

HALFEN HIT Insulated Connection

Building Product Information Sheet

HALFEN HIT Insulated Connection is a load bearing insulated connection element for thermal separation of reinforced concrete components such as e.g. balcony and ceiling slabs. It is used to prevent thermal losses between exterior and interior spaces, eliminate thermal bridges, and avoid condensation and mould formation, while ensuring increased building-physical performance and preventing cracking due to temperature-induced expansion. It consists of a sturdy casing box made of plastic, which is filled with mineral rock wool. In addition to the insulating effect, the mineral rock wool is used as fireproofing material so that all versions of the insulated connection element HIT-HP/SP are by default classified in the fire resistance class REI 120 according to EN 13501-2.

Depending on the element type, the load bearings such as e.g. tension bars, compression bars, shear bars and Compression-Shear-Bearings (CSB) form the statically bearing components of the system. The selection of the structural thermal break and its load-bearing class is determined by the required structural loads. Accordingly, the configuration and number of load-bearing modules vary based on the chosen element type and load-bearing classification.

The steel components are made of stainless steel or a combination of stainless steel and carbon steel rebars. The Compression Shear Bearings (CSBs) are made of a high-performance fibre-reinforced mortar and are engineered to carry compression loads and transfer vertical shear forces to the internal load-bearing concrete structure.

HALFEN HIT systems are manufactured in Europe and subject to the available design options detailed in the product literature.

Composition

- **Tension bars:** Flash butt welded bar connection, consisting of a combination of two reinforcing steel bars B500 according to DIN 488 and a stainless steel bar of strength class S 690 or Stainless steel B500NR
- **Shear Bars:** Stainless steel bar of strength B500NR or flash butt welded bar connection, consisting of combination of stainless steel bar B500NR and reinforcing steel bars B500B
- **Compression shear bearings:** High-performance mortar with increased compressive and tensile strength as well as optimised thermal conductivity
- **Casings:** Plastic according to EN ISO 1163, flame-retarded according to aBG Z-15.7-364
- **Insulating material:** Mineral wool (WLG 035), non-flammable – Building Material Class A1 according to DIN 4102-1 and Class 1 according to EN 13501-1

Supporting documentation

- Full product details are available in supporting technical documentation. Technical Literature, Installation Guide, Technical Approvals (ETA-18/0189) including fire protection, thermal values and noise reduction (DoP no. H10-18/0189), Declarations of Performance, Passive House Institute Certificate, Low Energy Component Certificate and Environmental Product Declaration are also available from: [Halfen HIT insulated connection](https://www.halfen.com/en-DE/products/structural-connections/halfen-balcony-connectors/hit-connections-concrete-to-concrete) (https://www.halfen.com/en-DE/products/structural-connections/halfen-balcony-connectors/hit-connections-concrete-to-concrete)

Manufacturer and Importer Details:

Place of Manufacture:	Overseas
Manufacturer:	Leviat GmbH*, Liebigstrasse 14, 40764, Germany
Manufacturer Phone:	
Importer Name:	Leviat New Zealand Limited
Importer Address:	246D James Fletcher Drive, Otahuhu, Auckland, 2024
Importer Website:	www.leviat.com/en-nz
Importer Email:	info.nz@leviat.com
Importer Phone:	+64 9 276 2236
Importer NZBN:	9429031339056

HALFEN HIT Insulated Connection

Building Product Information Sheet

Product Identifier

- HIT-HP/SP MVX and MVXL
- HIT-HP/SP ZVX and ZDX
- HIT-HP/SP MVX OU and OD
- HIT-HP/SP DD, DVL and DDL
- HIT-HP/SP HT
- HIT-HP/SP AT, FT, OTX and FK
- HIT-HP/SP ST and WT

Relevant Building Code clauses:

- Clause B1 Structure — B1.3.1, B1.3.2, B1.3.3, B1.3.4
- Clause B2 Durability — B2.3.1 (a)
- Clause C6 Structural stability — C6.2
- Clause E3 Internal moisture — E3.3.1
- Clause F2 Hazardous Building Materials — F2.3.1
- Clause G6 Airborne and impact sound — G6.3.1, G6.3.2
- Clause H1 Energy efficiency — H1.3.1, H1.3.2E

Contributions to Compliance:

Clause B1 Structure - B1.3.1, B1.3.2, B1.3.3, B1.3.4

- HALFEN HIT Insulated Connection will contribute to compliance subject to intended use and in accordance with the design of a suitably qualified engineer.

Clause B2 Durability - B2.3.1(a)

- HALFEN HIT Insulated Connection will meet the provisions of B2.3.1(a) of not less than 50 years subject to placement and use in accordance with the design and required durability assessment and consideration of the designer working to the appropriate design and environmental standards.

Clause C6 Structural stability -C6.2

- If the performance characteristics specified in ETA-18/0189, Annex C1 for verification according to the intended use under normal temperatures are met, the load bearing capacity of connections with HALFEN HIT Insulated Connection is also guaranteed in case of fire for the fire resistance period 120 minutes for design variants according to ETA-18/0189, Annex A.

Clause E3 Internal moisture - E3.3.1

- HALFEN HIT Insulated Connections maintain temperature above the condensation point and thus restrict mould growth in critical areas.

Clause F2 Hazardous Building Materials F2.3.1

- HALFEN HIT Insulated Connections meet the performance requirements under Clause F2.3.1.

Clause G6 Airborne and impact sound - G6.3.1, G6.3.2

- The impact sound transmission from the balcony into the adjacent units can be significantly reduced by using thermally separated balcony connections.
- The sound insulation properties of different HIT Elements were examined in independent on-site measurement and in laboratory according to EN ISO 10140 and ETA-18/0189. The differences in sound impact levels in slab connections are included ETA-18/0189, Annex C6.

Clause H1 Energy efficiency - H1.3.1, H1.3.2E

- Thermal conductivity of the insulation material used in HALFEN HIT Insulated Connections is 0.035 W/(mK). Thermal resistance of the connections is calculated following EN ISO 6946, EN ISO 10211 and ETA-18/0189 and the values are given in ETA-18/0189, Annex C4 and C5.
- HALFEN HIT Insulated connections with an insulation thickness from 80 mm are certified by the Passive House Institute as a "Low Energy Component" in the category balcony connection.
- In the higher category "Certified Passive House Component" which applies for cool, temperate climate HALFEN Balcony connections are certified for slab thicknesses from 160 mm.

HALFEN HIT Insulated Connection

Building Product Information Sheet

Limitations on the use of the building product:

- HALFEN HIT Insulated Connection should only be used as intended.
- Minimum concrete strength class of slabs made of reinforced normal weight concrete according to EN 206 is C20/25 (for internal components) and C25/30 (for external components).
- HALFEN HIT Insulated Connections are applicable for slab heights between 160 to 500 mm.
- Design information provided in Technical Brochure is prepared to European standards, which differ from those referenced in the New Zealand Building Code. A consultant/design engineer must assess and confirm suitability for use in New Zealand conditions.
- The product incorporates B500 reinforcing steel, which is a different reinforcement grade from that referenced in New Zealand standards (e.g., Grade 500E). Users must ensure that reinforcement properties are reviewed and verified for the intended application.

Design requirements that would support the appropriate use of the building product:

- HALFEN HIT Insulated Connection shall be used subject to the specific engineering design of a Chartered Professional Engineer.
- HALFEN HIT Insulated Connection should be designed according to EN 1992-1-1 in connection with EN 1993-1-1 and the provisions in accordance with ETA-18/0189, Annex D.
- The static verification of the force transmission between the elements and adjacent concrete shall be performed according to ETA-18/0189, Annex D

Installation requirements:

- HALFEN HIT Insulated Connection shall be installed by a competent contractor in accordance with installation instructions and the specific engineering design and guidance of the designer.
- A separate document with detailed installation guidelines is available and is always supplied on site together with the thermal break elements upon delivery.

Maintenance requirements:

- Maintenance of the connector installed in interior, dry and protected environments will not normally be required during the expected life of the connector.

Warning or ban:

- This product is not subject to any warning or ban under section 26 of the Building Act 2004