



**ZERO** CIVIL

**ADVANCED POLYMER  
SAFETY BOLLARDS**

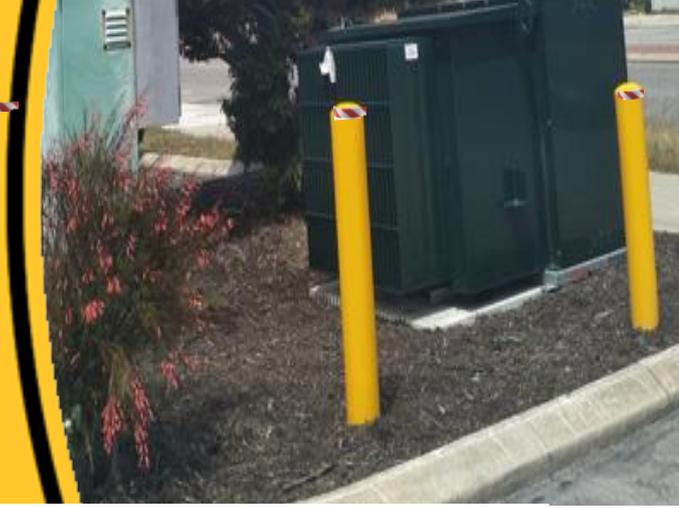


Department of  
Transport



# Advanced Polymer Safety Bollard

Advanced Polymer Impact Resistant Bollards



Withstands light impact



**100/150 x 1800 L**

1500 above ground 300 mm inground

Secured directly in concrete footing 400 mm Diam.

**\$160/ \$200.00**

## UPON IMPACT

Bollards will recover from light bumps (such as carparks), self-recovering after approx. 80% elongation, after which bollard will bend and need replacing.

## Advanced Polymer Bollard

- Aussie made using advanced polymers
- 1800 L
- 100 mm / 150 mm Diameter
- Safety Yellow
- Safety Dome cap
- Impact Resistant
- UV Resistant
- Scratches don't show- same colour throughout
- Wont damage vehicles
- Reflective striping (Red /white)
- Smooth Finish with dome cap
- Low cost
- Lightweight

See over for details on ZERO WASTE OPTIONS.



**100% AUSSIE MADE**

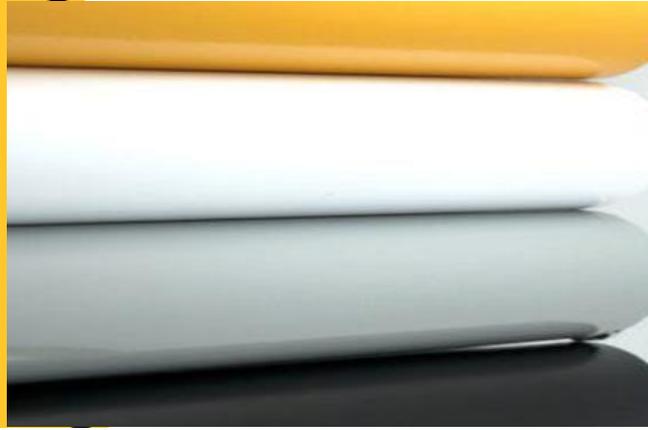


**MORE INFO**



## Bollards that don't cost the earth!

ZERO WASTE technology substantially reduces the cost of installing and maintaining bollards, from ZERO WASTE Foundations, Shock Absorbing Impact Recovery mechanisms, to Advanced Polymer Bollards and Bollard Covers, unlike steel or metal springs that quickly wear out, our products are designed to outlast and outperform alternative means of protecting for your people & assets.



### ADVANCED POLYMER

100 mm ø Flexible  
Advanced Polymer Bollard  
withstands side deflection  
and light impact

\$160

### SURFACE MOUNT

100 mm ø Flexible  
Advanced Polymer Bollard  
using Impact Absorbing  
base

\$350

### ADVANCED POLYMER

Inground Flexible Bollard  
150 mm ø withstands  
side deflection and light  
impact

\$200

### ADVANCED POLYMER

Impact Recovery Bollard 150  
mm ø footing and bollard  
reusable following even  
severe impact

\$450

NB: The design life of epoxy powder coated steel is around 2 years in direct sunlight. Poly powder coating up to 10 years. Advanced Polymer Bollards have a design life of 50 years (25 years in direct sunlight)

### Advanced Polymer

Our Advanced Polymer is highly durable material designed to withstand impact and the harsh Australian sun and is an efficient electrical insulator, making it great for applications where safety is paramount. We use a hexene copolymer based linear medium density polyethylene with a base resin VP319 polymer containing a long-term UV stabilisation package greater than UV8 providing excellent impact resistance, light weight, and high tensile strength. An in-house QA system is in place to provide reliability and continuity of supply.

### Benefits

- Abrasion Resistant
- High impact resistance
- Low coefficient of friction
- Abrasion resistant
- Scratch and marking resistant
- Chemical resistant
- Water and moisture resistant
- UV Resistant
- Shatter resistant
- Long-wearing
- Corrosion resistant
- Strength tested to AS/NZS 4766:2006
- UV20 Protection to ASTM D2565
- Australian Made

## Sun Resistance:

Polyethylene (poly) Bollard Covers are made of a plastic material. Many have seen the effects on plastic objects that are exposed to the harmful UV-rays of our Sun. Over time, they become brittle, chalk and crack as the polymer elongation drops, that is, the structural integrity of plastic.

The natural conclusion is that poly Bollards won't last long in the Sun. This is just not true, especially not with our Advanced Polymer Bollard Covers which are made from a blend of HDPE, Ultra-Violet Stabilization and VP319 Resin our Advanced Polymer Bollards and Bollard Covers have more than 4.5 times the UV8 protection required by the Australian standard (AS/NZ 4766:2006).

### What is UV Stabilisation?

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Many metals will rust and corrode as they weather and wither away. Steel, however, can be strengthening against oxidation when chromium is added or protected from rust and oxidation using galvanising. There are different grades of stainless steel. Kitchen sinks, for example, are often made of a high-grade of stainless steel.

Similarly, UV stabilisers are to bollards like what the chromium is to steel. When added to the polymer mix, the plastic is protected against becoming brittle in the Sun. UV stabilizers in the polymer protect the Bollard against the harmful UV rays, preventing it from bulging, warping, or going brittle over time, inhibiting and absorbing the harmful UV light that causes it break down.

So, in the same way that some steels are called stainless, you could similarly label UV stabilised poly a type of "stainless poly". Of course, all material has a finite life. Stainless steel will still rust and corrode, it just takes much longer for this to happen.

### VP319

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Australia experiences some of the highest levels of UV radiation in the world. As such, leading edge technology is required to ensure our bollards remain reliable and durable for a long time. UV8 level of stabilisation has been considered the minimum required for good long-term protection in Australia. Our UV stabilisation package provides a much higher level of protection than the Australian industry standard (AS/NZ 4766:2006).

Through careful selection of a high-quality Polyethylene base polymer specifically designed for tank use, advanced additives such as UV stabilisers and antioxidants, pigmented "SUPA UV" provides a UV36 level of stabilisation.

### Testing UV Protection Levels in Polyethylene

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UV protection levels in polyethylene are assessed under highly controlled conditions of high intensity UV radiation with similar wavelengths to those from the Sun. Samples are removed from the UV weatherometer every few thousand hours and stretched in a tensile tester to determine how much they can still stretch.

This provides the % Elongation of the test sample. This value is compared to the value obtained for the set that was not placed in the weatherometer and recorded on a graph as the % Retained Elongation. The % Retained Elongation decreases as degradation increases. Once the Elongation drops to 50% the poly sample is deemed to have failed. After 36,000 hours of accelerated UV weathering, pigmented samples retained well over 50% of their original elongation properties

## Impact Resistance

Plastic materials are frequently used in construction, military and industrial applications that require impact resistance and toughness. As implied by the name, impact resistance is the ability of a material to resist both fracture and deformation when temporary force is applied.

### High impact resistant plastics

Unlike steel Bollards (and most imported plastic Bollards on the market made from old fashioned plastics that over time fade and become brittle), our Bollards have unique properties and benefits that allow them to perform in demanding environments. Whilst the impact resistance of most plastics are temperature-dependent (becoming brittle below 15° , LMDPE retains its properties in even low temperatures.

### Heavy Duty Design

Unlike most plastic Bollards on the market with thin 1-3 mm wall thickness, our Bollards and Bollard Covers are rotomolded from a solid piece of Advanced Polymer material, with heavy duty 7 mm walls which ensures that they are structurally sound and robust enough to withstand even the hottest summers

### Looking good is also important to us!

Solid 7 mm walls also ensure our Bollards and Bollard Covers remain looking good impact after impact. Made suing a durable, versatile thermoplastic that offers fantastic impact resistance and tensile strength. Since its molecules are packed together so tightly, this material boasts incredible toughness and rigidity combined with the ability to absorb impact force.

Unlike steel that will distort when impacted, our Poly Bollard Covers will flex under extreme conditions and recover. If scratched, they are the same colour throughout and when scuffed by vehicle tyres, they can simply be wiped clean. We can even self-recover from light impact, or (when installed suing the ZERO WASTE Impact Recovery System) we become re-usable following even the most severe impact.

### SPECS

Tensile strength at 72°F: 1,400 psi  
Tensile modulus: 57,000  
Tensile elongation at break: 100%  
Flexural modulus: 29,000 psi

