

# *Galvanic cathodic protection to impede corrosion of steel*



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The galvanic cathodic protection system may be used on reinforced concrete structures and metallic structures exposed to aggressive agents.

The system is based on the use of **Mapeshield** reactive anodes which form a galvanic cell with the steel and, as a result, become passive due to the difference in potential generated between the two metals once they are connected.

The anodes are made from zinc which is less noble than steel (see table below). They will be gradually corroded over the years and guarantee that the structure is protected from corrosion for a very long time (up to 40 years).



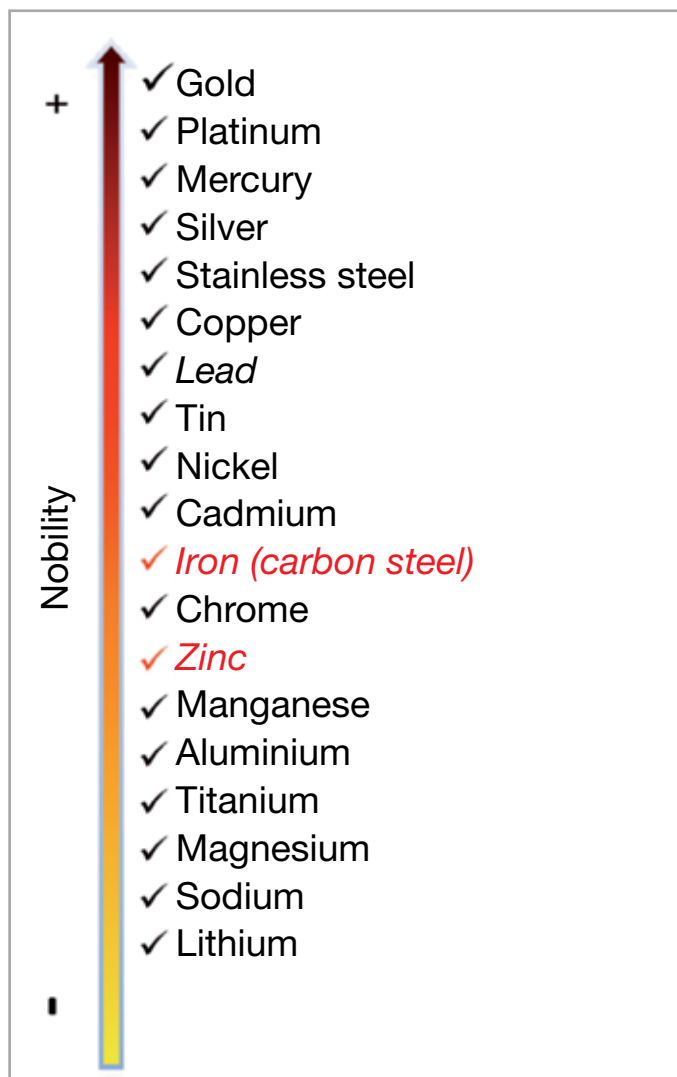
Application of **Mapeshield I** on a structure under repair



Application of **Mapeshield I** on a new structure



Application of **Mapeshield E 25** on the external surface of the structure

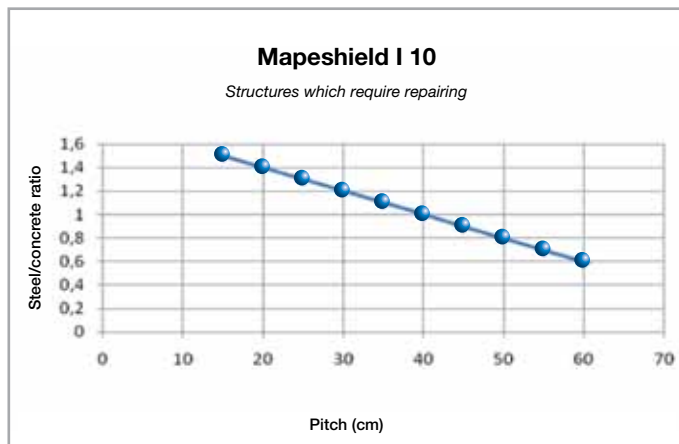


Table

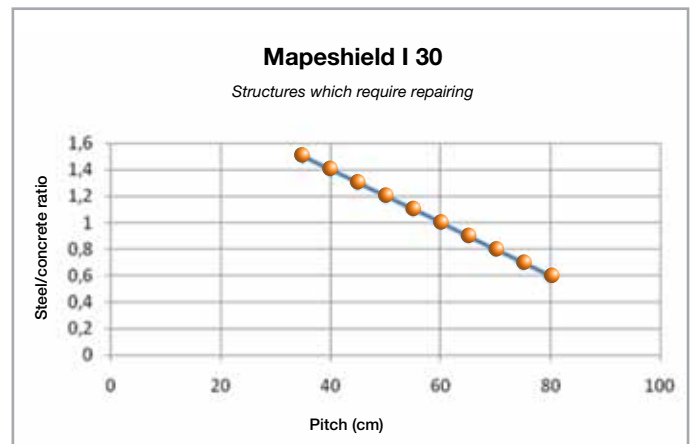


## POSITIONING MAPESHIELD I AND MAPESHIELD E 25 ANODES

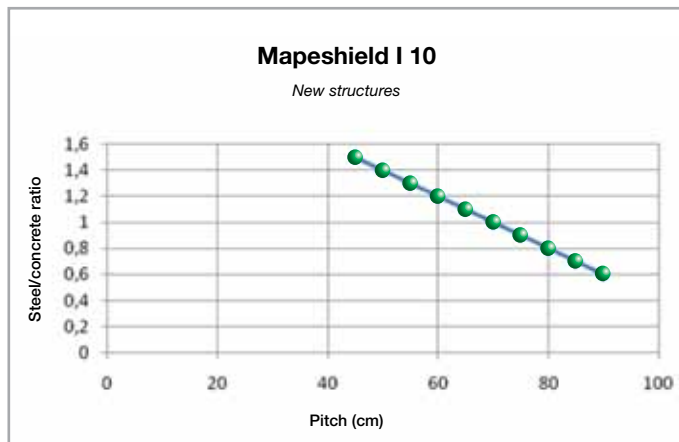
The following tables indicate the maximum acceptable pitch between each **Mapeshield** anode according to the density of reinforcement in the concrete.



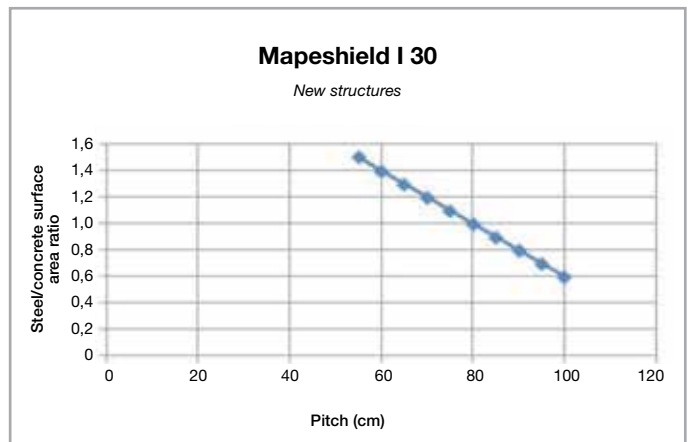
Pitch between each **Mapeshield I 10** anode applied on structures requiring repair according to density of reinforcement



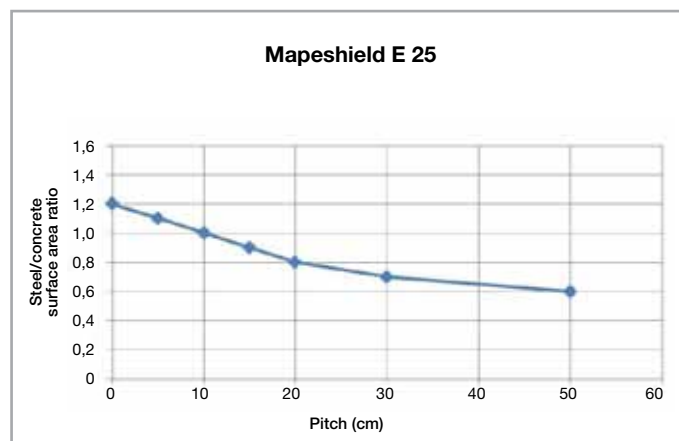
Pitch between each **Mapeshield I 30** anode applied on structures requiring repair according to density of reinforcement



Pitch between each **Mapeshield I 10** anode applied on new structures according to density of reinforcement



Pitch between each **Mapeshield I 30** anode applied on new structures according to the density of the reinforcement



Pitch between each **Mapeshield E 25** anode according to density of reinforcement

## WHERE MAPESHIELD I, MAPESHIELD E 25 AND MAPESHIELD S MAY BE APPLIED

- The system may be used to great advantage in **repairs on reinforced concrete structures** to guarantee protection of the reinforcement rods against corrosion.
- To **prevent corrosion** on older structures with no signs of deterioration, in that it protects the reinforcement rods even if the concrete around the rods is insufficient and/or is cracked due to shrinkage or external stresses.
- To **increase the durability of new structures** in that the anodes guarantee that the reinforcement rods are protected from corrosion even if there is any kind of defect.
- To protect metal elements and structures **already in place** against corrosion instead of using zinc coating/plating.

## THE RANGE OF PRODUCTS CONSISTS OF:

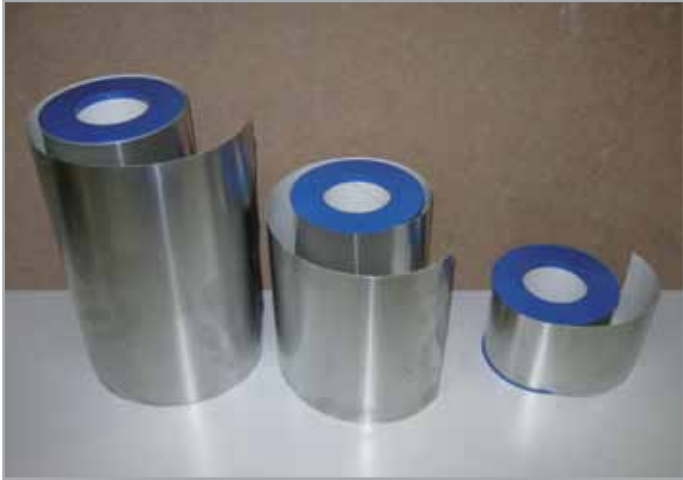


**Mapeshield I**, pure zinc anodes coated with a special conductive paste, for galvanic cathodic protection against corrosion of reinforcement rods in new structures and in structures requiring repair. **Mapeshield I** must be attached to the reinforcement rods before repairing the structure with mortar from the **Mapegrout** product ranges or before casting the concrete on new structures.



**Mapeshield E 25**, adhesive zinc plates which are applied directly on the surface of structures for galvanic cathodic protection against the corrosion of reinforcement rods in the concrete.

**Mapeshield E 25** must be connected to the reinforcement rods with a simple metal cable to make the system active.



**Mapeshield S**, zinc plate with adhesive backing for galvanic cathodic protection against the corrosion of steel structures exposed to the atmosphere.

**Mapeshield S** may be used instead of zinc plating/coating to guarantee total protection for the structure.

## ADVANTAGES OF GALVANIC SYSTEMS

- No external wiring or energy sources are required
- Easy to install
- Generate enough current even in dry environments (in compliance with EN 12696 European Standards)
- Difference in potential impedes corrosion with no risk to the structure
- Self-regulating
- Guarantee long-lasting protection and each installation may be calculated and sized according to technical and economical requirements
- Selective, targeted repairs may be carried out
- No maintenance is required for the entire service life of the anodes

## PRODUCTS FROM THE MAPESHIELD RANGE ARE PARTICULARLY RECOMMENDED FOR THE ACTIVE PROTECTION OF:

- Floor slabs in raised car-parks
- Beams and columns
- Pre-fabricated reinforced concrete structures
- Front edges of balconies
- Concrete floors
- Piles, abutments, friezes, kerbs and floor slabs on bridges and viaducts
- General reinforced structures, in particular those exposed to aggressive environments such as those close to the sea
- Beams, pillars, piles and steel tanks

-  ■ PRODUCTS FOR CERAMICS AND STONE MATERIALS
-  ■ PRODUCTS FOR RESILIENT AND TEXTILE MATERIALS
-  ■ PRODUCTS FOR WOODEN FLOORING
-  ■ PRODUCTS FOR CEMENTITIOUS AND RESIN FLOORING
-  ■ PRODUCTS FOR ACOUSTIC INSULATION
-  ■ PRODUCTS FOR BUILDING
-  ■ ADMIXTURES FOR CONCRETE
-  ■ PRODUCTS FOR STRUCTURAL STRENGTHENING
-  ■ PRODUCTS FOR THE REPAIR OF MASONRY
-  ■ PRODUCTS FOR THERMAL INSULATION
-  ■ WALL PROTECTIVE AND DECORATIVE COATINGS
-  ■ PRODUCTS FOR WATERPROOFING
-  ■ PRODUCTS FOR UNDERGROUND CONSTRUCTIONS
-  ■ ELASTIC SEALANTS AND ADHESIVES
-  ■ GRINDING AIDS FOR CEMENT

## HEADQUARTERS

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