



**FLEXIBLE BOLLARDS A-RESIST**

[www.adosa.es](http://www.adosa.es)



*Semi-flexible bollards disegned by Ado  
Certified design*



The flexible bollards A-Resist are manufactured with a mix of materials, so that when suffering from an impact, the bollard comes back to its original shape and position. Becoming an indestructible bollard. Its stiffness depends on where it is installed, providing that vehicles do not pass in pedestrian zones or just simply flexing cause of the impact of a vehicle, alarming the driver that he is going off the side.



MODELS A-RESIST

MEASURES

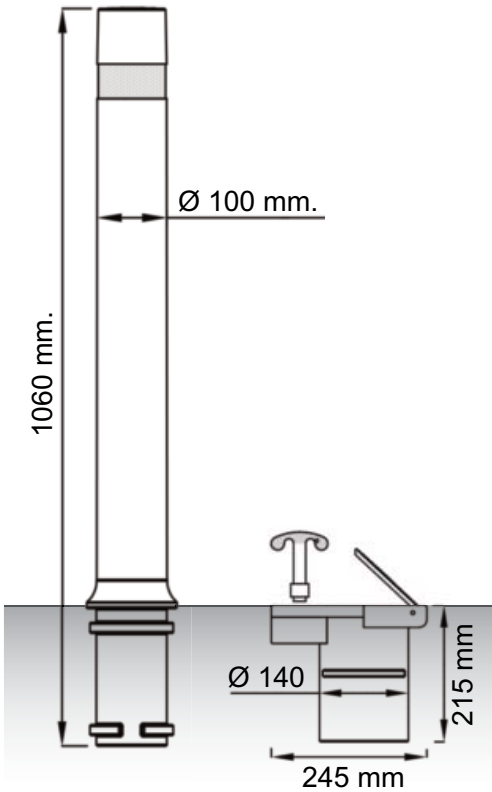


MODELOS  
PATENTADOS



Reference	Color	Hardness
PRESISTHN	Black	High (H)
PRESISTSN	Black	Low (S)
PRESISTSR	Red	Low (S)
PRESISTSV	Green	Low (S)

Reference	Color
BEXTRAP01	Black



Extractable base in plastic color black with a float superior extremity. It has a standard triangular key located at the lateral side of the base so as to block the extremity when enclosed or to block the bollard when introduced in the hole.

## FEATURES OF THE FLEXIBLE BOLLARDS HIGH RESISTANCE A-RESIST

- 🔨 Basically unbreakable.
- ♻️ 100% recyclable.
- 🔥 They have no varnish. They do not oxidize.  
They do not need maintenance.
- 🔄 Excellent flexibility despite its hardness.
- 🔄 After impact they come back to its original shape and position.
- 🔥 Excellent resistance and flexibility to impacts at both high and low temperatures.
- 🛢️ High resistance to oils, fats and numerous solvents.
- 🧼 High resistance to abrasions.
- 👉 Touchable.
- 🏗️ Aesthetically identical to the bollards made of metal.



Hardness	Recommended use
High (H)	Installation in pedestrian zones and in curves for a major protection of pedestrians and to avoid the establishment of vehicles. Urban centers.
Low (S)	Installation in places with a high risk of impacts. Carriageways, highways, signaling systems, etc..

Its different hardness allow the clients to install identical bollards in different places without changing the way the city looks like with different models, allowing the installation in cities, carriageways, parkings, shopping centers, airports,...





The properties of this material allow that in case of impact, the bollard comes back to its original shape and position. They do not break, they do not get dented and they do not oxidize.

ADVANTAGES COMPARING TO OTHER BOLLARDS

<p>Comparing to bollards made of metal:</p> <ul style="list-style-type: none"> <li>- Less weight.</li> <li>- Less rumors generated.</li> <li>- Resistance to corrosion.</li> <li>- Zero maintenance.</li> </ul>	<p>Comparing to bollards made of plastic:</p> <ul style="list-style-type: none"> <li>- Zero fragility.</li> <li>- Elastometric memory (compression set resistance).</li> <li>- Resistance to abrasions.</li> </ul>
<p>Comparing to bollards made of rubber:</p> <ul style="list-style-type: none"> <li>- Resistance to abrasions.</li> <li>- Resistance to cut and injuries.</li> <li>- Resistance to push and dynamic loads.</li> <li>- Resistance to the ozone.</li> <li>- Major and variety of hardness (esc shore A and D).</li> </ul>	<p>Comparing to bollards of casting polyuretene:</p> <ul style="list-style-type: none"> <li>- Working at high temperatures.</li> <li>- No crystallizing (final break of the bollard).</li> <li>- High resistance to wet environments (even hydrolisis).</li> <li>- Numerous chemical agents.</li> </ul>



## CERTIFICATES BOLLARDS A-RESIST

### 1. Certificate Appls IDIADA impact-proof bollard A-Resist top part (HIC).

Obtained results are inferior to < 650.

- A-Resist H (major hardness) is inferior to 471.
- A-Resist S (less hardness) is inferior to 144.



Applus<sup>+</sup>  
IDIADA

### 2. Certificate Appls IDIADA impact-proof bollard A-Resist body (AIS).

Obtained results show a level of acceleration of the body which relates with a possibility of suffering from a damage of 12% gravity AIS3 for the model H.



Applus<sup>+</sup>  
IDIADA

### 3. Certificate of overcoming a deflection of 6000 cycles at 90°.



They were realized more than 6.000 cycles of flection without appearing any line in the surface of the bollard and coming back to its original position after suffering a strenght which had flexed it to the 90°.

Applus<sup>+</sup>  
IDIADA

### 4. Certificate impact-proof from a vehicle at more than 80 km/h.



Impact from a vehicle at more than 80 km/h against the A-Resist bollard without being damaged.

### 5. Certificate of Resistance to fire Class E.



This clasification was realized according to what explained in the Norm UNE-EN 13501-1:2007+a1:2010: "Clasification of the behaviour facing fire for the products to be built of the elements for edification".

### 6. Certificate of compliance Reach.



Flexible bollards manufactured with materials according to the strict normative REACH (U.E) at european nivel, they are free from heavy, polluting materials and damaging substances.

### 7. Certificate CE.



A-Resist bollards meet the general Directive of products in the European Community according to the norm 2001/95/CE, R.D. 1803/2003.





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