ACS
inner strength in construction

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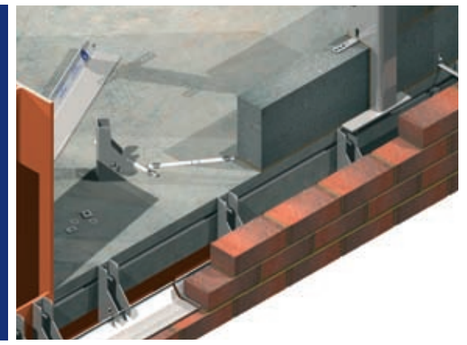

product catalogue

ACS
inner strength in construction

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National Sales Enquiries: 0870 850 0860
www.acsstainless.co.uk

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ON LINE
www.acsstainless.co.uk

inner strength in construction

ACS is one of Europe's largest specialist manufacturers of structural building components. We offer the most technologically advanced products backed up with unparalleled levels of customer service. As market leaders we continually invest in product development, delivering innovative designs that provide the unique solutions our customers demand.

We offer a range of services:

- Sales
- Estimating
- Technical Support
- Specification
- Design
- Manufacturing
- Distribution

PRIDE IN OUR PEOPLE
PRIDE IN OUR PRODUCTS

What sets ACS apart is the work of our passionate and committed team. Every member of our staff is dedicated to meet the needs of our customers – they are flexible, adaptable and motivated to deliver the best quality, engineered solutions on time, every time.

RAPID DELIVERY
ACS gives you the fastest manufacturing times in the industry. With a range of delivery options, our service is precisely tailored to your needs. We operate a next day delivery on all standard products anywhere in the UK, along with a premium same day delivery or three day service to suit your construction programme.

FLEXIBLE APPROACH
ACS products have been specifically designed and manufactured to meet your needs and requirements. Because we take the time to listen to you, and continually adapt and refine the way we work, we can surpass your expectations with a service that is second to none in the industry.

COMPETITIVE PRICING
Buying direct from the manufacturer, and with our advanced manufacturing processes, we can offer very competitive pricing on all of our products, ensuring that you get the very best value for our unique range of innovative building solutions.

QUALITY ASSURED
Our products are independently tested to ensure that they conform to the appropriate British and European standards. ACS operates a stringent quality inspection procedure to ensure that the goods received on site are to the highest standard and quality.

EXPERT ADVICE
Our technical department has an in-depth specialist knowledge in the construction industry, and is able to design solutions to meet your specific requirements. They are also available to provide assistance for specifiers, contractors, architects and engineers with fully verified calculations. Everything is covered by our comprehensive indemnities and insurance warranties, so you have complete confidence in all our products and designs.

National Sales Enquiries: 0870 850 0860

Introduction
ACS manufactures a full range of wall ties produced from either 304 grade stainless steel or 316 grade stainless steel. ACS is also able to offer a range of galvanised wall ties on request.

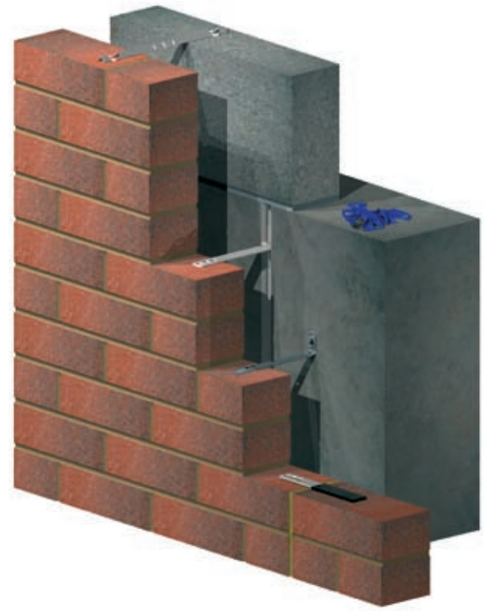
The selection and positioning of wall ties depends on many factors including the type and height of a building, the location, cavity size and type of material to be restrained.

To help determine what type of wall ties should be used, there are several documents that need to be consulted.

DD140: Part 2: 1987 Recommendation for the design of wall ties
This document provides recommendations for the design of Wall Ties for masonry and timber construction in the UK. There are 6 different types of wall ties, which are determined by strength, function and use. Types 1 to 4 are for masonry-to-masonry ties, and Types 5 and 6 are for use in timber frame construction.

BS5628:The use of masonry: Part 1: 2005
This gives details on the embedment, length of tie, density and positioning of the wall ties. By conforming with DD140, the ties will meet these requirements.

BS EN 845-1: 2003 Specification for ancillary components for masonry: Part 1: Ties, Hangers and Brackets
Where wall ties are connecting to beams, columns or other parts of a building, the European Specification denotes the requirements of material, tolerance and tie type. The standard BS EN 845-1 also applies for interconnecting masonry.



Positioning & density of wall ties
Wall ties should be placed evenly over the area of the wall except for openings, where ties should be staggered. At vertical edges of an opening, unreturned or unbonded edges, and also at vertical expansion joints, additional ties should be placed at a rate of one per 300mm in height and located not more than 225mm from the edge.

Spacing of ties

Leaf thickness mm	Cavity width mm	Spacing of ties horiz. mm	vert. mm	Ties/m2ties mm
Less than 90	50-75	450	450	5.0
90 or more	50-150	900	450	2.5

Wall ties should be built into each leaf with a minimum embedment of 50mm. However, ACS recommend an embedment of 62.5mm to allow for site tolerances. Drip features on a wall tie should be placed at the centre of an open cavity.

Recommended lengths of masonry to masonry wall ties

Cavity mm	Tie length mm
< 50	150
50-75	200
76-100	225
101-125	250
126-150	275
150-175	300

Recommended lengths of masonry to concrete/ steelwork wall ties

Cavity mm	Tie length mm
< 20	75
20-44	100
45-69	125
70-94	150
95-119	175
120-144	200
145-169	225

The bending of installed wall ties should be forbidden at all times as this affects the performance of the tie and weakens the embedment in the inner leaf.

HOW TO ORDER

Masonry-to-masonry ties
1. Confirm tie type
2. Confirm o/a length

e.g. 2000/250 (2000 type tie x 250mm long)

Masonry-to-structure ties
1. Confirm tie type
2. Confirm cavity size (dimension from face of structure to back of masonry)
3. Confirm structure type either steel (S), concrete (C) or masonry (M)

e.g. 3000/100/M (3000 type tie to suit a 100mm cavity fixed to masonry)

Masonry-to-channel ties
1. Confirm tie type
2. Confirm cavity size (dimension from face of structure to back of masonry)
3. Confirm channel fixture - either cast-in (C) or surface fixed (S)

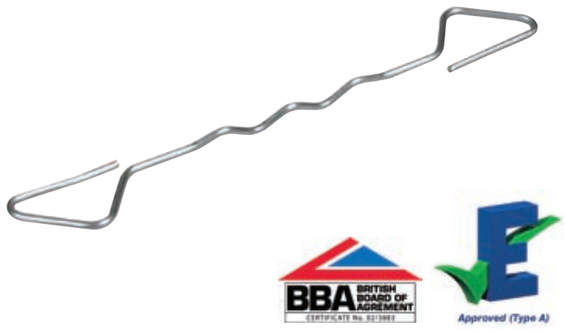
e.g. 4200/125/S (4200 type tie to suit 125mm cavity into surface fixed channel)

Note: by stating whether the tie is into cast-in or surface fixed channel will determine the o/a length

info@acsstainless.co.uk

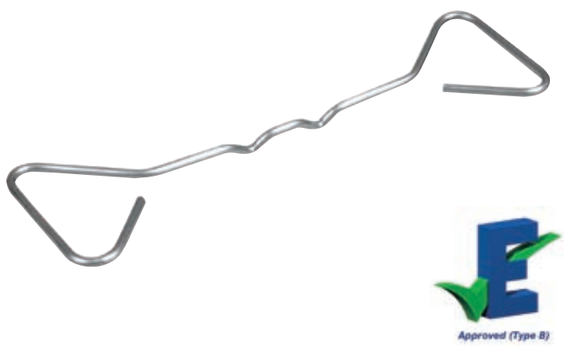
1000 – Type 2 General Purpose Tie (Masonry/Masonry)

The 1000 range tie has been designed for use on domestic houses and small commercial buildings up to 3 storeys or 15 metres in height. It can be used in cavities up to 100mm. It meets and exceeds the requirements of a Type 2 tie as stated in DD140 : Part 2. This tie meets the technical requirements of the NHBC and has BBA approval.



1100 – Type 4 Light Duty Tie (Masonry/Masonry)

The 1100 range tie has been designed for use on domestic houses up to 10 metres in height. It can be used in cavities up to 100mm. It meets and exceeds the requirements of a Type 4 tie as stated in DD140 : Part 2. This tie meets the technical requirements of the NHBC and has BBA approval.



1200 – Double Triangle Tie (Masonry/Masonry)

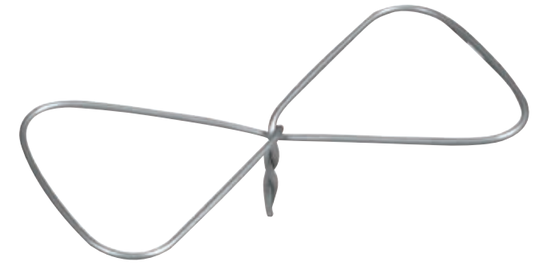
The 1200 double triangle tie was designed for use on domestic houses and small commercial buildings up to 15 metres in height. It can be used in cavities up to 90mm. The double triangle tie which conforms to BS 1243 Fig 2 has been all but replaced by the 1000 range tie as the BS 1243 standard has been superceded by DD 140.

Wire Ties

Wire Ties

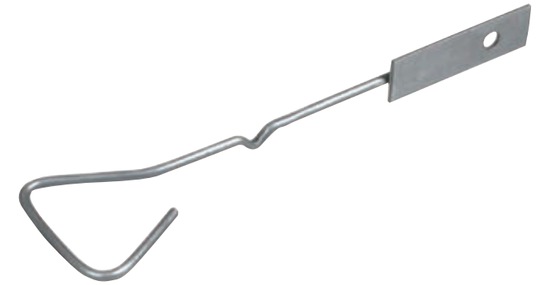
1300 – Butterfly Tie (Masonry/Masonry)

The 1300 butterfly tie was designed for use on domestic houses up to 10 metres in height. It can be used in cavities up to 75mm. The butterfly tie that conforms to BS 1243 Fig 1 has been all but replaced by the 1100 range tie as the BS 1243 standard has been superceded by DD 140.



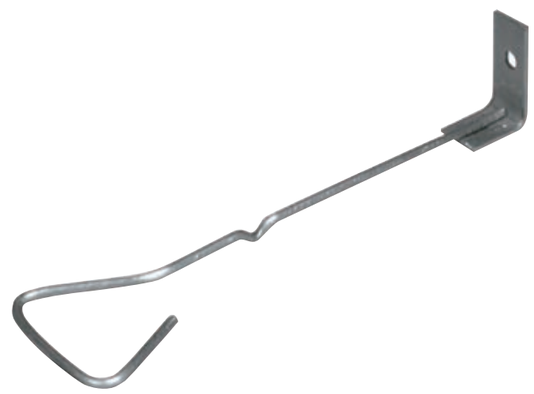
1400 – Flexi Tie (Masonry/Steel)

The 1400 flexi tie can be fixed to both concrete and steelwork structures, and is designed to provide lateral restraint. The wire projection tie provides added flexibility to suit the brickwork coursing as the outer leaf is built.



1500 – Flexi Tie (Masonry/Steel)

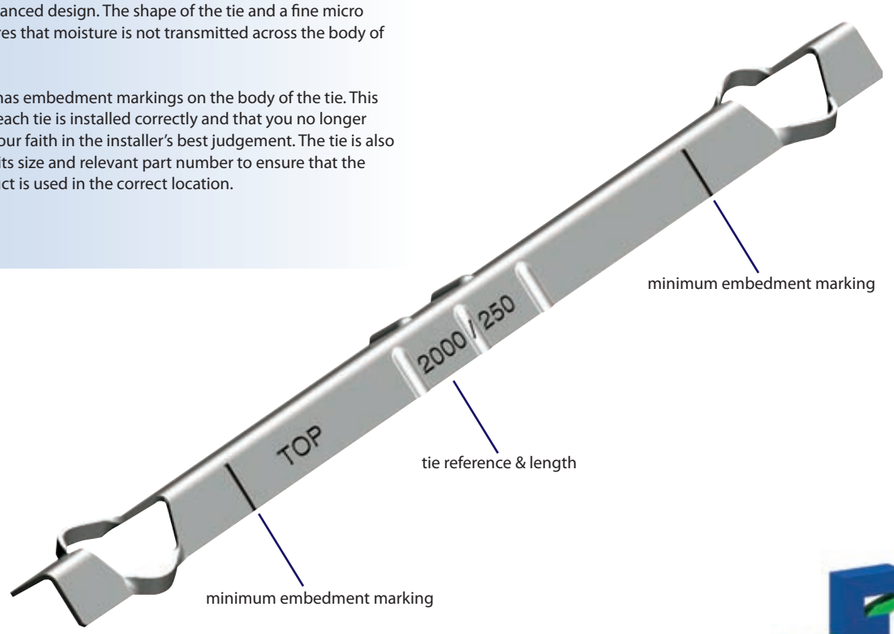
This tie is a variation on the above product. The 1500 flexi tie can be fixed to both concrete and steelwork structures and is designed to provide lateral restraint. The wire projection tie provides added flexibility to suit the brickwork coursing as the outer leaf is built.



2000 - Type 1 Heavy Duty Tie (Masonry/Masonry)

This tie has been designed to be used on buildings of any height within the UK. It can be used in cavities up to 150mm. This tie meets and exceeds the requirements of a Type 1 tie as stated in DD140 : Part 2. The 2000 range tie has inherently strong sectional properties due to its advanced design. The shape of the tie and a fine micro coating ensures that moisture is not transmitted across the body of the tie.

The 2000 tie has embedment markings on the body of the tie. This ensures that each tie is installed correctly and that you no longer have to put your faith in the installer's best judgement. The tie is also marked with its size and relevant part number to ensure that the correct product is used in the correct location.



Approved (Type B)

For variations or to customise this product please refer to page 13 or page 23 for further details.

2100 - Heavy Duty Tie (Masonry/Masonry)

The ACS 2100 range tie is an alternative to the tie above. The ACS 2100 has a three hole safe end pattern at each end, a vertical twist positioned centrally to prevent moisture from travelling across the tie and can be used in cavities of 50mm upwards.

Although standard lengths are available from stock, bespoke lengths can be manufactured upon request. Please contact ACS with your specific requirements.

The ACS 2100 tie is a made to order item, as this has been all but replaced by the more cost effective 2000 range tie.

2200 - Heavy Duty Tie (Masonry/Masonry)

The ACS 2200 range tie is a variation on the 2100 tie where cavity restrictions may preclude the use of a vertical twist. The ACS 2200 wall tie has a drip feature positioned centrally as standard to prevent the transfer of moisture across the cavity. This tie is also suitable for thin bed applications where the mortar joint is less than 10mm deep.

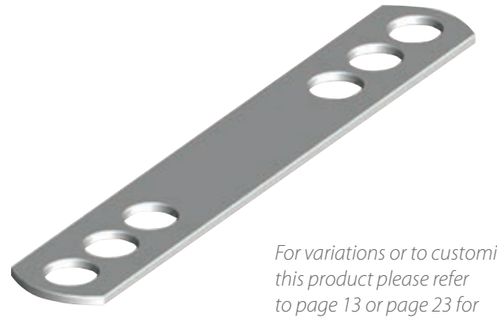
Although standard lengths are available from stock, bespoke lengths can be manufactured upon request. Please contact ACS with your specific requirements.

For variations or to customise this product please refer to page 13 or page 23 for further details.

2300 - Heavy Duty Tie (Masonry/Masonry)

The ACS 2300 range tie is used predominantly in collar joint applications where there is no cavity, however this tie may be used in cavity wall construction if moisture and acoustic issues are not a problem.

Although standard lengths are available from stock, bespoke lengths can be manufactured upon request. Please contact ACS with your specific requirements.



For variations or to customise this product please refer to page 13 or page 23 for further details.

2400 - Movement Tie (Masonry/Masonry)

The ACS 2400 range tie is used with a plastic de-bonding sleeve at movement joint positions, and is designed to resist lateral loadings whilst still allowing longitudinal expansion and contraction of the masonry panels. The de-bonding sleeves should be installed with a 10mm gap at the end of the tie, and is achieved with use of ACS's 'viewing window' in the end of the sleeve.

Although standard lengths are available from stock, bespoke lengths can be manufactured upon request. Please contact ACS with your specific requirements.

For variations or to customise this product please refer to page 13 or page 23 for further details.

3000 - Universal Frame Cramp (Masonry/Steel or Concrete)

A multi purpose conventional fixing cramp that incorporates a number of unique design features. This frame cramp has a slotted upstand that provides the user with a vertical tolerance when fixing the product to a structure. This reduces the likelihood of the cramp being bent on site to suit brickwork coursing.

Also the 3000 range frame cramp can be used with or without a debonding sleeve – negating the need for stocking various different types of frame cramp.

The cramp has a multi drip feature that ensures a drip is positioned within the open cavity. The shape of the product and the multi drip feature prevents moisture from crossing the cavity. It is not necessary to stock or purchase different style frame cramps of the same length.

This tie has been independently tested at Sheffield University Civil and Structural Engineering Department and results have shown that this product is inherently stronger than the traditional style cramp that is widely available in the market place at present.

The performance of frame cramps is determined by the position of the fixing. At the lowest point of the slot the frame cramp will have a safe working load of approximately 1.0kN. As the fixing position alters, the capacity of the tie will reduce. ACS recommends using oversize washers with the fixing when installing cramps with a vertical slot.

Approved (Type B)

Patent No. GB2376029

For variations or to customise this product please refer to page 13 or page 23 for further details.

3100 – Frame Cramp with Vertical Twist (Masonry/Steel or Concrete)

The ACS 3100 range frame cramps are designed for use in either conventional or thin bed joints and are available in a variety of lengths to suit most applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar along with a vertical twist to prevent moisture from crossing the cavity and a vertical slot in the upstand to allow adjustment when fixing.

The performance of frame cramps is determined by the position of the fixing. At the lowest point of the slot the frame cramp will have a safe working load of approximately 1.0kN. As the fixing position alters, the capacity of the tie will reduce. ACS recommend using oversize washers with the fixing when installing cramps with a vertical slot.

The ACS 3100 tie is a made to order item, as this has been all but replaced by the more cost effective 3000 range tie.

Frame Cramps

3200 – Safe Ended Frame Cramp with Drip Feature (Masonry/Steel or Concrete)

The ACS 3200 range frame cramps are designed for use in either conventional or thin bed joints and are available in a variety of lengths to suit most applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar, a drip feature to prevent moisture from crossing the cavity and a vertical slot in the upstand to allow adjustment when fixing.

The performance of frame cramps is determined by the position of the fixing. At the lowest point of the slot the frame cramp will have a safe working load of approximately 1.0kN. As the fixing position alters, the capacity of the tie will reduce. ACS recommends using oversize washers with the fixing when installing cramps with a vertical slot.

For variations or to customise this product please refer to page 13 or page 23 for further details.

3300 – Safe Ended Frame Cramp (Masonry/Steel or Concrete)

The ACS 3300 range frame cramps are designed for use in either conventional or thin bed joints and are available in a variety of lengths to suit most applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar along with a vertical slot in the upstand to allow adjustment when fixing.

The performance of frame cramps is determined by the position of the fixing. At the lowest point of the slot the frame cramp will have a safe working load of approximately 1.0kN. As the fixing position alters, the capacity of the tie will reduce. ACS recommends using oversize washers with the fixing when installing cramps with a vertical slot.

For variations or to customise this product please refer to page 13 or page 23 for further details.

3400 – Plain Ended Frame Cramp (Masonry/Steel or Concrete)

The ACS 3400 range frame cramps are designed for use in either conventional or thin bed joints and are available in a variety of lengths to suit most applications.

These ties are supplied with a plain end and are designed to be used with plastic debonding sleeves, which when installed with a 10mm gap at the end allow the masonry to expand and contract laterally. A vertical slot is also supplied in the upstand to allow adjustment when fixing.

For variations or to customise this product please refer to page 13 or page 23 for further details.

For variations or to customise this product please refer to page 13 or page 23 for further details.

4000 – 25/15 Channel Tie with drip feature (Masonry/Channel)

The ACS 4000 range channel ties are designed for use with 25/15 frame fixed channels (refer to page 26) and to suit either conventional or thin bed joint applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar along with a drip feature, which is positioned 85mm from the safe end to prevent moisture from crossing the cavity.

Ties are available in a variety of lengths to suit most applications.

For variations or to customise this product please refer to page 13 or page 23 for further details.

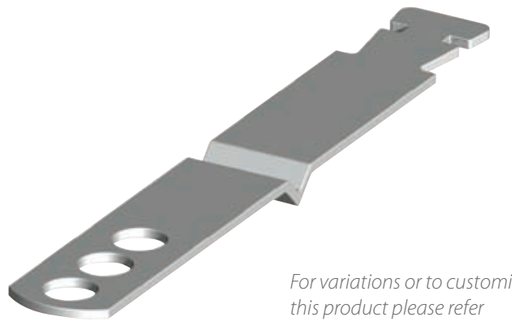
4100 – Multi Channel Tie (Masonry/Channel)

The ACS 4100 range multi end channel ties are designed for use with either 28/28 (dovetail) or 28/15 channels (refer to page 24) and to suit either conventional or thin bed joint applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar along with a vertical twist to prevent moisture from crossing the cavity.

Ties are available in a variety of lengths to suit most applications.

The ACS 4100 tie is a made to order item, and this has been all but replaced by the more cost effective 4200 range tie.



For variations or to customise this product please refer to page 13 or page 23 for further details.

4200 – Multi Channel Tie with drip feature (Masonry/Channel)

The ACS 4200 range multi end channel ties are designed for use with either 28/28 (dovetail) or 28/15 channels (refer to page 24) and to suit either conventional or thin bed joint applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar along with a drip feature to prevent moisture from crossing the cavity.

Ties are available in a variety of lengths to suit most applications.

4300 – Multi Channel Tie Safe Ended (Masonry/Channel)

The ACS 4300 range multi end channel ties are designed for use with either 28/28 (dovetail) or 28/15 channels (refer to page 24) and to suit either conventional or thin bed joint applications.

These ties are supplied with a 3-holed safety end for bonding into the mortar.

Ties are available in a variety of lengths to suit most applications.

For variations or to customise this product please refer to page 13 or page 23 for further details.

4400 – Multi Channel Tie Plain Ended (Masonry/Channel)

The ACS 4400 range multi end channel ties are designed for use with either 28/28 (dovetail) or 28/15 channels (refer to page 24) and to suit either conventional or thin bed joint applications.

These ties are supplied with a plain end and are designed to be used with plastic debonding sleeves, which when installed with a 10mm gap at the end allow the masonry to expand and contract laterally.

Ties are available in a variety of lengths to suit most applications.

For variations or to customise this product please refer to page 13 or page 23 for further details.

4600 – APEX Channel Tie with Drip Feature (Masonry/Channel)

The ACS 4600 range channel ties are designed for use with 21/19 (APEX) channels (refer to page 26) and to suit either conventional or thin bed joint applications.

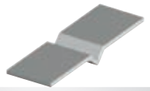
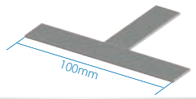
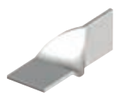
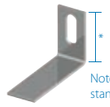
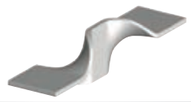
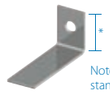
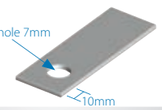
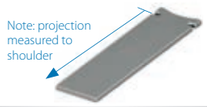
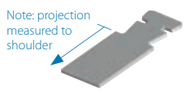
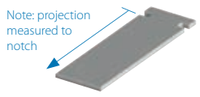
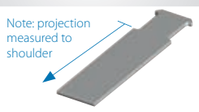
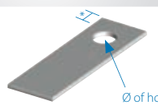
These ties are supplied with a 3-holed safety end for bonding into the mortar along with a drip feature, which is positioned 85mm from the safe end to prevent moisture from crossing the cavity.

Ties are available in a variety of lengths to suit most applications.

The 4700 range channel ties are designed for use with 21/19 (APEX) channels (refer to page 26) and to suit either conventional or thin joint applications. The ties are supplied safe ended for bonding into mortar, and without a drip feature. The ties can be used with or without a plastic debonding sleeve, which when installed, with a 10mm gap at the end allows the masonry to expand and contract laterally.

For variations or to customise this product please refer to page 13 or page 23 for further details.

Brickwork Design-A-Tie

External	Cavity	Internal
S 	D 	S 
P 	P 	P 
T 	HT 	SU  Note: 50mm standard upstand
W 	VT 	HU  Note: 35mm standard upstand
H 	SD 	PU 
	CN 	25  Note: projection measured to shoulder
	D 	28  Note: projection measured to shoulder
		38  Note: projection measured to notch
		AP  Note: projection measured to shoulder
		H  Ø of hole **mm
		N 

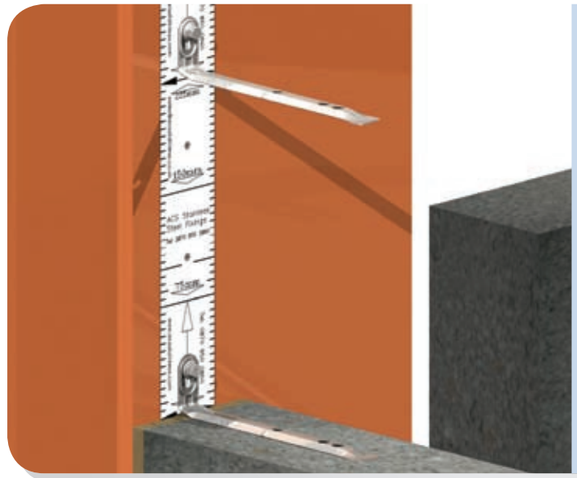
HOW TO ORDER

ACS can manufacture almost any type of tie variation. The above chart has been designed to help ease specification of bespoke ties.

1. Decide what type or tie you require (e.g. SPH is a safety ended tie with a plain shank and a hole at the other end)
2. Advise the o/a length
3. Advise strip size (if known)
4. Advise material
5. Advise the number required
6. Advise dimensions marked (if necessary)
7. Advise dimensions from centre of drip to end of external end

ACS
inner strength in construction

Accessories



TRANSFIX Tape

TRANSFIX Tape – TRANSFIX adheres to Steel, Concrete, Masonry and even Timber; and is used to allow the pre-fixing of frame cramps perfectly for coursing.

In addition to accurate coursing, TRANSFIX facilitates–

- Accelerated Speed of Construction
- Freeing Up Of Skilled Labour On Site
- On Site Management Checks
- Multiple Elevations To Be Constructed Concurrently

TRANSFIX is produced from a high quality, dead (zero stretch), laminated film with a unique adhesive backing. It is waterproof, robust and comes as standard on a thirty-three metre roll.

Insulation Retaining Clip (IRC)

The ACS insulation retaining clip can be used on the full range of ACS wall ties. The positive 'CLICK' action will allow the ties to fit to the formed cavity ties and frame cramps, and also allow the clip to fit to the full range of wire and strip ties as well.

Hexagon Self Drilling Screw (TS)

ACS offers a range of self drill screws designed for use when fixing products to steel work. Supplied with a 12mm bonded washer to prevent bi-metallic corrosion, the ACS tek screws are suited for drilling up to 12mm thick steel, depending on site conditions. ACS also offers a selection of different quality screws in different materials to suit most applications.

Neoprene Isolation Pad (NAP)

When fixing a stainless steel tie to a mild steel frame, an isolation pad should be used to separate the dissimilar metals and prevent a bimetallic reaction.

Debonding Sleeve (DBSV)

Debonding sleeves are supplied complete with viewing holes to ensure a 10mm gap is achieved during installation.

Two-Part Tie, Type 2 (Masonry/Masonry) Heavy Duty Tie

The two-part tie is designed for use in larger cavities that range from 150mm upwards. The tie is easier to install than a one piece product as the inner section (170mm in length) is installed into the inner leaf and the outer section, which is manufactured to a length to suit customers requirements and is fixed as the outer leaf is built. The tie requires an embedment of 75mm at either end. Insulation retaining clips can be supplied to suit this tie.

The two-part tie exceeds the requirements of a Type 2 tie to DD140 up to 250mm cavity. Thereafter, the tie meets the requirements of a Type 3 tie to DD140 up to 350mm cavity.

Cavity size	Tie length	ACS reference
150mm	300mm	TPT150
151-175mm	325mm	TPT175
176-200mm	350mm	TPT200
201-225mm	375mm	TPT225
226-250mm	400mm	TPT250
251-275mm	425mm	TPT275
276-300mm	450mm	TPT300

Approved (Type B)

Patent No. GB2375775

Column Tie (Steelwork/Masonry)

The ACS column tie eliminates the time consuming traditional process of site drilling and bolting frame cramps when fixing masonry to steelwork. It allows for variations in coursing and can be used on a range of steel columns.

The column flange must enter the notch in the tie not less than 10mm. The tie must not be forced on to the flange. The tie will provide restraint between the inner and outer leaves of masonry cavity walls.

It is advisable to apply bitumen paint to the area where the column and the tie make contact. This will avoid the likelihood of any corrosion on the column due to the contact of two dissimilar materials.

The ACS column tie exceeds the requirements of a Type 2 tie to DD140, and is available 150mm long as standard.

Column flange thickness	ACS reference
9-11mm	CT/A
11-13mm	CT/B
13-17mm	CT/C
17-21mm	CT/D
21-27mm	CT/E

Specialist Ties

Timber Wall Tie (Masonry/Timber)

The ACS timber wall tie is suitable for tying masonry to timber frame buildings up to 5 storeys or 15 metres in height. Designed to work in cavities up to 75mm, the ties are manufactured to the specification of DD140 Type 5 requirements. The ties also come complete with the stainless steel nails required for fixing to the timber frame, as standard.

ACS Clasp Tie (Masonry/Steel)

The ACS 9000 Range is fastened to the face of a column using a tek screw, and isolated from the steelwork using a neoprene isolation pad. The ACS 9000 range clasp tie is available in lengths from 150mm to 300mm long as standard and supplied complete with a 7mm hole as standard for fixing purposes. Other sizes are available upon request.

Wall Starter System

The ACS wall starter pack is used to connect a new internal or external wall to an existing structure. The ACS wall starter is suitable for wall widths from 65mm up to 250mm and has met the technical requirements necessary to gain BBA accreditation.

Supplied in an overall pack length of 2.4 metres, the ACS wall starter comes complete with all the necessary fixings required to fix the product to the existing wall.

Remedial Wall Ties

ACS offers a range of remedial wall ties designed to replace existing wall ties that have failed, or where additional ties are required to meet the relevant building standards. Available in various sizes to suit a range of brick, block, concrete and timber applications, our technical team can offer assistance on the best type of fixing method to suit each application. We can also provide all the necessary equipment such as special torque wrenches and drill bits to aid the correct installation of these products.

Soffit Restraint (SR)

The SR range of head restraints are designed to restrain internal walls either 100mm, 140mm or 215mm thick (depending on the method of construction). There are 2 standard sizes available. However, any length may be manufactured to order:

SR100/140 – to suit 100 or 140 blockwork

SR215 – to suit 215 blockwork

AZTEC Adjustable Head Restraint (AHR)

The ACS AHR restrains the top of the inner leaf of a cavity wall or the top of internal walls. It can be fixed to either concrete or steelwork, or clipped into channel and is designed to allow differential movement between the inner leaf and the structure whilst providing restraint to the panel. Mortar is prevented from entering the AHR allowing the head to slide freely within a steel sleeve. The foot of the restraint is built within the bed joint and the centre of the restraint must be positioned in the vertical joint at least 50mm from the edge of the blockwork. Centres of AHRs are usually specified by the project structural engineer.

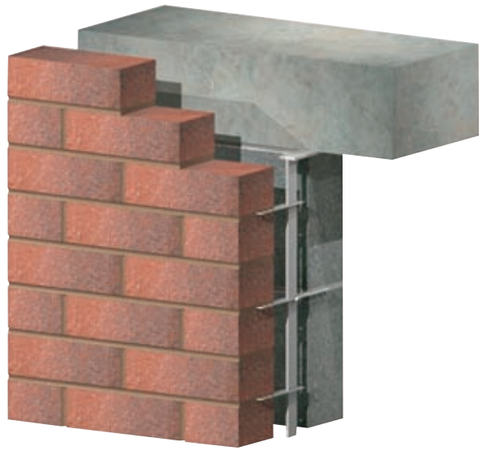
The AHR range is designed to suit a standard 215mm block. However, non-standard lengths may be manufactured upon request.

Please specify structure and fixing when ordering.

The unique spring retaining clip inserted in the tube prevents the two items separating, making installation as a complete unit possible.

Patent No. GB244 3490

Head Restraint



Sliding Anchor Systems

The ACS range of sliding anchor systems is designed for where the inner and outer leaf of masonry need to be tied back to the structure, whilst allowing differential movement. They are available in a wide range of lengths and fixing styles to suit the individual requirements of the building. The head of the anchor fixes to the soffit or face of structure i.e. concrete slab or steel beam. The stem head dimensions and hole positions can also be altered to suit the customer's specific requirements.

This image illustrates a B4 head restraint fixed to the underside of a concrete slab.

One Way & Two Way Sliding Ties

The one way (OWT) and two way (TWT) are available in standard lengths from 100mm for the one way tie and 200mm for the two way tie in 25mm increments. These ties are designed to work with the ACS sliding anchor systems and allow the ties to move up and down the stem to suit coursing.

HOW TO ORDER

1. Choose correct ACS reference
2. Confirm dimensions i.e. head and leg dimensions
3. Confirm method of fixing, size and position of holes
4. Confirm type of tie and length required

National Sales Enquiries: 0870 850 0860

Stonework Support

Introduction

ACS offers a range of systems designed to support and restrain stone cladding. These products are typically designed to suit each application as the size and density of stone can vary greatly.

Design

With a technical department of qualified engineers, ACS has the experience to design the most economical & practical solutions to suit your needs.

To enable a system to be fully designed the following information would be required: -

- Type of structure (concrete / steel)
- Cavity size (face of structure to back of stone)
- Thickness of stone
- Type of stone (natural / reconstituted)
- Density
- Height to be supported
- Typical section through at stone support location

Note: to ensure grooves, cast in channels etc. are positioned correctly, ACS recommends being appointed at the same time as the stone supplier.

Types of system

The standard types of systems available are shown on page 21 & 22, which include CFA cleats (normally used in cavities smaller than 50mm) & ALPHA Bracket systems (used on cavities greater than 50mm).

Both systems are available with welded dowels, lips or over bent angles to restrain the stone facade.

Other systems are available; please consult ACS for further details.

Stone restraints

ACS offers a range of bespoke ties for use in the restraining of stonework and stone panels. Due to the nature of construction associated with stone, ACS has created a 'design-a-tie' facility to cover almost every possible restraint combination that may be required. Please refer to page 23 for further details.

This image illustrates a stone panel supported via type SB3 cleats bolted to the face of a concrete slab. The stone is also restrained via C/P/SU restraint ties fixed to the blockwork.

This image illustrates coping stones restrained via C/P/HU restraint ties plugged and screwed to the top of the masonry.

HOW TO ORDER

The following guide allows designers to specify stone support systems for most situations. However, ACS offers a full design service, which includes sketch proposals & technical advice.

Type of system	Stone thickness	Cavity	Load	Structure	Bolt type
Angle Bracket See page 22/23	Thickness of stone cladding (mm)	Fixing cavity (mm)	kN/m	S = Steel C = Concrete TC = Top Cleat CH = Channel	EA = Expansion Anchor RA = Resin Anchor TB = T Head Bolt BB = Blind Bolt SS = Set Screw

Example: **SA1(c) / 125 / 40 / 8.0 / CH / TB**
This would indicate a SA1 continuous support system to suit a 125mm thick stone, 40mm cavity and 8.0kN loading per metre, bolted back to cast in channel with M12 T head bolts.

SA1 Support Cleat

The SA1 support cleat is designed to carry stonework over small cavities from 20mm upwards. It can be supplied with or without welded dowels and incorporates a serrated slotted pad and washer for increased vertical adjustment.

The system shown is indicative and may vary in length depending on the design requirements.

The SA1 support cleat is also available in continuous lengths. Please suffix reference with a (c).

Illustration shows serrated pad and washer system – ALPHA washer system also available.

SA2 Lipped Support Cleat

The SA2 lipped support cleat is designed to carry stonework over small cavities from 20mm upwards, and incorporates a welded lip and serrated slotted pad and washer for increased vertical adjustment.

The system shown is indicative and may vary in length depending on the design requirements.

The SA2 support cleat is also available in continuous lengths. Please suffix reference with a (c).

Illustration shows serrated pad and washer system – ALPHA washer system also available.

SA3 Support Cleat

The SA3 support cleat is designed to carry stonework over small cavities from 20mm upwards, and incorporates a serrated pad and washer for increased vertical adjustment. This is available as a conventional angle (SA3-90) or as an overbent cleat (SA3-75) typically 15 degrees, to suit customer preference.

The system shown is indicative and may vary in length depending on the design requirements.

The SA3 support cleat is available in a maximum length of 200mm.

Illustration shows serrated pad and washer system – ALPHA washer system also available.

SB1 Support Cleat

The SB1 cleat is designed to carry stonework over cavities greater than 50mm. It can be supplied with or without welded dowels. Also the SB1 benefits from the ACS ALPHA bracket and washer system offering greater load capacity and increased adjustment.

The system shown is indicative and may vary in length depending on the design requirements.

The SB1 support cleat is also available in continuous lengths. Please suffix reference with a (c).

Illustration shows ALPHA washer system – serrated pad and washer system also available.

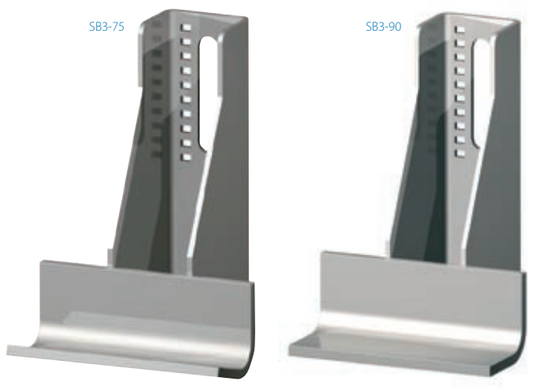
SB2 Lipped Support Cleat

The SB2 lipped support cleat is designed to carry stonework over cavities greater than 50mm and incorporates a welded lip on the cleat. Also the SB2 benefits from the ACS ALPHA bracket and washer system offering greater load capacity and increased adjustment.

The system shown is indicative and may vary in length depending on the design requirements.

The SB2 support cleat is also available in continuous lengths. Please suffix reference with a (c).

Illustration shows ALPHA washer system – serrated pad and washer system also available.



SB3 Support Cleat

The SB3 support cleat is designed to carry stonework for cavities from 50mm upwards, and incorporates the ACS ALPHA bracket and washer offering greater load capacity and increased adjustment. This is available with a conventional 90 degree angle (SB3-90) or with an overbent angle (SB3-75) typically 15 degrees, to suit customer preference.

The system shown is indicative and may vary in length depending on the design requirements.

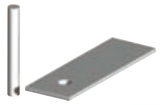
The SB3 support cleat is available in lengths up to a maximum of 200mm long.

Illustration shows ALPHA washer system – serrated pad and washer system also available.

Stonework Design-A-Tie

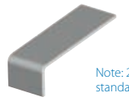
External

C
Note: 60 x 6mm dowel unless specified otherwise



M
Note: 60 x 6mm dowel unless specified otherwise

L



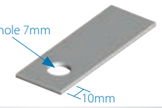
Note: 20mm standard downstand

WD

Note: please specify 1 way or 2 way welded dowel

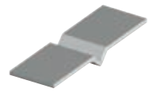
G

H



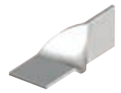
Cavity

D



P

HT



VT

Dowels

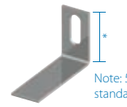
ACS can supply plain, ribbed or threaded bars in various diameters in either standard mill lengths or cut to size. Standard sizes of dowel are available from stock, but any size can be produced. Please state length, diameter and grade of bar required, and also please specify if a cropped or sawn bar end is required to suit your application.

Internal

S

P

SU



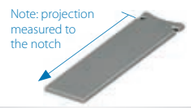
Note: 50mm standard upstand

HU

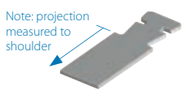
Note: 35mm standard upstand

PU

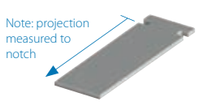
25
Note: projection measured to the notch



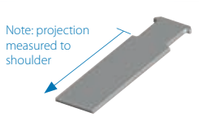
28
Note: projection measured to shoulder



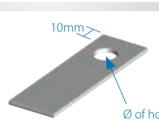
38
Note: projection measured to notch



AP
Note: projection measured to shoulder



H



HOW TO ORDER

ACS can manufacture almost any type of tie variation. The above chart has been designed to help ease specification of bespoke ties.

1. Decide what type or tie you require
   (e.g. CPH is a tie with a loose dowelled end, plain shank and a hole at the other end)
2. Advise the o/a length
3. Advise strip size (if known)
4. Advise material
5. Advise the number required
6. Advise dimensions marked * (if necessary)
7. Advise dimensions from centre of drip to end of external end

Channel Systems

Introduction

ACS can supply a wide range of channels and T head bolts to suit almost any application within the construction industry.

Channels & T head bolts may be supplied in a variety of lengths and materials to suit your specific needs.

The tables below show the channel types available and standard lengths / T head bolts to suit. For further information please consult ACS.

Our range consists of the following:
• Cast in channels • Surface fixed channels • Plain back channels

Cast in channels are spilt into two groups, self-anchoring & welded anchor types. Self-anchoring channels are predominantly used for restraint ties whilst channels with welded anchors are used for heavier loadings such as fixing masonry support. Cast in channels offer continuous adjustment longitudinally and can eliminate the need for site drilling thus reducing labour on site.

Surface fixed channels are generally used for restraint ties. They may be bolted back to masonry, concrete, steelwork and steel studding with appropriate fixings. They are usually installed in continuous lengths to allow the secondary fixer continuous adjustment longitudinally when installing masonry ties.

Plain back channels may be used for supporting or restraining masonry. These channels are mainly welded to either steel columns or beams during fabrication and prior to treating the steelwork to increase the life expectancy. Plain back channels again offer continuous adjustment longitudinally and can eliminate the need for site drilling thus reducing labour on site.

Cast in channels

Channel reference	Hot rolled / Cold formed	Available materials	Available T head bolt sizes
28/15 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M6,M8,M10,M12
31/21 WA	Cold formed	Stainless steel	M12
38/17 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M10,M12,M16
40/25 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M10,M12,M16
40/23 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M10,M12,M16
49/30 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M10,M12,M16,M20
54/33 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M10,M12,M16,M20
40/22 WA	Hot rolled	Carbon steel (HDG) or Stainless steel	M10,M12,M16
50/30 WA	Hot rolled	Carbon steel (HDG) or Stainless steel	M10,M12,M16,M20
52/34 WA	Hot rolled	Carbon steel (HDG) or Stainless steel	M10,M12,M16,M20
72/48 WA	Hot rolled	Carbon steel (HDG) or Stainless steel	M20,M24,M27,M30
29/20 WA	Hot rolled	Carbon steel (HDG)	M12
38/23 WA	Hot rolled	Carbon steel (HDG)	M12,M16
41/22 WA	Cold formed	Carbon steel (HDG) or Stainless steel	M12,M16
21/19 SA	Cold formed	Stainless steel	-
28/28 SA	Cold formed	Stainless steel	-

Key Standard channels | Heavy duty channels | Toothed channels | Self anchoring channels

*Notes: 1. Other lengths are available on request, please contact ACS Stainless Steel Fixings Limited for further information.
2. Bolt sizes and lengths stated above include all sizes in all finishes. Some bolt sizes / lengths may not be available in some materials / finishes. Please consult ACS for further information.

Surface fixed channels

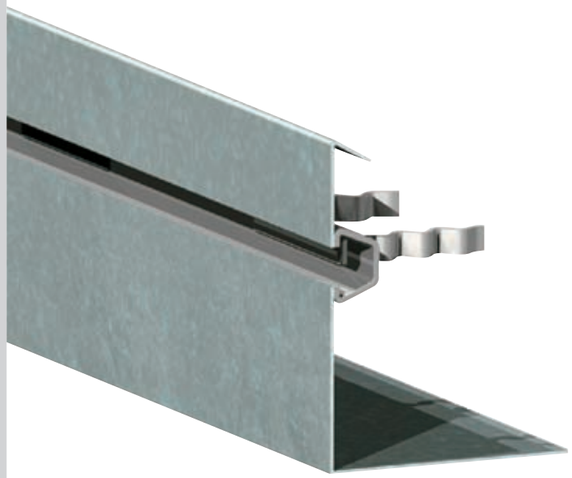
Channel reference	Available materials	Standard lengths
25/15 SF	Stainless steel	2700
28/15 SF	Carbon steel, HDG, Stainless steel	3000
35/8 SF	Stainless steel	3000
38/17 SF	Carbon steel (HDG) & Stainless steel	3000

*Notes: 1. Other lengths are available on request, please contact ACS for further information.

Plain back channels

Channel reference	Available materials	Standard lengths
28/15 PB	Carbon steel, HDG, Stainless steel	3000
38/17 PB	Carbon steel, HDG, Stainless steel	3000
40/25 PB	Carbon steel, HDG, Stainless steel	3000
49/30 PB	Carbon steel, HDG, Stainless steel	3000

*Notes: 1. Other lengths are available on request, please contact ACS for further information.



Isometric showing CET 31/21 profile.

CET Cast in Channel & Edge Trim

CET has been developed for use with steel frame structures that act as a permanent shuttering when pouring concrete in situ onto ribbed decking floors.

One of the main advantages of this system is that the profiled trim incorporates a channel for casting into the concrete. Fixing to the face of thin slabs with site drilled bolts can become impractical or very expensive especially when trying to transfer loads from masonry support angles, curtain walling or even windposts back into the structure.

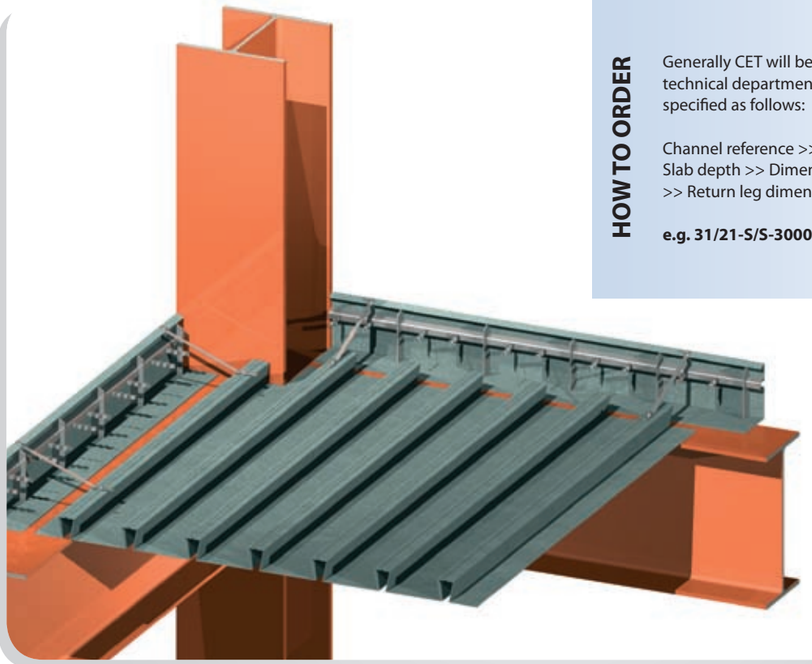
There are four types of system available:

- CET 28/15
- CET 31/21
- CET 38/17
- CET 40/25

CET is manufactured from pre-galvanised sheet & incorporates a stainless steel channel. However, mild steel channels can be incorporated on request, especially if located internally e.g. lift shafts.

The type of channel, depth, projection & thickness of pre-galvanised trim depends on the loading applied and the section detail.

CET is supplied in standard 3m lengths; however, other lengths may be manufactured on request.



Isometric showing CET 31/21 in situ prior to concrete pour.

HOW TO ORDER

Generally CET will be designed by a qualified member of our technical department at design stage, although CET may be specified as follows:

Channel reference >> Channel material >> O/A length >> Slab depth >> Dimension from top of slab to c/l of channel >> Return leg dimension

e.g. 31/21-S/S-3000-130-50-150

Channel Systems

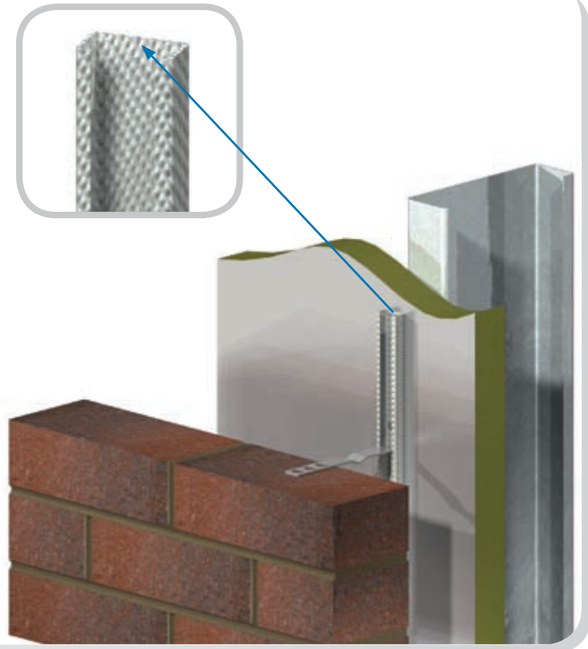
25/15 Frame Fix ULTRA Channel

ACS 25/15 frame fix ULTRA channel has been developed in response to the increasing need to tie masonry cladding back to steel framed structures.

Supplied in 2700mm lengths, the ACS 25/15 frame fix ULTRA channel system is pre drilled at 112.5mm centres and is also complemented with a range of channel ties to suit.

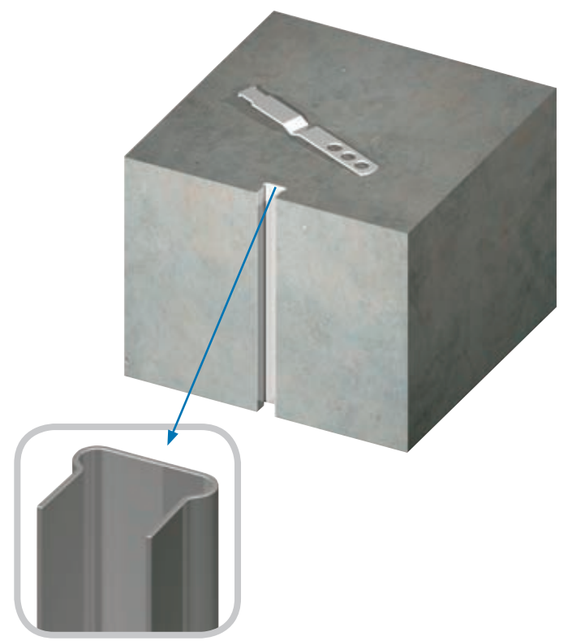
In addition to this, ACS also offers a range of both stainless and zinc plated fixing screws designed specifically for holding the channel in position, whilst not crushing the composite material, along with drive units for the installation of the screws.

The 25/15 ULTRA channel system is supported by independent testing from the Sheffield Hallam University's Department of Structural and Civil Engineering - technical data available, please ask for details.



21/19 APEX Channel

The ACS 21/19 APEX channel is a self anchoring cast in channel that is designed to be used with either our 4600 or 4700 range of channel ties. Supplied in 3000mm or 100mm pieces, the 21/19 APEX channel has a shallow profile that allows this product to be used where there is reduced cover to reinforcement . The 21/19 APEX channel is supplied complete with polystyrene infill to prevent the ingress of concrete and also has nail holes to aid fixing to the formwork.



Masonry Reinforcement

Introduction

ACS has the capability to design and supply various types of bed joint reinforcement to suit your requirements. Reinforcement is placed in horizontal bed joints and is designed to increase the tensile and flexural strength of masonry. It resists the stresses that are inherent in loaded masonry panels and thus substantially reduces the risk of cracks developing.

ACS's reinforcement can be used as an economical but effective bed joint reinforcement on either a single or double leaf construction. The reinforcement is manufactured in both stainless steel, grade 304 (1.4301) and galvanized mild steel.

This ladder type reinforcement enhances structures resistance to wind and other lateral loadings.

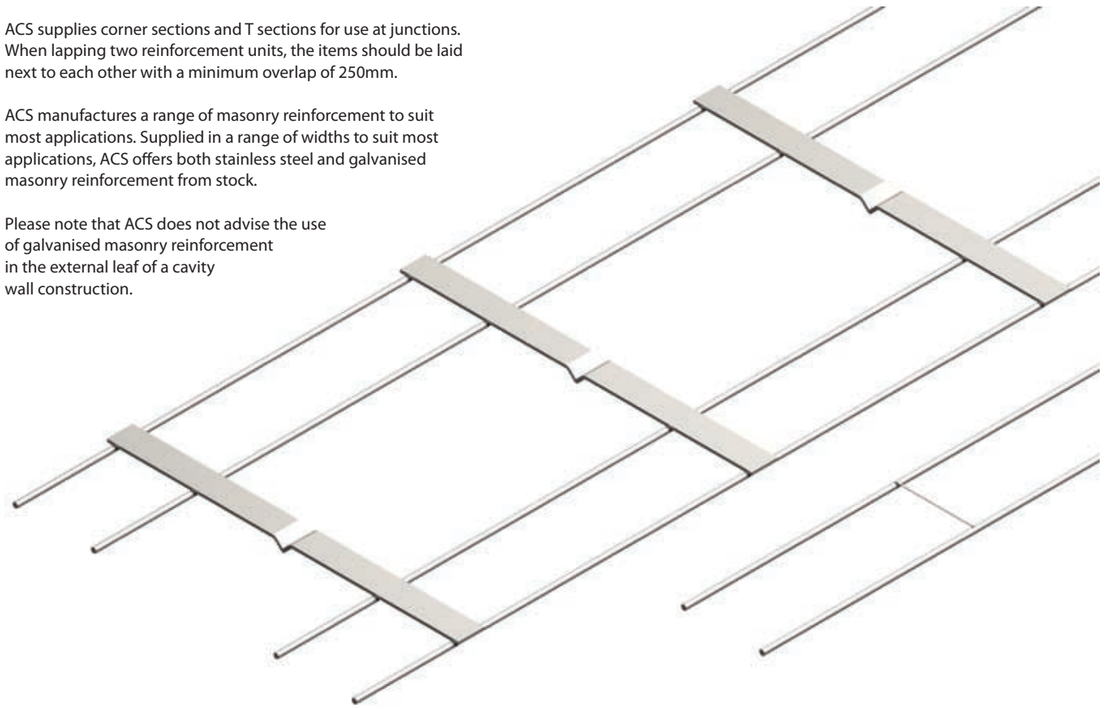
It can be used:

- to increase the recommended distance between movement joints
- to strengthen areas of concentrated loads and assist in resisting effects of stresses caused by earth movements, therefore reducing the likelihood of cracking in the brickwork
- to allow cladding panels to be increased in size
- relieves stress concentration around openings, such as windows and doors

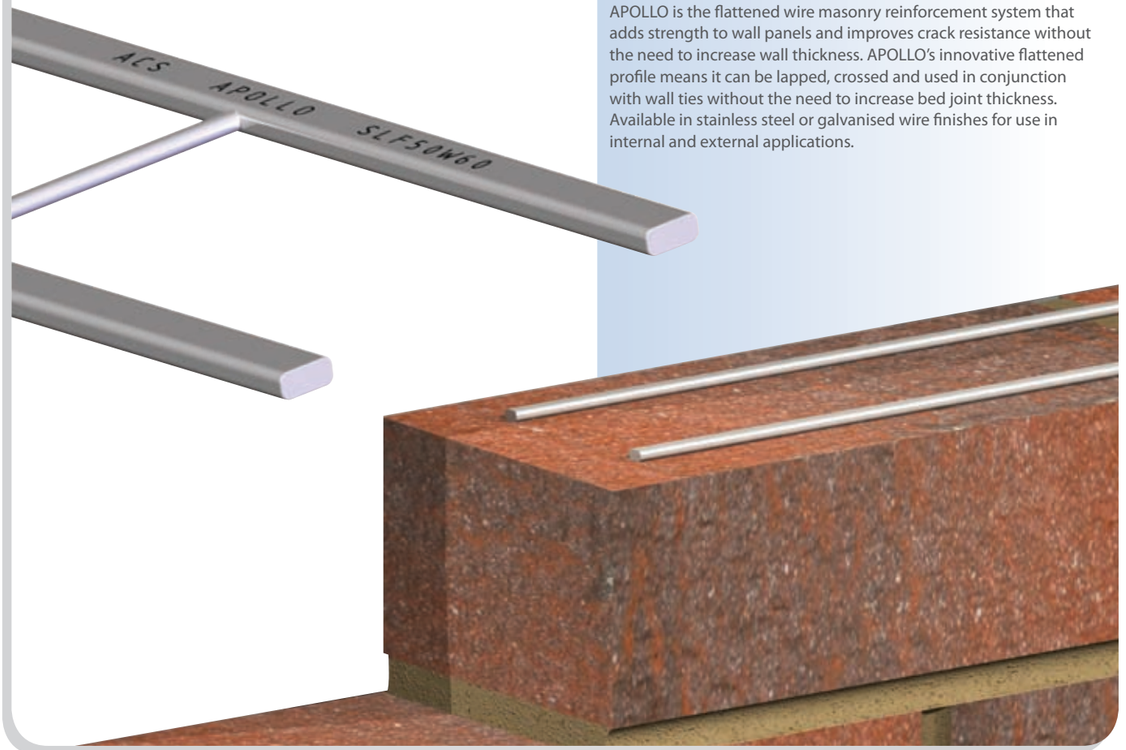
ACS supplies corner sections and T sections for use at junctions. When lapping two reinforcement units, the items should be laid next to each other with a minimum overlap of 250mm.

ACS manufactures a range of masonry reinforcement to suit most applications. Supplied in a range of widths to suit most applications, ACS offers both stainless steel and galvanised masonry reinforcement from stock.

Please note that ACS does not advise the use of galvanised masonry reinforcement in the external leaf of a cavity wall construction.

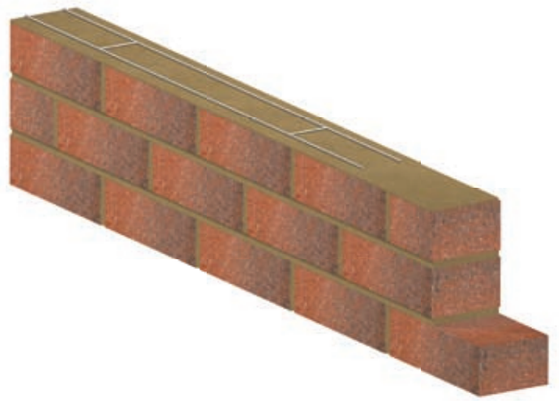


Introducing the all new ACS APOLLO™



APOLLO from ACS

APOLLO is the flattened wire masonry reinforcement system that adds strength to wall panels and improves crack resistance without the need to increase wall thickness. APOLLO's innovative flattened profile means it can be lapped, crossed and used in conjunction with wall ties without the need to increase bed joint thickness. Available in stainless steel or galvanised wire finishes for use in internal and external applications.



ACS APOLLO SLF Flattened Wire Single Leaf System

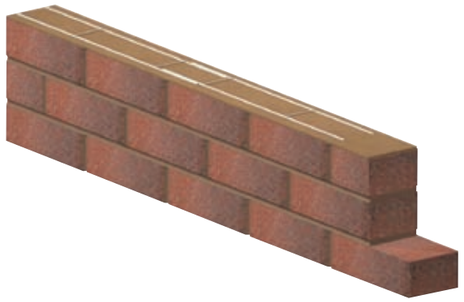
The ACS APOLLO SLF single leaf system consists of two flattened horizontal wires with welded horizontal cross wires that conform with BS 5628-2-2000. The SLF system is supplied in variety of widths from 60mm to 150mm wide as standard and is available in a range of wire diameters to suit.

Masonry thickness	Product width and reference	Length	Wire diameters (in mm)
100mm	SLF 60mm	2.7m	3.0, 3.5*, 4.0, 4.5*, 5.0
140mm	SLF 100mm	2.7m	3.0, 3.5*, 4.0, 4.5*, 5.0
215mm	SLF 150mm	2.7m	3.0, 3.5*, 4.0, 4.5*, 5.0

How to order

Please denote wire thickness in product code
e.g. SLF35W60 (3.5mm wire)

Masonry Reinforcement



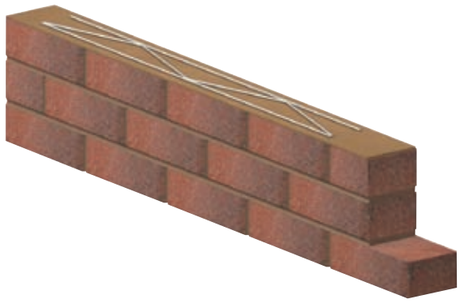
SL Single Leaf System

The ACS SL single leaf ladder system consists of twin horizontal rod wires with welded cross wires that conforms to BS 5628: Part 2: 1990. The SL system is available in a variety of widths from 60mm up to 175mm as standard and is available in a range of wire diameters to suit.

Masonry thickness	Product width and reference	Length
100mm	SL 60mm	2.7m
140mm	SL 100mm	2.7m
190mm	SL 150mm	2.7m
215mm	SL 175mm	2.7m

How to order

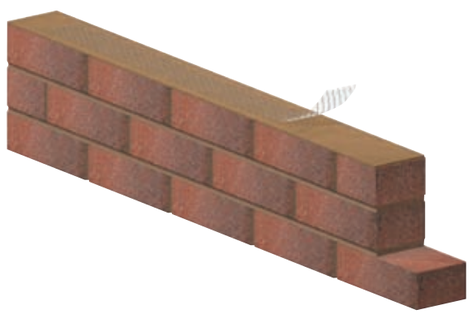
Please denote thickness after product code
e.g. SL60/5 (5mm wire)



SZ Single Leaf System

The ACS SZ single leaf system comprises horizontal twin rod wires with diagonally welded cross wires along the length and is available in 50,100mm and 150mm widths as standard. This is for use in single leaf construction where a lower characteristic strength is required compared to the SL single leaf system.

Masonry thickness	Product width and reference	Length
100mm	SZ 50mm	2.7m
140mm	SZ 100mm	2.7m
215mm	SZ 150mm	2.7m



EX Expanded Metal Bed Reinforcement

The ACS expanded metal reinforcement provides extra strength and support in stress areas of walls to prevent cracking where settlement has occurred.

ACS suggests that when using EX it should be placed in every third brickwork or every blockwork bed joint. It can also be used to bond a section of wall to a concrete frame. EX is available in 20 metre rolls in 304 (1.4301) stainless steel.

Masonry thickness	Product width and reference	Length
100mm	EX 65mm	20m
140mm	EX 115mm	20m
215mm	EX 175mm	20m
300mm	EX 225mm	20m

Note: ACS suggests that a 25mm gap is left between the EX reinforcement and the outer face of the wall with a minimum overlap of 75mm.

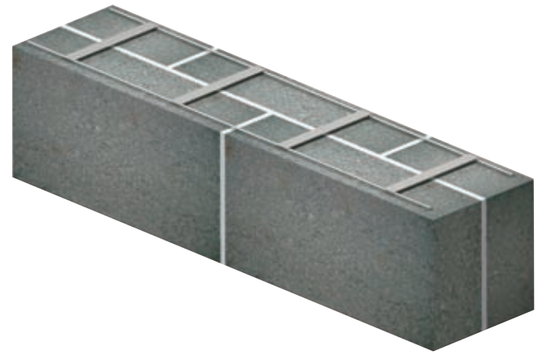
Note: Pre-galvanised EX is only to be used in plaster and asphalt situations.

Masonry Reinforcement

DLC Double Leaf Collar System

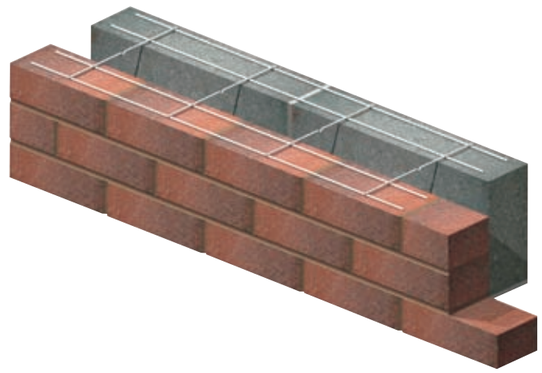
The ACS double leaf system consists of horizontal twin rod wires with welded flat ties and complies with BS 5628: Part 2: for reinforced masonry. The DLC system is designed for use in double leaf collar joint walls. When two blocks are tied with the DLC system, site problems caused by using single heavy blocks can be minimised. It ensures correct positioning of ties at 450mm centres whilst providing resistance to cracking in one leaf and structural reinforcement in the other.

The DLC system is supplied 175mm wide as standard. Other widths are available upon request.



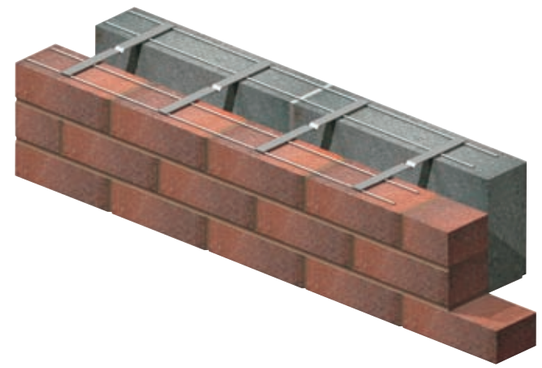
DL Double Leaf System

The ACS double leaf system consists of four horizontal wires with welded cross wires. The DL system is designed for use in cavity walls. The DL system ensures correct positioning of ties at 450mm centres and complies with BS 5628: Part 2: for reinforcement masonry. In walls consisting of two parallel leaves with up to a 75mm cavity the DL system provides structural reinforcement. It provides the bricklayer with the same benefits as the DLC system as it also eliminates the need to use and lift heavy blocks.



HDDL Heavy Duty Double Leaf System

The ACS heavy duty double leaf system consists of four horizontal wires with cross welded flat ties. This system ensures correct positioning of ties at 450mm centres and provides structural reinforcement in both leaves. Where a cavity is larger than 75mm please specify the HDDL, which is available in a variety of configurations to suit site requirements.



Masonry Support

Introduction

ACS provides a wide range of masonry support systems designed to support the external leaf of masonry for all types of structure. The presence of a masonry support angle allows differential movement of the structure and the external cladding via a horizontal movement joint.

Horizontal movement joints are usually positioned at every storey or every other storey depending on the detail. However, the maximum allowable height of masonry to be supported is 9m or 3 storeys in height, whichever is less (refer to BS 5628: Part 1 - 2005).

Note: buildings not exceeding 4 storeys or 12 metres in height, which ever is less, may be uninterrupted for its full height.

Materials

ACS masonry support systems are generally manufactured from stainless steel Grade 304 material; however, we can manufacture systems from Grade 316 stainless steel, especially if it is to be used in corrosive environments such as coastal areas.

Where stainless steel comes into contact with mild steel it is important to isolate the dissimilar materials via neoprene spacers to prevent bi-metallic corrosion. These are available from ACS.

Adjustments/tolerances

ACS masonry support systems may be adjusted in 3 directions depending on the fixing detail to overcome site tolerances.

• Vertical adjustment

This can be accommodated via the use of ALPHA or serrated washers over the vertical slots in the system.

• Longitudinal adjustment

This can be accommodated via horizontal slots in steelwork or via a continuous cast in channel.

• Lateral adjustment

This can be accommodated via stainless steel shims. The maximum allowable shim is the thickness of the bolt or 12mm whichever is less. If shimming exceeds this figure please liaise with ACS Technical Department.

ALPHA Bracket System

Almost every support system designed and manufactured by ACS now incorporates the new ALPHA Bracket.

The ALPHA Bracket has been developed to replace the traditional serrated bracket and offers many advantages including the following:

Isometric showing ALPHA Bracket & washer.

Patent No. GB2412952B

FEATURES

• Lock safe

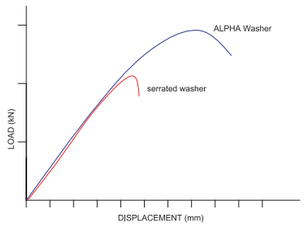
Where a serrated pad and washer fails, the positive locking ALPHA Bracket locks in on itself preventing catastrophic failure.

• Finer adjustment

The ALPHA Bracket has over 5mm more vertical adjustment than a traditional serrated bracket system; in addition to this the ALPHA Washer allows 4mm fixing increments.

• Economic

Because much greater loads can be achieved, in most cases fewer brackets need to be used. On a typical system we estimate this could save over 10%.



The ALPHA Bracket has been independently tested at Sheffield University and has been proven to perform on average over 20% better in shear than the traditional serrated bracket system.

HOW TO ORDER

The following guide allows designers to specify masonry support systems for most situations. However, ACS offers a full design service which includes sketch proposals & technical advice for all standard & non-standard conditions.

Type of system	Stone thickness	Cavity	Load	Structure	Bolt type
T1 = Bracket/Angle	I = Inverted angle	Fixing cavity (mm)	kN/m	S = Steel	EA = Expansion Anchor
T2 = Angle	L = Standard			C = Concrete	RA = Resin Anchor
T3 = Individual	U = Inverted system			TC = Top Cleat	TB = T Head Bolt
	R = Radiussed			CH = Channel	BB = Blind Bolt
				CET = Edgetrim	SS = Set Screw

Example: **TL / L / 100 / 6.0 / C / RA**

This would indicate a Type 1 bracket angle system to suit a 100mm cavity & 6.0kN/m loading bolted back to concrete with resin anchors.

T1 Masonry Support Variances to Concrete

Type 1 - Concrete Slab (Cast in Channel)

ACS Type 1 masonry support systems may be bolted to cast in channels via T head bolts. Channel sizes may vary in size depending on load, please consult ACS for exact requirements and position.

Ref: T1 / L / ** / ** / CH / TB

fixing cavity (mm) kN/m

Type 1 - Concrete Slab (Cleats)

ACS Type 1 masonry support systems may be bolted with hex head setscrews back to cleats, bolted to top of slab via expansion or chemical fixings.

Ref: T1 / L / ** / ** / TC / SS

fixing cavity (mm) kN/m

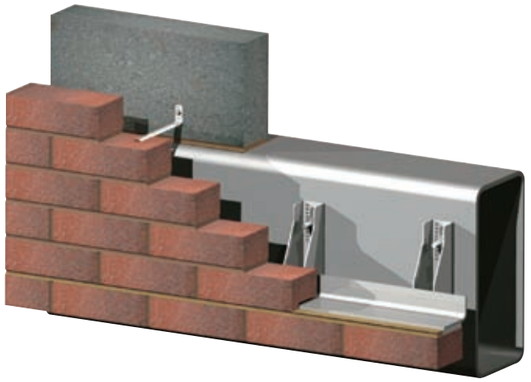
Type 1 - Concrete Slab (Site Drilled)

ACS Type 1 masonry support systems may be bolted to concrete via an expansion or chemical fixings.

Ref: T1 / L / ** / ** / C / RA or EA

fixing cavity (mm) kN/m

T1 Masonry Support Variances to Concrete & Steel

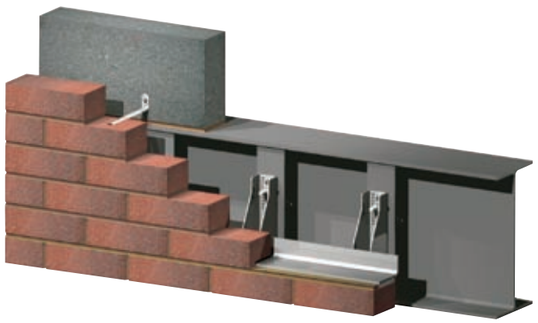


Type 1 - RHS (Blind Bolts)

ACS Type 1 masonry support systems may be bolted to the face of rolled hollow sections via blind bolts, this type of fixing may also be used in other steel members where there is limited access.

Ref: T1 / L / ** / ** / S / BB

fixing cavity (mm) kN/m

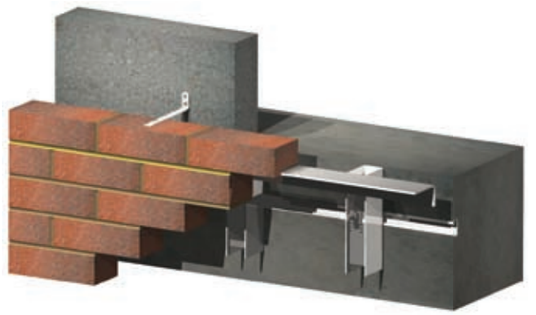


Type 1 - Steel UB (Plates/Tees)

ACS Type 1 masonry support systems may be bolted to welded plates/tees via hex head setscrews. Please liaise with ACS for optimum spacing of plates/tees prior to manufacture of the structure.

Ref: T1 / L / ** / ** / S / SS

fixing cavity (mm) kN/m



Type 1 – Inverted (Cast-in Channel)

ACS Type 1 masonry support can be supplied inverted, and fixed back to either concrete or steel (shown fixed back to ACS 31/21 channel for illustration purposes).

Ref: T1/U//**/CH/TB**

fixing cavity (mm) kN/m

Masonry Support

National Sales Enquiries: 0870 850 0860

T2 Masonry Support Variances to Concrete & Steel

Type 2 - Concrete Slab (Cast in Channel)

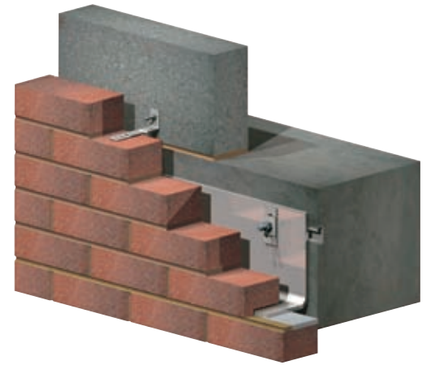
ACS Type 2 masonry support systems may be bolted to cast in channels via T head bolts.

Note: detail shown indicates the use of serrated patches.

Channel sizes may vary depending on load, please consult ACS for exact requirements and position.

Ref: T2 / L / ** / ** / CH / TB

fixing cavity (mm) kN/m



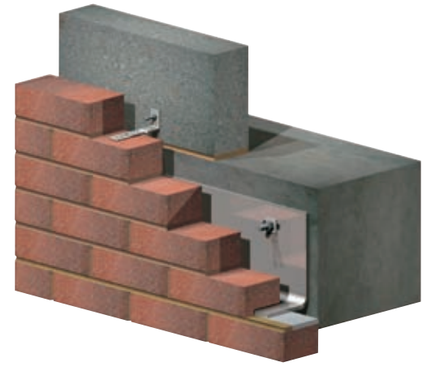
Type 2 - Concrete Slab (Site Drilled)

ACS Type 2 masonry support systems may be bolted to concrete via expansion or chemical fixings.

Detail shown indicates angle c/w horizontal slots. This system is the most economical of the T2 systems, generally used where no vertical tolerance is required.

Ref: T2 / L / ** / ** / C / RA or EA

fixing cavity (mm) kN/m



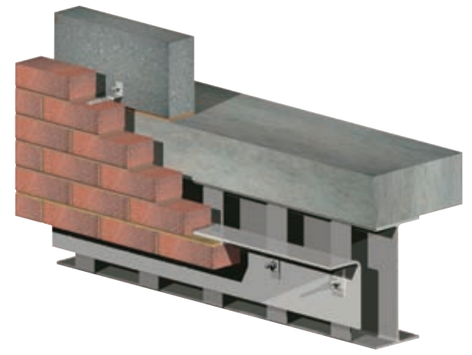
Type 2 - Steel UB (Plates/Tees)

ACS Type 2 masonry support systems may be bolted to welded plates / tees via hex head setscrews. Detail shown indicates the use of serrated patches and the system inverted.

Please liaise with ACS for optimum spacing of plates/tees prior to manufacture of the structure.

Ref: T2 / I / ** / ** / S / SS

fixing cavity (mm) kN/m



Masonry Support

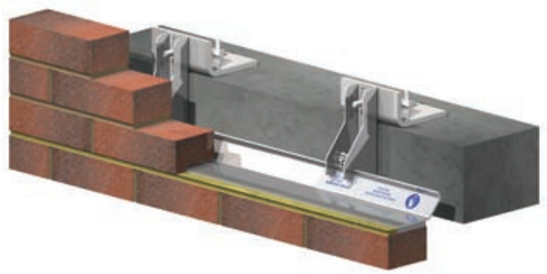
info@acsstainless.co.uk

ATLAS Adjustable Masonry Support

Off-the-shelf ATLAS masonry support for modern construction

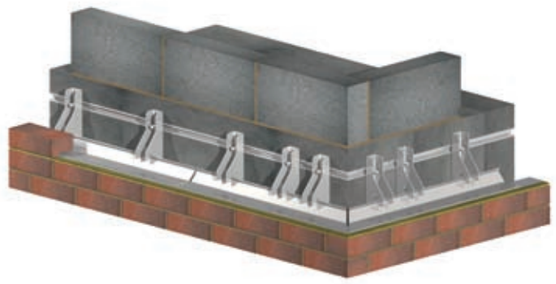
As clients and main contractors take a more proactive approach to design and value engineering, traditional welded masonry support systems are increasingly struggling to deliver the flexibility and adaptability required by modern fast-track projects.

Conventional welded systems simply do not allow for on-site adjustment or accommodate variations in cavities and loads, and the smallest of changes can make an entire system obsolete. These bespoke systems often require a lengthy approval process, take longer to manufacture and are often more expensive to install. This, coupled with a need for fast, flexible construction, has led ACS to develop a revolutionary alternative.



The ATLAS Advantage

- Supplied from stock
- Non project specific
- Fast and simple to install
- Easily assembled by one person
- Revolutionary front-loading system
- Highly adaptable and adjustable
- Simple online specification process
- Easy to store and transport



ATLAS: the fast, flexible alternative

ATLAS is a patented off-the-shelf masonry support system designed and manufactured to meet the demands of modern construction projects.

Engineered specifically to support the external masonry facades of concrete and steel structures, it is cost-effective, convenient and is designed to accommodate cavities ranging from 60 to 130mm, and loads of up to 14kN*.

As an off-the-shelf system, ATLAS brackets and angles are interchangeable, can be easily moved around site and require no setting out or detailed layouts.

* 14kN + systems also available as special order

Introducing ACS ATLAS

Benefits

Front-loading for effortless installation

For ease of use, ATLAS has been designed with a patented front-loading bracket and separate 'clip-in' angle. This allows it to be easily fitted and adjusted by only one non-specialist construction worker, reducing labour costs to a minimum and ensuring considerable time savings.

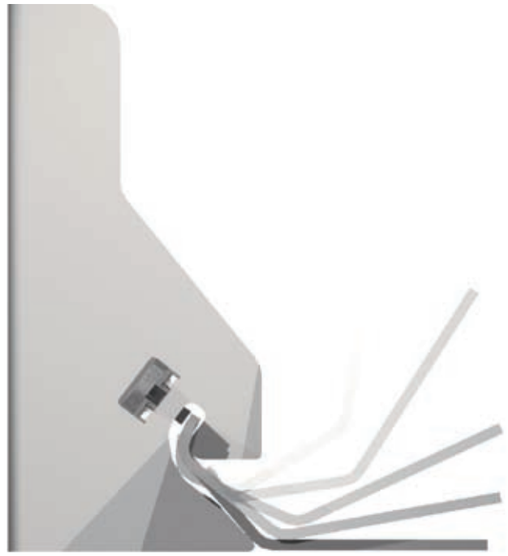
For added convenience, ATLAS angles are supplied in easy to handle 1000mm** lengths. A standard front-loading corner system, comprising two 45 degree mitred angles and three brackets per angle is available from stock. An innovative self-encapsulated design with fewer components also means fewer tools are required for installation - minimising the risk of losing equipment or components down the cavity.

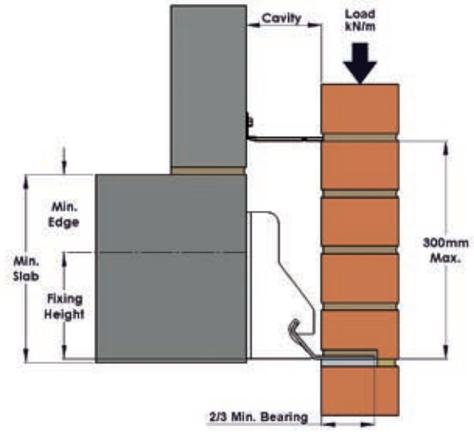
** May differ on 14kn or above

How the ACS ATLAS system works:

- Two brackets are installed on the structure***, and the angle platform simply clips onto the front of the bracket within the printed zones.
- Finger-tightening of the integrated locking screw on the side of the bracket securely locks the angle in place.
- The process can easily be reversed where a different depth bracket is required.

*** 3 Brackets on corner systems





Prepare for the unknown

Unlike bespoke welded support systems, ATLAS can be instantly adjusted on site, to meet your requirements.

A co-ordinated range of interchangeable brackets and shims allows the system to be adjusted in 1mm increments. Printed fixed zones on each angle allow for lateral adjustments of 25mm on either side preventing unnecessary drilling. And our unique ALPHA Bracket and Washer system offers 5mm more of vertical adjustment than traditional serrated systems. The system also includes a positive lock mechanism which increases load capacity and safeguards against catastrophic failure. This enables fewer brackets to be used and could mean cost savings of 10% on a typical installation.

Easy to specify

Other off-the-shelf support systems often place all the responsibility for design on the client; a daunting prospect for all but the most talented of engineers.

With ATLAS, you can specify your system online, simply by logging onto our website and following a few basic on-screen instructions. Our unique ATLAS specification software will then automatically produce supporting engineering calculations and approval drawings, reducing the time taken to complete the standard manual approval process and removing the risk of error.

Still unsure? Your ACS Account Manager will happily feed your data in on your behalf and email you your system, drawings, and calculations, within minutes.

You may also wish to refer to the load/capacity tables shown overleaf.

Always in stock

ATLAS is supplied off-the-shelf from stock, uses component parts and is always ready for immediate despatch. This allows you to order components, as and when they are required, and re-use excess items on other projects.

ATLAS

T3 Masonry Support Variances

T3 Masonry support variances and special fabrication

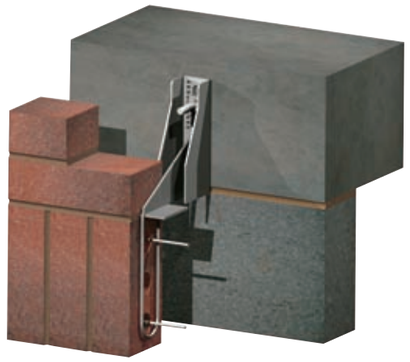
ACS Type 3 individual support brackets are ideal where masonry is curved or irregular on plan or elevation. This type of system is generally used on concrete structures where the brackets are bolted to a continuous cast in channel with T head bolts or to the concrete face via site drilled fixings. The brackets are easy to handle, install and align.

Type 3A

This system is used where masonry is to be supported with individual brackets and angles. Brackets are bolted to the structure at positions to suit the perpends of the masonry i.e. 225mm for brickwork or 450mm for blockwork. Note that the overall capacity of the bracket will reduce when positioned at 450mm centres.

Ref: T3a / ** / ** / C / RA or EA

fixing cavity (mm) kN/m



Type 3B

This system is used where a soldier course is beneath the supported masonry and the system needs to be hidden from below. The soldier course is supported via a welded stirrup; stitching rods are then inserted in fully mortared brick cores between the stirrups.

Ref: T3b / ** / ** / C / RA or EA

fixing cavity (mm) kN/m

Special Fabs

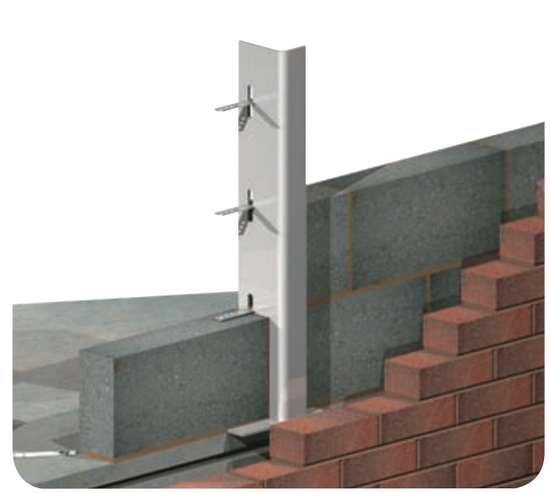
It may be necessary in some instances to design and manufacture special angles to suit various details. The detail shown here indicates a pier being supported via a fabricated angle complete with welded gussets. This would be necessary to take the large eccentric loads back to the main structure.

ACS can design and manufacture to almost every special condition, however please liaise with the technical department for advice on the most appropriate system and fixing detail.

Windposts

Introduction

ACS has designed and developed an extensive range of windposts that span vertically between floors to provide lateral support to a variety of brick and blockwork applications. They often eliminate the need for additional steel or reinforced concrete columns, thus reducing time and costs involved in this method of construction. Windposts provide greater strength and stability in large areas of cladding or where there are two or more window apertures in a masonry panel.



Typical Windpost Types

C Type windposts are installed within a cavity, leaving the blockwork undisturbed. They are commonly used in masonry panels that are subject to lower wind loadings.

L Type windposts are a cost effective structural system, designed for use where high wind loadings may occur and in some cases where cavity widths restrict the use of C Type windposts.

Special Windposts

ACS also offers a selection of posts to support spandrel panels and parapets. They are designed as 'cantilevers' but require a much larger base connection than simply supported beams to resist bending movements. Please contact the ACS Technical Department for further details.

Fixings

Windposts are supplied complete with ACS masonry ties and bolt fixings, and are available in a range of configurations to suit individual requirements. The method of fixing top and bottom connections is usually determined by the structure to which the post is fixed. The top connection is usually designed to provide vertical adjustment to allow for any site tolerances and differential movement that may occur in the structure.

Fixing Kits

To simplify the installation of posts, ACS has created a series of kits that come complete with all necessary drill bits, fixing bolts & washers etc. to suit a variety of connections. All kits come complete with site installation notes that clearly show the fixer bolt types, tightening torques, curing times etc.

Materials

Windposts are predominantly manufactured from grade 304 stainless steel, however they may be manufactured from other materials and be supplied in a number of finishes.

Please refer to the mild steel windpost section (page 42) for further details.

Design

Windpost sizes may or may not be known depending on the status of the project.

The tables shown for the L & C Type windposts detail typical section sizes to aid design. However, to ensure the most economical section is specified please liaise with a member of the technical department or alternatively please supply the following information:

- Wall construction (internal and external masonry thicknesses and cavity size)
- Masonry panel width (dimension of load that is to be applied to windpost)
- Masonry panel height
- Wind loading per m^2

This will allow a basic design to be carried out. However, for special posts such as parapet posts please consult ACS.

HOW TO ORDER

When ordering windposts please supply the following:

- Section size
- Overall opening height
- Base fixing (e.g. concrete / steel / timber)
- Top fixing (e.g. concrete / steel / timber)
- Wall construction (internal and external masonry thicknesses and cavity size)
- Material & finish (stainless / mild steel)

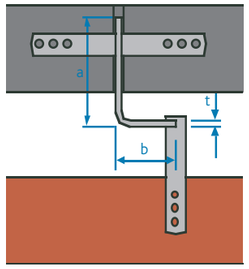
Alternatively please complete a windpost information sheet. (available on request).

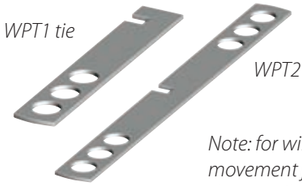
L Type Windposts

Sectional properties and loading data for L Type windposts.

L Type windposts are a cost effective structural system designed to suit each and every individual project. The posts are built into the internal skin of blockwork and bolted to the structure via suitable fixings. The use of WPT1 clip on ties to the external leaf & WPT2 clip in ties to the inner leaf transfer the loadings applied to the cladding back to the structure.

The following tables illustrate the typical sizes available, however almost any size can be designed / manufactured.





Note: for windposts positioned at movement joint positions plastic sleeves will be provided. Please specify this when ordering.

L TYPE Windposts

Windposts are designed as simply supported beams. Maximum deflection is height/360 and maximum stress is 185N/mm².

Section	Ixx	Zxx	2.5m	3.0m	3.5m	4.0m	4.5m	5.0m	5.5m	6.0m
a x b x t	cm⁴	cm³	← Maximum unfactored load for height of windpost (UDL) kN →							
125 x 70 x 4	128.30	15.40	8.8	6.1	4.5	3.4	2.7	2.2	1.8	1.5
140 x 70 x 4	174.46	19.01	11.9	8.3	6.1	4.7	3.7	3.0	2.5	2.1
130 x 70 x 6	208.88	24.44	14.3	9.9	7.3	5.6	4.4	3.6	3.0	2.5
155 x 70 x 4	229.71	22.96	15.7	10.9	8.0	6.1	4.8	3.9	3.2	2.7
170 x 70 x 4	294.81	27.24	16.7	14.0	10.3	7.9	6.2	5.0	4.2	3.5
150 x 70 x 6	308.40	31.95	16.7	14.6	10.7	8.2	6.5	5.3	4.4	3.7
160 x 70 x 6	367.54	36.03	16.7	17.4	12.8	9.8	7.7	6.3	5.2	4.4
185 x 70 x 4	370.46	31.85	16.7	16.6	12.9	9.9	7.8	6.3	5.2	4.4
150 x 80 x 8	421.50	43.00	16.7	20.0	14.7	11.2	8.9	7.2	6.0	5.0
185 x 70 x 5	458.69	39.58	16.7	20.0	16.0	12.2	9.7	7.8	6.5	5.4
160 x 80 x 8	502.82	48.54	16.7	20.0	17.5	13.4	10.6	8.6	7.1	6.0
200 x 70 x 5	566.57	45.72	16.7	20.0	19.7	15.1	11.9	9.7	8.0	6.7

L TYPE Parapet posts

Parapet and spandrel posts are designed as fixed base cantilevers. Maximum deflection is height/180 and maximum stress is 185N/mm².

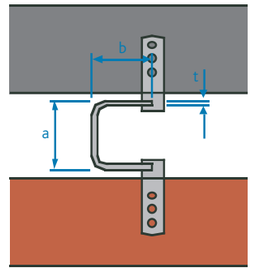
Section	Ixx	Zxx	0.8m	1.0m	1.2m	1.4m	1.6m	1.8m	2.0m
a x b x t	cm⁴	cm³	← Maximum unfactored load for height of parapet post (UDL) kN →						
125 x 70 x 4	128.30	15.40	5.3	6.0	5.0	4.3	3.8	3.3	2.9
140 x 70 x 4	174.46	19.01	5.3	6.7	6.2	5.3	4.6	4.1	3.7
130 x 70 x 6	208.88	24.44	5.3	6.7	8.0	6.8	6.0	5.3	4.6
155 x 70 x 4	229.71	22.96	5.3	6.7	7.5	6.4	5.6	5.0	4.5
170 x 70 x 4	294.81	27.24	5.3	6.7	8.0	7.6	6.6	6.0	5.3
150 x 70 x 6	308.40	31.95	5.3	6.7	8.0	8.9	7.8	7.0	6.2
160 x 70 x 6	367.54	36.03	5.3	6.7	8.0	9.3	8.8	7.8	7.0
185 x 70 x 4	370.46	31.85	5.3	6.7	8.0	9.3	7.8	6.9	6.2
150 x 80 x 8	421.50	43.00	5.3	6.7	8.0	9.3	10.5	9.3	8.4
185 x 70 x 5	458.69	39.58	5.3	6.7	8.0	9.3	10.7	8.6	7.7
160 x 80 x 8	502.82	48.54	5.3	6.7	8.0	9.3	10.7	10.5	9.5
200 x 70 x 5	566.57	45.72	5.3	6.7	8.0	9.3	10.7	9.9	8.9

C Type Windposts

Sectional properties and loading data for C Type windposts.

C Type windposts are designed within the cavity and eliminate the need for cutting blockwork. The posts are bolted to the structure with suitable fixings. The use of WPT1 clip on ties to both the external & internal leaf transfer the loadings applied to the cladding back to the structure.

The following tables illustrate the typical sizes available, however, almost any size can be designed / manufactured.



C TYPE Windposts

Windposts are designed as simply supported beams. Maximum deflection is height/360 and maximum stress is 185N/mm².

Section	Ixx	Zxx	2.5m	3.0m	3.5m	4.0m	4.5m	5.0m	5.5m	6.0m
a x b x t	cm⁴	cm³	← Maximum unfactored load for height of windpost (UDL) kN →							
55 x 60 x 4	34.74	12.63	2.4	1.7	1.2	0.9	_	_	_	_
55 x 60 x 5	41.42	15.06	2.8	2.0	1.4	1.1	_	_	_	_
65 x 60 x 4	50.89	15.66	3.5	2.4	1.8	1.4	1.1	_	_	_
65 x 60 x 5	61.06	18.79	4.2	2.9	2.1	1.6	1.3	1.0	~	–
75 x 60 x 4	70.58	18.82	4.8	3.3	2.5	1.9	1.5	1.2	1.0	–
75 x 60 x 5	85.07	22.68	5.8	4.0	3.0	2.3	1.8	1.5	1.2	1.0
85 x 60 x 4	94.01	22.12	6.4	4.5	3.3	2.5	2.0	1.6	1.3	1.1
85 x 60 x 5	113.70	26.75	7.8	5.4	4.0	3.0	2.4	1.9	1.6	1.4
95 x 60 x 5	147.21	30.99	10.1	7.0	5.1	3.9	3.1	2.5	2.1	1.7
105 x 60 x 5	185.85	35.40	12.7	8.8	6.5	5.0	3.9	3.2	2.6	2.2
115 x 60 x 5	229.86	39.98	15.7	10.9	8.0	6.1	4.8	3.9	3.2	2.7
115 x 60 x 6	268.71	46.73	16.7	12.7	9.4	7.2	5.7	4.6	3.8	3.2
115 x 65 x 8	362.92	63.12	16.7	17.2	12.6	9.7	7.7	6.2	5.1	4.3

C TYPE Parapet posts

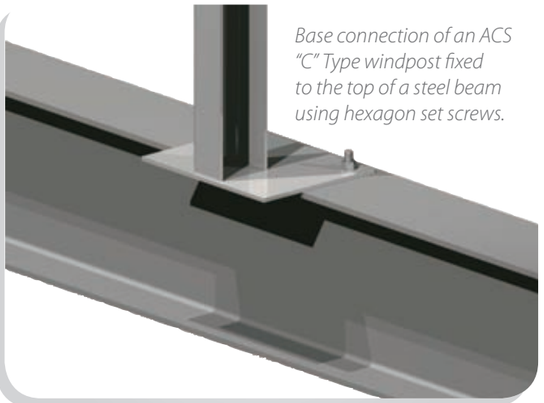
Parapet and spandrel posts are designed as fixed base cantilevers. Maximum deflection is height/180 and maximum stress is 185N/mm².

Section	Ixx	Zxx	0.8m	1.0m	1.2m	1.4m	1.6m	1.8m	2.0m
a x b x t	cm⁴	cm³	← Maximum unfactored load for height of parapet post (UDL) kN →						
55 x 60 x 4	34.74	12.63	4.8	3.1	2.1	1.6	1.2	1.0	0.8
55 x 60 x 5	41.42	15.06	5.3	3.7	2.6	1.9	1.4	1.1	0.9
65 x 60 x 4	50.89	15.66	5.3	4.5	3.1	2.3	1.8	1.4	1.1
65 x 60 x 5	61.06	18.79	5.3	5.4	3.8	2.8	2.1	1.7	1.4
75 x 60 x 4	70.58	18.82	5.3	6.3	4.4	3.2	2.5	1.9	1.6
75 x 60 x 5	85.07	22.68	5.3	6.7	5.3	3.9	3.0	2.3	1.9
85 x 60 x 4	94.01	22.12	5.3	6.7	5.8	4.3	3.3	2.6	2.1
85 x 60 x 5	113.70	26.75	5.3	6.7	7.0	5.2	4.0	3.1	2.5
95 x 60 x 5	147.21	30.99	5.3	6.7	8.0	6.7	5.1	4.0	3.3
105 x 60 x 5	185.85	35.40	5.3	6.7	8.0	8.4	6.5	5.1	4.1
115 x 60 x 5	229.86	39.98	5.3	6.7	8.0	9.3	8.0	6.3	5.1
115 x 60 x 6	268.71	46.73	5.3	6.7	8.0	9.3	9.3	7.4	6.0
115 x 65 x 8	362.92	63.12	5.3	6.7	8.0	9.3	10.7	10.0	8.1

Windpost Fixing Details

Typical Base Fixing Details

Base connection of an ACS "L" Type windpost fixed to the top of a concrete slab using chemical resin studs.



Base connection of an ACS "C" Type windpost fixed to the top of a steel beam using hexagon set screws.

Base connection of an ACS "C" Type windpost fixed to the face of concrete slab using chemical resin studs.

Typical Top Fixing Details

Top connection detail of an ACS "C" Type windpost fixed to the top of a timber wall plate using a hexagon head coach screw.

Top connection detail of an ACS "L" Type windpost fixed to the underside of a steel beam using hexagon set screws.

Top connection detail of an ACS "L" Type windpost fixed to the underside of concrete slab using site drilled bolts.

National Sales Enquiries: 0870 850 0860

Mild Steel Windposts

Introduction

In addition to the range of stainless steel windposts available, ACS also manufactures a full range of mild steel windposts. These are supplied in a variety of finishes to suit the customers requirements and specification. A full range of section sizes are available to choose from including:

- Circular Hollow Section (CHS)
- Spine Section
- Parallel Flange Channel Section (PFC)
- Rolled Steel Angle (RSA)
- Square/Rectangular Hollow Section (SHS/RHS)

Materials

Normally windposts are manufactured using grade S275 in either cold or hot finished mild steel, however if other grades are required ACS has access to a wide range of materials and grades, and will manufacture to your requirements.

Finishes

Mild steel components may be finished in a number of ways to suit the requirements of the client. The following details the typical finishes, however, please contact ACS for specific requirements.

- Painted with zinc phosphate primer (note: components will be shot blasted to SA 2.5 prior to painting unless specified otherwise)
- Galvanised (note: components will be acid dipped prior to galvanising and a minimum coating of 86 microns applied to BS EN ISO: 1461: 1999)
- Factory finished
- Bituminous painted (note: components may be supplied pre painted with the required fire protection, however, ACS recommends components are painted on site as the finish is susceptible to damage in transit.

CHS Windpost

Illustrated is a CHS windpost with a typical welded base plate. These types of post are available in a range of sizes, lengths and finishes to suit each application and come complete with necessary fixings.
This illustrates a finish with a red zinc phosphate primer.
Ties would either be shot fired or tech screwed to the section.

Note: these are also available in stainless steel. Please consult ACS for further details on sizes and availability.

Spine Windpost

Illustrated is a spine or I windpost with a typical welded base plate. These types of post are available in a range of sizes, lengths and finishes to suit each application and come complete with necessary fixings.

This illustrates a galvanised finish.

Ties would either be shot fired or tech screwed to the section or alternatively slots could be provided for clip-in ties.

Note: these are also available in stainless steel. Please consult ACS for further details on sizes and availability.

info@acsstainless.co.uk

Mild Steel Windposts

PFC Windpost

Illustrated is a PFC windpost with a typical welded base plate. These types of post are available in a range of sizes, lengths and finishes to suit each application and come complete with necessary fixings.

This illustrates a galvanised finish.

Ties would either be shot fired or tech screwed to the section.

RSA Windpost

Illustrated is a RSA windpost with a typical welded base plate. These types of post are available in a range of sizes, lengths and finishes to suit each application and come complete with necessary fixings.

This illustrates a mild steel black finish.

Ties would either be shot fired or tech screwed to the section.

SHS/RHS Windpost

Illustrated is a SHS windpost with a typical welded base plate. These types of post are available in a wide range of sizes, lengths and finishes to suit each application and come complete with necessary fixings.

This illustrates a finish with a red zinc phosphate primer.

Ties would either be shot fired or tech screwed to the section.

Note: these are also available in stainless steel. Please consult ACS for further details on sizes and availability.

Special Fabrications

Introduction

In almost every residential and commercial development there is a requirement for structural steel members, especially in concrete framed structures where wide expanses of brickwork or blockwork need to be restrained or supported.

Steel members are designed into the structure as a cost effective solution to restrain/support the masonry as it is uneconomical and unpractical to cast large concrete columns, beams and downstands.

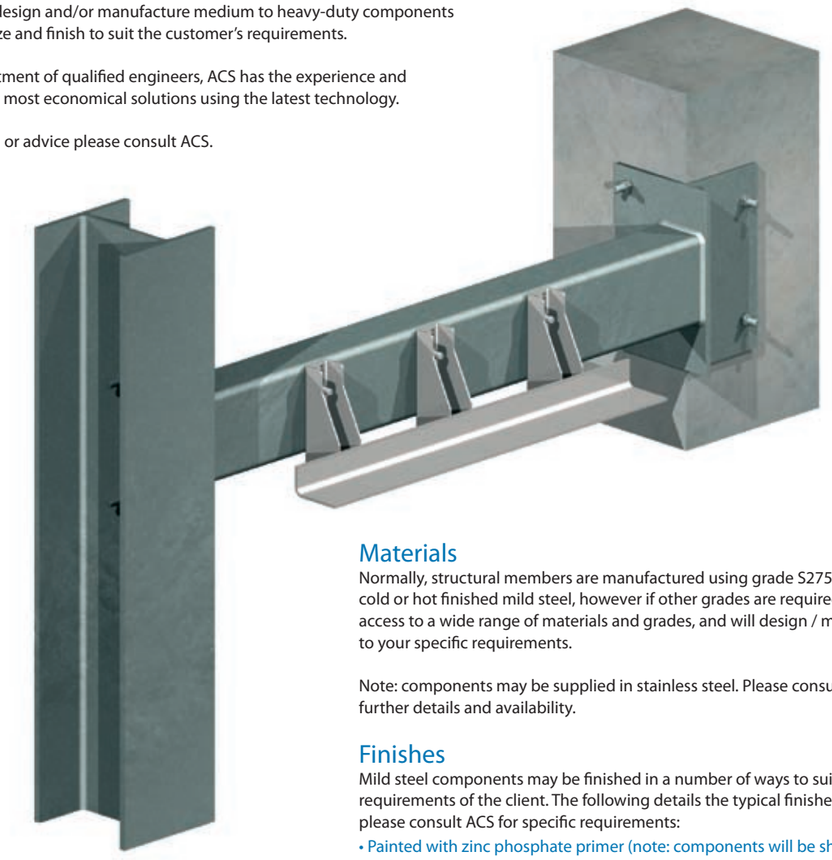
These structural members may include windposts, columns, beams, welded frames or even structural frames that incorporate masonry support systems.

Generally, these components will have been designed and detailed by the project structural engineer. However, these components are sometimes overlooked and it is necessary for proposals / designs to be carried out during the construction stage.

ACS has the facility to design and/or manufacture medium to heavy-duty components in almost any shape, size and finish to suit the customer's requirements.

With a technical department of qualified engineers, ACS has the experience and expertise to design the most economical solutions using the latest technology.

For further information or advice please consult ACS.



Materials

Normally, structural members are manufactured using grade S275 in either cold or hot finished mild steel, however if other grades are required ACS has access to a wide range of materials and grades, and will design / manufacture to your specific requirements.

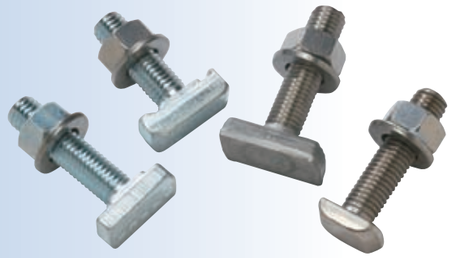
Note: components may be supplied in stainless steel. Please consult ACS for further details and availability.

Finishes

Mild steel components may be finished in a number of ways to suit the requirements of the client. The following details the typical finishes, however, please consult ACS for specific requirements:

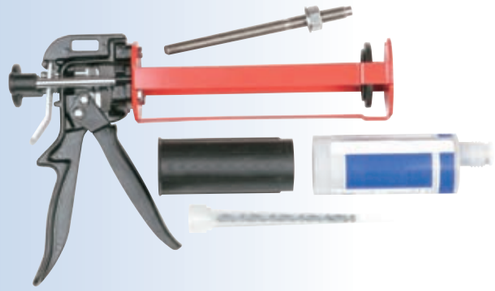
- Painted with zinc phosphate primer (note: components will be shot blasted to SA 2.5 prior to painting unless specified otherwise)
- Galvanised (note: components will be acid dipped prior to galvanising and a minimum coating of 86 microns applied to BS EN ISO: 1461: 1999)
- Factory finished (untreated)

Fixings & Bolts



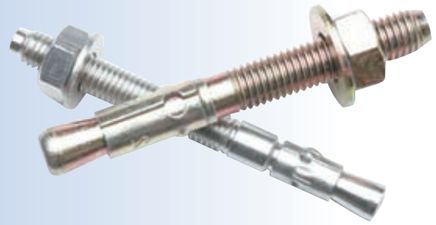
T-Head Bolts

Available to suit the ACS range of cast-in or surface fixed channels, our T-head bolts are manufactured from either stainless steel or hot dip galvanised steel, and come in a variety of lengths and thread diameters to suit your requirements.



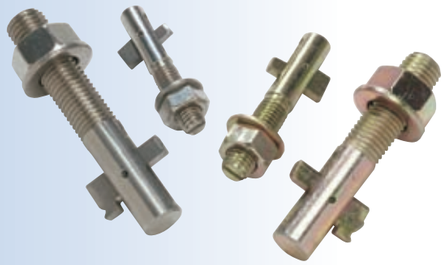
Resin Anchors (Pump in Resin)

ACS offers a range of styrene and styrene free injection resins suitable for most applications, along with stainless and zinc plated studs to suit low axial spacings and edge distances. ACS also offers a range of applicator guns, extra nozzles, extended delivery tubes and blow pumps to suit.



Single Expansion Bolts

Available in stainless steel, hot dip galvanised and zinc plated, ACS expansion bolts are an ideal heavy duty solution for fixing into solid substrates such as concrete, where edge distances are not critical.



Blindbolt Fixings

Suitable for fixing in areas where access is restricted, or in cavities, these fixings are available in zinc, dorreltech or stainless steel. These fixings allow for installation without specialist tools, and without the need for oversize holes to be drilled for fitting.

Resin Anchors (Glass Capsule)

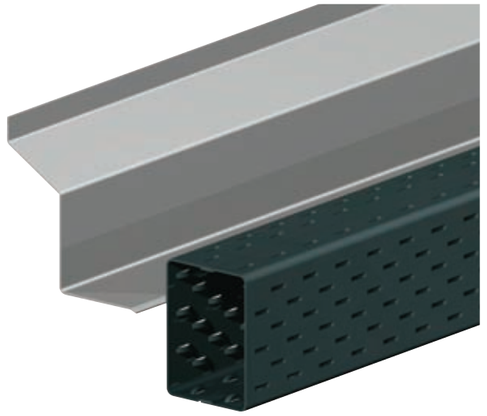
The ACS glass capsule system permits a safe anchoring system into concrete for stainless or zinc plated studs where there are low axial spacings and edge distances.

Hexagon Head Set Screws

Supplied fully threaded and in a choice of materials, ACS offers a range of standard set screws to suit most applications and also carries a full range of hexagon full nuts and washers to complement the range. Non standard sizes available on request. Please contact ACS for details.

ACS
inner strength in construction

Lintels



Standard Lintels

ACS offers a wide range of standard lintels designed to cover almost every application within residential and commercial buildings.
The comprehensive range of lintels is as follows:

- L1 lintels – single leaf (L Type)
- L2 lintels – single leaf (C Type)
- L3 lintels – timber frame
- L4 lintels – cavity wall (standard inner leaf)
- L5 lintels – cavity wall (wide inner leaf)
- L6 lintels – box

Materials

All lintels are available in either stainless steel or mild steel galvanised. Please specify the finish when ordering.

Note: stainless steel lintels are manufactured using grade 304S15 as standard, however for corrosive environments such as costal areas, lintels may be manufactured (upon request) using grade 316S31. For further details on our standard range please contact ACS with your requirements.

HOW TO ORDER

1. Specify lintel type
2. Confirm structural opening size (mm)
3. Confirm material finish

e.g. L4 / 1810 / SS indicates L4 lintel to suit a 1810mm opening manufactured in stainless steel

Bespoke Lintels

ACS also offers a range of bespoke lintels designed and manufactured to suit your individual requirements, which include:

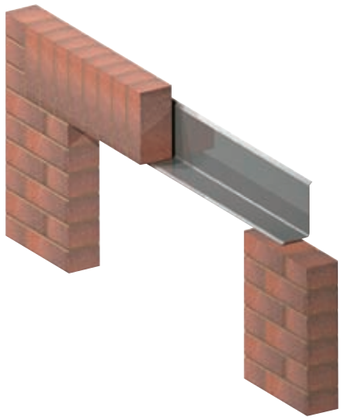
- Corner post lintels
- Cantilever brick lintels
- Timber arch lintels
- Notched lintels
- End plate lintels
- I beam lintels
- Venetian arch lintels
- Islamic arch lintels
- Cranked lintels
- Stepped lintels
- Mitred lintels
- Radiussed lintels

For further details please consult ACS.

HOW TO ORDER

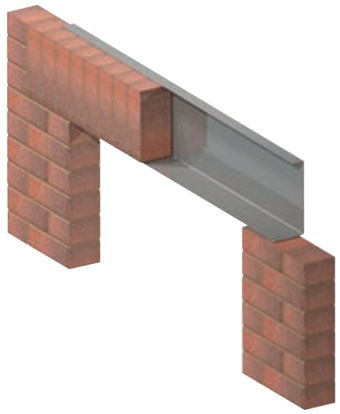
Due to the complexity of some bespoke lintels ACS recommends the following drawings be provided in order to complete the design:

1. Plans that indicate the structural opening sizes & the floor construction / direction
2. Elevations that indicate masonry heights, radiuses or rises of arches
3. Sections of dimension wall construction (outer / inner leaf & cavity size)



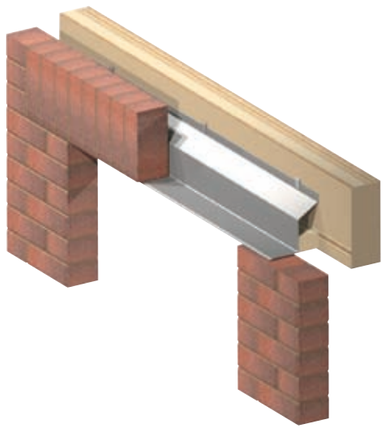
ACS L1 Type Lintels (Single Leaf)

ACS's L1 range of L Type single leaf lintels are designed for the supporting of loads over openings, from half brick to full brick width, in solid or block wall construction. The ACS L1 range is available in lengths up to 2.7m long, with increments of 150mm as standard, although other sizes are available upon request. For further details please consult ACS.



ACS L2 Type Lintels (Single Leaf)

ACS's L2 range of C Type single leaf lintels are designed for the supporting of loads over openings, from half brick to full brick width, in solid or block wall construction. The ACS L2 range is available in lengths up to 2.7m long, with increments of 150mm as standard, although other sizes are available upon request. For further details please consult ACS.

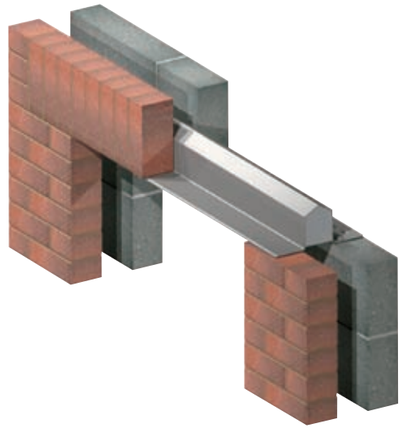


ACS L3 Type Lintels (Timber Frame)

ACS's L3 range of timber frame lintels have been designed specifically for use within timber frame buildings where support is required over openings to the external leaf. Designed for cavities from 40mm to 90mm in width, and available in lengths up to 4.8m long in 150mm increments, the ACS L3 range of timber frame lintels come complete with restraint clips for fixing. For further details, please consult ACS.

ACS L4 Type Lintels (Standard Inner Leaf)

ACS 's L4 range of cavity wall lintels are designed to carry both the inner and outer leaf of a standard construction wall, and are suited for cavities from 50mm to 110mm. Available in lengths up to 4.2m as standard, the ACS L4 range lintels have been designed and manufactured without welding, to increase the structural characteristics and durability of the product. To complement the different loading applications, the L4 range of lintels is available to suit both standard and heavy duty loadings. For further details please consult ACS.

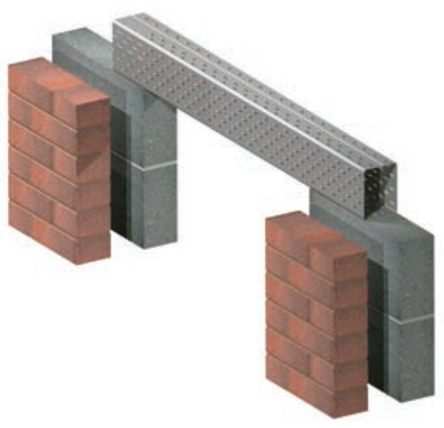


ACS L5 Type Lintels (Wide Inner Leaf)

ACS's L5 wide inner leaf lintels are designed specifically for use in cavity situations where the inner leaf is up to 150mm wide. Available to suit cavities up to 110mm wide and supplied in lengths up to 4.2 metres at 150mm increments, the L5 range is also available to suit heavy duty loading conditions. The ACS L5 wide inner leaf lintels have been designed and manufactured without welding to increase the structural characteristics and durability of the product, and other sizes are also available on request. For further details please consult ACS.

ACS L6 Type Lintels (Box)

ACS's L6 range of box lintels are designed for use over internal or external openings, or when tile hanging is required with solid brick or block wall construction, or at eaves level. The L6 range of lintels is supplied in lengths up to 4.8m, and increments of 150mm, these lintels are suitable for blockwork from 75mm up to 215mm as standard. Other sizes are also available upon request. For further details please consult ACS.



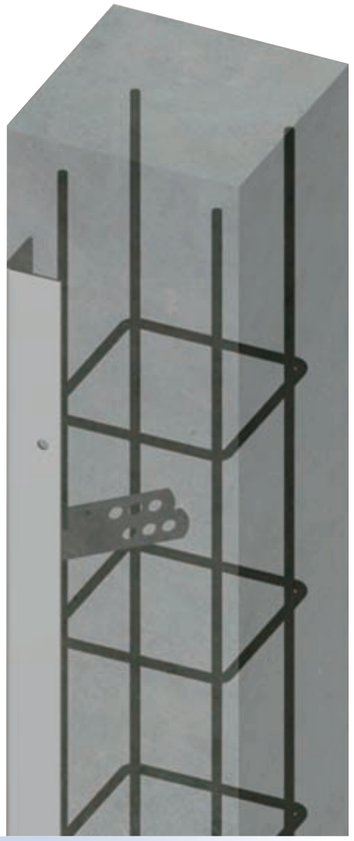
ARIS Corner Guard

Introduction

In heavy traffic areas, for example multi storey car parks or factories, concrete walls or columns are prone to damage especially from moving vehicles. To protect arises of columns and walls ACS has developed the ACP-1250.

Description

The ACP-1250 is formed from flat and anchors are then welded to the internal faces of the angle to ensure a secure bond is achieved with the concrete. (Anchors are positioned accordingly to ensure they miss any reinforcement). Holes are provided at either end to suit preferred method of fixing.



Materials

Normally, corner guards are manufactured from grade 304 stainless steel, however they may be manufactured in mild steel & galvanised to order.

Specials

Almost any length, size, material or finish may be manufactured to order.

For all bespoke requirements please liaise with the ACS Sales Department.

National Sales Enquiries: 0870 850 0860

ACS offers a dedicated specification service to engineers, architects, main contractors and brickwork sub-contractors. The dedicated team can advise on all aspects of restraining and supporting masonry and stone, and offers training via RIBA accredited CPD seminars to the industry.

Facilities and services available:

CPD Seminars

NBS Plus Specifications

Detailed Design Proposals

Re-Specification

Masonry Wall Panel Design

CPD Seminars Continuing Professional Development

Seminars cover the use of wall ties, windposts and masonry support in modern construction, with all the relevant standards and regulations explained. Seminars can be conducted at a location of your choosing, your premises, or at ACS in Leeds.

NBS Plus Specification Software

ACS's product literature is listed within NBS Plus - the industry standard specification software tool. NBS Plus is used by architects to detail products for use in construction. This means our technical information is incorporated in NBS format at the point of specification.

Detailed Design Proposals

ACS is renowned for exceptional value engineering solutions, and our team will advise on the most cost effective design for any given situation. We produce calculations, design and specification proposals for discussions with contractors' design teams. In addition our design engineers will advise on additional structural members where necessary to enable the design process to be completed and ensure cost price certainty is achieved. From early concept ACS can offer the kind of package that enables the complete integration of design into the build.

Re-Specification

ACS is able to re-specify its products in lieu of other manufacturers' products, and offers the full technical back up necessary.

Masonry Panel Design

ACS offers a wall panel design service to customers upon request and can rationalise the use of windposts and bed-joint reinforcement to achieve a value engineered solutions. By using the latest software packages, we provide a fully warranted design with calculations to enable best utilisation of materials.

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