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Personal fall protection equipment –

Anchor systems – Specification

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Contents

Summary of pages
This document comprises a front cover, and inside front cover, pages i to iv, pages 1 to 94, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2017. It was prepared by Technical Committee PH/5, *Personal Fall Protection*. A list of organizations represented on this committee can be obtained on request to its secretary.

Product certification/inspection/testing

Users of this British Standard are advised to consider the desirability of third-party testing of product conformity with this British Standard. Appropriate conformity attestation arrangements are described in Annex A. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

Use of this document

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Users of this British Standard are expected to be able to demonstrate compliance with all applicable requirements.

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 italic type, and does not constitute a normative element.

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.

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0 Introduction

0.1 General

This British Standard covers two categories of anchor system:

a) non-load-limiting, for single and multi-users; and

b) load-limiting, for single and multi-users.

Each category consists of various types, i.e. type A, type C and type D, which cover different applications, including:

- restraint;
- fall arrest;
- rope access;
- work positioning;
- several types of rescue; and
- evacuation.

NOTE For anchor system options and codification, see Table 1 and Table 2.

Table 1 — *Non-load-limiting codification and anchor system options*

Type	Application Code	Application Use
A – e.g. eyebolt[A)]/post	1	Restraint
	2	Fall arrest
	3	Rope access and work positioning
	4	Rescue – accompanied descent
	5	Rescue – remotely or self-operated – direct attachment
	6	Rescue – remotely operated – redirect attachment
	7	Evacuation
C – e.g. flexible horizontal anchor line	1	Restraint
	2	Fall arrest
	5	Rescue – remotely or self-operated – direct attachment
D – e.g. rigid horizontal anchor line	1	Restraint
	2	Fall arrest
	3	Rope access and work positioning
	4	Rescue – accompanied descent
	5	Rescue – remotely or self-operated – direct attachment
	6	Rescue – remotely operated – redirect attachment
	7	Evacuation

A) As an example of codification, an eyebolt for fall arrest – non-load-limiting would be A2.

NOTE 1 Type A, type C and type D anchor systems are based on the types described in BS EN 795. Type B and type E, as described in BS EN 795, are not covered in this British Standard as they are not installed in a base material and so, therefore, the sequence of types in this British Standard is type A, type C, and type D.

NOTE 2 For clarification, BS EN 795 (single user only) and PD/CEN TS 16415 (two or more users) cover only anchor devices and not the structural anchor or the base material.

Table 2 — Load-limiting codification and anchor system options

Type	Application Code	Application Use
A – eyebolt[A)]/post etc.	1L	Restraint
	2L	Fall arrest
	5L	Rescue – remotely or self-operated – direct attachment
C – flexible horizontal anchor line	1L	Restraint
	2L	Fall arrest
	5L	Rescue – remotely or self-operated – direct attachment
D – rigid horizontal anchor line	Not covered as load-limiting type D anchor systems do not currently exist	

A) As an example of codification, an eyebolt for fall arrest – load-limiting would be A2L.

NOTE 1 Type A, type C and type D anchor systems are based on the types described in BS EN 795. Type B and type E as described in BS EN 795, are not covered in this British Standard as they are not installed in a base material and so, therefore, the sequence of types in this British Standard is type A, type C, and type D.

NOTE 2 For clarification, BS EN 795 (single user only) and PD/CEN TS 16415 (two or more users) cover only anchor devices and not the structural anchor or the base material.

This British Standard is intended for the type testing of anchor systems and gives only minimum performance requirements. It is essential that anchor systems are designed and manufactured so that, in the foreseeable conditions of use for which they are intended, the user is able to perform the risk-related activity while being appropriately protected at the highest possible level.

This British Standard presumes that the manufacturer of the relevant parts of the anchor system, for the sake of consistency and traceability, operates a quality management system which complies with regulations in force at the time. Guidance on the form this quality management system could take can be found in BS EN ISO 9001.

0.2 Advice on using this British Standard

It is recommended that this British Standard is read in the following order to ensure the correct category of anchor system is selected and tested.

a) Clause **0**, Table 1 and Table 2: depending on which category of anchor system has been chosen, select:

   1) the category of anchor system, i.e. non-load-limiting or load-limiting;

   2) the type of anchor system, i.e. type A, type C or type D; and

   3) any application or applications that apply (application codes 1 to 7).

b) Clause 1 Scope.

   NOTE Clause 3 clarifies terminology used in this British Standard.

c) Clause **4**, Anchor system requirements, should be read in the following order:

   1) **4.1**, General requirements;

   2) **4.2**, Pre-testing verification and recording requirements;

   3) **4.3**, Materials; and

   4) **4.4**, Design and ergonomics.

d) Depending on the category of anchor system selected [see a)], either select:

   1) **4.5**, Non-load-limiting anchor systems; or

   2) **4.6**, Load-limiting anchor systems.

e) Using either 4.5 or 4.6, select the appropriate type and application, e.g. 4.5.1.1, Type A, Restraint – non-load-limiting.

NOTE Some of the subclauses cover more than one application.

f) See Table 3 for the appropriate requirements and related test methods.

g) Clause 5, Test methods, should be read in the following order:

1) 5.1, Pre-test requirements;

2) 5.2, Dynamic performance test apparatus and preparation;

3) 5.3, Static strength test apparatus;

4) 5.4, General test requirements;

5) 5.5–5.7: Using Table 3 (4.2.9), select the test methods appropriate to the category, type and application chosen; and

NOTE Test methods generally comprise deformation, dynamic performance and static strength, in that order. For some applications, there are no dynamic performance tests.

6) 5.8, Corrosion resistance test method;

h) Clause 6, Marking.

i) Clause 7, Information to be supplied by the manufacturer.

j) Annex A to Annex C provides further normative and informative information regarding:

1) criteria for test laboratories;

2) test rationale; and

3) requirements for test apparatus and procedures.

1 Scope

This British Standard provides requirements and test methods for type testing anchor systems that are installed and tested in the base materials specified by the manufacturer for:

a) restraint systems;

b) fall arrest systems;

c) rope access systems;

d) work positioning systems;

e) rescue systems; and

f) evacuation systems.

This British Standard covers anchor systems intended for one or more users simultaneously and specifies the maximum number of users for each type of anchor system.

NOTE 1 Where the manufacturer intends to rate their anchor systems for more than the specified maximum number of users, it is recommended that they liaise with an appropriate test house, taking into account the principles of this British Standard and develop a test specification accordingly.

This British Standard is not applicable to:

1) equipment conforming to BS EN 516 or BS EN 517;

2) type A load-limiting anchor systems (see 3.3.2) for:

- rope access and work positioning;

- rescue – accompanied descent;
- rescue – remotely operated – redirect attachment; and
- evacuation,

as they are considered not to be appropriate for such use.

3) type C non-load-limiting and load-limiting anchor systems (see **3.3.3**) for:

- rope access and work positioning;
- rescue – accompanied descent;
- rescue – remotely operated – redirect attachment; and
- evacuation,

as they are considered not to be appropriate for such use.

4) type B and type E, as described in BS EN 795, are not covered in this British Standard as they are not installed in a base material;

5) bespoke structurally designed anchors incorporated into structures.

NOTE 2 The performance requirements in this British Standard are intended as minimum requirements for anchor devices, structural anchors and their base material(s). The performance requirements do not constitute structural verification of the structures for the imposed loads.

This British Standard is intended for use by manufacturers, installers and users of anchor systems and also other interested parties, e.g. architects and structural engineers, including those responsible for the design of safe access and egress on structures.

NOTE 3 Information on the use of anchor systems in personal fall protection systems, including rope access, can be found in BS 8437, BS 7985 and BS 7883.

NOTE 4 Anchor systems conforming to this British Standard for rope access should meet the requirements of the rope access industry for anchor systems, as detailed in BS 7985 and the Industrial Rope Access Trade Association (IRATA), International code of practice for industrial rope access (ICOP) [1].

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 7883, *Code of practice for the design, selection, installation, use and maintenance of anchor devices conforming to BS EN 795*

BS EN 362, *Personal protective equipment against falls from a height — Connectors*

BS EN 363, *Personal fall protection equipment — Personal fall protection systems*

BS EN 795:2012, *Personal fall protection equipment — Anchor devices*

BS EN 892, *Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods*

BS EN 12385-4, *Steel wire ropes — Safety — Part 4: Stranded ropes for general lifting applications*

BS EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*