

**LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT  
SPECIFICATIONS  
WARNING GATE**

**DESCRIPTION:**

The warning 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, HOV and reversible lanes and similar applications.

**GENERAL:**

**Housing:** The operating mechanism and main control components shall be contained in a weatherproof housing. The housing shall be constructed of nominal 0.188 inch carbon steel, hot dip galvanized after fabrication. Exterior surfaces shall be painted aluminum. All fasteners shall be corrosion resistant.

Housing design shall allow for easy removal of the arm shaft assembly as a unit, including bearings and main arm crank, for ease of service. Arm assembly mounting design shall be fully-gasketed and 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.

There shall be two (2) door handles per door. The door shall use a vise-action to compress a neoprene bulb-type gasket to seal the door openings.

A strap, capable of being padlocked, shall be provided suitable for heavy duty standard padlocks or shackleless padlocks.

**Mounting:** The gate shall be fixed to a suitable foundation using a minimum of four (4) ¾ inch diameter anchor bolts. The gate housing base shall have four (4) 1 inch holes on a 20-1/4 inch square pattern. Mounting holes in standard base shall be slotted to allow for a 19-1/2 inch x 20-1/4 inch mounting pattern.

**Arm Mounting Channels:** Arm channels shall be offset design. 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 cross member shall provide a sturdy mount for the arm, arm base assembly and counterweights.

**Counterweights:** Hot dip galvanized counterweights shall be mounted to the rear end of the side arm channels. Counterweights shall be sectional and shall permit at least 10% adjustment.

**Arm Shaft:** The main arm shaft shall be of 2 inch diameter AISI 4150 with a minimum tensile strength of 140,000 psi. The shaft shall be mounted in ball bearings which can be lubricated.

**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 of 1 inch diameter AISI 4150 Steel. The linkage shall be driven by a fully enclosed, double reduction, worm gear speed reducer. The gear ratio used shall produce an operation time of eleven (11) seconds.

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 shall be minimum 1 HP, 3 Phase, 220 Volt to handle exceptionally heavy applications. 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 hand crank 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 eight (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 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 hand crank safety switch shall be provided to prevent powered actuation of the gate during manual operation. Control components and terminal blocks shall be mounted inside an electrical enclosure mounted facing the roadway side access opening. Pressure-type, modular terminal blocks 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 #16 AWG stranded, minimum. Wiring shall be run in conduit where practical.

**Flasher:** A flasher assembly with dedicated power supply shall be provided to operate gate arm lights. Flasher shall be rated for 10 amps at 12VDC. Flasher shall provide over voltage, under current, and reverse voltage protection. Unit shall be encapsulated. Flash rate should be adjustable between 0.3 and 1.3 seconds. Individual LED's shall indicate flasher status. Fuse and relay section shall be replaceable. Unit shall be ROHS compliant.

**Warranty:** The gate shall be covered against defective materials and components through a minimum one (1) year standard manufacturer's warranty.

**Packaging:** Warning gate shall be secured on a pallet. Packages shall be covered during shipment. Deliveries should be made by open bed truck for ease of forklift unloading. If a closed truck is used for delivery, the driver will be required to offload the warning gate

The flasher assembly shall be packaged and secured from being crushed and free from dirt and moisture. Styrofoam or similar packaging material shall be used for padding and movement prevention while in transit.