PROGRESSIVE SRS© TECHNOLOGY

Sergard MDS® BARRIERS incorporates a unique base attachment system called Progressive SRS© (Stress Reduction System) that dissipates vehicle impacts in order to reduce the impact forces that are redirected to the vehicle while providing very little disruption to bridge decks.

Progressive SRS© is unlike any barrier, the design and behavior of Sergard MDS® BARRIERS under impact is unique to what we typically would not expect from crash barriers. Standard steel barriers generally rely on the “stiffness” or “torsional rigidity” of a barrier which is logical, but the stiffness and hardness of the barrier also transmits impact forces back to the vehicle and into the bridge deck developing excessive pulling forces on the bridge deck that can create severe or even hidden damage and excessive costs for repair.

As our highway infrastructure evolves, more attention is being geared towards the impact forces that are redirected to a vehicle under impact. Crash attenuators mounted on the back of a truck are an excellent example. If concrete barriers are so great, why wouldn't they be mounted on the back of a highway work truck? As an example if a vehicle loses control while driving down a highway would it be safer to impact into a concrete barrier mounted on a back of a highway work truck that is parked alongside of a highway, or would it be safer to hit an energy absorbing crash attenuator?

Although the choice is obvious, having an "energy Absorbing Barrier" designed as a road barrier is the transition and the next evolution in our road infrastructure system.

How does Progressive SRS© work?

Sergard MDS TL4 & TL5 barriers are designed to provide exceptional energy absorption capabilities from its design which is referenced to SRS©. The impact force level from cars, trucks and buses are based on 3 energy absorption stages initiated by the intensity of the impact.

- **STAGE 1**
  Based on a chain of events the ribs located on the face of the barrier “V Cuts” are the first to absorb energy during impact as they will begin to flatten

- **STAGE 2**
  As the impact pressure increases the vertical ribs behind the barrier will start to deform and collapse inwards.

- **STAGE 3**
  The additional force of a heavy impact will then break off the anchor rods allowing the remaining energy to be transmitted into the adjacent barriers.

The combined energy absorption stages of the MDS barrier design relieves an amazing 6X of bridge deck pull stress under impact when compared to concrete.

The MDS TL4 & TL5 barrier deflection from the FHWA test report is 12.59 inches (320mm) from the front face inward. The barrier base width is 19 inches (482mm), therefore the impact is fully absorbed from the front. The same principle as a crash attenuator.

IMPACT DECK TRANSMISSION FORCES

MDS TL4	MDS TL5
Horizontal force: 57.1 kN/m	Horizontal force: 61.8 kN/m
Vertical force: 46.8 kN/m	Vertical force: 116.0 kN/m

Moment: 57.2 kNm/m

Moment: 68.1 kNm/m