

Certificate of Testing



Certificate Number: 2018/73

Date: 29 January 2018

System: Krion K-Fix rainscreen system

System supplier: **Butech**
CV-20km 2.5
12540 Vila-real
Castellon
Spain

Tests performed:

Wind resistance – serviceability	✓
Wind resistance – safety	✓
Soft body impact	✓
Hard body impact	✓

In accordance with 'Standard for Systemised building envelopes CWCT, 2006

Signed:  Test Witness

Signed  Director

Description of system tested

Rainscreen system:	Krion K-Fix rainscreen system
Panel description:	<p>Krion, Flat panels 12 mm thick composed of fine grained mineral material (aluminium trihydrate) mixed with acrylic resin</p> <p>K-Fix panels have circular stainless steel inserts set into holes cut in the panels and screwed to rails. Inserts are hidden by discs of Krion material set into the panel face and bonded with Krion adhesive. Panel face polished to leave flat surface</p>
Joints:	<p>Tongue and groove joints between sections of Krion bonded with Krion adhesive and polished to form seamless panel</p> <p>Closed lap joints between seamless areas</p>
Support rails:	Extruded aluminium T rails supported by aluminium brackets. Rails and brackets composed of 6005A T6 aluminium
Fixings:	<p>4.8mm dia, 19mm long stainless steel screws to attach K - Fix panels to rails</p> <p>4.8mm dia screws to fix rails to brackets</p>
Drainage and ventilation:	Drained and ventilated rainscreen cavity with drainage openings at bottom of cavity and ventilation opening at top of cavity. Limited ventilation openings in joints at panel corners
Backing wall:	<p>Steels studs with plywood sheathing</p> <p>Note: Backing wall provided to facilitate testing and not part of system. System can be used with other forms of backing wall.</p>

Test arrangements

Date of test: 21 July 2017 (hard body impact tests)
26 October 2017 (wind load tests)

Testing laboratory Technology Centre
VINCI Construction UK Ltd
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Registration No: UKAS No 0057

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Installer: Butech
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Castellon
Spain

SUMMARY OF RESULTS

Watertightness - dynamic: Not tested

Note:

The system has limited openings in the rainscreen which will restrict the amount of water entering the rainscreen cavity.

It is recommended that any surfaces that would be adversely affected by the presence of water should be protected by a waterproof membrane.

Flashings are also required to drain water above window openings and from the bottom of the cavity.

Wind resistance: PASS

Details of wind resistance tests:

Serviceability test pressure:	2400 Pa,	
Deflection of panel	Deflection	span
Positive pressure	1.0mm	630mm
Negative pressure	-0.6mm	630mm

Safety test pressure: 3600 Pa

Impact test to CWCT Technical Note 76:

	Impact Energy (Nm)	Performance Class
Soft body (serviceability):	120	1
Soft body (Safety):	500	Negligible risk
Hard body (serviceability)	10	1

Notes:

Test results apply to the tested arrangement as shown on the drawings. Variations from the tested arrangement would need to be assessed by calculation or further testing.

Span has been taken as distance between rails.

Deflection is the mid span movement after correction for movement at the supports.

For serviceability, the CWCT Standard recommends a deflection limit for rainscreen panels of span/90 for metals and glass and span/360 for brittle materials. The deflection limit for metal panels is to prevent visually unacceptable deflection. The limit for brittle materials is to limit the risk of cracking. Deflections measured were in all cases less than span/90 hence would be visually acceptable. The limit for brittle materials is applicable to ceramic materials. Resin based materials would normally permit greater deflection.

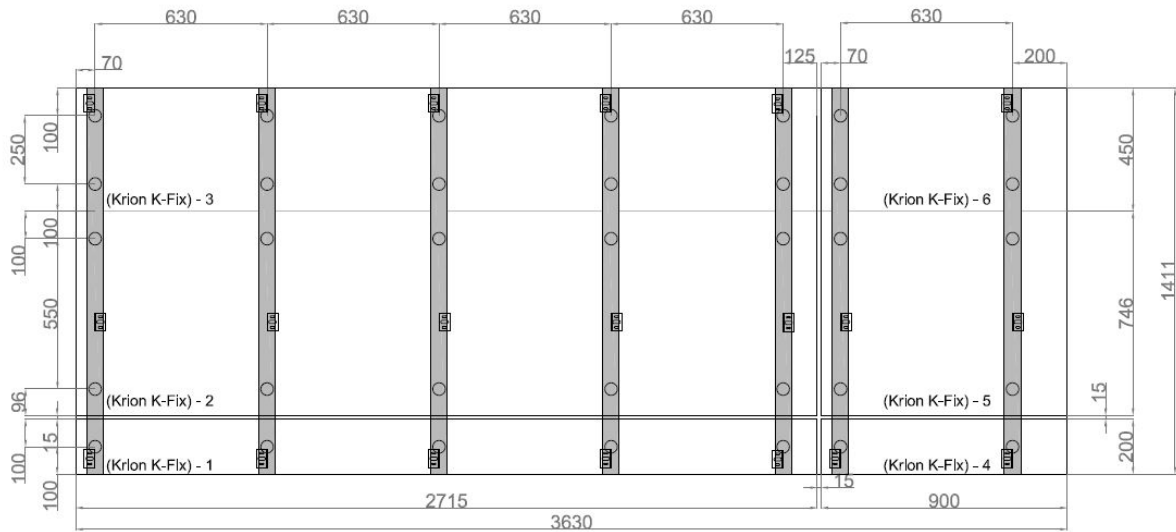
Failure to recover from deflection on unloading may indicate plastic deformation which could lead to fatigue failure after a number of load cycles. In all cases the residual deflection on unloading after the serviceability wind load tests was less than 1mm which is taken to indicate full recovery.

At the safety load there should be no permanent damage to the system and the panels should remain secure. The CWCT Standard does not set a limit on residual deformation of rainscreen panels after application of the safety load. At the loads shown the residual deformation was less than span/500 which is the limit given for framing members.

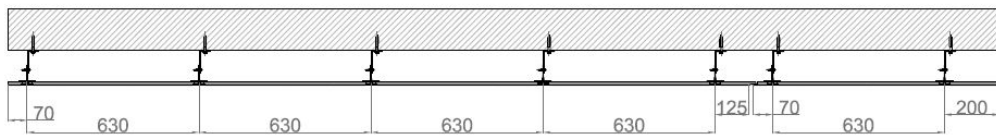
Performance under impact for serviceability is given in 5 classes. The best performance is class 1 which indicates there was no damage visible from 1m. In this case no damage was observed.

Performance under impact for safety is given in 4 classes. The best performance is negligible risk which indicates that no material was dislodged during the test and no damage likely to lead to materials falling subsequent to the test was observed. In this case no damage was observed.

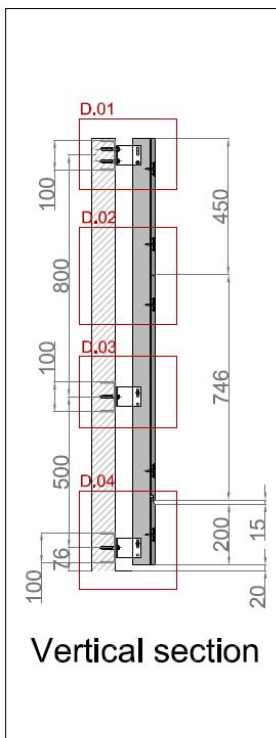
Drawings



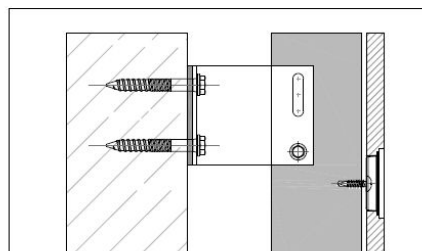
Elevation



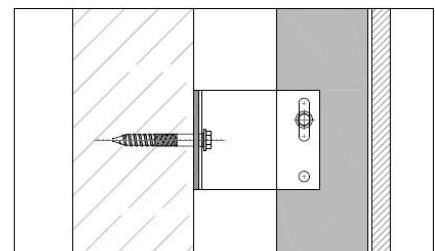
Horizontal section



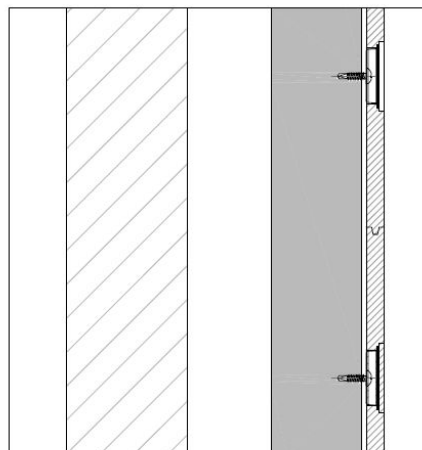
Vertical section



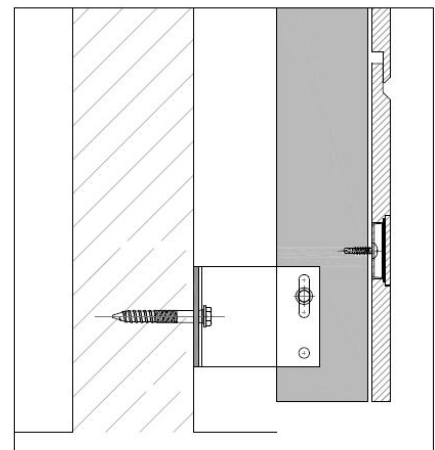
DETAIL 01



DETAIL 03

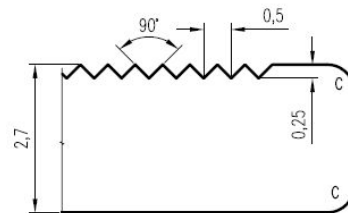
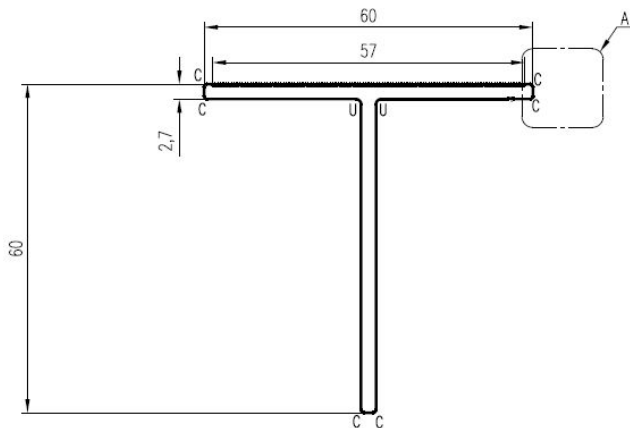


DETAIL 02



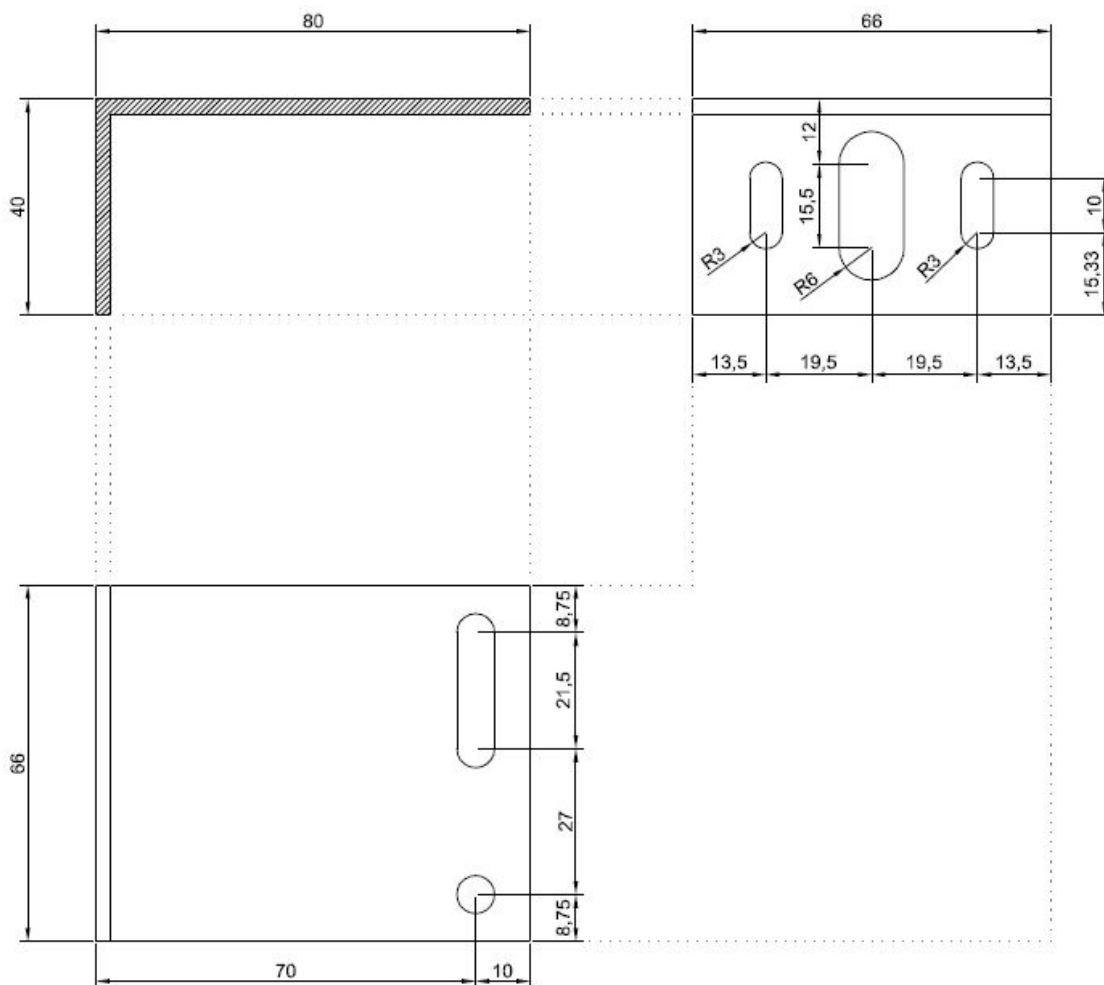
DETAIL 04

Elevation, sections and details for K-Fix sample

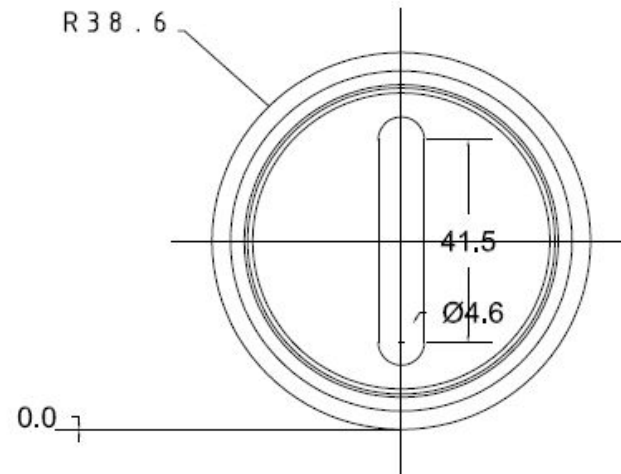
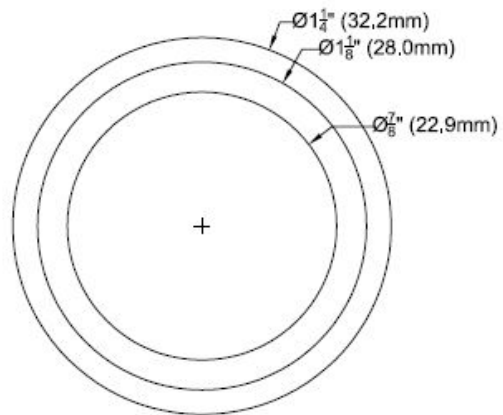
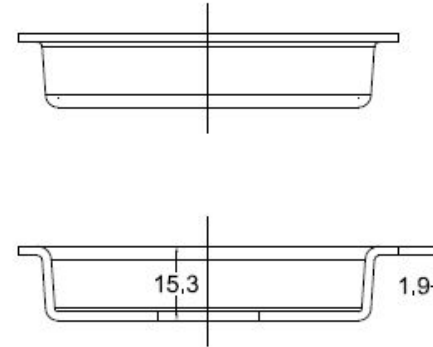
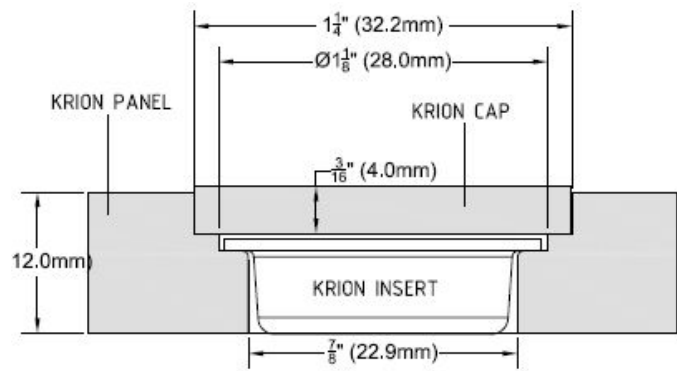


DETALLE A
ESCALA 10:1


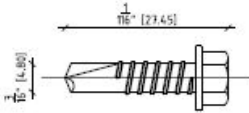

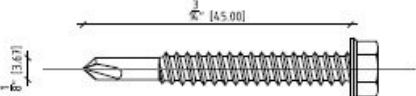

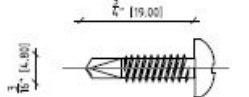

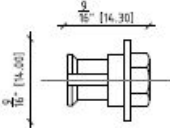
Details of rail



Bracket details



Details of insert for K-Fix system

USED	TYPE OF SCREW	SUBSTRATE WALL	USED TO	LATERAL VIEW	LARR NO.
	LT SCREW HILTI S-MD 1/4" - 20x1" (17)		TO FIX T/L PROFILE TO SPACER L-BRACKET & SPACER L-BRACKET TO OMEGA PROFILE		25886
	STEEL SCREW HILTI S-MD 12 - 24 x 2" (9)	STEEL SUBSTRUCTURE	TO FIX SPACER L-BRACKET TO STEEL SUBSTRUCTURE		25886
	KRION SCREW HILTI S-WD 12 - 14 x 1" (25)		TO FIX CLIP TO SUBSTRUCTURE		25886
	K-BOLT FIXING SCREW (23)		TO FIX KRION PANEL TO SUBSTRUCTURE		

Details of fixings