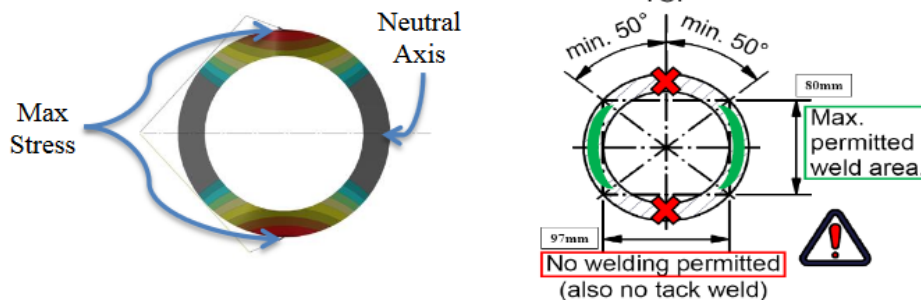


Can I weld bump stops and brackets to the axle beam?

Brackets can be welded to the axle but they cannot be welded in the top or bottom 100 degrees of the axle beam. Welding in this area can weaken or even break the axle beam. If in doubt contact Granning Engineering eds@granningaxles.ie

Beam Stresses

Granning Axle beams are manufactured from high tensile, hot rolled hollow tube. In service these beams are subjected to combined bending and torsional stresses. Maximum combined stresses occur along the top and lower surface of the beam. The minimum stresses occur along the front and rear centre line, called the neutral axis. It is an accepted fact that welding steel causes a heat effected zone which embrittles the metal in that area. Therefore, any welding on the axle beam must always be away from the high stress lines and near to the neutral axis.



Effects of Beam Welding

When a weld is made on the beam, it creates in effect an area of extreme localised heat treatment. The heat generated by the welding process will cause the beam material, within the immediate vicinity of the weld, to become hardened. This results in a small area of brittleness replacing the required property of ductility. It can be seen that should an area of localised hardening appear at either point of maximum stress, the strength of the beam could seriously be affected. Therefore any welding must be in the neutral zone, ie not in top or lower 100 degrees.

Welding precautions

- Connect the earth directly to the work piece. Not to suspension spring.
- NEVER weld to the upper or lower surfaces of the axle.
- Confine welds to axle surfaces not exceeding 40° above or below the horizontal.
- Remove oil and paint from areas to be welded.
- As far as possible, try to avoid overheating the axle.
- Protect the spring Beam / Leaf and rubber components from weld splatter.
- Welds must contain NO voids, craters, inclusions or cracks.
- When ambient conditions are below 20°C, preheat the weld areas.

