MDS® TL5
Minimum Deflection Systems

Approvals
FHWA
MASH
EN1317 H4
MDS® BARRIERS TL5

Run-off-road crashes are one of the most common types of crashes in urban and highway environments. Installing MDS high performance safety barriers help create safer roadside environments by preventing errant vehicles from leaving the roadway and instead re-directing the vehicle back into the flow of traffic.

MDS MASH Approved Test Level 5 Safety Barriers are a modular easy to connect and install.

ADVANTAGES
- Minimise the risk to errant vehicle occupants, vulnerable road users (motorcyclists, cyclists, pedestrians) and road workers
- Control impacting vehicle behaviour and reduce hazards created by impact
- Reduce impact transmission forces to bridge decks with *Progressive SRS
- Base plate provides full or controlled water evacuation

MDS® TL5 BARRIERS

MDS® Steel Barriers are a high performance vehicle restraint system. Lightweight modular design facilitates assembly for both new and existing bridge constructions, rehabilitation projects and highway medians.

PROVEN MDS® TL5 PERFORMANCE

MDS® BARRIERS have been tested to meet the highest performance standards in the world, passing both the American Standard NCHRP Report 350 and MASH-08 Test Level 5 including European Standard EN1317 Test Level H2.

ALTERNATIVE TO CONCRETE

MDS® TL4 barriers easily relocate during deck resurfacing while maintaining TL5 high impact minimal deflection standards. MDS® Barriers incorporates a unique base attachment system called Progressive SRS® (Stress Reduction System) that dissipates and absorbs vehicle impact forces while reducing the moment transmission forces into the anchored surface.

APPLICATIONS
- Bridges
- Work Zones
- Highway Medians
- Edge of Roadways
- Bridge Parapets
Unlike concrete barriers, the MDS® Barrier is designed with a “SRS” Stress Reduction System that absorbs a vehicle impact while simultaneously reducing the moment transmission forces into its anchored surface. Standard steel and concrete barriers generally rely on the “stiffness” or “torsional rigidity” which is logical, but the stiffness and hardness of the barrier also transmits impact forces back to the vehicle and into the anchored surface creating excessive pulling forces on the bridge deck that can create severe or hidden damage.

**MDS Barriers are designed to reduce moment forces allowing bridge decks to be designed with less reinforcement materials saving in material costs and labor.**

**FEATURES**
- Highest containment in a portable TL5 system
- Modular 20 & 10 ft sections and custom lengths
- Lightweight only 88 Lbs per foot
- Progressive SRS® technology
- Anchoring depth is only 5.5 inches deep every 10 feet
- Variable Length Barriers for expansion joints
- Eliminates 84% of concrete barrier dead weight
- 40 > 100 year *life cycle in C1-VH environments
- Adapts to most all industry standard end treatments
- Easily remove and replace damaged sections
- Pre-designed for noise and site wall integration

**MDS TL4 Barrier Lateral Force Bending Moment**

<table>
<thead>
<tr>
<th>FORCE TYPE</th>
<th>Ft-Lbs</th>
<th>Ft-Lbs</th>
<th>kN/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEHICLE</td>
<td>Car</td>
<td>Truck</td>
<td>Truck</td>
</tr>
<tr>
<td>MOMENT</td>
<td>4,200</td>
<td>15,300</td>
<td>68.1</td>
</tr>
<tr>
<td>HORIZONTAL FORCE</td>
<td></td>
<td></td>
<td>61.8</td>
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<tr>
<td>VERTICAL FORCE</td>
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<td>116.0</td>
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</table>

**WEIGHT**

<table>
<thead>
<tr>
<th>Lbs per foot</th>
<th>Kgs per meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>130</td>
</tr>
</tbody>
</table>
## Minimum TL4 Deflection System Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>60.5</td>
<td>1620 mm</td>
</tr>
<tr>
<td>Base unit height</td>
<td>38.5</td>
<td>980 mm</td>
</tr>
<tr>
<td>Base width</td>
<td>24</td>
<td>610 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>88 Lbs/ft</td>
<td>130 kg/m</td>
</tr>
</tbody>
</table>

- **Materials**: Steel - Hot dipped galvanized
- **Anchoring Distance**: 4 Anchors every 10 feet
- **Anchoring depth**: 5.5 inches
- **Material Options**: Stainless Steel
  - Duplex coatings (Galvanized & Paint Coated)

**Approvals**
- FHWA MASH Test Level TL5, NCHRP Report 350
- FHWA Ref: MDS-5
- Ref EN1317: Sergard MDS H4b
TRANSITIONS

MDS® BARRIERS transition into all guardrails, concrete barriers and end treatments for seamless integration and road continuity. MDS® Barriers offer a modern progressive design while maintaining the highest level of protection in fast deploying modular barrier system.

ATTENUATORS

When the MDS® TL5 barrier is used as a stand alone barrier such as in a work zone, it must have a crash cushion attached to the end to ensure that adequate protection is provided for both approach and departure ends. The QuadGuard cushions can be used with the MDS® TL5 depending on the intended use and also the design speed for the location. The QuadGuard CZ accommodates speeds from 25 to 62 mph. (40 to 100 km/h)
NOISE WALL & VISUAL PROTECTION
MDS® BARRIERS are per-designed to integrate sound barriers, site walls, wind breakers and fencing within a single barrier system providing considerable savings in terms of occupied space, supporting substructures and overall cost. The special backward positioning of the noise-protection barrier requires less lateral space on the bridge deck or road side.

SITE WALLS
Sound barrier panels provide a perfect noise protection system that is resistant to atmospheric corrosion in industrial and seaside environments.

STEEL SOUND PANELS
Metal sound barriers are made of galvanized steel, stainless steel or aluminum by cold forming process. Sound barrier panels provide a perfect noise protection and are resistant to atmospheric corrosion in industrial and seaside environments.

TRANSPARENT SOUND PANELS
Transparent sound barriers are made up of laminated glass panels fitted in aluminum frames. Each frame is connected to the barrier posts by bolts and safety cables only in the case of extreme bolt failure. Glass panels maintain excellent transparency in all weather conditions and guarantee maximum noise protection such as highways, urban environments, tramway-railway and residential areas.

DISSUASIVE BARRIERS
Modern aesthetic wind breakers protect motorcyclists and vehicle operators from being blown off course from strong wind gusts as they pass through bridges, valleys, mountain roads or gaps in open areas especially in slippery road conditions.
SOUND BARRIERS
Tested in compliance with UNI EN 1793-1,2:2008 and UNI EN 1794-1,2:2003, metal sound absorbing panels are CE certified and belong to category A4 for sound absorption and category B3 for sound insulation.

PANEL OPTIONS
Panels are available in 4 sizes allowing installation in a variety of combinations to accommodate different road aesthetics & hazards.

PANEL DIMENSIONS
10 ft x 20 in.
10 ft x 60 in.
10 ft x 80 in.

MDS TL5 Maximum height 8 ft
### Minimum TL5 Deflection System Specifications

#### MODEL H4-6000-7DA-3M
- **Total height**: 10 ft
- **Base unit height**: 38.5"
- **Base width**: 19.7"
- **Weight**: 88 Lbs per foot
- **Steel Coating**: ASTM 123 Galvanized
- **Anchoring**: Every 10 feet
- **Approvals**: FHWA Approved TL5, NCHRP Report 350, MASH-08
- **Ref**: EN1317

#### MODEL H4-6000-7DA-4M
- **Total height**: 13 ft
- **Base unit height**: 38.5"
- **Base width**: 19.7"
- **Weight**: 88 Lbs per foot
- **Steel Coating**: ASTM 123 Galvanized
- **Anchoring**: Every 10 feet
- **Approvals**: FHWA Approved TL5, NCHRP Report 350, MASH-08
- **Ref**: EN1317

#### MODEL H4-6000-7DA-55M
- **Total height**: 18 ft
- **Base unit height**: 38.5"
- **Base width**: 19.7"
- **Weight**: 88 Lbs per foot
- **Steel Coating**: ASTM 123 Galvanized
- **Anchoring**: Every 10 feet
- **Approvals**: FHWA Approved TL5, NCHRP Report 350, MASH-08
- **Ref**: EN1317

Weight to be calculated according to panel configuration
- Glass, Aluminum, or Glass & Aluminum
MDS Barriers
Are an easy to install modular barrier system with the choice of internal anchoring or external anchoring

**STEP 1** Install Base Plate: Using the template insert positioning pins onto anchor plate. Pre-mark its initial pilot hole position

**STEP 2** Drill four 5/8” pilot holes. Move template to the next position until the installation track has been completed.

**STEP 3** Finish drilling with ø ¾” x 5¾” deep holes with carbide bit

**STEP 4** Blow out holes with compressed air.

**STEP 5** Inject resin in anchor holes.

**STEP 6** Insert four 5/8” x 6½” threaded rods.

**STEP 7** Lift and place all barrier sections over the anchor plates.

**STEP 8** Continued.

**STEP 9** 1. Insert connecting pin 2. Join barrier sections 3. Mount splice plate

**STEP 10** Using access ports, tighten barrier to protruding rods.

**STEP 11** Mount top rail post and tube.

**STEP 12** Ensure all bolts are tight and access covers in place.

Installation Complete
MDS Barriers
Are an easy to install modular barrier system with the choice of internal anchoring or external anchoring

**STEP 1** Place external anchor plate under barrier and lock in through front access port holes.

**STEP 2** Lift and place all barrier sections according to project layout and design.

**STEP 3** Once barrier is in place, drill four $\frac{3}{4}$” x 5¼” deep through the quick release anchor plate.

**STEP 4** Blow out holes with compressed air.

**STEP 5** Inject resin in anchor holes.

**STEP 6** Insert two 5/8” x 11½” threaded rods.

**STEP 7**
1. Insert connecting pin
2. Join barrier sections
3. Mount splice plate

**STEP 8** Using access ports, tighten barrier to protruding rods.

**STEP 9** Mount top rail post and tube.

**STEP 10** Ensure all bolts are tight and access covers in place.

Installation Complete