



# HARDSTAFF BARRIERS



## Defence & Security

+44(0)115 983 2304 | [www.hardstaffbarriers.com](http://www.hardstaffbarriers.com)

CONSULT | DEPLOY | PROTECT



## Our Company

With over fifteen years' experience in the running of Hostile Vehicle Mitigation for UK government for National Barrier Asset, Hardstaff Barriers has become leaders in the design, development and deployment of HVM systems. In conjunction with our extensive in-house haulage capability, we can provide a complete nationwide service incorporating the supply, transportation and installation of barriers and, if required, the manufacture of specialist concrete units.

This specialist expertise linked with our reputation for innovation, research and development, and reliability has been instrumental in establishing and maintaining excellent customer relations across a broad variety of client industries.

## Our Services

Consultancy is our first point of expertise; from project inception to on-site provision, our staff are well versed to liaise, discuss and assist in the planning of major works. We have the capability to plan efficiently and in great depth in-house, ensuring our products are supplied and installed on time and within budget.

We are well positioned to be able to offer the sale and/or hire of our Hostile Vehicle Mitigation systems across Europe.



### Longitudinal Varioguard HVM

Meets Highways England specifications following London bridge attacks

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Hostile Vehicle Mitigation  
 Intruder Deterrent



## Introduction

The continued threat from terrorism through hostile vehicles remains real and credible. Our HVM barrier products both deter and prevent attack.

Enhanced building stand-off protection to deter attack and reduce consequential loss, particularly from hostile vehicles is increasingly specified for many vulnerable site perimeters. Redeployable perimeter and stand-off protection solutions from Hardstaff Barriers have been designed to deliver unrivalled protection for people and assets against hostile vehicle attack.

The systems can be deployed quickly with minimal disruption, typically on a short or medium term basis, providing an ideal solution for security sensitive locations or events. Some of our barrier systems are also capable of protecting against the additional threat of vehicle borne improvised explosive devices (VBIEDs).

## Applications

Redeployable HVM systems have been installed at a variety of high profile locations and temporary venues. Many of these deployments provide operational continuity at each location. Allowing sites to adapt as changes occur to the threat or site operations. The system provides an effective and highly reliable solution to the client's individual changing needs.



### Zoneguard Plus Crash Test

IWA 14-1 Specification : 45° Attack Test



## Benefits

### Unrivalled Protection

Against vehicular attack, unauthorised vehicle access and explosive blast.

### Flexible Configurations

Schemes can be designed to meet the needs of a wide range of site parameters.

### Rapid Deployment

Units are transported on flatbed trucks for quick and easy unloading.

### Security That Blends With the Environment

Specific colour and traffic management options are available.

### Impact and Blast Effect Mitigation

The containment of concrete within the Bi-Steel units prevents the formation of dangerous secondary projectiles.

### Ballistics

Tested for BR7 for 7.62mm A.P and 12.7mm (0.5cal) A.P with no spall to BS EN 1063.



## System Description

The system incorporates a variety of anti-attack vehicle barriers designed to control or prevent access to security sensitive locations.

The barriers can be painted in a range of colours with a standard or premium high gloss finish.

The highly redeployable nature of the system means it can be put into position quickly and then subsequently moved or reconfigured as the need arises, creating a legacy security solution that can be easily adapted to meet changing client requirements.

## System Performance

Anti-attack vehicle barriers have been extensively tested and meet the requirements of the relevant agencies operating within the security and defence fields.

These tests have included:

- **Vehicle impact** - successfully tested in accordance with PAS68\*
- **Blast** - the Bi-Steel panel has been successfully tested against a wide range of blast attacks.

## Service Offering

Hardstaff Barriers delivers peace of mind to our customers by offering a complete turnkey project service, including security reviews, security solution design, project management, installation, maintenance and full after-sales service. Our team is available to assist at all stages of a project.



## About Bi-Steel

A British Steel proprietary construction material, Bi-Steel comprises of two steel plates that are connected together to form panels by an array of welded transverse bars. The panels are filled with ready mixed concrete and the resulting composite offers unrivalled protection against explosive blast.

## Delivering Value

With innovation and continuous improvement at the heart of our business performance, we aim to create value by offering a differentiated product range supported by unrivalled customer service.

### \*PAS68 (IWA-14-1)

#### Specification for Vehicle Security Barriers

This Publicly Available Specification (PAS) has been prepared to address the needs of organisations who wish to have assurance that vehicle security barriers will provide the level of impact resistance that they seek. The full PAS classification covers the mass, speed, angle and resulting penetration and dispersion values of an impact test relating to the specified product.

In the UK, the CPNI (Centre for Protection of National Infrastructure) in conjunction with other stakeholders developed the PAS 68 classification. This has now been replaced with the International Works Agreement (IWA) 14-1, combining elements of both PAS68 and the US classification ASTM 2656-07.

# BARGE UNIT



Barges have been used extensively in all manner of HVM schemes. Whilst they can be used in short runs to provide protection across a small span, they are also used in many other of the HVM products such as the drop arm and swing gates.



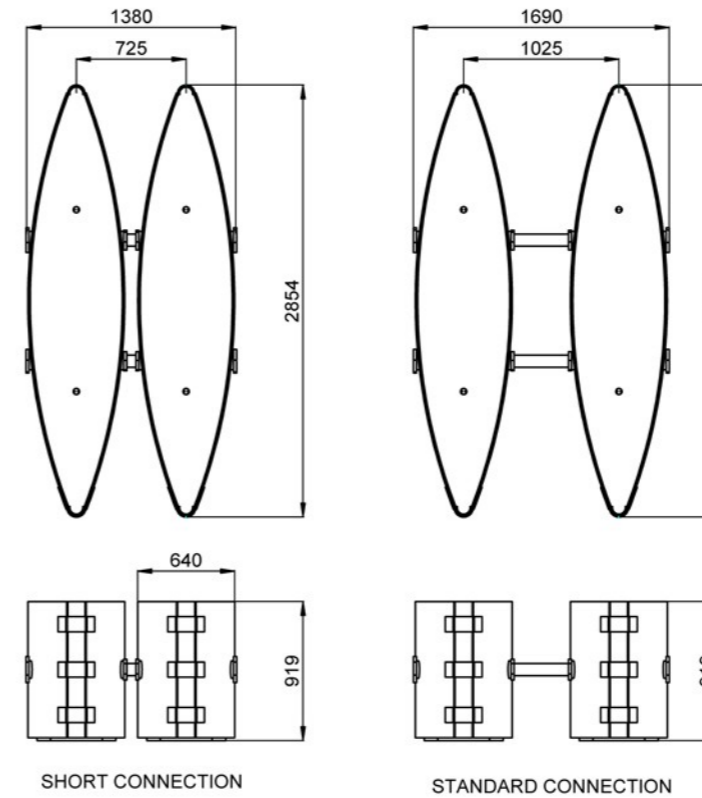
## Testing Parameters

III: Test layout – PAS68:2010  
Temporary Barrier

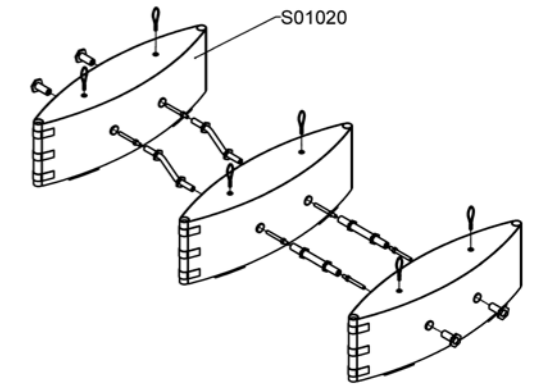
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- V7500[N2]/50/90:1.0/0
- V7500[N2]/64/90:2/0
- V7500[N3]/64/90:5.4/0

- Units can be supplied in standard or premium paint finishes.
- Barges can be connected in a variety of different ways to suit a scheme.
- Typical arrangement also requires 2 no. connection shafts, threaded connections and end caps.
- Barge units can be connected to other products in the HVM range using the appropriate connector.

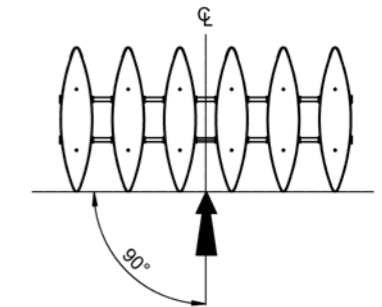
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S01020	Barge	3072kg

# STRAIGHT BARRIERS



Controls traffic effectively across a variety of road layouts. Large numbers of barriers can be linked together to create an extended length of HVM.

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 2 No. connection pins.
- Barrier units can be connected to other HVM solutions using the appropriate connector.

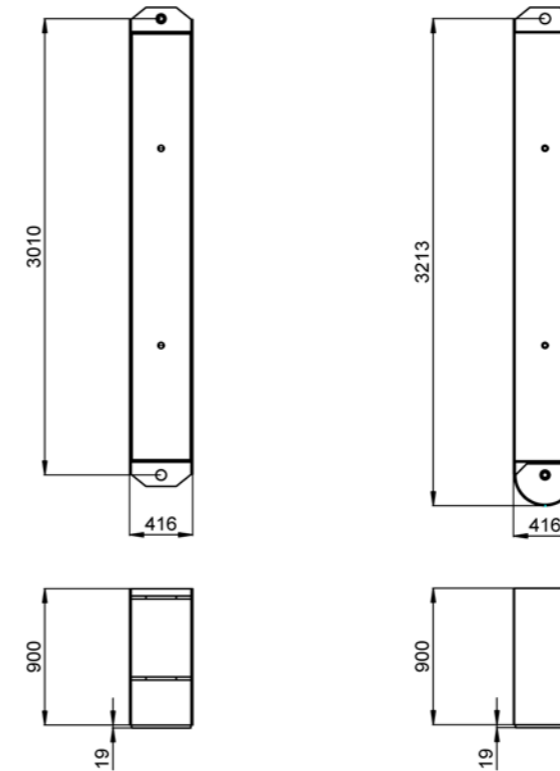


## Testing Parameters

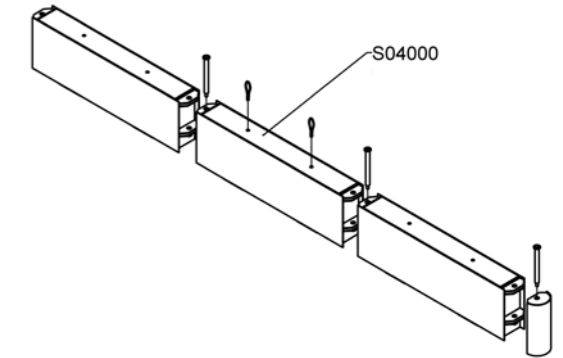
III: Test layout – PAS68:2010  
Temporary Straight Barrier

V/7500[N2]/64/30:0/1.25

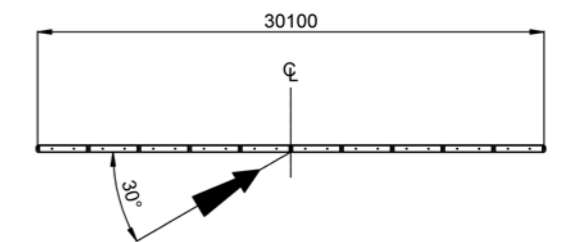
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S04000	Straight Barrier	2858kg

# CURVED BARRIERS



Curved barriers are available in a range of angles to suit a wide range of road layouts. They are usually used in conjunction with straight barriers to create full HVM solutions.

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 2 No. connection pins.

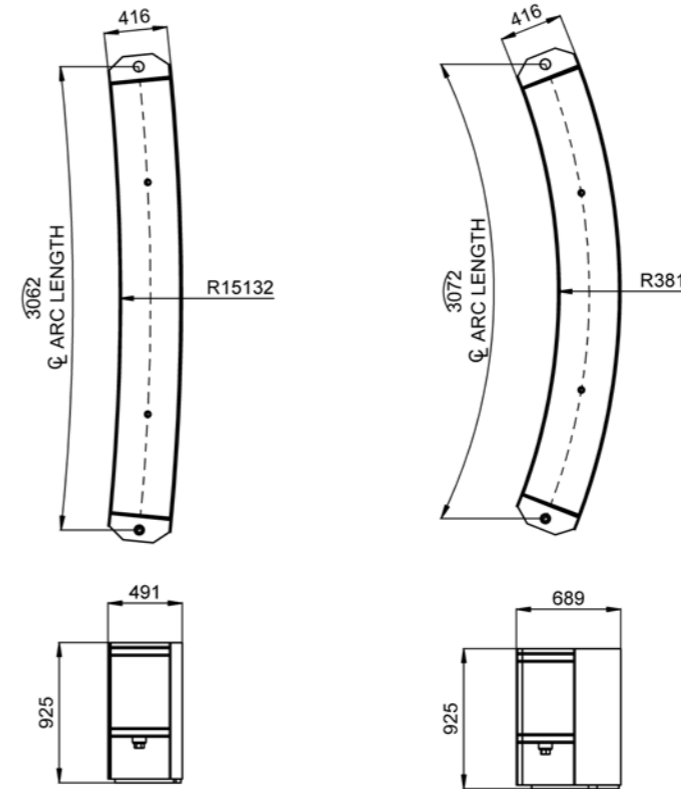


## Testing Parameters

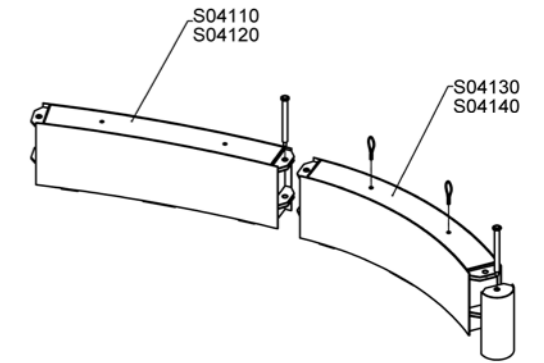
III: Test layout – PAS68:2010  
Temporary Curved Barrier

V7500[N2]/64/90:9.0/0

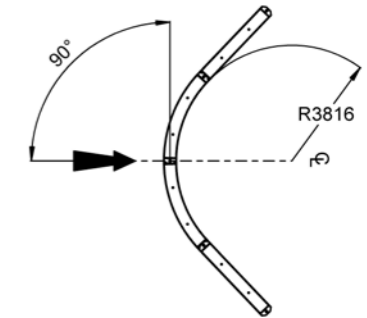
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S04110	Shallow Curved Barrier (Radius 15.13 m) – Right Handed	2934kg
S04120	Shallow Curved Barrier (Radius 15.13 m) – Left Handed	2934kg
S04130	Tight Curved Barrier (Radius 3.81m) – Right Handed	2928kg
S04140	Tight Curved Barrier (Radius 3.81m) – Left Handed	2928kg

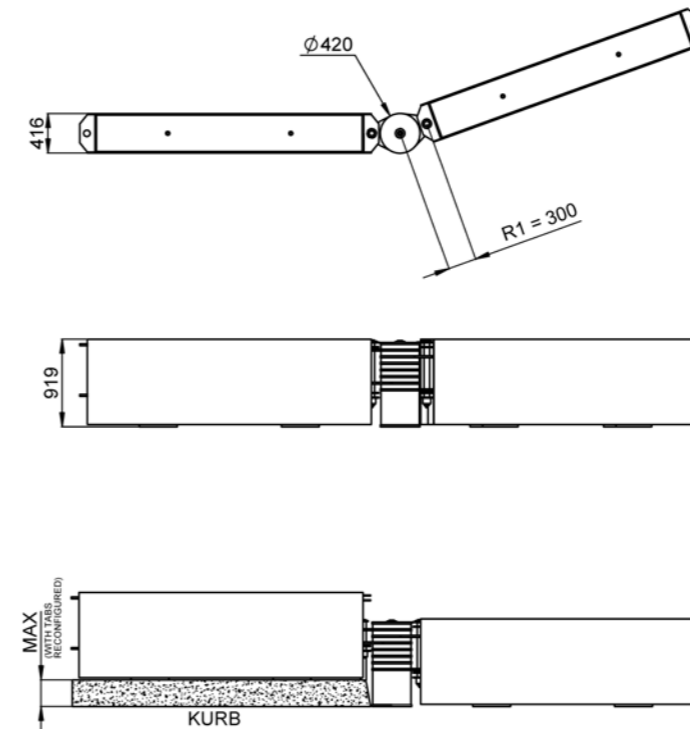
# SWIVEL POST CONNECTOR



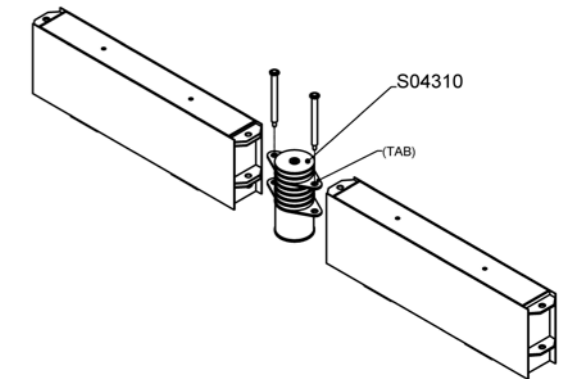
The swivel post connector allows straight barriers to be orientated at angles to accommodate road layouts. It also allows barriers to be located on sloped or stepped sections of roadway.

- Units can be supplied in standard or premium paint finishes.
- Swivel Post Connector does not include Barriers and other Barrier components.

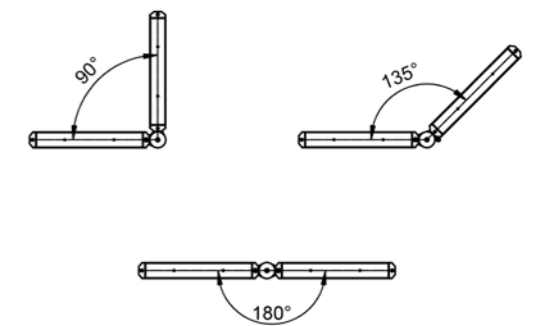
## Specifications



I. Elevations and Dimensions



II. Components



III. Swivel Post operation through 90°

Part No.	Description	Approx. Weight
S04310	Swivel Post Connector	365kg



# QUICKLINK HEAVY



The latest iteration of our Barrier system providing similar performance to the traditional Bi-Steel barriers but with the added flexibility and speed of deployment of the Quicklink joint.



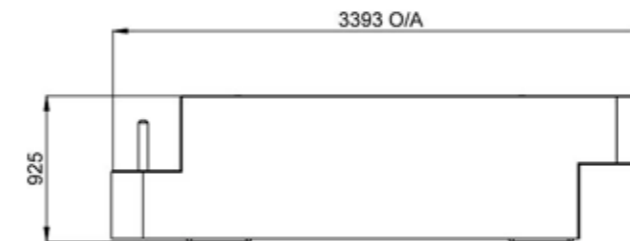
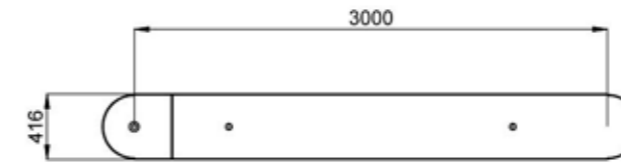
## Testing Parameters

III: Test layout – PAS68:2010  
Temporary Quicklink Barrier

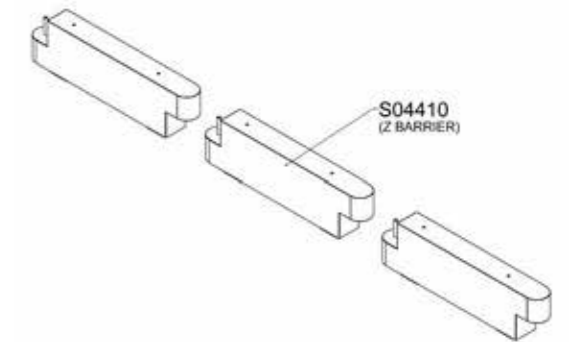
V/7500[N2]/64/30:0.5/0

- Units can be supplied in standard or premium paint finishes.
- Other lengths of unit available: 1.0 m CRS, 1.5 m CRS, 2.0 m CRS and 3.0 m CRS. 3.0 m CRS illustrated.
- Units can be connected to other products in the HVM range using the appropriate connector.
- End units, linking units and 'T' units also available.

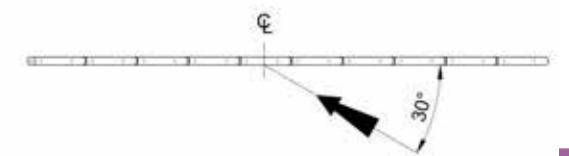
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S04410	Quicklink Heavy 'Z' Barrier	2879kg

# ZONEGUARD & VARIOGUARD



Zoneguard Plus has been developed as a rapidly deployable Hostile Vehicle Mitigation (HVM) security system that is successfully tested to both IWA 14 and CPNI Base accreditations.

The system uses the standard Zoneguard Vehicle Restraint System (VRS) as its core, with modular elements added to meet the demands of both urban and non-urban applications; these elements include anti-climb fencing, pedestrian portals, vehicular access gates, connections and transitions to the National Barrier Asset (NBA) systems, end and intermediate terminals and special units to allow for differences in both horizontal and vertical alignment.

The core system is fully tested in accordance with both European and US VRS standards (EN 1317, MASH 2016 and NCHRP 350), providing a safe, crashworthy barrier for errant motorists in addition to its HVM and CPNI Base capabilities.

Anchor systems are also available for installation on varying ground conditions, ranging from shallow urban pavements to soft uneven fields.

## Zoneguard and Varioguard HVM

Provides a high level of protection whilst facilitating quick and easy installation of short and long lengths. These incorporate steel sections with unique speed joints allowing installation of 300m in just one hour.

## Zoneguard Plus HVM

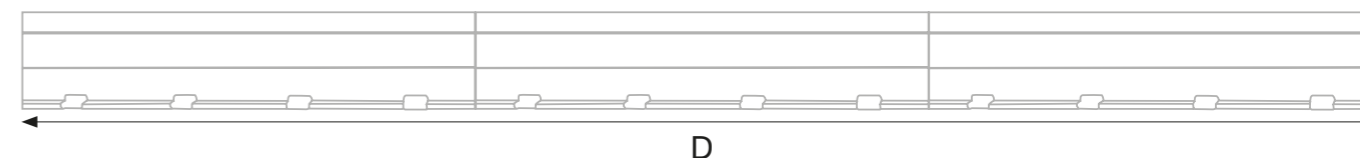
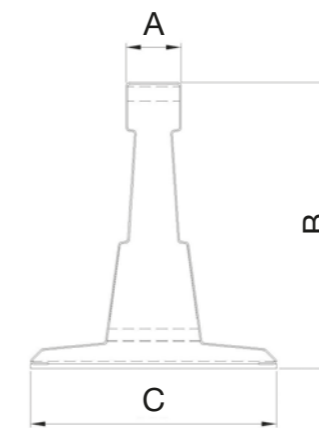
Provides a very high level of protection whilst facilitating quick and easy installation of short and long lengths. Zoneguard Plus incorporates three high-tensile cables across the rear of the units.

Zoneguard Plus is PAS68 and IWA-14-1 tested.



## Specifications

A	160mm
B	813mm
C	700mm
D	12m/15m
	92kg/m



Zoneguard HVM can be supplied with various fencing options to suit your requirements.



Description	Approx. Weight
Zoneguard – 12m Length (includes joints)	1104kg
Varioguard – 12m Length (includes joints)	1316kg
Zoneguard Plus – 12m Length (includes joints, excludes cables)	1104kg

# IMPAKT DEFENDER



The Impakt Defender from Hardstaff Barriers is a surface-mounted, IWA14 rated vehicle security barrier (VSB) designed to protect people, buildings and infrastructure from hostile vehicle attack.

Its unique shape, with its large footprint, has been specifically designed to block vehicles. Each 430kg, 1m x 1m x 1m solid rubber unit is connected by steel securing cables, providing the flexibility to protect both entrance areas and site perimeters against hostile vehicle attack. With the units in position, the steel securing cables can be anchored to create a stronger physical barrier.

Requiring no foundations, the surface mounted system can be rapidly deployed as a temporary or permanent security measure, as part of a robust hostile vehicle mitigation (HVM) strategy.

The Impakt Defender has been successfully impact tested to IWA 14-1 specification, stopping a 7.2 tonne N2A lorry travelling at 48kph (30mph).



## Testing Parameters

III: Test layout – IWA 14-1:2013

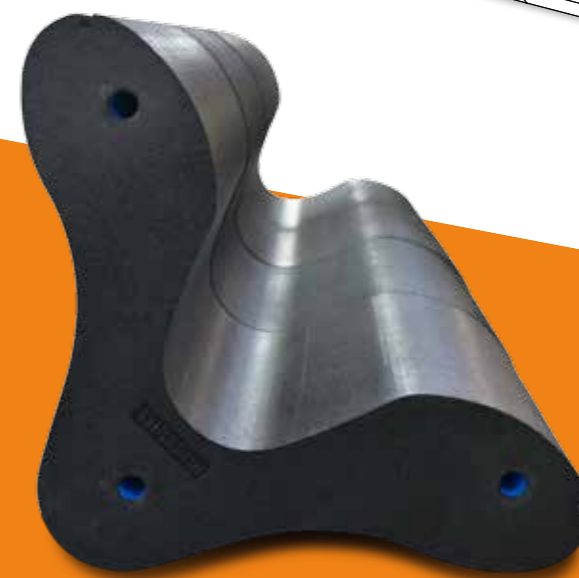
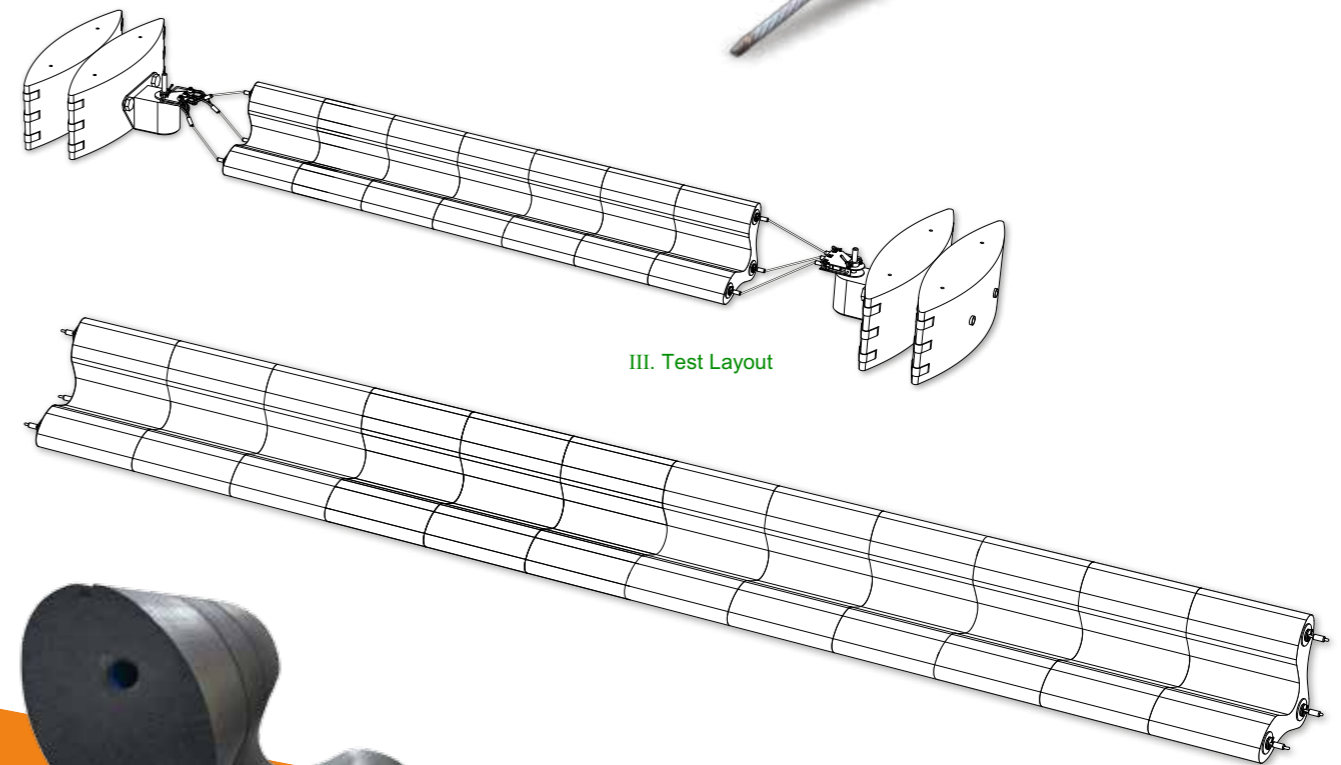
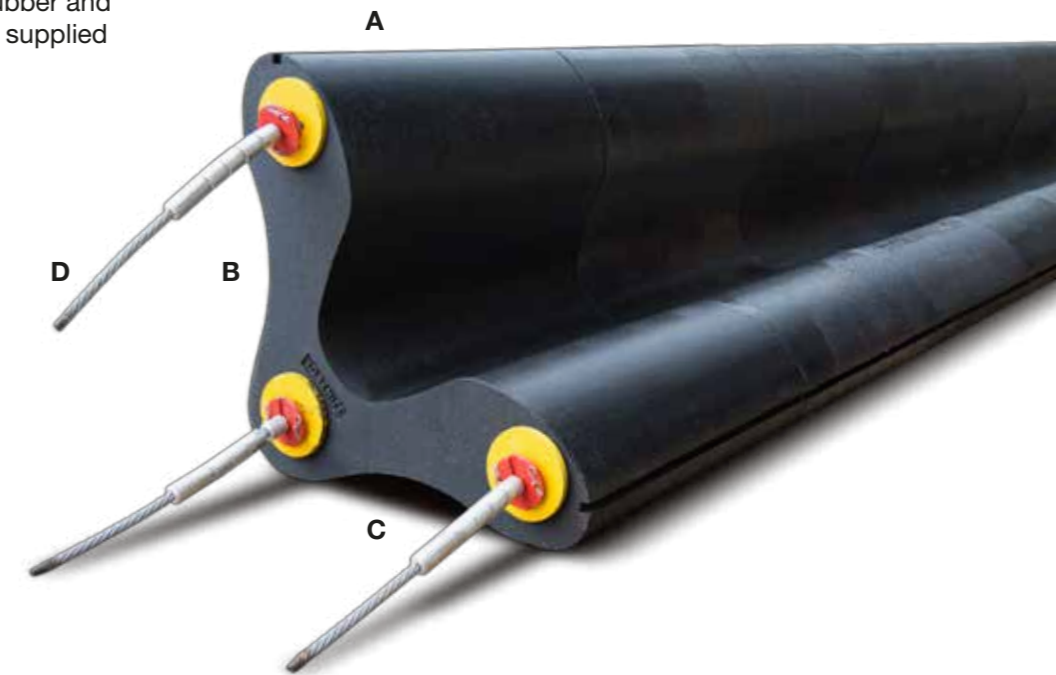
Impakt Defender Barrier

V/7500[N2A]/48/90:7.4/0

## Specifications

Manufactured from 100% recycled rubber and polyurethane, the Impakt Defender is supplied complete with steel securing cables.

A	1000mm
B	1004mm
C	1004mm
D	20mm Ø
🏠	430kg



Manufactured from 100% recycled rubber bonded with polyurethane for strength, its tough construction enables the Impakt Defender to be installed almost anywhere, removed and used again and again.

- A physical and visual security deterrent
- Excellent protection from vehicle borne attacks
- Unique design deforms to increase stopping performance
- Over 65% lighter than concrete solutions
- Modular design allows protection of entrances and perimeters
- Easy to install, remove and relocate
- Suitable for all types of sites
- Install in a straight line or on a curve

# VERTICAL OPENING GATE



Provides a high level of protection whilst facilitating quick and easy authorised vehicle access. These incorporate heavy steel sections and locking points attached to barges. Gate openings are available up to 6.5m.



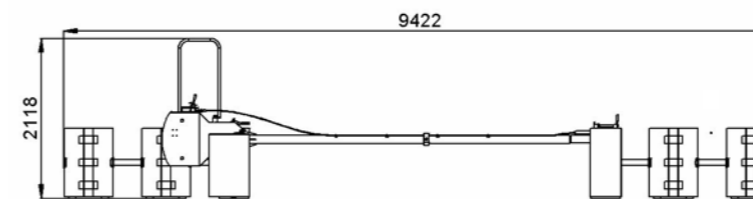
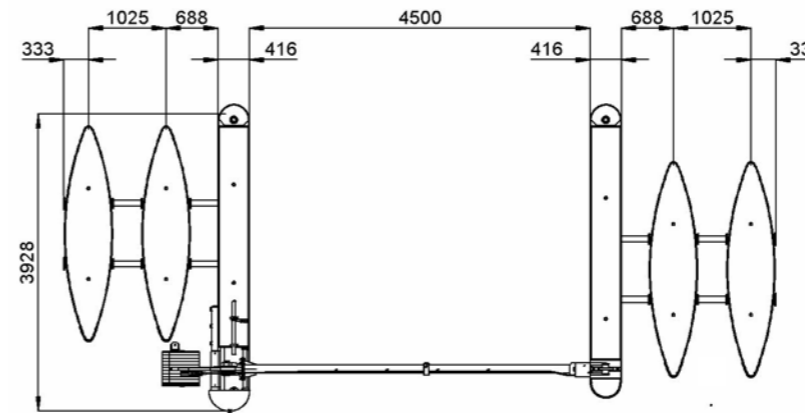
## Testing Parameters

III: Test layout – PAS68:2010  
Rising Gate

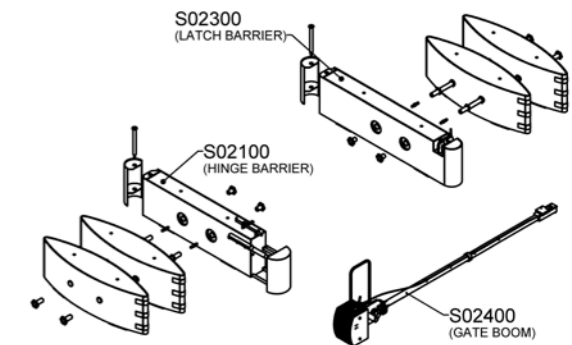
V/7500[N2]/48/90:4.7/0

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 4 No. Barges and accessories.
- Gate Assembly does not include Barges and Barge Connections.

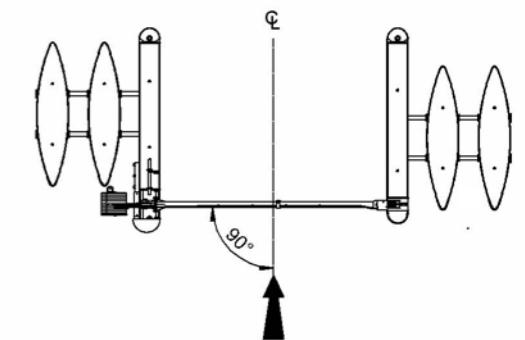
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S02100	Hinge Barrier	3100kg
S02300	Latch Barrier	3500kg
S01304	Gate Boom (4.5m Illustrated)	1450kg

# INLINE VERTICAL OPENING GATE



Inline configuration for maximum performance combined with minimal footprint. The HVM inline drop arm gate is ideal for locations where the width of the location dictates that the standard gate is unsuitable-on single sections of roads for example. 4.5m clear opening supplied. Other sizes are available on request.



## Testing Parameters

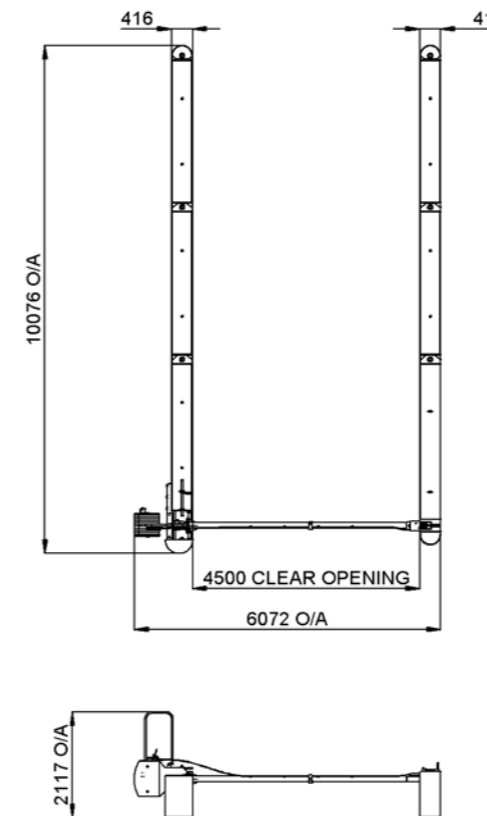
III: Test layout – PAS68:2010

Rising Gate

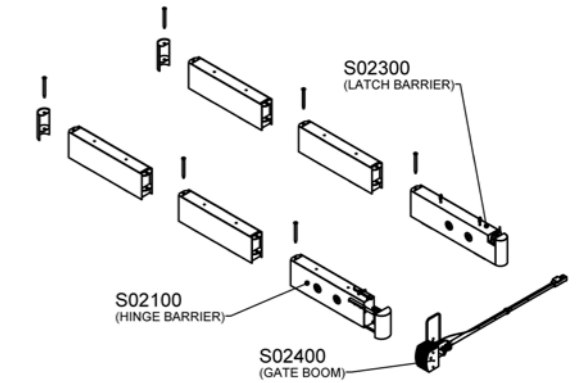
V/7500[N2]/48/90:4.7/0

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 4 No. Straight Barriers.
- Gate Assembly does not include Barriers or accessories.

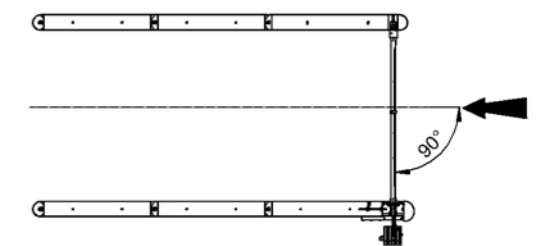
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S02100	Hinge Barrier	3100kg
S02300	Latch Barrier	3500kg
S01304	Gate Boom (4.5m Illustrated)	1450kg

# SWING GATE



Provides a high level of protection whilst facilitating quick and easy authorised vehicle access. These incorporate heavy steel sections and locking points attached to barges. Gate openings are available from 3.0 metres to 6.30 metres to suit a wide variety of access layouts.



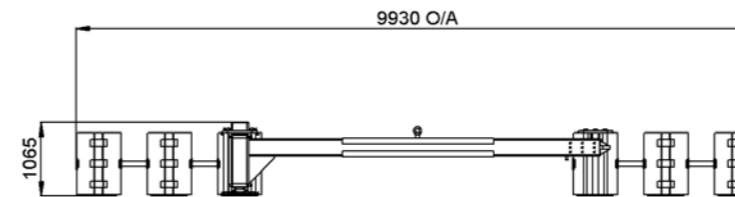
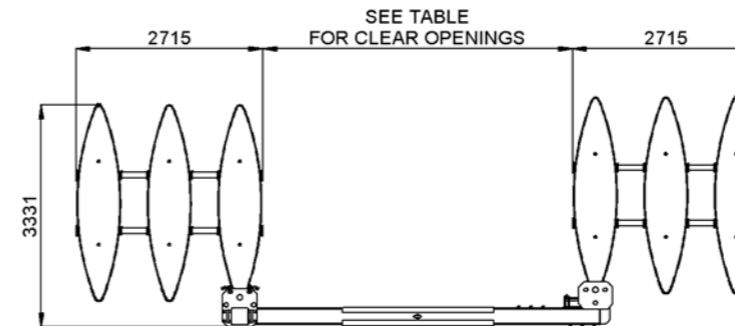
## Testing Parameters

III: Test layout – PAS68:2010  
Swing Gate

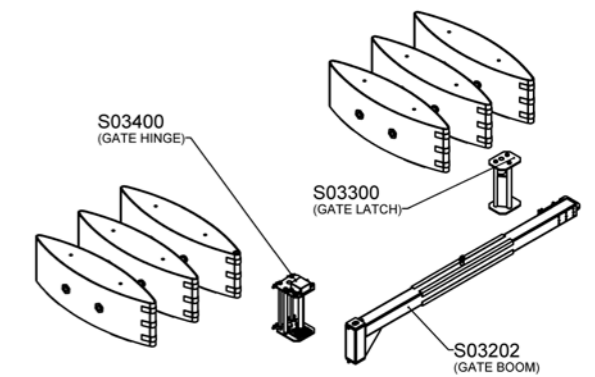
V/7500[N2]/64/90:4.9/0 (4.5m opening)  
V/7500[N2]/64/90:3.7/0 (6.3m opening)

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 6 No. Barges (2 gate enabled, 4 standard) and accessories.
- Standard Gate openings supplied - 3.0m, 3.75m, 4.0m, 4.5m, 5.0m and 6.3m. Other sizes are available on request.

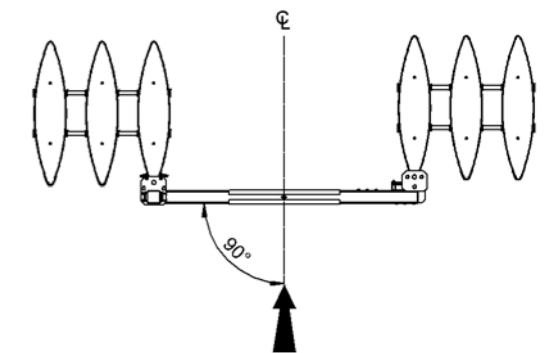
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S03202	Gate Boom (4.5m Illustrated)	Varies
S03300	Gate Latch	160kg
S03400	Gate Hinge	230kg

# DOUBLE SWING GATE



Provides a high level of protection whilst facilitating quick and easy authorised vehicle access. These incorporate heavy steel sections and locking points attached to barges. The Double Swing Gate is ideal for providing protection across dual carriageways and wider roadways.



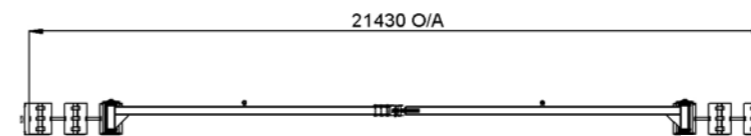
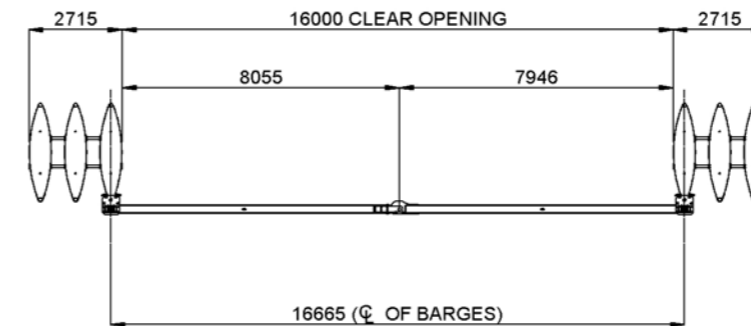
## Testing Parameters

III: Test layout – PAS68:2010  
Double Swing Gate

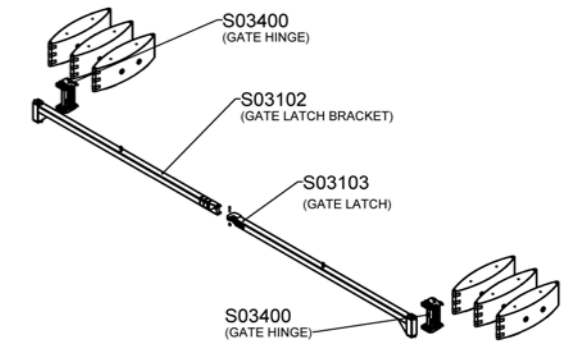
V/7500 [N2]/64/90:10.6/0

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 6 No. Barges (2 gate enabled and 4 standard) and accessories.
- Other sizes of clear opening are available on request.

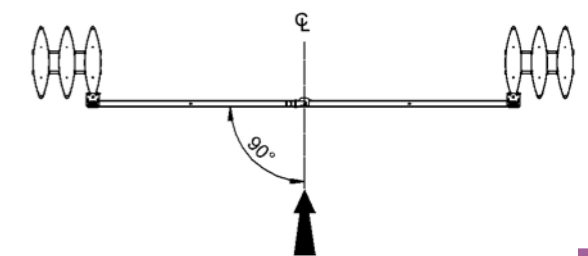
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S03102	Gate Latch Bracket	530kg
S03103	Gate Latch	555kg
S03400	Gate Hinge	230kg (per item)

# PEDESTRIAN PORTAL



To enable pedestrian movement through a line of HVM measures where a more visual point of access is required in the aiding of crowd control.

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 6 No. Barges and accessories.
- A wide variety of multiple portal frames and barge configurations can be applied to suit specific applications.

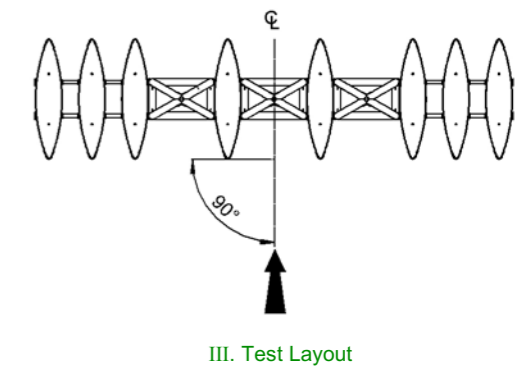
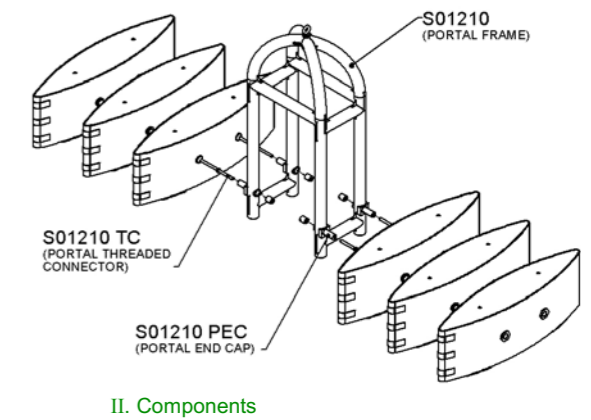
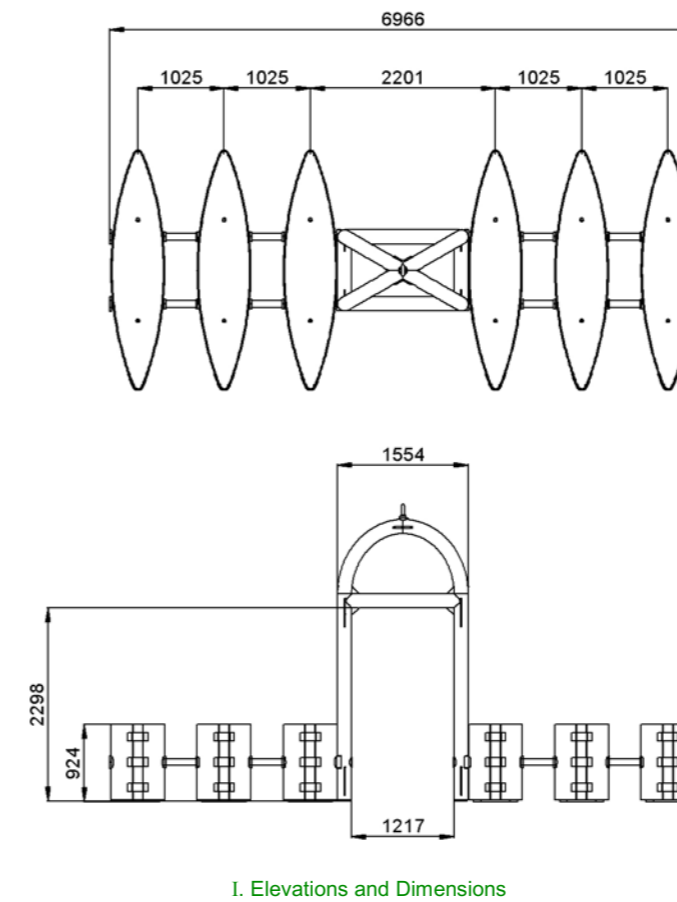


## Testing Parameters

III: Test layout – PAS68:2010  
Pedestrian Portal

V/7500[N2]/64/90:0.22/0  
V/7500[N2]/64/90:0.16/0

## Specifications



Part No.	Description	Approx. Weight
S01210	Single Portal Frame	970kg
S01210 TC	Portal Threaded Connector (4 no. per portal frame)	6kg (per item)
S01210 PEC	Portal End Cap (4 no. per portal frame)	4kg (per item)



# PEDESTRIAN GROUND PLATE



To enable pedestrian movement through a line of HVM measures where a more visual point of access is required in the aiding of crowd control.

- Units can be supplied in standard or premium paint finishes.
- Typical arrangement also requires 6 No. Barges and accessories.
- A wide variety of multiple ground plates and barge configurations can be applied to suit specific applications.

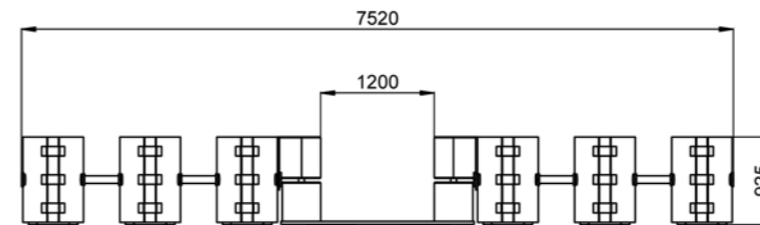
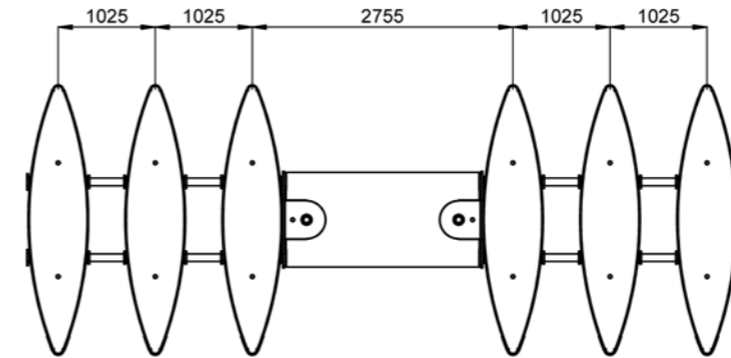


## Testing Parameters

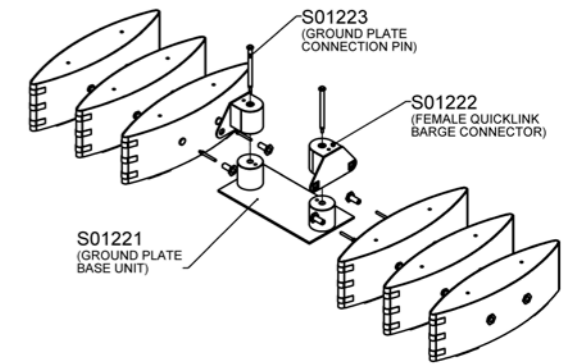
III: Test layout – PAS68:2010  
Pedestrian Access Connector

V/7500[52]/64/90:0.9/0

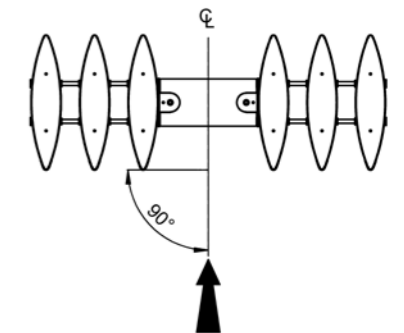
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S01221	Ground Plate Base Unit	550kg
S01222	Female Quicklink Barge Connector	117kg
S01223	Ground Plate Connection pin	17kg

# SURFACE BOLLARDS



This system can be re-used for ultra-shallow below ground installation.

- Exact configuration may vary subject to project requirements.
- All plated can be shaped to accommodate curvature in plan (details on application).
- Bollards can be provided in various coatings and bollard top geometries (details on application).
- Stainless steel sleeves can be provided (details on application).

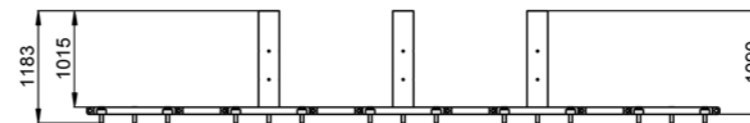
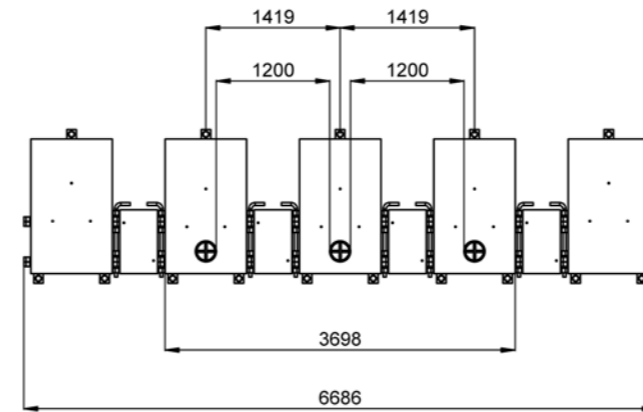


## Testing Parameters

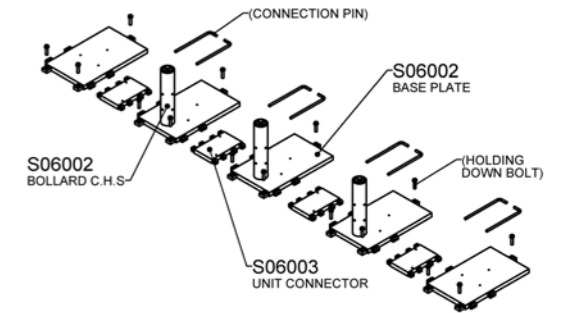
III: Test layout – PAS68:2010  
Surface Mounted Bollard

V/7500[N2]/48/90:1.7/0

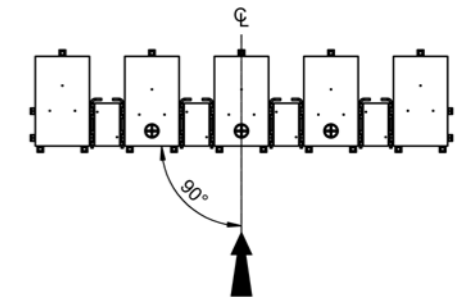
## Specifications



I. Elevations and Dimensions



II. Components



III. Test Layout

Part No.	Description	Approx. Weight
S06002	Base Plate	736kg
S06002	Bollard C.H.S	144kg
S06003	Unit Connector	171kg

# INTRUDER DETERRENT



Hardstaff Barriers' Intruder Deterrent panels were developed in conjunction with the rail industry to deter access to prohibited areas. They are a proven physical and visual deterrent.

Used across the globe for over a decade, the innovative design of the panels enables them to be quickly and securely installed on any surface, including concrete, asphalt, gravel and grass. Their robust construction enables them to be installed almost anywhere, removed and used again and again.

#### LIFESPAN

25 years+ under expected service conditions and subject to correct installation.

#### INSPECTION & MAINTENANCE

No maintenance of the product is required. Regular installation inspections should check:

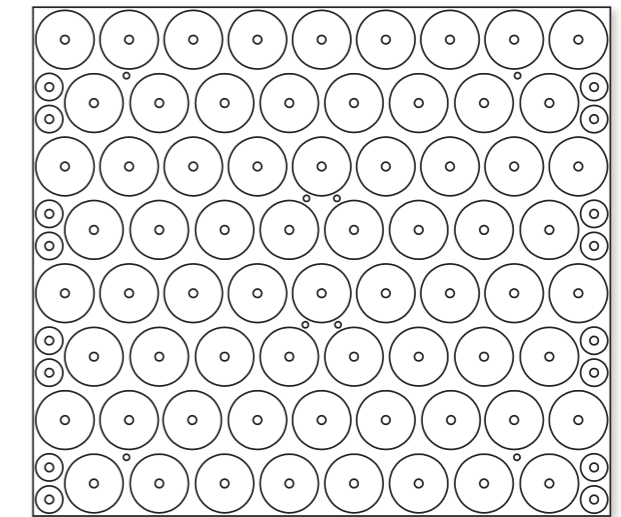
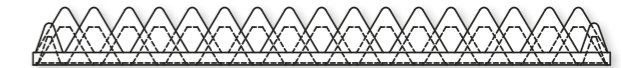
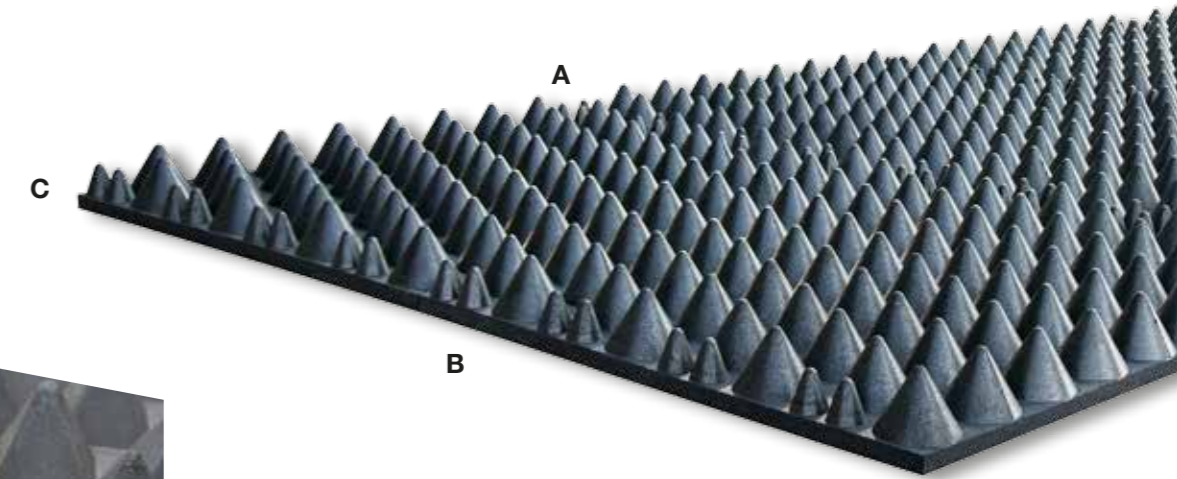
- That all panels are correctly positioned and supported
- All fixings are in place



## Specifications

Manufactured from 100% recycled rubber and polyurethane, Hardstaff Intruder deterrent panels are supplied complete with fixings.

A	1484mm
B	1300mm
C	147mm
📦	80kg



Manufactured in the UK from 100% recycled rubber bonded with polyurethane for strength, the panels can be easily cut to fit around fence posts and have a maintenance free lifespan of around 25 years.

- Proven physical and visual deterrent
- Designed and developed in conjunction with the rail industry
- Quick and easy to install on any surface
- Securely fixed to surface
- Will not break-up
- Easily cut to fit around fence posts
- Reusable - easy to remove and relocate
- Maintenance free



**HARDSTAFF  
BARRIERS**

**Tel:** +44(0)115 983 2304

**Email:** [enquiries@hardstaffbarriers.com](mailto:enquiries@hardstaffbarriers.com)

**[www.hardstaffbarriers.com](http://www.hardstaffbarriers.com)**

**Hardstaff Barriers Ltd**  
Hillside, Gotham Road  
Kingston-on-Soar  
Nottingham  
NG11 0DF