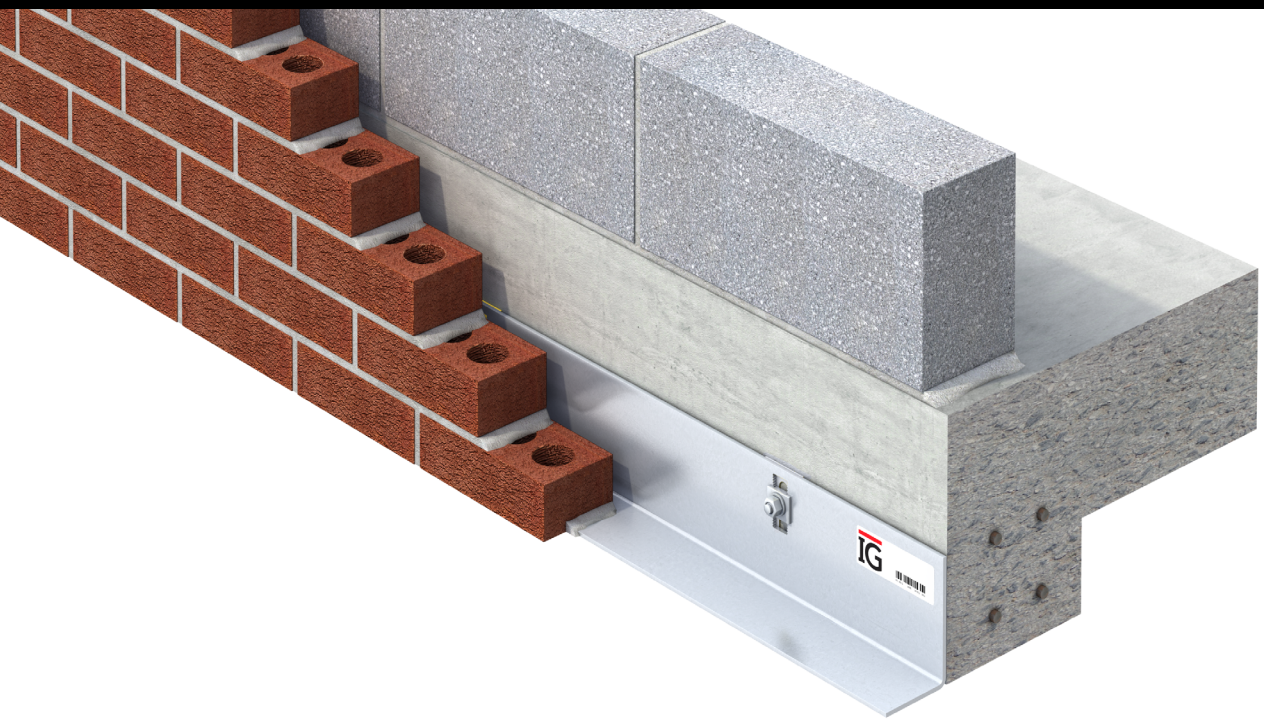
IG Masonry Support

Technical Data Sheet
Folded Angle



Product overview

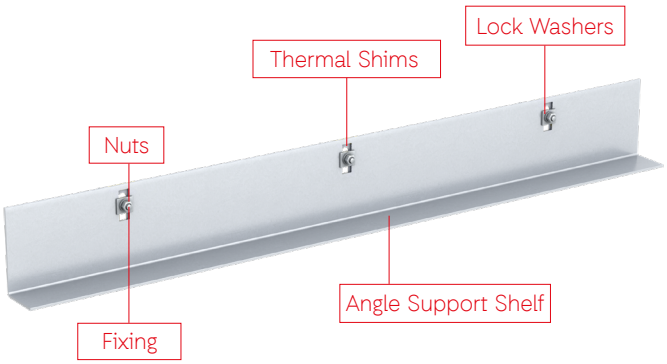
Masonry support is a stainless steel component that transfers the weight of a building's brickwork facade to the building's structure. This reduces the risk of cracking and movement in the facade.

IG's Folded Angle masonry support systems are suitable for applications where the cavity is small (<50mm) or where there is a requirement for the cavity to be closed at the support position. Each system is supplied with lock washers, shims and fixings to aid installation. Folded Angle systems are designed and manufactured to engineers' specifications on a project basis.

Angle support shelves and lock washers are manufactured from either 304/304L Austenitic Stainless Steel (1.4301/1.4307) or 316/316L (1.4401/1.4404) on request. Thermal shims are manufactured from A1 fire-rated composite material and stainless steel shims of various thicknesses are available on request.

Enhanced features

- Stainless steel - A1 fire-rated material
- Suitable for small cavities below 50mm
- Variety of configurations to suit project requirements
- Onsite adjustability on two planes

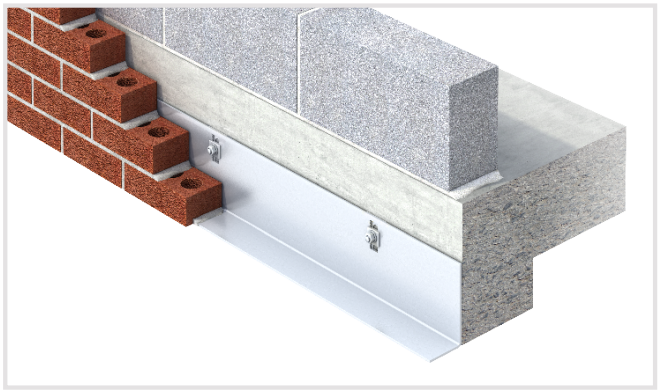


UK CA CE BBA ISO 9001 CERTIFICATE 22/Q6326

Folded Angle configurations

Folded Angle systems are available in two configurations to suit cavity widths ranging up to 50mm and are designed and manufactured to engineers' specifications on a project basis – these are shown below. Folded Angle systems are capable of supporting masonry up to 24 kN/m, depending on cavity width and fixing type.

Figure 1



Folded Angle (Standard)
Suitable for when the horizontal movement joint is below the fixing position.

Figure 2

Folded Angle (Inverted)
Suitable for when the horizontal movement joint is above the fixing position.

A number of other configurations can be supplied to suit particular applications and support special masonry features (e.g. when masonry is curved on plan). Contact our technical team for further information.

Fixing specifications

The fixings are one of the most important components involved in achieving the design capacity of Folded Angle.

It is crucial that fixings are installed in accordance with the manufacturer guidelines and torque settings (see table below), to ensure the design requirements for the product are met. Only fixings specified within this document or provided by IG should be used.

Fixing Specifications			
BOLT TYPE	**FIXING TO**	**DRILL HOLE DIAMETER**	**TORQUE (NM)**
FAZ II 12/20 R	Concrete	12	60
HD Bolt M12x60	Steel	12	30
Set Screw M12x60	Steel	14	73.5
T-Head Bolt	Cast-in Channel	N/A	50

Adjustability

IG's Folded Angle provides adjustability on two planes (Figure 3) to ensure that building tolerances can be accommodated and contact with structural reinforcing bar can be avoided.

(X) Shimming (Y) Vertical Adjustment

Figure 3

Shimming (X)

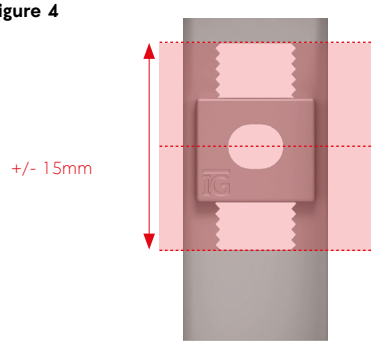
To accommodate a small increase in cavity width, shims can be inserted between the support structure and the Folded Angle system. Thermal shims are provided as standard to reduce thermal bridging in a thickness of 2mm and stainless steel shims are available to order in a range of thicknesses (3,4,5 and 6mm).

- The standard thickness of shim should never exceed the outside diameter of the fixing
- The collective number of shims that can be used should never exceed three
- Shims must support, and come into contact with the full 'Load Bearing Zone' of the system against the support structure
- If thicker shimming is required, please contact our technical team.

Stainless Steel Shim

Thermally Isolated Shim

Figure 4



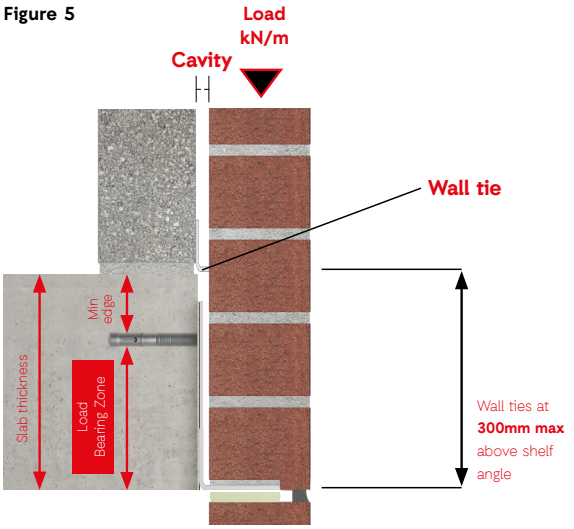
Vertical adjustment (Y)

Vertical adjustment is offered by means of a toothed Lock Washer (Figure 4). This Lock Washer is inserted into the serrated slot in the Folded Angle unit. The Lock Washer can be adjusted vertically to move the unit higher or lower.

The serrated area at the back of the unit allows up to 15mm of adjustment in either direction on the vertical plane.

Note: If the Folded Angle is fixed to the support structure using Cast-in Channel then horizontal adjustment is also provided. Please refer to our Cast-in Channel Technical Data Sheet.

Figure 5



Load Bearing Zone

The angle 'Load Bearing Zone' (ie. the distance between the fixing and the bottom heel of the angle) must have full contact with the support structure and shims.

Reduction of the Load Bearing Zone will reduce the design capacity of the system and may result in fixing failure. Always refer to your Construction Issue Drawings for your project's exact requirements.

Never allow the heel of the angle to project below the support structure. If you require the angle to drop below the support structure, a dropper Folded Angle system is required, please contact our technical team.

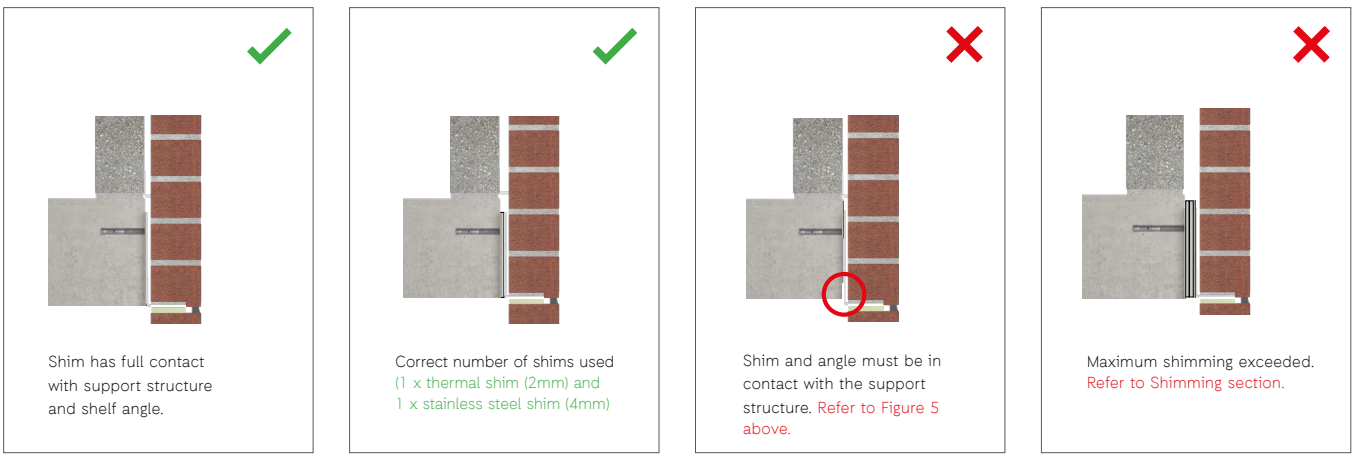
Figure 5 Key	
Load Bearing Zone	The distance between the fixing and the bottom heel of the shelf angle in contact with the backing structure
Slab thickness	The depth of the concrete slab
Cavity	Air space that separates the main structure and the masonry wall
Wall ties	Sometimes called 'brick ties'. Used in buildings with cavity walls to tie the two leaves of a cavity wall together

Positioning the angle

Shelf angles must be installed at the correct level making sure the back of the angle ('Load Bearing Zone') is in full contact with the support structure. Only IG shims can be used with Folded Angle.

Correct and incorrect installation examples are provided in Figure 6.

Figure 6



External corners

When installing Folded Angle at an external corner, please refer to your Construction Issue Drawings for your project's exact requirements.

Brickwork overhang

Brickwork overhang must not exceed 1/3 of the brick width. A minimum masonry bearing of 2/3 on the shelf must be maintained unless otherwise stated by the manufacturer. It is therefore recommended that the bricks are positioned close to the back edge of the shelf angle.

Wall ties

Stainless steel wall ties are crucial to the performance of all masonry support systems. The recommended maximum spacing for wall ties is 450mm horizontally and 300mm vertically above the shelf angle (see Figure 5).

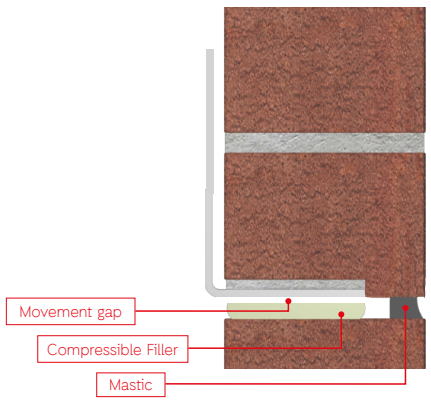
Compressible filler

It is essential that all soft horizontal joints have a compressible filler installed underneath the shelf angle (see Figure 7).

Positioning the shelf

The underside of the shelf angle should be set 2.5mm above the level of the compressible filler (see Figure 7). This will allow for any settlement that may occur as a result of the vertical dead load imposed by the masonry and to accommodate expansion of the brickwork below.

Figure 7



Product design and testing

Masonry support falls within the scope of harmonised European Standard BS EN 1090-1:2009 +A1:2011 Execution of steel structures and aluminium structures: Requirements for conformity assessment of structural components. IG Masonry Support comply with all Construction Product Regulations (CPR), UKCA and CE marking requirements of this Standard, including designs to EN 1993 (Eurocode 3) and external certification of factory production controls by an approved body. The company is certified by the BBA and Eurofins to undertake welded fabrication work to Execution Class 2 according to BS EN 1090-2:2018.

All IG Masonry Support's structural products are designed to meet the durability standard outlined in BS EN 1993-1-4: Eurocode 3 – Design of steel structures.

A1 non-combustible material

All IG Masonry Support's masonry support systems are manufactured from 304/304L Austenitic Stainless Steel (1.4301/1.4307) or 316/316L (1.4401/1.4404) on request. Stainless steel is considered A1 fire-rated without the need for testing in accordance with the guidance of the European Commission Paper 96/603/EC as referenced in BS EN 13501-1:2018. IG Masonry Support's Thermal Shims are A1 fire-rated and have been tested and classified in reaction to fire in accordance with BS EN 13501-1:2018.

Bi-metallic corrosion

Bi-metallic corrosion can occur when stainless steel and carbon steel are in direct contact with each other in a damp environment. This can be avoided by isolating the two metals. IG Masonry Support supply a thermal shim as standard, which must be located between the back of the shelf angle and support structure.

Thermal conductivity

Approved Document L Volume 2 places specific emphasis on the performance of building details and the additional heat losses through linear thermal bridging. To support this requirement, all IG Masonry Support's masonry support systems are manufactured from 304/304L Austenitic Stainless Steel (1.4301/1.4307) or 316/316L (1.4401/1.4404) on request. Stainless steel has among the lowest thermal conductivity of any metal at approximately 15 watts per kelvin per metre. IG also supply a Thermal Shim as standard with every masonry support system, which must be located between the back of the angle and the support structure.

Safety

While Folded Angle units are easy to handle, the components are produced from stainless steel plates and may have sharp edges. Care must be taken when handling units and suitable PPE should be worn at all times. When lifting or carrying a Folded Angle unit, you should undertake a personal risk assessment, paying attention to the size and weight of the product which is clearly detailed on each product label and pallet delivered.

Disposal

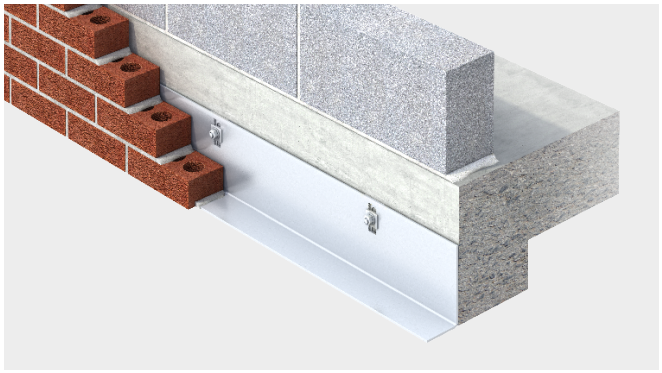
The Folded Angle system's stainless steel components are fully recyclable, minimising waste and reducing its carbon footprint at the end of its service life. Thermal Shims should be safely disposed of in landfill.

Installation training

IG Masonry Support offers onsite installation training and support from its experienced team of structural and civil engineers. Please get in touch with our Technical Team.

Specifying and ordering

IG Masonry Support's designers and engineers provide a full design service for the Folded Angle system, tailored to the requirements of each project.



Folded Angle Sales and Enquiries

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