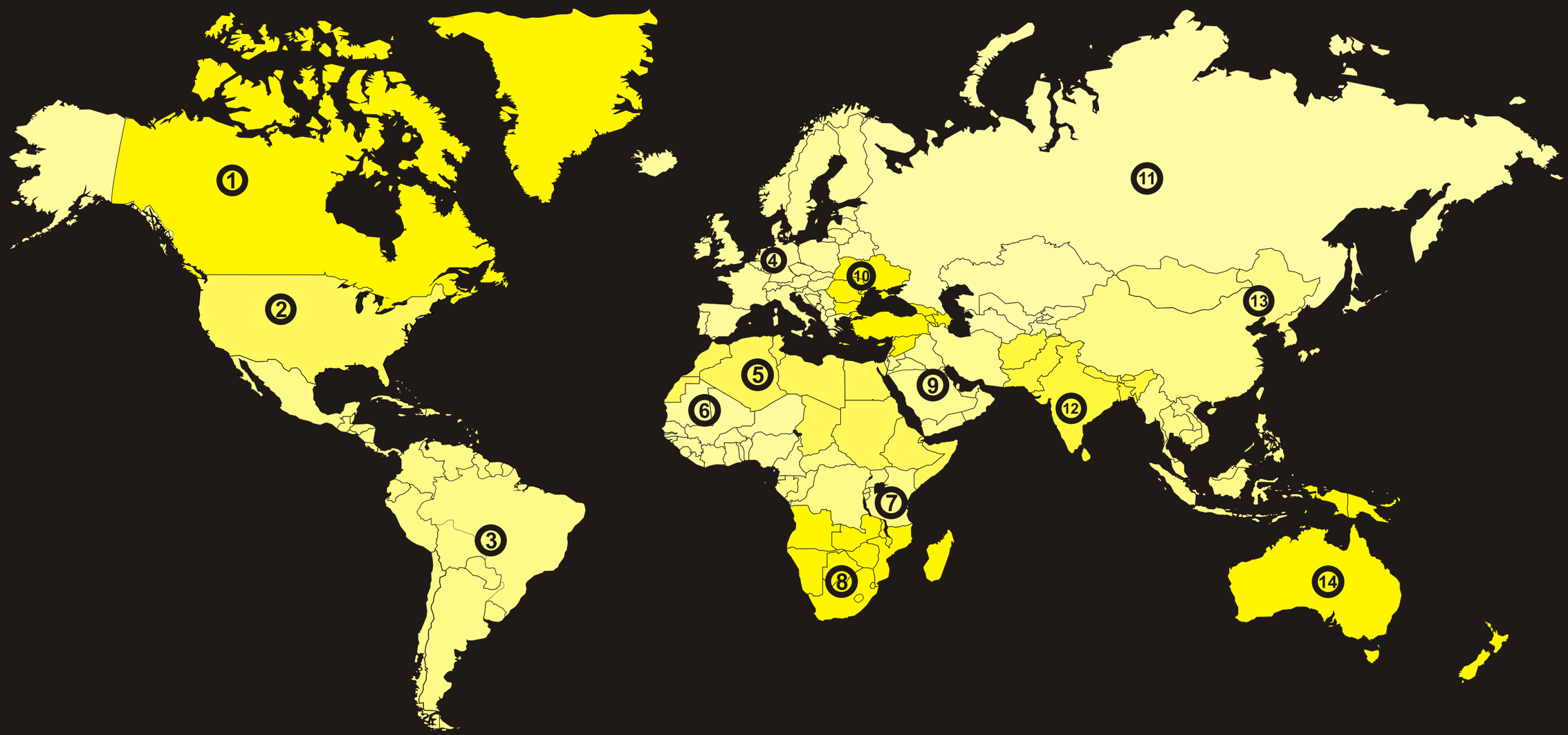
Avon Barrier Company Ltd

Manufacturers of
Specialist Security Systems

Avon Barrier International



1. Canada + Northern Territories
2. USA
3. South America
4. Europe
5. North Africa
6. West Africa
7. East Africa
8. Southern Africa
9. Middle East
10. Black Sea Region
11. Russia + Eastern Europe
12. Southern Asia
13. Pacific Basin
14. Australia + Asia

COMPANY PROFILE

Avon Barrier Company was founded in 1989 and has consistently developed and improved its product range of perimeter security systems to meet the changing demands of the security market. Ancillary support equipment, associated system design, installation and maintenance services have been developed simultaneously to offer a full turn-key solution to end-users.

We are an international ISO 9001 accredited organisation recognised for our high quality engineering and manufacturing with a wide range of fully tested high security products. The International Head Office of the Company is based in the UK alongside a large manufacturing facility housing design, fabrication, project management, technical support and both UK and European sales offices. Other international regions are supported by sales and technical offices based in Turkey, India and UAE (from end 2008) who work in conjunction with fully trained and certified distributors.

The list of successfully completed installations worldwide runs to in excess of ten thousand and support is provided by both Avon Barrier regional product support teams, as well as our distributor network.

We look forward to being of Service to you.

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"Determined Solutions to Determined Threats"

Crash Testing

The key to critical infrastructure protection from a **Vehicle Borne Improvised Explosive Device** (VBIED) is a combination of access restriction and approach speed management and whilst careful planning and layout design can assist with the restriction of approach speed, the final line of defence is the blocking system.

As the blocking systems are designated as life saving equipment, it is essential that they are suitable to combat today's ever increasing threat types. The equipment developed by Avon Barrier has therefore been extensively tested in a number of ways to ensure that when it needs to perform, it will play its part.

Testing work undertaken to date includes dynamic impact testing with a variety of different impact forces, penetration testing (mainly aimed at the pedestrian control equipment) and explosive shrapnel dispersal testing.

In today's environment higher levels of perimeter protection are increasingly necessary and Design Consultants are tasked with ensuring that installations are not only safe and secure in the current climate but are also future proofed against the escalating threat levels.

Avon Barrier's commitment to protection extends to the provision of a frontline service to Design Consultants to assist in the correct specification and design of security control points.

Crash Testing

Until recently impact testing standards were restricted to the US DoS test standards as follows:

US Department of State ratings:	Vehicle Speeds	Site Penetration	Impact Force
15,000lb (6,810Kg) Vehicle	K12 = 50mph (80kph)	L3 < 915mm	1681Kj
	K8 = 40mph (65kph)	L2 915mm 6100mm	1110Kj
	K4 = 30mph (50kph)	L1/ 6100mm 15,300mm	657Kj

The British Government have developed and introduced an alternative rating system which records not only the vehicle size, speed and penetration of the load bearing structure but also takes into consideration the maximum major debris dispersal, the foundation depth, the permanence of the installation and the post impact condition.

The rating system has been produced by CPNI (Centre for Protection of National Infrastructure) and TRL (Transport Research Laboratory) in conjunction with the main equipment manufacturers and is documented in BSI PAS (Publically Available Specification) 68/69.

PAS 68 has been prepared to address the needs of organizations who wish to have assurance that vehicle security barriers will provide the level of impact resistance that they seek.

Many systems are available that are either promoted or considered suitable for use as vehicle security barriers. As their characteristics differ in both function and form, a comparative means of assessing their performance is required.

PAS 68 specifies a classification system for the performance of vehicle security barriers and their supporting foundations when subjected to a single horizontal impact.

In the course of the document three alternative assessment methods of determining the performance classification of vehicle security barriers are given:

- The vehicle impact method
- The pendulum method (only suitable for testing bollards at lower energy levels)
- The design method.

This PAS identifies impact test tolerances and vehicle performance criteria that need to be met in order to conform. Design guidance is provided in PAS 69.

Avon Barrier Crash Tested Products
All tests carried out by independent test agencies TRL or MIRA in accordance with the PAS requirements using a 7500kg vehicle

Avon Product	Test	Vehicle Speed	Site Penetration	Post Test Operable	Impact Force
RB780 Blocker	23/12/04 05/03/05 05/05/05	50kph 80kph 80kph	Zero N/A Zero	Yes Yes Yes	723Kj 1852Kj 1852Kj
RB880 Blocker (Shallow)	01/06/05 21/06/05	50kph 80kph	Zero Zero	Yes No (due to previous damage)	723Kj 1852Kj
EB950CR Barrier	01/08/05	50kph	Zero	Yes	723Kj
SB970CR Bollard (single unit)	18/11/05	80kph	Zero	Yes	1852Kj
SB970CR Bollard (double unit)	02/03/06	80kph	Zero	Yes	1852Kj
RB980CR Blocker	22/03/06	80kph	Zero	Yes	1852Kj
GC1100CR Gate	19/03/07	80kph	5.7m	No	1852Kj
SG1100CR Gate	04/07/08	80kph	WV	No	1852Kj
SG1500CR Gate	14/10/08	80kph	Zero	No	1852Kj

RB780CR Chieftain Roadblocker

The **Avon RB780CR Chieftain High Security Roadblocker** provides a high level of security against unauthorised vehicle access. Designed to withstand direct impact forces in excess of 1,800 KJ, the blocker provides protection to sites from extreme Vehicle Borne Improvised Explosive Device (VBIED) attack.

Designed and Manufactured by engineers with significant experience in the fields of High Security and Access Control, the RB780CR is a highly dependable security product that will easily interface with a wide range of control equipment.

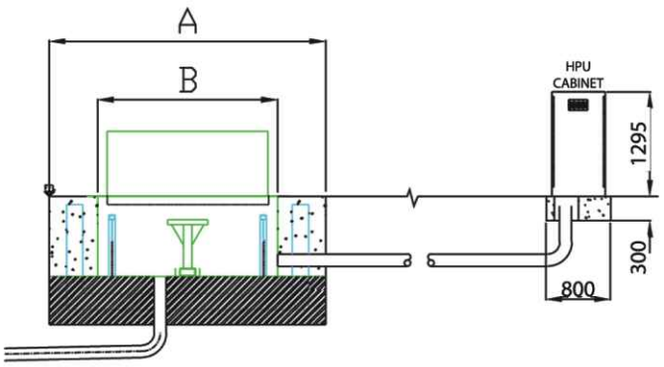
Units are assembled in our fabrication facilities using heavy gauge materials to give maximum strength and durability. This makes the RB780CR the ideal product to protect high security establishments, iconic buildings and critical infrastructure.

The RB780CR has been independently, structurally evaluated by the Transport Research Laboratory (TRL) and has also been **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Motor Industry Research Association (MIRA). This led to the RB780CR Chieftain High Security Roadblocker becoming one of the first British built roadblockers installed by the British Government.

The RB780CR is an Electro-Hydraulically operated blocking system with segment widths available from 2m to 5m (in 500mm increments). The unit has an 800mm height when fully raised and is comprised of a static sub-surface ground frame with hinged, rising impact wedge. Raised/Lowered back indication signalling can be provided to enable remote monitoring of the blocker status on a real time basis (optional).

The hydraulic power pack is controlled by a programmable logic controller (PLC) enabling connection of virtually any access control to the blocker. In addition, the PLC can be configured to enable the blocker to be raised quickly (under 1 second) in an emergency by utilising an hydraulic accumulator (optional). In the event of power failure a manual pump is provided to ensure operator control is maintained.

RB780CR Chieftain Roadblocker



WEDGE WIDTH	A	B
2M	3430	2230
2.5	3930	2730
3M	4430	3230
3,5	4930	3730
4M	5430	4230
4,5	5930	4730
5M	6430	5230

TECHNICAL DETAILS

Physical dimensions:
HPU Cabinet - 640/940mm W x 670mm D x 1300mm H
2m Roadblocker - 2510mm W x 1770mm D x 1000mm H

Basic Power requirements: 3-Phase 415V AC, 50Hz, 20 amps (other voltages are available) **Control Voltage S.E.L V 24 v**
Performance: Loading - 20 Tonnes
Impact absorption: 1852KJ (fully operational immediately after impact)
Standard Speed of operation - 6 Seconds to raise or lower
Emergency Fast Raise option - <1 second to raise

Construction: The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section completely encased with steel sheets to provide a self-shuttered module. Sub-surface fixing points ensure the blocker is completely secured to its foundation.

Features

- Multiple testing (5 different / independent physical tests)
- Independently structurally evaluated
- Physically impact tested to highest PAS 68/69 criteria
- Manufactured from heavy gauge materials
- Manual hand pump facility
- Programmable Logic Control system
- 100% Duty cycling

Benefits

- Comprehensive understanding of attack resistance
- Protection from multi-direction impact approach
- Confidence in proven performance
- Strength and Durability
- Operational under power failure conditions
- Flexibility to interface with all forms of access control
- Reliable and Dependable

Options Available

The blocker comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers, communication equipment and manned guard emergency systems can be accommodated.

Where the Roadblocker control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a blocker controlled roadway, additional safety measures can be incorporated into the blocker system if required.

- Emergency Fast Raise system
- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Inductive loop systems
- Traffic lights and back-indication system
- Interlocking systems to give air-lock type protection on sites for higher threat levels
- Integral inset warning lights in blocking segment

RB880CR Defender Roadblocker

The **Avon RB880CR Defender High Security Roadblocker** provides a high level of protection where deeper foundations are not possible / practical. Designed to complement the Avon Barrier range of high security equipment the RB880CR can withstand direct impact forces in excess of 1,800 KJ, the blocker provides shallow mounted protection to sites from extreme Vehicle Borne Improvised Explosive Device (VBIED) attack.

Developed by our in-house engineering team to overcome specific site limitations and using the experience gained with the design, testing and production of the RB780CR, the RB880CR is an additional highly dependable security product that will easily interface with a wide range of control equipment.

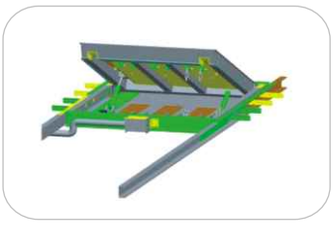
Units are assembled in our fabrication facilities using heavy gauge materials to give maximum strength and durability. This makes the RB880CR an ideal product to protect high security establishments, iconic buildings and critical infrastructure where existing underground services or other depth restrictions are an issue.

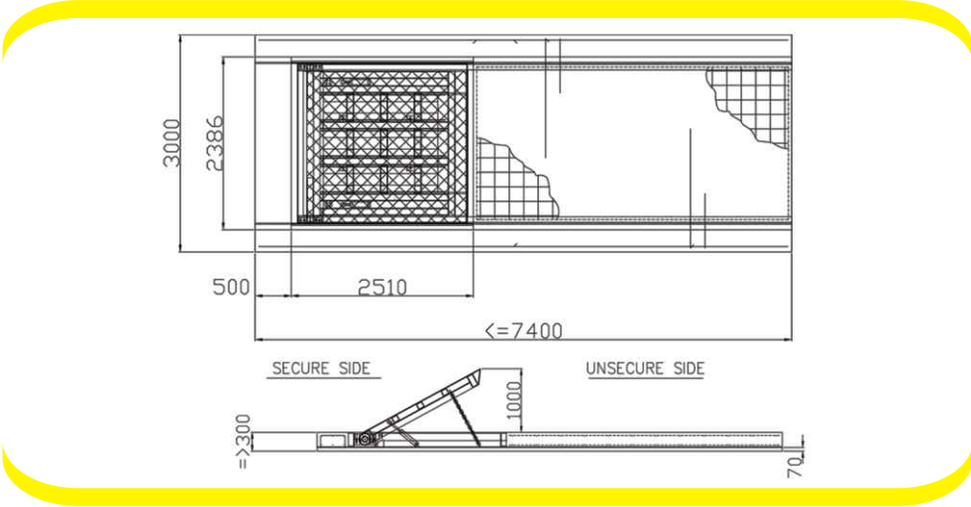
The RB880CR has been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL). This led to the RB880CR Defender High Security Roadblocker becoming the first British built shallow mounted roadblockers installed by the British Government.

The RB880CR is an Electro-Hydraulically operated blocking system with a standard segment width of 2m. The unit has an imposing 1m height when fully raised and is comprised of a static sub-surface ground frame with foundation support legs and a hinged, rising impact wedge. Raised/Lowered back indication signalling can be provided to enable remote monitoring of the blocker status on a real time basis (optional).

The hydraulic power pack is controlled by a programmable logic controller (PLC) enabling connection of virtually any access control to the blocker. In addition, the PLC can be configured to enable the blocker to be raised quickly (under 1 second) in an emergency by utilising an hydraulic accumulator (optional). In the event of power failure a manual pump is provided to ensure operator control is maintained.

RB880CR Defender Roadblocker





TECHNICAL DETAILS

Physical dimensions:
HPU Cabinet - 640/940mm W x 670mm D x 1300mm H
Roadblocker - 2520mm W x 2210mm D x 240mm H
Basic Power requirements: 3-Phase 415V AC, 50Hz, 20 Amps (other voltages are available) **Control Voltage S.E.L.V. 24v**

Performance:
Loading - 20 Tonnes
Impact absorption: 1852KJ (fully operational immediately after initial impact)
Standard Speed of operation - 6 Seconds to raise or lower
Emergency Fast Raise option - <1 second to raise

Construction:
The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section. Foundation support legs are provided to create a linked foundation enabling the impact forces to be distributed over a larger shallow area.

Features

- Multiple testing (4 different independent tests)
- Shallow mounting from 300mm overall depth
- Physically impact tested to highest PAS 68/69 criteria
- Manufactured from heavy gauge materials
- Manual hand pump facility
- Programmable Logic Control system
- 100% Duty cycling

Benefits

- Comprehensive understanding of attack resistance
- Overcomes site depth restrictions
- Confidence in proven performance
- Strength and Durability
- Operational under power failure conditions
- Flexibility to interface with all forms of access control
- Reliable and Dependable

Options Available

The blocker comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers, communication equipment and manned guard emergency systems can be accommodated.

Where the Roadblocker control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems. It is also recommended that a safety skirt is fitted. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a blocker controlled roadway, additional safety measures can be incorporated into the blocker system if required.

- Emergency Fast Raise system
- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Safety Skirt
- Inductive loop systems
- Traffic lights and back-indication system
- Interlocking systems to give air-lock type protection on sites for higher threat levels
- Integral inset warning lights in blocking segment

RB980CR Sabre Surface Mount Roadblocker

The **Avon RB980CR Sabre Surface Mount High Security Roadblocker** provides temporary high level protection where sub-surface foundations are not practical. Designed mainly for temporary requirements the RB980CR is suitable as a high security control point for conferences or military checkpoints. Its fast deployment and high protection level makes the RB980CR ideal as a Logistic Support barrier for use in Theatre and support base protection. The adaptability of the RB980CR complements the Avon Barrier range of high security equipment and can withstand direct impact forces in excess of 1,800 KJ, the blocker provides surface mounted protection to sites from extreme Vehicle Borne Improvised Explosive Device (VBIED) attack.

Developed in conjunction with the British Military, our in-house engineering team designed this modular roadblocker to combine ease of transportation and deployment with a high level of immediate protection.

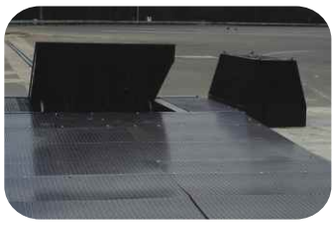
Components are assembled in our fabrication facilities using a combination of an RB880CR blocking system in conjunction with modular approach ramps constructed using heavy gauge materials to give maximum strength and durability. This makes the RB980CR the best solution to secure sites needing temporary and immediate high security protection.

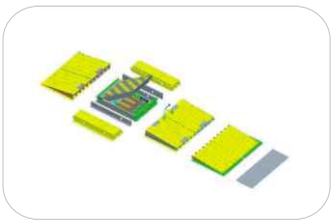
The RB980CR has been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL). This led to the RB980CR Sabre Surface Mounted High Security Roadblocker becoming the first British built impact resistant surface mounted roadblocker approved for use by the British Government.

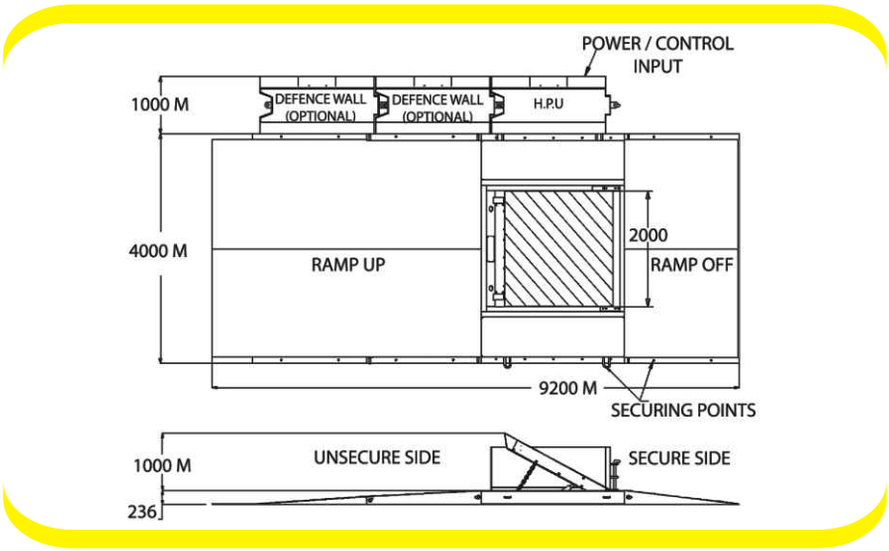
The RB980CR is an Electro-Hydraulically operated blocking system with a segment width of 2m. The unit has a significant 1m height when fully raised and is comprised of an RB880CR blocking system with side and approach ramps giving a standard 4m wide secured lane (can be modified to suit on request). Raised/Lowered back indication signalling can be provided to enable remote monitoring of the blocker status on a real time basis (optional).

The hydraulic power pack, which is attached to the ramp system, is controlled by a programmable logic controller (PLC) enabling connection of virtually any access control to the blocker. In addition, the PLC can be configured to enable the blocker to be raised quickly (under 1 second) in an emergency by utilising a hydraulic accumulator (optional). In the event of power failure a manual pump is provided to ensure operator control is maintained.

RB980CR Sabre Surface Mount Roadblocker







TECHNICAL DETAILS

Physical dimensions:
HPU Cabinet - 2000mm W x 1000mm D x 1000mm H (can also be smaller and positioned remote from Blocker)
Roadblocker - 4000mm W x 9200mm L x 240mm H (Dimensions variable to suit site requirement)
Basic Power requirements: 3-Phase 415V AC, 50Hz, 20 Amps (other voltages are available) **Control Voltage S.E.L.V. 24v**

Performance: Loading - 20 Tonnes
Impact absorption:1852KJ (fully operational immediately after initial impact)
Standard Speed of operation - 6 Seconds to raise or lower
Emergency Fast Raise option - <1 second to raise

Construction:
The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section. Fixing points for AEH Sets, All Terrain Fixings, Roadway Fixing points are provided around the ramp kit edging, alternatively surface mounted counter weights can be provided.

Features

- Multiple testing (4 different / independent tests)
- Surface mounted
- Modular construction
- Physically impact tested to highest PAS 68/69 criteria
- Manufactured from heavy gauge materials
- Manual hand pump facility
- Programmable Logic Control system
- 100% Duty cycling

Benefits

- Comprehensive understanding of attack resistance
- No foundation requirements
- Fast deployment, operational within 1 hour (dependant on site conditions)
- Confidence in proven performance
- Strength and Durability
- Operational under power failure conditions
- Flexibility to interface with all forms of access control
- Reliable and Dependable

Options Available

The blocker comes with a push-button control as standard and manned guard emergency systems can be accommodated.

Where the Roadblocker control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights. It is also recommended that a safety skirt is fitted. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a blocker controlled roadway, additional safety measures can be incorporated into the blocker system if required.

- Emergency Fast Raise system
- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Safety Skirt
- Traffic lights and back-indication system
- Integral inset warning lights in blocking segment
- Counter weight side barges
- Roadway fixing bolts

RB680 / 700 Roadblocker

The **Avon RB680 / 700 Roadblocker** comes in a variety of widths to suit specific site requirements, with a blocking segment heights of 350mm or 700mm.

Constructed from heavy welded steel section to provide sufficient strength to exceed British axle loads.

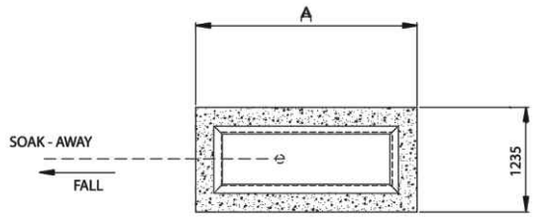
The heavy duty durbar top plate is coated with safety markings, with removable access covers to enable efficient installation and servicing.

The blocker is operated by an hydraulic ram with the power unit (HPU) positioned locally within an externally rated cabinet. The blocker mechanism is encased in a galvanised sheet steel enclosure and has access points for onward connection to ducting for hydraulic hoses and control cables.

On installation the entire enclosure is encased by concrete with construction being subject to site ground conditions.

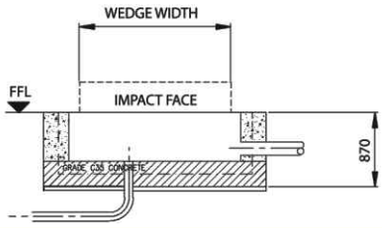
The power requirement is dependent upon the duty cycling requirement, number and size of blockers to be driven by the power pack

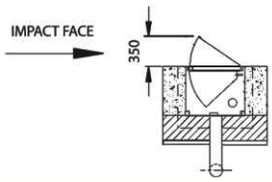
RB680 / 700 Roadblocker



Dimensions for RB680

WEDGE WIDTH	DIMENSION 'A'
2M	2630
2.5M	3130
3M	3630
3.5M	4130
4M	4630





TECHNICAL DETAILS

Physical dimensions (Guide only)
RB680 Roadblocker 2m 2150mm Wx 735mm D x 570mm H (350mm H raised)
RB700 Roadblocker 2m 2130mm Wx 1100mm D x 1160mm H (700mm H raised)
Basic Power requirements: 3-Phase 415V AC, 50Hz, 20 Amps (other voltages are available) **Control Voltage S.E.L.V. 24v**

Performance: Loading - 20 Tonnes
Standard Speed of operation - 6-8 Seconds to raise or lower

Construction: The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section completely encased with steel sheets to provide a self-shuttered module. Sub-surface fixing points ensure the blocker is completely secured to its foundation.

Features

- Vandal resistant
- Complies with BS6571 Part 4
- High quality coating system
- Manual Hand Pump facility
- 3 Phase 50Hz supply 415V

Benefits

- Reliability
- Durability
- Service spares
- Ease of installation
- Manual operation in the event of power failure

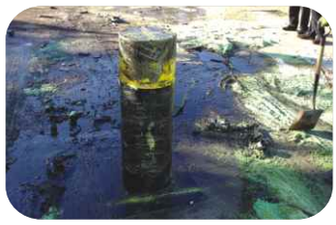
Options Available

The blocker comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers, communication equipment and manned guard emergency systems can be accommodated. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a blocker controlled roadway, additional safety measures can be incorporated into the blocker system if required.

Where the Roadblocker control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems.

- Emergency Fast Raise system
- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Inductive loop systems
- Traffic lights and back-indication system
- Stop/No Entry/Warning signage
- Integral inset warning lights in blocking segment

SB970CR Scimitar Security Bollards



The **Avon SB970CR Scimitar Security Bollard** provides a high level of security against unauthorised vehicle access without the need for an outwardly aggressive appearance. Designed to withstand direct impact forces in excess of 1,800 KJ, the Bollard provides protection from extreme Vehicle Borne Improvised Explosive Device (VBIED) attack to sites where aesthetics and public perception are a consideration.

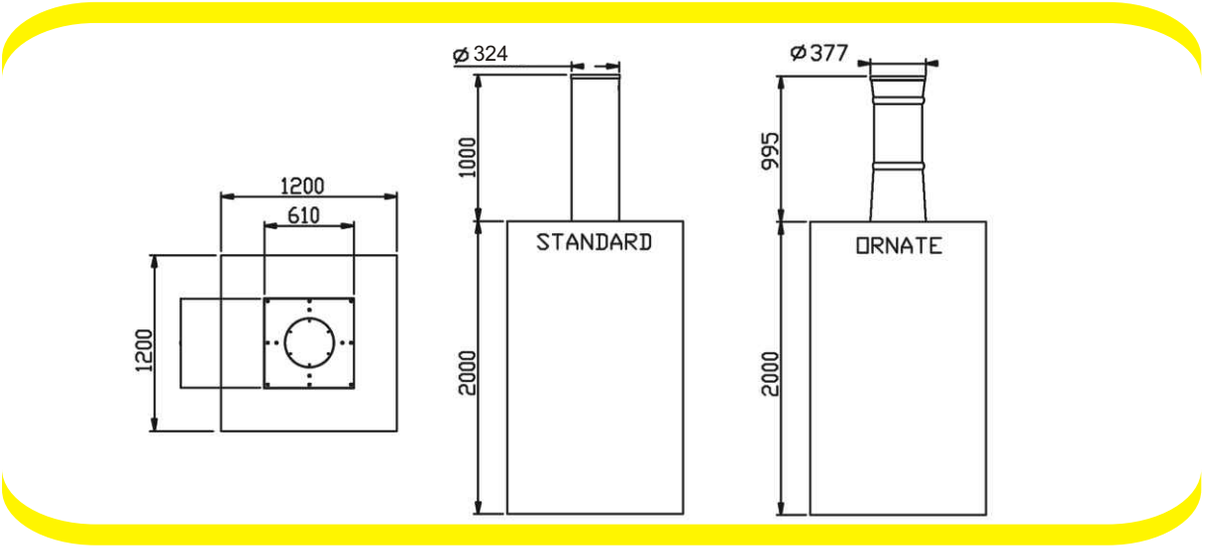
Designed and manufactured by engineers with significant experience in the fields of High Security and Access Control, the SB970CR is a highly dependable and yet unobtrusive security product that will easily interface with a wide range of control equipment. Units are assembled in our fabrication facilities using heavy gauge materials to give maximum strength and durability. This makes the SB970CR an ideal product to provide low profile yet fully effective protection for high security establishments, iconic buildings and critical infrastructure.

The SB970CR has been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL) both as a single unit and dual arrangement - two bollards installed at a distance of 1.5m between bollard centres.

The SB970CR is an Electro-Hydraulically operated bollard system with a 1000mm height when fully raised. The unit is comprised of a static sub-surface mounting tube and impact tube. Raised/Lowered back indication signalling can be provided to enable remote monitoring of the bollard status on a real time basis (optional).

The hydraulic power pack is controlled by a programmable logic controller (PLC) enabling connection of virtually any access control to the bollard. In addition, the HPU can provide outputs for a number of bollards for simultaneous operation. In the event of power failure a manual pump is provided to ensure operator control is Maintained.

SB970CR Scimitar Security Bollards



TECHNICAL DETAILS

Physical dimensions: HPU Cabinet - 640/940mm W x 670mm D x 1300mm H
Single Bollard - 610mm W x 610mm D x 2000mm H

Basic Power requirements: 3-Phase 415V AC, 50Hz, 20 Amps (other voltages are available) **Control Voltage S.E.L.V. 24v**

Performance: Loading - 20 Tonnes

Impact absorption: Single SB970CR -1852KJ (fully operational immediately after impact)
Dual SB970CR - 1852KJ (fully operational immediately after impact)
Standard Speed of operation - 6 Seconds to raise or lower

Construction: The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section completely encased with steel sheets to provide a self-shuttered module. The 324mm diameter bollard is constructed using hi-tensile structural steel.

Features

- Multiple testing (single bollard / multiple bollards)
- Unobtrusive appearance
- Minimal foundation requirement (2.25 cubic metres)
- Physically impact tested to highest PAS 68/69 criteria
- Manufactured from heavy gauge materials
- Manual hand pump facility
- Programmable Logic Control system
- 100% Duty cycling

Benefits

- Comprehensive understanding of attack resistance and confidence in individual bollard performance
- Aesthetically acceptable
- Ease of installation
- Confidence in proven performance
- Strength and Durability
- Operational under power failure conditions
- Flexibility to interface with all forms of access control
- Reliable and Dependable

Options Available

Each bollard system comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers, communication equipment and manned guard emergency systems can be accommodated. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a bollard controlled roadway, additional safety measures can be incorporated into the bollard system if required.

Where the bollard control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems.

- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Inductive loop systems
- Traffic lights and back-indication system
- Interlocking systems to give air-lock type protection on sites for higher threat levels
- Decorative sleeves (Fibreglass / Stainless steel)

EB950CR Armstrong Security Barrier

The **Avon EB950CR Armstrong Security Barrier** provides a high level of protection where central roadway foundations are not possible / practical. Designed to complement the Avon Barrier range of high security roadblockers the EB950CR can withstand direct impact forces in excess of 720 KJ, the Barrier provides shallow mounted protection to sites from extreme Vehicle Bourne Improvised Explosive Device (VBIED) attack.

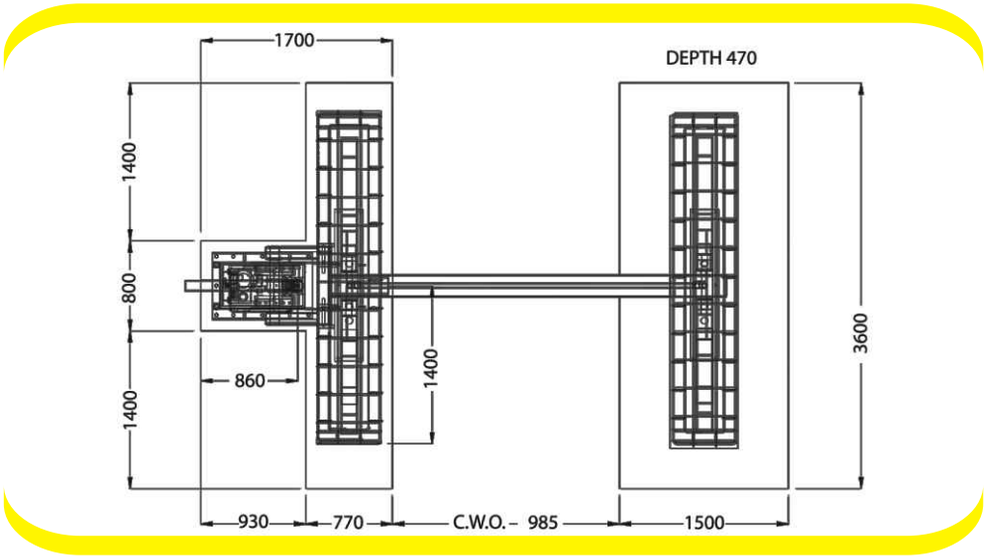
Developed by our in-house engineering team using the Company's significant historical expertise in rising arm barrier solutions coupled with the experience of impact resistance theory, the EB950CR is a highly dependable security product that will easily interface with a wide range of control equipment. Barriers are assembled in our fabrication facilities using heavy gauge materials to give maximum strength and durability. This makes the EB950CR a traditional looking control barrier with the benefits of high level physical protection.

The EB950CR has been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL).

The EB950CR is an Electro-Hydraulically operated rising arm barrier with arm widths of up to 4.5m span. The barrier arm sits 1m above the roadway and is supported by 2 side support frames. During impact the arm slides into a locked position protecting the main drive mechanism from damage. Raised/Lowered back indication signalling can be provided to enable remote monitoring of the barrier status on a real time basis (optional).

The hydraulic power pack is controlled by a programmable controller enabling connection of virtually any access control to the barrier. In the event of power failure a manual pump is provided to ensure operator control is maintained.

EB950CR Armstrong Security Barrier



TECHNICAL DETAILS

Physical dimensions:
Barrier Cabinet - 600mm W x 890mm D x 1230mm H
Barrier Arm - 5m max
Catcher foundations -1500mm W x 3600mm D x 470mm H

Basic Power requirements: Single phase 220V AC, 50Hz, 10 Amps **Control Voltage S.E.L.V. 24v**

Impact absorption: 723KJ (fully operational immediately after impact)
Standard Speed of operation - 8-10 Seconds to raise or lower

Construction: The Boom Catcher Frames are fabricated from heavy steel sections, which are anchored into the foundations; they are designed to support the boom in the lowered position and to take a full impact load. The recess in the catchers prevents the boom from lifting when impacted. Outboard extensions inhibit the vehicle running up the catcher frame. The boom is fabricated from heavy steel section clamped to a lift yoke which is designed to slip through its clamp in the event of a collision, to engage under the catcher frame recesses. The Lift Assembly comprises twin cranks welded to a solid shaft, which rotates in non-metallic bearings. A heavy-duty steel yoke is welded to the outer ends of the shaft. The crank is rotated through 90° by the action of a hydraulic cylinder. Main Cabinet is constructed from steel plate; it houses the hydraulic equipment/reservoir, drive mechanism and electrical enclosure.

Features

- Physically impact tested to PAS 68/69 criteria
- Shallow mounting from 450mm overall depth
- Manufactured from heavy gauge materials
- Manual hand pump facility
- Programmable Controller
- 100% Duty cycling

Benefits

- Confidence in proven performance
- Overcomes site depth restrictions
- Strength and Durability
- Operational under power failure conditions
- Flexibility to interface with all forms of access control
- Reliable and Dependable

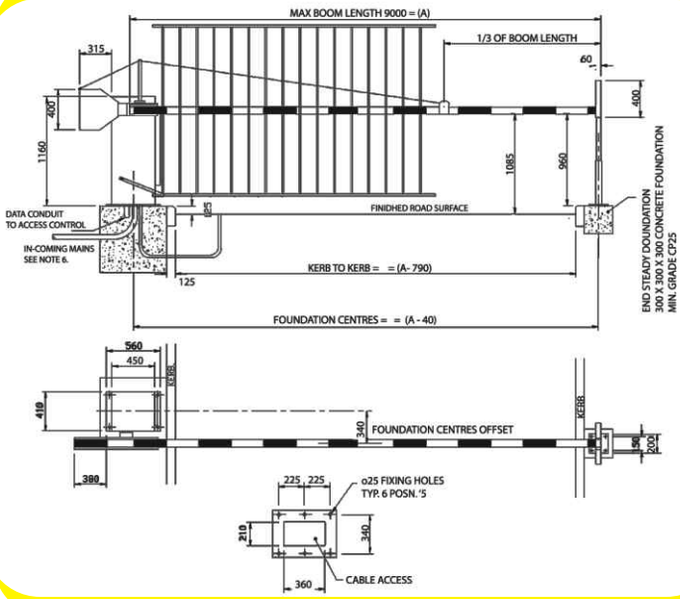
Options Available

The Barrier comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers and communication equipment can be accommodated. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a barrier controlled roadway, additional safety measures can be incorporated into the barrier system if required.

Where the Barrier control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems.

- Emergency buttons with lock down
- UPS backup for the electrical system
- Accumulator systems for hydraulic operation in power fail conditions
- Access control and Intercom systems
- Inductive loop systems
- Traffic lights and back-indication system
- Interlocking systems to give air-lock type protection on sites for higher threat levels
- Integral inset warning lights

EB950 Triumph Security Barrier



The **Avon EB950 Triumph Barrier** is ideal for industrial car parks and security control; it can easily integrate with access control systems and is recommended for a wider road width or if signage, lights or skirts are required for the boom.

The Barrier stands 1160mm above foundation level with the boom 960mm above foundation level. The high duty cycling 24vdc linear actuator connects to the drive shaft via a torsion arm providing an operating speed of approximately 10 seconds. An industrial grade gas strut is used to provide additional counterbalancing and dampening thus giving a smooth operation.

The steel cabinet is shot blasted, primed and powder coated (RAL1007) and houses the control panel, linear actuator with manual winding facility and the limit switches.

Barriers with booms in excess of 5m or where collapsible skirts are fitted require end supports to aid boom rigidity.

TECHNICAL DETAILS

Physical dimensions:	Cabinet - 410mm W x 450mm D x 1160mm H
Basic Power requirements:	230V single phase, 50Hz, 6 Amp **Control Voltage S.E.L.V. 24v**
Standard Speed of operation	10 Seconds to raise or lower
Boom Height:	1085mm underside of boom to road surface (125mm kerb)
Approx weight	185kg

Construction: The steel cabinet is shot blasted, primed and powder coated (RAL1007 other options available). The GRP booms are circular section 82mm in diameter and supplied white with red bands. Max Length 9m

It is recommended that the barrier is secured to the foundations using 4 nos M16 x 190mm chemical anchors. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a barrier controlled roadway, additional safety measures can be incorporated into the barrier system if required.

Features

- High duty cycling
- Electro-mechanical linear actuator
- Fast acting
- Multi-process coating specification
- Modular design
- Manual winding facility
- 230V single phase 50Hz 6A

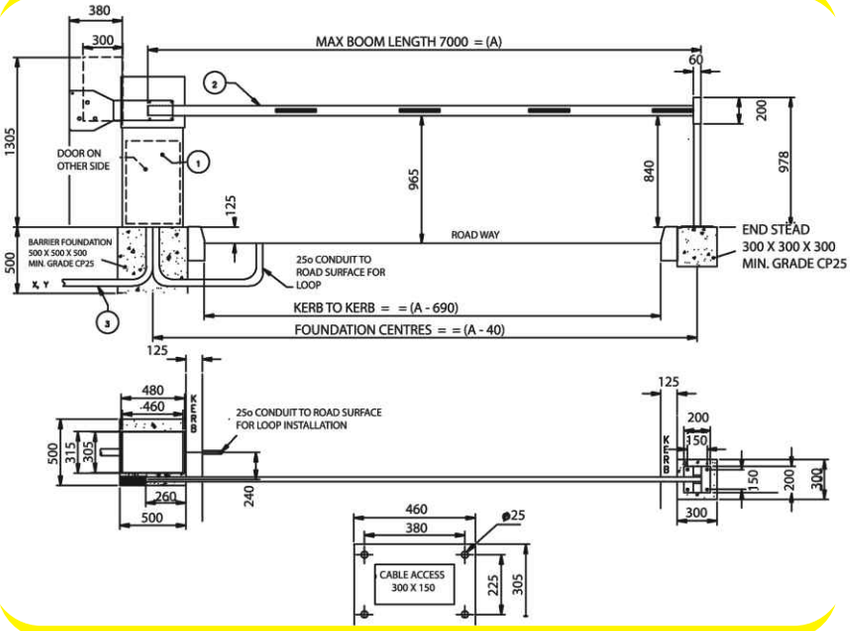
Benefits

- Reliability
- Low maintenance
- Service spares
- Manual operation in the event of power failure
- Ease of installation

Options Available

- Access control and Intercom systems
- Boom lights
- Skirts underslung/full height
- Inductive loop systems
- Safety buffer
- Stop/No Entry/Warning signage

EB750 Excel Barrier



The **Avon EB750 Excel Barrier** is ideal for car parks and security control; it can easily integrate with revenue collection and access control systems and is recommended for a wider road width or if signage, lights or skirts are required for the boom.

The Barrier stands1135mm above foundation level, with the boom 840mm above foundation level. The heavy duty motor plate supports the 100% duty cycle permanent capacitor 4 pole T.E.F.C. motor which provides the power for the toothed belt driven industrial grade gearbox, which in turn drives the sinusoidal output mechanism. Two heavy duty bearings support the drive shaft, this having 2 machined cams to activate the adjustable limit switches to control the boom travel.

The hinged lockable steel top cover provides access to the drive mechanism. The cabinet houses the control panel, providing the necessary power supply isolator, fuses thermal overload trips and motor contactors. For boom lengths greater than 5m a straining wire is added for additional stability, along with an adjustable spring loaded end steady/pogo support to suit, recommended when equipment is added to the boom.

TECHNICAL DETAILS

Physical dimensions:	Cabinet - 305mm W x 460mm D x 1135mm H
Basic Power requirements:	230V single phase, 50Hz, 6 Amp **Control voltage S.E.L.V. 24v**
Standard Speed of operation	4.2 Seconds to raise or lower
Boom Height:	965mm underside of boom to road surface (125mm kerb)
Approx weight	130kg

Construction: The steel cabinet is shot blasted, primed and powder coated (RAL1007 other options available). Booms profile - Rectangular extruded aluminium 76 x 38mm white powder coated with red fascal strips. Max length 7m

It is recommended that the barrier is secured to the foundations using 4 nos M12 x 160mm chemical anchors. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a barrier controlled roadway, additional safety measures can be incorporated into the barrier system if required.

Features

- 100% Duty Cycling
- Electro-mechanical drive unit
- Fast acting 4.2 secs
- Multi-process coating specification
- Modular design
- Winding handle facility
- 230V single phase 50Hz 6A

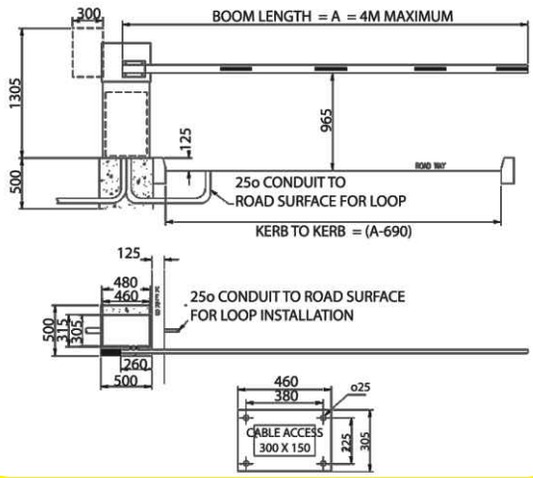
Benefits

- Reliability
- Low maintenance
- Service spares
- Manual operation in the event of power failure
- Ease of installation

Options Available

- Access control and Intercom systems
- Boom lights
- Skirts underslung/full height
- Inductive loop systems
- Boom shear facility (up to 3m)
- Stop/No Entry/Warning signage

EB450 Parking Barrier



The **Avon EB450 Parking Barrier** is ideal for medium to high usage car parks and security control; it can easily integrate with revenue collection and access control systems.

The Barrier stands1135mm above foundation level, with the boom 840mm above foundation level, the heavy duty motor plate supports the 100% duty cycle permanent capacitor 4 pole T.E.F.C. motor which provides the power for the sinusoidal drive mechanism via an industrial grade low ratio gearbox. Two heavy duty bearings support the drive shaft, this having 2 machined cams to activate the adjustable limit switches to control the boom travel.

The hinged lockable steel top cover provides access to the drive mechanism. The cabinet houses the barrier 'parking logic' control panel, providing the necessary power supply isolator, fuses, thermal overload trips and motor contactors.

An integral support is provided to maintain the boom in the horizontal position, but an adjustable spring loaded end steady can be supplied if required.

TECHNICAL DETAILS

Physical dimensions:	Cabinet - 305mm W x 460mm D x 1135mm H
Basic Power requirements:	230v single phase, 50Hz, 6 Amp **Control voltage S.E.L.V. 24v**
Standard Speed of operation	2.4 Seconds to raise or lower
Boom Height:	965mm underside of boom to road surface (125mm kerb)
Approx weight	105kg

Construction: The steel cabinet is shot blasted, primed and powder coated (RAL1007 other options available). Boom profile - Rectangular extruded aluminium 76 x 38mm white powder coated with red fascal strips. Max length 4m

It is recommended that the barrier is secured to the foundations using 4 nos M12 x 160mm chemical anchors. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a barrier controlled roadway, additional safety measures can be incorporated into the barrier system if required.

Features

- 100% Duty Cycling
- Electro-mechanical drive unit
- Fast acting 2.4 secs
- Multi-process coating specification
- Modular design
- Winding handle facility
- 230V single phase 50Hz 6A

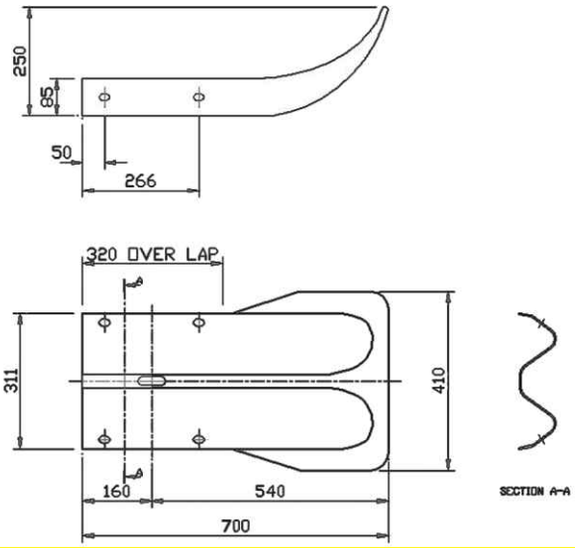
Benefits

- Reliability
- Low maintenance
- Service spares
- Manual operation in the event of power failure
- Ease of installation

Options Available

- Access control and Intercom systems
- Boom crank facility (up to 3m)
- Boom shear facility (up to 3m)
- Alternative cabinet colours available
- Inductive loop systems
- Boom lights
- Stop/No Entry/Warning signage

Avon Safety Barrier Systems



Avon Edge Protection Barrier System is designed to both exceed the British Standards and comply with the recommendations of the DETR report by the Transport Research Laboratory (TRL) which is the defined standard for Multi Storey Car Park edge protection.

It is designed to withstand the head-on impact of a 1500kg car travelling at 16kph. The impact design height is 445mm and not the 375mm detailed in earlier standards and all posts, rails and fixings have been reassessed to confirm their compliance.

The Avon Safety Barrier System is used for surface car park delineation, infrastructure protection and approach lane containment where there is a risk to the motorist. It uses the same barrier rail as the edge protection system mounted on either base plate mounted rubber cushion posts or rigid RSJ posts. Sub-surface mounted RSJ or low cost sacrificial "Z" posts are also available and post centres can be set at up to 3200mm.

Avon Pedestrian Protection is a combined safety rail, pedestrian guard panel and pedestrian hand rail system with either sub surface or base plate mounting. Railing panels are constructed from mild steel sections which are then fully galvanised to protect against oxidistation and can be painted to give an aesthetically enhanced finish.

Pedestrian guard panels and hand rails can be added to the support posts to provide an integrated solution. Standard panels include 50mm x 50mm mesh and perforated, although any design to suit architectural requirements can be considered.

TECHNICAL DETAILS

Avon Edge Protection
The system incorporates 310 x 85 x 3mm sine wave untensioned crash rail mounted on either sub-surface or base plate mounted 127 x 76 x13mm RSJ posts set at 1600mm centres. Enhanced strengthening is provided by reducing the post centres to 800mm
Avon Safety Barrier
3.5m lengths (effective length 3.2m)
Corrugated beam section 3mm thick
The RSJ type posts are available in bolt down and grout in form at different heights and can be installed at different post centres to suit site (1.6m/3.2m) Enhanced strengthening is provided by reducing the post centres to 800mm

Features

- Impact Tested
- Bolt down/grout in post system
- Varying post centres and beam heights
- Hot dip galvanised BS729

Benefits

- Confidence in proven protection
- Ease of installation
- Application Flexibility
- Strength and Durability

Options Available

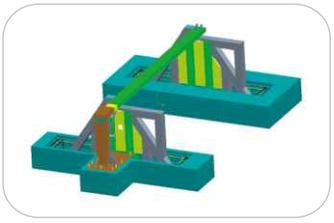
- Optional fixings for reinforced car park decks
- Optional infill for Pedestrian Protection
- Various Designs
- Optional paint finishes for Pedestrian Protection
- Fish Tail Ends

SG1500CR/SG1100CR High Impact Sliding Gate GC1100CR High Impact Hinged Gate

The **Avon High Impact Sliding Gate** range provides a high level of security against unauthorised vehicle access. Designed to withstand substantial direct impact forces the gates are ideally suited to protect sites from extreme aggressive attacks.

Designed and manufactured by engineers with significant experience in the fields of High Security and Access Control, the gates are highly dependable security products. Gate designs incorporate fully crash tested vehicle restraint systems which enable a wide range of gate heights, clear widths and infill types to be provided. Foundation depths are from under 500mm subject to gate design.

All three gates have been independently crash tested by the Transport Research Laboratory (TRL). The impact test used a weighted 7,500kg vehicle travelling at 80kph.



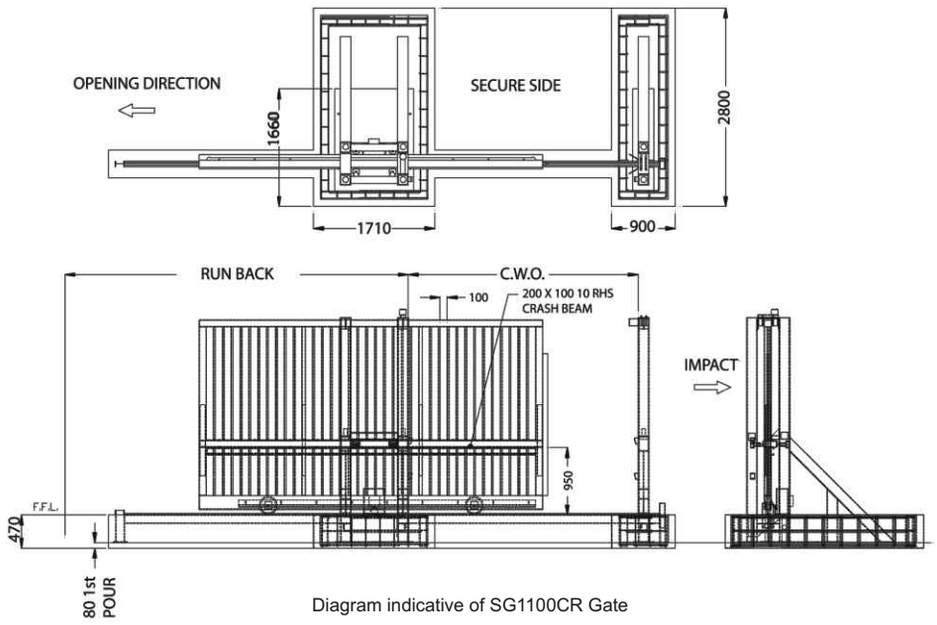


Diagram indicative of SG1100CR Gate

TECHNICAL DETAILS

Physical dimensions: To suit site requirements
Power requirements: Subject to gate size and construction
Impact absorption: 1852KJ
Construction: The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section.

Features

- Physically impact tested to highest PAS 68/69 criteria.
- Manufactured from heavy gauge materials
- Variable height and clear widths
- Manual operating override facility
- High quality coating system (minimum galvanised).
- Shallow mounting less than 500mm overall depth

Benefits

- Confidence in proven performance
- Strength and Durability
- Operational under power failure conditions
- Flexibility to suit site requirements
- Reliable and Dependable
- Overcomes site depth restrictions

Options Available

The Gate comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) inductive loop systems, card readers, communication equipment and manned guard emergency systems can be accommodated. For safety reasons pedestrians, cyclists and motorcycles are advised not to use a gate controlled roadway, additional safety measures can be incorporated into the gate system if required.

Where the Gate control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system, traffic lights and safety inductive loop systems.

- Emergency buttons with lock down
- UPS backup for the electrical system
- Access control and Intercom systems
- Inductive loop systems
- Traffic lights and back indication system
- Gate Infills and cladding
- Serrated / Barbed Wire toppings
- Matching infill panels

Gates

The **Avon Cantilever Sliding Gate** comes in variety of widths and heights to suit site requirements and are manufactured from RHS sections of sufficient strength to suit operating requirements which are dependant upon opening width, height, type of infill (windloading/weight) and the level of security required.

The cantilever gate has 2 sets of guide posts with tension wheels to hold the leaf in the vertical position. The gate is driven by a rack and pinion system. It requires no track or support across the roadway The gate leaf is supported by a cantilever support carriage. It has been designed to withstand high flows of traffic and varying environmental conditions. A variety of sizes,infills and finishes are available to suit individual site applications.

The Avon Groundtrack Sliding Gate provides an identical level of security to the cantilever gate but requires a shorter run back area making it possible for installation in restricted space/areas. It is an ideal security solution when restricting access to a wider road width.

The gate leaf is held in the vertical plane by a set of guide posts with adjustable guide rollers and driven by a rack and pinion. All drive units mechanically lock the leafs in position with the option for a positive locking mechanism.

It has been designed to withstand high flows of traffic and varying environmental conditions. A variety of sizes,infills and finishes are available to suit individual site applications.

The **Avon Hinged Gate** provides a secure and robust means of vehicle and pedestrian access control for wider road widths The gate can span openings of six metres (single leaf) or up to 10 metres (double leaf), subject to height and infill.

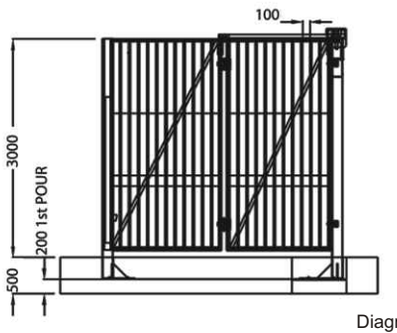
The hinged gates are post mounted via adjustable hinges with grease points to ease operation. They have a leaf mounted drive arm or alternatively a sub-surface drive unit, should the environment require an aesthetically acceptable option

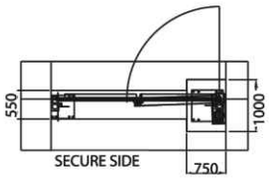
The Avon Speed Gate is a bi-folding trackless gate which opens and closes in 6 seconds to maintain site security and can span openings of up to 5m subject to the height and infill requirements.

The Speed Gate system is suspended from a single heavy gauge post, via hinges fitted with greasing points for ease of operation. The system is powered by an electromechanical drive unit mounted at high level which can easily be switched to manual operation in the event of a power failure.

It has been designed to withstand high flows of traffic and varying environmental conditions, with a variety of infills and finishes being available to suit individual site applications.

Gates





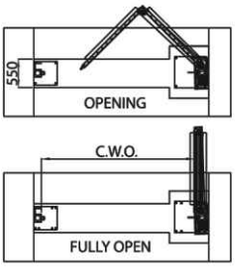


Diagram indicative of Avon Speed Gate

TECHNICAL DETAILS

Power Requirements
230V, Single phase 50Hz 10A Supply
230V/400V 3 phase option (110V option on request)

Gate Infill:
Vertical bar: RHS & CHS
Welded mesh
Sheet clad
Corrugated palisade

Security Topping:
Barbed/Razor Wire
Spikes
Serrated top

Options - In accordance with the Workplace (Health, Safety and Welfare) Regulations 1992, BS EN 12453:2001 and BS EN 12445:2001 it is highly recommended that the following items are fitted to your gate.

- Safety Edge to leading edge of gateleaf - to prevent the gate closing on a person or vehicle in the event it is activated.
- Additional safety edges to internal and external motor posts
- Weldmesh infill
- Gate post mounted audible alarm or flashing beacon
- Pedestrian guard rail around run-back area. This is to prevent injury to a person, should they stray into that area whilst the gate is operating.
- Safety induction loops cut into the road surface. This will inhibit the gate closing on to a vehicle within the aperture, if detected.
- Safety photocells. Act as additional safety for pedestrians and high lorries.

Features

- High Quality Coating System
- Individually Designed Units
- Manual override facility
- 230V Single phase 50Hz 10A

Benefits

- Environmentally durable
- Custom built to client specification
- Operational during power failure conditions
- Ease of installation

Options Available

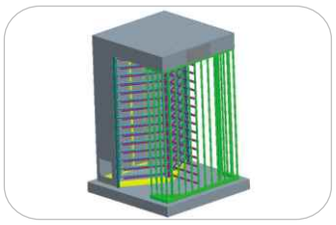
- Traffic lights and back-indication systems
- Inductive loop systems
- Audible Alarm
- Safety Edge
- Access control and Intercom systems
- Safety Photocells
- Flashing Beacon
- Pedestrian Guard Rail
- Matching infills and cladding
- Serrated / Barbed Wire toppings

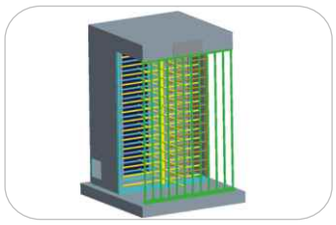
Turnstiles

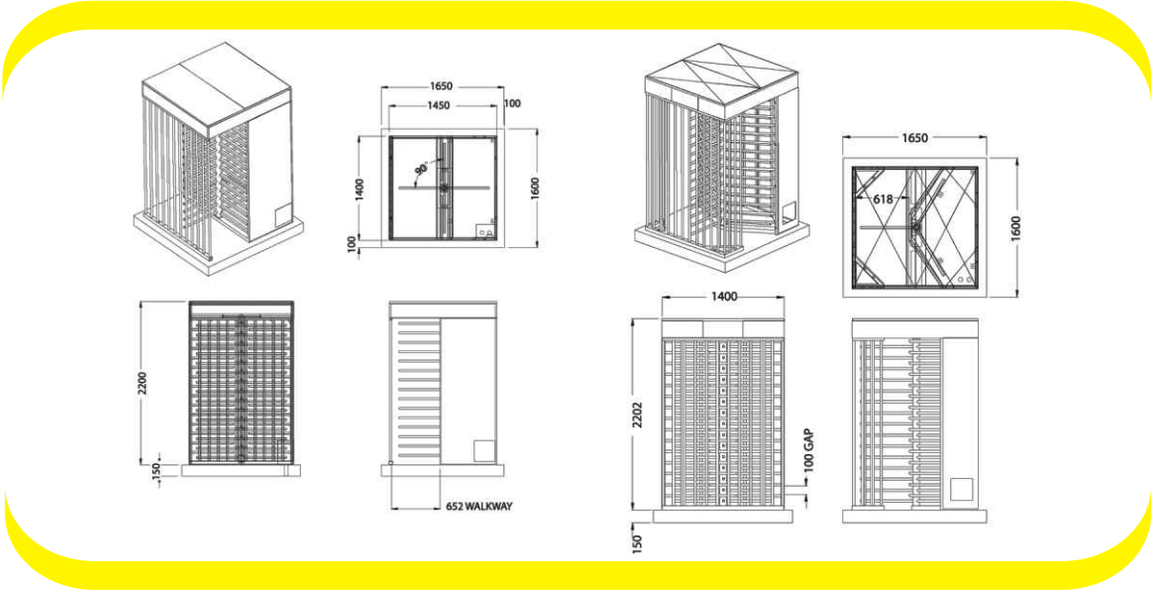
The **Avon Turnstile Systems** are ideal for securing pedestrian entrance ways against unauthorised access. Designed and maunfactured in the UK, these turnstiles will provide additional security and enhance any unguarded pedestrian entrance to a site. Available in a range of designs and operating modes they can be interfaced with all forms of access control.

Turnstile systems come in various options and are manufactured as standard from steel sections and sheets which are fully galvanised. The Full-Height Turnstile is constructed from steel framed panels with a combination of sheet and bar infill. The sections are modular in design giving ease of installation.

Turnstiles







TECHNICAL DETAILS

Turnstile types:
4 arm 90° version
3 arm 120° version

Control Mechanisms:
Free wheel – single direction only Controlled access single/dual direction 12/24V

Rotor Options: Tubular or Hooped bars

Standard Height

Features

- High Quality Coating System:
- Robust construction
- Rotor options 90°/120°
- Modular construction

Benefits

- Low maintenance
- Reliable and Dependable
- Secure
- Ease of installation

Options Available

The Turnstile comes with a push-button control as standard, however it can be customised to interface with a wide range of access control equipment to suit specific customer requirements (available as options) and any configuration including (but not limited to) card readers, and communication equipment.

Where the Turnstile control point is remote from the installation, we strongly recommend the fitting of a recordable CCTV system.

- Access control and Intercom systems
- Canopy - with/without down lights
- Battery backup facility
- Power failure – lock/free wheel
- Indicator lights
- Access Control mounting plates
- Adjacent disabled access gate
- Stainless steel/ Painted
- Anti climb topping
- Guide railings

SB970CR Static Security Bollards

The **Avon SB970CR Static Security Bollard** provides a high level of security against unauthorised vehicle access without the need for an outwardly aggressive appearance. Designed to withstand direct impact forces in excess of 1,800 KJ, the Bollard provides protection from extreme Vehicle Borne Improvised Explosive Device (VBIED)attack to sites where aesthetics and public perception are a consideration.

Designed and manufactured by engineers with significant experience in the fields of High Security and Access Control, the SB970CR is a highly dependable security and yet unobtrusive product that will easily interface with a wide range of control equipment.

Units are assembled in our fabrication facilities using heavy gauge materials to give maximum strength and durability. This makes the SB970CR the ideal product to provide low profile yet fully effective protection for high security establishments, iconic buildings and critical infrastructure.

The SB970CR has been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL) both as a single unit and dual arrangement.

TECHNICAL DETAILS

Impact absorption:
Single SB970CR - 1852KJ
Dual SB970CR - 1852KJ

Construction:
The supporting framework is constructed from fully welded, heavy gauge, steel angle and box section completely encased with steel sheets to provide a self-shuttered module. The 324mm diameter bollard is constructed using hi-tensile structural steel

Features

- Multiple testing (Single Bollard / Multiple Bollards)
- Unobtrusive appearance
- Minimal foundation requirement (2.25 cubic metres)
- Physically impact tested to highest PAS 68/69 criteria
- Manufactured from heavy gauge materials

Benefits

- Comprehensive understanding of attack resistance and confidence in individual bollard performance
- Aesthetically acceptable
- Ease of installation
- Confidence in proven performance
- Strength and Durability

Options Available

- Ornate sleeves
- Stainless Steel
- Paint finishes to suit corporate identities

Static Security Bollards

The Citadel,Westminster and Excalibur Static Security Bollard provide a high level of security against unauthorised vehicle access without the need for an outwardly aggressive appearance.

The Bollards provide protection from extreme Vehicle Borne Improvised Explosive Device (VBIED)attack to sites where aesthetics are a consideration.

Manufactured from micro structurally engineered steel, of high impact toughness, having the ability to absorb very large amounts of energy without fracture.

Their sophisticated and elegant appearance allows them to merge into all architectural styles without appearing intrusive. This is complemented by the minimal amount of ground area they occupy making them ideal for situations where space is at a premium.

They have all been independently **physically tested** in a number of full scale crash tests conducted in accordance with PAS 68 by the Transport Research Laboratory (TRL) both as a single unit and dual arrangement.

TECHNICAL DETAILS

Height (above ground level)	Westminster	- 1065mm
	Citadel	- 1000mm
	Excalibur 90/125	- 1000mm

Impact absorption: Test Ratings
Westminster 7,500kg at 80kph (50mph)
Citadel 3,500kg at 80kph (50mph)
Excalibur 90 1,500kg at 48kph (30mph)
Excalibur 125 3,500kg at 48kph (30mph)

Weight Westminster - 380kg
Citadel - 295kg
Excalibur 90 - 70kg
Excalibur 125 - 155kg

Construction: Micro structurally engineered steel

Options Available

- Rope or chain linked – Citadel only
- Section for corporate insignia - Wesminster
- Selection of sleeve and design covers to suit customers including stainless steel

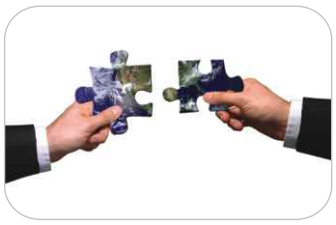
Avon Barrier Support

Avon Barrier's significant experience in the perimeter security market , make them an ideal partner to work with and are proficient in all aspects of project implementation from concept system design through equipment design / manufacture to installation and maintenance support.

Avon Barrier has a clear aim to provide a complete solution to their clients security needs by developing long term relationships it can advise and design solutions to the ever increasing burden of security

Our network of offices and approved installers worldwide enables us to offer global operational support on a more local basis.

Avon Barrier Support



CONSULTANCY / DESIGN

- Advice
- Solutions
- Expertise
- Site Surveys
- Manufacturing
- Product Development
- Partnerships
- Bespoke Designs

PROJECT MANAGEMENT

- Client Partnership
- Estimating
- Progress reports
- Quality
- Site Preparation
- Civil Works
- Installation
- Commissioning

TECHNICAL SUPPORT

- Worldwide Technical Support Engineers
- On-Line Drawings and Manuals
- Training
- Fault Diagnosis
- Telephone and on line support

AFTER SALES CARE

- Worldwide First Line Service Engineers
- Extended Warranty
- Service Response and Maintenance Contracts
- Spares and Parts Department

Preventative Maintenance Plans

Buying a system from Avon Barrier automatically offers you a 12 months parts warranty. Onsite maintenance and breakdown call outs can be covered under a preventative maintenance plan.

All of Avon Barrier's products will require routine maintenance to maximize life expectancy and prevent premature wear.

(NB the equipment's warranty is subject to evidence of maintenance in accordance with equipment O&M Manual)

Avon Barrier Company Ltd

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"Determined Solutions to Determined Threats"

Avon Barrier Company Ltd

Head Office

191-195 South Liberty Lane,

Ashton Vale Trading Estate, Bristol BS3 2TN UK

Tel: +44 (117) 953 5252 Fax: +44 (117) 953 5373

E-Mail: sales@avon-barrier.co.uk Website: www.avon-barrier.co.uk