



Balcony Connectors

Contents

	Page
Prevention of Thermal Bridging	9-1
Composition	9-2
What Information is Required to Provide an Estimate?	9-3
Installation Procedure	9-4

Prevention of Thermal Bridging

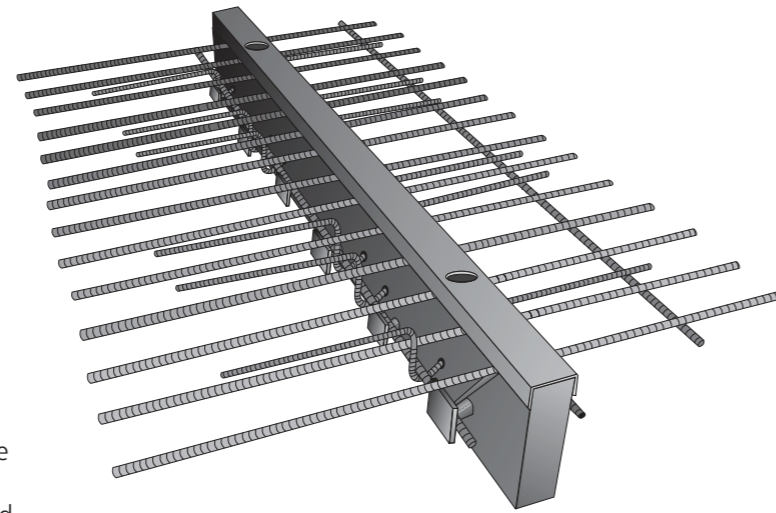
Prevention is better than cure

ISOTEC is a reinforcement system designed to reduce thermal bridges which can occur at the interface of cantilevered structural elements such as balconies, cornices and canopies.

What are thermal bridges?

The humidity contained in the air inside a building condenses at the point where the outside cold structure (i.e. balconies, cantilevers...) meets the inside warm structure. This condensation causes moisture and mould to appear. Although this damage can be treated, the cause always remains.

ISOTEC reinforcing should be foreseen from the design stage. ISOTEC is placed at the interface between the two structural components to allow the insulation to run continuously over each cantilever. The main advantage of the ISOTEC system resides in its insulating panel of polyurethane or mineral wool, through which stainless steel bars are placed and cast in to the concrete structure on both sides of the interface.

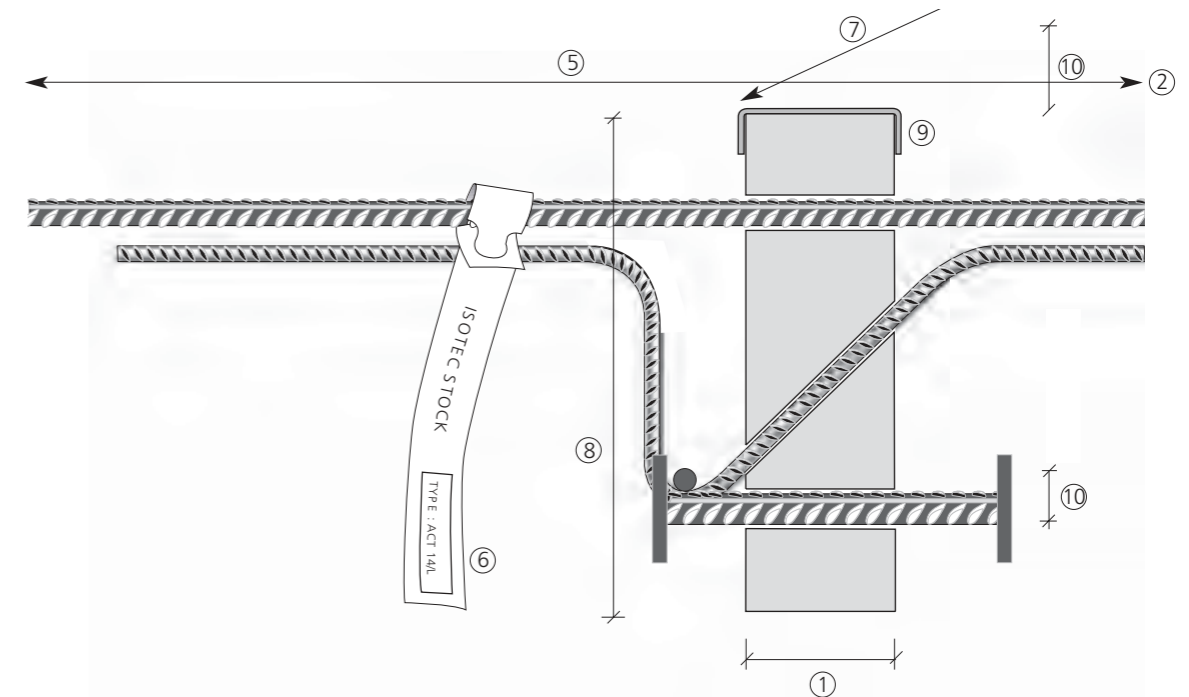


Composition

For most of the cantilevered elements, the upper part of the reinforcement is composed of a row of long traction bars while the lower part consists of a row of short bars with compression plates. The diagonal bars hold the shear force.

For certain types of cantilever we can design ISOTEC elements either for shear force only or for negative shear force and/or negative bending moment. ISOTEC can also be used for consoles or cantilevered walls.

ISOTEC can be integrated in the formwork of insitu balconies, or can form an integral part of a prefabricated balcony. The distance between the two extreme bars of a series of ISOTEC placed in the same concrete element can not be greater than 6m. If one side of this element is fixed, the distance from the extreme bar to that side can be maximum 3m.



- | | |
|--|---|
| 1 Standard: 40 mm polyurethane
On request: 60 or 80 mm polyurethane/mineral wool | 6 Height of ISOTEC in relation to the concrete slab thickness |
| 2 Traction bars | 7 Length of element (Standard 1m) |
| 3 Compression bars with compression plates | 8 Label indicating the construction site and the type of ISOTEC |
| 4 Diagonal bars | 9 PVC profile with sticker |
| 5 Length of traction bars = 2 × overlapping length (function of bar diameter) + insulation thickness | 10 Concrete cover |

What Information is Required to Provide an Estimate?

Upon receipt of the necessary information (technical drawings showing floor plans and vertical details of the cantilever, or shear forces and bending moment calculations from the design engineer) our professional design team will calculate the required ISOTEC system and an estimate can be generated.

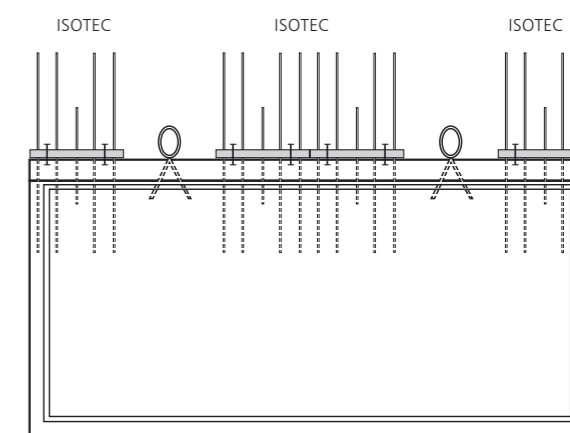
When the ISOTEC product is ordered, the contractor receives the necessary calculations which must be approved by the design engineer for the project.* Production commences as soon as we receive this approval.

Custom-made ISOTEC elements can be manufactured to meet individual customers' requirements. Once complete, the ISOTEC elements are protected and carefully wrapped ready for distribution to the customer.

* As we may not have all the necessary information, the quotation and the calculations can only be considered as suggestions. The design engineer for the project remains responsible for the design of the building and the cantilevers. The engineer must verify our calculations and adapt the reinforcing elements of the internal and external structure considering the presence of ISOTEC, including the overlapping bars. The concrete elements must be sufficiently designed to accommodate the forces generated by the ISOTEC elements.

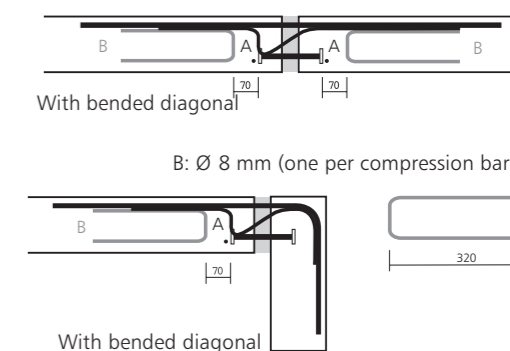
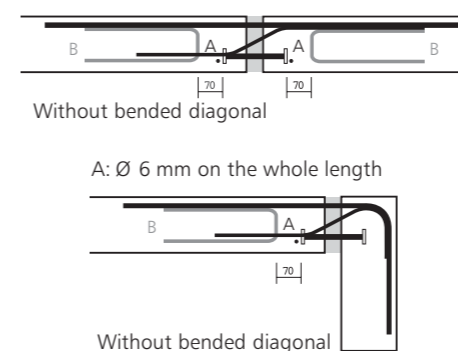
Installation Procedure

- Check that the ISOTEC is not damaged and that they conform to the approved calculation.
- Spread the elements as much as possible but remain symmetrical.
- Follow the installation direction shown on the label (Internal/External, Up)
- Fill the spaces between the ISOTEC elements with insulation.
- If required, place the lifting system in the space between the ISOTEC elements.
- Place any additional reinforcing and the overlapping bars.
- In the case of pre-cast balconies, do not let the compression plate rest on an existing concrete structure.



Additional reinforcing

Schematic representation of ISOTEC without showing the structure's reinforcing.



Reinforcing to be calculated by the design engineer for the project

- It is strictly forbidden to modify the manufactured ISOTEC elements. The bars must not be bent or cut unless the manufacturer sends a written approval.
- The formwork of the in-situ or prefabricated balconies must be positioned with an adapted reverse slope so that, upon removal of the shoring, the balcony has the desired slope in the correct direction.