

1 Input Parameters

Module	Tension Member Design - Bolted to End Gusset
Axial (kN)*	76.0
Length (mm) *	1250.0
Section Profile*	Angles
Section Size*	Ref List of Input Section
Section Material	E 250 (Fe 410 W)A
Ultimate Strength, F_u (MPa)	410
Yield Strength, F_y (MPa)	250
Bolt Details - Input and Design Preference	
Diameter (mm)	[8]
Property Class	[4.6]
Type	Bearing Bolt
Hole Type	Standard
Detailing - Design Preference	
Edge Preparation Method	Sheared or hand flame cut
Are the Members Exposed to Corrosive Influences?	False
Plate Details - Input and Design Preference	
Thickness (mm)	[8, 10, 12, 14, 16, 18, 20, 22, 25, 28, 32, 36, 40, 45, 50, 56, 63, 75, 80, 90, 100, 110, 120]
Material	E 250 (Fe 410 W)A

2 Spacing Check

Check	Required	Provided	Remarks
Min. Diameter (mm)		$d = 8$	
Hole Diameter (mm)		$d_0 = 8$	
Minimum Bolts (nos)		$r_l = 1$	

Check	Required	Provided	Remarks
Min. Gauge Distance (mm)	$p/g_{\min} = 2.5d$ $= 2.5 \times 8.0$ $= 20.0$ [Ref. IS 800:2007, Cl.10.2.2]	0.0	
Min. Edge Distance (mm)	$e_{\min} = 1.5d_0$ $= 1.5 \times 8$ $= 12.0$ [Ref. IS 800:2007, Cl.10.2.4.2]	15	
Spacing Check	$\text{depth} = 2e + (r_l - 1)g$ $= 2 \times 15 + (1 - 1) \times 20$ $= 30$	29.5	Fail

3 Member Check

Check	Required	Provided	Remarks
Tension Yielding Capacity (kN)		$T_{dg} = \frac{A_g f_y}{\gamma_{m0}}$ $= \frac{381.0 \times 250}{1.1 \times 10^3}$ $= 86.59$ [Ref. IS 800:2007, Cl.6.2]	
Slenderness	$\frac{KL}{r} \leq 400$	$\frac{KL}{r} = \frac{1 \times 1250.0}{7.8}$ $= 160.26$ [Ref. IS 800:2007, Cl.7.1.2]	Pass