

TRITON BARRIER® General Specifications

I. General

- A. All TRITON BARRIER (the barrier) sections shall be designed, manufactured and/or supplied by Energy Absorption Systems, Inc., of Chicago, Illinois.
- B. The barrier shall be a highly portable and crashworthy longitudinal barrier especially suited for use as temporary barrier in highway construction zones. The barrier shall also act as its own crashworthy end treatment.
- C. The barrier shall provide a portable traffic control and positive protection system.

II. Construction

- A. The barrier installation shall be constructed from a series of individual sections. Each section shall be constructed of a lightweight, recyclable*, virgin, linear low density, polyethylene plastic shell, with UV stabilizers and anti oxidants, designed to accept water ballast. Approximate physical dimensions and capacities of the sections shall be: length (pin to pin) 1981 mm [78 in.], width 533 mm [21 in.], height 813 mm [32 in.], empty weight 64 kg [140 lb], full weight 612 kg [1350 lb], water ballast 5491 [145 gal]. Sections shall be constructed in white and work zone safety orange colors for high visibility.
- B. Each barrier section shall be supported by an internal, galvanized, steel framework to provide additional rigidity during handling and impacts and equipped with a 12.7 mm [1/2 in.] dia., galvanized steel cable along a recess in the top of the section for maximum tensioning capability.
- C. The ends of each section shall be constructed with vertically aligned knuckles which interlock with those of adjacent sections and accept a 51 mm [2 in.] dia. steel connecting pin. The connecting pin shall be constructed to securely join the sections and the tension cables for maximum impact performance.
- D. Each section shall be constructed with ribbed sidewalls to interact with an impacting vehicle in a way that resists penetration, vaulting, and underriding and shall be stackable to reduce shipping and storage space. The ribbed sidewall of the barrier shall provide a convenient web to apply reflective sheeting.
- E. Each section shall be constructed to allow empty sections to be stacked three high to reduce shipping & storage space.
- F. Each section shall be constructed with elevated fork lift openings to allow for mechanical lifting when empty or full.
- G. Each section shall be constructed with two 127 mm [5 in.] dia. quick fill openings with covers and a 38 mm [1 1/2 in.] dia. rapid release gate valve to allow quick draining of the water ballast. A reflectorized fill level indicator shall be constructed in the top of each section to allow quick verification that the section is adequately full of water ballast.

III. Performance Criteria

- A. The TRITON BARRIER shall be fully tested to and meet the recommended structural adequacy, occupant risk, and vehicle trajectory criteria set forth in the National Cooperative Highway Research Program (NHCPR) Report 350 when properly installed according to the manufacturer's recommendations.
 - 1. The longitudinal barrier shall meet the criteria of Test Level 2 (TL-2) length of need for impact conditions of 820 to 2000 kg [1808 to 4409 lb] vehicles with impacts at speeds of 70 km/h [44 mph].
 - 2. The longitudinal barrier shall meet the length of need criteria for impact conditions of 100 km/h [62 mph] at 15 degrees or less with 820 to 2000 kg [1808 to 4409 lb] vehicles.
 - 3. The barrier shall act as its own end treatment by meeting the criteria for TL-2 Non-Redirective Crash Cushion for impact conditions of 820-2000 kg [1808 to 4409 lb] vehicles with impacts at speeds of 70 km/h [44 mph].
 - 4. The barrier when attached to rigid or semi-rigid barrier with transition hardware, shall meet the criteria of TL-2 transition for impact conditions of 820-2000 kg [1808 to 4409 lb] vehicles with impacts at speeds of 70 km/h [44 mph].
- B. The barrier shall be capable of preventing vehicle penetration, vaulting, and underriding during TL-2 LON impacts and bring the impacting vehicle to a controlled stop in the vicinity of the impact area or redirect the vehicle for shallow angle impacts while undergoing controlled lateral deflection. For typical lateral deflection, See TRITON BARRIER Limitations & Warnings (found in TRITON BARRIER Manual).
- C. For TL-2 LON impacts detached debris shall not show potential for penetrating the vehicle occupant compartment or presenting a hazard to other traffic, pedestrians, or workers in a work zone. The vehicle shall remain upright during and after the collision, although moderate roll, pitching and yawing may occur.
- D. The vehicle's trajectory into adjacent traffic lanes after TL-2 LON impacts shall be minimized. The impact velocity of a hypothetical front seat passenger against the vehicle interior, as calculated from the longitudinal vehicle acceleration and 600 mm [23 5/8 in.] forward displacement, and the lateral vehicle acceleration and 300 mm [1 ft.] lateral displacement, shall be less than 12 m/s [39.3 ft/s], and the highest 10 ms average vehicle acceleration in the longitudinal and lateral directions subsequent to the instant of passenger impact shall be less than 20 g's.

IV. Design and Selection Criteria

- A. Design, selection, and placement of the barrier should conform to applicable guidelines in:
 - 1. U.S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices" Washington, DC.: U.S. Government Printing Office, (1988) including all subsequent revisions.
 - 2. American Association of State Highway and Transportation Officials. Roadside Design Guide Washington, D.C.: AASHTO, 1989 including all subsequent revisions.
- B. Installation of the barrier, the end treatment and transitions when applicable shall be accomplished in accordance with the recommendations of Energy Absorption Systems, Inc. in the TRITON BARRIER installation manual and application manual.

