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## Mobile elevating work platforms — Safety principles, inspection, maintenance and operation

*Plates-formes élévatrices mobiles de personnel — Principes de sécurité, inspection, entretien, mise en oeuvre et utilisation*

[Revision of first edition (ISO 18893:2004)]

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## 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 18893 was prepared by Technical Committee ISO/TC 214, *Elevating work platforms*, Subcommittee SC , .

This second edition cancels and replaces the first edition (ISO 18893:2004) which has been technically revised.

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## Introduction

This International Standard is one of a series of standards produced by ISO/TC 214 as part of its program of work regarding standardization of terminology, ratings, general principles (technical performance requirements and risk assessment), safety requirements, test methods, maintenance and operation for elevating work platforms used to raise (elevate) and position personnel (and related work tools and materials).

Mobile elevating work platforms (MEWPs) are machines/devices which provide protection from falling when working at height.

The entities with responsibilities related to safe use of a MEWP are established by law in some countries. This International Standard provides guidance in the identification of those responsible.

The responsibility for safe operation of a MEWP lies with employers, managers, supervisors, operators and others using these machines/devices. This International Standard provided requirements so that appropriate MEWPs are selected for use and positioned, used, maintained and examined for safe use.

The safe operation of a MEWP requires the use of competent authorized persons and trained operators (see ISO 18878).

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# Mobile elevating work platforms — Safety principles, inspection, maintenance and operation

## 1 Scope

This International Standard applies to all Mobile Elevating Work Platforms (MEWPs) that are intended to position persons, tools and materials and which, as a minimum, consists of a work platform with controls, an extending structure and a chassis.

The technical safety requirements of this International Standard shall apply except where national or local regulations are more stringent.

For related information, see ISO 16368.

This International Standard applies to MEWPs to achieve the following objectives:

- a) prevention of personal injuries, property damage and accidents;
- b) establishment of criteria for inspection, maintenance and operation.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16368, *Mobile elevating work platforms — Design calculations, safety requirements and test methods*

ISO 18878, *Mobile elevating work platforms — Operator (driver) training*

IEC 61057, *Aerial devices with insulating booms used for live working*

IEC TS 61813:2000, *Live working — Care, maintenance and in service testing of aerial devices with insulating booms*

## 3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 16368 and ISO 18878 and the following apply.

### 3.1

#### **authorized person**

person approved or assigned to perform a specific type of duty or duties at a specific location or locations at a work site

### 3.2 configuration

all positions in which a MEWP, chassis, extending structure or work platform can be placed within intended operating limits, including creating variable rated loads

### 3.3 working envelope

space in which a work platform is designed to work within the specified loads and forces, under normal operation conditions

Note A MEWP can have more than one working envelope.

### 3.4 delivery

transfer of custody, care and control of an MEWP from a person or entity to another person or entity

### 3.5 maintenance

act of upkeep, such as inspection, lubrication, refuelling, cleaning, adjustment and scheduled parts replacement

### 3.6 modification

any change(s) or addition(s) to a MEWP as originally manufactured which affects the operation, stability, safety factors, rated load, or safety of the MEWP

### 3.7 operation

performance of functions of an MEWP within the scope of its specifications and in accordance with the manufacturer's instructions, work rules and applicable governmental regulations

### 3.8 operator

person who controls the operation of a MEWP

### 3.9 repair

act of restoring to good condition that which has been broken, damaged or worn due to use, abuse, or other reasons

### 3.10 qualified person

person who, by possession of a recognized degree, certificate or professional standing, or by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project

### 3.11 safety related bulletin

publication from the manufacturer of a MEWP that requires attention to ensure safe operation of the MEWP

### 3.12 stable

condition where the MEWP does not overturn, described technically as the condition in which the sum of the moments acting to overturn a MEWP is less than the sum of the moments tending to resist overturning



## 4 General requirements

### 4.1 Basic principles

The information in this International Standard shall be supplemented by good job management, safety control, and the application of sound principles of safety, training, inspection, maintenance, repair, application and operation. All data available regarding the parameters of intended use and expected environment shall be considered. Those with direct control over the application and operation of MEWPs shall be responsible for the conformance with good safety practices. Decisions on the use and operation of the MEWPs shall always be made with due consideration for the fact that the machine will be carrying persons whose safety is dependent on those decisions as well as others in the operating vicinity.

The operation of any MEWP is subject to certain hazards that can be protected against only by the exercise of intelligence, care, and common sense and not by any device. It is essential to have qualified, careful persons trained (see ISO 18878) in the intended use, safe operation, maintenance and service of this type of equipment.

The operation of any MEWP used for working on energized conductors shall conform to the requirements of this International Standard and the requirements of IEC TS 61813.

It is an essential requirement that

- a) the selection, positioning, operation, maintenance and frequent and annual inspections of a MEWP is properly planned, appropriately supervised and carried out in a safe manner;
- b) having identified the hazards associated with the use of a MEWP, the competent person evaluates the risks associated with these hazards and puts appropriate control measures in place as identified during this evaluation;
- c) all MEWP operators be trained in accordance with ISO 18878;
- d) all MEWP maintenance work be performed by a person qualified in maintenance work;
- e) all MEWP repair work shall be performed by a person qualified in repair work.

### 4.2 System of work

The system of work shall be created by the employer or user and shall include the following:

- a) planning of the operation including procedures for the recovery of persons and/or the machine in the event of an emergency (see 6.1.2.9);
- b) selection, provision and use of a suitable MEWP and work equipment associated with it;
- c) preparation and maintenance of the site, as required, for use of the MEWP;
- d) MEWP maintenance including inspection(s) and repairs as recommended by the manufacturer;
- e) properly trained personnel are authorized to operate the MEWP;
- f) prior to the start of work, familiarization of the MEWP operator with the specific machine to be used including any local site requirements, warning of the hazards in the areas where the MEWP will be operated;
- g) monitor the performance and supervise the work of the operator to ensure compliance with provisions of this standard;
- h) prevention of unauthorized use of the MEWP;

- i) safety of persons not involved in the operation of the MEWP;
- j) documentation of activities required by this standard.

### 4.3 Manuals (handbooks)

The manufacturer's information which is intended to be readily available and which is necessary for the operation and daily inspection/maintenance of the MEWP shall be provided with each rental, lease or sale delivery. The manufacturer's maintenance information shall be made available for use by trained personnel of the entity responsible for maintaining the MEWP.

The user/employer shall make sure that the operator is capable of reading and understanding the manuals (handbooks) provided by the manufacturer.

In case the manufacturer no longer exists, and the manufacturer's manuals (handbooks) are not available from other sources the replacement manuals (handbooks) shall be provided by a qualified person.

### 4.4 Record retention

The following records shall be retained by the entity responsible for maintenance of the MEWP. (see 5.1)

- a) Name and address of the purchaser of each MEWP by serial number and date of delivery shall be retained for a minimum of 10 years after sale of the MEWP or until the MEWP is permanently removed from service.
- b) Written records of the pre-delivery, frequent and annual inspections on the MEWP shall include the date of inspection, deficiencies found, corrective action accomplished and identification of the person(s) performing the inspection. These records shall be retained for a minimum of 10 years after the sale of the MEWP or until the MEWP is permanently removed from service.
- c) Written records of all repairs accomplished on the MEWP shall include the date of any such repair, a description of the work accomplished and identification of the person(s) performing the repair. These records shall be retained for a minimum of 10 years after the sale of the MEWP or until the MEWP is permanently removed from service.

### 4.5 Modifications

Modifications, additions or alterations to a MEWP, or the fabrication or attaching of any framework or mounting of any attachments for holding tools or materials onto the platform or the guardrail system shall be made only with prior written permission of the manufacturer. In case the manufacturer no longer exists, modifications to platform MEWP shall be made in accordance with the instructions from a competent engineer with expertise in MEWPs.

Note CE approved MEWPs that have been modified may require re-certification.

## 5 Maintenance

### 5.1 Preventative maintenance

A preventive maintenance programme shall be established in accordance with the manufacturer's recommendations. The preventive maintenance programme shall be increased based on the environment and severity of use of the MEWP. The manufacturer's recommendations shall be the minimum requirements.

The preventative maintenance programme shall include the frequent and annual inspections as defined in this International Standard. All malfunctions identified shall be corrected before the MEWP is placed or returned to service.

## 5.2 Maintenance inspections

The MEWP shall have maintenance inspections as required to ensure proper operation. The frequency of maintenance inspections shall be determined by the manufacturer's recommendations and the operating conditions. The frequency of the maintenance inspections may be increased to be compatible with operating conditions and the severity of the operating environment, but the manufacturer's recommendations shall be the minimum requirements. MEWPs that are not in proper operating condition shall be corrected by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.

### 5.2.1 Pre-delivery inspection

MEWP's shall be inspected, repaired and adjusted in accordance with the manufacturer's specifications prior to each delivery by sale, lease or rental.

### 5.2.2 Pre-start inspection

Before use each day or at the beginning of each shift, the MEWP shall be given a visual inspection and functional test by the operator including but not limited to the following:

- a) operating and emergency controls;
- b) safety features;
- c) personal protective equipment;
- d) air, hydraulic and fuel system for leaks;
- e) cables and wiring harness;
- f) loose, damaged, worn or missing guards or parts;
- g) tyres (where applicable, tyre pressure), wheels and wheel fasteners;
- h) instructions, warnings, control markings, and operating manual(s);
- i) structural items, extending structure and stabilizers;
- j) work platform, including guardrail system, floor, anchorage and mounting;
- k) cleanliness and general signs of damage;
- l) brake operation and performance;
- m) lights (when applicable);
- n) fluid levels including engine coolant, engine oil and hydraulic oil;
- o) pins and pin securing devices and visible damage to the prime means of support for the work platform and extending structure;
- p) operation of stabilizers/outriggers, extendable and oscillating axles;
- q) other items specified by the manufacturer.

### 5.2.3 Frequent inspection

A frequent inspection is to be performed in accordance with the manufacturer's instruction on the MEWP. Unless it is determined that the frequent inspection is current, it shall be performed upon transfer of