

PAS 68:2013



BSI Standards Publication

# Impact test specifications for vehicle security barrier systems

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### Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 28, an inside back cover and a back cover.



## Foreword

### Publishing information

This Publicly Available Specification (PAS) was sponsored by the UK Government's Centre for the Protection of National Infrastructure (CPNI). Its development was facilitated by BSI Standards Limited and published under license from the British Standards Institution. It came into effect on 31 August 2013.

Acknowledgement is given to the following organizations that were involved in the development of this specification as members of the steering group.

- APT Security Systems
- ATG Access Limited
- Centre for the Protection of National Infrastructure (CPNI)
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- Perimeter Security Suppliers Association (PSSA)
- Transport Research Laboratory (TRL).

Acknowledgement is also given to the valuable contribution made by those organizations that reviewed the working drafts of PAS 68 and who submitted comments for consideration. The contributions helped to improve the specification and are much appreciated.

### Supersession

This PAS supersedes PAS 68:2010, which will be withdrawn on publication of this PAS.

### Information about this document

BSI retains ownership and copyright of this PAS. BSI reserves the right to withdraw or amend this PAS on receipt of authoritative advice that it is appropriate to do so. This PAS will be reviewed at intervals not exceeding two years, and any amendments arising from the review will be published as an amended PAS and publicized in *Update Standards*.

This PAS is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

The PAS process enables a document to be rapidly developed in order to fulfil an immediate need in industry. A PAS may be considered for further development as a British Standard, or constitute part of the UK input into the development of a European or International Standard.

This new edition of PAS 68 incorporates key technical changes only. It does not represent a full review or revision of the standard.

The following principal changes are as follows.

- Terms and definitions have been updated for clarity and to align with CWA 16221.
- Normative and informative references have been updated.
- Classification codes have been updated.
- Test classification N1G has been changed from a single to a crew cab 4x4 pick up.
- References to "weight" have been altered to "mass".

- Subclause 5.2, test methodology, Clause 7, documentation, and 8.3, impact point, have been updated to align with CWA 16221.
- Annex B, Generic rigid test foundation for a single fixed bollard for vehicle impact tests has been removed and replaced with an annex regarding VSB system classifications (see Annex A).
- Annex C has been removed as the alternative methods of impact testing listed in PAS 68:2010 edition are still being researched and developed.
- List item o) in D.1.1 has been removed as a repetition of D.1.1 l). Annex D is now Annex B.
- Some editorial amendments have been undertaken.

### Relationship with other publications

PAS 68 was originally developed with PAS 69 which is guidance for the selection, installation and use of vehicle security barriers (VSBs). An international workshop agreement (IWA) is currently in development for the International Organization for Standardization (ISO) that will cover similar content to PAS 68 and PAS 69. However, both PAS 68 and PAS 69 are well established in the UK and they are being revised to meet immediate industry requirements and developments in the VSB industry since their last publication.

**Product testing.** Users of this PAS are advised to consider the desirability of third-party testing of product conformity with this PAS. Appropriate conformity attestation arrangements are described in BS EN ISO/IEC 17025. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

### Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

Requirements in this standard are drafted in accordance with *The BSI guide to standardization – Section 2: Rules for the structure, drafting and presentation of British Standards*, subclause 11.3.1, which states, "Requirements should be expressed using wording such as: 'When tested as described in Annex A, the product shall ...'". This means that only those products that are capable of passing the specified test will be deemed to conform to this standard.

### Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

### Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the following specific Acts:

- The Road Traffic Act 1991 [1];
- The Data Protection Act 1998 [2].

## Introduction

PAS 68 has been prepared to address the needs of organizations who wish to have assurance that vehicle security barrier (VSB) systems will provide the level of impact resistance which is sought.

Many systems are available that are either promoted or considered suitable for use as VSB systems. As their characteristics differ in both function and form, a comparative means of assessing their performance is required.

This Publicly Available Specification identifies impact test methods, tolerances, test vehicle type and vehicle performance criteria that need to be met in order to conform to PAS 68. Design guidance for installing barriers is provided in PAS 69.

Declarations of conformity to PAS 68 are relevant only for the edition of the PAS to which testing was undertaken and with which all requirements were complied.<sup>1)</sup>

## 1 Scope

This Publicly Available Specification (PAS) cites a classification system for the performance of vehicle security barriers (VSBs) and their supporting foundations when subjected to a single horizontal impact.

This PAS specifies two test methods of determining the performance classification of VSB systems:

- the vehicle impact method;
- the design method [which includes the use of finite element analysis (FEA) techniques if validated by test data].

This PAS does not cover the performance of a VSB system when subjected to blast or ballistic impact.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 1317-1: 2010, *Road restraint systems – Part 1: Terminology and general criteria for test methods*

BS EN 12390-2, *Testing hardened concrete – Part 2: Making and curing specimens for strength tests*

## 3 Terms and definitions

For the purposes of this PAS, the following terms and definitions apply.

### 3.1 ballast

mass securely fixed to the vehicle

### 3.2 dispersion

distance beyond the VSB system datum line to the location of the furthest item of major debris (see 3.8)

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<sup>1)</sup> Marking PAS 68:2013 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.