

The validity of crash-tests



How useful is a bollard crash-test with 24 t @ 48 km/h compared to a crash test with 7.5 t @ 80 km/h? How relevant are such test parameters and the associated results? Our specialists for High Security products with impact load, Thorsten Grunwald, Managing Director/COO and Yvonne Kolatschek, Product Manager High Security, have dealt with the topic.

Thorsten Grunwald: „First of all - 24 t @ 48 km/h - these special parameters according to the new international standard IWA 14-1 do not correspond to the test parameters established on the market for years. Crash-tests should always be carried out with the most common, most widespread vehicle, since the probability or availability of such a vehicle being used for a potential terrorist attack is high.“

Yvonne Kolatschek confirms: "Not without reason, the American Department of State, which had already published the first certification standard for the crash-testing of transit locks in 1985, specified the current, medium-weight truck as the sole test vehicle. During the years, other types of vehicle have been included within the gradually developed test standards ASTM F2656 and PAS 68. However, a test vehicle N3E with a test weight of 24 t per IWA 14-1 (see figure) is neither included in the American test standard ASTM F2656 nor in the British test standard PAS 68, which still represent the two most established representative test standards. A crash-test result is not only dependent on the impact-energy resulting from the mass, the test vehicle itself and the test-speed, but also on the test-vehicles' type and its empty weight as well as on the weight and type of attachment of the additional charge to achieve the required total weight. "

Kolatschek adds: "For an N3E test vehicle per IWA 14-1 with a total weight of 24 t, the empty weight must be at least 9750 kg. This means that the additional ballast weight can be up to 14250 kg. In comparison, the minimum permissible empty weight of an N3C test vehicle with a total weight of 7.2 t is 6100 kg, so that a maximum of 1100 kg can be loaded - a much lower percentage of the total weight. In addition, a maximum of 100 kg of the additional charge can be applied to the N3C test

vehicle in unsecured form. For the N3E test vehicle, however, only additional ballast may be used as an additional charge, even though the charge is not connected to the test vehicle at the moment of impact. This does not guarantee effectiveness."

Grunwald: "Many of the past crash-tests with bollards have shown that a 7.5 t test vehicle tends to take off at high speed on impact. In some cases, the bollards were completely 'skipped'. A successful crash-test with 24 t @ 48 km/h thus does not ensure that a crash-test with 7.5 t @ 80 km/h would also be successful despite the slightly lower impact energy. An ultimate certainty that a bollard is capable of effectively stopping a 7.5 t truck at 80 km/h is only given by a successful crash-test carried out with appropriate parameters. "

Conclusion

Grunwald: "With a crash-test with the test parameters 24 t @ 48 km/h in comparison to a crash test with common 7.5 t @ 80 km/h, a 'niche product' was simply generated to keep other manufacturers out of tenders. Whoever chooses these test parameters clearly shuns the comparison with his competitors! "

Do you have any questions or would you like to learn more about the international standards and the specific test criteria? Or are you looking for reliable and internationally certified High Security products? Yvonne Kolatschek and Thorsten Grunwald are at your disposal.

Contact:

Thorsten Grunwald:

thorsten.grunwald@perimeterprotection.de

Yvonne Kolatschek

yvonne.kolatschek@perimeterprotection.de