

# Code of practice for Scissor lifts

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This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Executive Board and comes into effect on 30 April 1980

- Association of Loading Equipment Manufacturers
- British Railways Board
- Garage Equipment Association
- Institute of Road Transport Engineers (Incorporated)
- Post Office

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## Foreword

This code of practice has been prepared under the direction of the Mechanical Engineering Standards Committee and was first published in 1976. This first revision clarifies certain clauses as a result of the experience gained by the users and the manufacturers.

Although a number of scissor lifts, particularly those used in automatic feeding processes, are installed to be safe by position, the majority of these machines, whether fixed, mobile, vehicle-mounted or self-propelled, present trapping hazards to persons employed on or about them. In the case of vehicle-mounted and self-propelled scissor lifts there is the additional risk of inadvertent movement of the machine.

The ideal method of guarding scissor lifts is by total enclosure with plain vertical sheet metal apron or skirt plates (see Figure 1). Alternative acceptable methods of enclosure are metal roller shutters, telescopic sheet metal, roller blinds, bellows guards (see Figure 2) and fixed guards or walls supplemented by suitably interlocked gates (see Figure 3).

However, all these types of guards are expensive in relation to the actual cost of the lift itself, and, with the exception of substantial sheet metal skirt plate guards and fixed guards, are difficult to maintain in effective condition because of their vulnerability to damage by works transport and other vehicles. In many instances, particularly with roller blinds and bellows guards, safety trip frames would be required as well. The fitting of sheet metal skirt plates requires a pit of considerable depth around the lift and this type of guard is therefore not practicable for any mobile scissor lift nor for many fixed lifts.

In applying the methods outlined in this code, due consideration should always be given to the siting of the machine or vehicle in relation to proximity to other machines and gangways, restricted operator working space, congestion around the lift, etc; when any of these conditions exist it is probable that guards of the full enclosure type or other safety devices will be necessary to ensure safe working. This is a matter that should always be discussed between the manufacturer, the purchaser and the user at the time the lift is ordered.

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.

**This code of practice represents a standard of good practice and therefore takes the form of recommendations. Compliance with it does not confer immunity from relevant statutory and legal requirements.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, 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.

## Section 1. General

### 1 Scope

This code recommends design and safety requirements for fixed scissor lifts with a working height of not greater than 1.98 m above ground or floor level; mobile scissor lifts of any working height; vehicle-mounted scissor lifts; and self-propelled scissor lifts. It excludes lifts complying with the requirements of BS AU 161.

This code is not intended to cover the specific safety requirements that will be necessary if it is proposed to use scissor lift mechanisms to lift disabled persons. Such specific safety requirements are contained in BS 5900.

### 2 References

The titles of the standards publications referred to in this code of practice are listed on the inside back cover.

### 3 Definitions

For the purposes of this code the following definitions apply.

#### 3.1

##### **fixed scissor lift**

a lifting device, fixed in position, whose working platform is raised or lowered by a scissors-type mechanism either powered or manually operated

#### 3.2

##### **mobile scissor lift**

a lifting device, other than vehicle-mounted or self-propelled, so constructed as to be readily movable between operating positions and whose working platform is raised or lowered by a scissors-type mechanism

#### 3.3

##### **vehicle-mounted scissor lift**

a lifting device, mounted on a commercial vehicle conforming to Construction and Use Regulations, whose working platform is raised or lowered by a scissors-type mechanism

#### 3.4

##### **self-propelled scissor lift**

a lifting device, other than vehicle-mounted, capable of movement under its own power between operating positions and whose working platform is raised or lowered by a scissors-type mechanism

#### 3.5

##### **working platform<sup>1)</sup>**

the part of the scissor lift designed to accommodate the working load

NOTE The term "Platform lift" does not preclude the addition of superstructure.

#### 3.6

##### **platform length**

the length of the working platform, measured in the direction of movement of the scissor arms

#### 3.7

##### **platform width**

the width of the working platform, measured across the direction of movement of the scissor arms

#### 3.8

##### **platform vertical travel**

the difference between the fully raised height of the working platform and the fully closed height of the working platform

#### 3.9

##### **safe working load**

the rated load of a scissor lift, applied as a uniformly distributed load over the whole area of the working platform

## 4 Statutory requirements

Scissor platform lifts that are used to transfer persons or goods from one level to another are deemed to be lifts as defined by Section 25 (1) of the Factories Act 1961 and Regulations 1 (3) of the Offices, Shops and Railway Premises (Hoists and Lifts) Regulations 1968. Certain exemptions from the full requirements of the Regulations are permitted for mobile platform lifts of any height and for platform lifts that are fixed in position and the maximum height of which above ground or floor level does not exceed 1.98 m.

NOTE The Hoists and Lifts Regulations of the Factories Act 1961 and the Offices, Shops and Railway Premises (Hoists and Lifts) Regulations 1968 may not apply to scissor platform lifts that are used solely as working platforms. In the case of such lifts, where the maximum height of the platform above ground or floor level exceeds 1.98 m, there is a requirement to provide a safe place of work, and protection around the platform should be provided to prevent the fall of persons. Such protection should comprise guard rails at least 1 m high with lower rails and toe boards at least 100 mm deep, or other equally effective means. Any gate fitted, unless other equally effective means are provided, should open inwards only towards the platform and be so arranged as to return automatically to the closed and fastened position.

<sup>1)</sup> Referred to from clause 4 onwards as "platform".

It is the responsibility of the purchaser and the user to comply with statutory requirements, and advice should be sought where necessary from HM Factory Inspectorate or the relevant local authority as appropriate.

## 5 Conditions of contract

It is recommended that the supply and installation of scissor lifts is undertaken under the general conditions of contract of the Mechanical Handling Engineers' Association.

## Section 2. Safety recommendations

### 6 Dangers

Dangers associated with the use of scissor lifts include the following.

- a) Trapping of hands and feet at the closing scissor mechanism during lowering.
- b) Trapping between the underside edges of the platform and the baseframe or ground during lowering.
- c) Trapping of persons against walls or other fixed objects and trapping of feet by the wheels due to the unintentional movement of mobile, vehicle-mounted and self-propelled scissor lifts.
- d) Trapping of persons under the platform.
- e) Trapping of introduced extraneous material during raising or lowering, causing hazards to persons nearby.

### 7 Rate of descent in fault conditions

Every hydraulic scissor lift should be so designed that in the event of failure in any part of the hydraulic piping system either the descent of the lift will be promptly arrested or the rate of descent of the lift will be limited to a speed of not greater than 0.15 m/s when fully loaded.

Every mechanically driven scissor lift should be so designed that in the event of failure in the driving mechanism, which could result in free fall of the lift, either the descent of the lift will be promptly arrested or the rate of descent of the lift will be limited to a speed of not greater than 0.15 m/s when fully loaded.

## 8 Safety of personnel

**8.1 Controls.** Except for scissor lifts that are automatically controlled, all scissor lifts should be provided with controls of the "dead man's" type, i.e. movement of the lift platform can only take place while the control is being actuated and the controls will automatically return to the closed or neutral position when released. All controls, particularly foot-operated controls, should be designed to prevent accidental operation.

The direction of movement of the scissor lift should be indicated by arrows on the control device, which should also be clearly marked to indicate "raise" and "lower". Where the control is a hand lever it should operate preferably in the vertical plane, with an upward movement to raise the lift and a downward movement to lower it.

Stop controls, where fitted, should be clearly marked "stop" and be coloured red. Controls should be so situated that the operator has a clear view of the lift throughout its travel, except for lifts on which persons travel, when the controls should be situated on the lift platform. This does not preclude the provision of duplicate controls operated from ground or floor level, but in such a case the controls should be so arranged that the lift can only be operated from one position at a time.

In all cases where scissor lifts are automatically controlled, or where the controls are situated on the lift platform, at least one emergency stop control should be provided that is operable from ground level in an easily accessible position.

### 8.2 Prevention of trapping at the closing scissor mechanism

Unless the scissor lift is totally enclosed or so constructed that the scissor arms are safe by position, the minimum clearance between adjacent scissor arms should be 30 mm and the minimum horizontal clearance between the scissor arms and platform or the baseframe should be 50 mm (see Figure 4 and Figure 5). On lifts with more than two pairs of scissor arms across the width of the platform, these clearances should only apply to the outer pairs of arms.

Sharp edges should be removed from all scissor arms.