Technical Release

01/03/2015

For immediate release

Isokorb type KS14 for concrete-to-steel continues to set new standards

The Schöck Isokorb type KS14 thermal break already outperforms certain 'common solutions' for concrete-to-steel connections by a considerable margin. This has been verified through rigorous independent testing carried out by the Oxford Institute for Sustainable Development, at Oxford Brookes University. *(See details below).*

Now, as a result of design optimisation and listening to market feedback from users, the latest developments from Schöck – which apply to all of the KS range of products – make the KS14 even more exceptional in terms of structural design and installation. There is now a shear-bending interaction which, based on project specific loadings, allows for a much more flexible design and results in greater tolerance when installing steel balconies. In addition, there are two new installation aids. The first is an optional assembly aid, made of timber, which allows for an easier and more precise installation. And the second involves additional insulation strips on the bottom of the product, which also ensure easier and more precise positioning of the steel balconies during installation.

Results of independent testing on the type KS 14

An independent investigation into the performance criteria concerning the effectiveness of steel balcony connections to concrete slabs, was carried out by the Oxford Institute for Sustainable Development, (OISD) at Oxford Brookes University. The 'common solutions' in question being the direct connection of balcony support brackets to a concrete floor slab using no form of thermal

break; a solution using brackets in conjunction with a 10mm ‘thermal pad’; and a further connection solution using a thicker 20mm ‘thermal pad’ .
The OISD found the Isokorb type KS14 to be a superior thermal insulating element for connecting cantilevered steel components to reinforced concrete; while other comparable solutions failed to obtain the minimum amount of performance required by Part L of the Building regulations.

The first step in the independent investigation determined the heat loss, minimum surface temperature – and consequently the temperature factor (f_{RSI}) – resulting from the use of Schöck Isokorb type KS14 connecting a steel balcony to a concrete floor slab. The temperature factor (f_{RSi}) is used in the UK to indicate condensation risk as described in BRE IP1/06, a document cited in Building Regulations Approved Documents Part L1 and L2.

Once established, this calculated performance(1) was then compared with that of the three structurally equivalent ‘common solutions’. The table below presents the minimum surface temperatures and temperature factor(2) for the cases modelled, where the temperature factor used to indicate condensation risk (f_{RSI}) must be greater than or equal to 0.75 for residential buildings.

The Isokorb KS14 unit, with f_{RSi} = 0.904, exceeds these values by some margin and therefore meets the requirements of Building Regulations Approved Documents L1 and L2. Further, the results demonstrate that where no unit is used (f_{RSI} =0.681) and also with the 10mm and 20mm pad connections (f_{RSI} =0.713 and 0.706 respectively) **– all three would fail against the criteria required for residential buildings.**

The temperature results concluded:

Description	**Min. surface temp °C**	**Temperature factor f_{RSi}**
No balcony connection		0.949
Model 1 - Direct connection	13.62	0.681
Model 2 - Pad connection 10mm	14.26	0.713
Model 3 - Pad connection 20mm	14.11	0.706
Model 4 - KS14 H200	18.07	0.904

For information on the KS range of products and / or to request a copy of the OISD report (Reference: 120927SCH – 27/09/12) – Tel: 01865 290 890 or visit www.schoeck.co.uk

1) All calculation was by means of three-dimensional finite difference analysis using SOLIDO software from Physibel.

(2)

Temperature factor

$f_{RSi} = (t_{smin}-t_{ao})/(t_{ai} - t_{ao})$

Where: t_{ai} = inside air temperature
t_{ao} = outside air temperature
t_{smin} = minimum internal surface temperature

- Ends -

Press Contact for Schöck Ltd:
Michael Revans Communications
47 Barn Rise, Wembley Park,
HA9 9NH

tel: 020 8904 9733
e:michael.revans1@btinternet.com

Notes to the editor

A leading European supplier

Schöck has grown to become Europe's leading supplier of innovative structural load bearing insulation products. The main product is the Schöck Isokorb – a thermal break for various types of cantilever constructions in new buildings and for renovation. Its headquarters are at Baden-Baden in southern Germany and there are subsidiary companies in Great Britain, France, Austria, Switzerland, Italy the Netherlands, Belgium, Poland, Hungary, Russia, Japan, Canada and the USA. Sales teams and partners operate in many other European countries and also Australia and South Korea. Schöck is committed to providing the highest level of technical back up and comprehensive customer service to the construction industry.

Pic and caption

[Isokorb_KS14.jpg]

The Isokorb type KS14 thermal break module