

### General Notes

#### Vehicle Barriers

A. HySecurity Vehicle Barriers Model StrongArm M30 with Smart Touch Controller, or other comparable barrier, as approved by the architect.

Substitute barriers that are approved will be published in an Addendum, not less than ten days prior to bid opening. Requests for substitution will include the amount of savings to be passed on to the owner.

#### Operation

Operation shall be by means of a dual acting hydraulic cylinder acting directly on the drop arm to move the arm through ninety degrees. The arm travel time varies depending upon version ordered. An absolute position-sensing device that accurately reads the position of the cylinder and arm shall continuously monitor operation to the fully open and fully closed position. The system shall function normally without need for springs or weights to counterbalance the arm. Gears, sprockets, belts or pulleys shall not be incorporated in the operator. Polymeric straps suspended in the arm shall accomplish arresting of vehicles. The standard finish of the chassis and body of the operator shall be a hot dipped galvanize coating per ASTM A123 G85, or custom color per customer order. All models include a variable speed motor drive and two brake valves to gradually stop and hold the arm without applying a shock load to the arm or barrier assembly. Barrier shall hydraulically lock in the closed position. Manual operation, in case of power failure, shall be accomplished by the use of a "pull to release" bypass valve, which unlocks the operator and allows the arm to be operated by a hand pump.

The vehicle barrier shall be certified by a third party licensed engineer to be capable of withstanding a direct impact from a vehicle to the M30 level specified in ASTM F2656 for 12' and 24' lengths. The vehicle barrier shall have successfully passed testing at an accredited test facility to ASTM F2656 as validation of the engineering certification.

#### *Safety Features shall include as a minimum:*

- Lower barrier arm at a height of 18" (457mm) from grade to prevent smaller vehicles from penetrating under the main barrier arm.
- The barrier arm shall contain LED-warning lights to enhance night visibility.
- The barrier shall include a red – amber stoplight to display status to vehicles.
- A photoelectric eye capable of detecting a person or vehicle in the path of the barrier to prevent closure of the barrier arm when an obstruction is present. This feature shall not be active during
- Emergency Fast Close.
- Shield to prevent entrapment of bystanders between arms and catch post.

#### *Schedule of length and speed capacities:*

- StrongArm M30-12, -14 Travel time not to exceed six seconds from fully closed to fully open position. Maximum clear opening shall be 14' (4.3m).
- StrongArm M30-16, -18 Travel time not to exceed seven seconds from fully closed to fully open position. Maximum clear opening shall be 18' (5.5m).
- StrongArm M30-20, -22, -24 Travel time not to exceed eight seconds from fully closed to fully open position. Maximum clear opening shall be 24' (7.3m).
- All units shall contain, as standard equipment, a provision for Emergency Fast Close operation that shall move the barrier from fully open to the fully closed position in 1.5 seconds less than the normal travel time to open.

#### *Standard components shall include as a minimum:*

- Chassis: shall be 3/8" (9.5mm) steel plate, welded, and edges ground smooth.
- Cover: shall be 14 gauge galvanized sheet steel, with a security lock to limit access.
- Main shaft: shall be 3" (76mm) diameter, high strength steel alloy.
- Heavy duty sealed 1 15/16" (49mm) bearings, with cast iron pillow blocks.
- Resilient physical stop limiting open and close travel and to cushion stop at each end of

travel.

- Hydraulic valves: Shall be individually replaceable cartridge type, in an integrated hydraulic manifold.
- Hydraulic fluid: High performance type with a viscosity index greater than 375 and temperature range -40F to 167F (-40 to 75C) degrees. (Optional biodegradable fluid requires a heater)
- A zero to 2000-PSI (13.79 MPa) pressure gauge, mounted on the manifold for diagnostics, shall be a standard component.
- The hydraulic fluid reservoir shall be formed from a single piece of metal, non-welded, and shall be powder painted on the inside and the outside, to prevent fluid contamination.
- Arm: Aluminum oval shape for optimal strength, wind resistance and corrosion protection
- Arm striping: shall be reflective red and white vertical stripes 16" (406mm) in width.
- Finish: shall be hot dipped galvanize coating per ASTM A123 G85, or custom color option.
- Red LED lights shall be integrated into the barrier arm.

#### *Minimum standard electrical components:*

- Pump motor: 2 HP minimums. 56C, TEFC, continuous duty, three phases, with a service factor of 1.15, or greater. (Note, the VFD converts single phase input power to drive a three phase motor)
- Motor: shall have internal overload protection.
- Variable frequency drive to enable variable displacement pump operation.
- Controls: Smart Touch Controller Board with 256K memory containing:
  - Built in warning buzzer for Emergency Fast Close and in the event of Alerts, Faults, or Errors;
  - Built in timer to close;
  - Liquid crystal display for reporting of functions;
  - 24 programmable output relay options;
  - Anti-tailgate reporting mode;
  - Built-in power surge/lightning strike protection;
  - Menu configuration, event logging and system diagnostics easily accessible with a PC and HySecurity's free START software;
  - RS232 port for connection to laptop or other computer peripheral;
  - RS485 port for connection of interlocking gate systems or interfacing to external control systems.
- Control circuit shall be 24 VDC.
- Control transformer shall be 75 VA minimums, with multiple primary taps.
- Sockets for up to four HySecurity HY-5A plug-in vehicle detectors.
- Open and close limits shall be via encoder, providing continuous position sensing of arm position and the stop positions shall be adjustable from the controller with an LCD display.

#### *Optional control devices:*

Card reader, key switch, radio control, pushbuttons, vehicle detectors, or keypads.

#### *Other options:*

- Heater with thermostat for cold or damp climates or for use with biodegradable hydraulic oil.
- HY-5A plugs in vehicle detectors.
- Limited, custom color finishes.
- Main and remote operator panels.
- Magnetic Lock
- Biodegradable, non-toxic hydraulic fluid.
- Voltages available: 208-240 VAC 60/50 Hz single phase or three phases or 380-480V 60/50 Hz three phase. 115 VAC single phases is not available.

### Factory Testing

- Fully assemble and test, at the factory, each barrier to assure smooth operation, sequencing and electrical connection integrity. Apply physical loads to the operator to simulate field conditions. Tests shall simulate physical and electrical loads equal to the fully rated capacity of the operator components.
- Check all mechanical connections for tightness and alignment. Check all welds for completeness and continuity. Check welded corners and edges to assure they are square and straight.
- Inspect painted finish for completeness and gloss (custom colors). Touch up imperfections prior to shipment.
- Check all hydraulic hoses and electrical wires to assure that chafing cannot occur during shipping or operation.

### Installation

- Install barrier in accordance with the manufacturer's printed instructions, current at the time of installation. Coordinate locations of barriers with contract drawings, other trades and shop drawings.
- Installer shall insure that the electric service to the barrier is at least 20 AMPS. Operator input power is 3000 W.

### Barrier Siting And Safety Precautions:

Careful consideration must be given to the selection, placement, and design of a Drop Arm Vehicle Barrier installation. As is the case with any active vehicle barrier system, perimeter security device, or security gate that blocks a roadway, it is essential to ensure that approaching vehicles as well as pedestrians are fully aware of the presence of the barrier and its operation. Installer will work with End User Customer to provide proper illumination and clearly worded signage (with appropriate graphics) warning of the barrier's presence and its hazards. HySecurity strongly recommends that an architect and/or traffic and/or safety engineer be consulted before installing any active vehicle barrier and that an installation configuration be employed that physically limits approach speeds to no more than 20 MPH.

End User Customer agrees that it will be responsible for selecting the location of the barrier and the configuration of approaches and warnings. HySecurity will offer reasonable assistance in integrating the barrier with external and existing systems, but it does not provide traffic or safety engineering services.

### Field Quality Control

- Test barrier through ten full cycles and adjust for operation without binding, scraping or uneven motion.
- Test limit position adjustment for proper deceleration and smooth stop of arm prior to full travel position.
- All anchor bolts shall be fully tightened in the finished installation.

### Continued Service And Documentation

Train owner's personnel on how to safely shut off electrical power, release and manually operate barrier arm. Additionally, demonstrate the general maintenance of the barrier and accessories and provide one copy of "Installation and Reference" manual for the owner's use (a second manual is available upon request). Manuals will identify parts of the equipment for future procurement. Direct maintenance personnel to HySecurity website, specifically the technical support sections.