Architectural Bollards

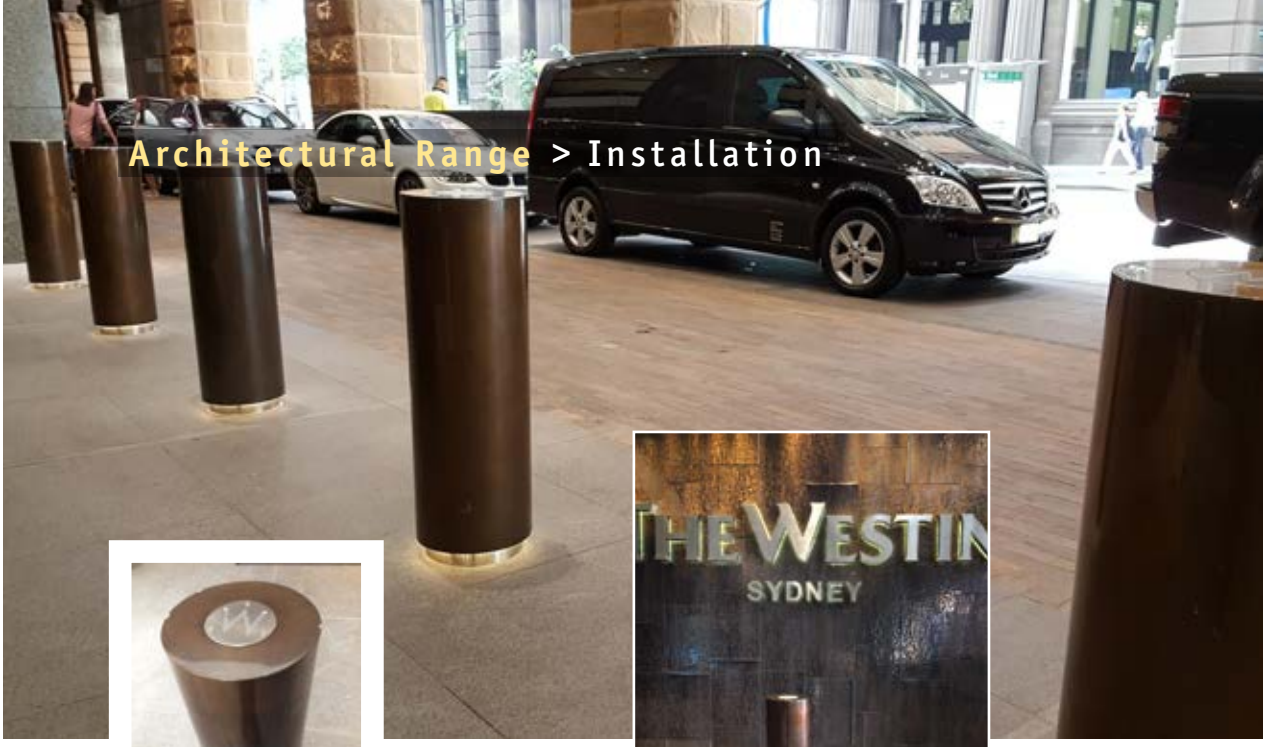



Leda is the largest manufacturer and installer of bollards across Australia and offers the most comprehensive range of Architectural bollards available.

Leda *Architectural* bollards are stylish and diverse, and are manufactured in a range of materials.

You can specify Leda knowing you are guaranteed quality products that will complement your project.

While the majority of Leda *Architectural* bollards are not designed for security applications, their main purpose is to prevent the ingress or egress of vehicles or to protect pedestrians from vehicles. Consequently, it is important to identify what type of vehicles are likely to be encountered in particular applications.



These specially designed stainless steel bollards, manufactured for the entrance of the Westin Hotel in Sydney, required an extra special finish.

Introduction

While this handbook primarily displays the extensive range of models from which to choose we are also able to custom design or modify our extensive designs to suit the application or product.

This bronze logo was developed for the Stockland Group for use on bollards installed at their various shopping centres.

Sydney City Council logos are used by numerous local governments across Australia.

IN-GROUND FIXED BOLLARDS

Installing bollards in non-security applications is not as critical as what is required for security installations, there are however, some basic guidelines that should be followed.

Concrete core drilling

Concrete core drilling is Leda's recommended method of bollard installation, providing the concrete slab is deep enough to provide a secure installation. Core drilling also allows quick and economical retro-fitting of bollards on existing sites. Cable detectors and X-ray equipment can be used where there is risk of striking underground cables or pipes.

Preferred by architects and building contractors, core drilling allows bollards to be installed accurately, quickly and economically towards the end of the project, ensuring that they are in pristine condition and do not restrict access during the building works.

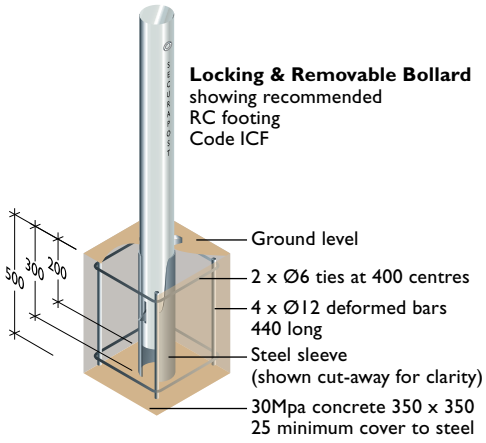
Locking and Removable bollards are easily inserted into the snug-fitting hole after core drilling, and the latch groove formed to accommodate Leda's patented locking mechanism. You do not have to use a steel sleeve

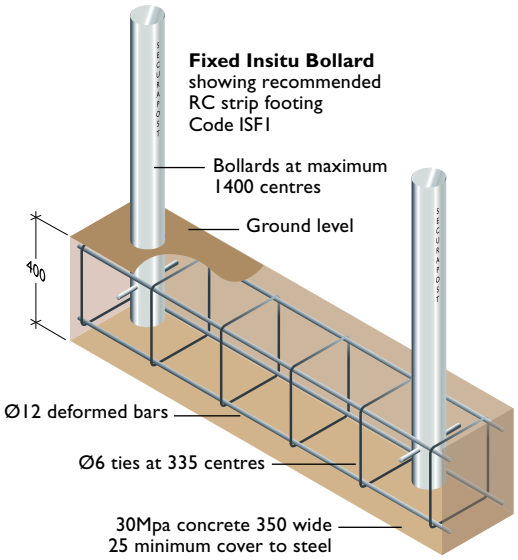
Fixed Insitu bollards are epoxy glued into position after core drilling. While providing a permanent secure installation, damaged bollards can be removed and replaced (using a pipe wrench) without the need to dig up the concrete and disfigure the surface pavement.

Concrete footings

While reinforced concrete (RC) slabs are ideal for anchoring bollards in many applications, it may not always be possible, and reinforced concrete footings may be required.

While strip footings construction is a more expensive option than individual footings, it provides a more structurally sound solution and greater security.





Fixed Baseplate Bollards

Fixed baseplate bollards are fixed to the pavement surface using masonry or chemical anchors.

Baseplate fixed bollards do not offer the same protection from moving motor vehicles as those fixed in ground.

Unless otherwise specified, Leda baseplate bollards are manufactured using 8mm thick baseplates, drilled to accept Ø12mm masonry anchors.

Shallow Mount Fixed Bollards

When installing bollards on existing sites it may not always be possible to carry out civil works to lay the necessary concrete footings. This can be especially difficult when installing to existing high-profile sites. In many instances, excavation has to be manually dug around existing services which can be time consuming and expensive. On some sites, it may be impossible to obtain the required depth of footing required.

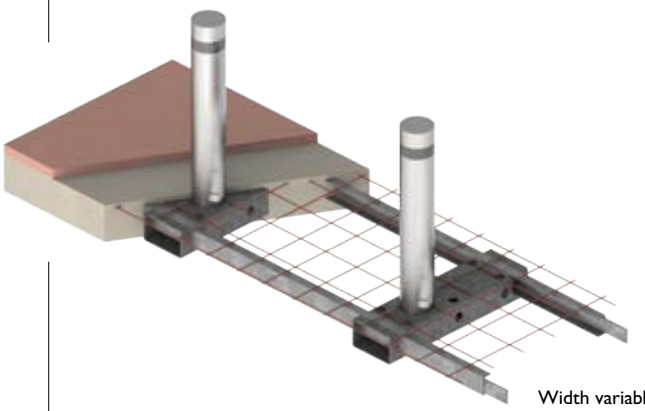
Leda has developed effective bollard anchoring methods for ease of installation on sites unable to accommodate standard depth footings.

Note: All footing designs should be subject to structural engineering certification.

Shallow Mount Bollard System

The Shallow Mount system allows installation of bollards in less than 200mm depth footings. The system is designed to cater for a range of vehicle impact loadings and is a cost-effective solution over conventional reinforced concrete footings.

> Shallow mount footings are dealt with in more detail on p70-72 in the Security section.



Width variable.
Dependant upon impact rating required

Suspended Slabs Bollard Installation

Where existing concrete slabs cannot be tampered with or baseplate bollards must be used, Leda's engineers have developed alternative anchoring systems to improve the impact performance of the bollards.

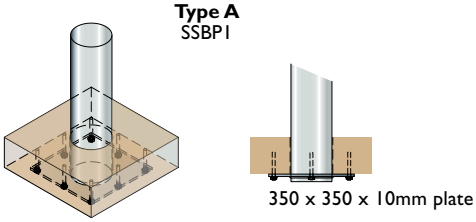
Type A. Large 10mm thick baseplate fitted to underside of the concrete slab.

Type B. This option allows the bollard to be embedded deeper with steel gussets supporting the underside of the baseplate.

Type C. Uses a sandwich panel approach which is very effective in distributing the load throughout the concrete slab.

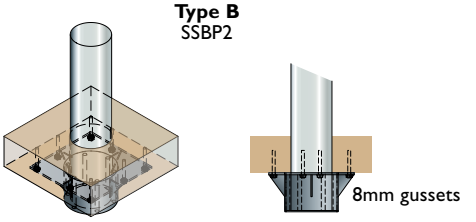
While baseplate options shown are designed for 150NB pipe bollards, other diameters can be accommodated.

Type A
SSBP1



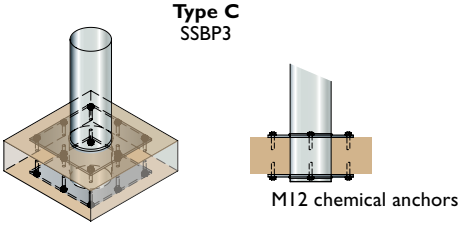
350 x 350 x 10mm plate

Type B
SSBP2



8mm gussets

Type C
SSBP3



M12 chemical anchors

Stainless Steel

Leda manufactures two classic styles of stainless steel bollards – ***Slimline*** and ***Regal*** – in a array of sizes in either fixed or locking and removable. These aesthetically attractive bollards have, for many years, been the most widely used architectural bollards installed throughout Australia.

More recently, Leda's designers have developed the *Oval* range of bollards to complement the Slimline and Regal styles and provide architects and property developers with an alternative to a round profile.

Research conducted in the UK revealed that the narrowness of the oval bollard profile improved pedestrian traffic flow rates at shopping centres and sporting venues.

The Leda stainless steel range also includes an exciting selection of contemporary urban designs to suit various applications and projects.

Features

- Classic, clean smooth lines
- Range of sizes
- Linished or electropolished finish
- Choice of styles;
  - Fixed Insitu
  - Fixed Baseplate
  - Locking & Removable
  - Lighting (refer Lighting bollards)
  - Retractable (refer Retractable section).

Leda stainless steel bollards are normally manufactured from Grade 304 material. Grade 316 is available if specified, and is recommended for installations within 2 kilometres of the coast. Discolouration or 'tea staining' of stainless steel is often seen around coastal locations and can get progressively worse closer to the ocean, in higher temperatures or with exposure to wind. For these aggressive environmental conditions, Leda recommends electropolishing (pickling) as an alternative treatment and finish.

The electropolishing process involves immersing the finished stainless steel product in a nitric and hydrofluoride bath to pickle and passivate the metal surface and remove any contamination caused by the fabrication process.

While correct specifications and smoother surface finishes like electropolishing help minimise this staining, regular cleaning (2-3 times per year) of stainless steel surfaces is recommended.

Leda's *Care and Maintenance of Stainless Steel Products* provides a helpful guide to cleaning procedures and methods, and can be downloaded from the Leda website.

Oval

Slimline

Regal

Square

Rectangular

Many Slimline and Regal bollards are security rated, refer Impact Ratings Table on page 73.

Corso

Wave

Breeze

Smart Illuminated

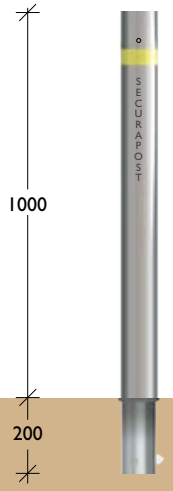
Architectural Range > Stainless Steel

Oval Slimline

Material Grade 316 stainless steel / galvanised pipe
Finish Linished or electro-polished

Maximises pedestrian flows.
Ideal for sporting venues and shopping centres where high volumes of pedestrian traffic are possible.
Best suited for installations on flat pavement

Locking & Removable
SSO80R I
Front View



Typical Top View
100

80NB (88.9mm) galvanised inner pipe

Best suited for installations on flat pavement

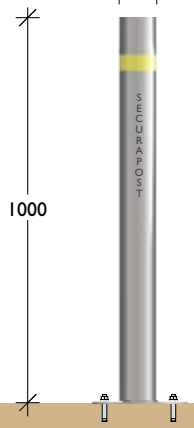
Fixed Insitu
SSO80F I
Front View

Minimum
400 x 400 x 500 deep.
Security (vehicle impact rated) bollards require strip footings.

Typical Side View

Typical Top View
175

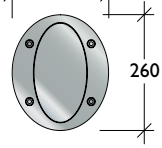
Fixed Baseplate
SSO80B
Front View
100



Side View
175

8mm Baseplate

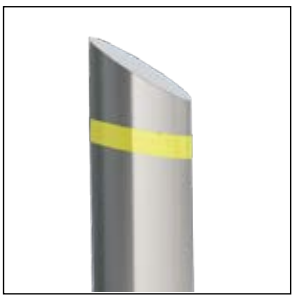
Top View
250



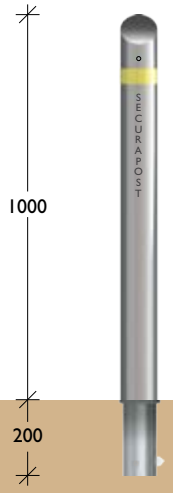
Oval Regal

Material Grade 316 stainless steel / galvanised pipe
Finish Linished or electro-polished

Maximises pedestrian flows.
Ideal for sporting venues and shopping centres where high volumes of pedestrian traffic are possible.
Best suited for installations on flat pavement



Locking & Removable
SRO80R I
Front View

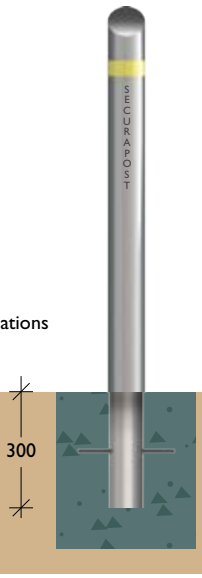


Typical Top View
100

80NB (88.9mm) galvanised inner pipe

Best suited for installations on flat pavement

Fixed Insitu
SRO80F I
Front View

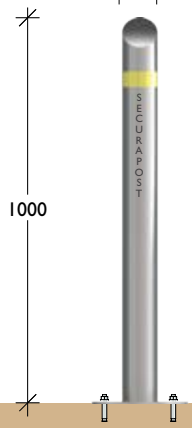


Minimum
400 x 400 x 500 deep.
Security (vehicle impact rated) bollards require strip footings.

Typical Side View

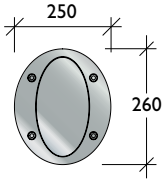
Typical Top View
175

Fixed Baseplate
SRO80B
Front View
100



Side View
175

Top View
250



8mm Baseplate

Architectural Range > Stainless Steel

Slimline 80NB

Material 80NB (88.9) x 3.05 / 5.49 / 7.62mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

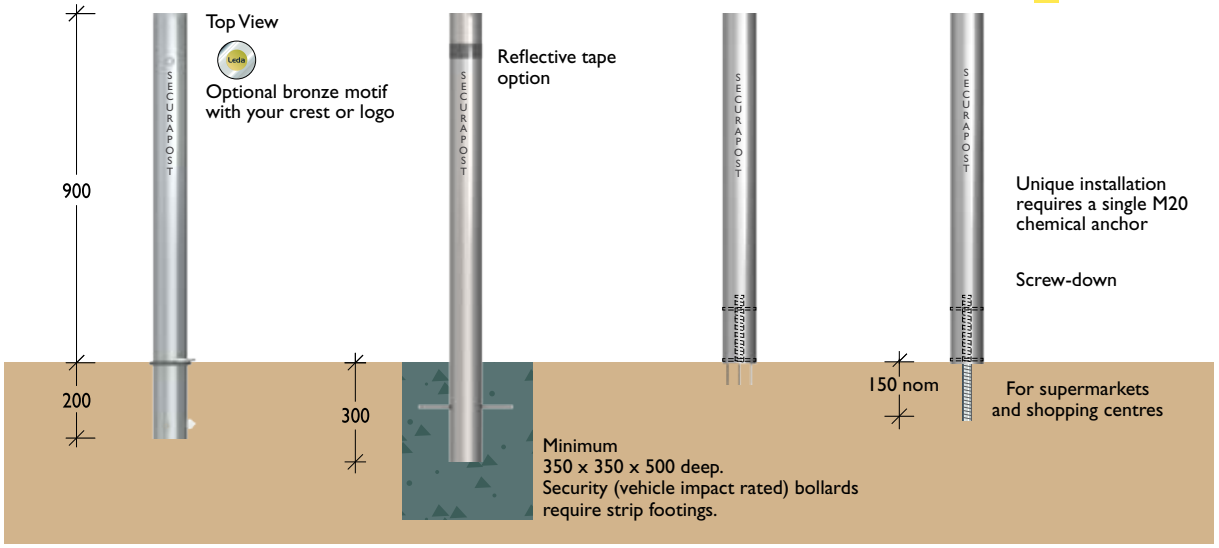
***Slimline* bollards are the most popular and widely-used architectural bollards in Australia.**

Locking & Removable
SSP80R A3.05 I
SSP80R B5.49 I
SSP80R C7.62 I

Fixed Insitu
SSP80F A3.05 I
SSP80F B5.49 I
SSP80F C7.62 I

Internal Baseplate
SSB80B A

Screw-down
SSB80F A 3.05 I

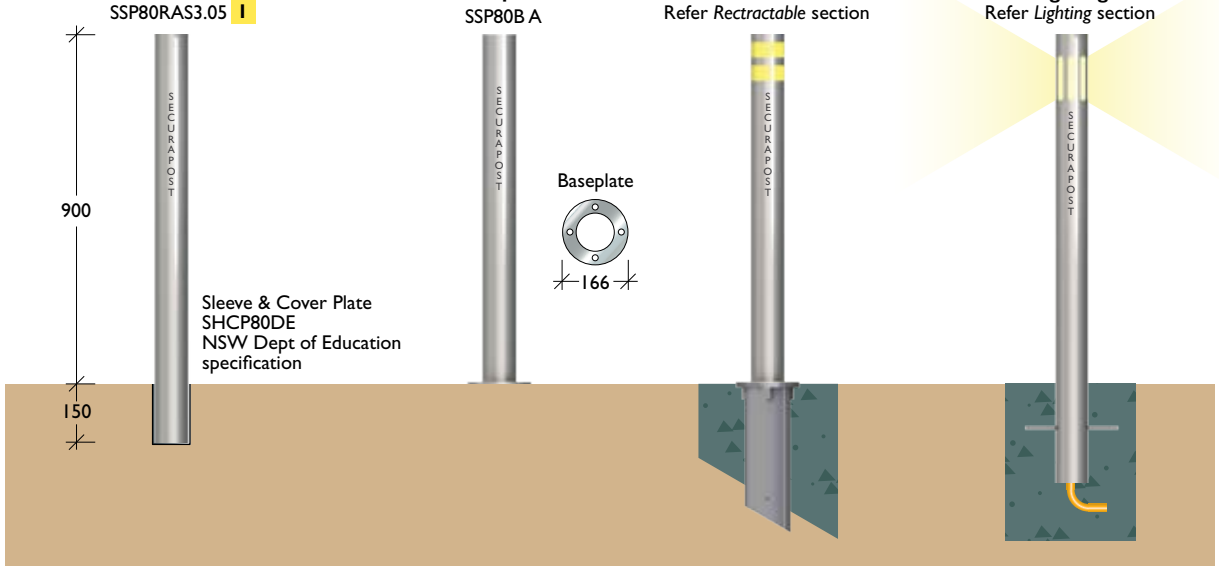


Locking & Removable
SSP80RAS3.05 I

Fixed Baseplate
SSP80B A

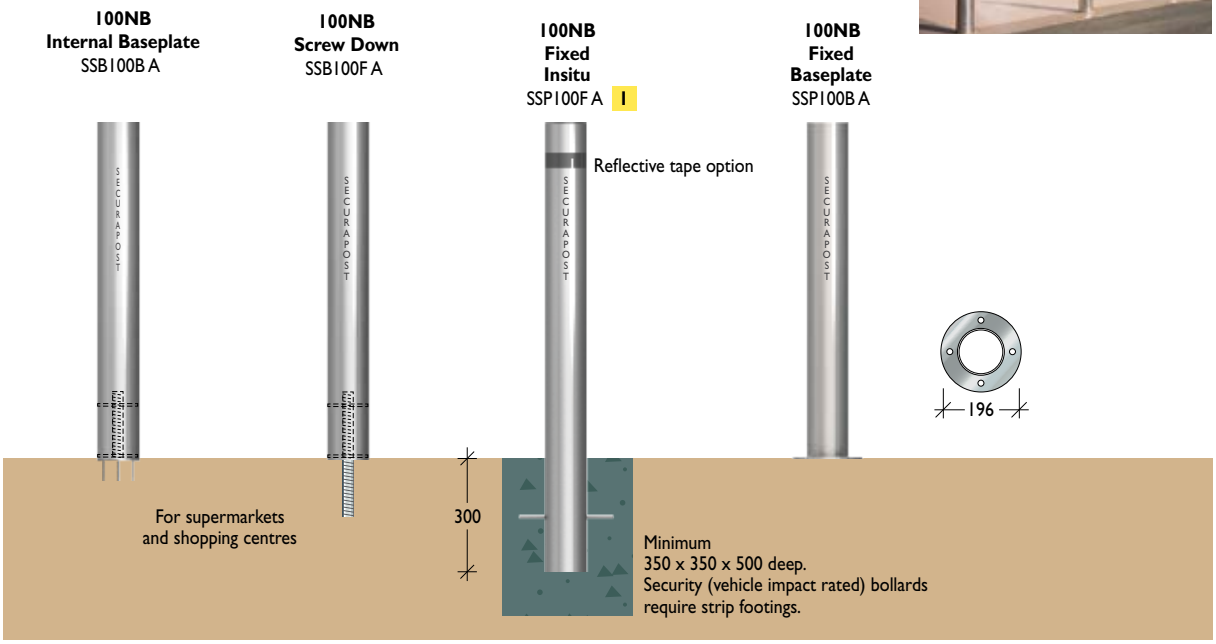
Retractable
Refer *Rectractable* section

Lighting
Refer *Lighting* section



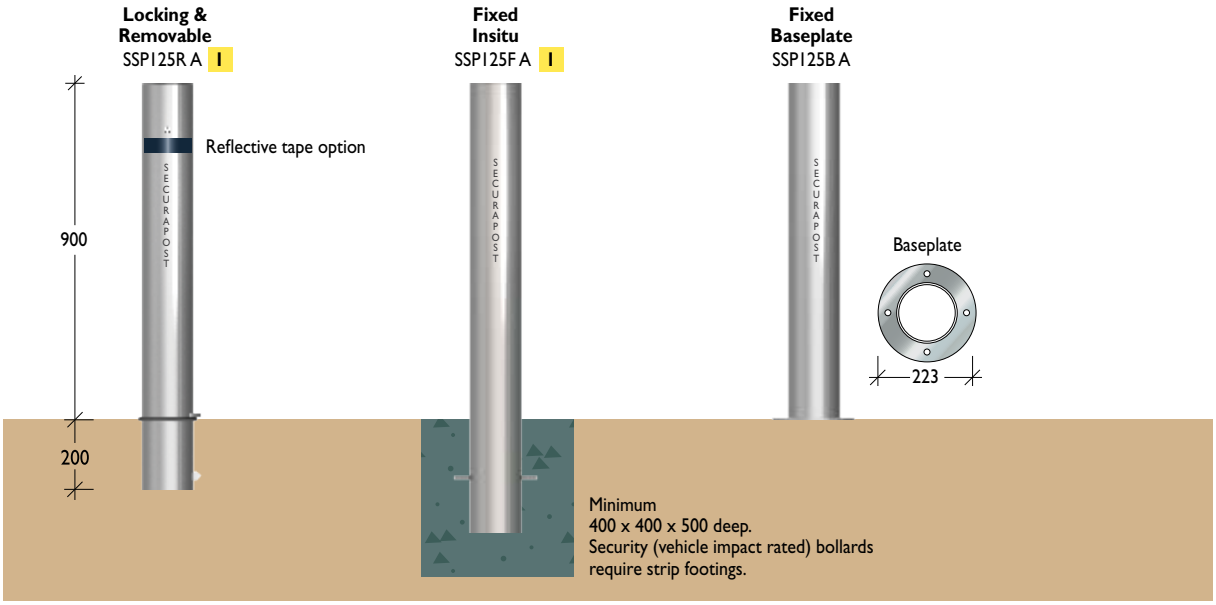
Slimline 80/100NB

Material 80NB (88.9) / 100NB (114.3) x 3.05mm Grade 304 s/steel pipe
Finish Linished or electro-polished



Slimline 125NB

Material 125NB (141.3) x 3.40mm Grade 304 s/steel pipe
Finish Linished or electro-polished



Architectural Range > Stainless Steel

Slimline 150NB

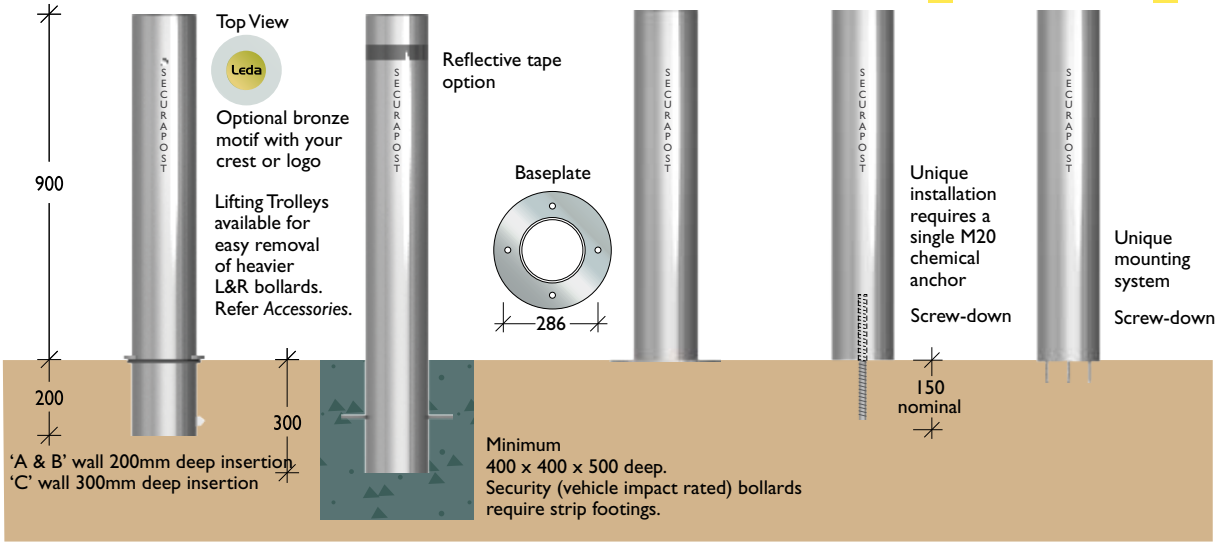
Material 150NB (168.3) x 3.40 / 7.11 / 10.97mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Locking & Removable
SSP150R A 3.40 1
SSP150R B 7.11 2
SSP150R C10.97 2

Fixed Insitu
SSP150F A 3.40 1
SSP150F B 7.11 2
SSP150F C10.97 2

Fixed Baseplate
SSP150B A

Supermarket Bollards
SSB150F A 3.40 1
SSB150B AWW 3.40 1

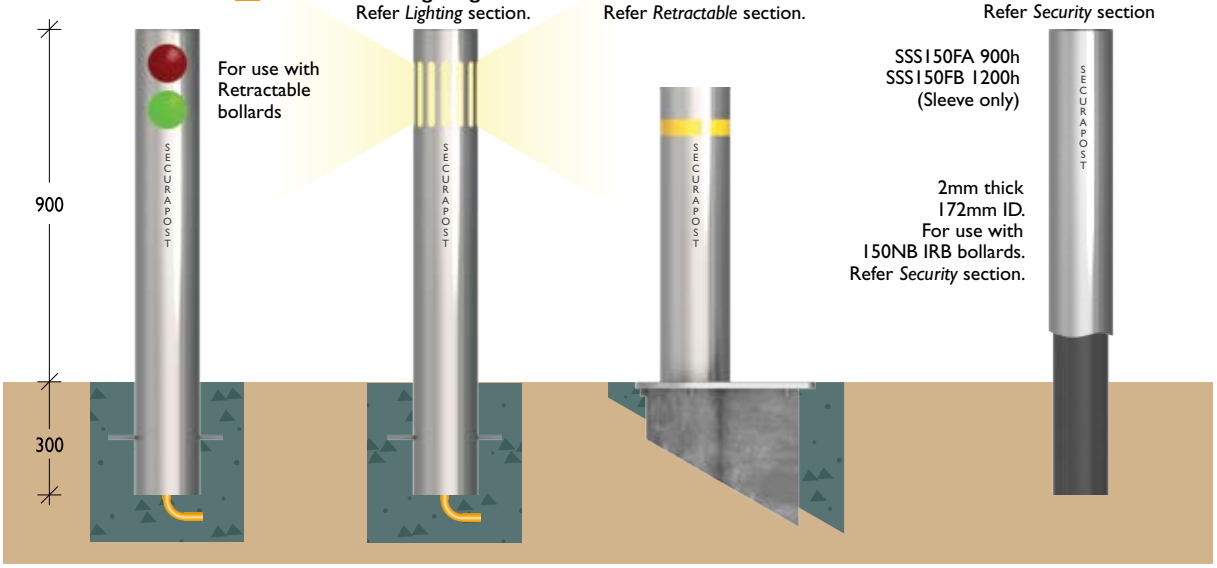


Fixed Insitu Traffic Lights
SSP150T A 3.40 1
SSP150T B 7.11 2
SSP150T C10.97 3

Lighting
Refer *Lighting* section.

Retractable
Refer *Retractable* section.

Stainless Steel Sleeves
Refer *Security* section



Slimline 200NB

Material 200NB (219.0) x 3.76 / 8.18 / 12.70mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Fixed Insitu
SSP200F A 3.76 2
SSP200F B 8.18 2
SSP200F C12.70 3

Top View

Optional bronze motif with your crest or logo

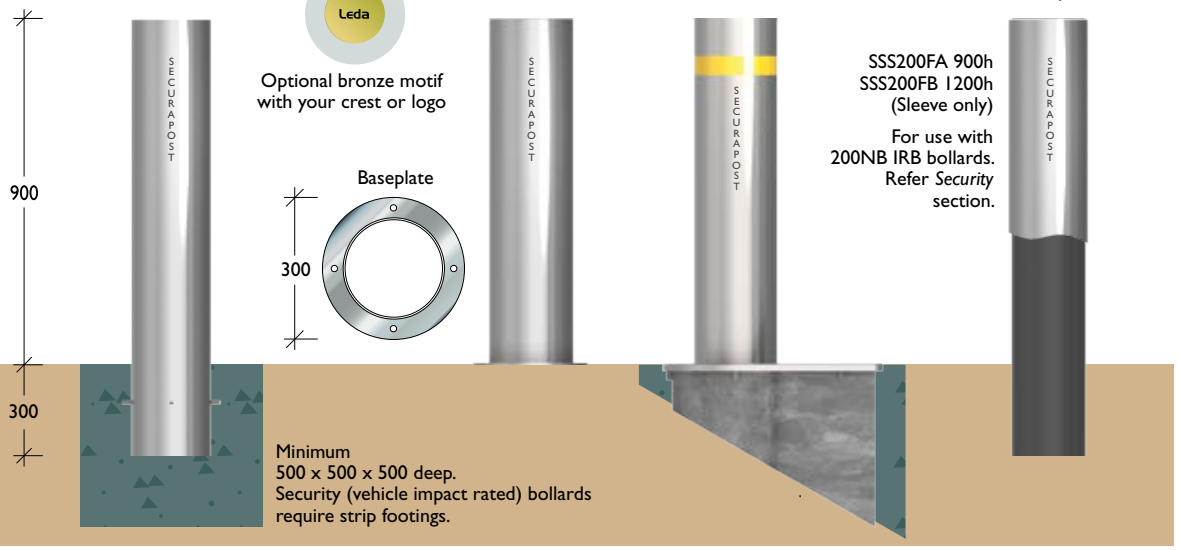
Fixed Baseplate
SSP200B A

Retractable
Refer *Security* section

Stainless Steel Sleeves
Refer *Security* section

SSS200FA 900h
SSS200FB 1200h
(Sleeve only)

For use with 200NB IRB bollards. Refer *Security* section.



Slimline 300NB

Material 300NB (323.4) x 4.57 / 9.53 / 12.70mm Grade 304 stainless steel
Finish Linished or electro-polished

Fixed Insitu
SSP300F A 4.57 2
SSP300F B 9.52 3
SSP300F C12.70 3

Top View

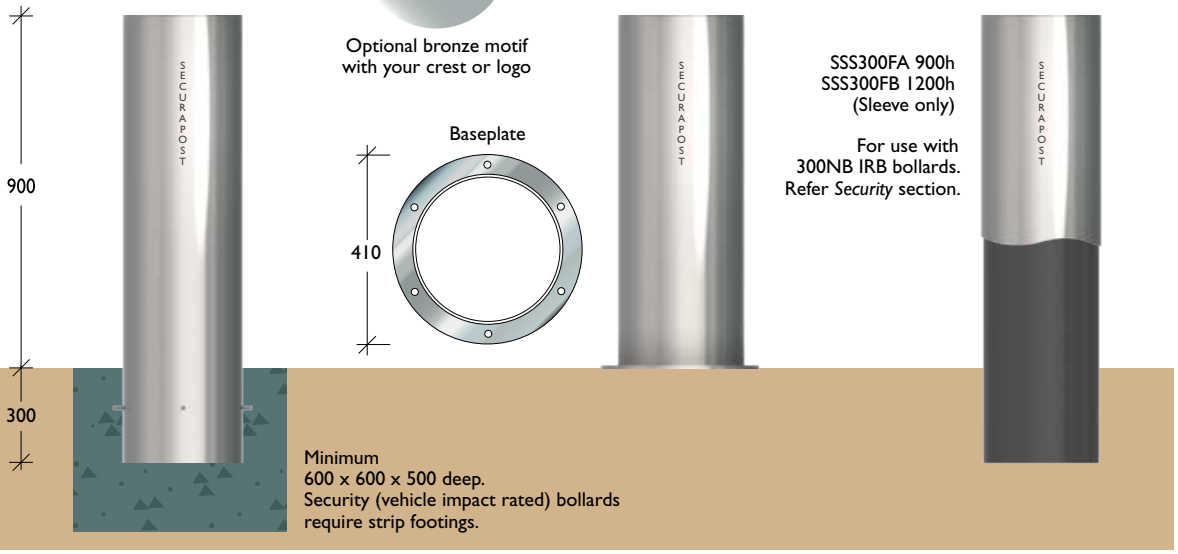
Optional bronze motif with your crest or logo

Fixed Baseplate
SSP300B A
SSP300B B

Stainless Steel Sleeves
Refer *Security* section

SSS300FA 900h
SSS300FB 1200h
(Sleeve only)

For use with 300NB IRB bollards. Refer *Security* section.



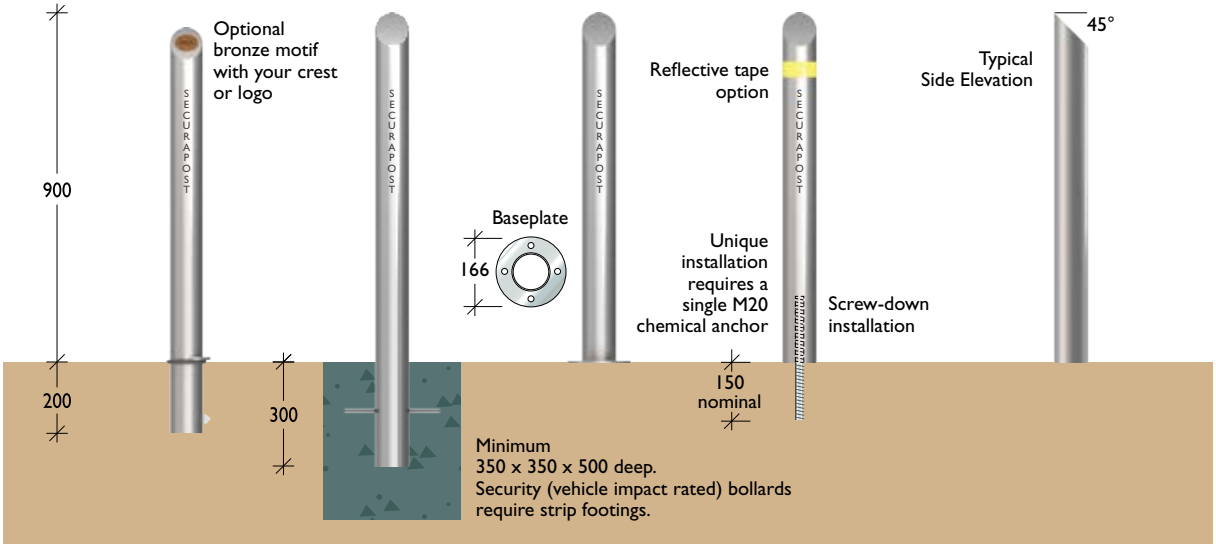
Architectural Range > Stainless Steel

Regal 80NB

Material 80NB (88.9) x 3.05 / 5.49 / 7.62mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

The *Regal's* sloping top stops rubbish placement and can also be used to house signage or branding.

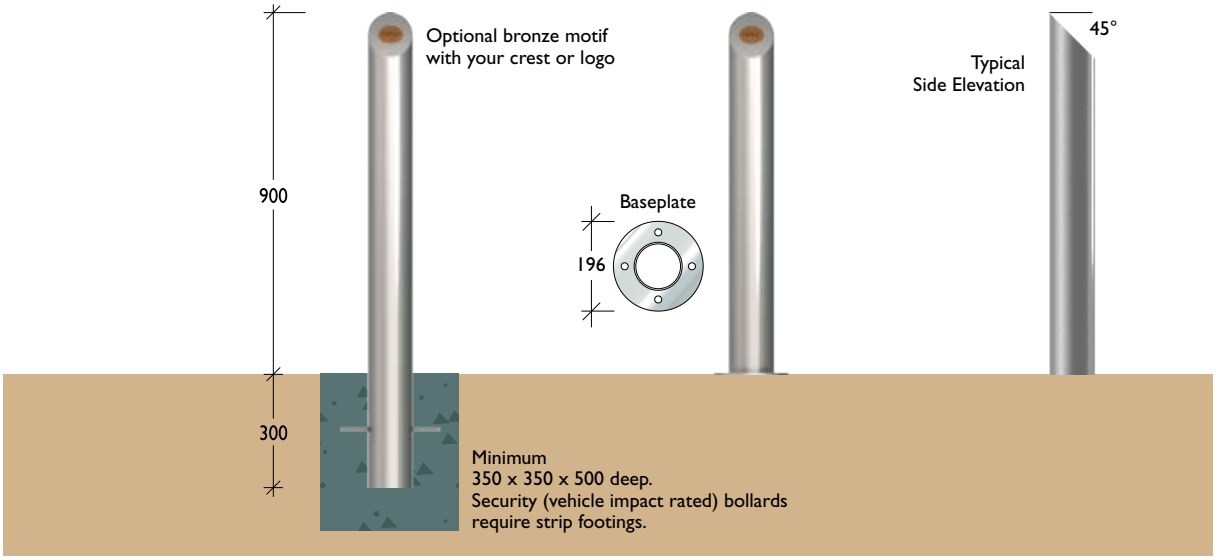
Locking & Removable	Fixed Insitu	Fixed Baseplate	Screw-down Supermarket Bollard
SSR80R A3.05 I	SSR80F A 3.05 I	SSR80B A	SSRB80F A 3.05 I
SSR80R B5.49 I	SSR80F B 5.49 I		
SSR80R C7.62 I	SSR80F C7.62 I		



Regal 100NB

Material 100NB (114.3) x 3.05 mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Fixed Insitu	Fixed Baseplate
SSR100F A I	SSR100B A



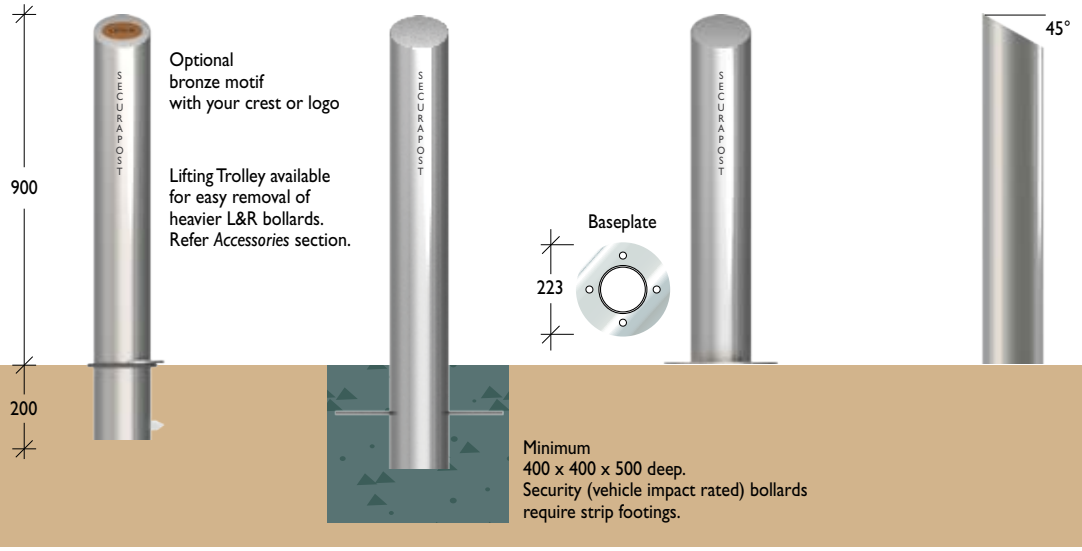
Regal 125NB

Material 125NB (141.3) x 3.40mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Locking & Removable
SSR125R A 1

Fixed Insitu
SSR125F A 1

Fixed Baseplate
SSR125B A



Regal 150NB

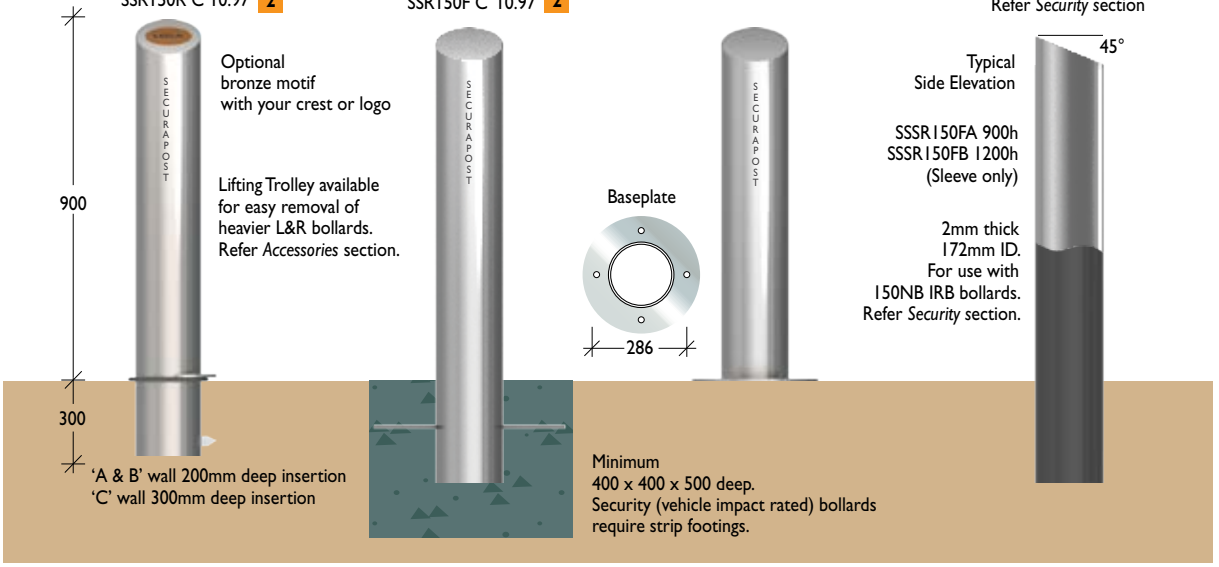
Material 150NB (168.3) x 3.40 / 7.11 / 10.97mm Grade 304 stainless steel pipe
Finish Stainless steel. Linished or electro-polished

Locking & Removable
Stainless Steel
SSR150R A 3.40 1
SSR150R B 7.11 1
SSR150R C 10.97 2

Fixed Insitu
Stainless Steel
SSR150F A 3.40 1
SSR150F B 7.11 1
SSR150F C 10.97 2

Fixed Baseplate
SSR150B A

Sleeve Stainless Steel
Refer *Security* section



Architectural Range > Stainless Steel

Regal 200NB

Material 200NB (219.0) x 3.76 / 8.18 / 12.70mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Fixed Insitu
SSR200F A 3.76 2
SSR200F B 8.18 2
SSR200F C12.70 3

Stainless Steel Sleeves
SSSR200FA 900h
SSSR200FB 1200h
(Sleeve only)
For use with 200NB IRB bollards.
Refer *Security* section.

Fixed Baseplate
SSR200B A

Minimum
500 x 500 x 500 deep.
Security (vehicle impact rated) bollards require strip footings.

Regal 300NB

Material 300NB (323.4) x 4.57 / 9.53 / 12.70mm Grade 304 stainless steel pipe
Finish Linished or electro-polished

Fixed Insitu
SSR300F A 4.57 2
SSR300F B 9.52 3
SSR300F C12.70 3

Stainless Steel Sleeves
SSSR300FA 900h
SSSR300FB 1200h
(Sleeve only)
For use with 300NB IRB bollards.
Refer *Security* section.

Fixed Baseplate
SSR300B A

Minimum
600 x 600 x 500 deep.
Security (vehicle impact rated) bollards require strip footings.

BCC

Material 125NB (141.30mm) Grade 304 stainless steel plate
Finish 600 Grit linished

Fixed Baseplate
BCC01B
Front View

Brisbane City Council's
standard fixed bollard design

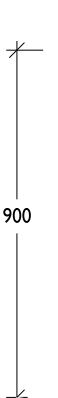
Top View

M16 dome nuts supplied

Wave / Breeze

Material 12mm Grade 304 stainless steel plate
Finish Linished or electro-polished

Fixed Baseplate
SSM152B
Front View



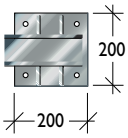
Side View

Fixed Baseplate
SSM151B
Front View

Side View

These designs are used with
a variety of stainless steel
or glass infill panels,
also lends itself
to balustrade applications.

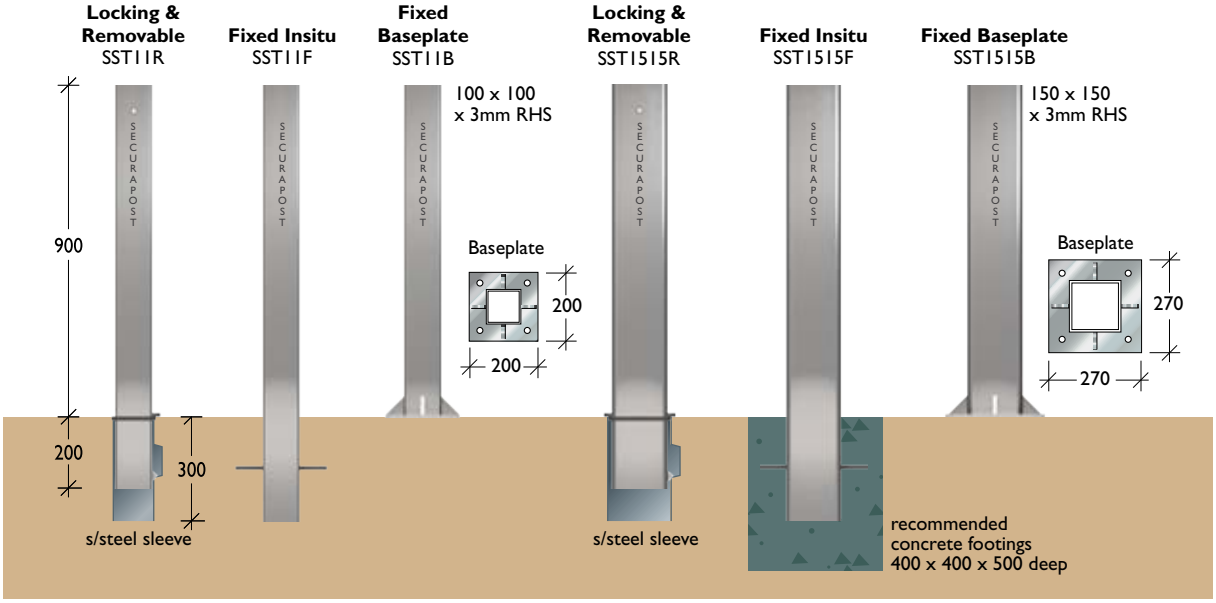
Top View /
Baseplate



Architectural Range > Stainless Steel

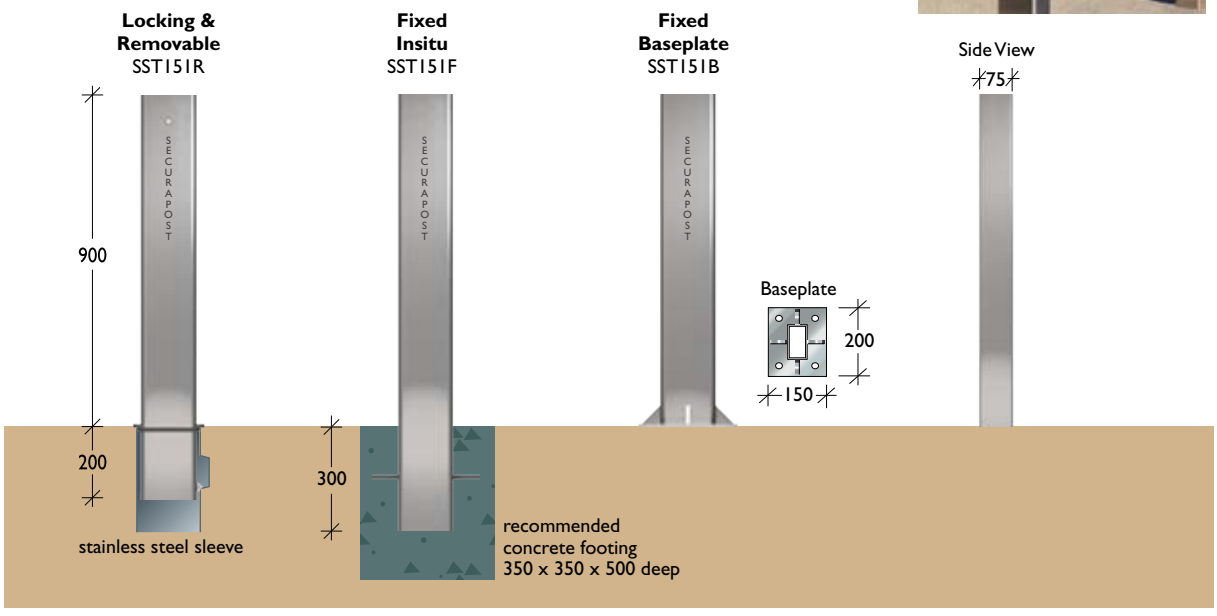
Square

Material Grade 304 stainless steel RHS (Rectangular Hollow Section)
Finish Linished or electro-polished



Rectangular

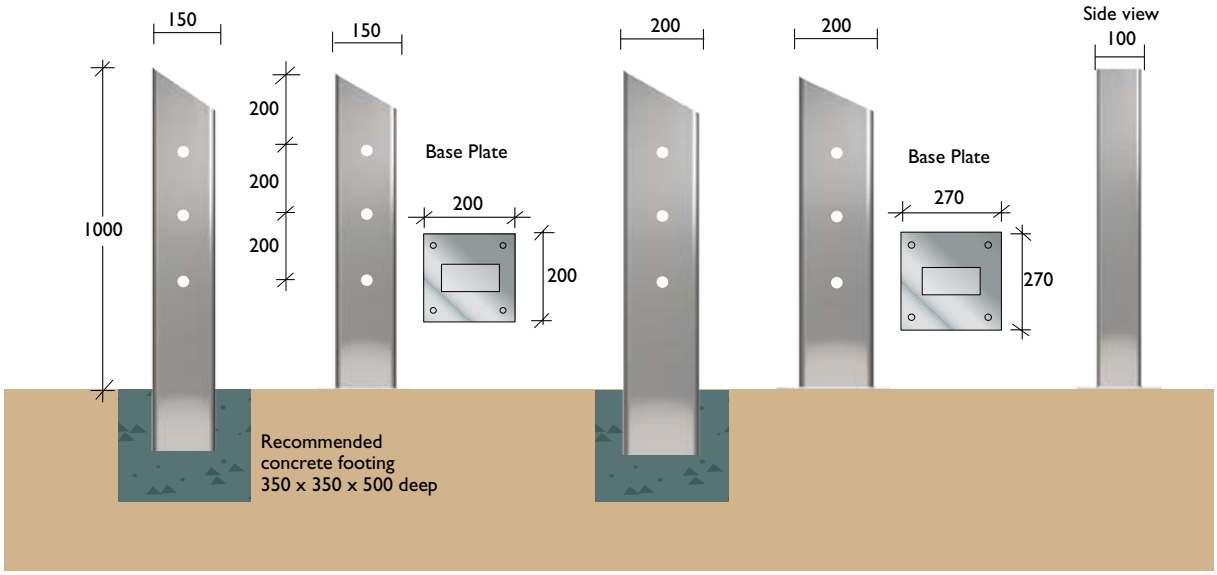
Material 150(152.4) x 75(76.20) x 3.0mm Grade 304 stainless steel RHS (Rectangular Hollow Section)
Finish Linished or electro-polished

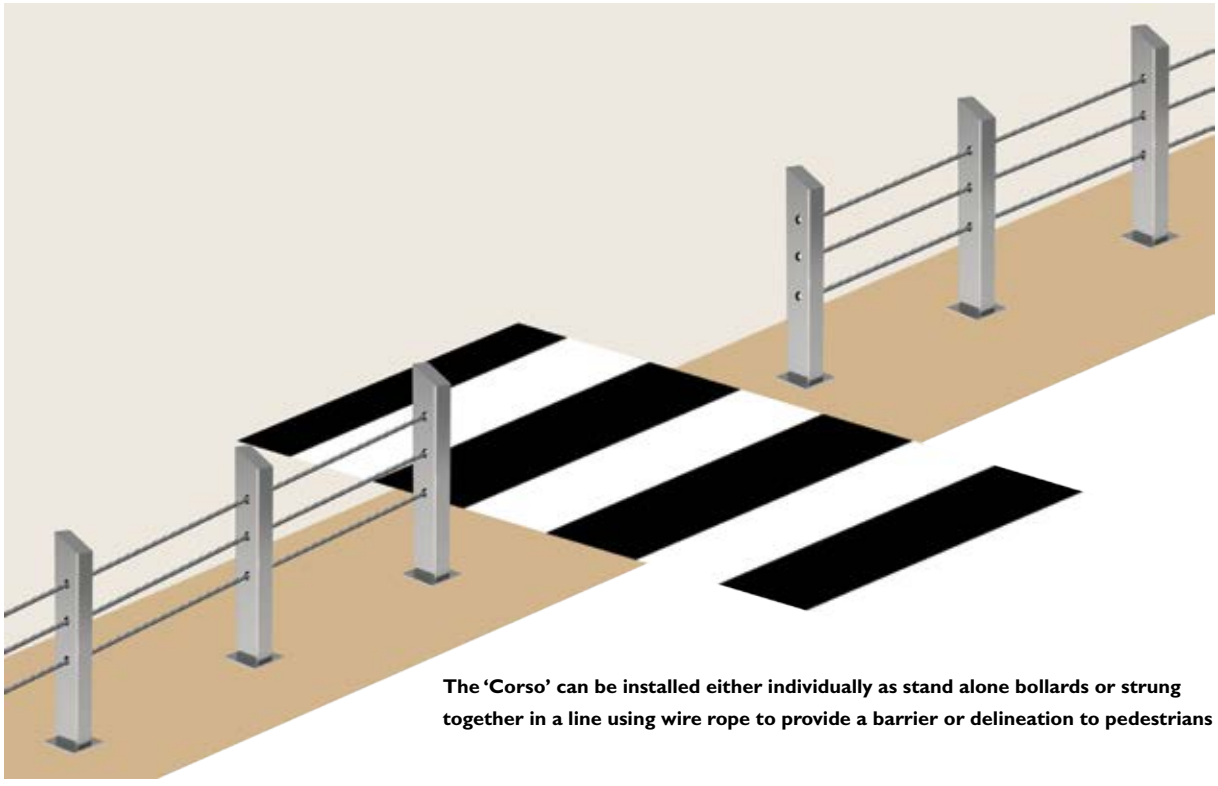


Corso

Material 150(152.4) x 100(101.6) x 3.0 mm Grade 304 stainless steel RHS
200(203.2) x 100(101.6) x 3.0mm Grade 304 stainless steel RHS

Finish Linished or electro-polished



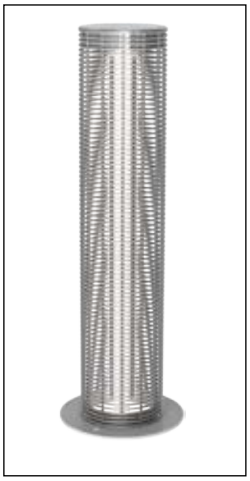


The 'Corso' can be installed either individually as stand alone bollards or strung together in a line using wire rope to provide a barrier or delineation to pedestrians

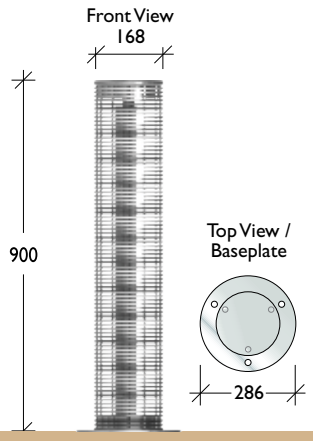
Architectural Range > Stainless Steel

Screen

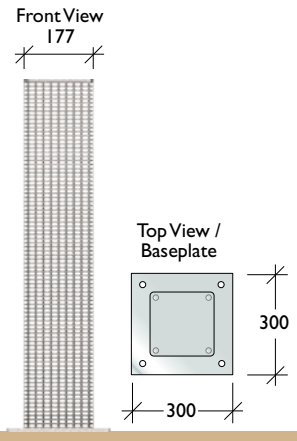
Material Grade 304 stainless steel mesh
Finish Linished (Level 4)



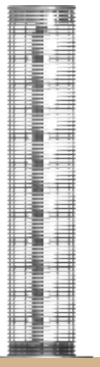
Round
Fixed Baseplate
JSR150B



Square
Fixed Baseplate
JSS150B



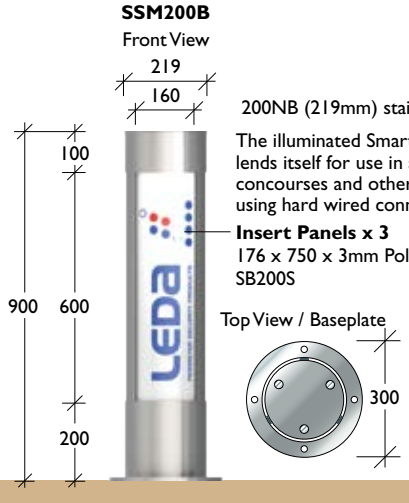
Lighting
Available in Round and Square.
Refer *Lighting* section.



Smart Bollard

Material Grade 304 stainless steel pipe
Finish Linished or electro-polished

SSM200B



200NB (219mm) stainless steel pipe

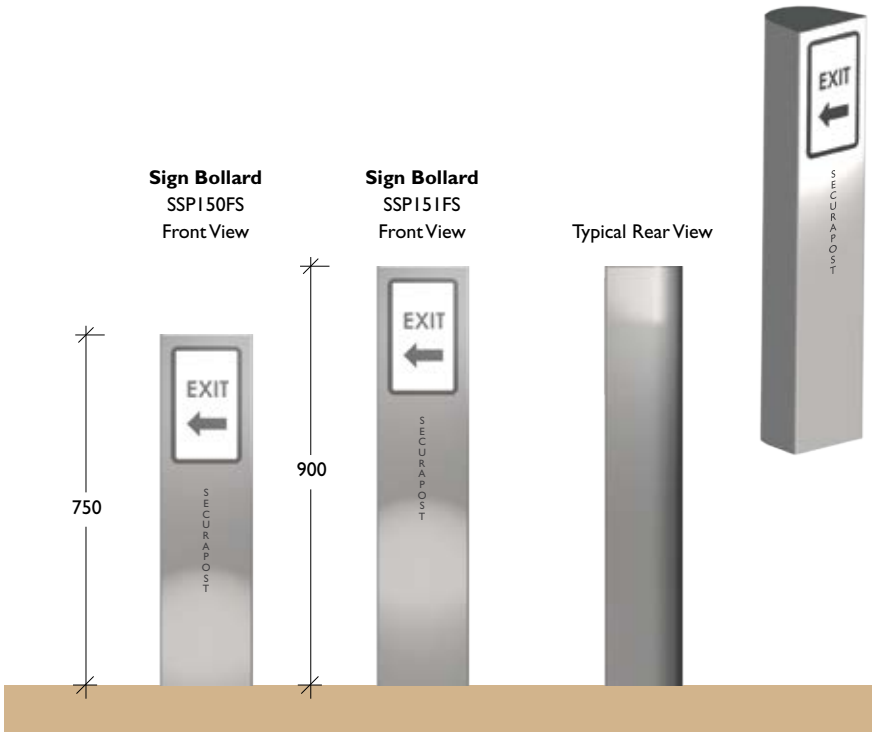
The illuminated Smart Bollard's versatile design lends itself for use in a variety of foyers, concourses and other public spaces. Illumination using hard wired connection is also an option.

Insert Panels x 3
176 x 750 x 3mm Polycarbonate Sheet
SB200S

Side View

Sign Bollards

Material 150NB (168.3) x 3.40mm Grade 304 stainless steel pipe
Finish Linished or electro-polished



Smokers Bollards

Material Butt Bin. 90NB (101.6) x 2.11mm Grade 304 Stainless Steel Pipe
Bollard. 150NB (168.3) x 3.40mm Grade 304 Stainless Steel Pipe
Finish Linished or electro-polished