The Ross XT-2000-W (Heald VIPER) is a K12 Roadblocker designed for use in areas where deep excavation is not possible. Manufactured from heavy duty steel plate to evenly distribute impact energy, it is shallow mounted at 14”D with a total excavation of 16”D, and offers a generous 41”H raised blocking element for a formidable defense against hostile vehicle attack. Specially designed linkage bars nest safely without gaps and ensure the hydraulics remain protected in crash situations for continuous operation. For more information, please call our toll-free number above or visit our website.

SECTION 347513

ACTIVE VEHICLE BARRIERS

(ROSS XT-2000-W – HEALD VIPER)

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Shallow mount wedge barrier for vehicles.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer’s product data for each type of product.

B. Shop Drawings: Submit shop drawings including the following:

1. Complete list of equipment, materials, and manufacturer’s descriptive and technical literature.
2. Complete wiring and schematic diagrams, and details required to demonstrate that the system has been coordinated and will properly function as a unit.
3. Proposed layout and anchorage of equipment and relationship to other parts of the work, including foundation and clearances for maintenance and operation.

C. Reports and Certifications: Submit the following:

1. Crash Test Report: Provide a copy of the crash test report summary, from an independent, ISO 17025 accredited test facility, showing assignment of the ASTM F2656-07 M50-P1 rating.
2. Crash Test Certification: Provide a copy of the United States Department of Defense “DOD Anti-Ram Vehicle Barriers List” showing that the product has been validated for use by the USACE Protective Design Center.

D. Operations and Maintenance Manuals: Submit at least two copies of operating and maintenance instructions at least two weeks prior to installation.

1. Operating Instructions: Include step by step procedures required for system startup, operation, and shut down. Also include the manufacturer’s name, manufacturer’s contact information, model number, parts lists, and brief description of all equipment and their basic operating features.
2. Maintenance Instructions: Include maintenance schedule, routine maintenance procedures, troubleshooting and repair procedures, and spare parts list.

E. Welder's Certificates: Copy of current certificate for AWS D1.1.

F. Warranty: Submit executed copy of manufacturer's warranty.

1.3 QUALITY ASSURANCE

A. Installer: Minimum 2 year documented history of installing similar equipment, authorized and certified by the manufacturer. Installer shall accept responsibility for all field verifications, underground utility locations, and coordination of all controls and interfaces to the units. Installer shall be capable of bonding projects to relevant project amounts, and acceptable liability and vehicle insurance.

B. Manufacturer's Services: If requested by the Owner, provide services of a manufacturer's representative who is experienced in the installation, adjustment, and operation of the equipment. The representative shall inspect the final installation and supervise final hookup, adjustment, and final testing of the equipment.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store equipment in a location protected from the weather, humidity, temperature variation, dirt and dust, or other contaminants. Store materials on sleepers or pallets and protect from rust and objectionable materials such as dirt, grease or oil.

1.5 WARRANTY

A. Warranty: Provide manufacturer's standard limited warranty.

PART 2 - PRODUCTS.

2.1 MANUFACTURER

A. Basis-of-Design Manufacturer: Ross Technology Corporation, 104 North Maple Avenue, Leola, PA 17540. Toll-free 800-345-8170. www.rosstechnology.com. No substitutions.

2.2 WEDGE BARRIERS

A. Shallow Mount Wedge Barriers: Ross XT-2000-W (Heald VIPER) by Ross Technology Corporation complying with the following:

1. Performance: Crash tested in accordance with ASTM F2656-07 and assigned a rating of M50-P1. Vehicle weight 15,000 pounds, impact speed 50 mph, impact angle 90 degrees, maximum dynamic penetration 3.3 feet.
2. Barrier Assembly: Structural steel housing below grade with a structural steel plate that retracts into the housing to allow passage of authorized vehicles; flush with roadway surface when installed, with no side pillars and/or buttresses attached to the hydraulic power unit or any above ground/grade assemblies.
3. Concrete Foundation: 4500 psi (31 MPa) Portland Type 1 concrete with an industry standard cure time of 28 days. Foundation shall have approximately 3 cubic yards (2.3 cubic meters) of concrete. Normal maximum aggregate size shall be 1.5 inches (38 mm). Vibrate concrete to fill all voids. Rebar shall comply with ASTM A615 grade 60 and factory-attached to the front, rear and side plates of the barrier housing.
4. Foundation Depth: 15.75 inches (400 mm)
5. Raised Height: 41.4 inches (1049 mm).

6. Standard Barrier Width: 9'-10" (2995 mm) tested/certified width, with additional width options available based on site conditions.
7. Repair: Barrier shall have the capability of removing the top plate assembly and hydraulic cylinder for replacement or repair, without replacement of the entire barrier.
8. Skirt: Standard, with a four stage sacrificial steel skirt that prevents debris from entering the barrier and protects the internal mechanism of the barrier during an attack. Easily removable for maintenance and can easily be replaced when the barrier sustains an attack.
9. Barrier Capabilities: 300 complete up/down cycles per hour normal operation.
10. Barrier Motion: Instantly reversible in either direction. Wedge plate shall rise from the down position to the fully deployed position in approximately 4 seconds.
11. [Optional] Emergency Fast Operation (EFO): Capable of raising the barrier to full guard position (41 inches) in approximately 1.5 seconds. Normal operation of barrier shall not resume until EFO reset button has been pushed. Operating times may vary if system has been turned off; system exhausted from continual EFO operation, or is being operated in manual mode.
12. [Optional] Uninterrupted Power Supply (UPS): Capable of cycling the barrier without a recharging of the system when there is no site supplied power to the HPU system.
13. Failure Mode of Operation: Include integrated manual hand pump for power out operation.
14. [Optional] Accessories:

    a. Heater: For areas of extreme conditions such as blowing snow or icing conditions with ambient temps of below 40 degrees Fahrenheit (5 degrees Celsius).
    b. Traffic Control Lights: Alerts drivers to the position of the barrier. Includes LED lights with pole and stand for mounting.
    c. Signal Gate Arm: Alerts drivers of the barrier position. The gate operation shall be interfaced with the barrier at the control circuit. The control circuit shall close the gate on the barrier "up" command and open the gate on the barrier "down" command.
    d. Vehicle Loop Detector: Prevents the barrier accidentally rising under an authorized vehicle. When a vehicle is over the detector loop (wire supplied by installer) the barrier "up" signal is interrupted except when the EFO mode is engaged. The EFO mode can be programmed to be safe/non-safe depending on the needs of the customer.
    e. Lifting Eye: Installed to facilitate lifting of barrier plate during maintenance operations.
    f. Safety Chock: Prevents barrier plate from lowering during maintenance operations.
    g. Additional Accessories: Based on project requirements.

B. Electro-Hydraulic Power Unit (HPU):

1. Remotely located HPU at a distance not greater than 30 ft. (9.1 m) from the vehicle barrier. Shield HPU from the elements. Placement in a utility room or covering with an environmental enclosure is required. Environmental enclosure shall have locking doors.
2. Main power supply, 240 volt AC, three-phase, 60 hertz and 20 amps. [Optional] additional AC and DC power options available based on site conditions.
3. Locate main power disconnect inside the main locked door. Main power disconnect must be disengaged to open main control panel.
4. Conduit for hydraulic lines shall be electrical conduit with wide sweeps. No conduit with 90 degree elbows shall be used. All hydraulic conduits shall be sized to accommodate two lines. Hydraulic lines may change in diameter due to distance the lines are run.
5. Motor: Heavy duty motor to operate pump.
6. Tank: 7.9 gallon (30 l) tank for storage of hydraulic fluid for normal operation of the barrier.

7. [If EFO Option is selected] Accumulator: Provide 2.6 gallon (10 l) accumulator to store fluid for EFO operation.
8. [Optional] Accessories:

    a. Heaters: Hydraulic oil heaters may be required to ensure satisfactory operation in temperature ranging below 40 degrees Fahrenheit (5 degrees Celsius). Install if required.
    b. Coolers: Hydraulic oil coolers are required to insure satisfactory operation in temperature ranging above 100 degrees Fahrenheit (38 degrees Celsius). Install if required.
    c. Power Supplies: Various power supplies are available. Designate power source in shop drawings.

C. Controls:

1. Provide a control panel and control circuit to interface between all barrier control stations and the power unit.
2. Control stations are defined as the master control panel and the slave control panel.
3. Control circuit shall be separate from the control stations but mounted integrally with the power unit:
4. Control circuit shall function through the use of industrial Programmable Control Logic (PLC). The PLC must be off the shelf item available through world wide distribution, and not a proprietary item.
5. Direct Interface with Auxiliary Equipment: Card readers, remote switches, loop detectors, traffic lights, proximity readers, numerical pads, etc., made possible through connection to a main terminal strip.
6. [Optional] Integrate Heald Hydra control and monitoring system.
7. Additional control options are available. Contact manufacturer to discuss other options.

D. Master Control Panel:

1. Supply a 19 inch rack mount or standard desk mount main control panel to control barrier functions. Provide buttons to raise and lower each barrier. Include barrier “UP” and “DOWN” indicator lights for each barrier or barrier array. The main control panel shall have a switch to arm or disable the remote control station if a remote slave control panel is required. (Optional if EFO is selected) An emergency fast operate (EFO) circuit shall be operated by depressing a designated, shielded push-button. Furnish the EFO with an EFO “ACTIVE” light and a reset button with annunciator.
2. [Optional] Supply touch-screen control panel that integrates all barrier controls on a single screen.
3. Additional buttons and controls are available based on site operation needs.

E. Remote Slave Control Panels:

1. Remote control panels shall have a panel “ON” light that is lit when enabled from the main control panel. Provide buttons to raise and lower the barrier. Include barrier “UP” and “DOWN” indicator lights for each barrier or barrier array. (Optional if EFO is selected) An emergency fast operate (EFO) circuit shall be operated by depressing a designated, shielded push-button. Furnish the EFO with an EFO “ACTIVE” light and a reset button with enunciator. When the remote control panel EFO is pushed, further barrier operation from that panel will not be possible until the EFO condition is reset on the master control panel.
2. Additional buttons and controls are available based on site operation needs.

F. Finish:

1. Hot-dip galvanized per ASTM A123.
2. [Option] Wash primer after hot-dip galvanizing per ASTM A123.
3. [Option] Factory wash primer and finish after hot-dip galvanizing per ASTM A123; polyurethane top coat. Select colors from manufacturer's color range.
4. [Option] Slip-resistant Algrip™ surfaces for the top plates of the barrier.
5. [Option] Slip-resistant coating for the top plates of the barrier.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and site conditions for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work. Use concealed anchorages where possible.

1. Protect adjacent areas against damage; repair or patch damaged areas. Restore damaged finishes so no evidence remains of corrective work.

B. Foundation: Excavate to required depth and place concrete in accordance with ACI standards. Perform backfilling by layering and tamping into place crushed limestone base material to 95 percent compaction.

C. Pavement: After level placement of the vehicle barrier, place pavement sections to match the section and depth of the surrounding pavement. New pavement shall match the elevations of existing pavement and vehicle barriers. Slope pavement to provide positive drainage.

D. Pit Drainage: Provide drain connections in each barrier. Make hookups to approved storm drains. If no storm drains exist for connection, or if a gravity drain cannot be utilized, then a self-priming sump pump shall be sized sufficiently to keep the pit area free from water build-up and shall have the minimum capacity to remove water at a rate suitable for local conditions.

3.3 FIELD TESTING AND TRAINING

A. Notify Owner's representative at least 7 days prior to beginning of the field test.

B. Upon completion of construction, perform a field test for each vehicle barrier. The test shall include raising and lowering the barrier, both electrically and manually, through its complete range of operation.

C. Continuously cycle each vehicle barrier for not less than 30 minutes to test for heat build-up in the hydraulic system.

D. Installer shall furnish equipment and make necessary corrections and adjustments prior to test witnessed by the Owner's representative. Changes to site conditions and adjustments and repairs to barrier system shall be performed at no additional cost to the Owner or manufacturer. If adjustments are made to ensure correct functioning of components, complete field tests and cycle tests shall be performed after adjustments are made.

E. Provide a field-training course for designated operating staff members by the installer. Field training shall cover all of the items contained in the operating and maintenance instructions..

3.4 ADJUSTING AND CLEANING

A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION

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