

# **SPECIFICATION FOR MODEL 820 SHALLOW MOUNT VEHICLE BARRICADE**

## **PART I - GENERAL**

### **1.1 WORK INCLUDED IN THIS SECTION**

Furnish labor, materials, inspections, supervision, etc., necessary for the complete installation and operation of vehicle wedge barrier(s) as shown on the plans and specified herein. Work includes furnishing all items and accessories required or necessary for the correct operation of the vehicle wedge barrier(s) as shown on plans and/or specified herein.

### **1.2 QUALITY ASSURANCE**

The Company shall specialize in manufacturing of the type barriers specified, with a minimum five (5) years experience.

The installer shall have a minimum three (3) years installation experience of similar equipment.

### **1.3 SUBMITTALS**

Submittals shall contain sufficient plans, elevations, sections, and schematics to clearly describe the apparatus. All conduit runs, controls and similar drawings shall be included.

Submittals shall include (but not necessarily limited to) the following:

All high and low voltage conduit runs.

Mounting dimensions and locations.

Details of electronic equipment, electrical equipment or any other apparatus deemed necessary by the Owner or Owners representative.

Installer shall provide two (2) copies of submittal packages.

### **1.4 INSPECTIONS**

Procure all the necessary and usual inspections and certificates for all work to be installed. Deliver same to the Owner/ Owners representative before final acceptance.

## **PART II – PRODUCTS**

### **2.1 SHALLOW MOUNT WEDGE BARRIER**

## **A. Application**

1. The barricade shall be a shallow frame below grade assembly that can be cast in a foundation not exceeding 16 inches (406.4 mm) in depth. The assembly shall have a heavy steel weldment capable of being rotated to an above grade position. The raised position shall present an obstacle to approaching vehicles. Upon impact, forces shall be first absorbed by the steel weldment and then transmitted to the foundation of the unit.

## **B. Features**

1. Height of the barricade shall be 36 inches (914 mm) as measured from the top of the foundation frame to the top of the barrier inclusive of the top road plate.
2. The barricade width shall be 108 inches (2.74 M). (*Barricade can be specified to a maximum length of 168 inches (4.26 M)*).
3. The foundation depth of the barrier frame shall not exceed 16 inches (406.4 mm).
4. The barricade has an optional accordion skirt constructed of high-wear polypropylene. When in the raised position the skirt shall span the full width of the barricade enclosing the inner components of the barricade cavity while in the raised position. The skirt shall have black with yellow stripes.
5. The skirt shall be removable to facilitate barricade maintenance and service using standard hand tools.
6. The barrier shall be hot-dip galvanized for superior rust protection.
7. The roadway plate shall have a non-skid surface and painted with black and yellow diagonal stripes.

## **C. Functional Specifications**

1. Unit shall consist of an electrically driven hydraulic pump which shall pressurize a high pressure manifold connected to a hydraulic type accumulator. Electrically actuated valves shall be installed on the manifold to allow oil to be driven to the up side of a double acting hydraulic cylinder to raise the barricade. The system shall be designed to allow gravity to lower the barrier when a down command is given. The hydraulic circuit shall include all necessary control logic, interconnect lines and valves to override and lock out the normal speed control valve for emergency fast operation of the barricade.
  - a. The accumulator shall be sized to allow operation of the barricades in the event of a power outage. The bi-directional control valves shall be manually operable in the event of a power outage.
  - b. A hand pump shall be furnished to allow the barricades to be raised manually in the event of a power failure.
  - c. Hydraulic cylinder and hoses shall not be visible in either the raised or lowered positions. The hydraulic cylinder shall be accessible through the service panel located on the back of the barrier frame.
  - d. A lockable weather resistant enclosure shall be provided for the hydraulic pumping unit. The design shall provide for easy access to the HPU for maintenance and emergency operation of the hydraulic system. Enclosure shall have a powder coat finish. The hydraulic pumping unit shall have 3 lockable easy access side panels and a removable lockable top panel for maintenance.
2. Power System
  - a. The electric motor shall be capable of producing a minimum 3 horsepower.
  - b. The unit shall be made available as 208/230 single phase or 208/230/460 three-phase AC voltage.

The motor shall be of high starting torque, continuous duty, and industrial type, protected by either a thermal or current sensing overload device.

### 3. Control Circuitry

- a. A built-in PLC controller shall interface between the barrier control stations and the hydraulic power unit. The PLC shall include all necessary inputs, outputs, timers and logic necessary for barrier operation. Relays or proprietary control boards shall not be acceptable.
- b. The control circuit inputs shall operate from a 24 volts DC. An internal transformer and rectifier shall provide 24 volts DC for the control panel and customer dry contacts.
- c. There shall be 120 volts AC power available in the control cabinet for accessories requiring 120 volts.
- d. The control circuit shall be mounted in an enclosure with the hydraulic pumping unit. The enclosure shall be of sufficient size and rating to accommodate accessory devices. All accessory device wiring shall connect to the included terminal strips.
- e. The PLC is designed to accept dry contact inputs from various types of devices.

## 2.2 CONTROL PANELS

*(Any or all of the following control panels may be specified)*

### A. Remote Control Panel

1. A remote control panel shall be supplied to control the barricade operation. This panel shall have a key lockable main switch with "main power on" and "panel on" lights. Buttons to raise or lower each barricade shall be provided. "Up" and "down" indicator lights shall be included for each barricade. The Emergency Fast Operate (EFO) feature shall be operated from a larger push button designated as EFO. The EFO shall also be furnished with EFO active light and reset switch.
  - a. The remote control panel shall operate on 24 volts.
  - b. The remote control station shall be a standard 19 inch electronics rack type surface mount panel or desktop console type with all devices wired to a terminal strip on the back.

### B. Remote Control Master Panel

1. A remote control master panel shall be supplied to control barricade operation. This panel shall have a key lockable main switch with "main power on" and "panel on" lights. Buttons to raise and lower each barricade shall be provided. "Up" and "down" indicator lights shall be included for each barricade. The Emergency Fast Operate circuit (EFO) feature shall be operated from a larger push button designated as EFO. The EFO shall be furnished with an active light and reset switch. The remote control master panel shall have a switch to arm or disarm the remote slave panel. An indicator light shall show if the slave panel is armed.
  - a. The remote control panel shall operate on 24 volts.
  - b. The remote control station shall be a standard 19 inch electronics rack type surface mount panel or desktop console type with all devices wired to a terminal strip on the back.

### C. Remote Control Slave Panel

1. A remote control slave panel shall also be supplied to control barricade 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 barricade shall be provided. Barricade "up" and "down" indicator lights shall be included for each barricade. The Emergency Fast Operate (EFO) feature shall be operated from a larger push button

designated as EFO. When the slave panel EFO is pushed, an EFO "active" lamp will light and operation of the barricade will not be possible until reset at the master panel.

- a. The remote control panel shall operate on 24 volts.
- b. The remote control station shall be a standard 19 inch electronics rack type surface mount panel or desktop console type with all devices wired to a terminal strip on the back.

## **2.3 ACCESSORY DEVICES**

*(Any or all of the following may be specified)*

### **A. Electro-Mechanical Barrier Gate**

1. An electrically operated wood or aluminum arm barrier gate shall be supplied to alert vehicles of the barricade position. The gate operator shall interface with the barricade control circuitry. The barrier gate shall close when the barricade "up" command is engaged and remain closed until the barricades are fully lowered. The gate assembly shall be mounted directly to the roadway surface.

### **B. Traffic Signals**

1. 8 inch traffic lights shall be supplied to alert vehicles of the barricade position. The (specify color) light shall indicate that the barricade is fully down. All other positions shall cause the light to show (specify color). The traffic lights shall be supplied with a 6 foot tall 3.5 inch OD mounting post. The operating voltage shall be 120 volts

### **C. Sump Pump**

1. A self priming sump pump shall be supplied to drain water collected in the barricade foundation. The pump shall feed to customer supplied discharge drain. Pump operating voltage shall be 120 volts.

### **D. Vehicle Detection Loop**

1. A vehicle loop detector shall be supplied to prevent the barricade from being raised under an authorized vehicle. The detector shall utilize digital logic have fully automatic tuning for stable and accurate long term reliability. The detector shall delay any barricade raise signal (except for EFO command) when a vehicle is over the loop.

## **2.4 PERFORMANCE**

### **A. Testing**

1. Barrier design shall have successfully passed actual full scale crash tests conducted by a qualified independent agency.
2. Engineered data and/or computer models shall not be recognized.

### **B. Evaluation**

1. The Barricade shall be certified by the United States Department of State to have a performance evaluation per D.O.S. Specification SD-SDT-02.01 (Dated April 1985) of K12.

### **C. Stopping Capacity**

1. The barricade system shall be designed to impede a vehicle approaching from one direction.
2. The barricade system shall be capable of stopping a vehicle weighing 15,000 pounds traveling at 50 mph.

#### **D. Normal Operating Speed**

1. Barricade shall be capable of being raised or lowered in 3 to 15 seconds under normal operating conditions. The hydraulic pumping unit shall be equipped with field adjustable speed controls, to adjust the speed to meet the application requirements.

#### **E. Emergency Fast Operation**

1. Barricade shall rise to the full up position from fully down position in less than two seconds when the Emergency Fast Operation button is depressed, provided the system has not previously been exhausted by manual operation or high speed cycle rates. Barricade shall remain in the up and locked position. Normal up/down buttons shall remain inoperable until the EFO has been reset.

### **2.5 QUALITY ASSURANCE**

#### **A. Factory Testing**

1. Upon completion, the barricade system will be fully tested for proper operation by manufacturer prior to shipment. A nameplate with manufacturer's name, model number, and serial number shall be located within the hydraulic pumping unit.
2. All critical dimensions shall be checked for accuracy against customer approved shop drawings.

### **2.6 PROCUREMENT SOURCE**

The hydraulic barricade system shall be model 820 as manufactured by **B&B ARMOR (800-367-0387), 5900 South Lake Forest Drive, Suite 230, McKinney, Texas 75070.**

## **PART III – EXECUTION**

### **3.1 INSTALLATION**

- A. Installation shall be performed according to the manufacturer's instructions. Verify all component locations with contract drawings and shop drawings.
- B. Any disagreement between the Plans, Specifications, and Ordinances, must be called to same before signing of the shop drawings. After the shop drawings have been signed, the Contractor is responsible for having all work meet requirements of the governing ordinances.