VW-4 VERTICAL WARNING GATE
Specifications

GENERAL: The warning gate shall be Model VW-4, as manufactured by B&B Roadway, (888) 560-2060.

APPLICATIONS: The gate shall be designed for use as a warning, traffic control and access control gate. The gate shall be explicitly designed for traffic control on movable bridges as described in AASHTO's current Standard Specifications for Movable Highway Bridges, HOV and reversible lanes and similar applications.

HOUSING: The operating mechanism and main control components shall be contained in a weatherproof housing. The housing shall be constructed of .188" (4.8mm) carbon steel *[option: aluminum],* hot dip galvanized after fabrication [*steel only].* Exterior surfaces shall be painted aluminum. All fasteners shall be corrosion resistant. Arm shaft openings shall incorporate O-ring seals.

Front and rear access doors shall be mounted on full cross bronze straps. Hinges shall be of the slip-off type and shall have stainless steel pins. Door latches, two per door, shall use a vise action to compress a neoprene bulb-type gasket to seal the door openings. *[Option: Alternate door latches may be provided upon request.] [Option: A padlockable strap shall be provided suitable for heavy duty standard padlocks or shackleless padlocks, provided by others.]*

MOUNTING: The gate shall be fixed to a suitable foundation, as specified by the project engineer, using four 3/4" (20mm) diameter minimum anchor bolts. The gate housing base shall provide four 1.00" (25mm) holes on a 20 1/4" (514mm) square pattern. (Mounting holes in standard base shall be slotted to allow for a 19 1/2" x 20 1/4" (495mm x 514mm) mounting pattern to accommodate some existing bolt patterns.)

ARM: The gate arm shall be 4" (102mm) square, 6005-T5 aluminum extruded tubing. [*option: with 3" square end section of high-strength UV-resistant fiberglass* or *3" square extruded aluminum.*] Maximum arm length shall be 40' (12m) from the centerline of the housing. Stainless steel truss cables and a damping type bumper rod shall be furnished with longer arms at the discretion of the manufacturer. Front and rear arm surfaces shall be covered with alternating red and white high intensity reflective sheeting. Stripes shall be 16" (406mm) wide, and vertical according to MUTCD. Remaining exposed surfaces shall be painted white.

ARM BASE: The arm base shall be designed with a shear pin mechanism to minimize damage to the gate and vehicle in the event of a collision. In the event of an impact, the shear pin shall break, allowing the arm to swing approximately 75 to 80 degrees. At the full open position, a spring-loaded latch shall engage, preventing the arm from swinging back into traffic. Arm shall be easily reset by manually releasing the latch, rotating the arm back into position and replacing the shear pin.

ARM MOUNTING CHANNELS: A pair of carbon steel channels, hot dip galvanized, painted aluminum, shall be rigidly affixed to the ends of the main arm shaft. The channels and a steel crossmember shall provide a sturdy mount for the arm, arm base assembly and counterweights.

COUNTERWEIGHTS: At the rear end of the side arm channels, hot dip galvanized counterweights shall be mounted to balance the arm. Counterweights shall be sectional and shall permit at least 10% adjustment.

ARM SHAFT: The main arm shaft shall be 2" (51mm) diameter AISI 4140 high strength alloy steel with a minimum tensile strength of 140,000 psi. The shaft shall be mounted in heavy duty relubricable ball bearings.

OPERATING MECHANISM: The warning arm shall pivot in the vertical plane via a mechanical 4-bar linkage. The linkage shall utilize cranks keyed to the main arm shaft and transmission shaft and an adjustable connecting rod between a pair of self-aligning spherical rod ends. The connecting rod shall be 1" (25mm) diameter AISI 4140. The linkage shall be driven by a fully enclosed, double reduction, worm gear speed reducer. Gear ratio used shall produce an operation time of 11 seconds *[option: other operation speeds available, depending on installation configuration].*

On longer arms or when specified by the customer, an auxiliary crank shall be used, paired with the transmission crank, to reduce the load on the transmission and to better balance and stabilize the load on the housing and mounting structure. The auxiliary crank shall be mounted in a permanently lubricated bronze bearing.

The velocity of the arm shall follow a sinusoidal pattern to provide smooth operation. The arm shall begin and end its full motion path with zero velocity and accelerate smoothly to maximum velocity at mid-travel.

MOTOR: The motor voltage and phase shall be as specified by the customer. The motor shall be 1/2 hp, except when a greater rating is recommended by the gate manufacturer to handle exceptionally heavy applications and is approved by the customer. The motor shall be a C-face design and shall be mounted directly to the transmission. The motor shall be instantly reversing and overload protected.

BRAKING MECHANISM: The motor shall be equipped with a solenoid-release, automatic brake. The brake shall have a manual release lever to permit manual operation of the gate during emergencies or setup.

HANDCRANK: A handcrank shall be provided with each gate to facilitate manual operation of the gate.

LIMIT SWITCH: The gate limit switch assembly shall be a self-contained unit. The assembly shall provide 8 independent SPDT control switches. Switches shall be rated for 15 amps at 480 VAC. Switches shall be controlled by individually adjustable cams. The limit switch assembly design shall permit adjustment of all cams with the gate in any position. The limit switch assembly shall have a removable cover to help prevent accidental contact with switch terminals. Shaft, cams, bushings and housing pieces shall be of non-ferrous corrosion resistant materials.

SAFETY SWITCHES, TERMINAL BLOCKS AND WIRING: A manual disconnect switch shall be provided, pre-wired at the factory to break the main motor leads, to protect personnel during service. A handcrank safety switch shall be provided to prevent powered actuation of the gate during manual operation. Door safety switches shall be installed and set at the factory to break the control circuit when either access door is opened. Door safety switches shall have a pull-to-override feature for test operation and shall automatically reset when doors are closed. Control components and terminal blocks shall be mounted inside an electrical enclosure mounted facing the rear side access opening, except where custom components required by the customer prevent this arrangement. Pressure-type, modular terminal blocks shall be fully labeled and clearly coded to wiring diagrams. All control wiring shall be clearly coded to wiring diagrams and shall terminate at the terminal block. Connections to screw-type terminals shall have lugs. Conductors shall be type XHHW #14 AWG stranded, minimum.

ACCESSORIES AND MODIFICATIONS: All common accessories and modifications shall be available. Custom modifications and accessories shall be available through coordination with manufacturer.

WARRANTY: A 1 year warranty shall cover the gate and related equipment against defective material and components. Manufacturer shall furnish replacement parts for a minimum of 10 years. Replacement parts for standard components shall normally be available within 1 working day. Lamps, fuses and other components designed for a life less than 1 year shall be covered for the rated life of the component or the warranty period of the component manufacturer.

PARTIAL LIST OF INCLUDED OPTIONS:

Aluminum or Stainless Housing
Anchor Bolts (provided by manufacturer)
Mounting Template
Alternate Door Handle Styles
Offset Side Arm Channels
Rigid Arm Base
Special Swing Angles
Arm Finishes, Striping Materials and Colors
Fiberglass Arm Section (at end of arm)
Arm Lights
Flasher
Gong
Vibrating Bell
Sidewalk Arm

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