

HOOK-ON SYSTEM

System Overview & Installation Guide



General Information

1. The system is a drained, rear-ventilated rainscreen façade. Air pressure in the cavity behind the panels generally equalises with pressure outside to prevent wind-driven rain from entering the cavity. Any moisture which does enter the cavity, drains down the back of the panels and exits in a controlled fashion at horizontal joints and the base of the façade.
2. System materials can be supplied in either A1 or A2 fire classification as per BS EN 13501-1:2018 subject to specification. The support structure comprises of aluminium helping hand brackets and support rails fixed utilising stainless steel self-drive screws which do not corrode, even under the most extreme atmospheric conditions.
3. In order for the rainscreen principle to function, the backing wall from which it is supported must achieve certain standards of air permeability, stipulated in The Building Regulations, and be capable of accommodating transmitted live and dead loads. The backing wall must also achieve specified performance requirements for fire, acoustics, and condensation risk.
4. The system meets the standard stipulated by The Centre for Window and Cladding Technology at Bath University in the UK and has been fully tested in accordance with their recommendations.
5. 20mm standard joints allow for individual panel removal/replacement and allow panels to be temporarily left out to assist with installation during the construction phase. Larger and smaller joints are available on request.
6. System components are supplied utilising wooden pallets that are then crated and shrink wrapped to offer additional protection. Pallets are typically 3000mm Long x 1200mm Wide x 1200mm High and no heavier than 500kg, each pallet is weighed in the factory before dispatch and the pallet weights are displayed on individual pallet labels attached to each crate.
7. Safety data sheets are supplied to suit project specific materials for inclusion in the O&M manual.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



System Components

The components supplied are –

1. Wall brackets:

These are extruded aluminium sections, complete with thermal isolator pads and holed on the base for fixing to steel or masonry structures. Holes to the projecting flange allow fixed point or sliding points to be created, to accommodate deflection and thermal expansion within the rainscreen cladding system. Brackets are available in a wide variety of sizes and interlock with the vertical carrier rail to provide a series of optional cavity zones from 110 to 365mm, with adjustability as shown in table below. The Cavity zone is defined as dimension from face of substrate to face of support rail and should be a minimum of **25mm** to allow the system to function as a rainscreen, **38mm** on residential buildings. Bracket centres are calculated by CGL to accommodate transmitted wind loads.

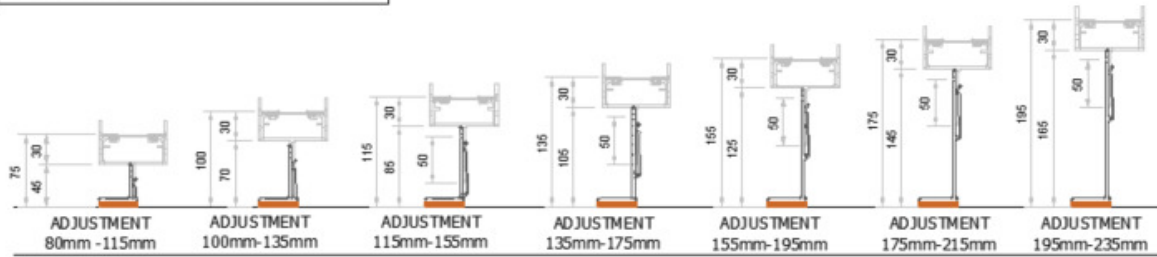
Bracket reference	Adjustment range for each bracket (mm)	
CS2-1-40	From 75*	To 115
CS2-1-60	From 100	To 135
CS2-1-80	From 115	To 155
CS2-1-100	From 135	To 175
CS2-1-120	From 155	To 195
CS2-1-140	From 175	To 215
CS2-1-160	From 195	To 235
CS2-1-180	From 215	To 255
CS2-1-200	From 235	To 275
CS2-1-220	From 255	To 295
CS2-1-240	From 275	To 315
CS2-1-260	From 295	To 335
CS2-1-280	From 315	To 355
CS2-1-300	From 335	To 375
CS2-1-320	From 355	To 395
<p>Note: - DIMENSION RANGES INCLUDE FOR 5mm THICK THERMAL PADS *FACTORY ADJUSTMENT REQUIRED FOR ZONE BELOW 100mm</p>		

CGL Systems
 2 Young Place
 Kelvin Industrial Estate
 East Kilbride
 Glasgow G75 0TD

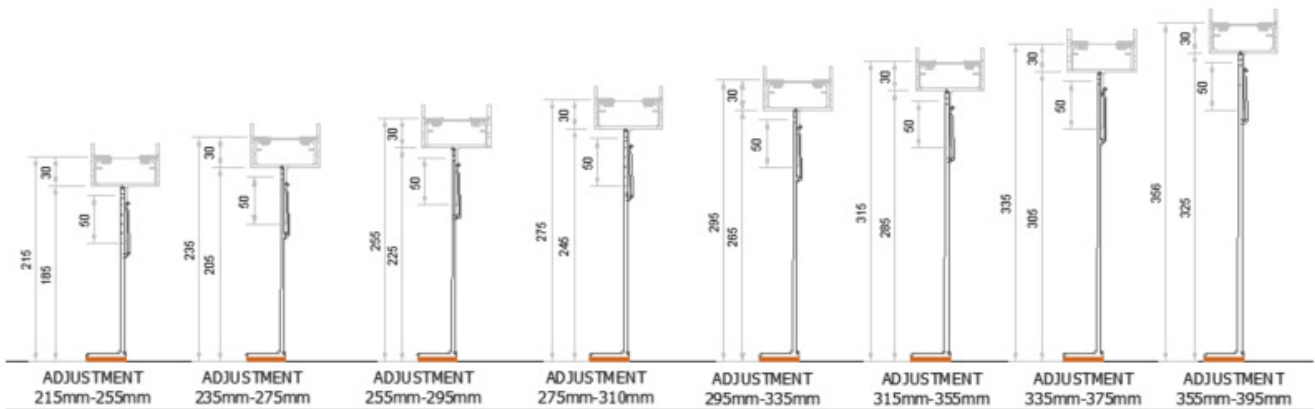
T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
 Registered company number SC020547 VAT Reg: GB403080407

RANGE OF BRACKET SYSTEM



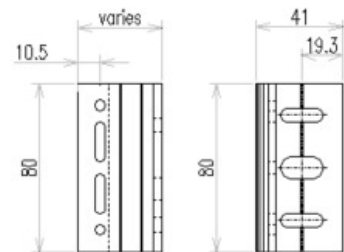
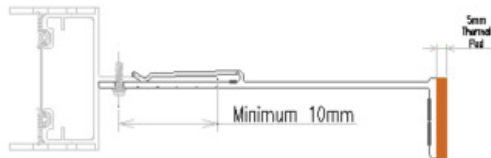
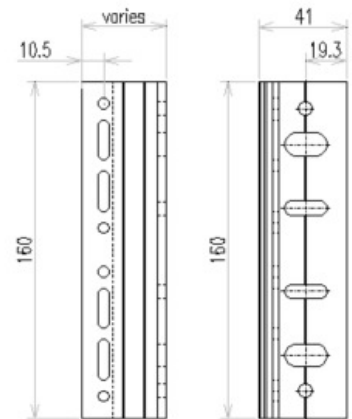
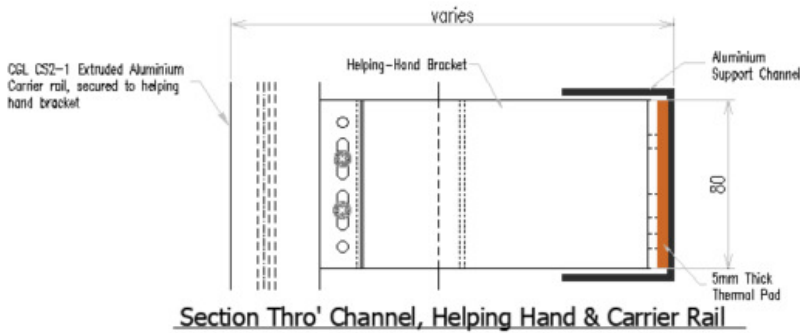
factory set adjustment required to get below 100mm



CGL Systems
 2 Young Place
 Kelvin Industrial Estate
 East Kilbride
 Glasgow G75 0TD

T: 01355 235561 E: sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
 Registered company number SC020547 VAT Reg: GB403080407



CGL Systems
 2 Young Place
 Kelvin Industrial Estate
 East Kilbride
 Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
 Registered company number SC020547 VAT Reg: GB403080407



2. CS2-1 Vertical Carrier Rail:

Extruded CS2-1 Profile formed with 6063 T6 Grade aluminium alloy, complete with interlocking neoprene gasket, applied to the outer face and panel restraint hooks fitted to the rail, with stainless steel self-drive screws, supplied by CGL. Extrusions can be provided, cut to length, up to a maximum of 6m long. The extrusion is also available with only the front section of the profile, as shallow section, for use in projects where the cladding zone is restricted. Rail centres are calculated by CGL to accommodate transmitted wind loads. Stainless steel self-drive screws are supplied by CGL to connect the vertical carrier rails to the brackets.

3. Panels:

Cassette Panels are formed from flat sheet to suit project specification. Panels are nominally 50mm deep and can be made in portrait or landscape format. CGL recommend panels do not exceed 3800mm x 1300mm face sizes due to material constraints. CGL will undertake structural design of the panels which will determine the positioning of any stud welded stiffening struts on the rear of the panels, to inhibit deflection under load to allowable limits for the material. Panel horizontal returns at base and interface head details (e.g. window heads) are notched back to allow water drainage routes.

4. Security Fixings:

A security fixing is fitted to every panel through the upstand flange into the CS2-1 vertical support rail, to lock the panel in position and preventing possible dis-engagement from the panel hooks when subjected to wind uplift loads.

From ground level to a height of 3m, the fixings are hidden behind the panel above, to provide a concealed-fix appearance, thereafter the fixing are positioned within the horizontal joint to allow panels to be removed individually in case of damage or for inspection purposes.

5. Joint backing plates:

Plates, manufactured from the panel material, can be supplied fitted to the CS2-1 support rails to match, or contrast with, the panel finish in lieu of the neoprene rubber gasket.

6. Protective film:

With the exception of Cor-Ten Steel, A removable protective film is supplied on all panels and remains in place through the fabrication and installation process to inhibit damage. CGL recommend the film be removed on day of panel installation otherwise there is a risk that adhesive residue/staining will remain on the panels

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



after later removal.

Design

1. Structural:

CGL offers structural design of the system based upon supplied wind load information. If this is not available at tender stage, CGL will calculate a load from building shape and location details although the contractor will have to verify this load prior to order. Structural design incorporates rail and bracket centres plus any necessary strengthening of the panels. Tenders will indicate typical calculated rail and bracket centres. Post-order, our design review will give exact grid positions plus bracket loads.

2. Interface:

Design of interfaces between other wall/structure components are displayed on CGL indicative details. These details provide a guide for the design of interfaces, which will require to be adapted to suit specific projects.

3. Bi Metallic Corrosion:

Certain metals can react corrosively with other metals and materials, due care must be adhered to prevent this.

Ancillary Materials

Although the following items form part of the overall through-wall construction, they are **not included** in CGL's supply, however, we are often consulted on their use and comment as follows –

1. Wall fixings:

Depending on the substrate, it may be necessary to commission pull-out tests to establish the strength of block/concrete walls. Screw fixings are more common for attachment to light-weight metal framed walls. In all cases, stainless steel should be used if the fixings are in the “wet” zone. CGL will provide system bracket loads post-order to allow calculation of number and type of fixings.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



2. Cavity closures/fire breaks:

In order to inhibit the spread of fire and smoke through the ventilated cavity, it is required to break the cavity with non-flammable closures. These can be made from rock-fibre batts or perforated intumescent sheeting and are usually fitted at floor slab levels, compartment walls, building corners, and around window penetrations.

3. Insulation:

An essential part of the backing wall is the wall insulant. Insulation should never be applied to the panels themselves, but always to or within the backing wall. The insulation should be resistant to moisture and provide project specific fire performance, based on the building construction and end use. Calculations are required to ensure that the overall construction achieves the specified U-value and include the effect of any regular cold-bridging of wall components. Often, metal members are embedded in the insulant to provide bracket supports - these can be galvanised steel if protected by an external membrane but should be stainless steel or aluminium if exposed.

4. Membranes:

It is regarded as good practice to apply breather membrane to the cold side of the wall insulant. If properly fitted with sealed joints, this membrane will prevent moisture penetrating the insulated backing wall. Where wall brackets penetrate the insulation layer, particular care should be taken to seal the membrane around these penetrations. Vapour barrier membranes may also require to be fitted on the warm side of the insulant and a condensation risk analysis will identify whether this membrane is necessary.

5. Thermal-brake pads:

Depending on the thermal evaluation of the wall build-up, thermal-break pads may be incorporated between components (such as wall brackets and substrate). CGL brackets are supplied with these as standard.

6. Flashings, fascia's, window pods, soffits, etc:

In order to maintain colour and texture consistency, these accessories should be manufactured from the

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



same material as the panels. CGL's indicative details show a variety of arrangements.

CGL HOOK-ON SYSTEM HANDLING, INSTALLATION AND MAINTENANCE GUIDELINES

Handling

All materials supplied are delivered on protected pallets which are easily off-loaded by forklift. The pallets are also suitable for crane lifting; however, care should be taken when using lifting beams to ensure pallet contents are not damaged by carrying slings or straps. All material/packages should be handled with care and appropriately stored in accordance with the printed instructions on the pallet labels. Once the pallets are opened and materials distributed for installation, additional care of individual items is necessary for protection of the goods prior to installation. The products are thin gauge metals and should be treated as such. Gloves should be worn when handling the products.

Support System Installation

Specific installation information should be available from construction drawings i.e. -

- Datum level for base of carrier rails
- Datum levels for intermediate joint and top of carrier rails
- Horizontal centres of location of carrier rails and, where appropriate, specific rail offsets adjacent to openings etc.
- Wall bracket holing and fixings to be used, vertical and horizontal positions / centres.
- Panel modules and specific interfaces

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 E: sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



The above information together with the rainscreen zone to be achieved is the minimum requirement to enable installation to be undertaken.

Procedure

1. A survey of the structure should be carried out as a priority before commencing operations to establish that it is within specified tolerances.
2. If the survey identifies areas of conflict from construction issue drawings, discuss and agree a solution suitable to all parties before commencing with the works.
3. The following units are supplied as detailed on the contractor's detailed information utilising CGL standard fabrication templates -

Brackets:

Extruded aluminium bracket to designed length and zone depth, punched with fixing holes for attachment to backing wall and vertical carrier rails.

Carrier Rails:

Extruded aluminium vertical rails supplied complete with neoprene rubber gasket installed. Rails are available cut to length or in standard 6m maximum lengths.

Joint backing plates:

These can be coated to either match or contrast with panel colour.

Bracket to Rail Fixings:

CGL will supply suitable fixings for the bracket to carrier rail connection; 2 fixings per bracket plus a reasonable quantity of spares

Hooks:

CGL will supply the hooks fitted to the rails to suit sizes given by clients design manager.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 E: sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



Hook to Rail Fixings:

CGL will use 2 fixings per hook onto support rail to secure in place.

Rainscreen panels and associated metalwork:

Fully manufactured panels, pre-holed with supporting slots to match the hooks on the carrier rails. Panels are also provided with a hole on the upstand for security fixing.

4. Minor adjustment of panel restraint hooks is accommodated via the holing on the hooks. Each hook has a circular “dead-fix” hole and an elongated slotted hole which provides a sliding point. The hook is loosely fixed on the elongated hole, to allow accurate positioning. Once in position, the dead-fix screw is installed and both fixings tightened to lock the hook in position.
5. Wall bracket fixings to substructures are **not** included in the system. However, we do provide design information in respect of loadings to assist a selection to be made.
6. The system is fitted to the structure in the following manner:
 - Working from construction drawings, establish bracket centres (horizontally and vertically), and carry out initial fix to substrate via slotted holes. Ensure that brackets are lined properly in vertical plane and then dead hole fix. Torque tight all fixings.
 - Fit the back leg of rail into temporary helping hand fingers supplied on brackets.
 - Establish rail datum line and required construction zone (structure to rail face) and secure the rail using screws in the ‘hole’ or ‘slots’ in the bracket. Move the rail into its vertical position allowing 10mm ‘expansion’ between each. It is critical to ensure that the faces of rails are in perfect horizontal plane.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



- The position of the panel holding hooks should align with the fabricated 'hook' cut out slots in the back of the panel. Horizontal datum lines should be projected across the elevation and the hook positions checked.
 - Panel installation can now proceed. Foil will require to be stripped back from panel returns to allow installation.
 - Panels are applied to the support rail evenly and fixed in place by application of the panel-fixing security screw.
7. The support grid assembly allows adjustment in 4 stages, to allow the components to be accurately plumbed, lined and levelled as follows:
- Wall bracket – “helping-hand” type allows horizontal adjustment by sliding in and out on the finger.
 - CS2-1 Carrier Rail – can be moved up and down within the bracket.
 - Hook – can be moved up and down on the rail for fine adjustment within the panels.
 - Additional tolerance is incorporated within the panels slots to compensate for minor installation tolerance and to allow longitudinal and vertical expansion of individual panel units.

The carrier system is now complete, and installation of the panels can commence.

Rainscreen Panel Installation

1. Check elevation / layout drawings to establish panel references to be installed.
2. Locate panels via pallet schedules and unpack.
3. Partially remove protective film at panel edges to assist with installation.
4. Present panel to elevation in an even plane to locate slots on restraint hook.
5. Push panel forward onto gasket, then push panel down until fully engaged on hooks.
6. Adjust panel right to left, if necessary, then install security fixing on panel upstand to lock panel in place.
7. From ground level to a height of 3m, security fixings are hidden behind the panel above, to provide a concealed-fix appearance, thereafter the fixings are positioned within the horizontal joint to allow panels to be removed individually in case of damage or for inspection purposes.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



Generally, panels are installed from the base of the façade upwards, although installation can be from top down, albeit with slightly more difficulty.

Panel Removal

Note:
Panels can only be removed individually if 20mm horizontal joints have been incorporated into the panel arrangement.

If the panel is within 3m from ground-level, panels will require to be removed from the first accessible security fixing down to access the damaged panel.

If joints are less than 20mm panels require to be removed from the top down until the damaged panel is accessible.

Procedure

1. Remove the first accessible security fixing above the panel to be removed.
2. Grip the base of the panel and push upwards to disengage the panel from the hooks.
3. Pull panel forwards and down to remove. Repeat until the damaged panel is accessible.
4. To reinstate individual panels, hook top of panel under the one above, push base of panel forward then push down to engage hooks. Re-insert security fixing.

Maintenance

Generally, metal facades should be washed down with warm soapy water utilising a soft non-abrasive applicator

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407



and then rinsed down with clean water. The frequency of this depends on the material chosen and project location. Specific cleaning and maintenance instructions will be provided with the project specific O&M information. During cleaning and maintenance, the company conducting this is required to carry out suitable and sufficient project specific risk assessments.

Product Safety Information

The products relating to the system are manufactured from externally supplied materials. These materials are not altered during the manufacturing process. As such, the products are considered intrinsically safe and do not present any major hazards when correctly installed and used under normal conditions.

Potential hazards during installation:

- Sharp edges.
- Some components are considered heavy (Depending on project specific panel sizes)
- To comply with current health and safety legislation, the cladding contractor installing the system are required to carry out suitable and sufficient project specific risk assessments for installation of this product.

Disposal

All aluminium components are fully recyclable and can be taken to suitable recycling centres. All other components should be disposed of in accordance with current environmental waste disposal legislation.

Warranty

CGL offers a warranty for system design and performance for varying periods depending on location and material used.

CGL Systems
2 Young Place
Kelvin Industrial Estate
East Kilbride
Glasgow G75 0TD

T: 01355 235561 **E:** sales@cglsystems.co.uk

CGL Systems is a trading name of Merson's Signs Ltd
Registered company number SC020547 VAT Reg: GB403080407