

Always. Reliable. Tight.

hauff  
technik®



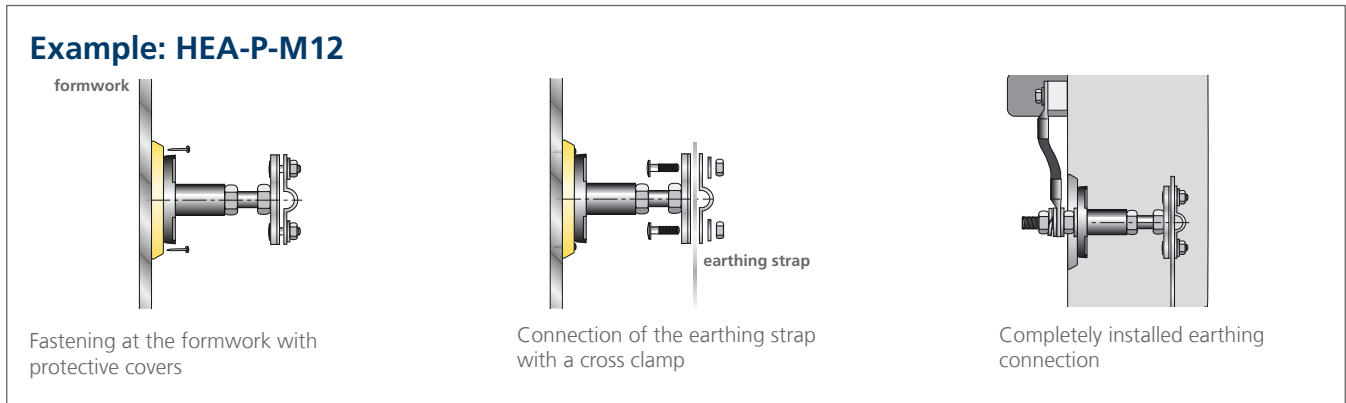
Tested by  
RWE Eurotest  
Short-circuit current

# Earthing connections

## HEA system

# HEA system

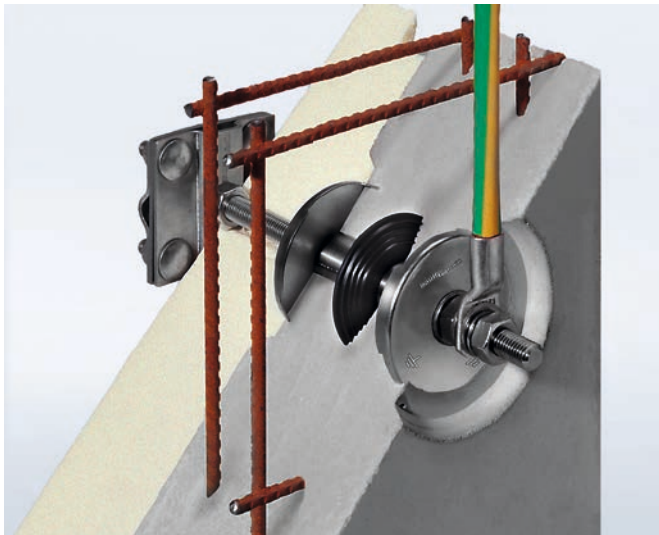
## Structure and function



### Flexible systems for every area of application.

The Hauff earthing connection system HEA offers universal connection options for all earthing, potential equalization and lightning protection systems. The product range covers many types and comprehensive accessories for the sections of building connection, substations, plants, bridge buildings and telecommunication. Connection, metering and section points are therefore prepared on site. The installation-friendly and modular system design makes HEA a very economical solution. The system convinces by high peak and short-circuit current loading capacity and is tested according to DIN VDE 0101/EN 50522.

## Operation method



**Article code:**  
**HEA-M12/X + Z-KG-D-M12**

Sectional view of a connection through a perimeter insulation

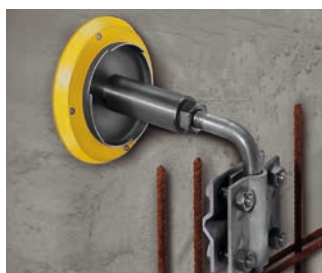


View of the formwork pattern and the internal connection after concreting

The HEA System is the professional and easy connection solution for lightning protection, potential equalization und EMV-building protection. The installation is carried out during the shuttering work on the construction site or in the prefabrication factory. The HEA system ensures stable connection options in formwork of wood and steel flush with the wall. The fastening at the formwork is done with protective covers, that can be fixed at the formwork panel with nails for example. Therefore there are no distant and disturbing connecting lugs at the building. A reliable tightness towards the concrete is achieved with the profiled NBR rubber flanges. Connection bolts or respectively cross clamps for example can be connected to the connection threads M12 (M16). All components with ground contact are made of stainless steel.

## HEA system

### Structure and function



Installation in the formwork



Protective cover after grouting in concrete



Connected earthing point after removal of the protective cover



Rubber flange acts as water stop barrier

#### Features and technical data:

- M12 or M16 connection thread, anti-twist and protected by a concrete covering
- 25 mm bolt diameter and large contact areas
- M12 and M16 cross clamp connection also for strong perimeter insulation



Connection part HEA-P with a screwed-on cross clamp. The HEA-P was fixed at the formwork. A strip steel was included with the cross clamp.



HEA-PK-M12/240 with the PE protective covers fixed at the formwork with nails next to the cable entry HSI 150.



HEA-IS-M12 after the installation. The earthing connection with a cable lug and the contact plate is visible.

High corrosion resistance is ensured by stainless steel V4A (AISI 316L). The external connection is also stable through thick layers, due to the long M16 bolts. The interior connection side offers a neat connectivity for protective devices, grounding manifolds, PA rails etc.



# Item and system overview

## Earthing entries

Earthing entries			
Picture	Item	Scope of delivery	Article code
	<p><b>Entry for earthing connections HEA</b></p> <p>entry with threaded connection on both sides according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3</p>	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm with a threaded connection on both sides, made of stainless steel V4A (AISI 316L)</li> <li>water stop barrier (profiled NBR rubber flange)</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<p><b>HEA-M12/X</b></p> <p>X = wall thickness in mm for wall thickness 70 – 200 mm</p>
	<p><b>Entry for earthing connections HEA-E</b></p> <p>entry with threaded connection on both sides according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3</p>	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm with a threaded connection on both sides, made of stainless steel V4A (AISI 316L)</li> <li>conductor core connection via M16 bolts, galvanised</li> <li>water stop barrier (profiled NBR rubber flange)</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<p><b>HEA-E-M12/X</b> <b>HEA-E-M16/X</b></p> <p>X = wall thickness in mm for wall thickness from 210 mm</p>
	<p><b>Insulated entry for substation construction HEA-IS</b></p> <p>entry with threaded connection on both sides, short-circuit tested (VDE 0101/EN 50522)</p>	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V2A (AISI 304L)</li> <li>isolation</li> <li>water stop barrier (profiled EPDM rubber flange)</li> <li>contact plates Ø 72 mm, made of stainless steel V2A (AISI 304L)</li> <li>protective cover</li> </ul>	<p><b>HEA-IS-M12/X</b></p> <p>X = wall thickness in mm min. wall thickness 70 mm</p>
	<p><b>Entry for subsequent sealing HEA-N</b></p> <p>entry with threaded connection on both sides and terminal lug with cross clamp for FL 40 x 4 or Rd 10 – 12 according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3</p>	<ul style="list-style-type: none"> <li>M16 threaded rod, made of stainless steel V4A (AISI 316L) with sealing on both sides</li> <li>contact plates Ø 72 mm made, of stainless steel V4A (AISI 316L)</li> <li>terminal lug with cross clamp for FL 40 x 4 or Rd 10 – 12</li> </ul>	<p><b>HEA-N-M16/200</b> (suitable for wall thickness up to 200 mm)</p> <p><b>HEA-N-M16/600</b> (suitable for wall thickness 200 – 600 mm)</p>
<p>Installation:</p> <ul style="list-style-type: none"> <li>drill a 18 – 22 mm hole at the appropriate position</li> <li>insert the threaded rod from the outside of the building</li> <li>shorten the long threaded rod in case of small wall thicknesses</li> </ul>			
	<p><b>Entry for "black tank" HEA-W</b></p> <p>as per DIN 18195 T9 for buildings with sealing sheets and fixed/loose flange Ø 210 mm</p> <p>entry with threaded connection on both sides and additional cross clamp M20 as an external connection</p>	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V4A (AISI 316L) M12 or M16</li> <li>conductor core connection with M16 threaded bolts and lock nuts, galvanised</li> <li>fixed/loose flange and cross clamp with threaded bolt M20, made of stainless steel V4A (AISI 316L) for an external connection</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<p><b>HEA-W-M12/X</b> (internal connection M12)</p> <p><b>HEA-W-M16/X</b> (internal connection M16)</p> <p>X = wall thickness in mm min. wall thickness 80 mm</p>
	<p><b>Entry for earthing connections HEA-PK</b></p> <p>entry with threaded connection on both sides and additional connection option in the wall according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3</p>	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm with a threaded connection on both sides, made of stainless steel V4A (AISI 316L)</li> <li>conductor core connection with M16 threaded bolts, galvanised from wall thickness 170 mm</li> <li>terminal lug with cross clamp 70 x 70 mm</li> <li>water stop barrier (profiled NBR rubber flange)</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<p><b>HEA-PK-M12/X</b> <b>HEA-PK-M16/X</b></p> <p>X = wall thickness in mm min. wall thickness 150 mm</p>

## Item and system overview

### Earthing fixed points/special solutions

Fixed points			
Picture	Item	Scope of delivery	Article code
	<b>Connection part HEA-P</b> connection part with screwed-on cross-clamp 70 x 70 for the connection in concrete distance between formwork and earth connection approx. 120 mm according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V4A (AISI 316L)</li> <li>cross clamp 70 x 70 mm with threaded bolt M12 or M16 galvanised</li> <li>contact plate Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective cover made of PE with four nail holes</li> </ul>	<b>HEA-P-M12</b> <b>HEA-P-M16</b>
	<b>Connection part HEA-A</b> connection part with weld groove made of steel St37, short-circuit tested (VDE 0101/EN 50522)	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V2A (AISI 304L)</li> <li>weld groove made of steel St37</li> <li>contact plate Ø 72 mm, made of stainless steel V2A (AISI 304L)</li> <li>protective foil green transparent</li> </ul>	<b>HEA-A-M12/50</b> (distance between formwork and the core iron 40 – 50 mm) <b>HEA-A-M12/70</b> (distance between formwork and the core iron 70 mm)
	<b>Connection part HEA-S</b> connection part with screwed-on steel rod Ø 12 mm for welded or clamped connection in concrete according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V4A (AISI 316L)</li> <li>steel rod Ø 12 mm made of St37</li> <li>contact plate Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> <li>connection length / steel rod 150 mm</li> </ul>	<b>HEA-S-M12</b> <b>HEA-S-M16</b>

Special solutions for cast-in-place-concrete and element construction			
Picture	Item	Scope of delivery	Article code
	<b>Entry for double walls/element walls HEA-EW</b> according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm with a threaded connection on both sides, made of stainless steel V4A (AISI 316L)</li> <li>2 water stop barriers (profiled NBR rubber flange) and 1 additional seal on the threaded bolt, which position can be adapted on site</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<b>HEA-EW-M12/X</b>  X = wall thickness in mm min. wall thickness 170 mm
	<b>Entry for flexible earthing connections in concrete HEA-PF</b> the entry is delivered according to the wall thickness according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V4A (AISI 316L)</li> <li>water stop barrier (profiled NBR rubber flange)</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> <li>steel cable Ø 10 mm galvanised</li> </ul>	<b>HEA-PF-M12/600</b> <b>HEA-PF-M16/600</b>  basic version for wall thicknesses up to 600 mm (min. 150 mm with offset) accessory Z-K...St 37 (cross clamp) must be ordered separately for the connection of core iron
	<b>Entry for earthing connections HEA-F</b> for flexible, insulated earthing requirements permitting offset internal and external connections the entry HEA-F is delivered according to the max. wall thickness according to DIN 18014, DIN EN 62305-3 VDE 0185-305-3	<ul style="list-style-type: none"> <li>conductor core Ø 25 mm, made of stainless steel V4A (AISI 316L)</li> <li>water stop barrier (profiled NBR rubber flange)</li> <li>copper (Cu) ground strap 50 mm<sup>2</sup> finely-stranded insulation</li> <li>contact plates Ø 72 mm, made of stainless steel V4A (AISI 316L)</li> <li>protective covers made of PE with four nail holes</li> </ul>	<b>HEA-F-M12/600</b> <b>HEA-F-M16/600</b>  basic version for wall thicknesses up to 600 mm (min. 150 mm with offset)

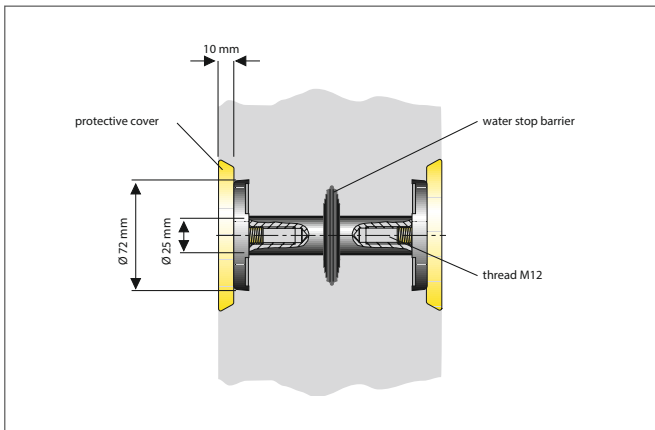
# Article- und system overview

## Accessories

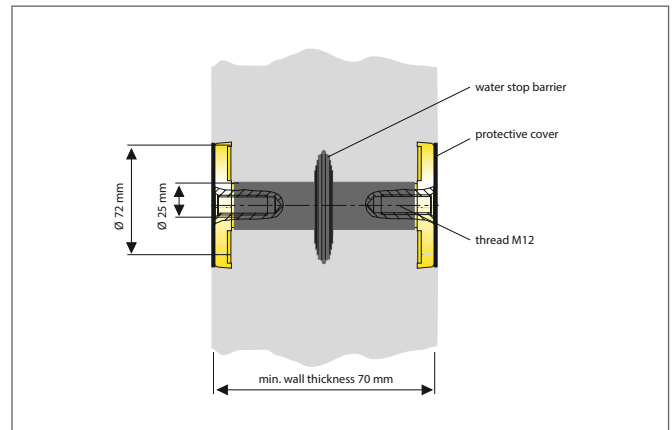
Accessories		
Picture	Item/scope of delivery	Article code
	<p><b>Connecting bolt (B)</b> for connection of round connector with cable lug M12</p> <p>scope of delivery:</p> <ul style="list-style-type: none"> <li>• threaded bolt</li> <li>• washers</li> <li>• spring washer</li> <li>• nuts</li> </ul>	<p>made of St37 Zn</p> <p><b>Z-B-M12-St37</b></p> <p><b>Z-B-M16-St37</b></p> <p><b>Z-B-M20-St37</b></p> <p>made of V4A (AISI 316L)</p> <p><b>Z-B-M12-V4A</b></p> <p><b>Z-B-M16-V4A</b></p> <p><b>Z-B-M20-V4A</b></p>
	<p><b>Cross clamp (KG)</b></p> <p>connection solution for earthing conductor Rd 8 – 12 or up to FL 40 x 4</p> <p>easy installation thanks to anti-twist system with stable connecting bolt</p> <ul style="list-style-type: none"> <li>• length approx. 50 mm</li> <li>• M12 or M16 connection thread with increased current-carrying capacity</li> </ul>	<p><b>Z-KG-M12-V4A</b> (AISI 316L)</p> <p><b>Z-KG-M16-V4A</b> (AISI 316L)</p> <p><b>Z-KG-M12 fvz</b></p> <p><b>fvz = galvanized</b></p>
	<p><b>Cross clamp (KG-D)</b></p> <p>connection solution for perimeter insulation up to 80 mm</p> <p>easy installation thanks to anti-twist system</p> <ul style="list-style-type: none"> <li>• M12 oder M16</li> <li>• completely made of V4A (AISI 316L)</li> </ul>	<p><b>Z-KG-D-M12</b></p> <p><b>Z-KG-D-M16</b></p>
	<p><b>Connection terminal (K)</b></p> <p>connection solution for flat strip up to 40 or 30 mm or round conductor connection Rd 8 – 12</p>	<p>Cross clamp 70 x 70 mm (FL 40)</p> <p><b>Z-K40-St37 fvz</b></p> <p><b>Z-K40-V4A</b></p> <p><b>fvz=galvanized</b></p> <p>Cross clamp 60 x 60 mm (FL 30)</p> <p><b>Z-K30-St37 fvz</b></p> <p><b>Z-K30-V4A</b></p>
	<p><b>Room-to-room strap (ÜB)</b></p> <p>flexible room-to-room strap for connecting foundation earthing lines in the vicinity of expansion joints</p> <ul style="list-style-type: none"> <li>• length: 180 mm</li> <li>• flexible</li> <li>• material: Cu 50 mm<sup>2</sup> (finely-stranded)</li> </ul>	<p>Room-to-room-strap M12</p> <p><b>Z-ÜB-M12-Cu</b></p>
	<p><b>Bonding (ÜS)</b></p> <p>flexible bonding for connecting foundation earthing lines in the vicinity of expansion joints and for connecting metal cladding</p> <ul style="list-style-type: none"> <li>• length: 300 mm</li> <li>• flexibel</li> <li>• material: Cu 16 mm<sup>2</sup> (multi-stranded)</li> </ul>	<p>Bonding M12</p> <p><b>Z-ÜS-M12-Cu</b></p>
	<p><b>Terminal lug (AL)</b></p> <p>for connecting earthing conductors, equipotential busbar or lightning protection technology, made of stainless steel V4A (AISI 316L)</p> <p>scope of delivery:</p> <ul style="list-style-type: none"> <li>• terminal lug</li> <li>• hexagonal head screw M12 or respectively M16 x 30</li> <li>• washer</li> </ul>	<p><b>Z-AL30-M12</b> (30 x 3.5 mm)</p> <p><b>Z-AL40-M16</b> (40 x 5.0 mm)</p>
	<p><b>Hatetherm Hot-melt tape</b></p> <p>cold-welding tape with enormous adhesive force</p> <ul style="list-style-type: none"> <li>• reliably and permanently bonds and seals all cable-sheathed materials, porcelain, glass, plastic and metal</li> <li>• eminently suitable as corrosion protection for earthing discharges</li> <li>• roll with 3 m tape, 2.5 mm thick, 35 mm wide</li> </ul>	<p><b>Hatetherm Scapa 0485</b></p>
	<p><b>Magnet retainer MHS</b></p> <p>magnet retainer to fasten earthing entries and connection parts at the formwork during concreting</p> <ul style="list-style-type: none"> <li>• for steel formwork</li> <li>• Ø 100 mm</li> <li>• deinstallation with the flexible head spanner SLS 6G after removing the formwork</li> <li>• M12 or M16</li> </ul>	<p><b>Z-MHS-M12</b></p> <p><b>Z-MHS-M16</b></p>

# Technical data

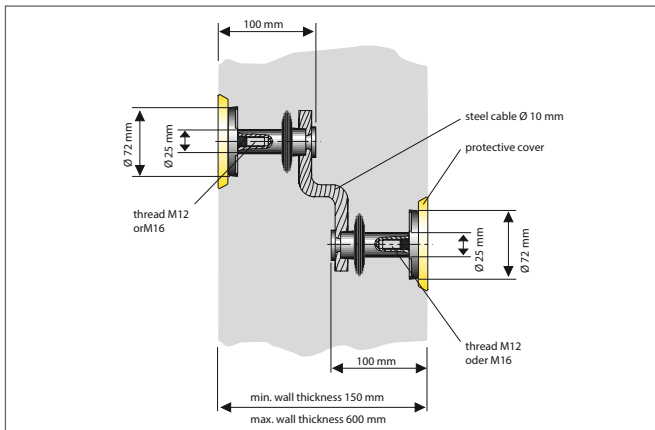
## Examples of earthing



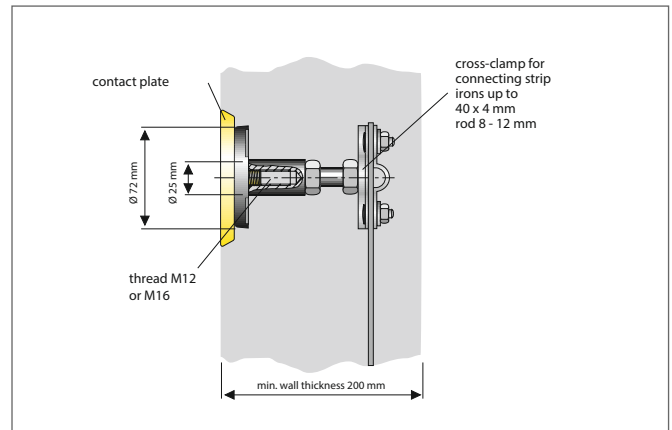
HEA-M12  
Earthing entry



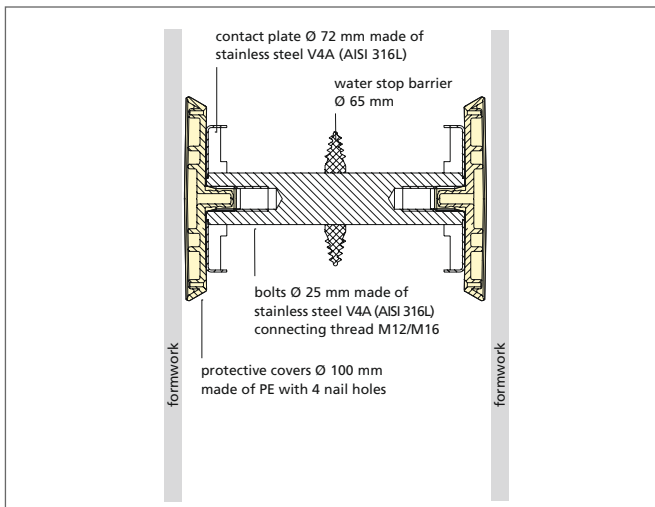
HEA-IS-M12  
Insulated earthing entry



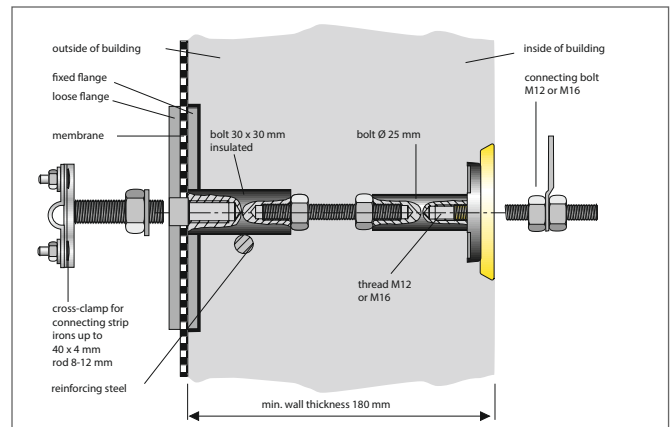
HEA-PF  
Flexible earthing entry



HEA-P  
Earthing connections



Section of a HEA entry  
e.g. in water-resistant concrete (white tank)



Section of a HEA-W entry  
e.g. in concrete with tanking DIN 18195 (black tank)

TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDING  
DINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIA  
ABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE  
BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.F  
ABLE.PIPE BUILDINGENTRY ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY  
TRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALV  
LWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.B  
BUILDINGENTRY ALWAYS.RELIABLE ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.F  
AYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIG  
LE ALWAYS.TIGHT CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.P  
LE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.AL  
ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS  
S.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILD  
DINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.FIA  
CABLE.PIPE.BUILDINGENTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDING  
NTRY.ALWAYS.RELIABLE.ALWAYS.TIGHT.CABLE.PIPE.BUILDINGENTRY.ALWAYS.FIABLE

# ALWAYS HAUFF