

# Zebra

## Anchoring system

## Zebra - Anchoring system

Bike separators are elements that are designed to serve as a barrier against the invasion of vehicles in the cycle track but in case that it occurs, they are expected not to involve significant damage to the vehicle itself. The type of anchor to be used requires the consideration of a number of mechanical criteria inherent in the application itself. The anchor and the pavement, both, will be subjected to loads of consideration under the impact and friction of the wheels of the vehicle against the separators.

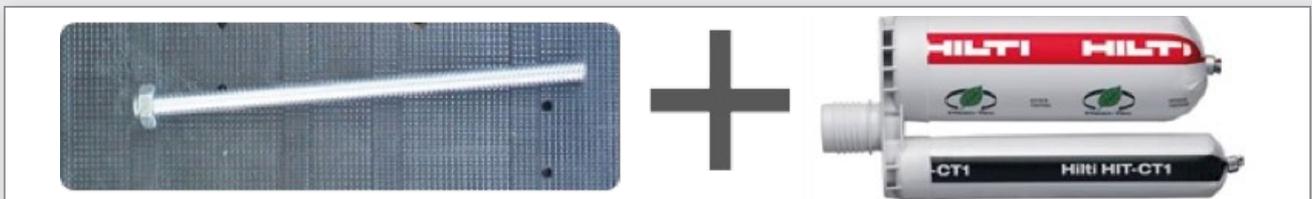
The experience after the installation of more than 50,000 units of ZEBRA separator since 2008 so far indicates that the chemical anchors give better results regardless of the type of pavement and its condition. Mechanical expansive metal anchors instead only work properly in concrete pavements not in the asphalt. And the plastic mechanical type gave poor results in most cases where they were used.

Anchors technology is enough developed today to solve any kind of anchorage in any condition; the offer is great as well as the price disparity.

Below are the minimum conditions to be met by chemical and mechanical anchors. The chemical bond is embodied as follows: a minimum diameter threaded rod 12 mm galvanized steel + M12 nut + epoxy resin, polyester or styrene-free mixture. Resins with best performance for outdoor applications are epoxy and polyester. It is recommended that they are free of styrene as they emit less odour and they are less dangerous when they are inhaled deeply.

The chemical anchor requires special attention on two aspects, the cleanness of the holes where the rods are to be placed and the curing time of the resin which may vary according to weather conditions. The instruction manuals offered by resins manufacturers normally report on these aspects. In any case, it is recommended to read carefully the safety data sheet of the selected resin manufacturer before using it.

The threaded rods should be of steel (5.8 quality) or higher, with minimum galvanized protection of 5 microns. The length of the rods should be at least 15 cm (5 cm into the part under floor + 10 cm). In the case of concrete pavements, the anchorage length could be shorter but never shorter than 5 cm.



The diameter of the threaded rod should not be less than 12 mm to withstand a dynamic load for an ordinary vehicle although in certain cases it may be good to increase the diameter up to 14 or 16 mm. The design of the separator ZEBRA allows this possibility.

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Manufacturers of chemical anchors:

- ▶ [www.hilti.com](http://www.hilti.com)
- ▶ [www.indexfix.com/en](http://www.indexfix.com/en)
- ▶ [www.spit.com](http://www.spit.com)

Mechanical anchors are not recommended for asphalt pavements since they are more deformable than concrete under temperature changes; it could happen a loss of friction on the outer surface of the anchor with a consequent reduction in efficiency. In any case the best results were obtained with galvanized metal multiple expansion anchors (final choice should be guided by the condition of the pavement and / or degree of cracking).

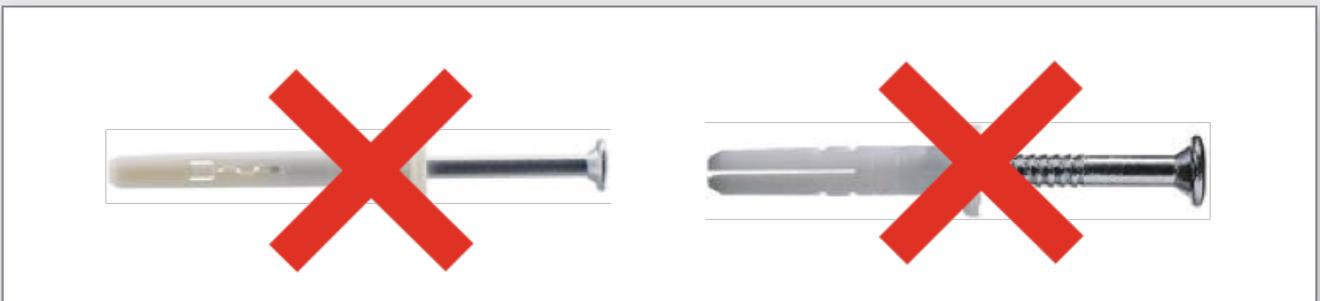


The recommended minimum diameter of the rod axis is 12 mm and it can be 14 or 16 mm in special cases. The minimum length required for anchoring in concrete should be 10 cm (5 cm within + 5 cm piece under floor) depending on the type and pavement condition. In any case, it is recommended to always consult the manufacturer's data sheet.

Fabricantes de anclajes mecánicos:

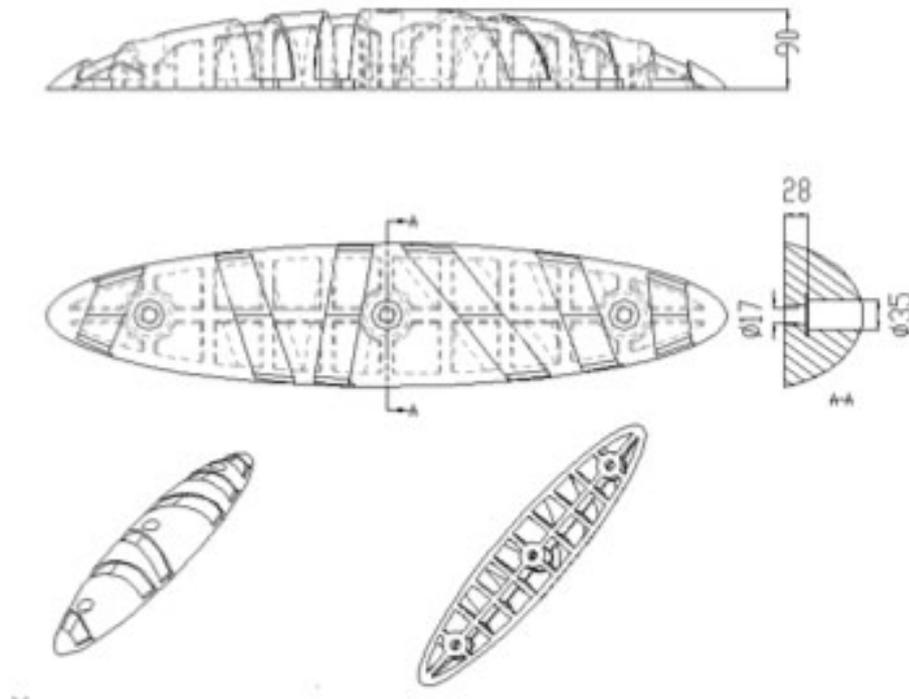
- ▶ [www.hilti.com](http://www.hilti.com)
- ▶ [www.indexfix.com/en](http://www.indexfix.com/en)
- ▶ [www.spit.com](http://www.spit.com)

No recomendamos el uso de anclajes con cabeza plástica.



Interior dimensions ZEBRA ZEBRA 9 and 13:

Zebra 9



Zebra 13

