



## Bollards

Rising & Static  
PAS 68 & Security Ranges



## Product Brochures



FP2  
Security Sliding Gates

Also available:

[Corporate Brochure](#)

[Your Guide to PAS 68](#)



FP2.1  
Barricade Beams



FP3  
Hinged/Swing Security Gates



FP4  
Automatic Drop/Rising Arm Barriers



FP5  
Road Blockers & Rising Kerbs



FP5.1  
Rising & Static Bollards



FP6  
Manual Perimeter Security



FP7  
Pedestrian Gates & Turnstiles

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## Why Use Frontier Pitts?



From our UK HQ  
in Crawley, West Sussex



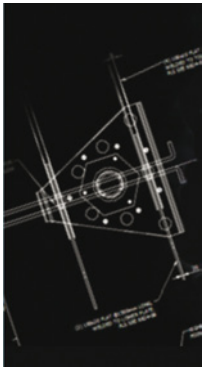
Frontier Pitts is more than just a Manufacturer:

90 years experience & accredited to BSi ISO 9001

National & International. Installations in over 90 countries

95 directly employed personnel, including multi-lingual staff  
& personnel that have been Frontier Pitts for 30+ years

Technical Consultants based at regional offices will visit  
any site within the British Isles, without charge or obligation,  
offering technical advice on the most appropriate & effective  
perimeter security solutions. Including BSi PAS 68 & CEN CWA  
16221 standards.



Directly employed sales & support staff

Large product portfolio to suit all budgets & requirements

Standard product specifications are complimented by our  
bespoke design service. Previous accomplishments include a  
sliding gate system which secures a 70 metre aperture

Full 3D CAD Design. Site specific drawings issued to clients

British Engineering - Designed & built to last

Mechanical & Electrical Engineering Research & Development  
Programs

Comprehensive Training Program; ensures the client always  
receives the very best of our technical expertise

Dedicated Project Manager for each project. All work is  
executed under the strict control of our specially trained PMs

Fleet of vehicles including HGV's to ensure the equipment is  
safely delivered to site, with full ID tracking for security



## Accreditations



### Secured by Design



Official Police Security Initiative



Highly skilled, dedicated Mechanical & Electrical Field Engineers

Installation, Commissioning, Service & Maintenance

24hr / 7days a week manned UK Call Centre & Nationwide Breakdown Service

A range of Maintenance Contracts available to suit individual site requirements

Maintenance Contracts with response times in as little as 4 hours  
Comprehensive Customer Service

Highly skilled, directly employed engineers located nationally.  
Frontier Pitts do not use Sub Contractors

Full Installation & Commissioning Service

Civil, Electrical & Ground Works Team

BSi ISO 9001 Accredited and LPCB approved to LPS 1175

Verified and Founder member of the PSSA - Perimeter Security Suppliers Association - with the aim to raise the standards of the industry.

In house resources & skills - IT, Engineering, Fabricating, Maintenance & Installation - to overcome any possible obstacle

Spares Department, holding on average £200K of stock

Frontier Pitts is highly recommended by our existing & previous customers

Extra Fast Repair & Refurbishment for existing customers.

Total customer care for your peace of mind

In house secure IT servers, latest software and hardware

Experience of 'List X' regulations and data security.

Bollards are designed to offer an impact-resistant barrier to vehicle access, whilst allowing access to pedestrians. Such installations may range from shopping centres and complexes, stadiums, sport centres, promenades, airports and ports. Frontier Pitts manufacture a large portfolio of bollard, from manual bollards through to counter terrorist PAS 68 Terra Bollards. Frontier Pitts will supply a system designed to meet the individual sites exact needs. There are various options to consider when specifying your bollard:-

1. Which product range? PAS 68 Impact Tested HVM Anti Terra Range or Security Range
2. Width of road that requires bollards - therefore number of bollards required.
3. Other accessory requirements; including location of the control cabinet
4. Conditions on site (weather/temperature, usage, etc)

Frontier Pitts manufacture a wide range of hydraulically operated, rising/active bollards, and static (passive/fixed) bollards to suit individual site requirements.

Our Security Range includes our rising/active hydraulic bollard which has a lift height of 600mm (450mm and 900mm lift heights also available) and our static bollards which are available in various heights above ground and diameters.

Rising Bollards have a 100% duty rating; they will generally operate an unlimited number of cycles per hour.

Power is supplied from a three phase supply as standard, however single phase 230V supply is possible. Allows rapid traffic flow with operating times of 3-6 seconds, dependent on configuration.

Bollards give added security where vandalism is a risk.



Rising Bollards




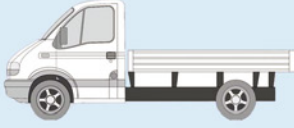
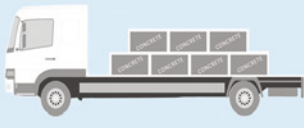

Static Bollards

## PAS 68 Rising & Static Terra Bollards



The Anti Terra range includes equipment successfully impact tested to the BSi PAS 68 specification. The different category ratings are all designed to illustrate how the perimeter security equipment will arrest an energy created by various masses and speeds, as illustrated below:

### Vehicle & Vehicle Mass

| M1  | N1  | N2   | N3  |
|---|---|--|---|
|  |  |  |  |
| 1500kg  | 3500kg  | 7500kg laden   | 7500kg empty 18000kg  |

|        |               |               |               |
|--------|---------------|---------------|---------------|
| Speeds | 30mph / 48kph | 40mph / 64kph | 50mph / 80kph |
|--------|---------------|---------------|---------------|

When specifying your PAS 68 equipment, first establish what speed the different types of vehicles could reach on site before approaching the barrier & therefore how much energy the barrier may need to stop.

For further information please see Frontier Pitts "Your Guide to PAS 68" or contact the PAS 68 Specialist Technical Consultant on 01293 422800

### Terra Bollards, Rising & Static

successfully impact tested to PAS 68 & K12



- Terra Rising Bollards
- Terra Saturn Bollards
- Terra Pyramids Bollards
- Terra Alloy Bollards
- Terra Jupiter Bollards
- Terra Mars Bollards
- Terra Neptune Bollards
- Terra Venus Bollards

|        |    |    |    |      |      |
|--------|----|----|----|------|------|
| 7500kg | N2 | 80 | 90 | 5.0  | 9.2  |
| 7500kg | N2 | 48 | 90 | 1.71 | 0.0  |
| 7500kg | N1 | 48 | 90 | 0.0  | 0.0  |
| 7500kg | N2 | 80 | 90 | 10.6 | 11.1 |
| 7500kg | N2 | 64 | 90 | 4.0  | 16.7 |
| 7500kg | N2 | 64 | 90 | 3.3  | 0.0  |
| 7500kg | N2 | 48 | 90 | 0.0  | 0.0  |





## iBollard

Lift Height of 600mm as standard  
Diameter 168mmø



The iBollard is a hydraulically powered rising bollard and has a lift height of 600mm.

Active Bollards provide automated vehicle access control.

Typical operating speeds of 5-9 seconds\* depending on configuration.

Power is supplied from a single phase 230V power supply.

It is recommended that the rising bollard's control cabinet is installed within 10metres of the unit.

Accessories Included: Traffic Control Light system. Highly recommended with all rising bollards.

Accessories Optional: Reflective tape, LED Warning Lights, Traffic lights, Signage & vandal resistant light cages. Please see page 16

Access controls: A wide range of access control systems are available. Please see page 18

Safety control systems: Vehicle detector loops, safety photocells and ultra-sonic sensors are available. Please see page 18.

Finish: Stainless Steel or Painted Stainless Tube.  
*\*This is subject to a risk assessment to ensure the automatic equipment complies to BS EN 12453*



## Static Bollards

Various heights above ground and diameters



Frontier Pitts also has a large portfolio of manual fixed bollards, including static and telescopic models, with a range of wall thickness, heights above ground, foundation depths and finishes

For more information, please contact the Technical Sales Department on 01293 422800 or [sales@frontierpitts.com](mailto:sales@frontierpitts.com)



The PAS 68 Rising Terra Bollards from Frontier Pitts is a counter terrorist bollard, hydraulically driven for reliability & strength.



## PAS 68 Rising Terra Bollard

V Bollards 7500[N2]/80/90:5.0/9.2

*Tested dimensions : lift height 900mm*



Successfully impact tested to the BSi PAS 68 specification stopping a 7500kg N2 vehicle travelling at 50mph (80kph) which equates to 1852kJ.

Lift height 900mm. BSi PAS 68 Bollards are required to be installed at 1200mm between upright bollard faces to meet BSi PAS 69:2006 guidelines.

Stainless steel finish as standard.  
Painted powder coating optional.  
Matching Static Terra Saturn Bollards are available.

Hydraulically driven. Designed for ease of installation and maintenance.

### BENEFITS & FEATURES

Fully functional after impact test.  
Hydraulically operated 400V  
100% duty rating, instantly reversible  
Impact tested to BSi PAS 68  
Wide range of Accessories available.  
Control cabinet recommended to be installed within 10 metres of bollard.  
Further bespoke systems available.



Left - Terra Bollard with Special painted finish



Applications: Sites that require a PAS 68 restriction on vehicle access whilst allowing free passage by pedestrians

High Security | Anti Terrorist | Government Institutions  
Military Bases | Embassies | Airports |



In event of Power Failure

Fail safe (opens to the lowered position)

Fail secure (remains in the raised position)

Option of an automatic Accumulator or a manual hand pump is available if the bollard is to be re-raised during power failure.

DUTY CYCLE – 100%

OPERATING SPEED

Typical speeds of 4-10 seconds\* depending on configuration.

OPTIONAL ACCESSORIES - Please see page 16

Accumulator – allows a number of operations in power failure mode

EFO (Extra Fast Operation)

100/200mm Traffic Light System

Manual Hand pump

High Security Cabinet

SAFETY - Option of vehicle detector loops and safety photocell beams.

CIVIL REQUIREMENTS

L:2080mm W:2100mm x D:1450mm

(Note: Power and control wiring ducts required).

Control Cabinet Foundation

L:600mm x W:900mm x D:300mm

ELECTRICAL REQUIREMENTS POWER

Three Phase Supply

*\*This is subject to a risk assessment to ensure the automatic equipment complies to BS EN 12453*





## PAS 68 Static Terra Saturn Bollards

The Static Terra Saturn Bollard is designed to match the PAS 68 Active Terra Bollards  
Height above ground : 900mm



The Static Terra Saturn Bollard match the Rising Terra Bollards and create a perimeter protection line.

Installation in accordance with BSi PAS 69:2006; bollards should be spaced at 1200mm between upright bollard faces.

Painted powder coating finish as standard.  
Stainless steel finish available on request.

### CIVIL REQUIREMENTS

W: 900mm x D: 900mm x L: 900mm

Right: Static Terra Saturn Bollards installed alongside Rising Active & Static Bollards, providing perimeter protection from unauthorised vehicles whilst allowing pedestrian access



The Static PAS 68 Terra Mars Bollards with SMT (Shallow Mount Technology) from Frontier Pitts.  
Applications: Ideal for inner city sites where foundation depths are limited.

## PAS 68 SMT Terra Mars Bollards

V Bollards 7500[N2]/48/90:1.71/0.0 Energy - 667kJ  
*Tested dimensions : height above ground 1050mm*



Height above ground 1050mm  
BSi PAS 68 Bollards are required to be installed at a distance of 1200mm between upright bollard faces to meet BSi PAS 69:2006 guidelines.

Designed for easy installation

Stainless steel finish as standard

### BENEFITS & FEATURES

Shallow Mount Technology.

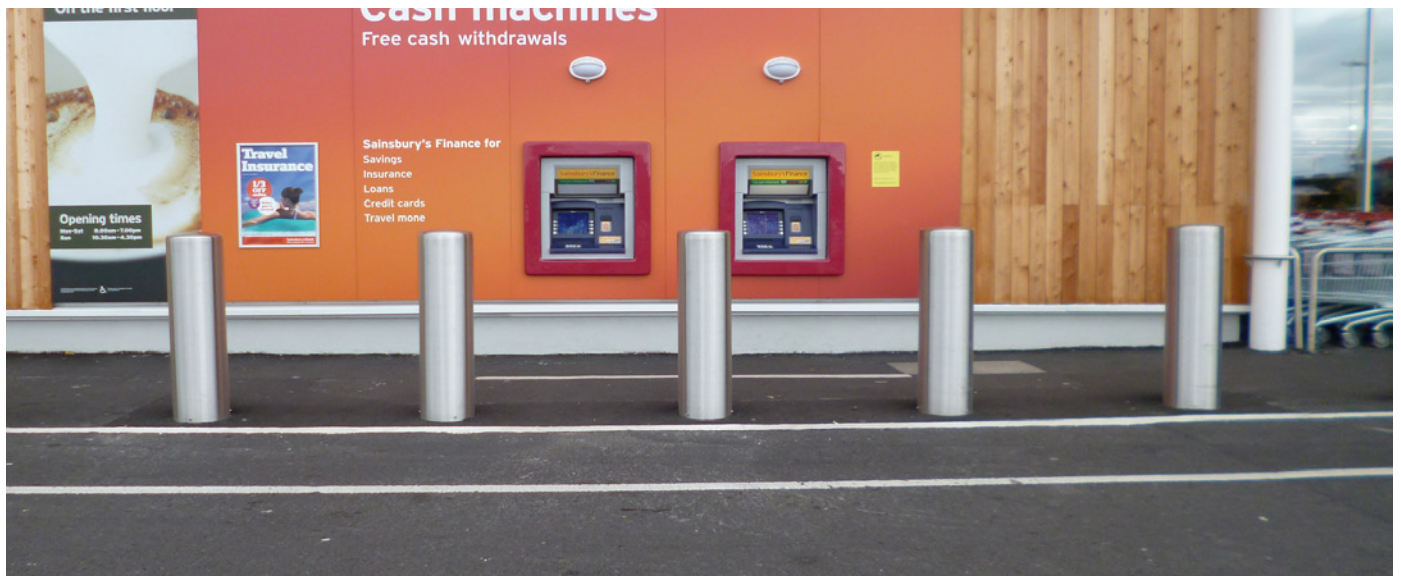
Foundation depths of only 120mm required.

Impact tested to BSi PAS 68 with a range of energies



## Planets Range of PAS 68 Static Terra Bollards

A portfolio of PAS 68 Fixed/Static Bollards successfully impact tested stopping various energies, resulting in various classification codes



### Terra Jupiter Bollards - 7500kg @ 50mph (1852kj)

Classification Codes:

V/7500[N2]/80/90:1.0/21.2

V/7500[N3]/80/90:10.5/11.1

Embedment - 500mm

Height above ground - 1050mm

Diameter - 273mmø

Finish - Painted Powder Coating

Optional - Stainless Steel Finish

### Removable Terra Jupiter Bollards - 7500kg @ 50mph (1852kj)

Classification Codes:

V/7500[N3]/80/90:10.5/11.1

Embedment - 750mm

Height above ground - 1050mm

Diameter - 273mmø

Finish - Painted Powder Coating

Optional - Stainless Steel Finish





Terra Venus Bollards - 7500kg @ 30mph (667kj)

Classification Codes:

V/7500[N2]/48/90:0.0/0.0

Embedment - 500mm

Height above ground - 1000mm

Diameter - 219mmø

Finish - Painted Powder Coating

Optional - Stainless Steel Finish

Shallow Depth Terra Venus Bollards - 7500kg @ 30mph (667kj)

Classification Codes:

V/7500[N2]/48/90:3.3/0.0

Embedment - 300mm

Height above ground - 1000mm

Diameter - 219mmø

Finish - Painted Powder Coating

Optional - Stainless Steel Finish

Removable Terra Venus Bollards - 7500kg @ 30mph (667kj)

Classification Codes:

V/7500[N2]/48/90:0.0/0.0

Embedment - 500mm

Height above ground - 1050mm

Diameter - 273mmø

Finish - Painted Powder Coating

Optional - Stainless Steel Finish



## Bollard Accessories

The Bollard's hydraulic control cabinet is recommended to be installed within 10 metres of the unit.



Traffic light systems and signage should always be installed with the road blocker systems to advise the all users of its operation.

Pictured below (left to right) 100mm traffic light head, traffic lights pole mounted, traffic lights cabinet mounted & signage pole mounted on control cabinet







Vandal resistant traffic light cages



The Control Cabinet is also available in a stainless steel finish.

Emergency  
hand pump



Accumulators





## Access Control Systems



Frontier Pitts Rising Bollards can be interfaced to a wide range of access control including Card Readers, Intercom Systems, Remote VHF Systems and Digital Keypads. The access control readers can be mounted on pedestals which are recommended to be installed a minimum of 3 metres from the bollard unit or hydraulic control cabinet.



Standard Car Height Pedestals. Installed with bollards for protection

HGV & Dual Height Pedestals for use by cars & HGVs the road

Automatic Rising Bollard Safety:  
For Pedestrian Safety - Safety Photocells  
Raise the bollard safely - Vehicle Detector  
Loops & Timer Systems

Safety Photocell - beams of light fitted across the road way to monitor vehicle & pedestrian movement

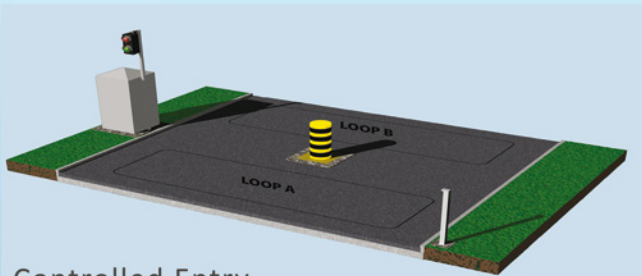


Hydraulic control cabinet

Safety Vehicle Detector Loops laid in the road surface

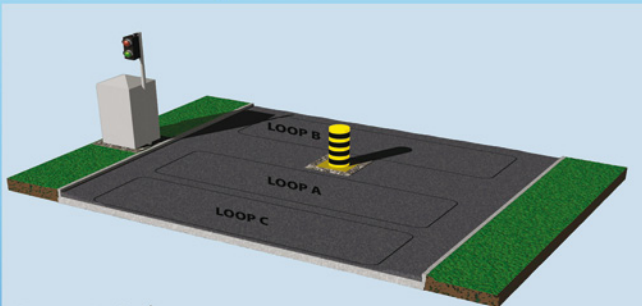


### Controlled Entry System



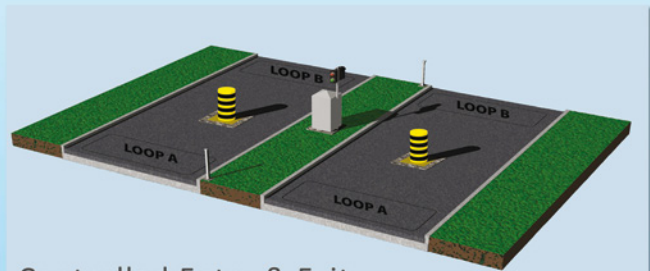
Controlled Entry  
& Safety Autoclose Loop

### Free Exit System



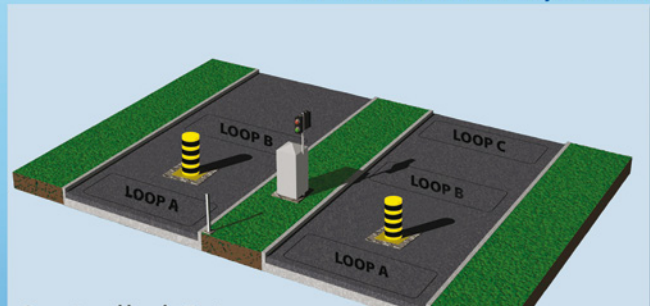
Free Exit/  
Safety Autoclose Loop

### Controlled Entry & Exit System



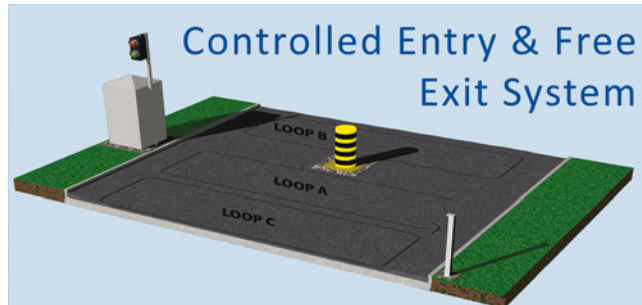
Controlled Entry & Exit  
with Safety Autoclose Loop

### Controlled Entry & Free Exit System



Controlled Entry,  
Free Exit & Safety Autoclose Loop

### Controlled Entry & Free Exit System



2 bollards operating  
together for wide roads

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