

MODEL DSC7000(H) DROP ARM BEAM BARRIER SYSTEM HYDRAULIC POWERED

SYNOPSIS

- The Series DSC7000 Drop Arm Beam Barrier System incorporates a unique binary crash resistant arm that is comprised of a special high strength alloy steel shell and a series of high strength composite elastic elements. The strength to weight ratio of the binary beam makes it highly effective as either a manual Barrier, DSC7000(M) or as a powered Barrier system, DSC7000(H).
- The Series DSC7000 Barrier System has been tested in full scale configuration in accordance with the Department of State *Certification Standard Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates*, SD-STD-02.01, Revision A, March 2003. The U.S. Department of State Certified rating is K12.
- The DSC7000(H) version of this system is operated remotely by means of an integral Hydraulic Pumping Unit (HPU) that is wholly enclosed in the hinge end enclosure. The HPU can be powered from a local single or three phase power source.
- Alternatively the DSC7000(H) can be powered and operated automatically from a Battery Powered HPU. The Battery Powered HPU can be maintained at operating power level by a Solar Array or by low power alternative sources.
- DELTA has been manufacturing Deployable Arm Barrier Systems for over **15** years and has more than 3,000 in service worldwide. These include fully automated and manual systems.
- A complete range of Prime Movers, Control Options, Interface Packages, Sensors, Signal Lights, Safety Provisions etc. is available.
- DSC7000 CRASH CERTIFIED DROP ARM BEAM BARRIER SYSTEMS are manufactured by DELTA under an exclusively license of U.S. Patent Number 4,844,653.

1.0 SCOPE

- 1.1 This specification defines the procurement of a hydraulically operated CRASH CERTIFIED DROP ARM BEAM BARRIER SYSTEM, Model DSC7000(H). The system consists of a crash beam, bearing assembly, hinge end support buttress and the hydraulic actuator, power unit, locking bolt with padlock provision, mounting hardware and other options as defined herein.

2.0 BARRIER CONFIGURATION

- 2.1 Barrier Construction. Barrier shall be a structural assembly containing a crash beam hinged at one end – lockable at the other, which can be raised and lowered hydraulically. When in the down locked position the beam shall present a formidable obstacle to vehicles moving in either direction.
- 2.2 ACTUATION. The Drop Arm Barricade shall be raised and lowered by means of a hydraulic cylinder driven by a Hydraulic Power Unit located within the cabinet at the hinge end Buttress.
- 2.3 CONTROL. The Barricade shall be controlled from a push button control station mounted either on the Barrier or carried at the end of a 15 foot (4,6 M) umbilical cord.
- 2.4 Barrier Height. Height of the Barrier shall nominally be 33 inches (0,93 M) as measured from the roadway surface to the centerline of the crash beam. Height can be varied during installation to suit local security requirements.
- 2.5 Barrier Clear Opening. The standard clear opening shall be 144 inches (3,66 M) as measured inside to inside of the hinge and locking buttress. The Barrier can be specified with a clear opening up to 240 inches [9,14 M].
- 2.6 Finish. The foundation base of the Barrier shall be asphalt emulsion coated for corrosion protection. Exposed barrier surfaces shall be painted with a gloss white, two-part epoxy high weather resistant paint (galvanized finish optionally available). The drop arm beam shall be white and fitted with red reflective tape across its front and back.

3.0 HYDRAULIC POWER UNIT

- 3.1 Hydraulic Circuit. Circuit shall incorporate the design concepts as described by US Patent # 4,490,068. Unit shall consist of an electrically driven hydraulic pump, which shall pressurize a high-pressure manifold connected to a hydraulic accumulator. Electrically actuated valves shall be installed on the manifold to allow oil to be directed to the hydraulic cylinders to raise and lower the Drop Arm.

- 3.2 Main Power. The electric motor driving the hydraulic pump shall be fed from (specify actual site voltage, phase and frequency, i.e. 230/3/60). Motor shall be sufficiently sized for the expected number of Barricade operations.
- 3.3 Manual Operation. A hand pump shall be furnished to allow the Barricades to be raised manually in the event of a power interruption.
- 3.4 Construction. The hydraulic power unit and accessories shall be mounted and wired and mounted within the hinge end enclosure.
- 3.5 Manual Locking Pin. The Barrier beam shall be provided with a locking pin with padlock locking point to secure the Barrier in the guard position. Padlock (7/16 inch [11 mm] or smaller shackle) to be furnished by others.

4.0 CONTROL AND LOGIC CIRCUITS

- 4.1 Standard Control Station: A standard control station shall be supplied to control the Barrier operation. This station shall have a key lockable main switch. Buttons to raise or lower the Barrier shall be provided. The control station shall be furnished with a umbilical cord for firmly mounting to the Hydraulic Power Unit or other structure within 15 feet of the Power Unit, or it can be 'hand' carried for inspection duties. (Alternatively the Standard Control Station can be hard wired and mounted within 150 feet of the Hydraulic Power Unit – interconnect cable not included)
- 4.2 CONFIGURATION OPTIONS. A wide range of options such as Prime Movers, Control Options, Interface Packages, Sensors, Signal Lights, Safety Provisions etc. is available. These include the following:
 - 4.2.1 Hydraulic Power Unit – Multiple Barriers. The HPU shall be configured to operate two (three), (or four) Drop Arm Barriers.
 - 4.2.2 Remote Location (HPU). The HPU for the Drop Arm Beam Barrier(s) shall be located at a point remote from the Barrier(s).
 - 4.2.3 Battery Powered Hydraulic Power Unit (BHPU). The BHPU shall be configured to operate one, (two), (three), (or four) Drop Arm Barriers.
 - 4.2.4 Control Circuits. A control circuit shall be provided to interface between one, (two), (three), (or four) Drop Arm Beam Barrier control station(s), HPU (BHPU), timers, relays and other devices necessary for the Barrier operation.

- 4.2.5 Remote Control Panels – Master and Slave. Master and Slave(s) panels shall be provided to operate the Barrier(s) from a single (or multiple) location(s).
- 4.2.6 Weather Resistant HPU Enclosure. A lockable weather resistant enclosure shall be provided for the HPU. The design shall provide for easy access to the HPU for maintenance and emergency operation of the hydraulic system.
- 4.2.7 Heavy Duty Weather Resistant HPU Enclosure. A lockable weather resistant enclosure shall be provided for the HPU fabricated from not less than 0.25 inch [6,35 mm] steel plate. The design shall provide for easy access to the HPU for maintenance and emergency operation of the hydraulic system.

5.0 EXPERIENCE AND CERTIFICATION

- 5.1 Experience. Barrier and auxiliary equipment shall be of a proven design. Manufacturer shall have 15 years documented experience with similar vehicle Barriers.
- 5.2 Qualification Tests. The Model DS7000 Barrier System has have been tested in full scale configuration in accordance with the Department of State *Certification Standard Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates*, SD-STD-02.01, Revision A, March 2003. It shall have a Certified rating of K12.

6.0 QUALITY ASSURANCE PROVISIONS

- 6.1 Testing. Upon completion, the Barrier system will be fully tested in the manufacturer's shop. The following checks shall be made:
- 6.2 Identification. A nameplate with manufacturer's name, model number, serial number and year built shall be located at the hinged end structure.
- 6.3 Workmanship. The Barrier shall have a neat and workmanlike appearance.
- 6.4 Dimensions. Principle dimensions shall be checked against drawings and ordering information.
- 6.5 Finish. Coatings shall be checked against ordering information and shall be workmanlike in appearance.

7.0 SHIPPING AND CRATING

- 7.1 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.

8.0 DISCLAIMER

- 8.1 Please note - careful consideration must be devoted to the selection, placement and design of a Drop Arm Barrier System installation. Just as in the case of any Barricade system, perimeter security device or security gate that blocks a roadway or drive, care must be taken to ensure that approaching vehicle as well as pedestrians are fully aware of the Barriers and their operation. Proper illumination, clearly worded warning signs, auxiliary devices such as semaphore gates, stop-go signal lights, audible warning devices, speed bumps, flashing lights, beacons, etc. should be considered. Delta has information available on many such 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 a Barricade system. Delta will offer all possible assistance in designing the operating equipment, controls and the overall system but we are not qualified nor do we purport to offer either traffic or safety engineering information.

9.0 PROCUREMENT SOURCE

- 9.1 The **Model DSC7000(H)** Drop Arm Barrier System shall be purchased from:

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