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Buffer for elevators

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Land, Infrastructure, Transport and Tourism through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by Japan Elevator Association (JEA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

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Buffer for elevators

1 Scope

This Japanese Industrial Standard specifies safety conditions for buffers installed in traction type elevators, winding drum type elevators and hydraulic elevators.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7512 *Steel tape measures*

JIS B 7516 *Metal rules*

JIS B 7522 *Textile tape measures*

JIS K 2001 *Industrial liquid lubricants—ISO viscosity classification*

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1 buffer

device for reducing the shock of collision of the car or counterweight with the bottom or top end of the hoistway when the car or counterweight travels past the bottom floor or top floor for some reason

3.2 permissible mass

mass within the required range which the buffer can effectively brake

3.3 maximum permissible mass

maximum mass the buffer can effectively brake, which satisfies the buffer performance requirement

3.4 minimum permissible mass

minimum mass the buffer can effectively brake, which satisfies the buffer performance requirement

3.5 elevator

machine provided in a building, etc. in which a car, having a horizontal projected area over 1 m² or a ceiling height over 1.2 m, is ascended/descended to carry persons and/or objects

3.6 traction type elevator

elevator whose car and counterweight are connected by the main rope which is put around the driving sheave and is driven by friction of the main rope against the grooves of the driving sheave or flat surface of the drum

3.7 winding drum type elevator

elevator in which the ascending/descending of the car is enabled by the winding of the main rope attached to it that winds around the traction winding drum of the hoisting machine

3.8 hydraulic elevator

elevator in which the pumping of the pressure oil by the hydraulic pump to the cylinder of a hydraulic jack causes extension of the plunger and ascending of a car, and the re-turning of the oil back into the tank causes the descending of the car

3.9 hoistway

space through which the car and/or counterweight or balancing weight ascends/descends

3.10 hoisting machine

machine that consists of a motor, a brake and a driving sheave or a winding drum, and winds up the main rope

3.11 counterweight

in traction type elevators, the weight which, by being connected to the car via the main rope hanging on the driving sheave, generates traction by causing friction between the sheave and the rope around the driving sheave

3.12 balancing weight

mass which saves energy by balancing all or part of the mass of the car by being directly connected to the car or through the sheave

It is mainly used in winding drum type elevators.

3.13 car

part of the elevator which carries the passengers and/or other loads and ascends/descends, consisting of a car room, a car frame, a floor, etc.

3.14 rated speed

design speed of the car during constant travelling

4 Quantity symbol and unit symbol

For the purpose of this Standard, the unit used for elevator speed, unless otherwise specified, is metre per minute (m/min). Further, the acceleration of free fall (standard gravity acceleration) is expressed with g_n , where $1\ g_n = 9.8\ \text{m/s}^2$.

5 Classification

Buffers are classified according to mechanism of buffering as given in Table 1.