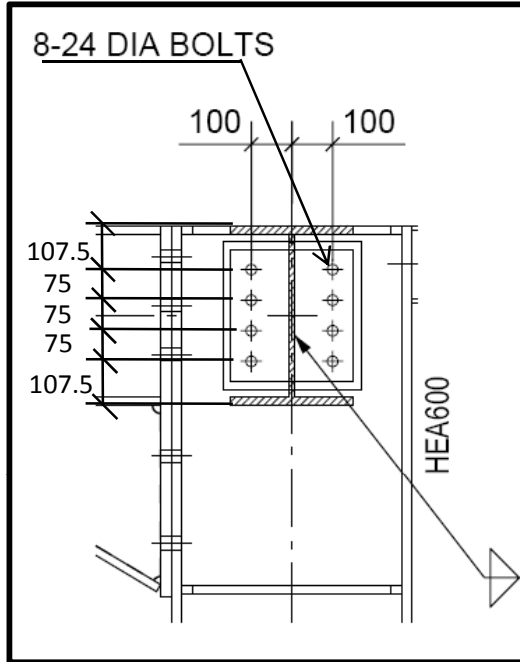
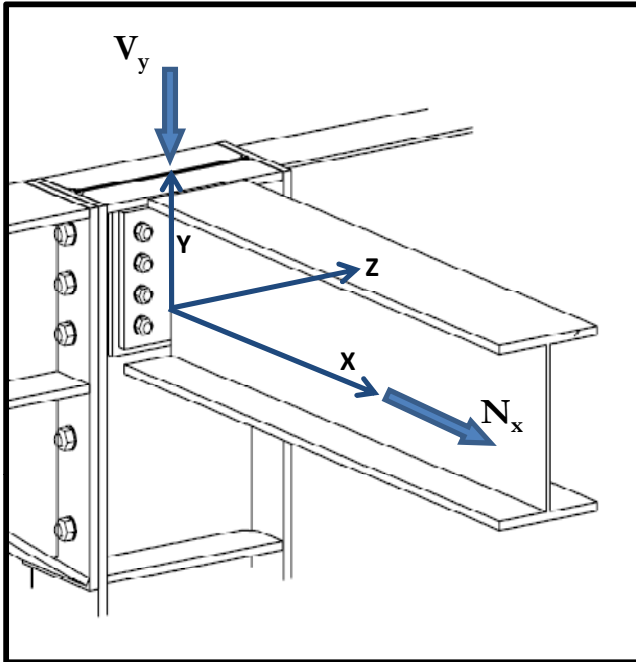


PR 9m (AISC 360-2005) : Identity Card for Joint-J11 (Shear Connection)



Joint Details			
Type	Column	Beam	
Shear Connection	HE 600 A	HE 450 A	
Weight			
(kg)	Bolt Dia	Bolt Nos.	End Plate
37.85	24 mm	8	24 mm

Sign Convention	
Nx	Axial force along X-axis (tension is positive)
Vy	Shear along Y-axis (downward is positive)

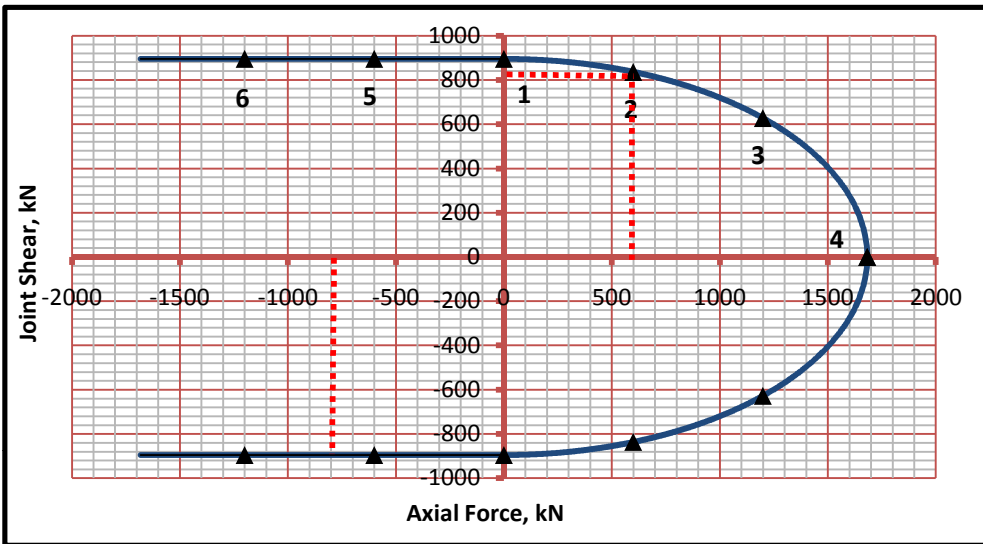


Chart 1:
Interaction Diagram - Shear vs Tension

Joint Capacity		
Point	Nx (kN)	Vy (kN)
1	0.00	895.73
2	600.00	836.87
3	1200.00	628.00
4	1682.89	0.00
5	-600.00	895.73
6	-1200.00	895.73
-ve directions		
Point	Nx (kN)	Vy (kN)
1	0.00	-895.73
2	600.00	-836.87
3	1200.00	-628.00
4	1682.89	0.00
5	-600.00	-895.73
6	-1200.00	-895.73

Conditions of Validity of Curve

1. Vz, My, and Mx are negligible
2. End plate thickness minimum 24mm
3. Weld thickness minimum 6mm
4. Bolts are ASTM A325 M-N
5. Plates are ASTM A572M A345
6. Design is as per LRFD method, AISC 360-2005. Resistance factor is included in joint capacity.
7. Joint weight comprises weights of end plate and stiffeners only
8. 20 thk doubler plates to be provided on column web

Explanatory Notes for Interaction Curves

Example 1:

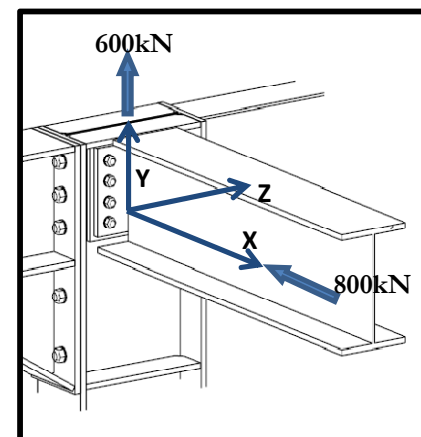
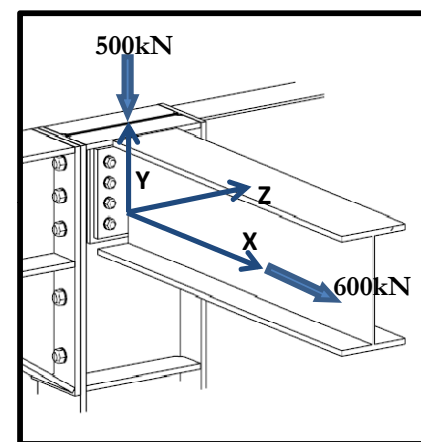
Axial Force: 600 kN tensile, hence positive
 Shear Force: 500 kN downwards, hence positive

From Chart 1,
 For tensile force of 600kN, Shear capacity is 836 kN
 Hence the joint is safe in shear

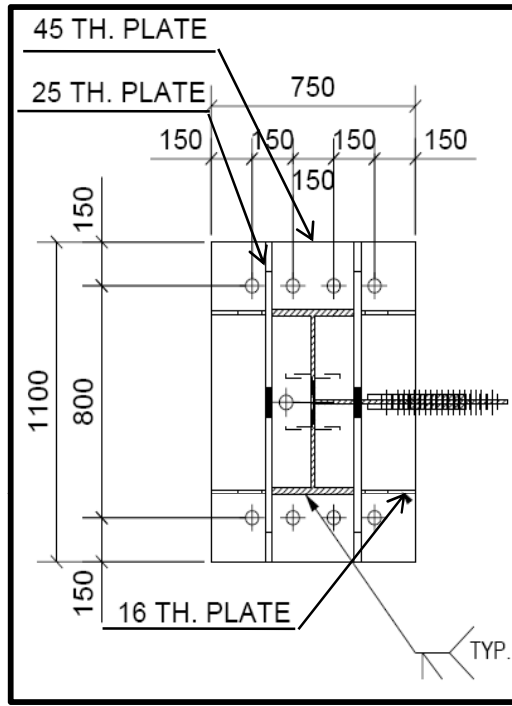
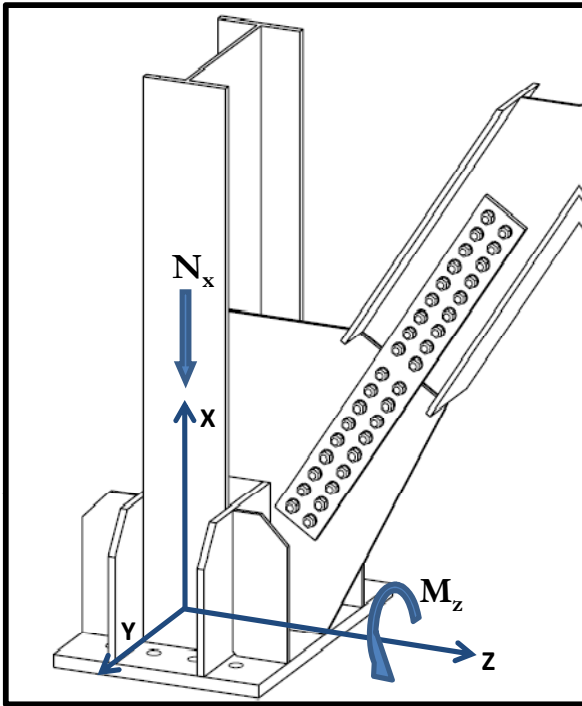
Example 2:

Axial Force: -800 kN compressive, hence negative
 Shear Force: -600 kN upwards, hence negative

From Chart 1,
 For compressive force of -800kN, Shear capacity is -895 kN
 Hence the joint is safe in shear



PR 9m (AISC 360-2005) : Identity Card for Joint-J17 (Base Plate - Braced Bay)



Joint Details

Type	Column	Type
Shear Connection	HE 650 A	Fixed
Weight		
(kg)	Bolt Dia	Bolt Nos.
507.31	38 mm	4 x 2
		Base Plate
		45 mm

Sign Convention

Nx Axial force along X-axis (compression is positive)
Mz Moment around Z-axis
(looking along z-axis, clockwise is positive)

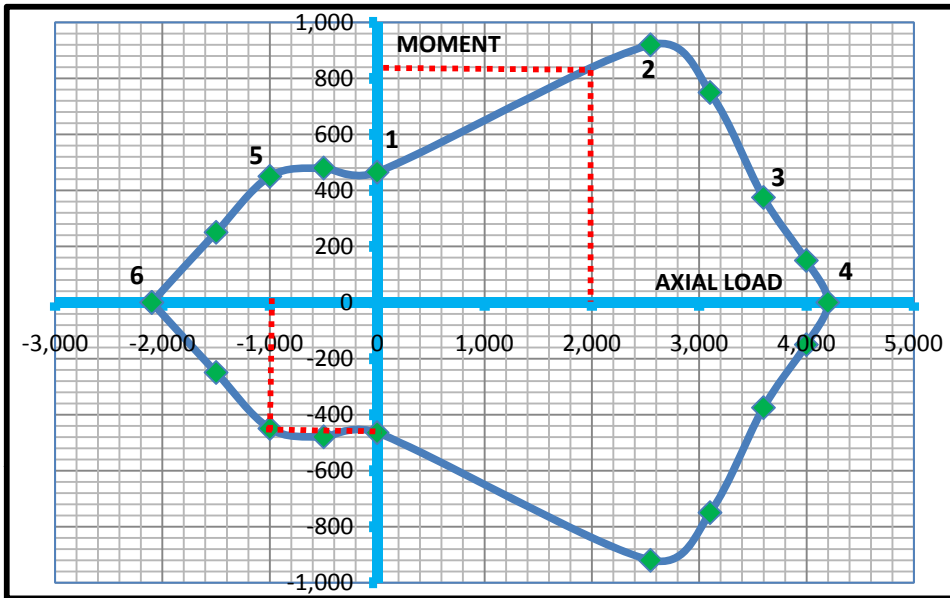


Chart 1:
Interaction Diagram - Shear vs Tension

Joint Capacity

Point	Nx (kN)	Mz (kNm)
1	0.00	465.00
2	2545.00	920.00
3	3600.00	375.00
4	4200.00	0.00
5	-1000.00	450.00
6	-2100.00	0.00

-ve directions

Point	Nx (kN)	Mz (kNm)
1	0.00	-465.00
2	2545.00	-920.00
3	3600.00	-375.00
4	4200.00	0.00
5	-1000.00	-450.00
6	-2100.00	0.00

Conditions of Validity of Curve

1. My, and Mx are negligible
2. Vy and Vz are resisted by shear keys
3. Base plate thickness minimum 45mm
4. Bolts are ASTM A307 M-N
5. Plates are ASTM A572M A345
6. Design is as per LRFD method, AISC 360-2005. Resistance factor is included in joint capacity.
7. Joint weight comprises weights of base plate and stiffeners only

Explanatory Notes for Interaction Curves

Example 1:

Axial Force: 2000 kN compressive, hence positive
Moment: 600 kNm clockwise, hence positive

From Chart 1,

For compressive force of 2000kN, moment capacity is 820 kN
Hence the joint is safe for moment

Example 2:

Axial Force: -1000 kN tensile, hence negative
Moment: -300 kNm anti-clockwise, hence negative

From Chart 1,

For tensile force of -1000kN, moment capacity is -450 kN
Hence the joint is safe for moment

