

GREAT MAGTECH

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CONNECTING LOOP

Wall Connecting Loop Box with
Single Wire

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BENEFITS

- Easy to install, individual boxes are installed to formwork
- Flexible wire loop stays in opened position due to patented structure.
- Anchoring tail is easy to place into reinforcement. Stepped box shape secures the box in to the concrete.
- concrete.



GME Connecting Loops are available in loop lengths 80, 100, 120 and 140 mm.

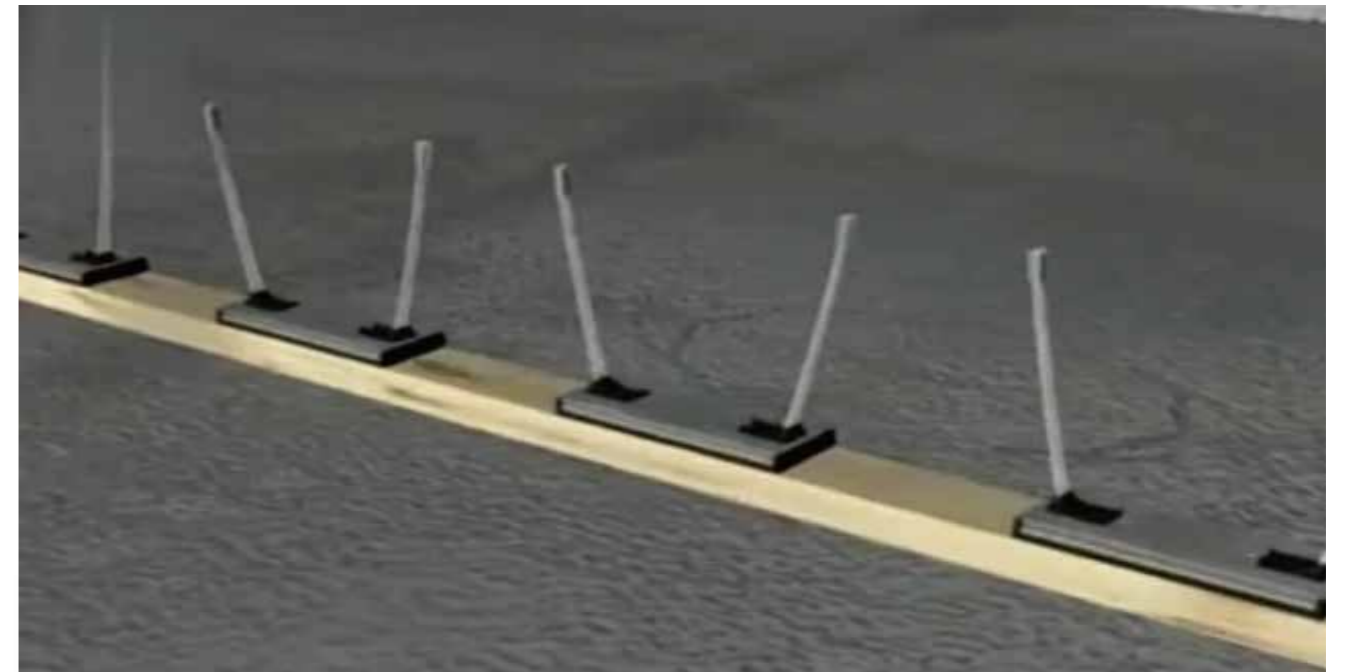


PRODUCT PROPERTIES

Connecting Loop consists of recess box which anchors itself to concrete well thanks to its stepped side form, and a wire, which together with the box forms are a load bearing structure .

Spacing of GME Connecting Loops in the joint depends on the shear loads to be transferred. Boxes are installed to the formwork of wall panels before concreting.

Wire Loop boxes are installed to the formwork according to spacing needed to bear the shear loads, before the panel is casted. After removing the formwork, protective tape is removed and the loop is opened with for example hammer or a pin. Pair of boxes and the vertical rebar installed into loops form a joint which resists vertical shear forces, together with the concrete grout in the joint.



Structural behavior

Connecting Loop resists shear forces with "a tension bar", which consists of loops and the vertical rebar in the joint, and "a compression bar", which forms between the edges of the recess boxes from concrete.

Limitations of application

Connecting Loops are designed to be used in conditions which are explained later in this technical manual.

■ Loading and environmental conditions

Resistances of GME Connecting Loop connections are defined according to loop spacing and compression strength of the concrete grout in the joint. Resistances are calculated according to Eurocode 2 parts 1-1 and 1-2.

It is assumed that no forces, compression or tension, parallel to wall panels and loops effect to the joint. Only shear force effecting in the vertical joint is taken into account. Concrete arout shall have minimum the same compression strength than the concrete of the wall panels, minimum C25/30.

GME Connecting Loops must not be used

1. In joints, which are exposed to such a seismic or dynamic strains which exceed the deformation capacity of concrete grout in the joint.
2. For lifting or as a lifting loop.

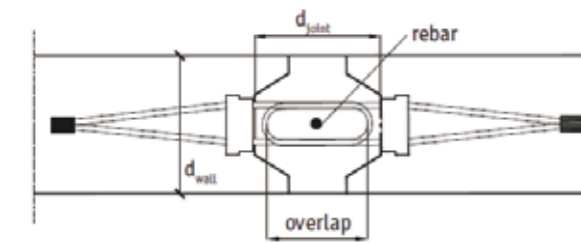
If GME connecting loops are used in fire resistant load bearing walls, the concrete cover thickness must be effective enough so that the wire loop will not reach its critical temperature $T_{crite} = 350^{\circ}\text{C}$.

■ Interaction in the joint

Minimum value for thickness of the wall panels and ideal joint width is given in Table 1.

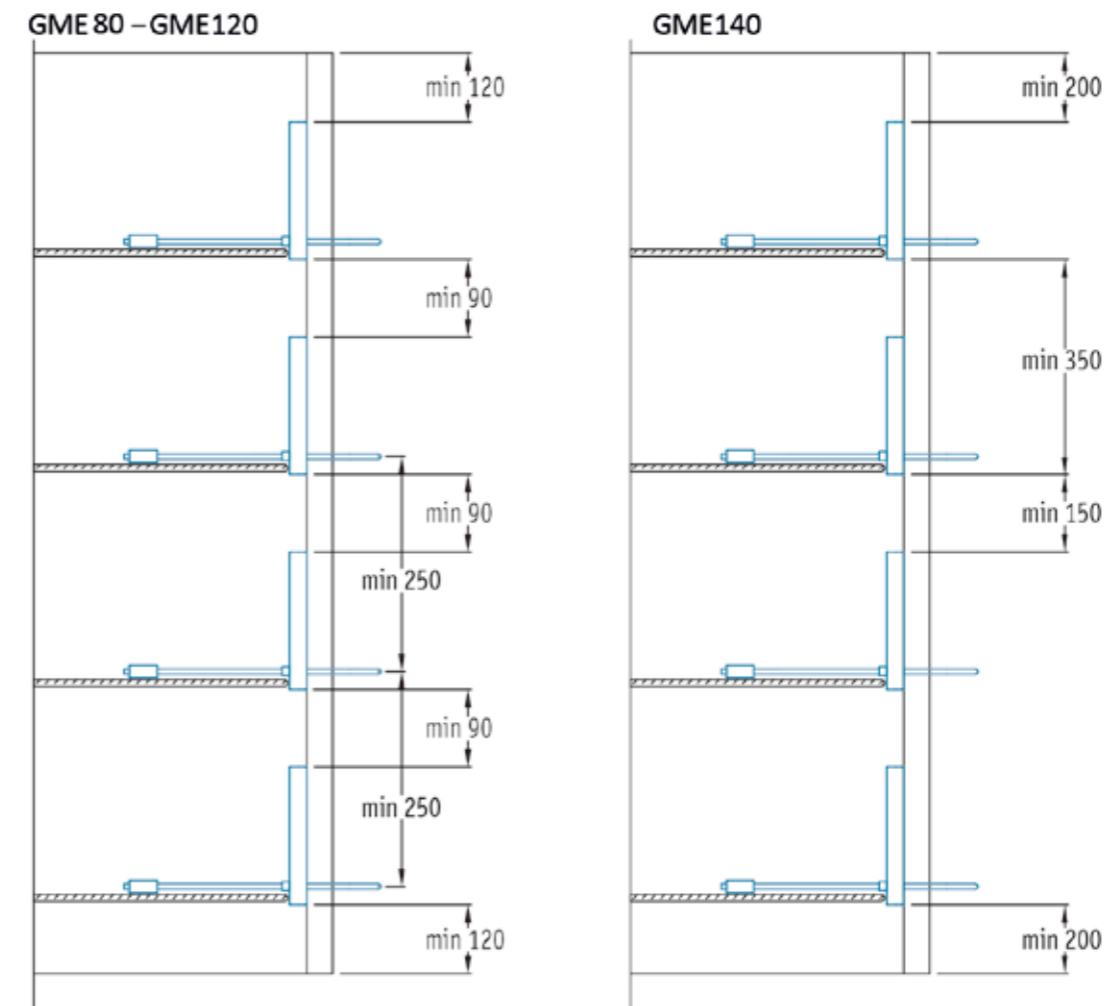
Table 1. Minimum value for thickness of the wall panels and ideal joint width

code	d_{wal} (mm)	d_{joint} (mm)	overlap L
GME140	150	160	120
GME120	80	140	100
GME100	80	120	80
GME80	80	100	60

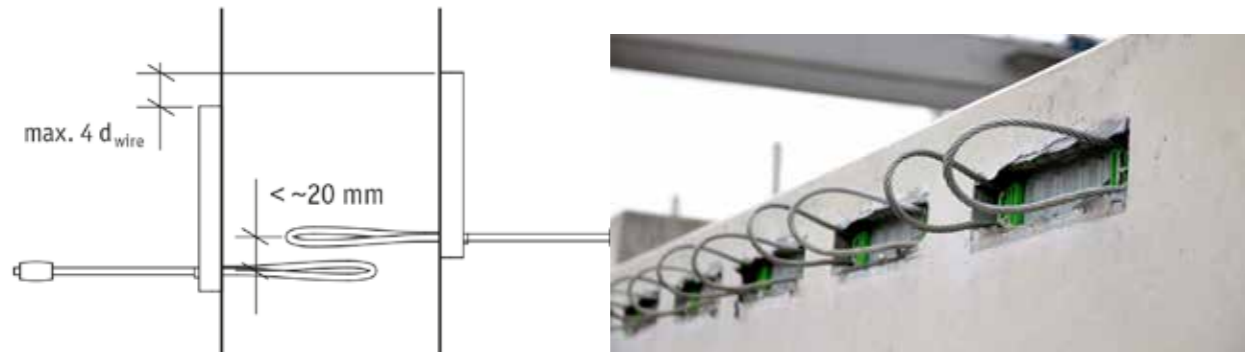


■ Positioning to the joint

Picture 2. Minimum distances for GME Connecting Loop.



Picture 3. Height tolerance of the loops [mm].

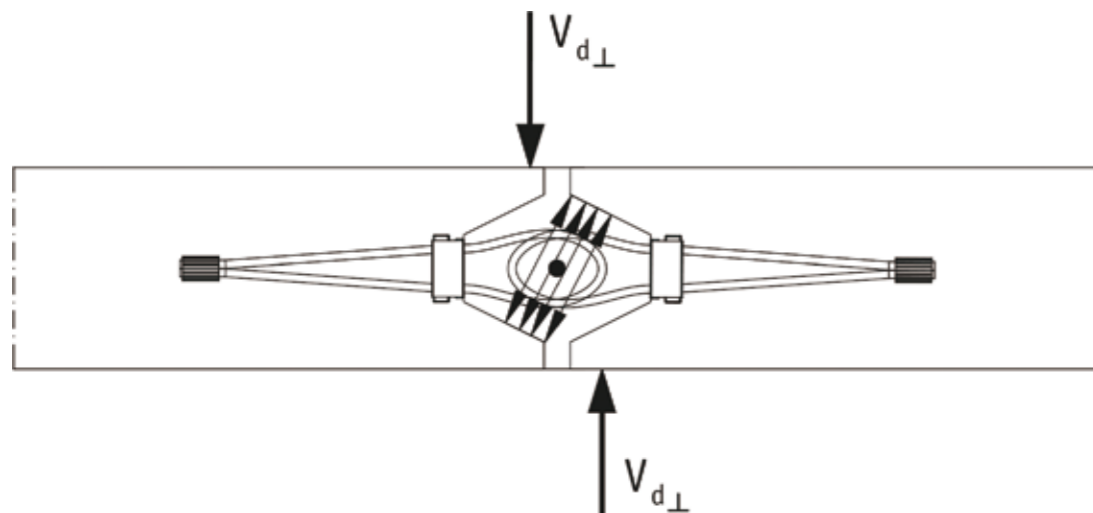


SELECTING WIRE CONNECTING LOOP

Wire Loop is selected according to wall thickness and joint width. Generally GME 80 is used for non-load bearing walls and GME 120 for load bearing / stiffening walls. GME 140 is used for higher loads in load bearing and stiffening structures. Spacing of GME Wire Loops is selected according to shear force effecting to the joint in ultimate limit state.

Shear resistance in direction perpendicular to the Wall panels surface depends on the shape of the cross-section of the joint and reinforcement of the panels around the joint.

Concrete dowel defines the shear resistance perpendicular to the wall.



INSTALLATION CONNECTING LOOP

In precast factory

Connecting Loops are fixed to the formwork with nails. Common way is to make a plywood strip, which forms the recess shape to wall panel end. Then nailed with correct spacing to this reusable plywood strip.

When concrete has hardened and formwork is removed, protective tapes can be removed and loops opened for example with hammer. Due to patented structure of the wire, loops will remain in opened horizontal position.



On construction site

Wall panels are installed according to plans and supported. Vertical rebar is installed into a joint, and horizontal position of the loops is checked. After formwork has been done, concrete grout is poured or pumped into the joint.

