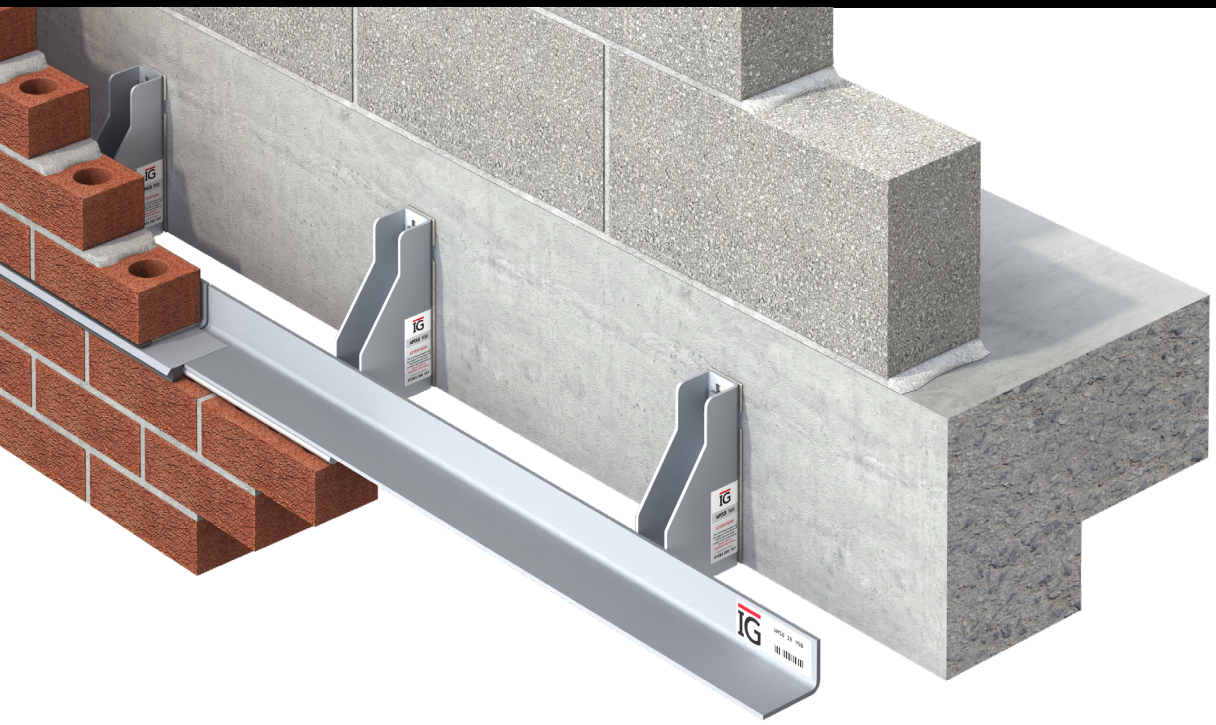
Technical Data Sheet

Welded Masonry Support



Product overview

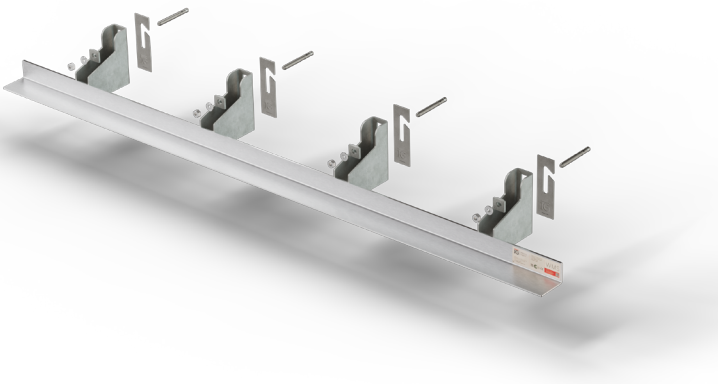
Masonry support is a stainless steel component that transfers the weight of a building's brickwork facade to the building's structure. This reduces the risk of cracking and movement in the facade.

IG's Welded Masonry Support (WMS) is a rigid masonry support system comprising of fixed brackets welded to a stainless steel angle support shelf. Each system is supplied with lock washers, shims and fixings to aid installation. WMS is designed and manufactured to engineers' specifications on a project basis and offers three planes of adjustability onsite.

Brackets, angle support shelf 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. The material content of the system is optimised to ensure the most economical solution is designed.

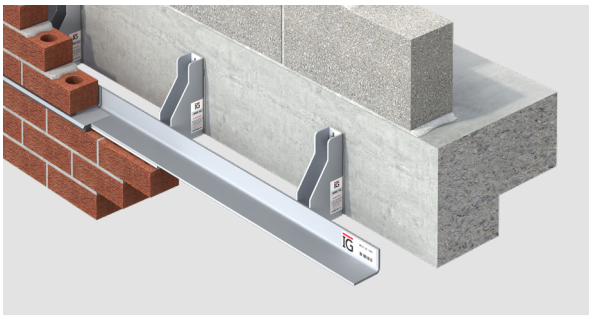
Enhanced features

- Stainless steel - A1 fire-rated material
- Extra strength to support extreme loads
- Variety of configurations to suit project requirements
- Suitable for larger cavities
- Onsite adjustability on three planes
- EPD: BRE Global Verified
- Passive House certified component

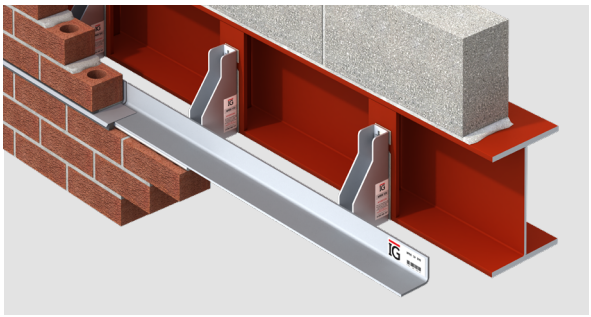


Design considerations

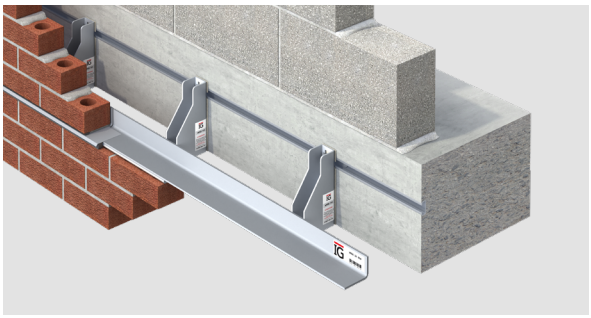
Welded Masonry Support can be fixed to:



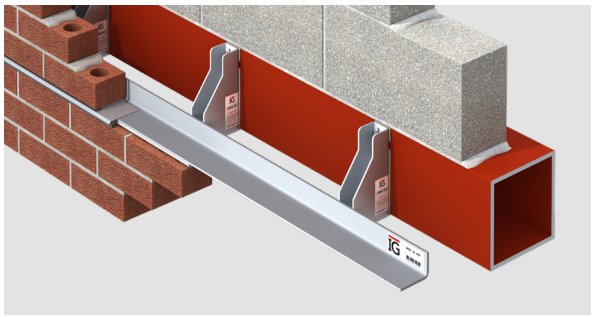
A Concrete Slab



B I-beam with Wing Plates



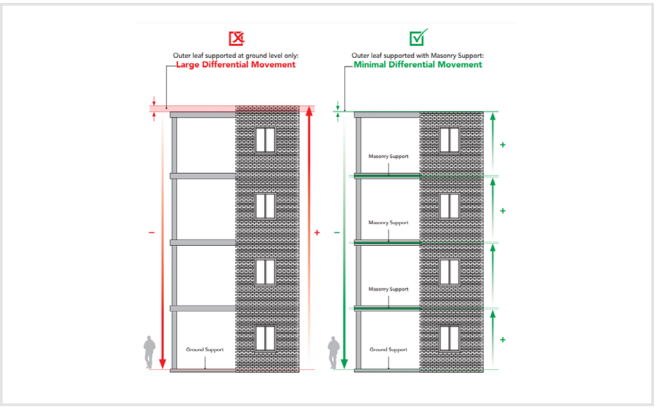
C Cast-in Channel



D Box Section

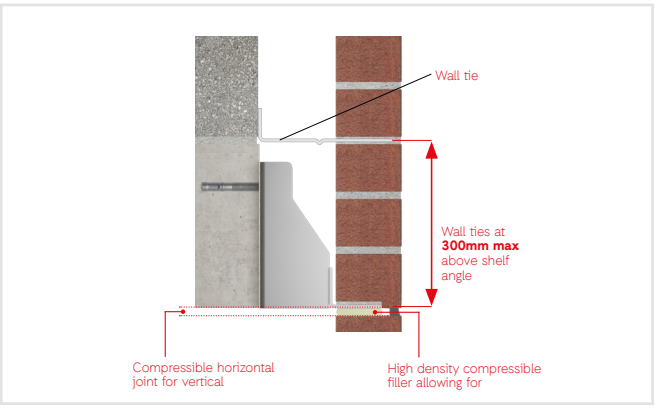
Differential movement

To limit the effects of differential movement between the inner and outer leaves of a wall, a horizontal movement joint should be provided at no more than every third storey or 9m, whichever is less. This is in accordance with BS 5628: Part 1 which, since the withdrawal of this British Standard, remains best practice. For buildings not exceeding four storeys or 12m in height, whichever is less, the outer leaf may be uninterrupted for its full height. However, masonry support is often incorporated in many buildings of less than four storeys or 12m.



Horizontal movement joints

The underside of the shelf angle should be set at 2.5mm above the level of the compressible filler within the horizontal movement joint. This allows 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. The minimum expansion gap should be at least 12mm where there is a single storey height of brickwork below the support system. The gap should be increased by 1mm for every additional metre in panel height. Wall ties should support the panel no more than 300mm above and below the shelf angle.



Standard IG Welded Masonry Support configurations

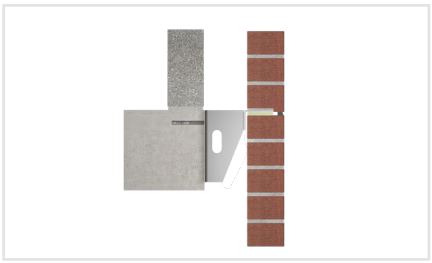
There are several variations of the standard IG WMS system which are designed and manufactured to engineers' specifications on a project basis – these are shown below. A number of other configurations can be supplied to suit particular applications and support special masonry features. Contact the IG Masonry Support technical team for further information.

Figure 1

WMS

WMS Dropper

WMS Cavity Closer



WMS Inverted

WMS Plaster Key

Notched

The system can accommodate a wide range of masonry loads based on project requirements and is suitable for cavity widths ranging from 70 to 250mm. For cavity widths exceeding 250mm, please contact our technical team.

Fixing specifications

The fixing is the most important component involved in achieving the design capacity of Welded Masonry Support.

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.

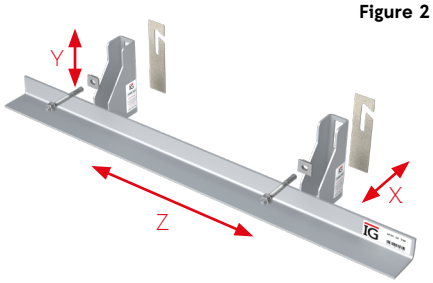
Fixing Specifications			
BOLT TYPE	**FIXING TO**	**DRILL HOLE DIAMETER**	**TORQUE (NM)**
FAZ II 12/20 R	Concrete	12	60
HD Bolt M12x60	Steel	12	30
Set Screw M12x60	Steel	14	73.5
T-Head Bolt	Cast-in Channel	N/A	50

Adjustability

IG's Welded Masonry Support provides significant adjustability on three planes (Figure 2) to ensure that building tolerances can be accommodated and contact with structural reinforcing bar can be avoided.

(X) Shimming (Y) Vertical Adjustment (Z) Lateral Adjustment

Figure 2



Shimming (X)

To accommodate a small increase in cavity width, shims can be inserted between the support structure and the brackets. 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 thicknessess (3,4,5 and 6mm).

- The standard thickness of shim used per bracket 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 bracket against the support structure
- If thicker shimming is required, please contact our technical team.

Stainless Steel Shim

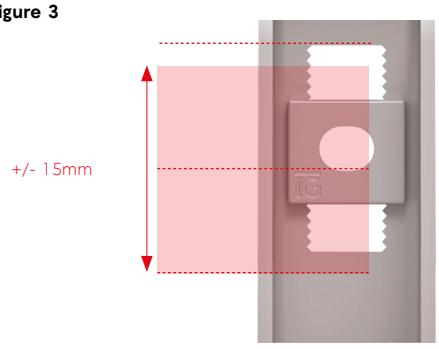
Thermally Isolated Shim

Vertical adjustment (Y)

Vertical adjustment is offered by means of a toothed lock washer (Figure 3). This lock washer is inserted into the serrated slot in the support bracket. The lock washer can be adjusted vertically to move the bracket higher or lower.

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

Figure 3



Lateral adjustment (Z)

The lock washer also providers lateral adjustment via the oval-shaped hole in the washer (Figure 4).

The fixing can be moved +/- 2mm laterally to allow for fine adjustment.

Figure 4

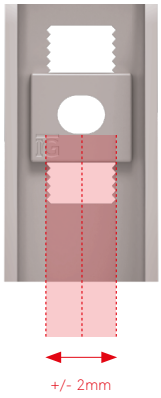
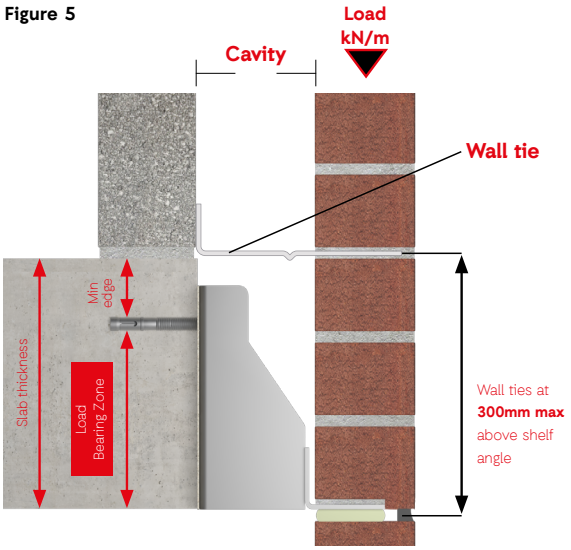


Figure 5



Load Bearing Zone

The bracket 'Load Bearing Zone' (ie. the distance between the fixing and the bottom heel of the bracket) 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 bracket to project below the support structure. If you require the bracket to drop below the support structure, a dropper system is required, please contact our technical team.

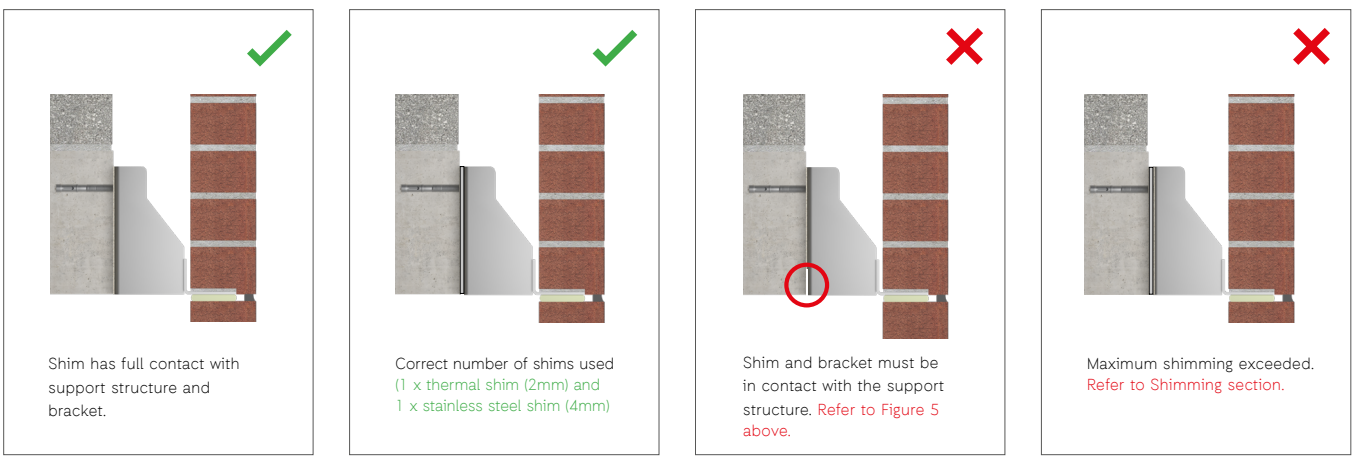
Figure 5 Key	
Load Bearing Zone	The distance between the fixing and the bottom heel of the bracket in contact with the backing structure
Slab thickness	The depth of the concrete slab
Cavity	Two masonry walls separated by an air space
Wall ties	Sometimes called 'brick ties'. Used in buildings with cavity walls to tie the two leaves of a cavity wall together

Positioning the bracket

Brackets must be installed at the correct level making sure the back of the bracket ('Load Bearing Zone') is in full contact with the support structure. Only IG shims can be used with WMS.

Correct and incorrect installation examples are provided in Figure 6.

Figure 6



External corners

When installing Welded Masonry Support 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).

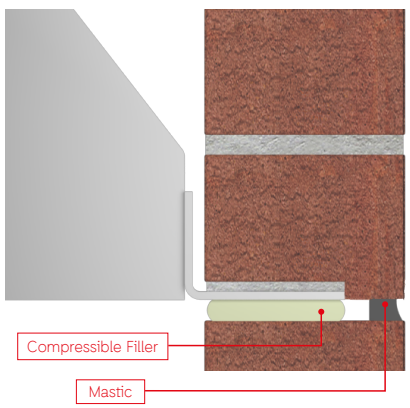
Compressible filler

It is essential that all soft horizontal joints have a compressible filler installed directly 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 CPR 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 EN1090-2:2018.

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.

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 bracket 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 bracket and the support structure.

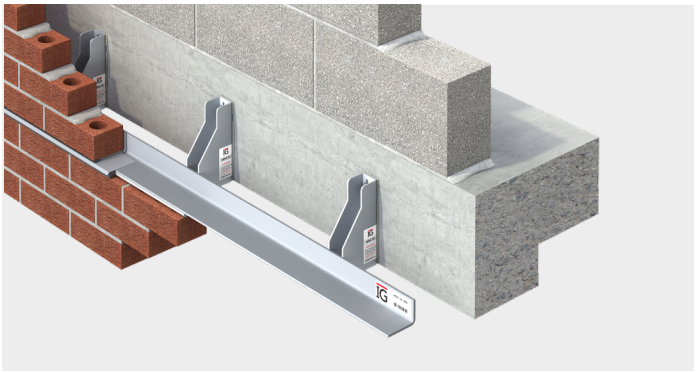
Installation training

Correct installation is essential for the success of each project. Therefore, IG Masonry Support have made every effort to help installers by creating an easy-to-use installation guide for Welded Masonry Support.

IG Masonry Support also offers onsite installation training and support from its experienced team of structural and civil engineers.

Specifying and ordering

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



Welded Masonry Support Sales and Enquiries

For more information
please contact our Technical Team

+44 (0)1283 200 157

IG Masonry Support
Swadlincote

Ryder Close
Cadley Hill Industrial Estate
Swadlincote
South Derbyshire
DE11 9EU

T +44 (0)1283 200 157
E support@igmss.co.uk

IG Masonry Support
Cookstown

Ballyreagh Industrial Estate
Cookstown
Co. Tyrone
Northern Ireland
BT80 9DG

T +44 (0)28 8676 0334
E info@igmss.co.uk