# GIBRALTAR
# G-1752 M50-P2 Active Bollard
# Section 34 71 13.19
# Active Vehicle Barriers

## PART 1 – GENERAL
### 1.01 WORK INCLUDED

The contractor shall provide all labor, materials, and appurtenances necessary for installation of the anti-ram active vehicle barrier system defined herein at (*Insert Site Location Here*).

### 1.02 SYSTEM DESCRIPTION

A. The manufacturer shall supply a total passive vehicle barrier system of the Gibraltar G-1752 Active Bollard design. The system shall include all components required. The barrier shall comply with Gibraltar's System Drawing Number (*Insert Drawing Number Here*.)

B. The G-1752 Active Bollard was tested to the pass requirements in accordance with ASTM F2656-20 and achieved a rating of M50 P2 with a maximum penetration of 1.861 meters (6.1 ft) as a single bollard.

C. The G-1752 Active Bollard shall consist of a 12-inch diameter bollard assembly that is installed into a steel vault system embedded in a concrete foundation.

D. The G-1752 Active Bollard shall be [ELECTRIC], [HYDRAULIC], or [MANUAL]. Standard operating power required if electric or hydraulic shall be 208VAC 3Ph for the electric power unit (EPU) or hydraulic power unit (HPU). The manual option requires no power to operate and shall be released by a simple cam lock key to raise and lower the bollard and lock into place either in the open or secure position.

E. The EPU/HPU shall be housed in a NEMA 3R enclosure as a standard. Gibraltar offers NEMA 4 and NEMA 4X SS options as well.

F. The G-1752 Active Bollard shall be capable of 200,000 complete up/down cycles without failure when properly installed and maintained by a factory trained installer per Gibraltar's maintenance requirements in the O&M manual.

G. The electric bollard shall utilize a 1/2HP stainless steel motor with an IP69K rating.

H. The electric bollard shall be capable of EFO in less than 2 seconds. Standard operation speeds shall be programmable from 3-5 seconds.

I. Under complete power failure the system shall be able to be manual deployed into the secure position without use of special tools.

J. Options for the G-1752 Active bollard include, but are not limited to heat trace, sump pumps, battery backup systems, and data recording systems.

K. Gibraltar products are tested by an ISO 17025 accredited testing facility.

### 1.03 QUALITY ASSURANCE

A. Gibraltar maintains a quality management system that is certified under the American Institute of Steel Construction (AISC) Standard for Bridge and Highway Metal Components. All Gibraltar products are processed under this certified quality management system.

B. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified, and factory trained by Gibraltar.

**1.04 REFERENCES**

- ASTM A36 Standard Specification for Carbon Structural Steel
- ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
- ASTM A992 Standard Specification for Structural Steel Shapes
- ASTM D7803- Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Powder Coating
- ASTM F2656 - Standard Test Method for Vehicle Crash Testing of Perimeter Barriers
- AWS D1.1/D1.1M - Structural Welding Code - Steel

**1.05 SUBMITTAL**

The manufacturer's literature shall be submitted prior to installation.

**1.06 PRODUCT HANDLING AND STORAGE**

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism and theft.

**PART 2 – MATERIALS**

**2.01 MANUFACTURER**

A. The anti-ram vehicle barrier system shall conform to the G-1752 Active Bollard design manufactured by Gibraltar Perimeter Security, L.P. in Marble Falls, Texas. This system shall be tested and certified to meet ASTM F2656-20, Impact Condition Designation M50, Penetration Rating P2, with the capability of stopping a 15,000lb vehicle traveling at speeds up to 50mph.

B. The entire anti-ram vehicle barrier system shall be obtained from Gibraltar.

C. Upon request, Gibraltar can supply a full set of "As Built" drawings for all security systems and civil work upon shipment in an easily accessible format.

**2.02 MATERIAL**

A. Steel material shall conform to the ASTM requirements shown in Table 1.

B. Gibraltar will provide material certifications with each order upon request.

**Table 1 – Steel Material Requirements**

| Material | Specification |
|---|---|
| Welded joints | Performed by welders certified to AWS D1.1 |
| Steel tubing | ASTM A500 |
| Steel Plates | ASTM A36/A572 Gr. 50 |
| W-Beams | ASTM A992 |

**2.03 FABRICATION**

A. Fabrication of the members shall be in accordance to manufacturer's instructions, the plan details, and this specification.

B. Shop drawings can be provided for site specific locations of each barrier upon request.

C. The G-1752 Active Bollard vault and assembly shall be hot-dip galvanized to ASTM A123. The G-1752 Bollard shall be [HOT-DIP GALVANIZED TO ASTM A123] or [POWDER-COATED].

D. Optional Covers for the G-1752 Active Bollard include 304 or 316 Stainless Steel Sleeves.

## PART 3 - EXECUTION

### 3.01 PREPARATION

A. The purchaser shall indicate the location of active vehicle barrier line with suitable stakes.

B. The purchaser shall indicate all underground utility locations, USC&G benchmarks, property monuments, and other underground structures that interfere with installation.

C. Before installing the G-1752 Active Bollard, all necessary site clearing and grading shall be performed by the purchaser. An adequate clearance on both sides of the anti-ram vehicle barrier line is required.

E. The G-1752 Active Bollard was designed for installation in soils meeting the requirements set forth in ASTM F2656-20.

### 3.02 INSTALLATION

A. The barrier shall be installed per Gibraltar's System Drawing Number *(Insert Drawing Number Here)*. Construct concrete foundations to the dimensions specified by the plans. Excavate a properly sized area for post foundations and install reinforcing steel in accordance with the plans. Place the concrete, install the posts and plumb. Refer to contract or submittal plans for more installation details.

B. Gibraltar's active vehicle barriers are warranted against defects in material and workmanship on structural components for one year from ship date, when installed by a factory-trained installer.

### 3.03 MAINTENANCE

General maintenance of the G-1752 Active Bollard shall consist of typical maintenance per the project specific facilities normal standards. This may consist of removal of vegetation, and visual inspection for evidence of tampering. If a vehicle impacts the barrier, it is recommended that the owner and/or maintainer of the facility contact Gibraltar to purchase replacement parts or to have an inspection scheduled.

### 3.04 CLEANING

The contractor shall clean the jobsite thoroughly to ensure it is left neat and free of any debris caused by the installation of the anti-ram vehicle barrier system.