



ZERO CIVIL

ZERO WASTE SOLUTIONS

LET'S GET TO ZERO



**Our bollards are so well
made that you buy once
and re-use for a lifetime!**

Shown here are surface mounted Stainless Steel Impact Recovery Bollards in St George's Terrace.



Your Bollard Options



STEEL BOLLARD

Australian made 60 mm x 2.9 and 165 mm ø 5 mm wall galvanised steel quality powder coated safety yellow



STAINLESS STEEL BOLLARD

Australian made highly durable 168 mm ø stainless-steel heavy-duty pipe with satin finish 304 or 316 for coastal regions.



ADVANCED POLYMER BOLLARD

Advanced Polymer bollard 150 mm ø in Safety Yellow smooth finish. Available in range of colours.



100% AUSSIE MADE

Bollards are for protection so please do not risk lives or damage to your assets by installing inferior imported Bollards. Australian made bollards cost several times imported Bollards but you will find that most WA Bollards suppliers are now selling Imported bollards for similar prices- Please ask before buying.

Choose Colour

Want a red or green bollard- No problem! For batches of ten or more we can manufacture in almost any colour.

Ask for colour chart for powder coated or Advanced Polymer Bollards and Bollard covers.



GALVANISED STEEL

- 150N.B 165 Ø
- Safety Yellow
- 1300L
- Cap
- Available in other colours
- Designer caps available
- Reflective Striping red/white optional
- MRWA Striping optional
- **Impact Recovery Option**



STAINLESS STEEL

- 168 Ø
- Heavy Duty Pipe
- Satin Finish (polished)
- 1300L
- Flat Cap
- Extremely durable
- Reflective Striping red/white optional
- **Impact Recovery Option**



ADVANCED POLYMER

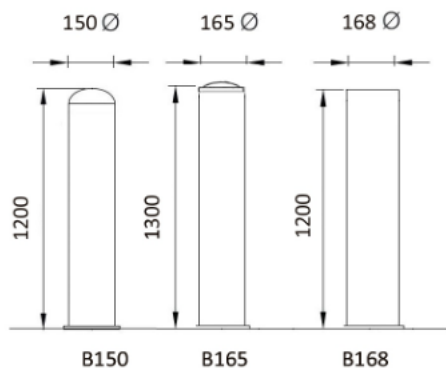
- 150 Ø
- Safety Yellow
- 1200-1800L
- Dome top
- Extremely durable
- Available in other colours
- Reflective Striping red/white optional
- **Impact Recovery Option**



IMPACT RECOVERY INGROUND OR SURFACE MOUNT

- Advanced Polymer B150
- Steel B165
- Stainless Steel B168

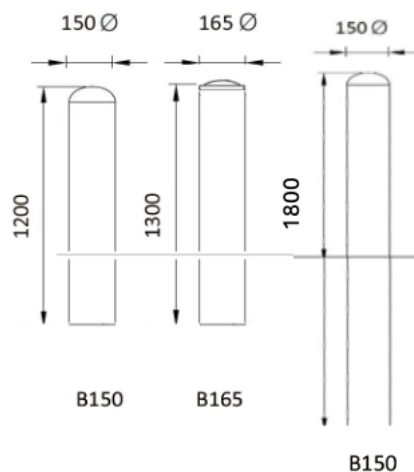
IMPACT RECOVERY



IN-GROUND

- Advanced Polymer 1250L
- Steel 1250 L
- Advanced Polymer 1800L

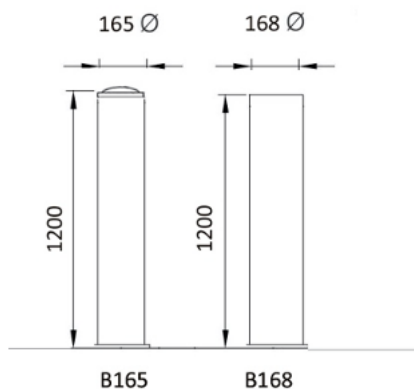
INGROUND



SURFACE MOUNT

- Steel
- Stainless steel

SURFACE MOUNT



Bollard Categories

Bollard selection requires an understanding of the bollard requirements and objectives and the existing site conditions

CATEGORY	OBJECTIVE	TESTING
Roadside Furniture	On highways and main roads in WA bollards must be considered frangible.	Crash Testing
Protective Bollards suitable for carparks and shopfronts	Protect people and assets from errant passenger vehicles. Demonstrate crashworthiness and acceptable containment levels.	Impact Tested to AS/NZ3845.2.2017
Protective Bollards High Impact	Protect people and assets from high impact Designed for locations with trucks and heavy vehicles entering.	Impact Tested to AS/NZ3845.2.2017
Security Bollards & Barriers	Impact tested to prove the bollard will stop a hostile vehicle	Impact Tested to 50kmph

Roadside Furniture	install	Depth	Core	Rating
Steel Inground Bollards	In-ground	400 mm		
Steel Surface Mount Bollards	Surface Mounted	0 mm		
Traffic & shopfront Bollards	In-ground	350 mm		**
Protective Bollards suitable for carparks				
Advanced Polymer Impact Recovery Bollards	Surface Mounted	0 mm	Heavy Duty Core	****
Stainless Steel Impact Recovery Bollards	Surface Mounted	0 mm	Heavy Duty Core	****
Steel Impact Recovery Bollards	In-ground	350 mm	Heavy Duty Core	***
Advanced Polymer Impact Recovery Bollards	In-ground	350 mm	Heavy Duty Core	****
Advanced Polymer Bollards	In-ground	600 mm		*
Protective Bollards subject to high impact				
Steel Impact Recovery Bollards	In-ground	650 mm	Xtra HD Core	***
Advanced Polymer Impact Recovery Bollards	In-ground	650 mm	Xtra HD Core	***

Selecting Bollard

First Choose the Bollard from Steel, Stainless Steel or Advanced Polymer impact resistant Bollards.
Advanced Polymer Bollard Covers also available

Then choose how you want to install your bollard (In-ground or Surface Mount) and decide if you want to pay a little extra to make the Bollard and Foundations impact resistant and re-usable.



Foundations will need replacing if badly impacted.



Foundations may need replacing if badly impacted.



Bollard must be replaced


























Foundations and bollard reusable

Selecting Foundation

Because the Impact Recovery System absorbs the impact force, the depth of foundations can be substantially reduced, saving time and money and reducing disturbance to underground services

For this reason, Surface Mount foundations are adequate for most applications. 350 mm Depth for car parks and 650 mm for more industrial applications. You can also increase the strength of the resistance core to Extra Heavy Duty and further reduce maintenance

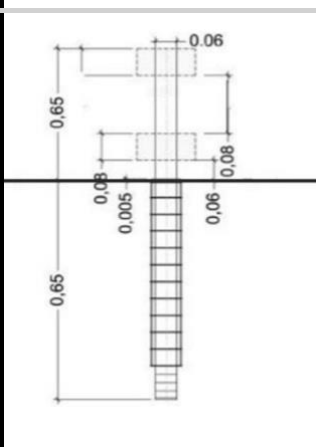
	Steel In-ground or Surface Mount 140/ 165 Ø 1625 mm L Can be made in other colours and designer caps available.		
	MRWA Steel In-ground 165 Ø 1625 mm L		
	MRWA Steel Removable 60 Ø 1150 mm L (with ground socket)		
	Steel 165 Ø 1200 L (Impact Recovery in-ground or surface mount)		
	Advanced Polymer 150 Ø x 1800 mm Secured directly in concrete. Is impact Absorbing, so recovers from light impact, but footing can need replacing if badly impacted.		
	Advanced Polymer 150 Ø1200 (Impact Recovery in-ground or surface mount)		
	Stainless steel 168 Ø1250 mm (Impact Recovery in-ground or surface mount)		
	Advanced Polymer Bollard Cover 1200 H x 190 Ø	NA	



Choose colour

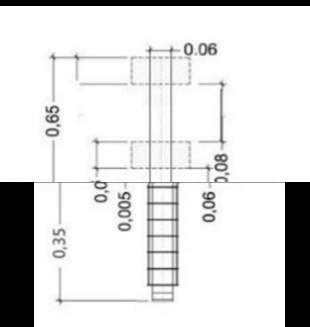
inground

- Std units Safety Yellow
- Available in other colours
- Advanced Polymer can be made to look like stone bollards
- Ask for colour chart.



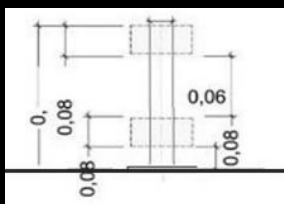
650 mm Depth Impact Recovery **Standard striping**

- Standard Reflective Striping
- Red or white / or both
- 50 mm



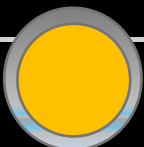
MRWA striping **350 mm Depth Impact Recovery**

- 100 White
- 300 Red
- 100 White
- Class 1

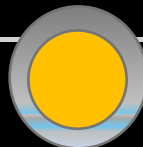


Designer Caps **Surface Mount Impact Recovery**

Ask for chart- range of designs available for steel Bollards. Shown here is the polished dome cap and flat cap both with a recess for reflective striping.



Heavy Duty Resistance Core will stop a passenger vehicle at low speed.



For bollards subject to impact by utility vehicles and trucks we suggest increasing Resistance Core to an Extra Heavy-Duty Core

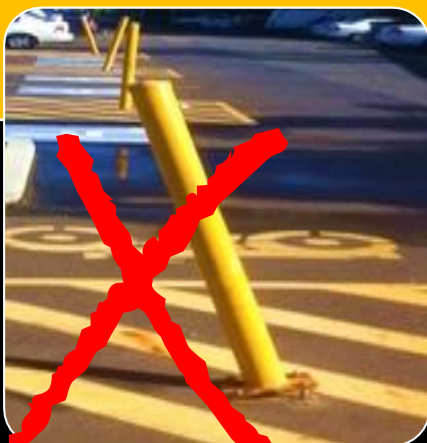


These bollards have all been impacted by a vehicle but shown right are bollards installed using the Impact Recovery System. The red one has been hit several times (once by a large truck) but although the footings are scuffed, they, and the bollard have not required replacing in the past ten years. (They were repainted after the truck accident)



Surface Mount Bollards

When a surface mount bollard is impacted, if the bollard itself is strong enough- the impact force is directed to the base plate, which bends or is ripped from the concrete.



Inground Bollards

When a bollard installed directly in concrete is impacted, if the bollard itself is strong enough to withstand the impact force, it is then directed to the footing, which is dislodged



Poor quality Bollards

Another growing problem is caused by cheap imported bollards made from light walled inferior grade steel or stainless steel and simply crumple upon impact or rust out creating even more landfill.



Advanced engineering overcomes these problems



Bollards self-recover

Upon low-speed impact bollards absorb the impact force and slowly self-recover and are removable and reusable following severe impact



No damage to footings

ZERO WASTE Foundations remain pristine condition for the entire lifespan of a development and base plates are reusable following severe impact



Bollards Impact Resistant

ZERO Bollards are made from Australian heavy-duty materials designed to withstand impact without damage, remaining in good condition



Bollard re-usable

Both surface mount and Inground bollards are removable and reusable following severe impact, saving thousands over the life of a development



Footings reusable

ZERO WASTE Foundations remain in pristine condition and surface mount base plates are reusable following severe impact, saving thousands



Simple replacements

Bollards are low cost to maintain. If damaged, they are removed and replaced in less than 5 minutes without the need for digging or heavy labour.



Impact resistant base plate

With square base plates the impact force is concentrated on one anchor- with heavy duty round base plates the impact force is evenly distributed, reducing the risk of damage



Superior protection

Unlike flexible bollards that can over-flex, the strong resistance core provides superior protection against errant vehicles, greatly improving safety



Advanced Polymer Bollard

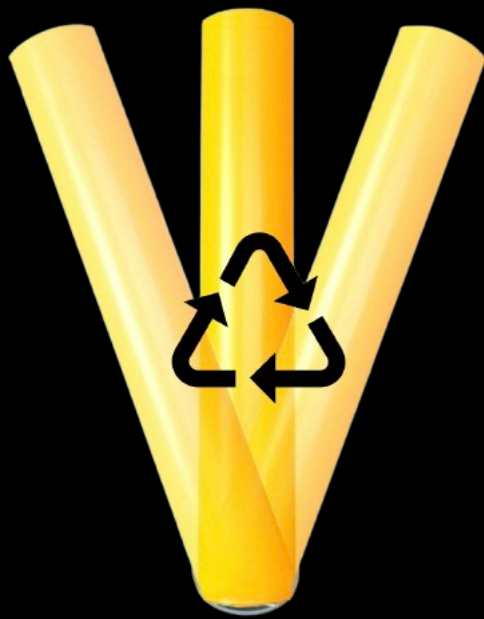
The advanced polymer bollards (and bollards covers) provide excellent resistance against denting, chipping and fading- extending the potential lifespan



We developed a simple solution

IMPACT RECOVERY SYSTEM

I absorb the impact force making bollards re-usable impact after impact and protect valuable foundations from damage for the entire lifespan of a development.



My ally is the Force, and a powerful ally it is.
May the force be with you

- **City of Perth** sick of the ever increasing cost of maintaining their bollards and the disturbance it caused, had tried everything on the market to no avail. They came to us to develop a solution that would provide protection, reduce damage to vehicles and reduce the cost of maintenance. We developed the Impact Recovery System that provides a low cost and sustainable solution to all of these problems and reduces concrete waste, on-going digging & heavy labour and ongoing consumption to ZERO. Then they wanted a surface mount option so we developed that too!
- **Main Roads** asked for a safer low impact bollard for bike paths and we developed the Advanced Polymer Safety Bollard. They then wanted a removable one that was frangible for highways so we developed the Removable Traffic Bollard.
- **Western Power** wanted a Non-conductive Bollard and we produced the Advanced Polymer in-ground or surface mount Advanced Polymer Bollard.