

Lug angles

Lug angles are sometimes used to reduce the length of connections. Figure below shows the lug angle connection with single or a channel type of tension member.

Due to the possible deformation of the outstanding leg of the lug angle, the rivets connecting the gusset plate with the lug angle will share less load than the rivets connecting the main member with the gusset plate.

The India Standard IS 800 specifies the following for the design of lug angles:

- Lug angles connecting a channel-shaped member should as far as possible, be disposed symmetrically with respect to the section of the member.
- In the case of angle members, the lug angles and their connections to the gusset or any other supporting member should be capable of developing a strength not less than 20% in excess of the force in the outstanding leg of the angle and the attachment of the lug angle member should be capable of developing a strength 40% in excess of that force.
- In the case of channel sections, the lug angles and their connections to the gusset or any other supporting member should be capable of developing a strength of not less than 10% in excess of the force not accounted for by the direct connection of the member, and the attachment of the lug angles to the member should be capable of developing a strength 20% in excess of that force.
- In no case should fewer than two bolts or rivets be used for attaching the lug angle, to the gusset or another supporting member.
- The effective connection of the lug angle should, as far as possible, terminate at the end of the member connected and the fastening of the lug angle to the

member should preferably start in advance of the direct connection of the member to the gusset or other supporting member.

Where lug angles are used to connect an angle member, the whole area of the member should be taken as effective, i.e.

$$A(\text{net}) = \text{Gross area} - \text{deduction for holes}$$

