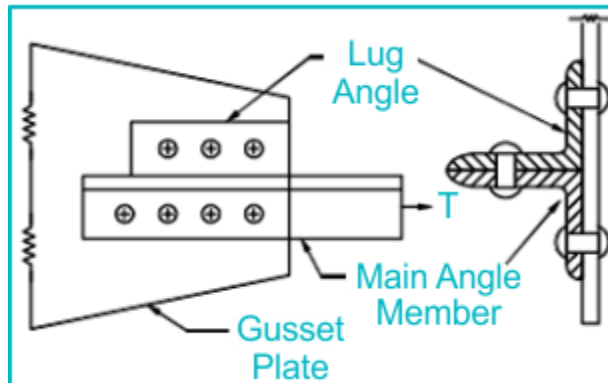


2.3 LUG ANGLE



The lug angle serves as a compact angle piece strategically employed to link the outstand legs of members to the gusset plate in steel structures. Its primary objectives are to minimize the overall length of the connection to the gusset plate and mitigate the shear lag effect. This essential structural element contributes to the efficiency of connections by streamlining design and optimizing load-bearing capabilities.

Design Specifications of Lug Angles as per IS 800

IS 800 provides insights into the Design Specifications of Lug Angles. These encompass the following::

- According to the Indian Standard IS 800, lug angles connecting a channel-shaped member should ideally be symmetrically disposed concerning the section of the member.
- For angle members, the lug angles and their connections to the gusset or any supporting member should develop a strength not less than 20% in excess of the force in the outstanding leg, with the attachment capable of developing a strength 40% in excess of that force.
- In the case of channel sections, lug angles and their connections should develop a strength not less than 10% in excess of the unaccounted force, and

the attachment of lug angles to the member should develop a strength 20% in excess of that force.

- A minimum of two bolts or rivets should be used for attaching the lug angle to the gusset or another supporting member in all cases.
- The effective connection of the lug angle should preferably terminate at the end of the connected member, with the fastening starting before the direct connection of the member to the gusset or supporting member.
- When lug angles connect an angle member, the whole area of the member is considered effective, calculated as :

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

Advantages of Lug Angles

The various advantages of Lug Angles are:

- Lug angles enhance structural connections by reducing their overall length.
- Effective in mitigating shear lag effects for improved load-bearing capabilities.
- Ensures efficient load transfer between members and gusset plates in steel structures.
- Contributes to the stability of steel frameworks by providing a reliable linkage.
- Contributes to streamlined design and efficient optimization of load-bearing capacities in structural connections.

Applications of Lug Angle

The applications of Lug angles are:

- Used in steel structures to reinforce and optimize connections between members and gusset plates.
- Applied to enhance load-bearing capabilities by providing a compact and efficient linkage.
- Employed to mitigate shear lag effects, ensuring effective load transfer.
- Contributes to the overall stability of frameworks through secure linkages.
- Facilitates a streamlined design approach, particularly in minimizing connection lengths.