

Section 1 Accreditation

1.01 Shallow mount fixed bollard system

1.01.1 Designation – High Security Fixed Bollard System

1.02 ST-STD-02.01 Rev A, ASTM F2656-07

1.02.1 Test Date March 21, 2008

1.02.2 Test location TTL, Texas Transportation Institute, College Station, TX

1.02.3 Certification Rating DOS K4, and ASTM M30 / P1

1.03 Test Vehicle

1.03.1 Make/Type 1999 NaviStar 4700

1.03.2 GVW 6808 Kg or 15,010 Lbs.

1.03.3 Speed achieved 48.1 km/h or 29.9 mph

1.03.4 Penetration .6 m or 2 ft.

1.03.5 Engine running after test – NO

1.03.6 Vehicle drivable after impact – NO

1.03.7 Follow on vehicle could pass barrier – NO

1.04 Experience

1.04.1 The Manufacturer shall have at least 10 similar systems installed and in operation.

Section 2 System Configuration

2.01 Bollards

2.01.1 Minimum of a 3 bollard array for a certified product

2.01.2 Diameter equal to 12 in (307 mm)

2.01.3 Height from top of grade level to top of bollard equal to 43 in (1100 mm)

2.01.4 Spacing from bollard center to bollard center equal to 59 in (1500 mm)

2.01.5 The clear opening from bollard to bollard equal to 47 inches (1200 mm)

2.01.6 Optional Stainless Steel Sleeve Available

2.02 Foundation

2.02.1 The bollard design shall be suitable for installation on a suspended slab, structural integrity of the slab is maintained by not allowing anchor bolting of the foundation.

2.02.2 Excavation Depth equal to 8 in (203 mm)

2.02.3 Width front to back equal to 87 inches (2200 mm)

2.02.4 Length of 3 bollard array equal to 192 inches (4870 mm)

2.02.5 Concrete strength minimum of 4000 psi concrete must be used

2.02.6 Soil Compaction of not less than 95% maximum dry density

2.03 Biscuit design

2.03.1 Biscuits are modular bollard design the fit together to form a pre-fabricated high security bollard system. This design facilitates a fast and easy installation

2.03.2 The Biscuit design eliminates the need for rebar supporting structure and eliminates the need for site hot work.

2.03.3 Bollard 1 counting from left to right = T shaped biscuit 5.9 inches in depth

2.03.4 Bollard 2 counting from left to right = straight biscuit 5.9 inches in depth

2.03.5 Bollard 3 counting from left to right = T shaped biscuit 5.9 inches in depth

2.03.6 Additional Biscuit designs are available to form different geometric shapes. See Below



Section 3 Construction

3.01 Bollard Construction

- 3.01.1 The Defender system is constructed of heavy gauge steel fully welded prior to priming and painting (optional hot dip galvanizing)
- 3.01.2 Bollard are delivered mounted to steel biscuit structure, providing significant resistance to vehicle impact.

Section 4 Warranty

- 4.01 Warranty - the system shall carry a full 12 month parts warranty from date of delivery.

Section 5 Submittals

- 5.01 Drawings - will be provided to site specific requirements
- 5.02 Installation Manual - will be provided

Section 6 Procurement Details

The K4 Ultra Shallow bollard product shall be purchased from
Ameristar Perimeter Security USA Inc.
1555 N. Mingo Road
Tulsa, OK 74116
www.ameristarsecurity.com