

BUILDING WITH PRECAST CONCRETE ELEMENTS: **HALFEN** products and their application



**Solutions and possibilities
for cost effective building**



ON THE SAFE SIDE:

When quality and performance make all the difference!

Building with precast elements has numerous benefits, starting with the higher quality through production in the controlled environment of a precast plant, through to the time saved at the construction site. **Connection technology** also plays a fundamental role. Whether in transport or during installation of the precast concrete elements safety and reliability are paramount. Just as important as reliable connections is the **reinforcement technology** in the precast concrete elements.

We at HALFEN know the extent of our **responsibility** in the reinforcement and connection technology industry. We are aware that **quality and performance** are decisive. This not only involves the construction project itself. It is also about ensuring the safety of all concerned on the construction site, and the subsequent occupants and visitors to the building. We incorporate all the acquired knowledge into the further development of our products.

This brochure illustrates **our product portfolio for the precast industry**. The standard HALFEN Channel can be found here and also many more other advanced products, specially developed and designed for reinforcement and connection of prefabricated columns, walls, façades, balconies, stairs and panel elements. We provide **practical solutions** from the tried and tested standard solutions to project-specific custom products. Our dedicated and highly skilled engineers are continually working to improve and further develop **HALFEN** products.

The following pages illustrate numerous applications where our products can be used. Go for quality you can rely on. **Quality "MADE BY HALFEN"**.



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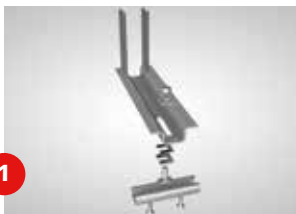
ABOUT HALFEN

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AN INTRODUCTION TO OUR PORTFOLIO for the precast industry

The precast concrete show house illustrates various examples of how HALFEN products can be used; from suspended concrete façade elements to impact sound insulation in stairs. The HALFEN office building shows only some of the possible applications for our products: HALFEN products are also regularly used in civil engineering or in residential and commercial construction projects.





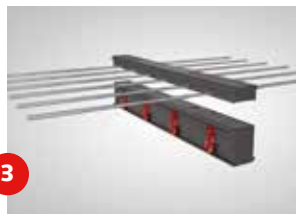
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BRA PARAPET CORBEL



2

HLB LOOP BOX



3

HIT-MVX ES INSULATED CONNECTION



3

HGB BALUSTRADE FIXING



4

HBJ-W BETOJUSTER



4

T-FIXX® FIXING ANCHOR



5

HAB ANCHOR BOLT
HCC COLUMN SHOE



5

HDB PUNCHING SHEAR REINFORCEMENT



6

HFV DOWEL RESTRAINTS



7

FPA PRECAST PANEL ANCHOR
DS SPACER BOLT



8

HIT-MVX OU/OD INSULATED CONNECTION



9

ISI IMPACT SOUND INSULATION



10

FSW PRECAST LINTEL BRACKET



11

HTA-ES CAST-IN CHANNEL FOR PRECAST LINTELS



12

HBT REBEND CONNECTION



13

HD SOCKET ANCHOR



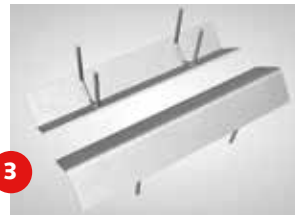
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KKT SPHERICAL HEAD LOCK COVERING



2

HBJ-S BETOJUSTER



3

HKW CORNER GUARD



3

HBS-05 SCREW CONNECTION



4

HSC STUD CONNECTOR



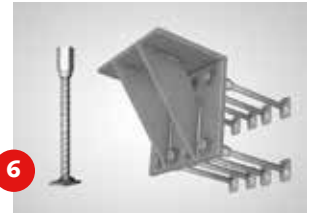
4

TPA LIFTING ANCHOR



5

HDB-S SHEAR REINFORCEMENT



6

HUC UNIVERSAL CONNECTION



7

HTU CAST-IN CHANNEL



8

KKT SPHERICAL HEAD ANCHOR



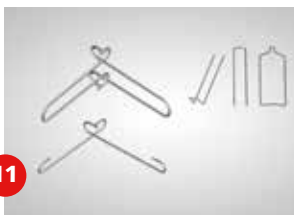
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HSD SHEAR DOWEL SYSTEM



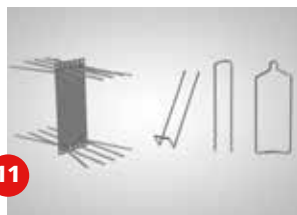
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HMS BRICK TIE CHANNEL
ML BRICK TIE



11

SPA SANDWICH PANEL ANCHOR



11

FA FLAT ANCHOR



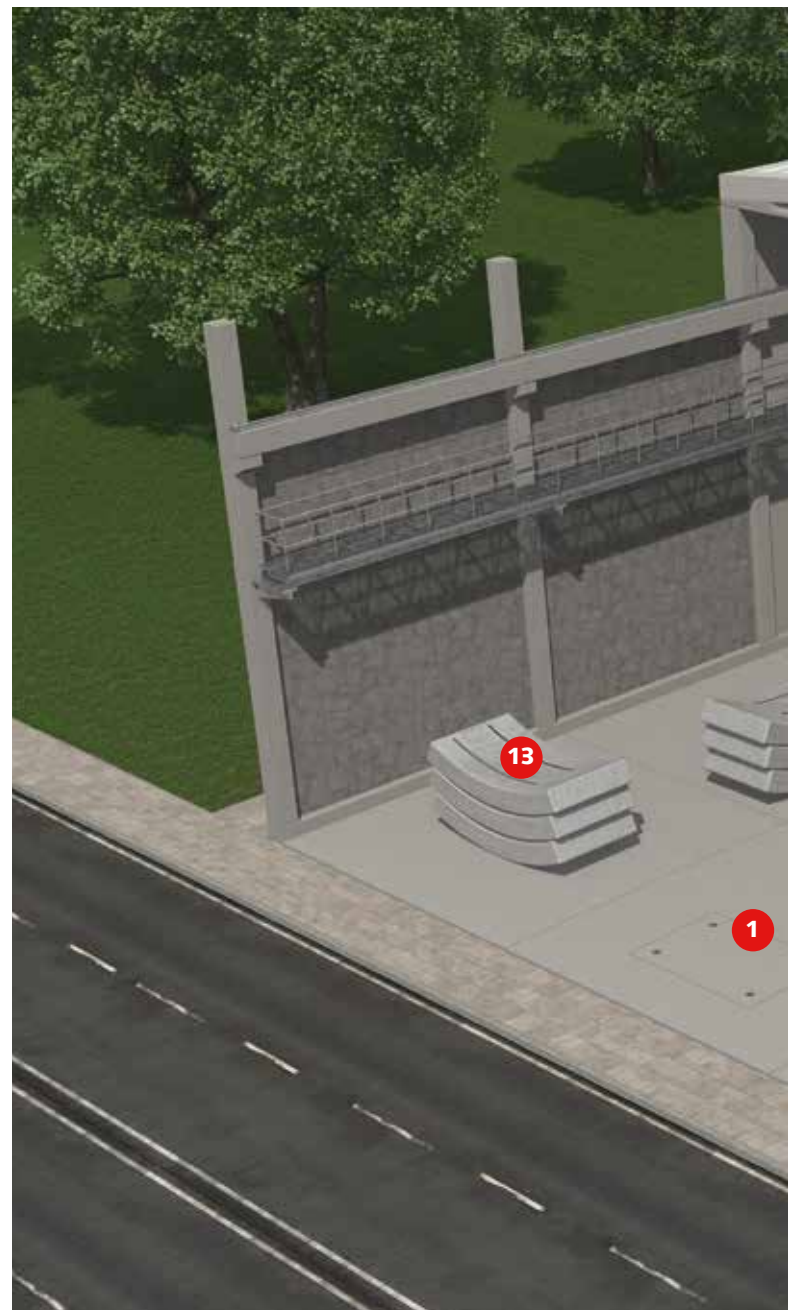
12

HEK PRECAST COUPLER



13

HTA-CS CURVED SOLUTION



WHAT'S BEHIND THE CONCRETE:

Where to find HALFEN products!

Planning and building modern, large commercial and industrial buildings without prefabricated concrete products is unimaginable. In the virtual production facility shown below, several of our products and their applications are illustrated. These include reinforcement connections, transport and lifting anchors and products used in the production of sandwich panel façades. HALFEN can also deliver the right solution for connections to brickwork and to steel structures. And this is only a fraction of possible applications for our products. Contact HALFEN for more detailed information about further areas of application.



LIFTING SYSTEMS

Individual solutions for efficient **LIFTING OF PRECAST ELEMENTS**

HALFEN has a suitable lifting anchor system for any application: Whether for pipes, thin sandwich panels, slender columns, or for use at low temperatures. With our lifting anchor systems you benefit from the highest quality materials and quality production. Compliance with quality standards has top priority and is guaranteed by qualified personnel and independent material testing institutes.

DEHA KKT Spherical head anchor



QUALITY CHARACTERISTICS:

- › load classes 1.3 - 45.0
- › wide variety for all kinds of precast elements
- › attached in seconds – safe, quick, easy



FRIMEDA TPA Lifting anchor



QUALITY CHARACTERISTICS:

- > load classes 1.25-26.0
- > numerous anchor types available
- > erection anchor to prevent concrete damage

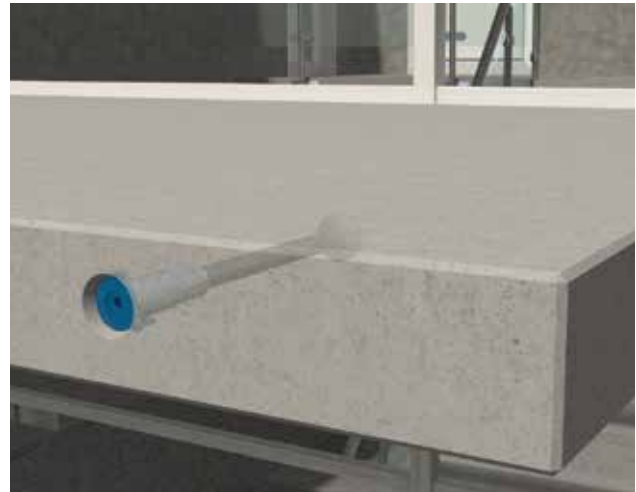


DEHA HD Socket anchor



QUALITY CHARACTERISTICS:

- > load classes 1.3-25.0
- > light weight, yet robust lifting anchor
- > especially suitable for thin walls



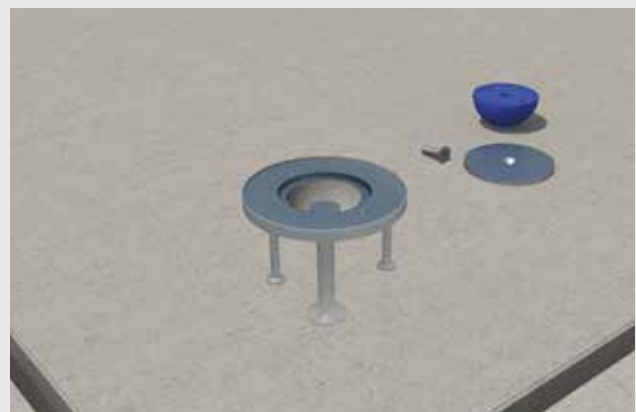
DEHA KKT HALFEN Spherical head lock covering

The HALFEN Spherical head lock covering is installed into precast concrete elements, which will subsequently be lifted again, for example: cover slabs or shaft covers.



QUALITY CHARACTERISTICS:

- > load classes 1.3-5.0
- > **One complete set** (the associated spherical head anchors are optional)
- > **stainless steel corrosion protection**
- > **suitable for vehicle loads**



WALLS



HALFEN VIDEOS ONLINE!

Go to www.halfen.com for further product videos.

Scan the QR Code to go directly to a video and see the Betojuster in use.

Connect and adjust with HALFEN products

TIME EFFICIENT INSTALLATION OF WALLS

Optimal preparation is decisive for efficient installation of prefabricated wall elements. The quicker and more precisely walls can be adjusted and connected or fixed to a column, the shorter the time required for on-site installation will be. This has a positive effect on the economic viability of a project. HALFEN provides you with the required tried and tested products.

DEMU T-FIXX® Fixing anchor

The multi-use fixing has various applications, such as in the fixing of balcony and bridge railings or steel ladders and stairs.

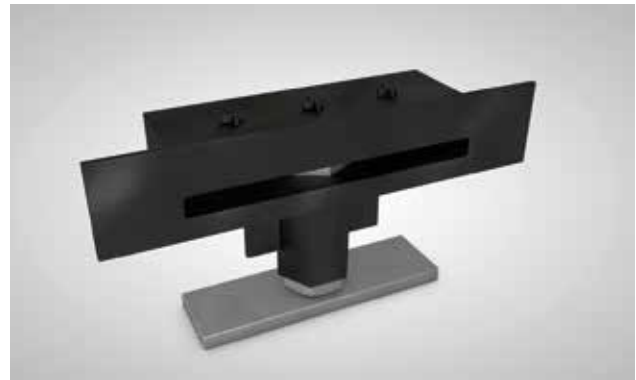


QUALITY CHARACTERISTICS:

- > optimized range of products in various lengths and diameters
- > especially suitable for close to edge fixings and in thin concrete elements
- > corrosion protection: galvanized or in stainless steel
- > European technically approved (ETA)

HALFEN HBJ-W Betojuster

The Betojuster is used for safe, precise and damage free adjustment of walls. The column is aligned with millimetre accuracy with little effort.



QUALITY CHARACTERISTICS:

- > easy adjusting without a crane
- > bolts – no special tools required
- > adjustment range up to 35 mm





VERSATILE APPLICATION

Find out more about the original HALFEN Channel on our Website at:
www.halfen.com

HALFEN HTA

The Original HALFEN Cast-in channel

HALFEN Cast-in channels are used in various applications. For example walls can be connected to columns using an on-site steel bracket. HALFEN Cast-in channels provide the basis here. Precast elements are securely connected and easily adjusted with this method.



QUALITY CHARACTERISTICS:

- › ideal basis for installation friendly fixings
- › no damage to the main reinforcement
- › European technically approved (ETA)
- › optimal planning and reliable dimensioning with the HALFEN software



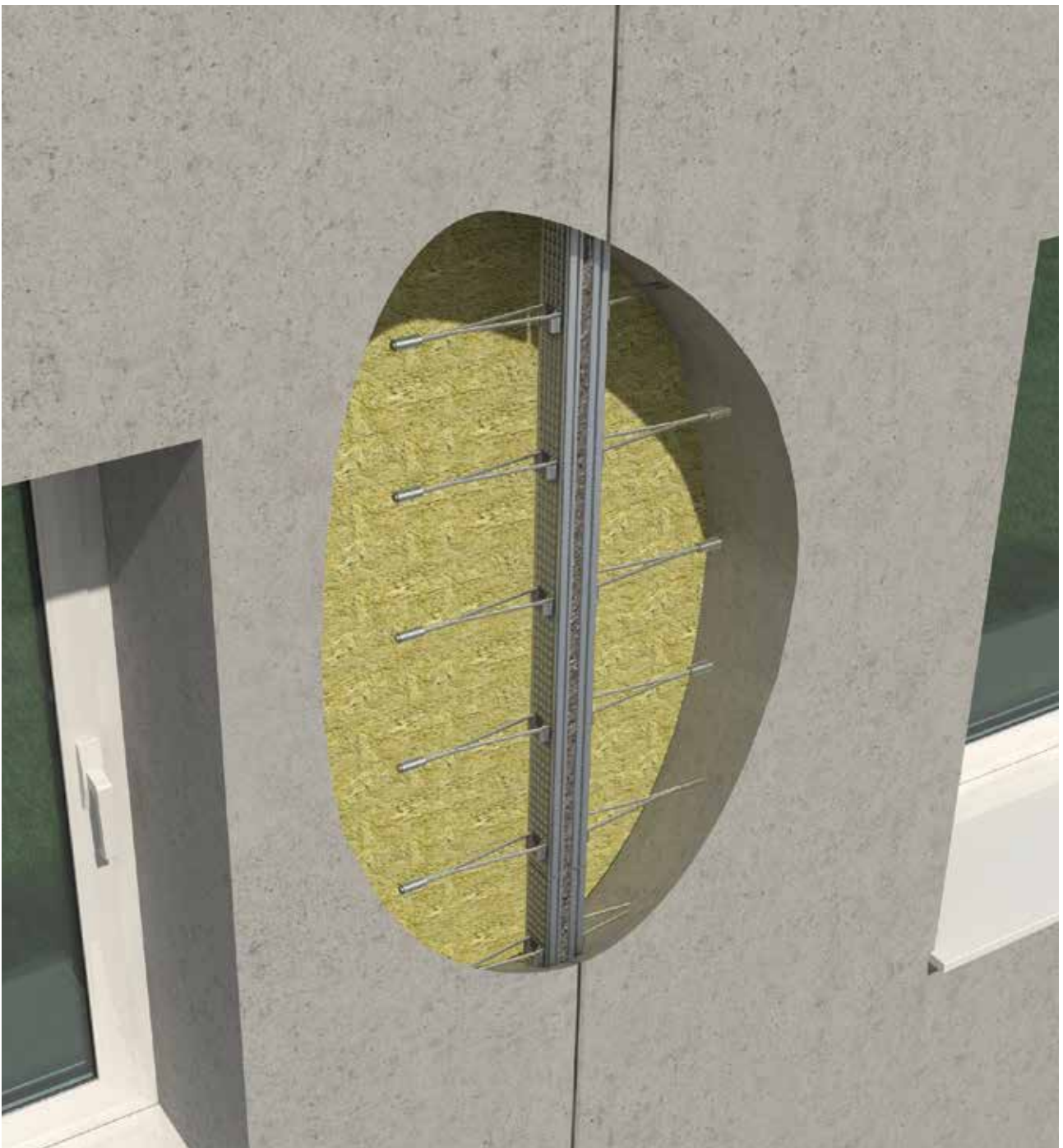
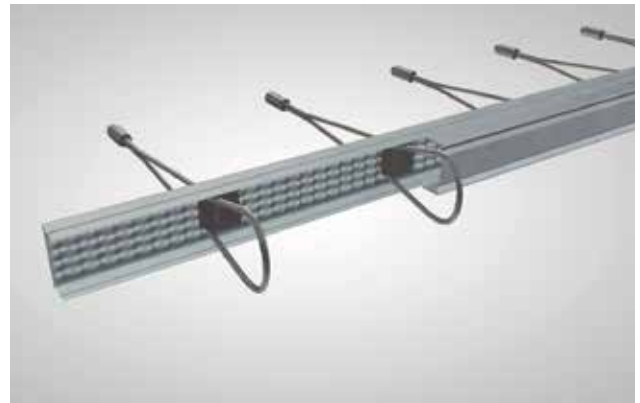
HALFEN HLB

Loop Box

For efficient connection of prefabricated concrete elements; flexible wire loops in the case spring into the correct position when the cover is opened. Laborious rebending of rebar elements is therefore not necessary.

QUALITY CHARACTERISTICS:

- › sturdy steel case with pre-cut nail holes
- › German building authority approved



BALCONIES

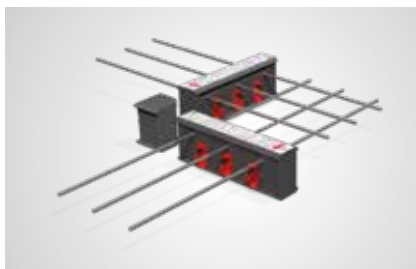


Energy efficiency and fire protection: THE THERMAL INSULATED CONNECTION FOR BALCONIES

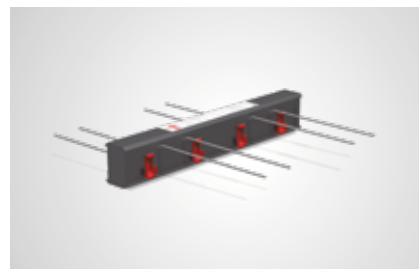
HIT Insulating connections provide a thermally insulated fixing of external concrete components to the building. Supported or continuous slab, parapets and corbels: HIT insulating elements offer the right solution for every application. Discover a selection of our versatile thermally insulated connection products:



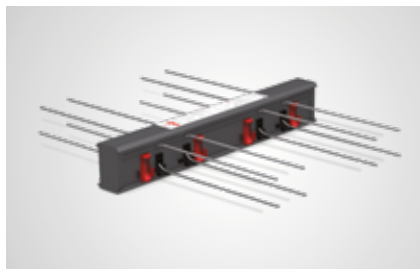
1 CANTILEVER BALCONY
HIT-MVX



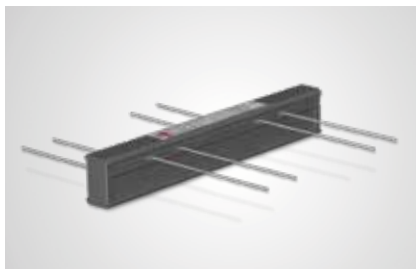
2 CANTILEVER CORNER BALCONY
HIT-MVX COR



**3 SIMPLY SUPPORTED BALCONY
ON EDGE COLUMNS**
HIT-ZVX



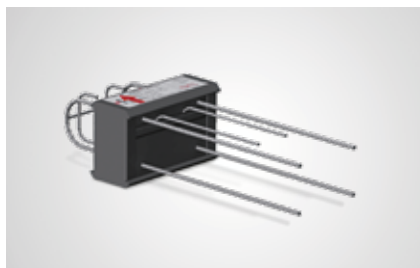
**4 SIMPLY SUPPORTED BALCONY
ON CENTRAL COLUMNS**
HIT-ZDX



5 LOGGIA
HIT-ZVX without CSB bearings



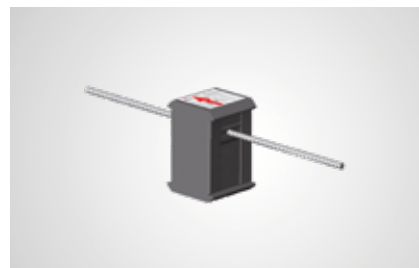
6 PARAPET
HIT-AT



7 CORBELLED PARAPET
HIT-FT



8 CORBEL
HIT-OTX



**9 ABSORBING OF HORIZONTAL
FORCES**
HIT-HT



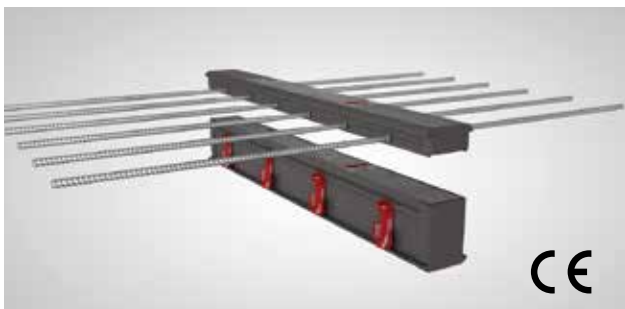
HALFEN HIT-MVX ES **Insulated connection for cantilevered balconies**

HIT-MVX ES was specially developed for use in semi-precast elements. The new insulated connection with double-symmetric CSB bearings can be fitted irrespective of the slab or balcony orientation. This ensures maximum installation reliability.



QUALITY CHARACTERISTICS:

- › European Technical Assessment (ETA)
- › insulation thickness: 80 mm or 120 mm
- › insulation material: non-flammable mineral wool
- › fire resistance rating REI 120 (F120)
- › max. reliable installation: double-symmetrical CSB bearings
- › Robust construction: no damage during installation or during transport



HALFEN HGB **Balustrade fixings**

The HALFEN HGB Balustrade fixing is the optimal solution for fixing all kinds of steel railings. Thanks to the cast-in channels the balustrades can be easily and quickly adjusted. HALFEN HGB is also suitable for fixing staircase banisters or crowd control railings in stadiums, and for installing temporary fall protection during construction.



QUALITY CHARACTERISTICS:

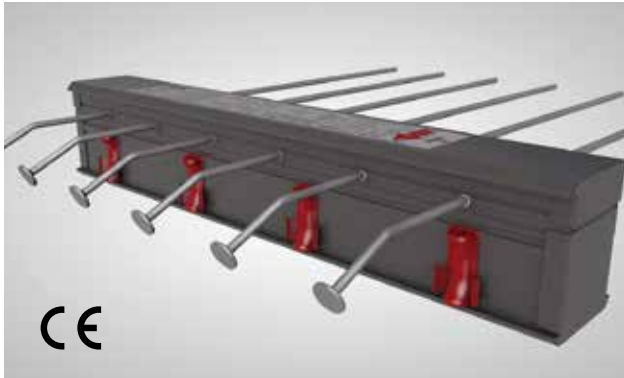
- › German building authority approved (DIBt Berlin)
- › no dowel, no welding
- › simple adjustment of balustrade
- › highest level of safety and strong bond with cast-in elements
- › quick installation reduces construction time



HALFEN HIT-MVX OU and HIT-MVX OD

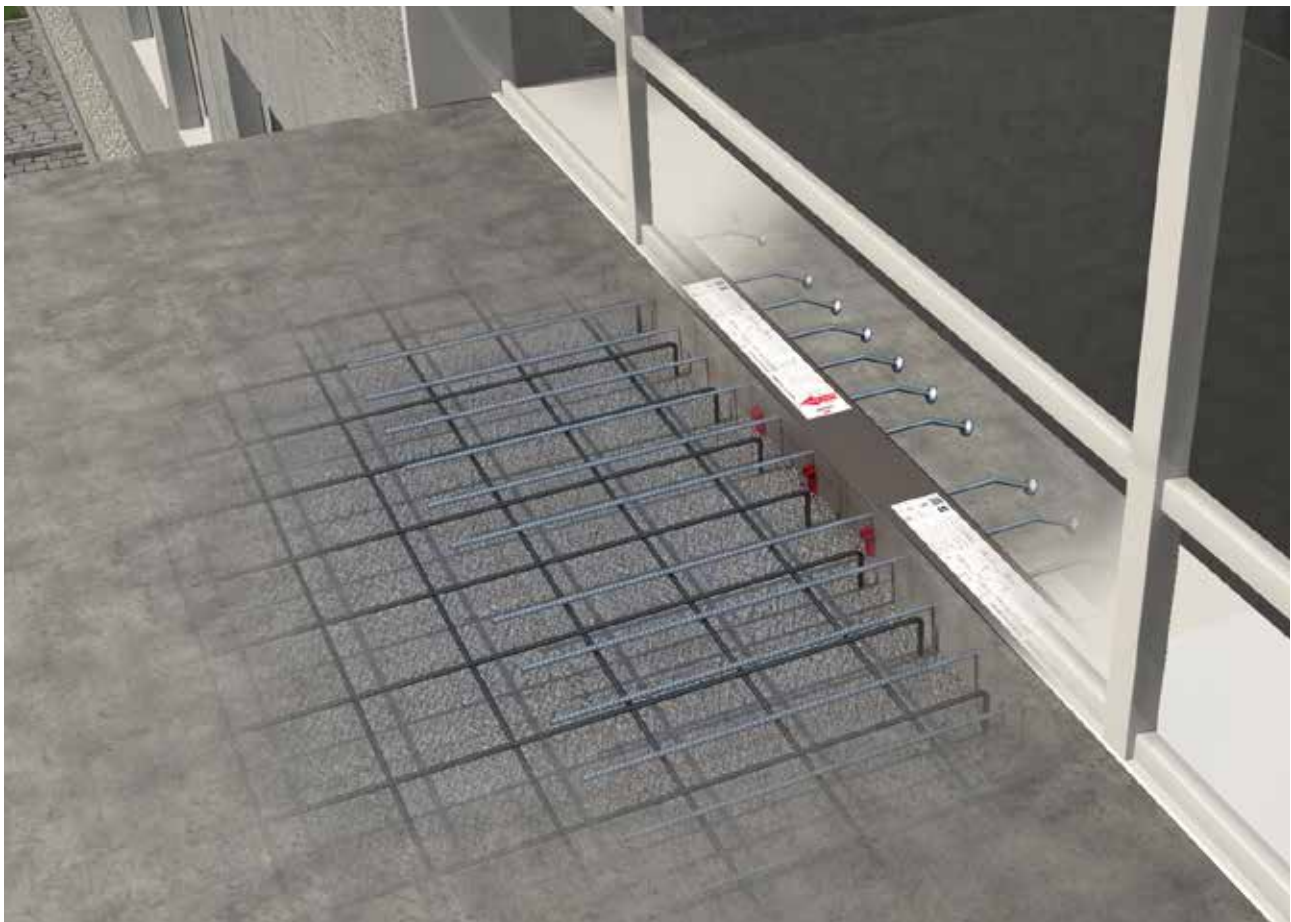
Insulated connections for connecting to beams

HIT-MVX OU and HIT-MVX OD achieve a reliable and thermally insulated connection of slabs to beams or thin walls using anchor heads instead of complex bent rebars. The anchor heads are characterized by the higher load capacity in relation to the very short anchorage length. A further benefit of using head bolts: installation in the precast plant and the transport of the slabs is much easier thanks to the compact design of this HIT.



QUALITY CHARACTERISTICS:

- › extremely short anchorage
- › high load capacity with compact dimensions
- › ideal for offsets, thin walls or beams from 17.5 cm
- › simple installation and shipping
- › fire resistance rating REI 120 (F120)



COLUMNS



Strong connections, safe transport and simple installation: **SUPPORT FROM TOP TO BOTTOM**

HALFEN products ensure that the columns safely and reliably fulfil their central function in the building structure. We also provide solutions that are particularly economical, in assembly and during installation.

HALFEN HDB **Punching Shear Reinforcement**

HALFEN HDB Punching shear reinforcement prevents columns punching through concrete slab elements. This allows for a higher load-bearing capacity in filigree architecture.

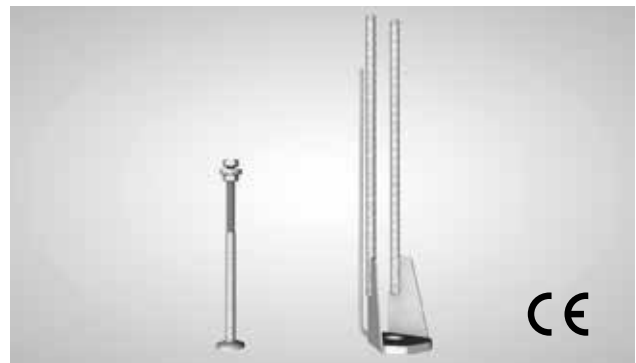


QUALITY CHARACTERISTICS:

- › time effective installation from above or below, also in semi-precast slab elements
- › European technically approved (ETA)
- › bolt diameter: 10–25 mm

HALFEN HCC & HAB **Column shoe and anchor bolts**

The column shoes are concreted into the columns in the precast concrete factory. At the construction site, the columns are then bolted, using nuts, to the anchors, which were previously cast in the foundation. This ensures efficient installation and eliminates the need for obstructive struts or bracings.



QUALITY CHARACTERISTICS:

- › cost effective solution for columns installation
- › efficient solution for connection to foundations or for column connection
- › simple adjustment



Reinforcement of columns: **COLUMNS IN AN INDUSTRIAL BUILDING**

Industrial buildings are usually constructed with precast concrete products because of the large heights and wide spans involved, and also because of the short on-site installation time. Precast columns are typical components for industrial building construction. HALFEN provides proven innovative product solutions for the production and installation of precast columns.

HALFEN HSC Stud Connector

The Stud Connector is the ideal solution for the economical construction of corbels and frame nodes. Its innovative, specially shaped anchor head allows extremely short anchorage lengths. This greatly simplifies the design and installation of the reinforcement in highly reinforced areas.

QUALITY CHARACTERISTICS:

- › German building authority approved
- › for tension reinforcement in corbels and frame nodes
- › 100% anchorage with forged anchor heads
- › time efficient installation and high application reliability with simple reinforcement layout

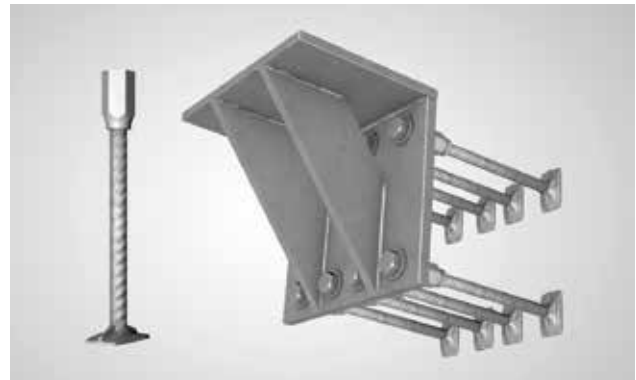


HALFEN HUC Universal Connection

The HALFEN HUC Universal connection system is an effective solution for the transfer of high structural loads into concrete. The HUC system includes the cast-in concrete HSC-B Steel connection and the secondary connecting unit, for example, the standard HSCC Steel corbel. All types of steel components can be easily and reliably connected to precast concrete elements using the HSC-B structural steel connection.

The innovative HSC-B structural steel socket is a comprehensive connection for the reliable transfer of normal forces as well as for shear forces and bending moments – without requiring any additional design measures. The HSC-B can be used wherever a connection between steel and concrete is required. The HSC-B is also suitable for loads that are not predominantly static, such as those occurring in crane runway systems.

The HSCC steel consoles are available in 34 standardized type-tested variants; this simplifies planning. The HSCCs have up to twice the load-bearing capacity when compared to standard reinforced concrete corbels. In combination with a chamfered beam the total installation height can be significantly reduced. This also reduces the construction height normally required for support corbels.



QUALITY CHARACTERISTICS:

- › **HSC-B Steel connection for transfer of normal and shear loads and bending moments**
- › **easy installation with bolt connection: no welding required**
- › **higher durability through optional corrosion protection**
- › **German building authority approved**
- › **34 standardized and type-tested HSCC Steel corbels with a load capacity of up to 2500 kN**



INSTALLATION AND ASSEMBLY

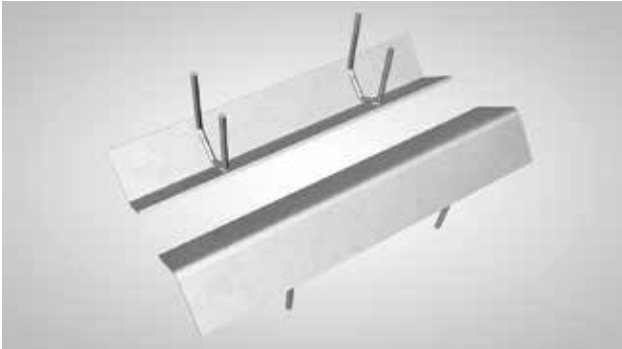
See the HUC Universal connection as it is used in the construction of the stadium in Erfurt, Germany. Simply scan the QR-Code and watch the video at www.halfen.com



HALFEN HKW

Corner guards

The HKW Corner guard is used to protect the corners and edges of columns and walls in large buildings, garages or industrial buildings.



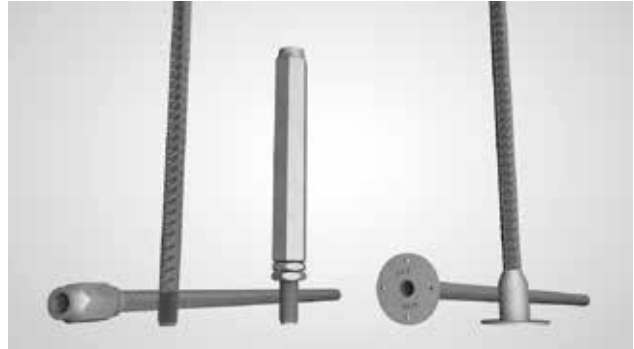
QUALITY CHARACTERISTICS:

- fits exactly to the formwork – no concrete seepage
- U-shaped reinforced anchor: optimal anchorage and simple installation of the corner reinforcement
- optimal corrosion protection: hot dip galvanized steel or stainless steel

HALFEN HBS-05

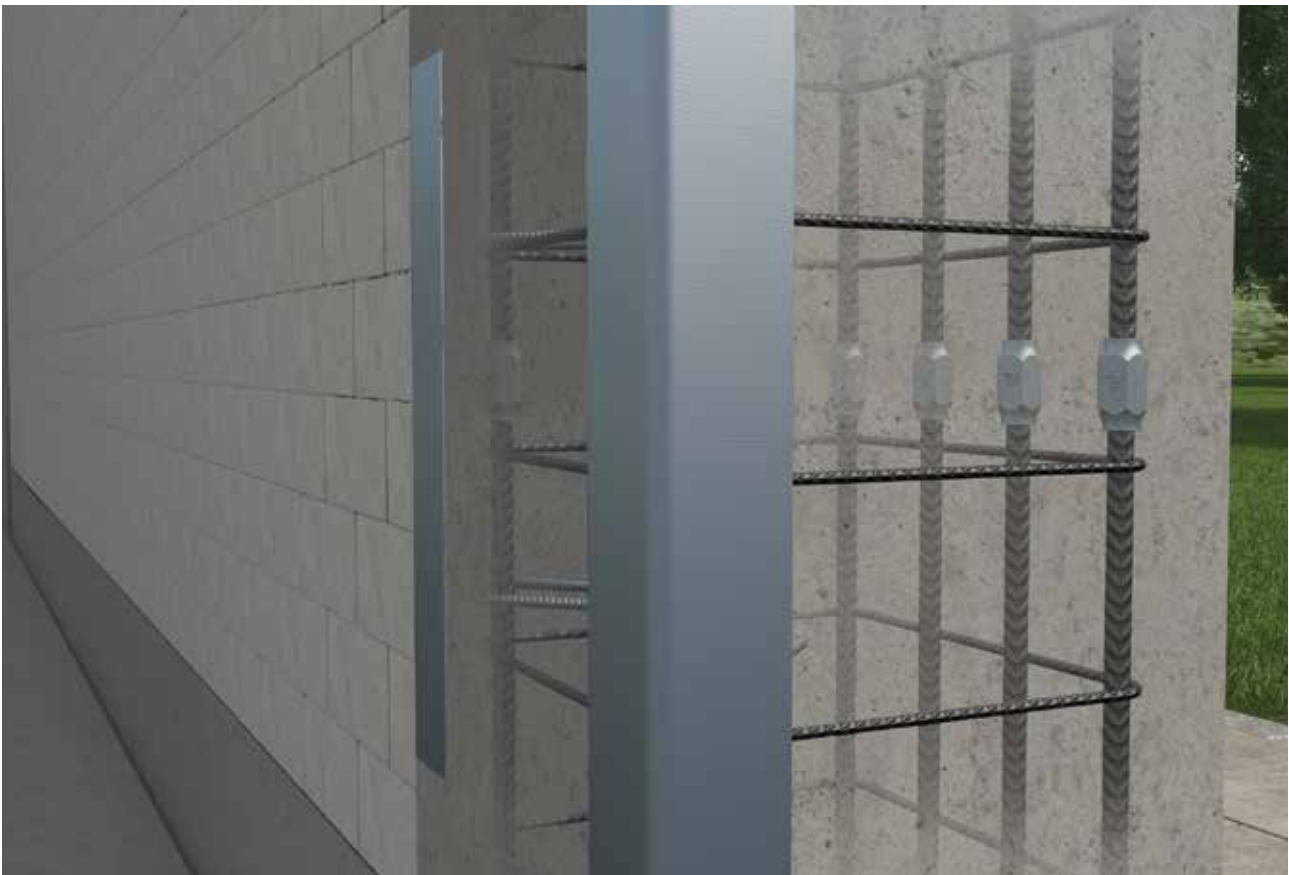
Screw connection

The HALFEN HBS-05 Screw connection is an optimal solution for all connections of reinforcement bars. All HBS-05 Screw connections can be combined as necessary.



QUALITY CHARACTERISTICS:

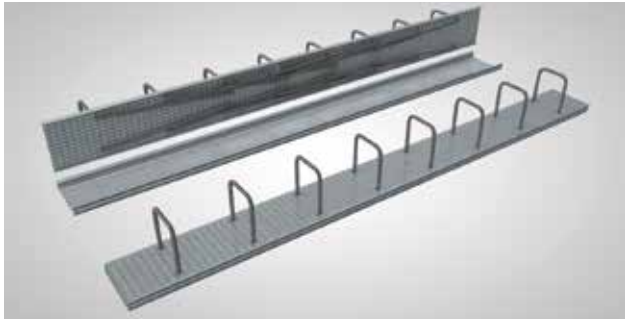
- German building authority approved
- very versatile due to wide product range
- no torque wrench required: visual control is sufficient
- HBS-05-Seismic: highest ductility – therefore suitable for earthquake zones
- meets the requirements of international standards



HALFEN HBT

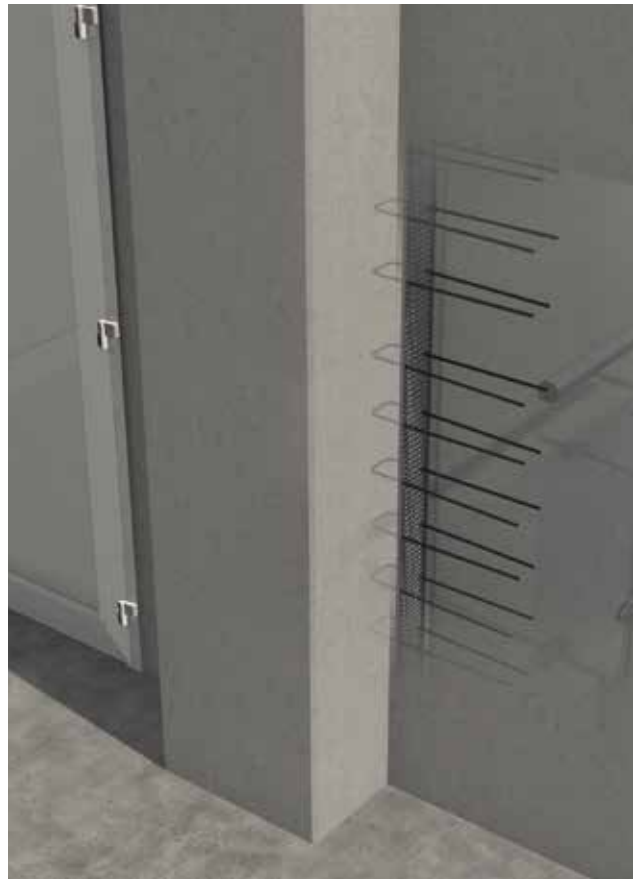
Rebend connection

HBT Rebend connection for economical connection of precast elements is available in 57 possible combinations of stirrup types and profile widths, or as standard types for the most common applications.



QUALITY CHARACTERISTICS:

- › German building authority approved
- › sturdy steel case and steel lid keep their shape during concreting
- › reduced casing height – ideal for precast concrete elements with minimal concrete cover
- › standard lengths: 1.25 m and 0.80 m – further lengths on request



HALFEN HBJ-S

Betojuster

The Betojuster HBJ-S is used for accurate and damage free adjustment of columns. Installation is possible without any special tools: The column is aligned with millimetre accuracy by using bolts for adjustment.



QUALITY CHARACTERISTICS:

- › optimal crane use: adjustment possible without using a crane
- › damage free adjusting due to bolts
- › minimal effort required
- › adjustable up to 100 mm

FROM PLANT TO SITE:

Scan the QR-Code to go directly to a video and see the Betojuster in use.

www.halfen.com



BEAMS

Beams and girders WHEN SHEAR LOADS PREVAIL

Beams and girders distribute and absorb shear forces. HALFEN also provides practical solutions here: for example the HDB-S Shear rail as shear reinforcement in the beam or the HTU Cast-in channel for fixing trapezoidal metal sheeting. HTU channels are cast into roof trusses or columns. The trapezoidal sheets are secured to the HTU channel with self-drilling or setting screws.

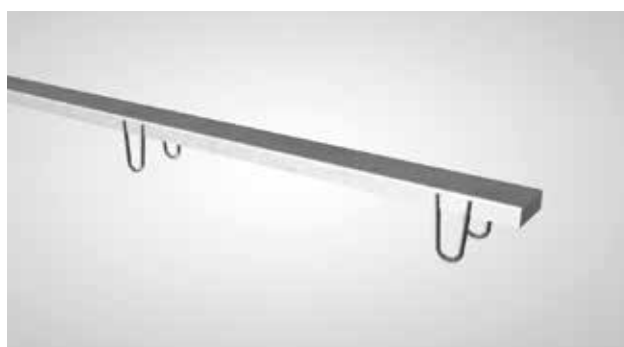
HALFEN HDB-S Shear reinforcement



QUALITY CHARACTERISTICS:

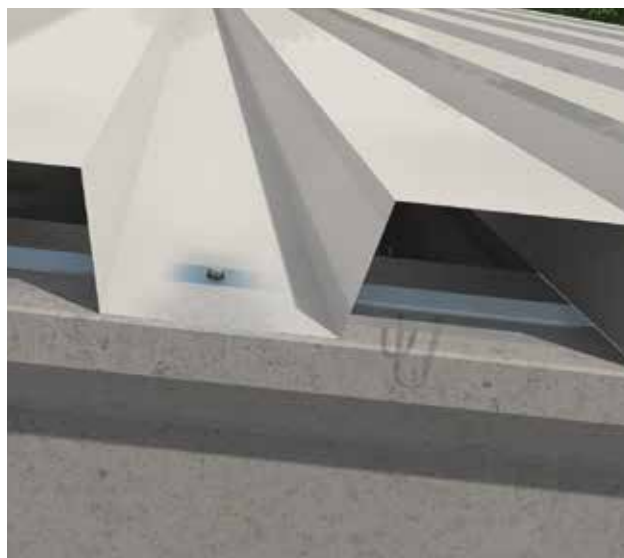
- › bolt diameters 10-25 mm
- › system elements with 2 or 3 double head anchors
- › complete elements with 4-10 double head anchors
- › spacers for 15-40 mm concrete cover available
- › German building authority approved

HALFEN HTU Cast-in channel



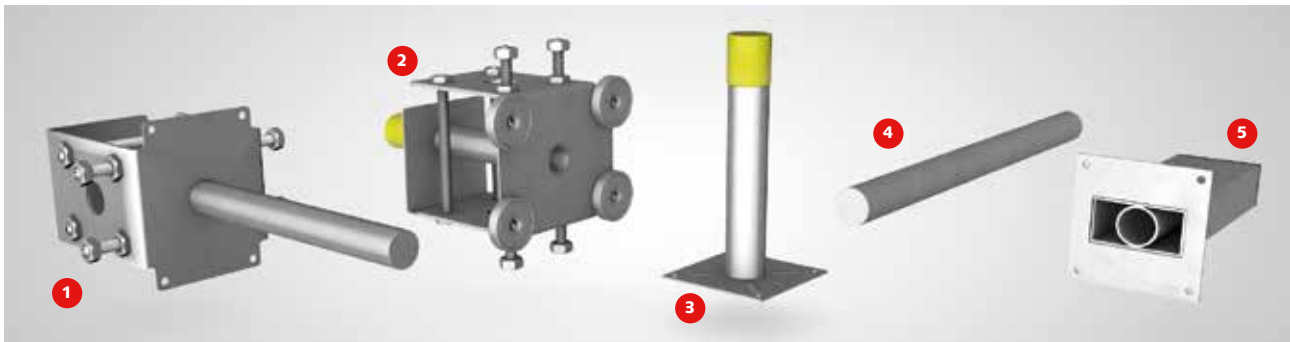
QUALITY CHARACTERISTICS:

- › German building authority approved
- › simple installation, cost effective assembly
- › no damage to the concrete
- › loads possible in all directions
- › hot dip galvanized steel or stainless steel



HALFEN HSD SHEAR DOWEL SYSTEM

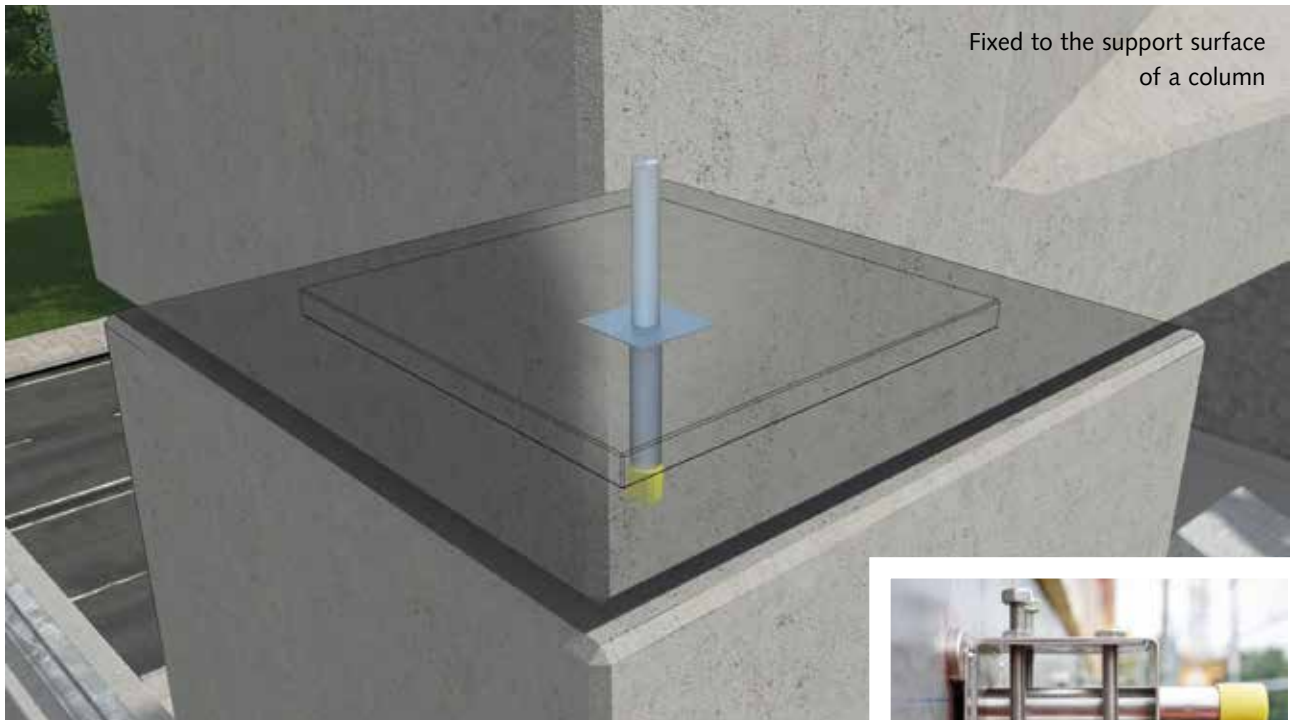
HALFEN HSD-CRET heavy-duty shear dowels transfer shear loads in connection joints and prevent irregular settlement or offsets in connection joints. Depending on the type of system they allow longitudinal movement or both lateral and longitudinal movement. The HALFEN HSD-CRET Heavy-duty shear dowel is used for extremely large shear loads.



QUALITY CHARACTERISTICS:

- > time efficient due to simple formwork and installation
- > system solution for fire protection
- > HSD-CRET Heavy duty dowel – German building authority approved

- | | | | |
|---|-------------------------------------|---|---------------|
| 1 | HSD-CRET DOWEL | 3 | HSD-S SLEEVE |
| 2 | HSD-CRET SLEEVE WITH FIXING MAGNETS | 4 | HSD-D DOWEL |
| | | 5 | HSD-SV SLEEVE |



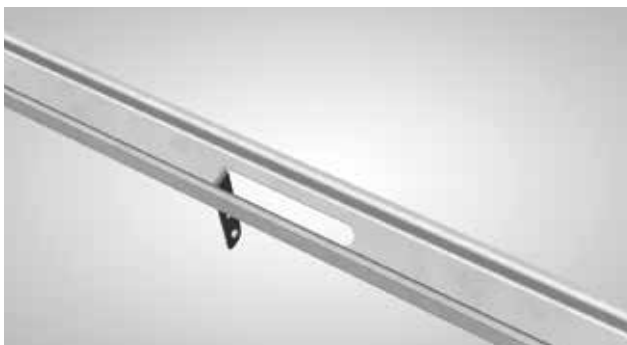
HSD-CRET Sleeve with fixing magnets for fixing to steel formwork

BRICKWORK

Tried and tested economical system for **CONNECTION TO BRICKWORK**

HALFEN ML Brick ties are used for fixing brickwork, in-fill panels, partition walls or cladding to concrete walls or to precast columns. The HALFEN Brick ties are inserted into the channels at the recommended positions while brickwork is in progress. The ties are turned 90 degrees and pressed down into the mortar in the horizontal joint. The brick ties are able to slide vertically in the brick tie channels. This greatly reduces cracks in the brickwork.

HALFEN HMS **Brick tie channel**



HALFEN ML **Brick ties**



QUALITY CHARACTERISTICS:

- › tried and tested fixing system
- › cutouts in the anchors ensure optimal bond
- › the brick ties are free to slide to avoid settlement cracks
- › the wall channel has a Haropor® foam filling to reliably prevent concrete seepage
- › corrosion protection: galvanized or stainless steel



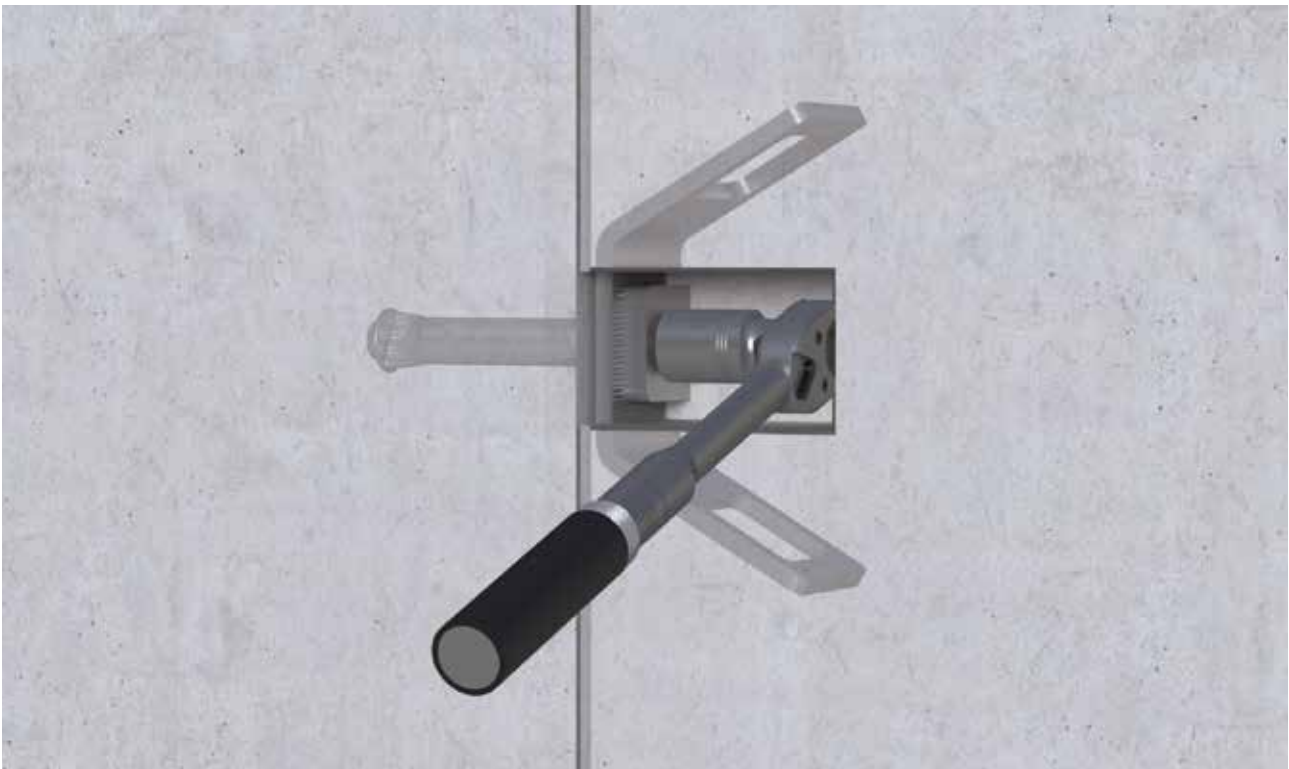
The innovation for dry, immediately loadable connections: **HEK – THE PRECAST ELEMENT CONNECTION**

The HEK Precast element coupler was developed especially for the requirements of the precast industry. The innovative system provides a dry, immediately loadable connection of precast concrete elements in a matter of minutes: no delays caused by waiting for connection grout to dry. The two precast elements are simply and reliably bolted together. No special tools or other auxiliary methods are required. The appropriate anchor can be chosen depending on the component: HEK can for example be used in combination with the DEMU T-FIXX®, the DEMU Bolt anchor or the DEMU Rod anchor. This provides a number of possible applications, whether in civil engineering or in residential and commercial projects.



QUALITY CHARACTERISTICS:

- › solution for quick and cost efficient installation
- › adjustable to account for inaccuracies during installation
- › immediately loadable, dry connection of precast concrete elements
- › universal use for numerous applications and connection situations



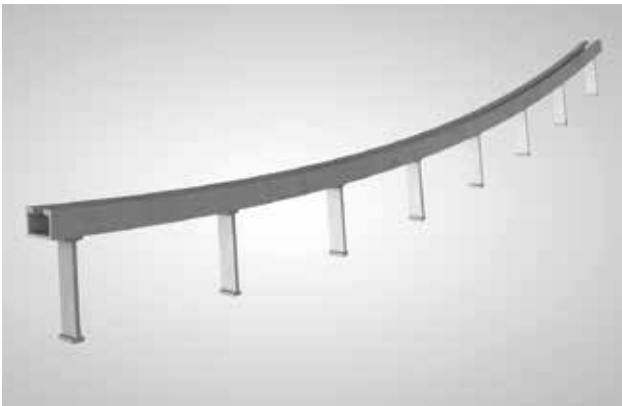
TUNNEL



HALFEN products in tunnel projects: **INSTALLATION IN TUBBING SEGMENTS**

HALFEN Cast-in channels are the ideal base for installation friendly and adjustable fixtures in tunnels. For example, anchor channels are used for fixing pipes, cable ducts or signalling equipment to the tubing elements in tunnels. The HTA-CS HALFEN Curved channels can be used in concrete pipes, for example, for utility shafts, curved walls and sewage treatment plants.

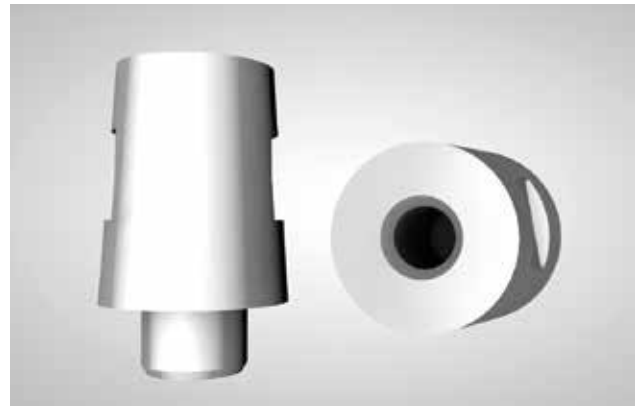
HALFEN HTA-CS **Curved Solution**



QUALITY CHARACTERISTICS:

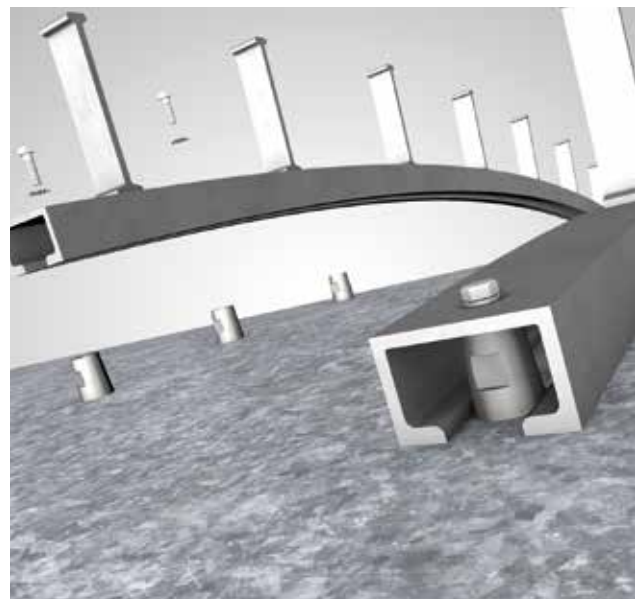
- › Ideal for installation friendly and adjustable fixing in tubbings
- › corrosion protection stainless steel A4

HALFEN HFK **Fixing cone**



QUALITY CHARACTERISTICS:

- › For simple, quick and adjustable fixing of anchor channels in tubing elements
- › Fixing and removal only from the top of the formwork

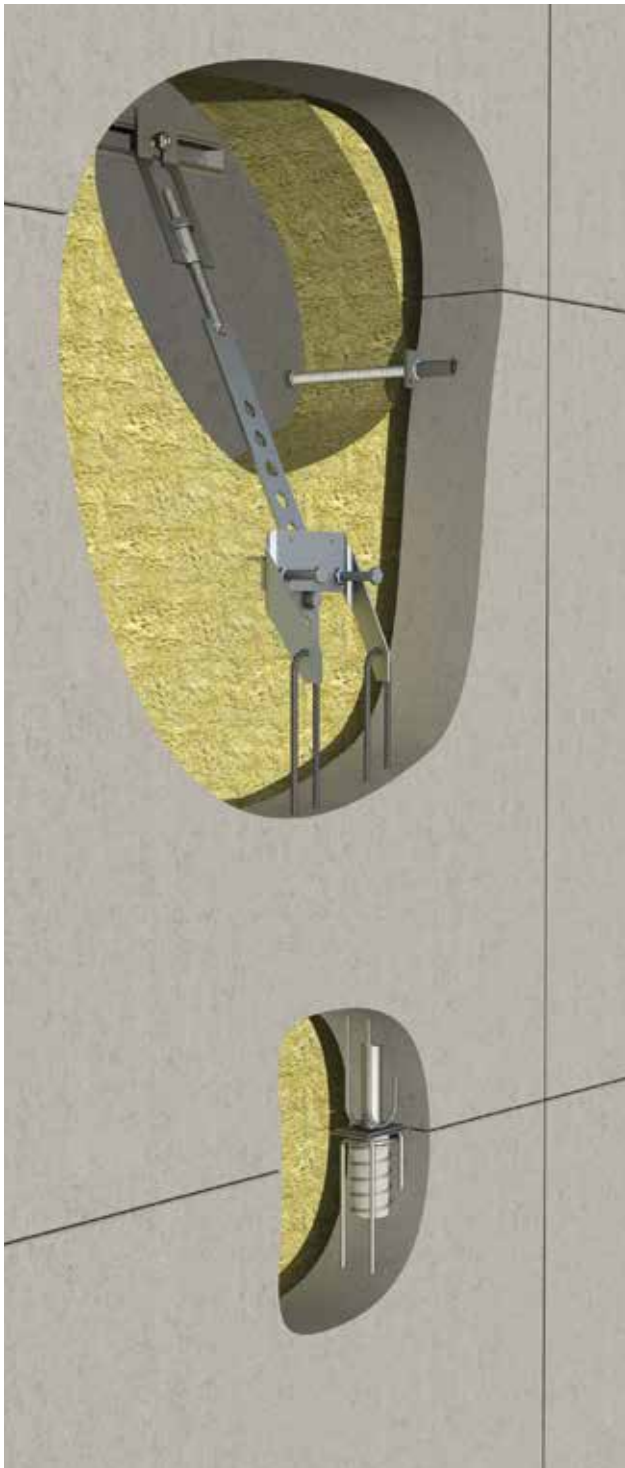


FAÇADES



Perfect anchorage with HALFEN: **SUSPENDED CONCRETE FAÇADE**

Simple elegance and sophisticated shapes: concrete façades provide architects and planners with numerous opportunities. The FPA Precast panel anchors provide quick and easy anchoring of façade panels in all applications. Used in combination with horizontal anchorings such as dowel restraints and spacer bolts, the FPA Precast panel anchors provide a reliable installation system for suspended concrete façades.



HALFEN FPA & DS Precast panel anchor and spacer bolt



QUALITY CHARACTERISTICS:

- › FPA is available in two load ratings: 5.0 kN and 56.0 kN
- › German building authority approved
- › adjustable in all directions
- › simple and quick installation
- › spacer bolt available in several lengths and diameters

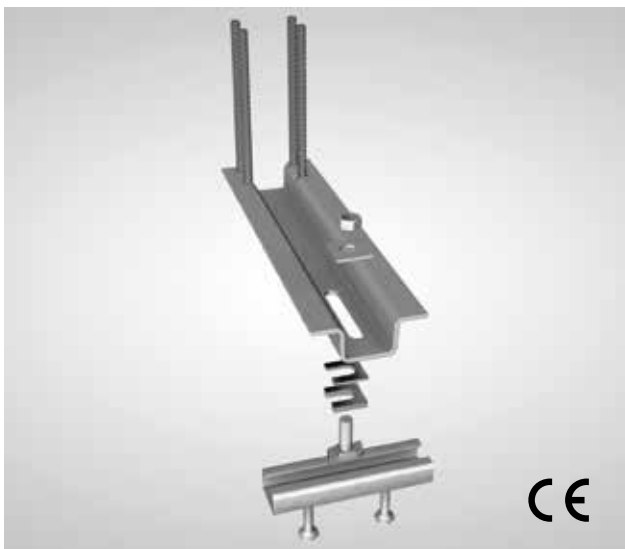
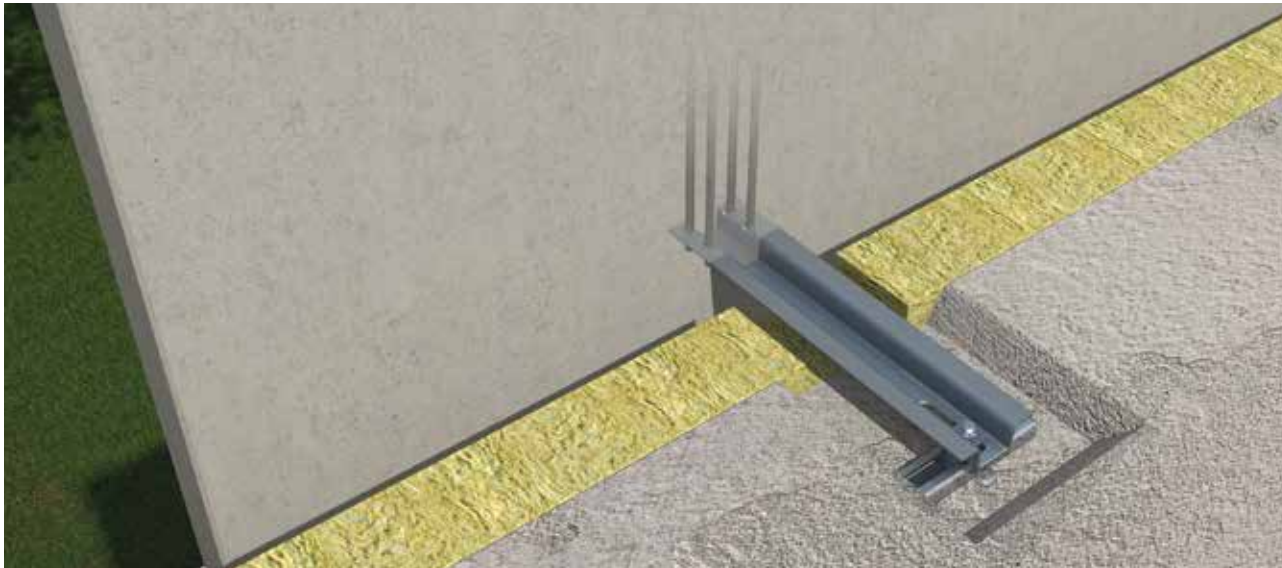
HALFEN HFV Dowel restraints



QUALITY CHARACTERISTICS:

- › available in various types
- › HFV is available in two load ratings: 2.5 and 5.0 kN

Reliable fixings with the **PARAPET CORBEL**



HALFEN BRA **Parapet corbel**

The HALFEN Parapet corbel ensures a quick and reliable installation when fastening parapet elements to balconies or concrete slabs. The parapet corbel is fixed to a previously cast-in HALFEN Channel

QUALITY CHARACTERISTICS:

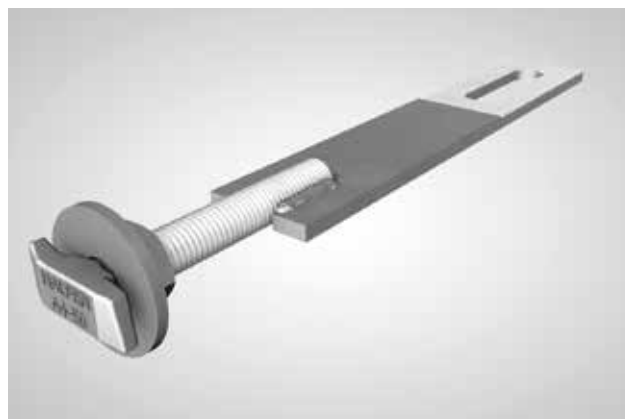
- › cost-effective application with 8 different profile sizes
- › suitable for different insulation thicknesses
- › high corrosion protection with stainless steel
- › quick installation – easy adjusting!

HALFEN HKZ **Restraint tie**

The HKZ Restraint tie is used in combination with cast-in channels to securely fix precast elements. The restraint tie transfers tensile or compression loads.

QUALITY CHARACTERISTICS:

- › efficient transfer of static loads through interlocking serration in bracket and counterplate
- › three-dimensional adjustability if installed in HALFEN Cast-in channels
- › galvanized or stainless steel



Brick by brick to a perfect façade: **CONNECTION TO BRICKWORK CLADDING**

Aesthetically appealing brickwork cladding remains among the most popular types of façade solutions. Precast technology can also be used to great effect here: for example, in a precast lintel above a window for efficient distribution of loads into the brickwork. HALFEN has two reliable products for use in this application: the HTA-ES Cast-in channel and the FSW Precast lintel bracket.

HALFEN HTA-ES **Cast-in channel for precast lintels**



QUALITY CHARACTERISTICS:

- › cast-in HALFEN Channels
- › provides adjustable anchorage
- › quick, cost effective installation
- › bolts instead of welding
- › German building authority approved



HALFEN FSW **Precast lintel bracket**



QUALITY CHARACTERISTICS:

- › transfer of load from the lintel into the brickwork
- › simplified design of the precast lintel
- › hidden lintel over window openings



Cost-effective solution:

CONCRETE SANDWICH PANEL FAÇADE

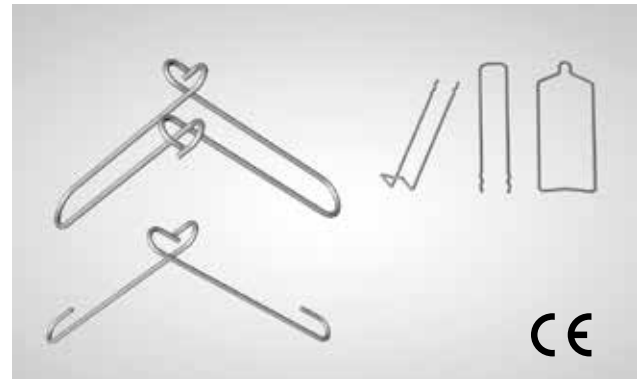
Sandwich panel façades combine the load bearing structure elements facing into one element. The benefits are quick installation and the already integrated thermal insulation. Because of the high level of efficiency they are very often used in industrial and commercial projects.

HALFEN offers two different systems for the connection between support and facing layer: the FA Flat anchor and the SPA Sandwich panel anchor. With their minimal thermal conductivity they provide up-to-date thermal protection.

HALFEN SPA Sandwich panel anchor

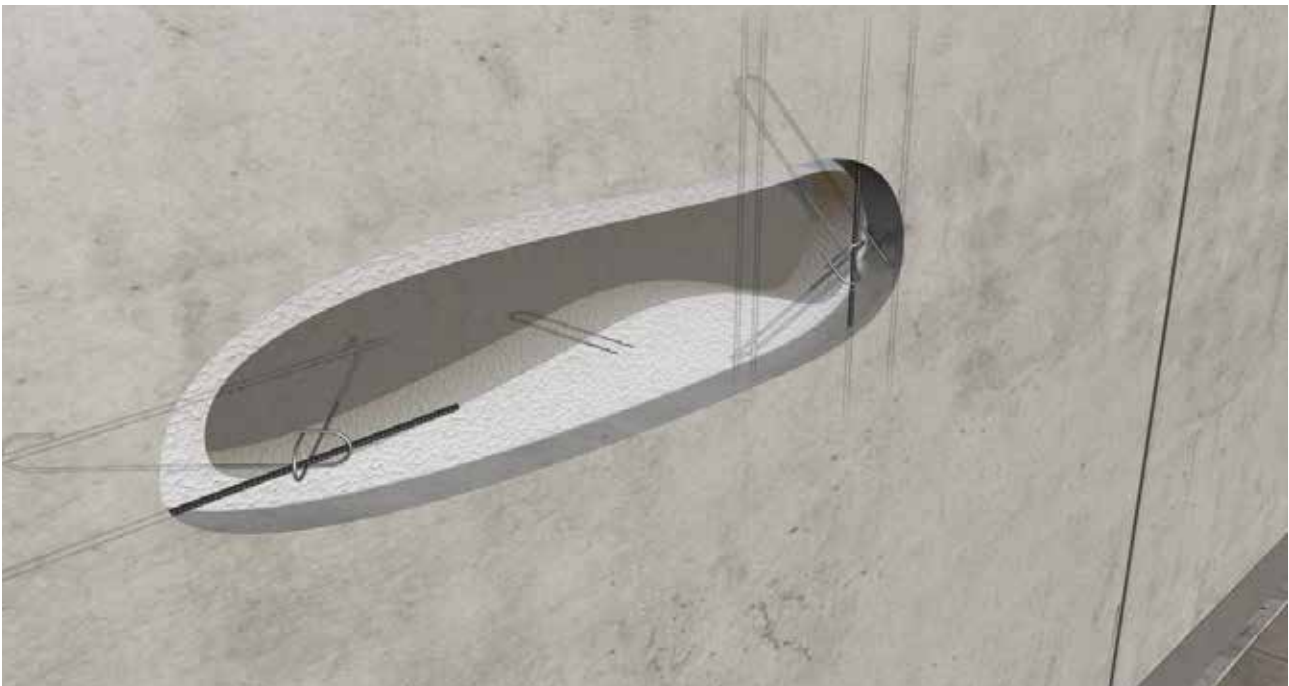
With the SPA system, two SPA support anchors installed symmetrically to the centre of mass axis in each support direction are usually sufficient. A further SPA Sandwich panel anchor must be arranged as a horizontal anchor perpendicular to the main load bearing direction to account for loads during transport and installation.

Building authorities approved restraint ties are distributed over the rest of the slab; to account for horizontal forces and to prevent warping of the facing layer.



QUALITY CHARACTERISTICS:

- › easy and quick installation in the precast plant
- › technically advanced system
- › economical, even when used in very thick insulation
- › CE marking according to EN 1090
- › German building authority approved
- › easy planning with HALFEN software

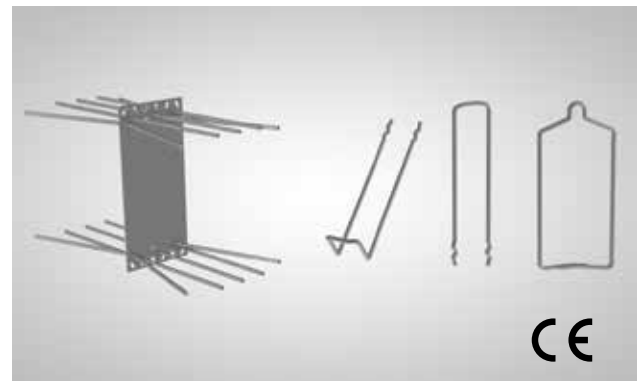




HALFEN FA Flat anchor

With the FA system, the support anchors also transfer the dead weight of the facing layer and proportionately the horizontal loads from wind and temperature fluctuation into the load bearing slab.

If two FAs are used, the anchors should be installed in each direction symmetrical to the centre of mass. A further anchor must be used as a horizontal anchor perpendicular to the main load bearing direction.

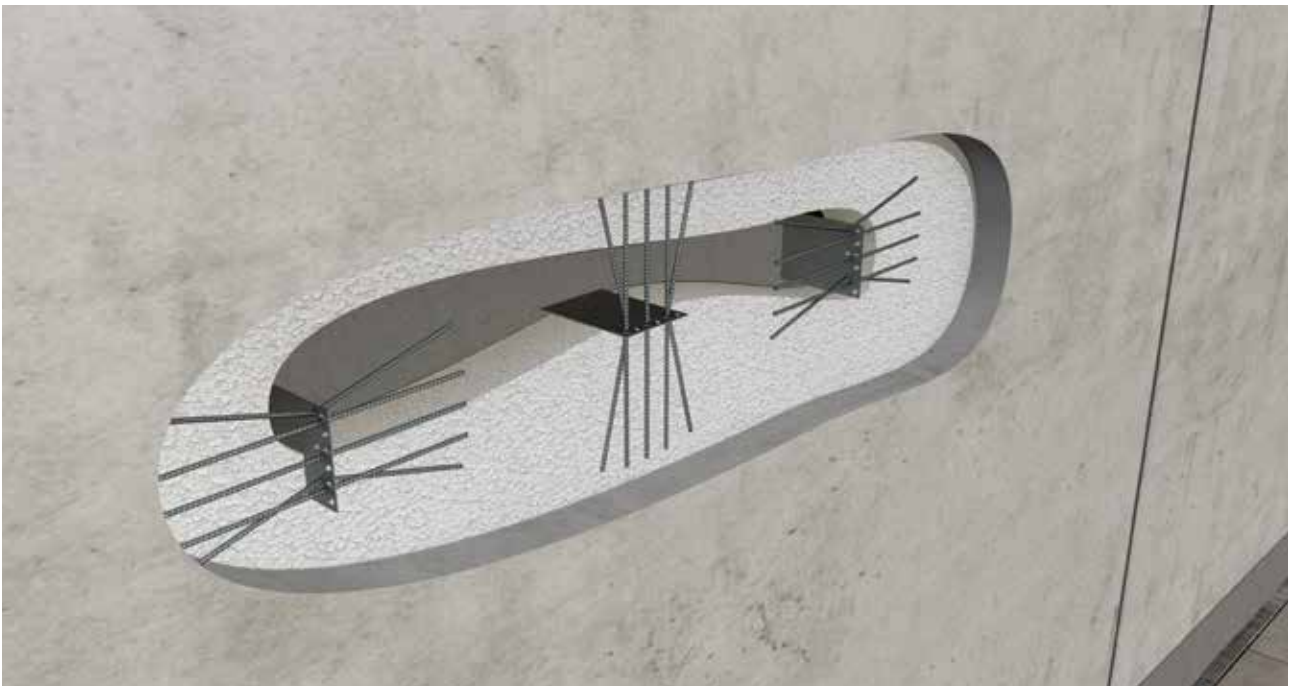


QUALITY CHARACTERISTICS:

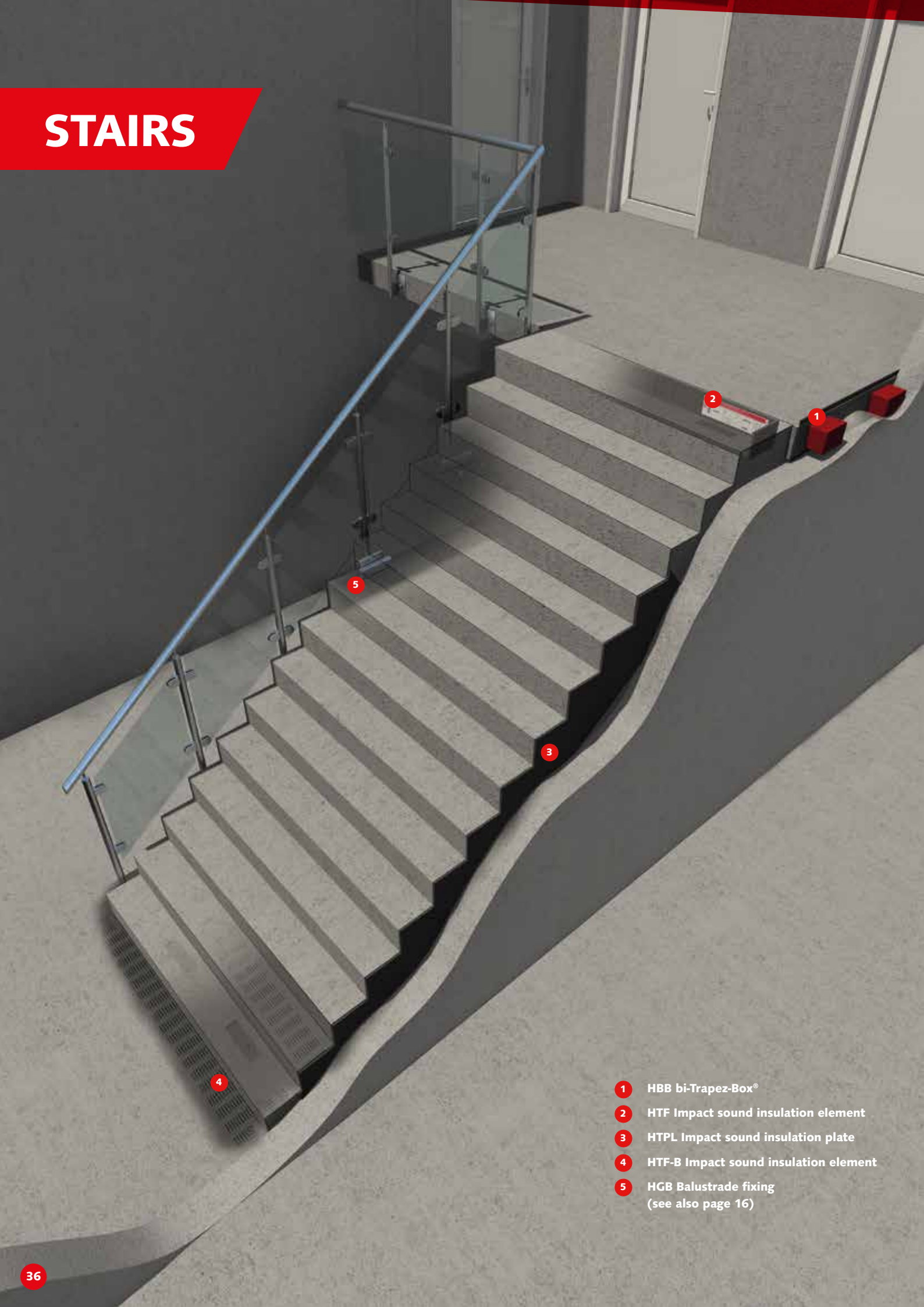
- > for high loads
- > CE marking according to EN 1090
- > German building authority approved
- > easy planning with HALFEN software

Maximum versatility:

The two systems can also be combined to achieve the best possible result.



STAIRS

- 
- 1 HBB bi-Trapez-Box®
 - 2 HTF Impact sound insulation element
 - 3 HTPL Impact sound insulation plate
 - 4 HTF-B Impact sound insulation element
 - 5 HGB Balustrade fixing
(see also page 16)

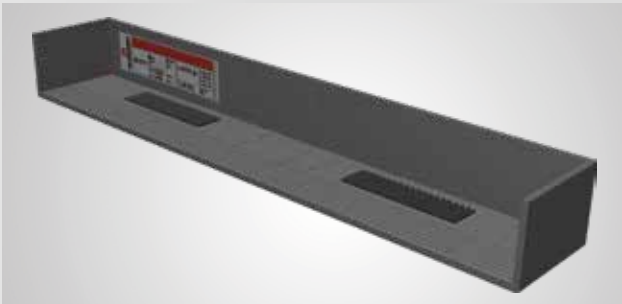
Impact sound insulation: FOR QUIET STAIRS

Unwanted noise can significantly affect the quality of life in residential buildings or the level of performance in office buildings. The noise resulting from footfall in insufficiently insulated stairs is particularly unpleasant. HALFEN HBB bi-Trapeze-box® and the HTF and HTT Impact sound insulation provide reliable solutions.

GENERAL QUALITY CHARACTERISTICS:

- > good sound insulation properties over a wide range of bearing pressures
- > General building test certificate for the bi-Trapez-bearing

HALFEN HTF Impact sound insulation element



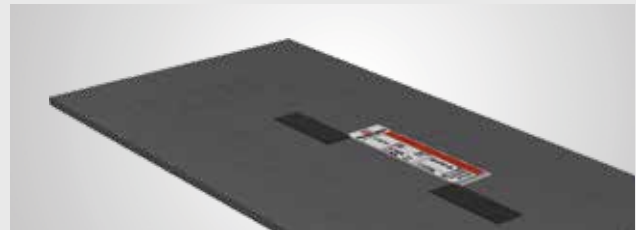
QUALITY CHARACTERISTICS:

- > adaptable for all stair widths – element widths of 100 cm and 120 cm available: Customizable to any width, with additional insulation and load strips
- > perforated markings allow elements to be quickly trimmed to required size

HALFEN HTPL Impact sound insulation plate



HALFEN HTF-B Impact sound insulation element



HALFEN HBB bi-Trapez-Box®



QUALITY CHARACTERISTICS:

- > max. versatility with boxes for three slab thicknesses: 16 cm, 18 cm or 20 cm
- > easy and quick installation
- > fire protection tested: F90
- > optional also with type-tested support element

HALFEN HTT Impact sound insulation element



QUALITY CHARACTERISTICS:

- > for connections of precast stairs to in-situ concrete landings
- > type-tested planning reliability
- > fire protection properties up to fire resistance class F120
- > for stair widths of 90 cm to 200 cm
- > available in three 3 different load ratings



HALFEN

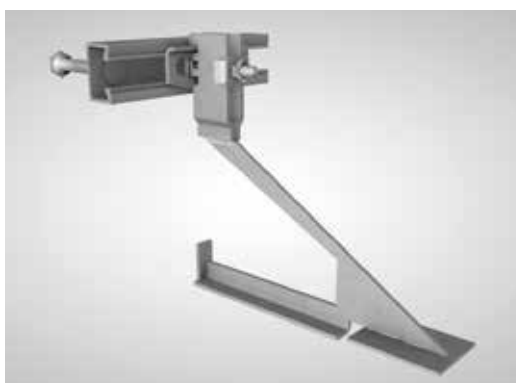
Quality that connects

When it comes to product solutions for construction projects, you need products that are dependable, products you can rely on. That's why for decades professionals have chosen **HALFEN**. Our products, made from high quality materials in our regularly monitored factories, are the result of continuous optimization and development. During this process we generate a wide spectrum of product solutions for your construction projects.

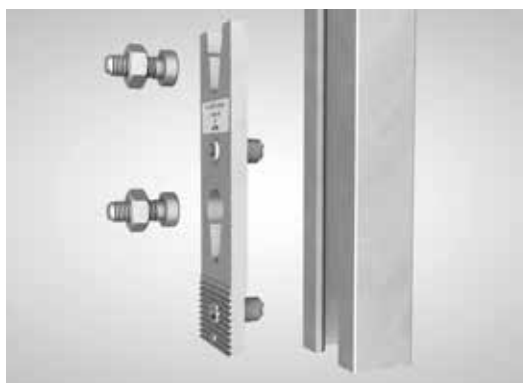
Go for quality you can depend on: **Quality "MADE BY HALFEN"**.



HZA – the serrated variant of the anchor channel: Highest approval standards guarantee maximum safety.



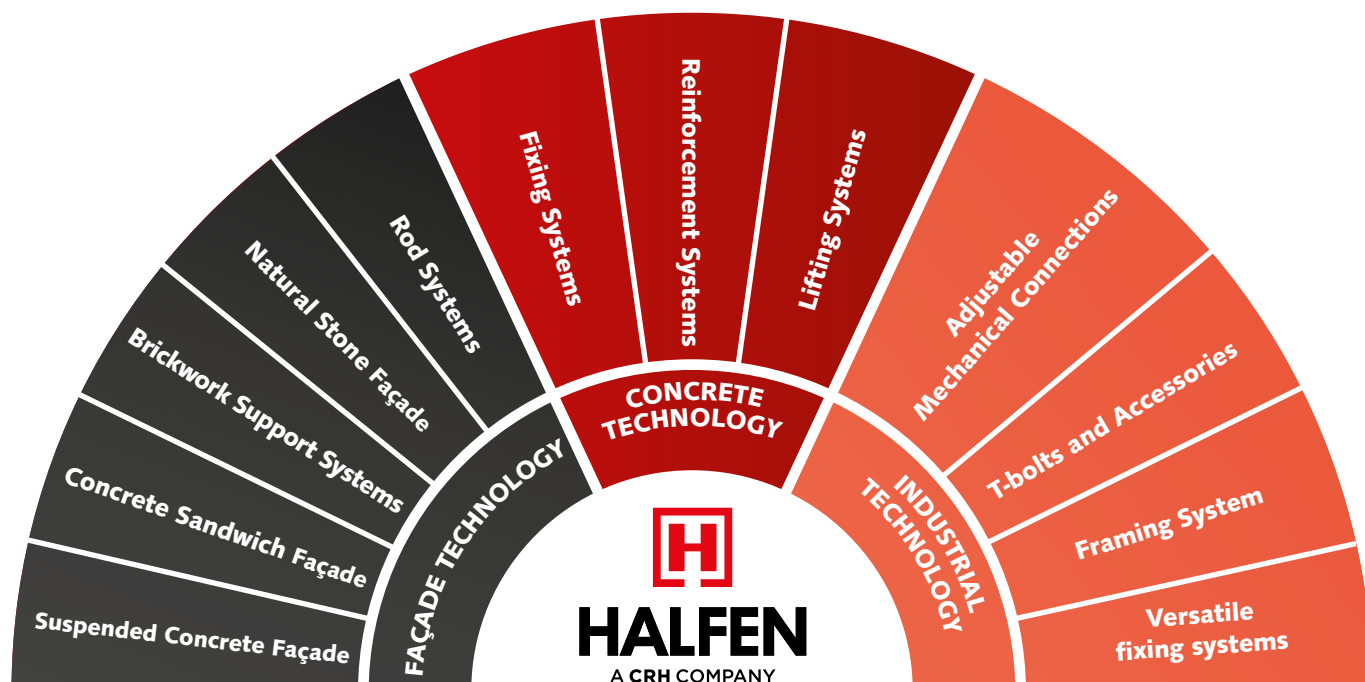
HK5 – The latest generation of brickwork support brackets.



HALFIX – Variable positioning system for quick adaptation to new requirements.



HLX – The Lift-Box: installation aid for elevator construction and maintenance work in shafts.



FAÇADE TECHNOLOGY

SUSPENDED CONCRETE FAÇADE

- FPA Precast panel anchor
- DS / HFV / SPV / WDI / ULZ Horizontal anchors
- LD Adjustable restraint
- BRA Parapet corbels
- WPA Top fixing dowels

CONCRETE SANDWICH FAÇADE

- SP-SPA Sandwich panel anchor
- SP-FA Flat anchor

BRICKWORK SUPPORT SYSTEMS

- HK5 / FK5 / KM Brickwork support
- HW / KW / KWL Bracket
- HK5-S / FSW / HSL Ties for precast lintel
- LSA / HEA / HPV Cavity wall tie
- HGA Scaffold anchor
- ML / BL Wall ties

NATURAL STONE FAÇADE

- DT / BA / DH Body anchors
- UMA / UHA Grout-in anchors
- SUK / UKB Sub-structure system

ROD SYSTEMS

- DETAN-S Rod systems steel
- DETAN-E Rod systems stainless steel
- DETAN Compression rod systems

CONCRETE TECHNOLOGY

FIXING SYSTEMS

- HTA / HZA HALFEN Cast-in Channels
- HGB Balustrade fixing
- HCW Curtain wall system
- HTU Profiled sheets fixing channel
- HKW Corner guard
- DEMU T-FIXX® Fixing anchor / Bolt anchor
- HLX Lift-Box
- HB Mechanical anchor bolt systems
- HB Chemical anchor bolt systems

REINFORCEMENT SYSTEMS

Physical structural products

- HIT Balcony connection
- HBB / HTT / HTF / HTPL Impact sound insulation units

Reinforcement connections

- HBS-05 Screw connection
- HUC Universal connection
- MBT Reinforcement coupler
- HEK Precast coupler
- HLB Loop Box
- HBT Rebend connection
- HCC / HAB Column shoe
- HSD Shear dowel
- HBJ Betojuster

Reinforcement technology

- HSC Stud Connector
- HDB Anchor rail

LIFTING SYSTEMS

Quick coupling systems

- DEHA KKT Spherical head lifting system
- FRIMEDA TPA Lifting anchor system

Threaded lifting systems

- HD Anchor system
- DEHA HA Socket anchor system

INDUSTRIAL TECHNOLOGY

ADJUSTABLE MECHANICAL CONNECTIONS

- HM / HL / HZM Mounting channel

T-BOLTS AND ACCESSORIES

- HS / HSR / HZS HALFEN T-bolts
- GWP Locking plate

FRAMING SYSTEM

- POWERCLICK System 63
- POWERCLICK System 41 + 22
- HVT Frame connector
- KON Cantilever
- HRS Pipe clamp
- HRG, HCS Pipe supports
- RUK Pipe base
- AHS Lift-off safety device

VERSATILE FIXING SYSTEMS

- HFX HALFIX Versatile positioning system
- HVG VERSOGRID Installation grid



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HALFEN in a particular country?

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HALFEN –

Your partner for BIM

All HALFEN products for the precast construction are available as BIM (Building Information Modeling) enabled CAD files suitable for generating a 3D model of your project. BIM software for planning, realising and building maintenance significantly simplifies collaboration between architects, clients and contractors. All relevant information for a construction project is available on a single platform. Areas of possible conflict between various trades can be quickly checked and easily solved. All parties involved in the process are able to react appropriately, saving time and costs.



HALFEN provides CAD files for your BIM applications:



HALFEN PARTcommunity: the **CAD-Portal**



TEKLA® Software component libraries



VISIT THE **HALFEN CAD PORTAL:**

Free, international and versatile with numerous 2D and 3D downloadable files!

REFERENCES

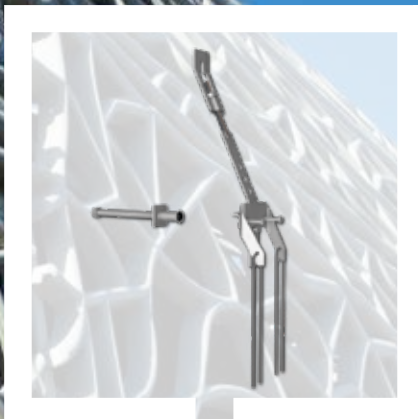


KOPERNIKUS Science centre

Location:
Warsaw, Poland

Category:
Reinforcement technology

HALFEN Product:
HBT Rebend connection



STADE JEAN-BOUIN

Location:
Paris, France

Category:
Concrete façade

HALFEN Product:
FPA Precast panel anchor

ROBINIGSTRASSE

Location:

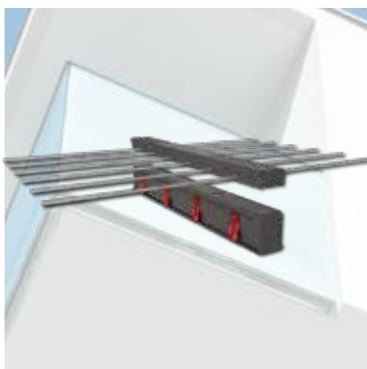
Salzburg, Austria

Category:

Reinforcement technology

HALFEN Product:

HIT Insulated connection





CITYLIFE MILANO **Residential Complex**

Location:
Milan, Italy

Category:
Reinforcement technology

HALFEN Product:
HDB Shear rail

STORMEN **Kulturkvartalet**

Location: Bodø, Norway

Category:

Concrete façade, lifting anchor system

HALFEN Produkte:

TPA Lifting anchor system

SPA Sandwich panel anchor

FPA Precast panel anchor





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