

**PROCUREMENT SPECIFICATION
DELTA MODEL DSC1100 TRANSPORTABLE CRASH CERTIFIED
BARRIER SYSTEM**

SYNOPSIS

This Procurement Specification defines a CRASH CERTIFIED - TRANSPORTABLE BARRIER SYSTEM - DELTA Model DSC1100. The system has been twice tested in full scale configuration at an independent testing laboratory and has been certified to have met the U.S. Department of State testing Document SD-STD-02.01 Dated April 1985 with Ratings of **K8/L1 and K4/L2**. It is modular in construction and configured for expedited deployment and, as needed, retrieval and relocation.

This Barrier System can be sited on existing concrete or asphalt roadways or verges; level compacted soils or some combination of these. No excavation or sub-surface preparation is required.

It is a Phalanx Type Barrier Ramp supported by Inertial Pods located on either side of the roadway to be protected. The Pods consist of a permanent steel housing back-filled with site poured concrete, After the pods are positioned they are interlocked with quick lock - unlock pins. Each Pod has forklift slots for moving and positioning.

The Barrier Ramp is raised and lowered into position utilizing one of several operating systems - a **DELTA Hydraulic Power Unit** operated on locally supplied power, a battery operated **DELTA Hydraulic Power Unit** or a **Full Manual System**, or combination thereof. Both the locally powered and the Battery Powered Hydraulic Pumping Unit can be sized to provide pass-through rates suitable for most inspection and identification station requirements.

Operating modes include, full automatic, remote- hard line, remote-radio, card reader, and key switch and by local guard push button station, master(s) and slave(s) control panels...etc. - or by combinations thereof.

GENERAL SPECIFICATIONS

1. PATENT LICENSES

The CRASH CERTIFIED Phalanx Barrier System shall be fully licensed for manufacture under U.S. Patents Numbers 6,382,869, dated May 7, 2002 (Above Grade Mass Displacement Trafficway Barrier), 5,560,733 dated Oct. 1, 1996 (Gas Pre-Charged Mass Counterbalancing, Re: 33201 dated April 17, 1990 (Hydraulic Safety Barrier Traffic-way Controller) and other issued and pending.

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2. SYSTEM SPECIFICATION

- 2.1. Barrier Construction. Barrier shall be an above grade, transportable assembly containing a PHALANX TYPE Full Width Barrier Ramp hinged at both ends, raised and lowered by means of a Hydraulic Operating System. When the Barrier Ramp is raised to the guard position, it shall present a formidable obstacle to approaching vehicles. Upon vehicle impact, the force shall first be absorbed by the Barrier Ramp and then transmitted to the Initial Pods.
- 2.2. Barrier Height. Height of the Barrier shall nominally be 30 inches (0,0760 M) as measured from the roadway surface to the top edge of the Barrier Ramp.
- 2.3. Barrier Clear Opening. The standard clear opening shall be ** inches (**M) as measured inside to inside of the Inertial Pods. (Barrier can be specified with a clear opening from 120 inches [3,05 M] to 180 inches [4,57 M].)
4. Finish. All external surfaces of the Inertial Pods and the Barrier Ramp and support mechanism shall have a rust inhibiting painted surface
5. Barrier Ramp Locking Method. The following Barrier Ramp locking device shall be furnished
 - 2.5.1 Manual Locking Pin. The Barrier shall be provided with a locking pin with padlock locking point to secure the Barrier in the guard position. Padlock to be furnished by others.

3. PERFORMANCE

- 3.1 Configuration Drawing. Delta Drawing 8729, dated April 1, 2002
- 3.2 Experience. Barrier and auxiliary equipment shall be of a proven design. Manufacturer shall have 15 years documented experience with similar vehicle Barriers.
- 3.3 Qualification Tests. Barrier design shall have been successfully tested in full scale configuration in accordance with the Department of State Specification SD-STD-02.01 dated April, 1985 - with **CERTIFIED RATINGS OF K8/L1 and K4/L2.**
- 3.4 Note: Successful full scale crash tests in accordance with Department of State Specification SD-STD-02.01, dated April 1985, were conducted May 1 and May 2, 200 at KARCO Engineering, Adelanto, California.
- 3.5 **PRIME MOVER**
The Barrier Ramp shall be raised into the guard position and lowered to the free-flow position by means of a **[HYDRAULIC POWER UNIT – Local Power ** :HYDRAULIC POWER UNIT – Stand Alone Rechargeable Battery Pack (HPU/DC) ** :FULL MANUAL OPERATING SYSTEM (MPS) :HYBRID OPERATING SYSTEM – BATTERY**

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DRIVEN HYDRAULIC POWER UNIT AND A MANUALLY OPERATED SYSTEM (HPU/DC/M)].**

4. HYDRAULIC POWER UNIT – Local Power Source. **

- 4.1 Hydraulic Circuit. Unit shall consist of an electrically driven hydraulic pump which shall be connected to electrically actuated valves installed on a manifold to allow oil to be driven to a hydraulic cylinder to raise or lower the Barrier. The hydraulic circuit shall include all necessary control logic, interconnect lines and valves.
- 4.2 Main Power. The electric motor driving the hydraulic pump shall be fed from (site voltage, phase and frequency, i.e. 230/3/60).** Motor shall be sufficiently sized for the expected number of Barrier operations.
- 4.2 Frequency of Operation. Barrier shall be capable of _ ** _ complete up/down cycles per hour.

5. CONTROLS - The Barricade shall be controlled by means of (CONTROL AND LOGIC CIRCUITS ** KEYED PUSH BUTTON SWITCH PANEL **)

- 5.1 Control And Logic Circuits **. The following control circuits and stations shall be furnished:
 - 5.1.1 Control Circuit. A control circuit shall be provided to interface between all Barrier control stations and the hydraulic power unit. This circuit shall contain all Programmable Logic Controllers, relays, timers and other devices when applicable.
 - 5.1.2 Voltage. The control circuit shall operate from a (120 volt, 50/60 Hz supply 240 volt, 50/60 Hz or 24 VDC **). An internally mounted transformer shall reduce this to 24VAC (24 VDC) for all external control stations.
 - 5.1.3 Power Consumption. The control circuit power consumption shall not exceed 250 watts basic load, plus 200 watts for each Barrier in the system.
 - 5.1.4 Construction. The control circuit shall be mounted in a general-purpose enclosure. All device interconnect lines shall be run to terminal strips.
- 5.2 Standard Remote Control Station. A standard remote control station shall be supplied to control the Barrier operation. This panel shall have a key lockable main switch. Buttons to raise or lower the barrier shall be provided
 - 1. Construction. The control station shall be mounted in a weather resistant, minimum rating NEMA 4 (IEC IP65), electrical enclosure. All connection points shall be clearly identified and coded to the applicable Delta drawing.

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2. Voltage. The remote control panel shall operate on 24 VDC.

5.2.3 Panel shall be equipped with a timer circuit to notify the operator via an annunciator "squealer" that the Barrier has been left in the up position for too long a time period. The time interval shall be customer selectable.

1. Position Indicating Lights. The Barrier shall be supplied with a limit switch to actuate when the Barrier is securely down. The limit switch shall operate panel lights to indicate the Barrier secure and not secure condition.

6. KEYED PUSH BUTTON SWITCH STATION **

1. The Barricade Ramp shall be remotely controlled from a Keyed Push Button Station. The Station shall include 'Barrier Raise' and 'Barrier Lower' push buttons and a locking key switch.
2. The station shall be suitable for stand-alone or console mounting and will be oil, dust and drip tight (NEMA 3 equiv.)

7. HYDRAULIC POWER UNIT –BATTERY POWERED** (Reference Delta Procurement Specifications – Procurement Specifications - Series H1500).

7.1 The Barrier System shall be raised and lowered by means of a Battery Driven precision Hydraulic Power unit.

7.2 The standard rising speed of the Barrier Ramp to a full guard position shall be field adjustable within the range of 5-12 seconds. Lowering speed shall be within the range of 3 –15 seconds. Barrier direction shall be instantly reversible from the control station(s) or manual push button control, at any point in the cycle

7.3 Frequency of Operation - (Continuous) Barrier shall be supplied with a re-charging system sized to operate keep the Battery Pack at a level to operate the barrier _**_ complete up/down cycles per hr. on a 24 hour per day schedule.

7.4 Rechargeable Battery.

7.4.1 The Hydraulic Power System shall be powered by a high energy, deep discharge battery. When fully charged it shall be capable of operating the Barrier System 150 full cycles without external recharging provisions.

7.4.2 Solar Re-Charging System**. The system shall be supplied with a **Solar Array** sized to provide sufficient power to meet the Frequency of Operation (Continuous) rate as specified herein.

7.4.3 Local Power Re-Charging System**. The system shall be supplied with a **Battery Charger** operating from local sources sufficient to meet the Frequency of Operation

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(Continuous) rate as specified herein.

5. **Field Interchangeable Rechargeable Battery Pack.** The system shall be supplied with --
**-- Portable Rechargeable Battery Packs suitable for rapid field replacement or interchange.

7.5.1 When fully charged the Rechargeable Battery Pack will operate the Barrier 75 full cycles without external re-charging.

5.2. Each Rechargeable Battery Pack shall have a built-in battery charging circuit that will operate from either 115 VAC 50/ 60 Hz.

5.3. Each Rechargeable Battery Pack shall be provided with connection points and for recharging from standard automobile power outlets.

5.4. Each Battery Pack shall have Indicators showing battery status and condition.

5.5. The Battery Pack will be in a self-contained plastic insulated case and have suitable carrying handles and electric power cord for convenient recharging.

8. FULL MANUAL OPERATING SYSTEM (MPS)**

8.1 The Barrier Ramp shall be raised to the guard position by means of a counter-balanced Hydraulic System and a manually operated hand cranked rotary pump.

8.2 The Barrier Ramp shall be configured so that it may be brought to a full guard position within 60 seconds by a person of average size and strength.

8.3 The Barrier ramp shall be lowered by a conveniently located valve control. Lowering speed shall be in the range of 5 – 12 seconds.

9. HYBRID OPERATING SYSTEM – Battery Driven Hydraulic Power Unit (Primary), and a Manually Operated System (Back-up/stand-by). (H1500). ** (Reference Delta Scientific Corp Procurement Specifications – Series H1500)

9.1 Battery Powered Operation – Battery Powered Hydraulic Power Unit.

9.1.1 The Barrier System shall be raised and lowered by means of a Battery Driven precision Hydraulic Power Unit. The standard rising speed of the Barrier Ramp to a full guard position or to lower it for free traffic flow shall be field adjustable within the range of 7 – 12 seconds. Barrier direction shall be instantly reversible at any point in its cycle from the control station(s) or manual push button controls.

9.2 Rechargeable Battery .

9.2.1 The Hydraulic Power System shall be powered by a high energy, deep discharge battery. When fully charged it shall be capable of operating the Barrier System 150 full

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cycles without external recharging provisions

9.2.2 Solar Re-Charging System**. The system shall be supplied with a **Solar Array** sized to provide sufficient power to meet the Frequency of Operation (Continuous) rate as specified herein.

9.2.3 Local Source Re-Charging System**. The system shall be supplied with a **Battery Charger** operating from local sources sufficient to meet the Frequency of Operation (Continuous) rate as specified herein.

9.2.4 Each Rechargeable Battery Pack shall be provided with connection points and cables for recharging from standard automobile power outlets.

10. FIELD INTERCHANGEABLE RECHARGEABLE BATTERY PACK. The system shall be supplied with --**-- Portable Rechargeable Battery Packs suitable for rapid field replacement or interchange.

10.1 When fully charged the Rechargeable Battery Pack will operate the Barrier 75 full cycles without external re-charging.

10.2 Each Rechargeable Battery Pack shall have a built-in battery charging circuit that will operate from a locally available power source.

10.3 Each Battery Pack shall have Indicators showing battery status and condition.

10.4 The Battery Pack will be in a self-contained plastic insulated case and have suitable carrying handles and electric power cord for convenient recharging.

11. HAND CRANKED MANUAL HYDRAULIC POWER SYSTEM.**

11.1 The manual operating system shall be incorporated in the Hybrid System so as to be available for independent use or to operate in parallel with the Battery Driven Hydraulic Power Unit.

11.1.1 The time required to raise the Barrier Ramp to a full guard position will vary. A person of average size and strength can bring the Barrier Ramp to a full guard position within 60 seconds. Pressing a control button shall lower the Barrier Ramp. Lowering speed is in the range of 5 – 12 seconds.

12. QUALITY ASSURANCE PROVISIONS

12.1 Testing. Upon completion, the Barrier system will be fully tested in the manufacturer's shop. The following checks shall be made:

12.1.1 Identification. A nameplate with manufacturer's name, model number, serial

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number and year built shall be located at the hinged end structure.

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

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

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

13. PREPARATION FOR SHIPMENT

13.1. 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.

14. DISCLAIMER

Please note - careful consideration must be devoted to the selection, placement and design of a Vehicle Barrier. Just as in the case of any traffic system, perimeter security device or security gate that blocks a roadway or drive, care must be taken to ensure that approaching vehicles 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.

15. PROCUREMENT SOURCE

The **Model DSC1100 Transportable Crash Certified Barrier System** shall be purchased from:

DELTA SCIENTIFIC CORPORATION

24901 West Avenue Stanford

Valencia, California, 91355, USA

Phone (661) 257-1800

FAX (661) 257-1081

Email scott@deltascientific.com

www.deltascientific.com

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