

Lifts and service lifts —

Part 3: Specification for electric service lifts

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Committees responsible for this British Standard

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- Associated Offices Technical Committee
- British Broadcasting Corporation
- British Lift Association
- British Railways Board
- British Retailers' Association
- Chartered Institution of Building Services
- Department of the Environment (PSA)
- Department of Trade and Industry (Mechanical Engineering and Manufacturing Technology Division)
- Electrical, Electronic, Telecommunications and Plumbing Union
- Engineer Surveyors Section of the MSF
- Federation of Wire Rope Manufacturers of Great Britain
- Health and Safety Executive
- Independent Engineering Insurers Committee
- Institution of Environmental Health Officers
- Institution of Mechanical Engineers
- Institution of Plant Engineers
- Institution of Production Engineers
- Lloyd's Register of Shipping
- London Underground Ltd.
- National Association of Lift Makers
- National Health Services
- Post Office
- Royal Association for Disability and Rehabilitation
- Scottish Development Department

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Foreword

This Part of BS 5655 has been prepared under the direction of the Mechanical Handling Standards Policy Committee. It has long been the expectation that the European Committee for Standardization (CEN) Committee responsible for EN 81-1 and EN 81-2 (BS 5655-1 and BS 5655-2) would prepare a further standard for electric service lifts. In the absence of such a standard this Part of BS 5655 has been prepared to revise and replace section 3 of BS 2655-1:1970 and section 3 of BS 2655-6:1970 both of which have been rendered obsolescent. In the event of a European standard being approved by CEN Members this British Standard may be revised to implement that European standard.

It is the third Part of a British Standard relating to lifts and service lifts, which supersede portions of relevant Parts of BS 2655, the relevant obsolescent requirements being retained for reference purposes and to enable existing lift installations to be maintained. BS 5655 comprises the following Parts.

- *Part 1: Safety rules for the construction and installation of electric lifts (implementing EN 81-1), together with PD 6500 “Explanatory supplement to BS 5655-1”;*
- *Part 2: Safety rules for the construction and installation of hydraulic lifts (implementing EN 81-2);*
- *Part 3: Specification for electric service lifts;*
- *Part 4¹⁾;*
- *Part 5: Specification for dimensions of standard lift arrangements (implementing ISO 4190/1 and ISO 4190/2);*
- *Part 6: Code of practice for selection and installation;*
- *Part 7: Specification for manual control devices, indicators and additional fittings (implementing ISO 4190/5);*
- *Part 8: Specification for eyebolts for lift suspension;*
- *Part 9: Specification for guide rails (implementing ISO 7465);*
- *Part 10: Specification for testing and inspection of electric and hydraulic lifts;*
- *Part 11: Recommendations for the installation of new and the modernization of electric lifts in existing buildings;*
- *Part 12: Recommendations for the installation of new and modernization of hydraulic lifts in existing buildings.*

Further Parts are anticipated.

The internal dimensional limitations on the car in this standard are different from those appearing in the definition of a “service lift” given in BS 5655-1. This reflects a difference in national practice between the UK and other European countries, but not any significant difference in safety standards.

The sequence of clauses follows closely that of BS 5655-1, and many clauses are identical in technical content. This is convenient for those concerned with both electric lifts and electric service lifts.

This standard specifies safety requirements for electric service lifts with rated speeds up to 1.0 m/s. For lifts with higher rated speeds additional requirements will be necessary in order to maintain the same level of safety. In such cases, and also for electric service lifts which are equipped with more elaborate facilities than covered in this Part, e.g. overspeed governors, power operated doors, the requirements and recommendations of BS 5655-1 and BS 5655-6 should be used as a basis.

Fire resistance is not dealt with in this Part, and reference should be made to BS 5655-1 and BS 5655-6 and relevant Building Regulations for appropriate guidance.

¹⁾ Reserved for future publications.

The latest edition of the Regulations for Electrical Installations published by the Institute of Electrical Engineers (IEE) is not applicable to lift installations, therefore electrical control and installation requirements are specified in detail.

In the preparation of this standard it has been assumed that all components are correctly designed, of sound mechanical and electrical construction, made of materials with adequate strength and of suitable quality, and free from defects.

In common with passenger carrying lifts, it is important that service lifts should be tested and examined after installation and subsequently examined and serviced at regular intervals. BS 5655-10 should be followed where applicable. It is recommended that each service lift installation should be insured by its owners.

Reference should be made also to the provisions for safe working recommended in BS 7255 "Code of practice for safe working on lifts".

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 16, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 5655 specifies requirements for the construction and installation of service lifts which are driven electrically and where the lift car is suspended by ropes or chains.

It is applicable to lifts which are loaded either at floor level or above floor level and which are rated for a loading not exceeding 500 kg and a speed not exceeding 1.0 m/s.

NOTE The titles of publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 5655 the following definitions and definitions given in BS 5655-1 and BS 5655-5 apply.

2.1

lift car

a part of the lift which carries the load and which is normally of integral construction to avoid the need for a separate sling

2.2

service lift

permanent lifting equipment designed and used exclusively for the carrying of goods serving defined levels, comprising a car, the interior of which is inaccessible to persons on account of its dimensions and means of construction, running at least partially between vertical rigid guides or guides whose inclination to the vertical is less than 15°

to discourage access to persons the car of such lifts often comprises several compartments each having a total floor area not exceeding 1.25 m², an overall interior height, depth and width not exceeding 1.40 m

NOTE The dimensions given in this definition follow those currently used in the UK. These dimensions are at variance with the definition of a service lift given in EN 81-1 (BS 5655-1) and ISO 4190/3, the latter International Standard not being approved by the United Kingdom.

3 Lift well

NOTE The requirements of this clause relate to wells containing one or more lift cars.

3.1 General

The counterweight of the lift shall be in the same well as the car of the lift.

3.2 Well enclosure

3.2.1 Enclosure. The well shall be totally enclosed by imperforate walls, floor and ceiling, as specified in 3.3, except where openings are required for the following:

- a) landing doors;
- b) inspection doors and traps;

c) vents for escape of gases and smoke in the event of fire;

d) permanent openings between the well and the machine or pulley rooms.

When the well is not required to contribute to the protection of the building against the spread of fire and a total enclosure is not required, the height of the walls on faces other than the entrance faces, shall be not less than 2.5 m above any points normally accessible to persons. The enclosure at the entrance faces of the well, above a height of 2.5 m from landing level, shall be either imperforate or mesh or perforated panels. The dimensions of the mesh or perforations shall not exceed 75 mm measured either horizontally or vertically.

3.2.2 Inspection doors and traps

NOTE For machine enclosures see clause 4.

3.2.2.1 Inspection doors and traps to the well shall be provided only when required for servicing purposes.

3.2.2.2 Inspection doors shall have a minimum height of 1.40 m and a minimum width of 0.60 m.

Inspection traps shall have a maximum height of 0.50 m and a maximum width of 0.50 m.

3.2.2.3 Inspection doors and traps shall not open towards the interior of the well.

3.2.2.4 The doors and traps shall be provided with a key-operated lock, capable of being reclosed and relocked without a key.

Inspection doors shall be capable of being opened from inside the well without a key even when locked.

3.2.2.5 All doors and traps shall be fitted with electric safety devices complying with 11.1.2 to ensure that the lift will only operate with all doors and traps closed.

3.2.2.6 Inspection doors and traps shall be imperforate and satisfy the same requirements for mechanical strength as the landing doors (see 5.2).

3.2.3 Ventilation. Where the well is ventilated it shall not be used to provide ventilation of rooms other than the machine or pulley rooms.

3.3 Walls, floor and ceiling of the well

The structure of the well shall be capable of supporting at least the loads which may be applied by the machine, by the guides at the moment of safety gear operation and by buffer operation.

The walls, floor and ceiling of the well shall be made of incombustible durable materials which do not assist the creation of dust and shall have adequate mechanical strength (see foreword).

3.4 Construction of the walls of lift wells and landing doors facing a car entrance

3.4.1 For landing doors and walls, or parts of walls, facing a car entrance, **3.4.2** to **3.4.6** shall apply over the full height of the well.

3.4.2 The assembly, comprising the landing doors and any wall or part of a wall facing the car entrance, shall form an imperforate surface over the full entrance width of the car, excluding the operational clearances of doors.

3.4.3 For lifts without car doors or equivalent protection (see **6.3**), the inner surfaces of the lift well enclosure facing any car entrance, and extending at least 25 mm on both sides, shall, so far as is practicable, form a continuous vertical surface. This shall be composed of smooth and hard elements, such as metal sheets, hard facings or other materials having similar smooth surfaces. Glass walls, if used, shall comprise flat laminated panels with a nominal thickness of not less than 11.5 mm. Where it is not practicable to provide a continuous smooth surface, any projection or recess in excess of 5 mm shall be bevelled to an angle of at least 60° with the horizontal, by means of metal plates, concrete or other similar material.

3.4.4 The horizontal clearance between the car and landing sill shall not exceed 25 mm.

3.4.5 In places other than between the car and sill, the horizontal distance between the wall of the well and the sill or entrance frame of the car or the car door shall not exceed 0.15 m.

3.5 Protection of accessible spaces located below the car or the counterweight

NOTE 1 It is recommended that an accessible space does not occur beneath a lift well.

Where accessible spaces exist beneath the well, safety gear shall be fitted to the car and/or the counterweight (see **7.7**). The bottom of the well shall be of sufficient strength to accommodate the vertical forces of safety gear operation and buffer loads.

NOTE 2 Safety gear need not be provided where the rated load does not exceed 50 kg and the travel does not exceed 4 m provided the well is of sufficient strength to absorb the energy of the loaded car and counterweight falling through full travel with gravity acceleration.

3.6 Well containing cars and counterweights belonging to several lifts or service lifts

3.6.1 A partition shall be provided in the lower part of the well situated between the moving parts, i.e. car or counterweight, of different lifts or service lifts.

The partition shall extend from a level not greater than 0.3 m above the pit floor to a height not less than 2.5 m above the lowest landing served.

NOTE It is strongly recommended that this partition should in every instance extend the full height of the well.

3.6.2 If the horizontal distance between the edge of the car roof and moving part (car or counterweight) of an adjacent lift or service lift is less than 0.3 m, the partition specified in **3.6.1** shall be extended through the full height of the well and over the effective width.

This width shall be at least equal to that of the moving part (or part of this) which is to be guarded, plus 0.1 m on each side.

3.7 Headroom and pit/base of lift well

3.7.1 Top clearances for traction lifts. A clearance of not less than 50 mm shall be provided at the top and bottom so that if the car or counterweight strikes the lower buffers and fully compresses them, the counterweight or car respectively shall not strike any portion of the top of the lift well structure.

3.7.2 Top clearances for positive drive lifts. A minimum of 50 mm clearance shall be provided at the top between the lift car and any part of the well structure so that in normal operation the car does not strike the top buffers.

3.7.3 Pit or base of lift well

3.7.3.1 When the lowest serving level is at or near floor level, a pit shall be provided at the bottom of the well and shall comply with **3.7.3.2** and **3.7.3.3**.

3.7.3.2 The base of the lift well shall be smooth and approximately level, except for any buffer and guide bases and water drainage devices. After the building-in of guide fixings, buffers, any grids, etc. the pit shall be impervious to water.

3.7.3.3 A safety switch, which is accessible on opening the door to the base of the lift well, shall be provided in the pit to stop the lift and keep it stopped. There shall be no risk of mistaking the stop position of the switch (see **12.5**).

3.8 Exclusive use of the lift well

The well shall be exclusively for the lift. It shall not contain cables or devices, etc., other than those for the lift, nor shall it be fitted with fire sprinklers.

4 Machine rooms and enclosures

4.1 General provisions

4.1.1 The machine with its ancillary equipment shall be accommodated in an enclosure within the lift well, or in a separate machine room. The enclosure or room shall be accessible only to authorised persons, i.e. for maintenance, inspection, etc.

4.1.2 The machine room (or enclosure) shall be soundly constructed, weather-proof, dry and provided with adequate ventilation (see **4.1.10**). It shall be safe for access by personnel to all equipment.