

**Examination and test of new lifts before
putting into service – Specification
for means of determining compliance
with BS EN 81**

Part 3: Passenger and goods passenger lifts conforming
to BS EN 81-20

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Foreword

Publishing information

This part of BS 8486 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2017. It was prepared by Technical Committee MHE/4, *Lifts, hoists and escalators*. A list of organizations represented on this committee can be obtained on request to its secretary.

Relationship with other publications

BS 8486 is expected to be published in ten parts:

- Part 1: *Electric lifts* (covering lifts conforming to BS EN 81-1);
- Part 2: *Hydraulic lifts* (covering lifts conforming to BS EN 81-2);
- Part 3: *Passenger and goods passenger lifts conforming to BS EN 81-20*;
- Part 4: *Passenger and goods passenger lifts in existing buildings conforming to BS EN 81-21¹*;
- Part 5: *Lift alarm systems conforming to BS EN 81-28¹*;
- Part 6: *Lift features for accessibility conforming to BS EN 81-70¹*;
- Part 7: *Lift features for vandalism conforming to BS EN 81-71¹*;
- Part 8: *Lift features for fire-fighting conforming to BS EN 81-72¹*;
- Part 9: *Lift features for emergency recall conforming to BS EN 81-73¹*;
- Part 10: *Lift features for evacuation conforming to BS EN 81-76¹*.

This part of BS 8486 is intended to be read in conjunction with BS EN 81-20:2014.

Information about this document

BS EN 81-1 and BS EN 81-2 were withdrawn on 31 August 2017 and replaced with BS EN 81-20 and BS EN 81-50. BS 8486-3 is intended to be used as a means to verify conformity with BS EN 81-20. BS 8486-1 and BS 8486-2 will remain available for testing lifts installed in accordance with BS EN 81-1:1998 and BS EN 81-2:1998.

Due to the changes in technology since the first publication of BS EN 81-1, certain types of lift are no longer found to be in common use. For this reason, the following types of lift drive mechanisms, whilst previously included in BS EN 81-1 and present to some extent in BS EN 81-20, are excluded from the scope of this part of BS 8486:

- a) positive drive lifts by use of drum and ropes;
- b) positive drive lifts by use of sprocket and chains;
- c) rack and pinion lifts conforming to DD 222.

The Lifts Regulations 2016 [1] require the installer of a lift to take responsibility for its design, manufacture, installation and placing upon the market.

For conformity assessment, the Lifts Regulations 2016 [1] require that before placing upon the market and putting into service a lift shall have undergone certain procedures including inspection and test.

¹ Intended for future publication.

The inspection and test procedures may be undertaken by the installer provided that:

- 1) the installer can demonstrate the necessary expertise by having an appropriate quality assurance system; and either
- 2) the lift conforms to a harmonized standard; or
- 3) the lift has a Type Examination Certificate or Design Examination Certificate from a Notified Body.

According to the requirements of the Lifts Regulations 2016 [1], in order for the installer to demonstrate the competence of the persons carrying out the testing of the lift it is necessary that they operate in accordance with a quality assurance system, monitored by a Notified Body. It might be necessary to make available certification of the quality assurance system in order to prove compliance with the Lifts Regulations.

NOTE Notified Bodies testing lift installations are expected to use the test report produced by the NPL Form.

This part of BS 8486 specifies a means of determining compliance with BS EN 81-20. It does not cover every clause in BS EN 81-20 as many requirements are covered by the installer's quality control procedures.

This part of BS 8486 covers the tests in BS EN 81-20:2014, Clause 6, as well as tests that do not fall within the installer's quality control system; for example, the depth of the pit to ensure conformity to arrangement drawings.

This part of BS 8486 does not cover other issues that are part of the installer's quality assurance system such as calibration of mechanical and electrical test equipment used in the specified tests [e.g. force measurements (N), energy measurements (J), micrometers, voltmeters, ammeters, etc.].

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Attention is particularly drawn to the recommendations for safe working practices provided in BS 7255. Whilst BS 7255 was written to cover the hazards which can be encountered whilst a lift is undergoing regular maintenance, much of its content is equally applicable to the hazards found during the testing process.

BSI permits the reproduction of the tables in this part of BS 8486. This reproduction is only permitted where it is necessary for the user to record findings on the tables during each application of the standard.

It is assumed that manufacturers and installers will customize these tables to suit their product range, if necessary by removing questions which are not relevant to the lift to be tested.

In addition manufacturers might need to add tests and requirements based on the use of programmable electronic systems in safety related applications for lifts (PESSRAL) equipment and other specific technologies which might be part of design certification schemes.

The following documents are required for the examination and tests to be carried out:

- installation and test instructions;
- general arrangement drawing;
- electrical schematic drawing;
- copies of test certificates (including Type Test Certificates and details to allow safety component verification);

- Notified Body approvals (if applicable) such as Design Examination Certificates.

This part of BS 8486 is not applicable to existing lifts (installed in accordance with previous standards), although it may be used to record the examinations and tests for parts renewed to current standards and as guidance when examining and testing lifts that have been modified or repaired in accordance with BS 5655-11, BS 5655-12 and BS EN 81-80.

Test procedures which were applicable to existing installations are given in the standards that were current at the time of installation. These include:

- BS 2655-7:1970 for lifts installed in accordance with the BS 2655 series;
- BS 5655-10:1986 from 30 June 1986 for lifts installed in accordance with the BS 5655 series;
- BS 5655-10.1.1:1995 from 15 July 1995 for lifts installed in accordance with the BS 5655/BS EN 81 series;
- BS 5655-10.2.1:1995 from 15 July 1995 for lifts installed in accordance with the BS 5655/BS EN 81 series;
- PAS 32-1:1999 from 15 June 1999 for lifts installed under the Lifts Directive in accordance with the BS EN 81 series;
- PAS 32-2:1999 from 15 June 1999 for lifts installed under the Lifts Directive in accordance with the BS EN 81 series;
- BS 8486-1:2007+A1:2011 from 31 August 2007 for lifts installed in accordance with BS EN 81-1;
- BS 8486-2:2007+A1:2011 from 31 August 2007 for lifts installed to BS EN 81-2.

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.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

It is recognized that certain tests/checks can be carried out more effectively before installation, and that others can only be made on site, unless it can be demonstrated by a quality control procedure and risk assessment that they can be performed with equal effectiveness off site. Answer boxes in this part of BS 8486 that contain a shaded square imply that the test should be carried out on site as part of installation or testing.

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.

Introduction

The examinations and tests in this part of BS 8486 are intended to be applied prior to the placing the lift into service for first use. Attention is drawn to the implications of testing when in the lift is in beneficial use by builders or on any temporary supplies.

If car finishes are not in place, additional weight to compensate for the lack of weight is necessary for safe traction. It is advisable to inform the builder of the need to make the lift safe prior to removing any temporary finishes or adding any final finishes; and the need to re-test prior to the lift being used again.

In drafting this part of BS 8486, it has been assumed that the assumptions listed in BS EN 81-20 apply and also that:

- items related to the building design have been verified by the building owner/designer as part of negotiation;
- arrangements have been made to ensure that the empty car weight and counterweight balance are kept within design limits during and after testing;
- where the lift is tested on a temporary supply, the supply characteristics are as the intended permanent supply or that, once the permanent supply is connected, relevant characteristics are checked;
- the electrical supply conforms to BS 7671 and has been tested and verified prior to installation of the lift.

Due to the varied nature of PESSRAL equipment and equipment incorporating variations from the BS EN 81 series, the manufacturers of these systems are expected to provide full details of the means by which it can be tested. Since on-site testing might not be practical or possible, this may be verification of design as certified by the Notified Body responsible for quality assurance under the Lifts Regulations 2016 [1].

1 Scope

This part of BS 8486 specifies the means of determining compliance with the provisions for examination, testing and recording results for new electric and hydraulic lifts specified in BS EN 81-20:2014 before being put into service.

This part of BS 8486 does not cover the following types of lift or lift equipment:

- a) positive drive lifts by use of drum and ropes;
- b) positive drive lifts by use of sprocket and chains;
- c) rack and pinion lifts conforming to DD 222;
- d) variations from BS EN 81-20 which might have been approved under design examination schemes by Notified Bodies.

Whilst PESSRAL is included within the scope of this part of BS 8486, it is limited to the recording of the use of the equipment and not its testing methodology. The method of testing and proving compliance of such equipment is expected to be provided by the manufacturer.