

Serrations

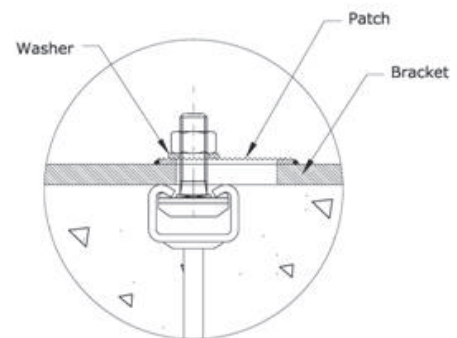
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Serrations are a means of combining tolerance capability with fixity. They are generally used where a force is to be resisted in the direction of a tolerance slot.

The system consists of two faces in direct contact, each of which has a series of grooves cut into the surface. It is very wasteful and expensive to form these grooves across the full width of a bracket etc, and it is usually far cheaper to cut them into a pad, which is then welded to the bracket. Welding should only take place at the ends of a patch since it could prevent proper seating of the washer if applied along the edges.



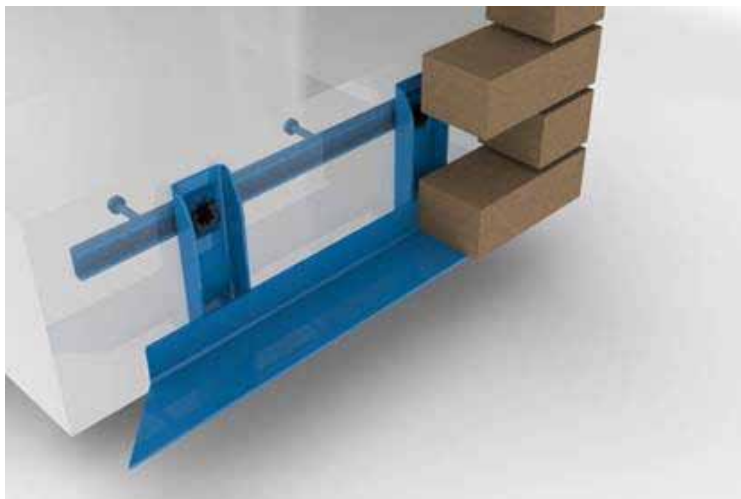
It must also be remembered that serrations cut into an angle will weaken it, and this is avoided by using a patch. The patch has the same size of tolerance slot as the bracket to which it is welded. The other serrated face is usually in the form of a square washer with a round, clearance hole as shown right.



The washer has serrations matching those on the patch. Typically the pitch of serration grooves is 3mm for all diameters of fixing bolt. The height of serration is 1.5mm meaning that the slope is 45°. The plate from which the patch is made is about 4mm thick. These are only 'typical' figures, and there are no set rules controlling this. It is vital therefore to ensure that both the patch and the washer come from the same supplier to ensure that they match. A visual check should always be made that the two sets of serrations are fully interlocked.

Serrated connections must always be torqued up, and they do not become effective until this is done. They cannot therefore normally be used as an adjustable fixing during erection.

Torque values are as for a normal connection. No account needs to be made of friction, or perpendicular components of loads.



Using a vertically slotted hole with serrated patch, and a horizontal channel gives all round tolerance.

Serrated fixings are frequently used in vertical supports of relatively light elements such as natural stonework construction and brick support systems.

