

Lifts and service lifts —

Part 5: Specification for dimensions of standard lift arrangements

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Foreword

This Part of this British Standard, prepared under the direction of the Mechanical Handling Standards Policy Committee, revises and supersedes BS 5655-5:1981. In this revision the dimensions for light traffic hydraulic lift installations (Table 2.2) have been added as have dimensions for electric traction drive and hydraulic occasional passenger traffic lift installations in low rise offices, small residential health care buildings and residential nursing homes (Table 3.2 and Table 3.3). Corrections to the 1981 edition (Amendment No. 1) have also been incorporated. It is Part 5 of a British Standard, relating to lifts and service lifts, which has progressively superseded the various Parts of BS 2655. The standard 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 service lifts;*
- *Part 4:¹⁾*
- *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 the modernization of, hydraulic lifts in existing buildings;*
- *Part 13: Code of practice for vandal resistant lifts.²⁾*

Further Parts are anticipated.

This Part reflects much of the technical content of ISO 4190/1 and ISO 4190/2 and includes additional requirements from obsolescent BS 2655-3 which are considered relevant to United Kingdom practice.

The specified dimensions have been selected to provide a rational series to reflect current good engineering practice; they also satisfy the safety requirements specified in BS 5655-1 and BS 5655-2.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 26, 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⁾ Reserved for future publication.

²⁾ In preparation.

1 Scope

This Part of BS 5655 specifies outline dimensions together with related loads, speeds and installation arrangements for hydraulic and electric traction lifts for the carriage of passengers and goods which comply with the requirements of BS 5655-1 and BS 5655-2.

Seven electric traction lift installations are dealt with as follows:

- a) light passenger;
- b) residential;
- c) occasional passenger;
- d) general purpose passenger;
- e) intensive passenger;
- f) bed/passenger;
- g) general purpose goods;
- h) heavy duty goods.

The following hydraulic lifts are also included:

- 1) light passenger;
- 2) occasional passenger.

NOTE The titles of the 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 apply.

2.1

car depth (C_d)

the horizontal dimension³⁾ between the inner surfaces of the car walls measured at right angles to the car width and at 1 m above the car floor (see Figure 1)

2.2

car height (C_h)

the inside vertical distance between the entrance threshold and the constructional roof of the car. Light fitting and false ceilings are accommodated within this dimension

2.3

car width (C_w)

the horizontal dimension³⁾ between the inner surfaces of the car walls measured parallel to the front entrance and at 1 m above the car floor

NOTE See Figure 1 for a typical example of car internal dimensions and Figure 2 to Figure 8 for particular examples.

2.4

clear entrance into car (E_w and E_h)

the width and height of the entrance measured when the landing and car doors are fully open

2.5

group collective lifts

a group of electrically inter-connected lifts for which landing controls are common and having the same rated load, the same rated speed, the same car dimensions, serving the same levels and for which the landing entrances at those levels are adjacent to and/or opposite each other

2.6

height above the highest level served (S_h)

the vertical distance between the finished floor of the highest level served and the roof of the well

2.7

landing

an area for access to the car at each level served

2.8

lift

permanent lifting equipment serving defined loading levels, comprising a car, whose dimensions and means of construction clearly permit the access of passengers, running at least partially between rigid vertical guides or guides whose inclination to the vertical is less than 15 %

2.9

lift car

the part of the lift which carries the passengers and/or other loads

2.10

machine room

a room in which machine or machines and/or the associated equipment are housed

2.11

machine room area (R_a)

the area of the machine room floor

2.12

machine room depth (R_d)

the horizontal dimension measured parallel to the car depth

2.13

machine room height (R_h)

the vertical distance between the finished machine room floor above the well and the machine room ceiling. Any lifting beam is included within this height

2.14

machine room width (R_w)

the horizontal dimension measured parallel to the car width

³⁾ Decorative or protective panels or handrails, if any, are accommodated within these dimensions.

2.15
multiple lift

any two or more lifts sharing a common machine room

2.16
overall-headroom (U_h)

the vertical distance between the finished floor of the highest level served by the lift and the machine room ceiling

2.17
pit

that part of the well situated below the lowest landing level served by the lift car

2.18
pit depth (P_h)

the vertical distance between the finished floor of the lowest level served by the lift and the bottom of the finished well floor

2.19
rated load (Q)

the load for which the equipment has been built and for which normal operation is guaranteed by the vendor

2.20
rated speed (v)

the speed of the car for which the equipment has been built and for which normal operation is guaranteed by the vendor

2.21
well

the space in which the car and the counter weight, if there is one, travels. This space is bounded by the bottom of the pit, the walls and the roof of the well

2.22
well depth (W_d)

the horizontal distance between the inner surfaces of the well walls measured parallel to the car depth

2.23
well width (W_w)

the horizontal distance between the inner surfaces of the well walls measured parallel to the car width

3 Lift characteristics

3.1 Rated load

The rated loads, which are the basis for the derivation of the other characteristics and dimensions in this standard, shall be as given in Table 2 to Table 8. The load figures in Table 2 to Table 5 have been selected from the R 10 series of preferred numbers recommended in BS 2045.

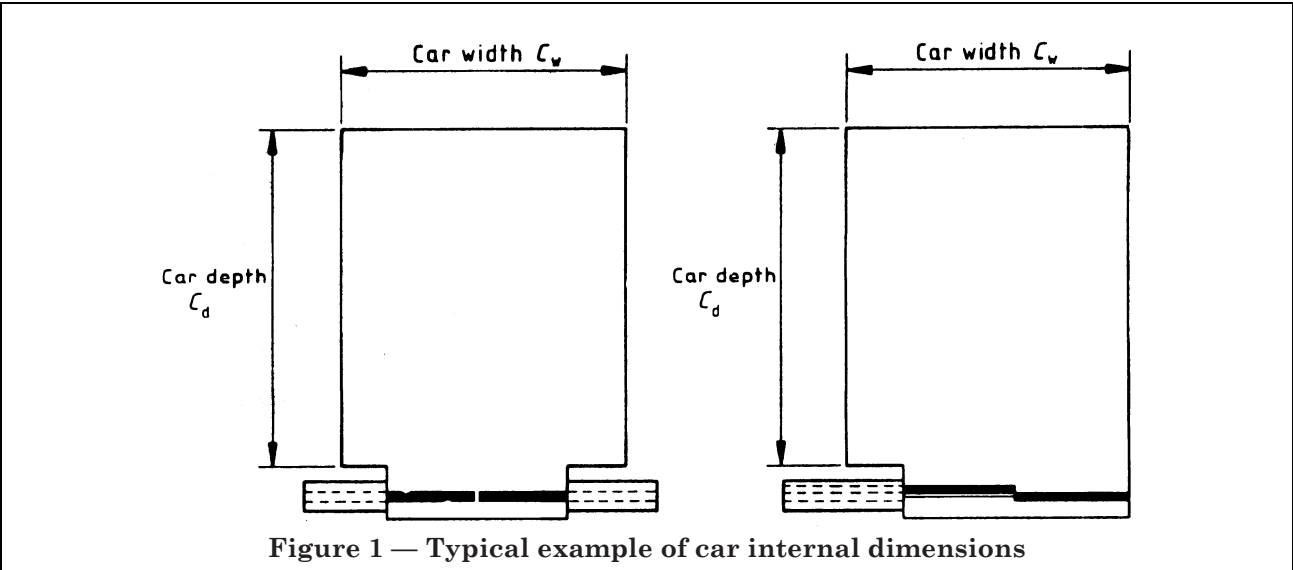
3.2 Number of passengers

The maximum number of passengers shall be as given in Table 2 to Table 8. These numbers are in accordance with the criteria specified in Table 1 of BS 5655-1:1986 and BS 5655-2:1988.

3.3 Typical applications

Although the applications listed in Table 2 to Table 8 are for guidance only, the actual lift selected shall be appropriate to operational requirements. (Guidance is given in BS 5655-6.)

NOTE With the exception of the 400 kg lifts, all lifts cars will permit disabled persons in wheelchairs to be manoeuvred within the car. These lifts are identified by the symbol  in the tables. The 400 kg lift car internal dimensions stated in Table 3.2 and Table 3.3 however, will accommodate a wheelchair, but will not permit it to be turned around, within the car.



3.4 Entrances

The types of door fitted to the landing and the car, and the method of operation shall be as specified in Table 2 to Table 8.

4 Installation arrangements and dimensions

4.1 General

The rated speed and dimensions of the lift arrangements related to the rated load shall be as specified in 4.2 to 4.7 and given in the following tables:

light passenger, electric traction lifts	Table 2.1
light passenger, hydraulic lifts	Table 2.2
residential	Table 3.1
occasional passenger traffic, electric traction lifts	Table 3.2
occasional passenger traffic, hydraulic lifts	Table 3.3
general purpose passenger	Table 4
intensive passenger	Table 5
bed/passenger	Table 6
general purpose goods	Table 7
heavy duty goods	Table 8

NOTE Guidance on the selection of appropriate lifts is given in section four of BS 5655-6:1985.

4.2 Dimensions of the well

4.2.1 General. The well shall have a certain free volume enclosed by a rectangular parallelepiped inscribed in the well, with vertical edges and bases formed by the bottom of the pit and the top of the well.

The minimum clear plumb lift well plan inner dimensions shall be as specified in the respective tables, and 4.2.2 when relevant.

NOTE The architect (or the person assuming his functions), in agreement with the builder, should ensure that adequate tolerances are added to the specified dimensions in the building design so that these minimum plan dimensions are met in the finished work (see Figure 1 of BS 5655-6:1985).

4.2.2 Common well. When several lifts utilize a common well, the inner plan dimensions shall be as follows:

- a) the total width of the common well shall be equal to the sum of the individual well widths plus the sum of the boundary widths between the wells, each boundary width being at least 200 mm;
- b) the depth of the constituent parts of the common well shall be the same as those laid down for the individual lifts;
- c) the pit depth shall be that specified for the fastest lift in the group;

d) the minimum height above the highest level served shall be that specified for the fastest lift in the group.

NOTE Requirements for partitions between moving parts of different lifts in a common well are specified in 5.6 of BS 5655-1:1986 and BS 5655-2:1988 and also BS 5655-6.

4.2.3 Rough opening for landing doors. The dimensions of the rough openings in the front walls of the well shall be selected to suit the design of the architrave.

NOTE The lift manufacturer should be consulted for details of this opening.

4.2.4 Special requirements. When the counterweight is provided with a safety gear, either of the plan dimensions of the well (W_w and W_d) shall be increased as necessary.

NOTE The lift manufacturer should be consulted for details.

4.3 Floor to floor distance

The minimum distance between two successive landings, to permit the accommodation of landing doors, shall be as given in Table 1.

Table 1— Minimum floor to floor distances

Clear entrance height, E_h	Direction of door opening	Floor to floor distance
mm		mm
2 000	Horizontally	2 450
2 100		2 550
2 300		2 750
2 300	Vertically	3 700
2 500		4 000

4.4 Landing area

The depth of the landing shall be as given in Table 9. This depth shall be maintained over at least the width of the well or the sum of the well widths.

NOTE The above landing area does not take account of any additional space required for the through traffic of persons not using the lifts (see Figure 5 of BS 5655-6:1985). Recommendations for a minimum landing area to provide adequate access for disabled persons are given in BS 5810.

4.5 Machine room dimensions for residential and similar electric traction lifts

4.5.1 Individual lifts. The dimensions of the machine room for individual lifts shall be as given in Table 3.1, Table 3.2 and Table 3.3.

4.5.2 Multiple lifts

4.5.2.1 Floor area. The dimensions of the machine room for multiple lifts shall be as follows:

- a) *Lifts having the same rated load.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts.

b) *Two lifts having different rated load.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts plus the difference between the well areas of the two lifts.

c) *More than two lifts having different rated loads.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts plus the sum of the differences between the well area of the largest lift and the well areas of each of the other lifts.

4.5.2.2 Width. The minimum width of the common machine room shall be equal to the total width of the common well plus a lateral extension corresponding to that appropriate to the lift with the greatest individual requirement (see also 4.5.2.1).

4.5.2.3 Depth. The minimum depth of the common machine room shall be equal to the depth of the deepest individual well plus 2 100 mm (see also 4.5.2.1).

4.5.2.4 Height. The minimum height of the common machine room shall be equal to the height of the machine room having the greatest individual requirement.

4.6 Machine room dimensions for electric traction lifts, other than residential and similar lifts

4.6.1 Individual lifts. The dimensions of the machine room shall be as given in Table 2.1, Table 2.2, and Table 4 to Table 8.

4.6.2 Multiple lifts. The area and plan dimensions of the common machine room shall be as given in Table 10.

The minimum height of the common machine room shall be equal to the height of the machine room having the greatest individual requirement.

4.7 Machine room dimensions for hydraulic lifts

4.7.1 Individual lifts. The dimensions of the machine room shall be as given in Table 2.2 and Table 3.3.

4.7.2 Twin lifts

NOTE It is preferable that a common machine room should be provided.

4.7.2.1 Floor area. The minimum floor area of a common machine room shall be as follows:

a) *lifts having identical rated loads:* equal to the sum of the minimum areas for individual lifts placed behind the well;

b) *lifts having dissimilar rated loads:* equal to the sum of the minimum areas for individual lifts placed behind the well, plus the difference between the well areas of the two lifts.

4.7.2.2 Height. The height of the machine room shall be as given in Table 2.2 and Table 3.3.

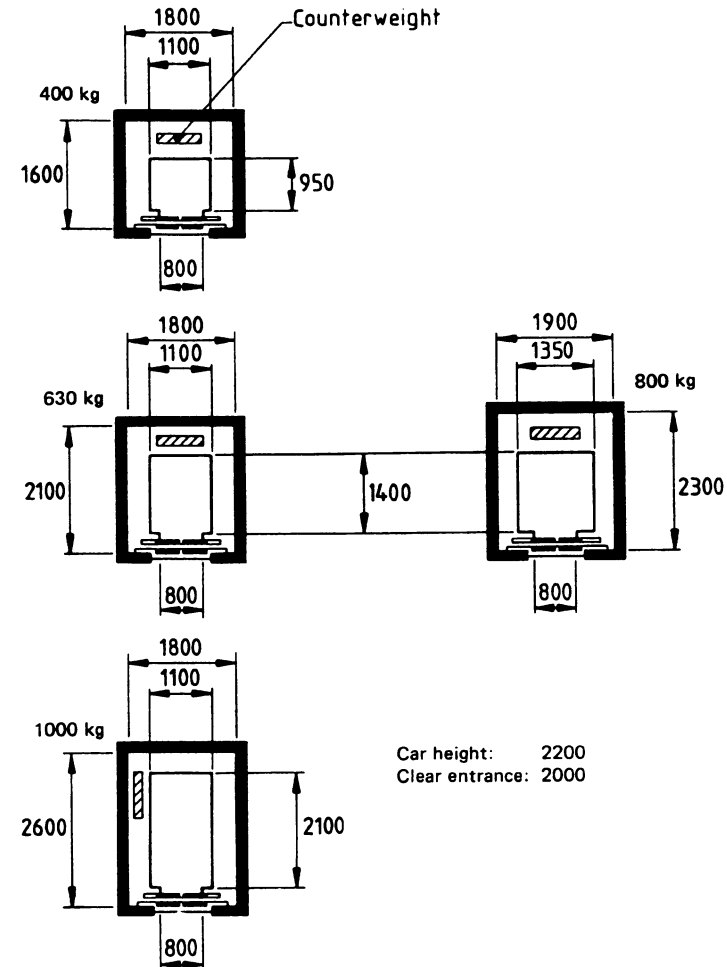
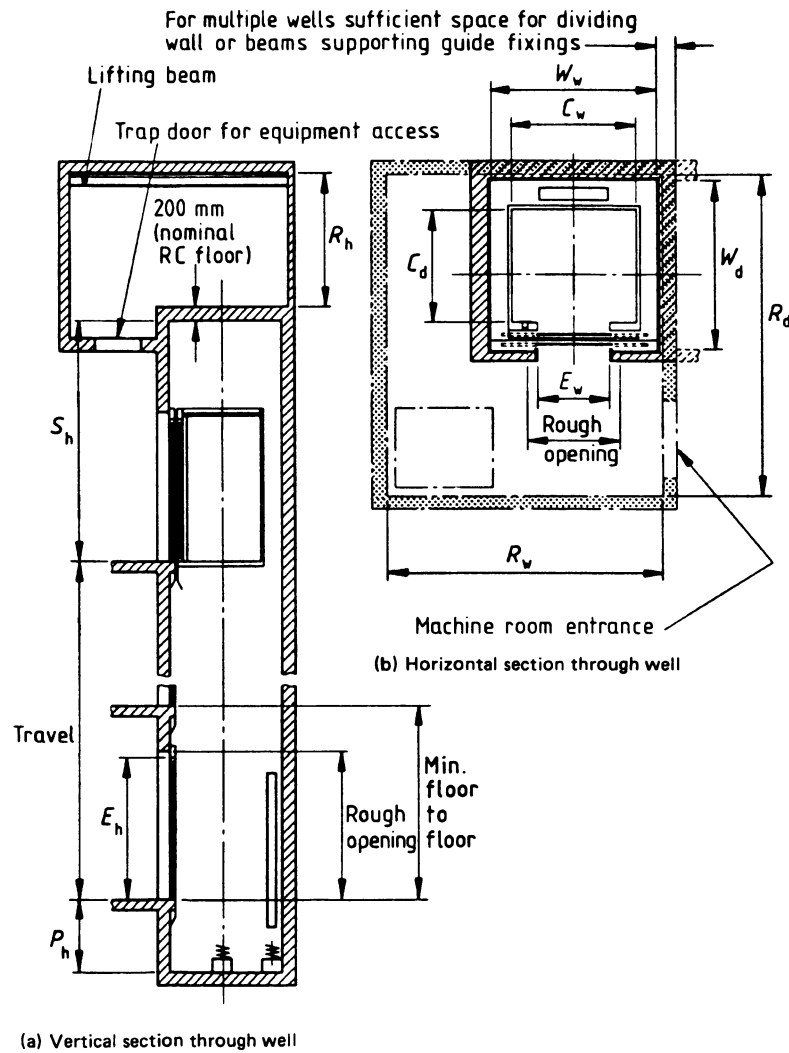
4.8 Location of machine room

4.8.1 Electric traction lifts. The area of the machine room shall be located directly above the well (or common well) and landings.

NOTE Any necessary extension to achieve this minimum machine room area should be made by increasing the overall width.

4.8.2 Hydraulic lifts. The machine room shall be located adjacent to the lift well at the lowest level served.

NOTE If this is not practicable, the machine room may be remote from the lift well at a location which is not greater than 10 m from the well.



All dimensions are in millimetres.

Figure 2.1 — Layout of light traffic electric traction lift installations

Table 2.1 — Dimensions for light traffic electric traction lift installations

Typical applications. For the carriage of passengers in hotels, small offices, etc. residential health care buildings and residential buildings (see also Table 3.1 and Table 3.2).

Entrances. Power operated, two panel centre opening, sliding doors.

Standard speeds (see note 1). These speeds are as follows:

- a) single speed $v = 0.50$ m/s
- b) two speed $v = 0.63$ m/s and 1.00 m/s
- c) variable speed $v = 1.00$ m/s and 1.60 m/s

Rated load	Max. no. of passengers	Rated speed	Car internal sizes			Well min. dimensions		Clear entrance		Pit depth	Headroom	Machine room min. dimension (see note 2)			
			Width	Depth	Height	Width	Depth	Width	Height			Area	Width	Depth	Height
Q		v	C_w	C_d	C_h	W_w	W_d	E_w	E_h	P_h	S_h	R_a	R_w	R_d	R_h
kg		m/s	mm	mm	mm	mm	mm	mm	mm	mm	mm	m ²	mm	mm	mm
400	5	0.50	1 100	950	2 200	1 800	1 600	800	2 000	1 400	3 900	7.5	2 200	3 200	2 300
		0.63								1 500	4 000				
		1.00													
630	8	0.50	1 100	1 400	2 200	1 800	2 100	800	2 000	1 400	4 000	15	2 500	3 700	2 600
		0.63								1 700					
		1.00									4 200				
800	10	0.50	1 350	1 400	2 200	1 900	2 300	800	2 000	1 500	4 000	15	2 500	3 700	2 600
		0.63								1 700					
		1.00									4 200				
1 000	13	0.50	1 100	2 100	2 200	1 800	2 600	800	2 000	1 500	4 000	15	2 500	4 200	2 600
		0.63								1 700				4 200	
		1.00									4 200				
		1.60												4 200	2 700

NOTE 1 The dimensions specified in this table are also valid for rated speeds lower than those stated.

NOTE 2 Select dimensions for R_w and R_d

- a) which are equal to or greater than those specified, and
- b) whose product produces an area which is equal to or greater than that specified for R_a .