Protecting Public Spaces

Handbook

Product Range

STREET FURNITURE & BOLLARDS

Designed to Prevent Vehicle Intrusion
Protecting Public Spaces

As the world reacts to the growing threat of motor vehicles being used in terrorist attacks local & state governments are now tasked with how best to protect people in public spaces.

In the past the logical solution was to install certified crash rated specialised products. These solutions take time to plan and install, are normally very expensive and often result in a fortress style atmosphere.

A new alternative currently being suggested from Security Agencies is to take a more simple approach by Stopping Vehicles Gaining Entry.

Street furniture elements strategically positioned deny vehicle access and provide a more economically engineered solution.

The key requirements in implementing this are:

- All products used need to be connected to the pavement by shear keys
- No openings more than 1.2m wide
- Easy for pedestrians to navigate
- Aesthetically attractive
- Allow service vehicle access

LEDA’s Street Furniture range has been designed with Security and Hostile Vehicle Mitigation (HVM) as the main criteria. With this in mind it is important that architects and end users have a choice in deciding whether to select certified product that has been successfully impact tested (normally involve imported and expensive product) or locally manufactured more economical Engineered Solutions.

LEDA’s extensive experience has allowed us to develop the following comprehensive range of Street Furniture for use in crowded & public spaces.
Protecting Public Spaces > Product Range

ENGINEERED SOLUTIONS

The Cube
The Log
The Bench Log

Optional Seating

Timber Slats
Recycled Plastic Slats
Stainless Steel Seating

Planter Boxes

Planter Box (Square)
Planter Box (Rectangular)
Planter Box (Rectangular)

Bollards

Colossus
Russell Square
Russell Round

PAS68 TESTED & CERTIFIED

Fixed & Retractable
Westminster
Litter Bin
Planter Box
Seating

Refer to Security Section of LEDA Bollard Handbook
LOG and CUBE

Precast Concrete Options

- PCL55F1: Off White (Etched finish)
- PCL205F1: Charcoal (Etched finish)
- PCL55F2: Grey (Off the form)
- PCL205F2: Grey (Off the form)
- PCL55F3: Grey (Off the form)
- PCL205F3: Grey (Off the form)

Natural Stone Options

- NSC55F1: Hawksbury Sandstone (Rubbed finish)
- NS55F2: Victorian Bluestone (Diamond sawn finish)
- NS55F3: Adelaide Black Granite (Exfoliated flamed finish)
- NS55F4: Bianca Mist Marble (Honed finish)
- NSL205F1: Hawksbury Sandstone (Rubbed finish)
- NSL205F2: Victorian Bluestone (Diamond sawn finish)
- NSL205F3: Adelaide Black Granite (Exfoliated flamed finish)
- NSL205F4: Bianca Mist Marble (Honed finish)

Both the precast and natural stone cube and logs can be

- Surface Mounted
- Keyed to the Pavement
- Keyed and Raised

Seating options

To further improve functionality of the elements they can be converted to seating using either timber, stainless steel or recycled plastic options.

- LTSL1: Timber Slats
- LTSE1: Timber Seating
- LPSL1: Recycled Plastic Slats
- LSSE1: Stainless Steel Seating
**Protecting Public Spaces > Engineered**

### Cube

- **Material**: Precast concrete
- **Finish**: Off-white etched finish / Grey off the form / Charcoal etched finish
- **Weight**: 310kg

**PRECAST CONCRETE CUBE**

- Flat On Ground

- 12mm stainless steel cast-in ferrules (for ease of handling)

### Log

- **Material**: Precast concrete
- **Finish**: Off-white etched finish / Grey off the form / Charcoal etched finish
- **Weight**: 1300kg

**PRECAST CONCRETE LOG**

- Flat On Ground

- 12mm stainless steel cast-in ferrules (for ease of handling)
Protecting Public Spaces > Engineered

Cube

An attractive and effective vehicle access control delineator or seating module.

<table>
<thead>
<tr>
<th>Material</th>
<th>Natural stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>Sandstone / Black Granite / Mist Marble / Bluestone</td>
</tr>
<tr>
<td>Weight</td>
<td>400kg</td>
</tr>
</tbody>
</table>

![Cube Diagram]

Log

An attractive and effective vehicle access control delineator or seating module.

<table>
<thead>
<tr>
<th>Material</th>
<th>Natural stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>Sandstone / Black Granite / Mist Marble / Bluestone</td>
</tr>
<tr>
<td>Weight</td>
<td>1500kg</td>
</tr>
</tbody>
</table>
Protecting Public Spaces > Engineered

IMPROVED IMPACT RESISTANCE
Where vehicle intrusion and security is required all Leda’s street furniture can be keyed into the pavement by Locking Shear Pins.

When ordering please select and nominate locking pins from following page.

Installation is a simple matter of core drilling into the existing pavement.

LOG AND CUBE ELEVATED
The log and cube can also be elevated 100mm to increase both the impact height and facilitate cleaning.

When ordering please select and nominate locking pins from following page.
The Bench Log is also available as a stand-alone unit or can be anchored to the pavement with our locking pin options.

Bench log with hidden LED lighting provision is optional.

Locking Pins

Pipe 88.9 x 5.9
Pipe 88.9 x 10.4
**Bollards**

**Colossus**

<table>
<thead>
<tr>
<th>Material</th>
<th>Precast concrete 80NB (88.9) x 5.9mm/10.4mm heavy duty galvanised pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>Off-white etched finish / grey off the form / charcoal etched finish</td>
</tr>
<tr>
<td>Weight</td>
<td>800kg</td>
</tr>
</tbody>
</table>

Top View

16mm stainless steel cast-in ferrule (for ease of lifting)

Threaded eyebolts for lifting

Refer Accessories section.

Spherical with Flat Base

BLBOL

Minimum 350 x 350 x 500 deep.

**Bollards**

**Westminster**

PAS68 Security Rating

V/ 7500[N3]/64/90.0/5.3

WBSM10 Shallow Mount

WBDF10 Deep Fixed In-situ

Material: Engineered Steel either unpainted or with a primed finish

Finish: Manganese Steel, supplied raw(unpainted) as standard with a blank front facia. Can be printed and fitted with a corporate logo or crest

Front View

Side View

Impact direction

The Westminster Bollards are available in shallow mount floating, removable or deep fixed in-situ models.
Protecting Public Spaces > Engineered

**Bollards**

**Russell Square**

- **Material**: Precast concrete
- **Finish**: Off-white etched finish, Grey off the form, Charcoal etched finish

**Russell Round**

- **Material**: Precast concrete
- **Finish**: Off-white etched finish, Grey off the form / Charcoal etched finish

**Fixed In Situ 150NB Insert**

- 12mm stainless steel cast-in ferrules for lifting

**Minimum**: 600 x 600 x 750 deep.
Protecting Public Spaces > Engineered

Bollards
Russell Square

Material: Natural stone
Finish: Sandstone / Black Granite / Mist Marble / Bluestone

12mm stainless steel cast-in ferrules for lifting

Shown cut-away for clarity

Fixed In-Situ 150NB Insert

12mm stainless steel cast-in ferrules for lifting

Shown cut-away for clarity

NSRS44F1 Hawksbury Sandstone
NSRR41F1 Hawksbury Sandstone

NSRS44F2 Adelaide Black Granite
NSRR41F2 Adelaide Black Granite

NSRS44F3 Victorian Bluestone
NSRR41F3 Victorian Bluestone

NSRS44F4 Bianca Mist Marble
NSRR41F4 Bianca Mist Marble

Minimum
600 x 600 x 750 deep.

Bollards
Russell Round

Material: Natural stone
Finish: Sandstone / Black Granite / Mist Marble / Bluestone

12mm stainless steel cast-in ferrules for lifting

Shown cut-away for clarity

Fixed In-Situ 150NB Insert

12mm stainless steel cast-in ferrules for lifting

Shown cut-away for clarity

NSRS44F1 Hawksbury Sandstone
NSRR41F1 Hawksbury Sandstone

NSRS44F2 Adelaide Black Granite
NSRR41F2 Adelaide Black Granite

NSRS44F3 Victorian Bluestone
NSRR41F3 Victorian Bluestone

NSRS44F4 Bianca Mist Marble
NSRR41F4 Bianca Mist Marble

Minimum
600 x 600 x 750 deep.
Protecting Public Spaces

Planter Boxes

Precautions

Material: Precast concrete
Finish: 80NB (88.9) x 3.9mm/10.4mm heavy duty galvanised pipe
Off-white etched finish / grey off the form / charcoal etched finish

LEDAs planter boxes can be mounted directly onto the pavement or fitted with locking pins to key them into the pavement.

Planter Boxes

Top View

PPBS5F1
Off white
PPBS5F2
Charcoal
PPBS5F3
Grey of the form

Top View

PPBS515F1
Off white
PPBS515F2
Charcoal
PPBS515F3
Grey off the form

Top View

PPBS818F1
Off white
PPBS818F2
Charcoal
PPBS818F3
Grey off the form

Optional locking pins can be fitted to key planter boxes into pavement.

Locking pin details (See Page 7)
Pedestrian Railing

**Material**
- 150NB (168.3) x 3.4/7.1/10.97mm Grade 304 stainless steel pipe
- Rail 50NB (60.33) x 3.4 Grade 304 stainless steel pipe

**Finish**
- Linished or electro-polished

Bollards available in 3 various wall thickness

<table>
<thead>
<tr>
<th>Fixed</th>
<th>Insitu</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSP155F A</td>
<td>3.40</td>
</tr>
<tr>
<td>SSP155F B</td>
<td>7.11</td>
</tr>
<tr>
<td>SSP155F C</td>
<td>10.97</td>
</tr>
</tbody>
</table>

SCS50

- 1350 centres
- 50NB Rail

Pedestrian railing is an excellent method of preventing pedestrian access while providing high impact resistance.

The lighter system is a more economical solution however still maintains a high level of impact resistance due to the interconnecting railing system which is designed to distribute the impact load.

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Pedestrian Railing

**Material**
- 125NB (141.3) x 3.4/7.1/10.97mm Grade 304 stainless steel pipe
- Rail 40NB (48.26) x 3.4 Grade 304 stainless steel pipe

**Finish**
- Linished or electro-polished

Bollards available in 3 various wall thickness

<table>
<thead>
<tr>
<th>Fixed</th>
<th>Insitu</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSP125F A</td>
<td>3.40</td>
</tr>
<tr>
<td>SSP125F B</td>
<td>7.11</td>
</tr>
<tr>
<td>SSP125F C</td>
<td>10.97</td>
</tr>
</tbody>
</table>

SCD40

- 1350 centres
- 40NB Rails

The lighter system is a more economical solution however still maintains a high level of impact resistance due to the interconnecting railing system which is designed to distribute the impact load.
## Protecting Public Spaces > Engineered

### Sign Board Frame

**Material**: 150NB (168.3) x 3.4/7.11/10.97 grade 304 stainless steel  
**Finish**: Linished or electropolished  

This frame is available in three wall thickness pipe providing various levels of impact resistance and security.

**Fixed Insitu**  
- SBR815F A 3.40  
- SBR815F B 7.11  
- SBR815F C10.97

<table>
<thead>
<tr>
<th>Height &amp; width can be varied to suit signage needs (Signage supplied by others)</th>
</tr>
</thead>
</table>

**Dimension**  
- Front View  
- Rear View  
- Side View

### Square Frame

**Material**: 150(152.4) x 100(101.6) x 3.0mm grade 304 stainless steel RHS  
**Finish**: Linished or electropolished  

**Fixed Insitu**  
- SBS815F

<table>
<thead>
<tr>
<th>Height &amp; width can be varied to suit signage needs (Signage supplied by others)</th>
</tr>
</thead>
</table>

**Dimension**  
- Front View  
- Rear View  
- Side View
Protecting Public Spaces > PAS68 Certified

Seating
RG-SE-9999

Material
Reinforced precast concrete strengthened by RhinoGuard technology/Arm rests - Ferrocast polyurethane
Standard unit 2 end sections and 1 center section

Performance
Vehicle: Fully-laden 7.5 tonne two axle rigid N2 lorry
Vehicle Speed: 40mph (64km/h)

Test Results
The vehicle was completely immobilised, eliminating the chance of a second attack

PAS68 classification code
Test1 - Centre: PAS68V7500(N2)/64/90:3.7/0.0
Test2 - Off Centre: V/7500(N2)/64/90:3.5/0.0

This modular seating system offers unique style combined with functionality and high impact resistance

Dimensions & Weight:
Centre Section Span - 1102mm
Left/Right Section Span - 1037mm
Seating Section - 474mm
Ferrocast Arm Section Weight - 21.5 Kg
Cast End Section Weight - 1000 Kg
Cast Intermediate Section Weight - 1200 Kg
Seating
RG-SE-00001

Material: Ferrocast and timber
Finish: Available in wide selection of RAL colours

Performance
Fully laden 7.5 tonne two axle rigid N2 lorry
Vehicle Speed: 30mph (48km/h)

Test Results
The vehicle was completely immobilised, eliminating the chance of a second attack

Seating
RG-SE-00002

Material: Precast concrete and timber
Finish: Available in Silver Grey, Mid Grey / Saxon Buff finish
Weight: 2500kg

Performance
7.2 tonne N2A lorry
Vehicle Speed: 40mph (64km/h)

Test Results
The vehicle was completely immobilised, eliminating the chance of a second attack

PAS68 classification code
Test 1: Front facing (centre): PAS68:2010:V/7500(N2)/48/90:0.0/0.0
Test 2: Back facing (centre): V/7500(N2)/48/90:3.1/0.0
Test 3: Back facing (Off centre): V/7500 (N2)/48/90:2.7/0.0

IWA14-1:2013 Classification Code
Blok V/7200(N2A)/64/90:19.3

Available finishes:
- Silver Grey
- Mid Grey
- Saxon Buff
Protecting Public Spaces > PAS68 Certified

### Planter
**RG-PL-00002**

<table>
<thead>
<tr>
<th>Material</th>
<th>Mix of concrete &amp; fine Italian marble</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>Polished smooth surface treated with a protective varnish</td>
</tr>
</tbody>
</table>

This is an ideal alternative to the more traditional methods of hostile vehicle mitigation providing high level of impact resistance at the same time introducing planting to urban spaces.

**Excavation depth:** 950mm

**Test Results:** The vehicle was completely immobilised, eliminating the chance of a second attack.

### Available finishes:
- Porphyry
- Botticino
- White Carrara
- Red Verona
- Veneziano
- Yellow Mori
- Green Alpa
- Black Ebony

### Planter
**RG-PL-00003**

<table>
<thead>
<tr>
<th>Material</th>
<th>Steel upright with timber panels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>Powder coated in a range of colors</td>
</tr>
</tbody>
</table>

Features a sleek, geometric design providing high level of impact resistance at the same time introducing planting to urban spaces.

**Excavation depth:** 950mm

**Test Results:** The vehicle was completely immobilised, eliminating the chance of a second attack.

### Test Results:

<table>
<thead>
<tr>
<th>Test</th>
<th>Vehicle</th>
<th>Speed</th>
<th>Classification Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test1</td>
<td>Fully laden 7.5 tonne two axle rigid N2 lorry</td>
<td>40mph (64km/h)</td>
<td>V/7500(N2)/64/90.0/0.0</td>
</tr>
<tr>
<td>Test2</td>
<td>Unladen 7.5 tonne two axle rigid N3 lorry (empty 18 tonner)</td>
<td>50mph (80km/h)</td>
<td>V/7500(N3)/80/90.1.7/0.0</td>
</tr>
<tr>
<td>Test3</td>
<td>Unladen 7.5 tonne two axle rigid N3 lorry (empty 18 tonner)</td>
<td>50mph (80km/h)</td>
<td>V/7500(N3)/80/90.3/8/35.5</td>
</tr>
</tbody>
</table>

Vehicle: Fully laden 7.5 tonne two axle rigid N2 lorry
Vehicle: Unladen 7.5 tonne two axle rigid N3 lorry (empty 18 tonner)
Vehicle: Unladen 7.5 tonne two axle rigid N3 lorry (empty 18 tonner)
**Protecting Public Spaces > PAS68 Certified**

### Bike Stand

**RG-BS-99999**

<table>
<thead>
<tr>
<th>Size</th>
<th>Ø140mm/Ø204mm stand sleeve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>316 bead blasted stainless steel body/machine finished</td>
</tr>
<tr>
<td></td>
<td>316 grade stainless steel top cap</td>
</tr>
</tbody>
</table>

**Core and Diameter Options:**
- Diameter: 140mm cycle stand sleeve
- Core: RhinoGuard PAS68 15/30 core (protection against 1.5 tonne vehicle at 30mph)
- Diameter: 204mm cycle stand sleeve
- Core: RhinoGuard PAS68 25/40 core (protection against 2.5 tonne vehicle at 40mph)
- Diameter: 204mm cycle stand sleeve
- Core: RhinoGuard 75/40 core (protection against 7.5 tonne vehicle at 40mph)

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**Please note:**
Due to the highly specialised components required for this item, lead times may be longer than anticipated. Please contact our nearest Sales office for more information.

### Litter Bin

**RG-LB-99999**

<table>
<thead>
<tr>
<th>Size</th>
<th>Ø140mm/Ø204mm bin diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish</td>
<td>316 bead blasted stainless steel body/machine finished</td>
</tr>
<tr>
<td></td>
<td>316 grade stainless steel top cap</td>
</tr>
</tbody>
</table>

**Core and Diameter Options:**
- Diameter: 204mm bin
- Core: RhinoGuard PAS68 15/30 core (protection against 1.5 tonne vehicle at 30mph)
- Diameter: 204mm bin
- Core: RhinoGuard PAS68 25/40 core (protection against 2.5 tonne vehicle at 40mph)
- Diameter: 204mm bin
- Core: RhinoGuard 75/40 core (protection against 7.5 tonne vehicle at 40mph)

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**Please note:**
Due to the highly specialised components required for this item, lead times may be longer than anticipated. Please contact our nearest Sales office for more information.
LEDA HAS A RANGE OF OTHER HIGH SECURITY PRODUCTS

Need product advice, information or further technical resources?

Call Leda now on 1300 780 450 (business hours)

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Check with your nearest Leda Sales office that the designs and specifications displayed are still current.

Comprehensive brochures and technical literature on the complete range of Leda’s High Security Products are available on request or visit the website: www.ledasecurity.com.au.