

MODEL DSC650  
DUAL BOLLARD MODULE  
OPTIONAL LIFT OUT  
CRASH TESTED – CRASH CERTIFIED

SYNOPSIS

- The DSC650 module is designed to function as a stand-alone module or as part of an extended array. Adjacent modules need not be linked; facilitating curved or inclined layouts.
- The foundation is 12 inches (31 cm) deep and can be set into existing roadways, sidewalks or landscaped areas.
- Optionally one or both above grade Bollard tubes may be configured for **manual lift** out, P/N DSC650-300.
- The exposed surface of the foundation can be textured, colored or finished with paving treads to a depth of 2.0 inches (51 mm).
- The DSC650 was tested in accordance ASTM Designation F 2656 – 07 *Standard Test Method for Vehicle Crash Testing of Perimeter Barriers, August 1, 2007* with a rating of PU50/P1. The rating was assigned following full scale testing by an independent test laboratory. The DSC650 was hit by a 5,070 pound (GVW) (2300kg) truck traveling 50 mph (80 kph).
- Certified Dynamic and Final Penetration less than 1.0 m
- The DSC650 is supplied from the factory with steel reinforcing mesh welded in place, matching the as tested configuration. In most situations no additional rebar is needed for installation.
- Decorative slip on cast aluminum and fiberglass covers (P/N DSC650'CAA'), both standard and custom are available.

\* Customer Specified

- 1.0 CONFIGURATION. The DSC650 is a shallow foundation fixed Bollard Module. Consisting of a structural steel skeleton incorporating two Bollards.
  - 1.1 Bollards shall extend above foundation and paving 32.0 inches (81 cm m).
  - 1.2 Bollard maximum diameter shall be 8.65 inches (22 cm) (at top rings).
  - 1.3 Spacing. Clear opening between Bollards shall be 43 inches (1.09 m) and meets provision of ADA handicap accessibility.
  - 1.4 Finish. Exposed barrier surfaces shall be painted with a gloss white, two-part epoxy high weather resistant paint (or optional galvanized finish).
- 2.0 FOUNDATION.
  - 2.1 Footprint. 108 inches (2.74 m) wide (line of array) X 73 inches (1.85 m).
  - 2.2 Depth. 12 inches (31 cm).
  - 2.3 Concrete Reinforcement. Modules shall be furnished with steel reinforcing mesh welded in place. Steel mesh shall match the configuration of the original tested and certified module.
- 3.0 ARRAYS.
  - 3.1 INCLINED ARRAYS. Modules shall be configured so that they can be arrayed to follow the elevation of sidewalks, roadways or landscaping.
  - 3.2 CIRCLES OR CURVES.
    - 3.2.1 CONCAVE CURVE. (Assets and Modules located inside a circle or curve).
    - 3.2.2 Modules shall be manufactured to be arrayed in concave curves or circles with a minimum radius of 159 inches (4.03 m).
    - 3.2.3 CONVEX CURVE. (Assets and Modules located outside of a circle or curve).
    - 3.2.4 Modules shall be configured so that they can be arrayed in a convex curve.

\* Customer Specified

### 3.3 CORNERS.

3.3.1 OUTSIDE CORNER–90 Degree. (Assets and Modules placed outside of a box).  
P/N DSC650-200

3.3.2 INSIDE CORNERS - 90 degree. For 90-degree corners a 3 (three) Bollard Module shall be available. P/N DSC650-100

### 4.0 PERFORMANCE.

4.1 Qualification Tests. The module shall have been tested in full scale configuration in accordance with ASTM Designation F 2656 – 07, *Standard Test Method for Vehicle Crash Testing of Perimeter Barriers, August 1, 2007*.

4.2 Crash Rating. The module shall have a certified rating of PU50/ P1

4.3 Dynamic and Permanent Penetration. The module shall specifically have been certified to have a dynamic and permanent penetration of less than 1.0 m in the full-scale test (section 4.1).

### 5.0 QUALITY ASSURANCE PROVISIONS.

5.1 Inspection. Upon completion, the Barrier system will be fully inspected in the manufacturer's shop. The following checks shall be made:

5.2 Workmanship. The Barrier shall have a neat and workmanlike appearance.

5.3 Dimensions. Principle dimensions shall be checked against drawings and ordering information.

5.4 Finish. Coatings shall be checked against ordering information and shall be workmanlike in appearance.

### 6.0 PREPARATION FOR SHIPMENT

6.1 The Barrier system shall be crated or mounted on skids as necessary to prevent damage from handling. The shipping container(s) shall be of sufficient structural integrity to enable the assembly to be lifted and transported by overhead crane or forklift without failure.

\* Customer Specified

7.0 DISCLAIMER.

7.1 Please note - careful consideration must be devoted to the selection, placement and design of a Bollard Array. Just as in the case of a vehicle directing or perimeter security device or gates that block or define a roadway or drive, care must be taken to ensure that approaching vehicle as well as pedestrians are fully aware of the Array. Proper illumination and clearly worded warning signs should be considered. Delta has information available on auxiliary safety equipment not specifically listed herein. It is strongly recommended that an architect and or a traffic and or safety engineer be consulted prior to installation of Bollard Array. Delta will offer all possible assistance in specifying the, equipment, signs and lighting devices but we are not qualified nor do we purport to offer either traffic or safety engineering information.

8.0 PROCUREMENT SOURCE. The Model DSC650 shall be purchased from:

DELTA SCIENTIFIC CORPORATION  
40355 Delta Lane  
Palmdale, California, 93551, USA  
Phone (661) 575-1100  
Email [info@Deltascientific.com](mailto:info@Deltascientific.com)  
[www.deltascientific.com](http://www.deltascientific.com)

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