

Materials, anchors and channel fabrications

Hot rolled or cold formed

Halfen channels are manufactured by both processes. Hot rolled channels are better for dynamic loads, because the material has no locked-in stress. Cold formed channels are ideal for static loads and for economy.

Channels

Channels are rolled from mild steel (i.e. carbon steel) Grade S 235 or S 275 and are finished hot dip galvanised (hdg) to BS EN ISO 1461. Some channels for mechanical services are normally pre-galvanised to BS EN 10142 Z275.

Channels are also rolled in austenitic stainless steel, and most are available in two grades, A2 and A4.

Grade A2 (1.4301) approximates to UK Standard 304: it has good resistance to corrosion in all but the most aggressive atmospheres, and is the industry standard for building fixings and assemblies.

For some applications the higher grade stainless steel may be required: Grade A4 (1.4571/1.4401) approximates to UK Standard 316. It contains molybdenum which gives the surface greater resistance to surface pitting/staining and is therefore more suitable for use where components are to be polished or used in an aggressive atmosphere. However, a marine environment may require special consideration.

For full details of steel grades, if required, please contact Halfen Limited.

T-head bolts

Halfen bolts are drop-forged so that the T-head and the shank are formed in one. They are made in either carbon steel or stainless steel. Carbon steel bolts are normally finished bright zinc plated (bzp) to provide a 12 micron zinc coating to BS 3382: Part 2: 1961. Some bolts are available in a higher grade special coating, please consult Halfen Limited. Bolts available hot dip spun galvanised (hdg) to BS EN ISO 1461 are shown in the tables, but the whole range can be hot dip spun galvanised to order, subject to shank diameter. Carbon steel grades are either 4.6 or 8.8.

Stainless steel bolts are available in Grade A2 (304), which is suitable for most applications. They are also available in High Grade A4 (316), if required for onerous conditions. Halfen manufacture two strength property classes, 50 and 70. If details are required, please contact Halfen Limited.

Specifying stainless steel – general note

If the grade of stainless steel is not specified on the order, then Grade A2 (304) will normally be supplied, where available.

Anchors

Halfen channels are rectangular profiles with anchors to provide bond to the concrete. Halfen design and supply the anchors fixed to the backs of the channels. Channel profiles are kept in stock with anchors ready fitted and finished.

Anchor spacing

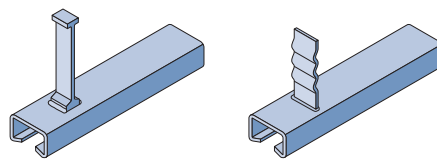
Anchors on standard stock long lengths are attached at 250 mm maximum centres. On standard stock short lengths the anchors are fixed at the centres shown on page 7. On special stock short lengths the anchors can be set out by Halfen to dimensions agreed with the customer. Note: the normal maximum spacing between anchors is 250 mm.

Anchor design/variants

In most cases the anchors supplied are the 'bolt' type, which is fixed to the channel during manufacture by an automated process.

For some purpose-made lengths or fabrications, where 'bolt' anchors cannot be used, 'I' anchors or 'wave' anchors can be supplied, see illustrations below.

(Where V-shaped or low profile anchors are required, see examples on page 28.)



'I' anchor and 'wave' anchor

Channel fabrications

1) Spaced assemblies

Where double or multiple fixings are required at known centres, channels can be welded to spacer straps, as shown below. The straps keep the channels parallel and accurately spaced along their length.

The spacer straps can be extended, as shown, to butt with an adjacent formwork face, and act as a simple setting-out guide. The use of spaced assemblies offers a significant reduction in setting-out time on site.

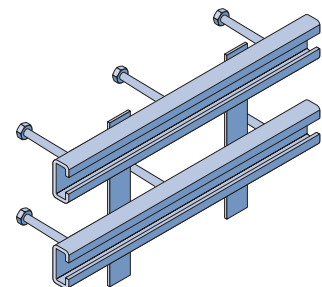
2) Corners

Channels can be easily fabricated to suit corners, see below. (Smaller channels may be folded; larger channels are welded.)

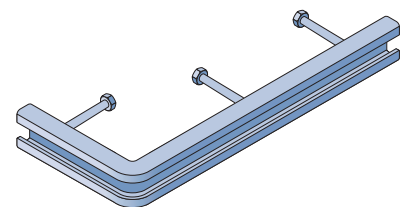
3) Curves

Channels can be easily curved to an internal or external radius (lips inward or lips outward).

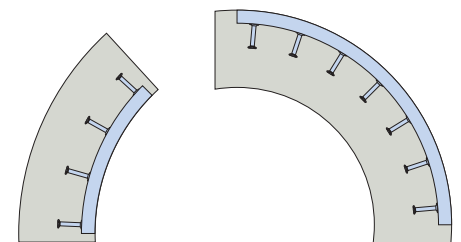
Curves on elevation, such as brick arch details, require special care. Please consult Halfen Limited.



Channel pair (4-bolt connection) fabricated by Halfen to order.



Corner fabricated unit



Curved channels (internal and external radius)