.00	61.60	120.00	✔	Sec. J3.3, DG4 Sec. 2.4, DG4 Sec. 2.1, 2.4, DG16 Sec. 2.5
Outer bolt distance (external flange)	[mm]	40.00	25.40	--	✔	DG4 Sec. 2.1
Inner bolt distance (external flange)	[mm]	40.00	25.40	--	✔	DG4 Sec. 2.1
Outer bolt distance (internal flange)	[mm]	40.00	25.40	--	✔	DG4 Sec. 2.1
Inner bolt distance (internal flange)	[mm]	40.00	25.40	--	✔	DG4 Sec. 2.1
Bolt diameter	[mm]	12.70	--	38.10	✔	DG4 Sec. 1.1
Beam						
Weld size (internal flange)	[1/16in]	3	3	--	✔	table J2.4
Web	[1/16in]	3	2	--	✔	table J2.4
Support						
Horizontal edge distance	[mm]	25.00	19.05	117.60	✔	Sec. J3.5
Transverse stiffeners						
Length	[mm]	220.40	110.20	--	✔	Sec. J10.8
Width	[mm]	55.00	41.40	--	✔	Sec. J10.8
Thickness	[mm]	12.70	5.00	--	✔	Sec. J10.8

PLATE / COLUMN BEHAVIOR

Global critical strength ratio	**0.88**

DESIGN CHECK

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Moment end plate (external flange)						
Flexural yielding	[KN*m]	29.35	4.13	DL	0.14	DG4 Eq. 3.10, Sec. 2.2.3
No prying bolt moment strength	[KN*m]	54.19	4.13	DL	0.08	DG4 Eq. 3.7, Eq. 3.8, DG4 Eq. 3.7
Bolts shear	[KN]	141.24	0.00	DL	0.00	Tables (7-1..14)
Bolt bearing under shear load	[KN]	365.66	2.65	DL	0.01	Eq. J3-6
Shear yielding	[KN]	178.93	8.97	DL	0.05	DG4 Eq. 3.12
Shear rupture	[KN]	183.10	8.97	DL	0.05	DG4 Eq 3.14, AISC 358-05 Eq. 6.9-12, DG4 Eq. 3.13
Moment end plate (internal flange)						
Flexural yielding	[KN*m]	29.35	0.00	DL	0.00	DG4 Eq. 3.10, Sec. 2.2.3
No prying bolt moment strength	[KN*m]	54.19	0.00	DL	0.00	DG4 Eq. 3.7, Eq. 3.8, DG4 Eq. 3.7
Bolts shear	[KN]	141.24	2.65	DL	0.02	Tables (7-1..14)
Bolt bearing under shear load	[KN]	365.66	2.65	DL	0.01	Eq. J3-6
Shear yielding	[KN]	178.93	7.97	DL	0.04	DG4 Eq. 3.12
Shear rupture	[KN]	183.10	7.97	DL	0.04	DG4 Eq 3.14, AISC 358-05 Eq. 6.9-12, DG4 Eq. 3.13

Beam						
Web weld shear strength	[KN]	139.26	2.65	DL	0.02	Eq. J2-4
Web weld strength to reach yield stress	[KN/m]	2194.16	1923.63	DL	0.88	Eq. J2-4, Eq. J4-1
Shear yielding	[KN]	307.78	2.65	DL	0.01	Eq. J4-3
Support						
Flexural yielding (external flange)	[KN*m]	59.15	4.13	DL	0.07	DG4 Eq. 3.20, Sec. 2.2.3
Support bolt bearing (external flange)	[KN]	401.60	2.65	DL	0.01	Eq. J3-6
Flexural yielding (internal flange)	[KN*m]	65.21	0.00	DL	0.00	DG4 Eq. 3.20, Sec. 2.2.3
Support bolt bearing (internal flange)	[KN]	401.60	2.65	DL	0.01	Eq. J3-6
Panel web shear	[KN]	277.00	16.34	DL	0.06	Sec. J10-6, Eq. J10-9
Support - right side						
Local web yielding	[KN]	369.29	17.94	DL	0.05	DG4 eq. 3.24, DG13 Eq. 4.3-1, Sec. J10
Transverse stiffeners - top						
Yielding strength due to axial load	[KN]	167.95	0.00	DL	0.00	Eq. J4-1
Compression	[KN]	154.98	0.00	DL	0.00	Sec. J4.4
Transverse stiffeners - bottom						
Yielding strength due to axial load	[KN]	167.95	0.00	DL	0.00	Eq. J4-1
Compression	[KN]	154.98	0.00	DL	0.00	Sec. J4.4