

# CONEXIÓN IPE 300 A CONCRETO

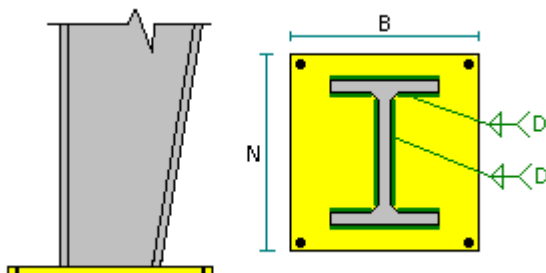
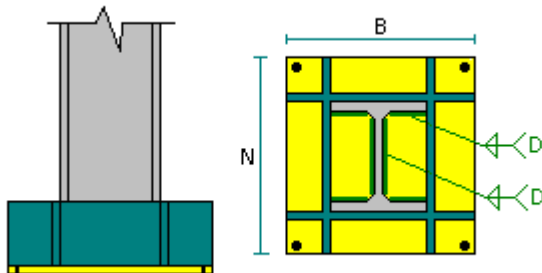
## Data

Connection name : Fixed uniaxial major axis BP  
Connection ID : 5

Family: Column - Base (CB)  
Type: Base plate

## GENERAL INFORMATION

### Connector



## MEMBERS

### Column

Column type : Prismatic member  
Section : IPE 300  
Material : A572 Gr50

## CONNECTOR

### Base plate

Connection type : With stiffener plates  
Position on the support : Center  
N: Longitudinal dimension : 450 mm  
B: Transversal dimension : 330 mm  
Thickness : 31 mm  
Material : A572 Gr50  
Column weld : E70XX  
Outer welds flanges only : No  
D: Column weld size (1/16 in) : 8  
Override A2/A1 ratio : No  
Include shear lug : No

### Support

With pedestal : No

Transverse [mm]	Longitudinal [mm]
115.00	59.00
115.00	175.00
39.00	175.00
-115.00	59.00
-115.00	175.00
115.00	-175.00
-115.00	-175.00
115.00	-59.00
-115.00	-59.00
-39.00	175.00
0.00	-175.00

<u>Anchor reinforcement</u>		
Type of reinforcement	:	Primary
Tension reinforcement	:	Yes
Tension bar size	:	no. 7
Tension bar grade	:	0.42 kN/mm <sup>2</sup>
Tension number of bars	:	4
Shear reinforcement	:	Yes
Shear bar size	:	no. 3
Shear bar grade	:	0.42 kN/mm <sup>2</sup>
Shear number of bars in major axis direction	:	3
Shear number of bars in minor axis direction	:	3

**Connection name** : Fixed uniaxial major axis BP  
**Connection ID** : 5

## DEMANDS

Description	Pu [KN]	Mu22 [KN*m]	Mu33 [KN*m]	Vu2 [KN]	Vu3 [KN]	Load type
Wu	-7.50	0.00	135.62	108.36	0.00	Design

**Design for major axis  
Base plate (AISC 360-16 LRFD)**

**GEOMETRIC CONSIDERATIONS**

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<u>Base plate</u>						
Distance from anchor to edge	[mm]	40.47	6.35	--	✓	
Weld size	[1/16in]	8	3	--	✓	table J2.4

**DESIGN CHECK**

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
<u>Concrete base</u>						
Axial bearing	[KN/mm2]	0.03	0.025	DL	0.98	DG1 3.1.1;
<u>Base plate</u>						
Flexural yielding (bearing interface)	[KN*m/m]	112.00	69.14	DL	0.62	DG1 Eq. 3.3.13, DG1 Sec 3.1.2
Flexural yielding (tension interface)	[KN*m/m]	112.00	34.60	DL	0.31	DG1 Eq. 3.3.13
<u>Column</u>						
Weld capacity	[KN/m]	2925.55	1384.06	DL	0.47	p. 8-9, Sec. J2.5, Sec. J2.4, DG1 p. 35
Elastic method weld shear capacity	[KN/m]	1950.37	191.79	DL	0.10	p. 8-9, Sec. J2.5, Sec. J2.4
Elastic method weld axial capacity	[KN/m]	2925.55	1485.74	DL	0.51	p. 8-9, Sec. J2.5,
<b>Ratio</b>	<b>1.00</b>					

**Major axis  
Anchors**

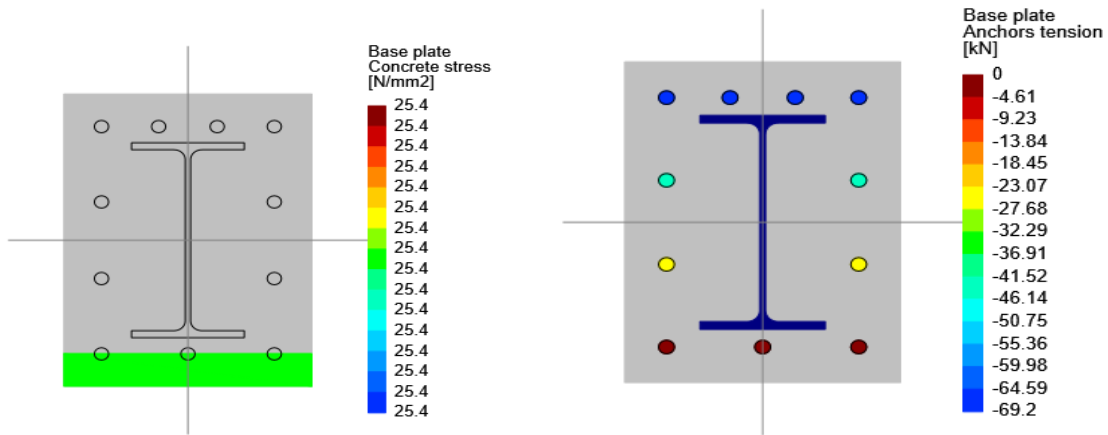
**GEOMETRIC CONSIDERATIONS**

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<u>Anchors</u>						
Anchor spacing	[mm]	76.00	76.00	--	✓	Sec. D.8.1
Concrete cover	[mm]	150.48	76.20	--	✓	Sec. 7.7.1
Effective length	[mm]	412.38	--	537.62	✓	
<b>Ratio</b>	<b>1.14</b>					

**DESIGN CHECK**

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Anchor tension	[KN]	64.72	63.20	DL	0.98	Eq. D-3
Pullout of anchor in tension	[KN]	95.33	69.20	DL	0.73	Sec. D.3.3.3
Group of Anchors reinforcement in tension	[KN]	1219.35	415.05	DL	0.34	Sec. D.5.2.9, D.6.2.9
Anchor shear	[KN]	34.01	8.67	DL	0.25	Eq. D-20, DG1 Sec 3.5.1
Pryout of anchor in shear	[KN]	208.97	8.67	DL	0.04	Eq. D-4, Sec. D.3.3.3
Pryout of group of anchors in shear	[KN]	235.64	69.35	DL	0.29	Eq. D-5, Sec. D.3.3.3
Group of Anchors reinforcement in shear	[KN]	111.77	95.36	DL	0.85	Sec. D.5.2.9, D.6.2.9
Interaction of tensile and shear forces	[KN]	1.38	1.36	DL	0.98	Eq. D-3, Sec. D.3.3.3, Eq. D-20, DG1 Sec 3.5.1,
<b>Global critical strength ratio</b>	<b>0.98</b>					

**Major axis  
Maximum compression and tension (DL)**



Maximum bearing pressure	25.40	[N/mm2]
Minimum bearing pressure	25.40	[N/mm2]
Maximum anchor tension	69.20	[kN]
Minimum anchor tension	0.00	[kN]
Neutral axis angle	0.00	
Bearing length	50.42	[mm]

#### Anchors tensions

Anchor	Transverse [mm]	Longitudinal [mm]	Shear [kN]	Tension [kN]
1	115.00	59.00	8.67	46.24
2	115.00	175.00	8.67	69.20
3	39.00	175.00	8.67	69.20
4	-115.00	59.00	8.67	46.24
5	-115.00	175.00	8.67	69.20
6	115.00	-175.00	8.67	0.00
7	-115.00	-175.00	8.67	0.00
8	115.00	-59.00	8.67	22.88
9	-115.00	-59.00	8.67	22.88
10	-39.00	175.00	8.67	69.20
11	0.00	-175.00	8.67	0.00