

PROCUREMENT SPECIFICATION

AUTOMATIC RETRACTABLE BOLLARD SYSTEM – PNEUMATIC

MODEL DSC305-PE CHROME SERIES

BACKGROUND INFORMATION

The Model DSC305-PE Bollard System (“DSC305”) is designed to provide positive control of automobiles and trucks into and out of restricted areas. Precision steel bollards raised and lowered by a quiet pneumatic source are used as a primary bulwark against unauthorized or wayward vehicle and to stop aggravated or accidental vehicle attacks. Originally designed to protect against terrorist attack the DS305 is configured to stop and destroy heavy trucks and high speed passenger cars.

The DSC305 can be a standalone traffic controller for a single lane traffic-way, or it can be arrayed to control multiple lanes of bi-directional traffic.

DS305 under remote ‘lock down’ are used to protect parked vehicles or prevent movement of passenger cars, trucks, wheeled industrial rigs or trailers. Warehouse doors backed up with a DSC305 makes large vehicle traffic nearly impossible.

Individual reserved VIP parking spaces can be control either remotely or by the authorized vehicle driver.

When used in conjunction with a decorative pedestrian gate or a guard operated drop arm gate, the DSC305 offer protections against gate runners by remaining in the guard position until the guard approves the visitor.

A DSC305. System with bollards arrayed as a Sally Port can practically eliminate tail-gating vehicles.

SITE SPECIFIC ARRAY DEFINITION

SYSTEM

- A system shall consists of one or more vertical lift BOLLARDS powered by a PNEUMATIC POWER UNIT (PPS). *A PPS consists of the pneumatic power unit, control logic and control panel(s), a separate box containing, pneumatic logic switches, flow controls and compressed air treatment system and interconnect hose(s).*
- The BOLLARD(S) shall be finished with a polished hard chrome treatment. *(Alternatively may be specified with Custom Finish to match existing ARCHITECTURAL TREATMENTS or STYLES.)*
- SAFETY AND ENVIRONMENTAL OPTIONS include signal lights, gate arm barriers; safety loops; IR beams, heaters and sump pumps.
- TOUCH SCREEN CONTROL PANELS or PUSH BUTTON CONTROL PANELS. Remotes and Masters.
- ACCESS CONTROL LOGIC, including traffic options for single and multiple lane access control, "Sally Port", single lane, bi-directional, presence detection, synchronized bollards activation with swing or slide gate Direct activation from Card reader, key switch interface or remote identification systems.

MODEL DSC305-PE PNEUMATIC BOLLARD SYSTEM

CONFIGURATION

2.0 Bollards

- 2.1 Bollard Arrangement. The system shall have a total of ____ Bollards arrayed in accordance with either 2.1.1 or 2.1.2. *(Specify the total number of Bollards in the system whether operated independently or in combination). A typical arrangement is three bollards per lane operated together as a set. Multiple lanes can be controlled from common PPS's.)*

Select either 2.1.1 or 2.1.2 to define the operating pattern of the Bollards within the system.

- 2.1.1 Single Bollards Individually Operated. Bollard system shall have a total of ____ bollards. *(Each individual Bollard shall be operated independently from any other Bollard within the system. Each Bollard shall have its own controls.)*
- 2.1.2 Multi Bollards Operating in Sets. Bollard system shall have ____ sets *(Specify the number of sets)*. Each set shall consist of ____ Bollards *(Specify the number of Bollards per set)*. Each set of Bollards shall have its own controls and operate independently from each other set within the system.
- 2.1.3 Construction. Bollard shall be a below grade assembly containing a heavy steel cylindrical weldment capable of being raised to an above grade position. The guard position shall present a formidable obstacle to approaching vehicles. Upon impact, forces shall be first absorbed by the weldment and then transmitted to the foundation of the unit.
- 2.1.4 Bollard Height. Height of the Bollard shall be 24 inches (610 mm) as measured from the top of the foundation frame to the top of the Bollard assembly.
- 2.1.5 Bollard Dimensions. Bollard shall be 5.56 inch [141 mm] in diameter.
- 2.1.6 Finish. The exposed portion of the bollard including the road plates shall be polished and chrome plated. (Road plates can be sand blasted and then chrome plated.)

(Alternatively the exposed portion of the Bollard assembly shall be coated with industrial enamel for corrosion protection. The roadway plates shall have a non-skid surface. The visible portion of the Bollard shall be white and have yellow/black diagonal stripes [or alternately specified colors].

2.2 Pneumatic Power System (PPS)

The PPS shall include the compressor and air conditioning and treated air, command and control station(s), control logic, interconnecting pneumatic elements, valves, electric and pneumatic logic switches, and compressed air treatment stations.

Main Power. The electric motor driving the compressor shall be fed from ____ *(Specify actual site voltage, phase and frequency, i.e. 230/3/60 as an example)*. Motor shall be sufficiently sized for the expected number of bollard operations.

- 2.2.1 Power Off Operation. The tank reservoir shall be sized to allow ____ operations of the Bollards as defined in 2.1.1 or 2.1.2 in a power off situation.

- 2.2.2 The bi-directional control valves shall be manually operable in the event of a power outage.
- 2.2.3 Hourly Through Put Rate, The compressor and accessories shall be sized to maintain a through put rate of _____ per hour of the Bollards as defined in 2.1.1 or 2.1.2.
- 2.2.4 Peak Operating Rate, The compressor and accessories shall be sized to maintain a through put rate of _____ per hour of the Bollards as defined in 2.1.1 or 2.1.2 for a period of _____minutes.
- 2.2.5 Construction. The pneumatic power system compressor and accessories shall be mounted and wired on an integral steel skid. The PPS shall be mounted indoors or in an optional weather resistant enclosure.

2.3 Standard Control and Logic Circuits

The following circuits and control stations shall be furnished:

- 2.3.1 A control circuit shall be provided to interface between all Bollard control stations and the PPS. This circuit shall contain logic components, relays, timers and other devices necessary for the Bollard operation.
- 2.3.2 Voltage. The control circuit shall operate from a 120/240 volt, 50/60 Hz supply (*optionally 24 VDC*). An internally mounted power supply shall reduce this to 24 VDC for all external control stations.
- 2.3.3 Power Consumption. The control circuit power consumption shall not exceed 250 watts basic load, plus 200 watts for each Bollard or set in the system.
- 2.3.4 Construction. The control circuit shall be mounted in a general purpose enclosure. All device interconnect lines shall be run to terminal strips.

2.4 Touch Screen Control Panels

Touch Screen Panels. As an option Touch Panel controls can be provided. Touch Screens are available in standard sizes from 8 to 15 inches in a rack mount or table top console.

- 2.4.1 Configurations. The master and slave Touch Screens have all the standard functionality of the Remote Control panels in sections 2.5 and these additional features:
- 2.4.2 Data Logging – Records and maintains a time stamped record of all command signals issued from the Touch Panel and any Auxiliary Controls. This record log can be easily exported into a spreadsheet on computers.

- 2.4.3 Layering – Locations with multiple barriers can be presented in a Layered fashion allowing control from one convenient panel opposed to multiple panels or one large pushbutton panel.
- 2.4.4 Customizable – Each location allows the end user to change the name of the location and barrier to correspond with the site's naming.
- 2.4.5 Cycle Count and Alarms – The Touch Screens monitor the number of cycles a barrier completes and will alert the operator when maintenance is due (based on cycles or days depending on site).
- 2.4.6 Passwords – The Touch Screens offer passwords that can be set up at different operating levels allowing access to differing functional configurations per user
- 2.4.7 Video – Video Touch Screen models are available for control. Having a live feed of the barriers allows the operator to safely monitor and control the area from a distant remote location.
- 2.4.8 Ethernet and Fiber Optic communications shall be available
- 2.4.9 Display screens with location names, maps, moving barricade graphics all available.
- 2.5 Remote Control Panels, Push Button.** Specify Remote Control Master and the number of slave control panels and push buttons required.
 - 2.5.1 Remote Control Master Panel. A remote control master panel shall be supplied to control Bollard function. This panel shall have a key lockable main switch with "main power on" and "panel on" lights. Buttons to raise and lower each Bollard (or set) shall be provided. Bollard "up" and "down" indicator lights shall be included for each Bollard (or set). The EFO shall be furnished with EFO active light and reset button. The remote control master panel shall have a key lockable switch to arm or disarm the remote slave panel(s). An indicator light shall show if the slave panel is armed.
 - 2.5.2 Remote Control Slave Panel. A remote control slave panel shall also be supplied to control the Bollard operation. This panel shall have a "panel on" light that is lit when enabled by a switch on the remote control master panel. Buttons to raise or lower each Bollard (or set) shall be provided. Bollard "up" and "down" indicator lights shall be included for each Bollard (or set).
 - 2.5.3 Voltage. The remote control panel(s) shall operate on 24 VDC.

- 2.5.4 Construction. The remote control panel(s) shall be a standard 19 inch electronics rack type surface mount panel with all devices wired to a terminal strip on the back.
- 2.5.5 Panel(s) shall be equipped with a timer circuit to notify the operator via an annunciator "squealer" that the Bollard has been left in the down position for too long a time period. The time interval shall be customer selectable.

3.0 ACCESSORY EQUIPMENT Any or all of the following may be selected:

- 3.1 Electro-Mechanical Signal Gate. An electrically operated wood arm signal gate shall be supplied to alert vehicle drivers of the Bollard position. The gate operate shall interface with the Bollard at the control circuit. The control circuit shall close the gate at the Bollard "up" command and remain closed until the Bollard is fully lowered. The wood arm shall be ____ foot (6, 8, 10 or 12 foot can be specified) long and be striped with yellow/black tape. The gate assembly shall be mountable directly to the roadway surface.
- 3.2 Stop/Go Traffic Lights. Red/Green 8 inch traffic lights shall be supplied to alert vehicle drivers of the Bollard position. The green light shall indicate that the Bollard is fully down. All other positions shall cause the light to show red. Brackets shall be supplied to allow light(s) to be located on a (3.5 inch OD post) (wall) (3.5 inch OD post - back to back). The light operating voltage shall be 120 volts (alternately 240 volts), power consumption 40 watts per light maximum. LED Stop/Go Traffic Lights can be alternately specified.
- 3.3 Sump Pump. A self priming sump pump shall be supplied to drain water collected in the Bollard foundation. The pump shall have the capacity to remove ____ inches per minute of rainfall a distance of _____ feet to customer supplied discharge drain. Pump operating voltage shall be 120/1/50-60 (alternately 240/1/50-60).
- 3.4 Safety Interlock Detector. A Bollard vehicle detector safety loop shall be supplied to prevent the Bollard from being accidentally raised under an authorized vehicle. The detector shall utilize digital logic have fully automatic tuning for stable and accurate long term reliability. The output of the detector shall delay any Bollard rise signal when a vehicle is over the loop.
- 3.5 Weather Resistant PPS Enclosure. A lockable weather resistant enclosure shall be provided for the PPS. The design shall provide for easy access to the PPS for maintenance and emergency operation of the system. Enclosure shall be provided with a corrosion resistant coating.

4.0 PERFORMANCE

4.1 Experience

4.1.1 Bollard and auxiliary equipment shall be of proven design. Manufacturer shall have over 10,000 Bollard type vehicle barriers in field operation for a minimum of ten years with documented field experience for all major components and design features.

4.2 Stopping Capacity

4.2.1 Normal Operation. Bollard(s) shall provide excellent security and positive control of normal traffic in both directions.

4.2.2 The Bollard system shall be designed to stop a vehicle attacking from either direction.

4.2.3 A single Bollard can be expected to stop and disable a large passenger vehicle or a pickup truck weighing up to 4,500 pounds [20 Kilonewtons] traveling at 20 mph [32 kph].

4.3 Speed of Operation

4.3.1 Normal Operation. Each Bollard (or set) shall be capable of being raised or lowered in 5 to 10 seconds (customer adjustable). Bollard direction shall be instantly reversible at any point in its cycle from the control stations.

5.0 ENVIRONMENTAL DATA (Please supply the following):

Bollard shall operate satisfactorily under the following environmental conditions:

5.1 Extremes in temperature

Yearly maximum drybulb temp _____ f/c

Yearly minimum drybulb temp _____ f/c

5.2 Rainfall

Yearly average _____ inches

Maximum expected hourly rate _____ inches/hour

5.3 Snowfall

Maximum expected hourly rate _____ inches/hour

Roadway will be (mechanically/manually/chemically) cleared _____.

6.0 QUALITY ASSURANCE PROVISIONS

- 6.1 **Testing.** Upon completion, the Bollard system will be fully tested in the manufacturer's shop. In addition to complete cycle testing to verify function and operating speeds, 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 within the maintenance access area.
- 6.3 **Workmanship.** The Bollard and subsystems shall have a neat and workmanlike appearance.
- 6.4 **Dimensions.** Principal 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 PREPARATION FOR SHIPMENT

- 7.1 The Bollard 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 MANUFACTURER'S DATA

- 8.1 Drawings and installation data. The Bollard system drawings and installation, maintenance and operating manuals shall be sent to purchaser within 4 weeks of order. ___ additional copies shall be supplied (1 copy supplied at no cost).

9.0 DISCLAIMER

Please note - careful consideration must be devoted to the selection, placement and design of a Bollard 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 vehicles as well as pedestrians are fully aware of the Bollards 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 Bollard 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.

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10.0 PROCUREMENT SOURCE

The **Model DSC305-PE** Pneumatic Bollard System shall be purchased from:

DELTA SCIENTIFIC CORPORATION

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