

INTERNATIONAL STANDARD

ISO
4190-5

Second edition
1987-12-15



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Lifts and service lifts (USA : elevators and dumbwaiters) —

Part 5 :
Control devices, signals and additional fittings

Ascenseurs et monte-charge —

Partie 5 : Dispositifs de commande et de signalisation et accessoires complémentaires

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Reference number
ISO 4190-5:1987 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4190-5 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators, passenger conveyors*.

This second edition cancels and replaces the first edition (ISO 4190-5:1982), of which it constitutes a minor revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Lifts and service lifts (USA : elevators and dumbwaiters) —

Part 5 :

Control devices, signals and additional fittings

1 Scope and field of application

1.1 This part of ISO 4190 specifies the buttons and indicators to be provided when a lift is constructed and installed taking into account the type of control intended for the lift.

The description of the controls is given only to define the buttons and indicators. It does not constitute a complete description of these controls. The table summarizes the essential or optional devices for each of the cases described.

This part of ISO 4190 also specifies the requirements for hand-rails when they are provided in the car.

1.2 This part of ISO 4190 applies to lifts of classes I to IV as defined in ISO 4190-1 and ISO 4190-2.

1.3 Group collective lifts have common controls and are electrically interconnected so as to provide a better service and for reasons of economy. The system can be more or less complex according to the number of lifts and the expected traffic. Consequently, this part of ISO 4190 does not deal with supplementary signals which the manufacturer may consider useful (for example, "next car", "stand clear of the doors", etc.).

1.4 The following are also not dealt with in this part of ISO 4190 :

- a) special features (and their corresponding signals), as for example, certain features for improving the service of bed lifts;
- b) any devices for speeding the traffic in the case of automatic doors (variable time delays according to different criteria, closing button for doors, etc.).

Even in these special cases, the requirements of this part of ISO 4190 have to be followed for the controls and the basic signals and should be taken as a guide in developing supplementary signals.

2 References

ISO 4190-1, *Passenger lift installation — Part 1 : Lifts of classes I, II and III.*

ISO 4190-2, *Passenger lifts and service lifts — Part 2 : Lifts of class IV.*

3 Definitions and specifications relating to controls

3.1 Single push-button control

3.1.1 General

Single push-button control is the simplest type of automatic control whereby the car answers a landing call only if it is available (car at rest, landing door closed), and able to carry the passengers to their destination.

Simple time devices enable passengers to register their calls and then leave the car at leisure.

The use of this type of control is particularly suitable for small residential buildings with light passenger traffic or for specialized lifts for the transportation of goods (class IV).

3.1.2 Control devices

3.1.2.1 On the landings

One call button on each landing (no marking required).

3.1.2.2 In the car

One button for each floor (marked -2, -1, 0, 1, 2, etc.).

One alarm button (yellow with bell-shaped symbol).

One door "re-open" button (for automatic doors) (marked ).

One stopping device (if required by the safety standards in force) (red with the word "STOP").

3.1.3 Minimum indicators

3.1.3.1 On the landings

An illuminated sign indicating when the lift is being used by someone (lift running or landing door open);

For manually operated landing doors :

- a) either, preferably, one or more transparent vision panels so that the passenger can see that the car is at the floor (car permanently lighted);
- b) or an illuminated stop sign which will only be illuminated if the car is about to stop or has already stopped at the landing concerned. This sign shall remain illuminated during the whole time the car is stationary.

3.1.3.2 In the car

An illuminated position indicator.

NOTE — For class IV lifts with manually operated landing doors, the position indicator need not be illuminated.

An interphone, telephone or similar device (if required by the safety standards in force).

3.1.4 Optional indicators

3.1.4.1 On the landings

An illuminated "out of use" sign (red disc with a white horizontal line similar to the "do not enter" signs).

3.1.4.2 In the car

A telephone, interphone or similar device (unless required by the safety standards, see 3.1.3.2).

Mainly for class IV lifts, an illuminated and possibly audible overload indicator.

3.2 Down collective control

3.2.1 General

With down collective control, landing calls can be registered whether or not the car is available.

The calls are registered by pressing the call button provided on each landing. If the car is free or coming down, it will answer the landing call from the highest landing and then the other calls in succession as it approaches the main floor.

The calls registered in the car will be retained at any time and answered in logical sequence according to the direction of travel.

This control can be used when there is no normal passenger traffic between floors (passengers make use of the lift from the main floor to the required floor or vice versa) and there is no

level served below the main floor. It can be used with a single lift or in group collective lifts (see 1.3).

Alternative : When one or more levels below the main floor level are served, the control shall be down collective for the levels above the main floor, but up collective for the levels below the main floor.

3.2.2 Control devices

3.2.2.1 On the landings

3.2.2.1.1 Generally

On each landing : a call button (or more than one in parallel) marked ∇ on the floors above the main floor and \triangle on the main floor.

3.2.2.1.2 In case of the alternative

The call button on each landing below the main floor will be marked \triangle .

At the main floor :

- a) either a button marked \triangle , if the only anticipated traffic from the main floor goes to the upper floors;
- b) or two buttons, one marked \triangle and the other marked ∇ , if from the main floor it should be possible to go to the lower levels (for example, basement parking).

3.2.2.2 In the car

One button for each floor (marked $-2, -1, 0, 1, 2$, etc.).

One alarm button (yellow with bell-shaped symbol).

One door re-open button (for automatic doors) (marked $\triangleleft \triangleright$).

One stop switch (only if required by the safety standards in force) (red with the word "STOP").

3.2.3 Minimum indicators

3.2.3.1 On the landings

One illuminated indicator to show that the call has been registered and will be answered.

Two illuminated indicator arrows giving advance information on the next departure direction of the car (only one at the terminal landings) placed above or near the doors in a visible place, to indicate the direction in which the car will subsequently move.

A sound signal to accompany the lighting of the arrow, except where the noise would be a major inconvenience and also in the case provided in clause 4.

For manually operated landing doors :

a) either, preferably, one or more transparent vision panels so that the passenger can see that the car is at the floor (car permanently lighted);

b) or an illuminated stop sign which will only be illuminated if the car is about to stop or has already stopped at the landing concerned. This signal shall remain illuminated during the whole time the car is stationary.

3.2.3.2 In the car

An illuminated sign to indicate the car calls registered.

A prominently located illuminated sign showing the position of the car.

An interphone, telephone or similar device (if required by the safety standards in force).

For single or duplex lifts with automatic doors (see clause 4), two direction arrows in place of the indicator arrows specified for each landing, indicating the direction in which the car will move.

3.2.4 Optional indicators

3.2.4.1 On the landings

An illuminated "out of use" sign (red disc with a white horizontal line similar to the "do not enter" signs).

3.2.4.2 In the car

An interphone, telephone or similar device (unless required by the safety standards, see 3.2.3.2).

Mainly for class IV lifts : an illuminated and possibly an audible overload indicator.

3.3 Directional collective control in the two directions of operation

3.3.1 General

This control requires two call buttons on each intermediate landing : one for ascent and one for descent so that the passenger can indicate the direction in which he wishes to travel (one single button at the terminal landings).

Both landing and car calls registered are answered in logical sequence according to the direction of travel of the car.

This system is installed when interfloor traffic is expected during upward and downward travel. It can be used with a single lift or in group collective lifts (see 1.3).

3.3.2 Control devices

3.3.2.1 On the landings

At each intermediate landing, two call buttons (or two groups of buttons in parallel for each group) one of which is marked \triangle and the other ∇ .

At each terminal landing : only one button.

3.3.2.2 In the car

Same as in 3.2.2.2.

3.3.3 Minimum indicators

3.3.3.1 On the landings

Same as in 3.2.3.1.

3.3.3.2 In the car

Same as in 3.2.3.2.

3.3.4 Optional indicators

3.3.4.1 On the landings

Same as in 3.2.4.1.

3.3.4.2 In the car

Same as in 3.2.4.2.

4 Specifications for single or duplex lifts with automatic doors

4.1 A sound signal is not necessary.

4.2 The illuminated indicator arrows specified for each landing may be replaced by direction arrows in the car (see 3.2.3.2) provided they can be seen clearly from the landing.

5 Position of controls

5.1 Lift controls shall be located not higher than 1 800 mm above floor level.

5.2 For lifts which are designed to be used by handicapped people in wheelchairs, the control devices necessary for automatic operation and the alarm devices shall be placed between 900 mm and 1 200 mm above floor level on the side wall (on the slam post side in the case of side-opening doors) and at a distance of at least 400 mm from the front and back walls.

5.3 Within these limits, the arrangement of the controls is at the discretion of the manufacturer. However, it is recommended that the alarm button always be placed at the top.

6 Dimensions of the markings

The minimum height of the characters used in marking buttons shall be :

- 10 mm for capital letters and figures;
- 7 mm for lower case letters.

The symbols used shall be such that all the markings are clear and legible.

7 Special provisions for illuminated devices

For control devices in the car, the colour yellow is reserved for the alarm button and the colour red for the stop device.

8 Hand-rail

If hand-rails are provided in the car at least one of them shall be located on one car side, and on the slam post side in the case of side-opening doors. Hand-rails shall be placed approximately 0,90 m above the car floor and spaced a small distance from the car wall.

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Table 1 — Summary of buttons, signal and intercommunication devices

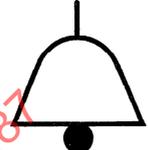
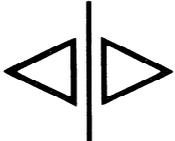
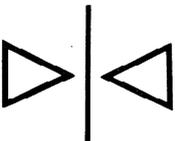
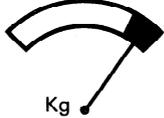
Clause cross-reference	Markings
<p>3.1 Single push button</p>	
<p>3.1.2 Controls</p>	
<p>3.1.2.1 On the landings</p>	
<ul style="list-style-type: none"> — one call button 	
<p>3.1.2.2 In the car</p>	
<ul style="list-style-type: none"> — floor button 	<p>–2, –1, 0, 1, 2, 3, etc.</p>
<ul style="list-style-type: none"> — alarm button 	<p>Yellow with bell-shaped symbol (See note 1). The yellow colour is reserved for this button.</p>
<ul style="list-style-type: none"> — door re-opening button (in the case of automatic doors) 	<p>Stylized arrows (see table 2, symbol No. 2)</p>
<ul style="list-style-type: none"> — stop device (if required by the safety standards in force) 	<p>Red with the word "STOP". The red colour is reserved for this device.</p>
<p>3.1.3 Minimum indicators</p>	
<p>3.1.3.1 On the landings</p>	
<ul style="list-style-type: none"> — signal "in use" 	
<ul style="list-style-type: none"> — signal "lift here" (only for manually operated doors and without vision panels) 	
<p>3.1.3.2 In the car</p>	
<ul style="list-style-type: none"> — illuminated car position indicator 	<p>–2, –1, 0, 1, 2, 3, etc.</p>
<ul style="list-style-type: none"> — interphone, telephone or similar device (if required by the safety standards in force) 	<p>Symbol of the receiver when the telephone is hidden (see table 2, symbol No. 4)</p>
<p>3.1.4 Optional indicators</p>	
<p>3.1.4.1 On the landings</p>	
<ul style="list-style-type: none"> — illuminated signal "not in use" 	<p>Red disc with white line (see table 2, symbol No. 5)</p>
<p>3.1.4.2 In the car</p>	
<ul style="list-style-type: none"> — interphone, telephone or similar device (compulsory in some countries, see 3.1.3.2) 	<p>Symbol of receiver (when the telephone is hidden) (see table 2, symbol No. 4)</p>
<ul style="list-style-type: none"> — illuminated and possibly audible overload indicator (mainly for class IV lifts) 	<p>Symbol of balance dial (see table 2, symbol No. 7)</p>
<p>3.2 Down collective control</p>	
<p>3.2.2 Controls</p>	
<p>3.2.2.1 On the landings</p>	
<ul style="list-style-type: none"> — upper : one call button 	<p>Downward arrow</p>
<ul style="list-style-type: none"> — ground floor : one or two call buttons 	<p>One downward arrow, one upward arrow</p>
<ul style="list-style-type: none"> — lower : one call button (alternative) 	<p>Upward arrow (see table 2, symbol No. 6)</p>

Table 1 — Summary of buttons, signal and intercommunication devices (concluded)

Clause cross-reference	Markings
<p>3.2.2.2 In the car</p> <ul style="list-style-type: none"> — floor button — alarm button — door re-opening button (for automatic doors only) — stop device (only if required by the safety standards in force) 	<p>–2, –1, 0, 1, 2, 3, etc.</p> <p>Yellow with bell-shaped symbol (see note 1). The yellow colour is reserved for this button.</p> <p>Stylized arrows (see table 2, symbol No. 2)</p> <p>Red with the word "STOP". The red colour is reserved for this device</p>
<p>3.2.3 Minimum indicators</p>	
<p>3.2.3.1 On the landings</p> <ul style="list-style-type: none"> — illuminated indicator "call registered" — illuminated and audible indicator (except the case of clause 3 as far as the audible indicator is concerned) — signal "lift here" (in case of manually operated doors without vision panels) 	<p>Stylized downward and/or upward arrow(s) (see table 2, symbol No. 6)</p>
<p>3.2.3.2 In the car</p> <ul style="list-style-type: none"> — illuminated "call registered" indicator — illuminated position indicator — illuminated indicator of future direction (in the case of clause 4) — interphone, telephone or similar device (if required by the safety standards in force) 	<p>–2, –1, 0, 1, 2, 3, etc.</p> <p>Stylized downward and upward arrows (see table 2, symbol No. 6)</p> <p>Symbol of receiver (when the telephone is hidden) (see table 2, symbol No. 4)</p>
<p>3.2.4 Optional indicators</p>	
<p>3.2.4.1 On the landings</p> <ul style="list-style-type: none"> — illuminated "not in use" indicator 	<p>Red disc with white line (see table 2, symbol No. 5)</p>
<p>3.2.4.2 In the car</p> <ul style="list-style-type: none"> — interphone, telephone or similar device (compulsory in some countries, see 3.2.3.2) — illuminated and possibly audible, overload indicator (mainly for class IV lifts) 	<p>Symbol of receiver when the telephone is hidden (see table 2, symbol No. 4)</p> <p>Symbol of a balance dial (see table 2, symbol No. 7)</p>
<p>3.3 Directional collective control in the two directions of operation</p> <p>The same as for down collective control except that there will be two call buttons at each intermediate landing with the corresponding arrow in the desired direction and only one call button at each terminal landing.</p>	

Table 2 — Representative symbols

NOTE — The symbols used shall be approximately as follows. These are, however, only typical and need not be reproduced exactly.

No.	Term	Description	Symbol
1	Alarm button	Bell-shaped symbol according to IEC Publication 417, <i>Graphical symbols for use on equipment — Index, survey and compilation of single sheets.</i>	
2	Door re-opening button	Stylized arrows. ¹⁾	
3	Door closing button	Stylized arrows. ¹⁾	
4	Telephone	Stylized receiver, handset symbol according to ISO 7001, <i>Public information symbols.</i>	
5	"Not in use" signal	Red disc with white line similar to the "do not enter" signs.	
6	Direction indication on — call button — indicator arrows — direction arrows	Stylized arrows. ¹⁾	
7	Overload indicator	Stylized balance dial.	

1) Non-stylized arrows or arrow symbols according to ISO 7000, *Graphic symbols — Index, survey and compilation of single sheets*, or ISO 4196, *Graphic symbols — Use of arrows* may be used as well.