

**SLOWSTOP BOLLARD SYSTEM  
IMPACT RECOVERY SYSTEMS, INC.  
PRODUCT SPECIFICATION  
JULY 2015**

**I. SCOPE**

This specification covers the minimum material and performance requirements for the Impact Recovery Systems SlowStop Bollard System. This system was developed for use in protecting facilities, utilities, assets and pedestrians from vehicle traffic. SlowStop Bollards designed for use on concrete surfaces.

**II. GENERAL REQUIREMENTS**

**A. DESIGN**

The Impact Recovery Systems SlowStop Bollard System shall be fabricated to withstand repeated impacts within specified energy levels with minimal damage to the unit and to the impacting vehicle. The system shall incorporate modular construction allowing bollards to be interconnected using slide-together connectors, though each section shall be anchored independently. The system is comprised a bollard consisting of a base, elastomer, adapter, and post. Additionally, the bollards may be interconnected to form fencing and similar barriers using tee-, elbow-, and cross-connectors or by welding pipe together. The bollard shall give way up to approximately 20° when impacted, and shall utilize a reactive elastomer device to absorb the impact from the impacting vehicle. The system shall rebound to upright after allowable impacts. The system shall allow the replacement of post and adapters in no more than 15 minutes through the removal modular components and replacement of damaged parts.

Units shall come in four sizes:

- 2.88" Diameter (3" Nominal)
- 4.00" Diameter (4" Nominal)
- 5.56" Diameter (5" Nominal)
- 6.63" Diameter (6" Nominal)

**B. MATERIALS**

**B.1 POST (BOLLARD)**

The post or upright portion of the bollard system shall be comprised of standard ANSI schedule 40 steel pipe. Pipe seams shall be ground flush and edges de-burred such that

no sharp edges are present. The pipe shall be finished with a 150µm polyester powder coat finish.

#### B.2 ADAPTER AND BASE

The adapter and base shall be constructed of a ductile cast iron material rated to -40 °C. The material shall be finished with an environmentally friendly catophoretic (KTL) black paint.

#### B.3 ELASTOMER

The elastomer shall be constructed of a rubber compound with a hollow center allowing for compression.

#### B.3 ANCHORS

Anchors shall be 5/8" x 5-1/2" concrete screw anchors. Anchors shall be of galvanized carbon steel construction with a static shear resistance of greater than 11,000 pounds and a static tension resistance of greater than 24,000 pounds.

### C. WORKMANSHIP

The Impact Recovery Systems SlowStop Bollard system shall exhibit good workmanship and shall be free of scratches, discoloration and other objectionable marks or defects, which affect appearance or serviceability.

### D. INSTALLATION

Installation and deployment shall be per manufacturer's recommendations or as directed by the specifying engineer. Bollard spacing from other fixed objects must allow for a 25° tilt upon impact. Installation shall utilize four (3" or 4" Bollards), six (5" Bollards) or eight (6" Bollards)

## III. ALLOWABLE KINETIC ENERGY

Bollards shall be capable of withstanding the following energy at a height of 19" above ground:

3" – 1,195 ft.-lb.

4" – 1,967 ft.-lb.

5" – 5,163 ft.-lb.

6" – 9,536 ft.-lb.