

WAHSA TGN03

Technical Guidance Note 3 (formerly TGN06)

GUIDANCE ON INSPECTING EYEBOLTS USED FOR PERSONAL FALL PROTECTION PURPOSES

A series of informative notes for all industries involved with work at height or rescue.

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FOREWORD

All new Class A1 anchors have to be tested, examined, marked and certified in accordance with BS EN 795: 2012. In addition, installed eyebolts have to be installed, tested, examined, marked and certified in accordance with BS 7883: 2005.

The responsibility assumed by the company carrying out periodic examinations is significant; as the report it issues as a result of the examination (if confirming that anchor devices may be used) is effectively re-certifying the installations as being fit for purpose. It must not be taken lightly.

INTRODUCTION

This guidance note gives guidance on carrying out periodic examinations on Class A1 Anchor Devices in accordance with BS EN 795: 2012 and by the recommendations of BS 7883: 2005. It offers general advice about the types of issues which should be considered but does not give detailed guidance on specific procedures or indicate whether individual methods might be preferable.

More general information on inspecting equipment for work at height can be found in WAHSA Practical Guidance Note no 2.

The requirements for periodic examination of Class A1 anchor devices for fall arrest have been revised in BS 7883: 2005. There are new recommendations for many aspects of installation and load testing which raise issues of how existing installations should be examined.

This Technical Guidance Note is intended to help examining bodies understand the full implications of the new recommendations and to give clear guidance as to how different aspects may be handled. The new recommendations in BS 7883: 2005 make it clear that the examining body must do more than simply remove eyebolts for examination and carry out a load test. The installation must be checked, as far as possible, to see that it complies with all requirements of BS 7883: 2005.

The information contained in this material has been compiled by the Working at Height Safety Association from information that is already in the public domain. The material is intended to provide guidance but does not interpret and apply the law to particular circumstances and cannot be relied upon as advice.

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DEFINITIONS

Examiner – The person who performs the examination and testing and is competent as defined below.

Competent Person – BS EN 365: 2004 for periodic examination defines a competent person as a “person who is knowledgeable of the current periodic examination requirements, recommendations and instructions issued by the manufacturers applicable to the relevant component, subsystem or system” (BSI, 2004).

BS EN 365: 2004 Clause 3.3 also states “This person should be capable of identifying and assessing the significance of defects, should initiate the corrective action to be taken and should have the necessary skills and resources to do so” (BSI, 2004).

Note: A competent person may need to be trained by a manufacturer or their authorised representative on specific PPE or other equipment and may need to have that training updated due to modification and upgrades.

1 WHAT ARE CLASS A1 ANCHOR DEVICES?

Class A1 anchor devices, often referred to as ‘eyebolts’ or ‘windows cleaners eyebolts’, comprise of structural anchors designed to be secured to vertical, horizontal and inclined surfaces, such as walls, columns, lintels etc. Most Class A1 anchors supplied in the UK consist of two elements: the ‘eyebolt’ and a ‘structural anchor’ and are typically fixed into the structure using resin. An expanding anchor can also be used as a structural anchor and are supplied in two parts to enable the eyebolt to be removed for inspection.

Class A1 Anchor Devices are generally used as single user attachment points, but can be used for Rope Access when used in pairs, but must be rated to 15kN each as required by BS 7883: 2005 Annex C.

2 IDENTIFICATION OF EYEBOLTS

2.1 LABELS

The uses for which the anchor device is intended should be clearly identified on the label, e.g. “For fall arrest only”, “For rope access only” or “For work positioning and restraint”.

Labels should be provided on or near the anchor device in such a way as to demonstrate that the anchor device has been removed for inspection. Where anchor points may not be removed, such as where anchor devices are fixed through the structure, a tag should be fitted to the anchor point via a cable tie.

The label should be permanent and not prone to deterioration.

2.2 MARKING OF EYEBOLTS

Marking requirements are detailed in various British Standards and the PPE Directive. The following shows which standards define this:

- if manufactured between 1980 and 1997, BS 5845 requires a reference to the “manufacturer’s statement” and to BS 5845 (BSI, London)
- if manufactured from 1997 onward, BS EN 795: 2012 requires marking to comply with BS EN 365: 2004 (BSI, London)

- if manufactured between 1992 and 2004, BS EN 365: 2004 requires the anchor device to be marked with the last two digits of the year of manufacture and the manufacturer's identification and batch number (BSI, London)
- if manufactured from 2004 onward, BS EN 365: 2004 requires BS EN 795: 1997 or BS EN 795: 2012 to be shown (BSI, London)
- if manufactured from 1992 onward, the PPE Directive requires anchor devices to be CE marked (Directive 89/686/EEC)

3 INSPECTIONS AND CHECKS

3.1 PERIODIC EXAMINATION

Requirements for periodic examination are described in detail in BS 7883: 2005 section 12, with associated aspects of inspection and testing in section 11. It is useful to summarise them here but readers must be familiar with the standard.

Any company intending to carry out periodic examinations of anchor devices should make sure that their staff are thoroughly familiar with all the requirements of BS 7883: 2005, and deemed as suitably trained and competent by the company.

BS 7883: 2005 requires:

- Periodic examinations to be carried out at intervals of no more than 12 months for fall arrest devices and 6 months for rope access devices or if being used for raising and lowering a person. For anchor devices used infrequently they may be used if they have been examined within the last 12 (6) months
- Examinations are to be carried out by a competent person. Reading this Guidance Note alone does not satisfy this requirement
- Examinations should be carried out to the manufacturer's instructions. These should follow the recommendations of BS 7883: 2005 and are specified by the installer in documentation which must be passed to the client on completion of the installation (BSI, 2005)

It is recommended by WAHSA that the client / building owner should be asked to provide a copy of the documentation provided by the original installer specifying the examination requirements before the examination is undertaken. This will, for instance, confirm if the requirements are for a solid or a cavity construction. If no such documentation is available, the recommendations of BS 7883: 2005 should be followed for the type of installation / structure.

Note: Where no specific reference is made to the intended use of the anchor device (i.e. fall arrest, rope access or fall restraint / work positioning) the recommendations for fall arrest should be assumed. References shown thus are section numbers in BS 7883: 2005.

Note: Not all eyebolts are captive – some have a through fixed installation, so the examiner should be aware of the risk of falling parts when unscrewing the eyebolt.

3.2 REQUIREMENTS FOR INSPECTION AND PERIODIC EXAMINATION

Detailed examination requirements are as follows for all installations:

- examine the eyebolt for correct marking (referring to 2.2) and ensure that the marking is clear and indelible
- check that the structural anchor is of an approved type and appropriate to the structure
- check that the anchor device is manufactured from materials suitable for the corrosion conditions, e.g. stainless steel if any part is external

- check as far as is possible that the positioning requirements are met, especially that:
 - the structure is sufficiently load bearing e.g. the anchor device is not in the top of the parapet wall or directly below a window
 - the anchor device can be accessed before the user is at risk
 - the edge distances are in accordance with manufacturer's recommendations
 - the free fall distance and fall factor are the minimum practicable
 - the free space below the anchor device is sufficient. This distance may be more than expected and the examiner should refer to BS 8437: 2005 + A1: 2012 sections 9.7.2 and Appendix F
 - the surrounding structure is free from damage or cracks (before and after any load testing)
 - the anchor device bears against the structure via a flexible washer
 - if being used for rope access, there are two anchor devices at suitable anchor spacings
- any anchor devices that should be withdrawn from service are marked with a suitable tag or label

For anchor devices set into solid constructions, the examiner should:

- remove the eyebolt and examine it for wear, corrosion and other defects
- replace the eyebolt and check for correct thread engagement as the eyebolt is replaced e.g. for an M12 coarse thread, at least 10 full turns will give an engagement of 18mm and 12 will give 20mm
- apply a new label with the date for the next examination (see 2.1)
- test to 6kN (see 4.0)

Installations made before October 2005 should also be tested to 6kN for reasons stated in the foreword - section c). Such installations should be capable of taking a load of 10kN so 6kN is not an overload.

For anchor devices fixed through the structure:

- it is not necessary to disassemble components where it is known that they are all manufactured from stainless steel and are all within the manufacturer's stated life expectancy
- it might be necessary to disassemble a sample of the installed "through type" anchor devices if they have not been previously examined by this examiner to determine whether they are all manufactured from stainless steel and have been correctly assembled. The sample should comprise of at least 5% of the installed anchor devices, with a minimum of 3 anchor devices being examined. If any anchor devices in the sample are found not to be satisfactory, all the anchor devices should be removed and inspected

3.3 EXAMINATION REPORT

A report should be provided to the client / building owner detailing the examination and tests carried out and the outcome. Anchor devices should be listed as suitable for continued use or, those which are to be withdrawn from service, with details of the reasons why and any remedial action required. A warning against misuse must be included, plus the requirement for all anchor devices to be inspected on each occasion prior to use.

BS EN 365: 2004 implies that equipment should be withdrawn from use should any doubt arise about its condition for safe use (BSI, 2004).

Examples of when this may be necessary include:

- when the anchor device does not conform to the requirements of BS EN 795: 2012
- when the anchor device is manufactured from the wrong material for the corrosion conditions
- when the anchor device fails the 6kN load test

- when the anchor device is set in to a structure that is clearly non-structural and incapable of taking the shock load
- when the anchor device is at an edge distance that is unsafe or below the minimum recommended at the time of installation
- when the anchor device is in a position that allows excessive free fall or insufficient free space
- when the anchor device is set externally when windows are accessed internally
- when an anchor device cannot be removed for examination
- when an anchor device stands away from the surface
- when the anchor device has insufficient thread engagement with the structural anchor
- where only one anchor device is provided for rope access

Some aspects of inspection may warrant being drawn to the attention of the client / building owner for further investigation with the original installer if known.

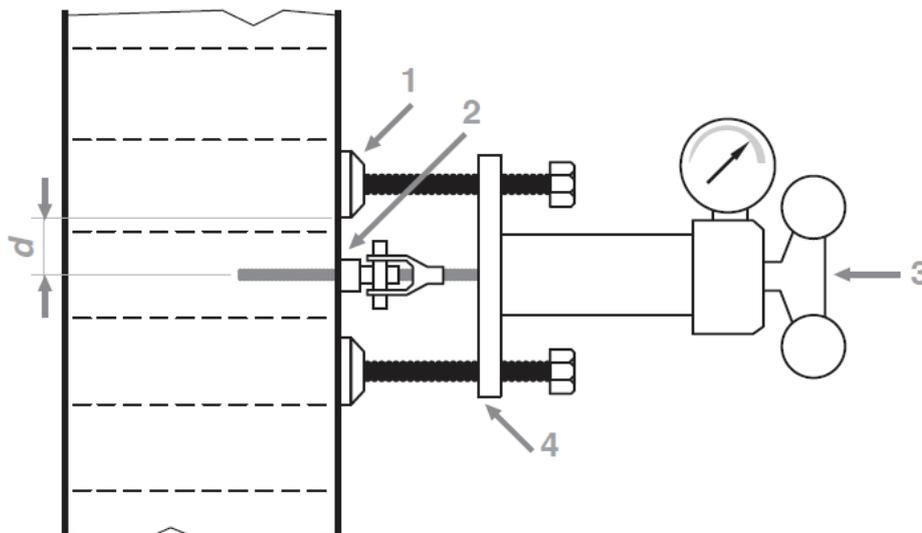
3.4 SAFETY DURING EXAMINATION

It is essential that the person performing the examination follow the correct working at height procedures, including being trained in working at height, performing Risk Assessments, using correct PPE and access equipment, and having a rescue plan in place.

WAHSA does not recommend lone working at height.

4 TEST EQUIPMENT

Load testing devices should direct loads at least 50mm from the centre line of the anchor device and in the case of masonry, into adjacent masonry to also test the strength of the mortar joint. The load should be held for 15 seconds without any sign of failure, i.e. movement of the anchor point or damage to structure including mortar joints.



1. Feet positioned to take reaction loads onto adjacent masonry units. 2. Anchor device. 3. Test meter. Load spreading bridge. *d*. 50mm minimum loads onto adjacent masonry units

The load should be applied through the anchor point into the structural anchor, not directly into the structural anchor, unless specifically called for by the manufacturer.

5 USEFUL REFERENCE DOCUMENTS

Personal Protective Equipment Directive 89/686/EEC

BS 7883: 2005 *Code of practice for the design, selection, installation, use and maintenance of anchor devices conforming to BS EN 795*

BS 8437: 2005+A1: 2012 *Code of practice for selection, use and maintenance of personal fall protection systems and equipment for use in the workplace*

BS EN 365: 2004 *Personal protective equipment against falls from a height. General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging*

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

BS EN ISO 5845-1: 1999 *Technical drawings. Simplified representation of the assembly of parts with fasteners. General principles*

6 REFERENCES

BSI (British Standards Institution). 2012. *BS EN 795: 2012. Personal fall protection equipment. Anchor devices*. London: BSI.

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BSI (British Standards Institution). 1991. *BS 5845: 1991. Specification for permanent anchors for industrial safety belts and harnesses*. London: BSI.

Directive 89/686/EEC – Personal protective equipment of 21 December 1989 on the approximation of the laws of them Member States relating to personal protective equipment. [Online]. European Agency for Safety and Health at Work. Available from: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31989L0686> [Accessed 24 November 2016]