

## Vehicle Barrier Certification Sets New Standards For Vendors With Stringent Testing Measures

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Barriers certified by the U.S. Department of State can be trusted to withstand specified weights and speeds

**This time of year, in the early spring, there pops up a plethora of trade shows in which security vendors can present their newest marvels to potential customers. Not to be outdone are the barriers manufacturers. Their products will range from a large metal planter to be placed in an area where no traffic is allowed to movable barriers which lower to let a car drive over and re-raise to protect the property. Some are so sophisticated that they can stop a 30-ton truck driven by terrorists at 50 mph.**

[Vehicle Barrier Testing By U.S. Department Of State](#)

But how do you know those 65,000 pounds and 50 mph figures are not just marketing numbers? If you are planning to implement such protection, you need to know exactly what weight and speed your new system will meet. And, as you go up and

down the trade show aisles, you will see many different claims.

That's why you want the figures to be certified and the leading institution doing such work is the U.S Department of State. In order to be certified by the DOS, vehicle barriers must be tested by an independent crash test facility. Certification is based on speed and penetration ratings. Originally, "K" indicated vehicle speed during the crash test; and "L" indicated the maximum allowed penetration of the barrier by the vehicle.

For test purposes, K12 denoted a speed of up to 50 mph and L3 (the highest penetration rating) denoted a penetration of three feet or less. Other ratings included: K8 = 40 mph; K4 = 30 mph; L2 = 3 ft. to 20 ft.; and L1 = 20 ft. to 50 ft. Thus, penetration levels were set at 3 feet (1 m), 20 feet (6 m) and 50 feet (15 m), measured from the point of attack to the final resting place. In 2005, a revision (rev A) issued an update, eliminating all penetration levels except the 3 feet (1 m) standard.

Importantly, it was also recognized that different types of vehicles use different platforms, which would affect results. So, a new test standard required the use of cars, pick-ups, medium sized trucks and trucks that haul heavy goods. They are referred to as the ASTM standards.

#### Use These ASTM Standards For Impact Condition Designations

Four types of vehicles are defined:

- 1. Small Passenger Car:** The car must have been manufactured in the last 10 years and weigh 2430 +/- 50 pounds (1100 +/- 22 kg).
- 2. Pickup Truck:** The truck must be a  $\frac{3}{4}$ -ton model, manufactured within the last 10 years and weigh 5070 +/- 100 pounds (2300 +/-46 kg).

**3. Medium Duty Truck:** This vehicle must have a diesel engine with a vehicle mass of 15,000 +/- 300 pounds (6800 +/- 136 kg).

**4. Heavy Goods Vehicle:** This must be a tandem axle dump truck or tandem axle with drop axle truck, tested at 65,000 +/- 1300 pounds (29,500 +/- 590 kg).

Most importantly, the new designations actually made some sense in that a car designation starts with a "C", the pick-up is designated as a "P", the medium duty truck gets an "M" and the heavy goods vehicle is labeled an "H". The number following the letter is the speed, measured in mph. Thus, a "40" means the vehicle was tested at 38.0 to 46.9 mph. An H30 designation thus defines a heavy goods vehicle traveling at approximately 30 mph.



The BSI has their own vehicle barricade testing standard, which specifically addresses European cars which have heavier frameworks and lower centers of gravity

As a result, it is quite easy to determine the condition designation:

- ▶ **Car:** C40, C50 and C60
- ▶ **Pick-up:** P40, P50 and P60

- **Medium duty truck:** M30, M40 and M50
- **Heavy goods:** H30, H40 and H50

#### What Is The Difference?

It's easiest to show the difference in designations with an example. For instance, the Delta DSC501 is presently DOS-rated as a K54-certified barrier. That means it has been tested to stop a 65,000-pound truck traveling at 50 mph dead in its tracks. That also means it took on 5.4 million foot-pounds. Under the ASTM system, the DSC501 would be designated as an H50.

#### The British Standard Vs. US-Based DOS For Vehicle Barricades

The BSI (British Standards Institute) PAS 68 2007 was the first standard published for vehicle barricade testing in the United Kingdom. PAS 68: 2007 rates products by measuring the velocity and weight of the vehicle against the level of penetration of both the vehicle and any of its load past the vehicle control device. The maximum level of testing would see a 7.5 tonne (15,000 lb) vehicle traveling at 80 kph (50mph) with zero penetration.

This test differs from the U.S.-based DOS and ASTM tests by specifying a wider range of attack vehicles. Most significantly, though, it specifies European cars and trucks. European trucks have much heavier frame works and lower centers of gravity, which can significantly affect the test outcome. Marginal barricade designs that have passed U.S. tests have failed PAS 68 2007. Nonetheless, the K12 vehicle mass and speeds are very similar to the DOS and ASTM tests. The post crash measurements of penetration and general test result evaluations are also much the same.

Just remember, as you are going up and down the trade show aisles seeing the

various claims, it behooves you and the people you intend to protect how and where they got those numbers. Listen for two very important terms - "independent crash test" and "certified."

To learn more about certification standards, attendees at the [ISC West](#) Exposition in Las Vegas, April 6-8, should stop by the Delta Scientific booth, #21134.

## Author Profile



### **Greg Hamm**

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As Vice President of Sales and Market for Delta Scientific, Greg Hamm plays a major role in the company's sales, project management, application engineering and corporate strategic planning. Under Hamm's leadership, Delta Scientific is delivering record numbers of vehicle access systems to customers around the globe.