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Neelektrična ročna orodja - Varnostne zahteve - 13. del: Orodja za pritrjevanje (ISO/DIS 11148-13:2015)

Hand-held non-electric power tools - Safety requirements - Part 13: Fastener driving tools (ISO/DIS 11148-13:2015)

Handgehaltene nichtelektrisch betriebene Maschinen Teil 13: Eintreibgeräte Sicherheitsanforderungen

Machines portatives à moteur non électrique - Exigences de sécurité - Partie 13: Machines à enfoncer les fixations (ISO/DIS 11148-13:2015)

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Hand-held non-electric power tools — Safety requirements —

Part 13: Fastener driving tools

Machines portatives à moteur non électrique — Exigences de sécurité —

Partie 13: Machines à enfoncer les fixations

ICS: 25.140.10

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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 11148-13 was prepared by Technical Committee ISO/TC 118, *Pneumatic tools and machines*, Subcommittee SC 3, and by Technical Committee CEN/TC 255, *Hand-held, non-electric power tools - Safety* in collaboration.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO 11148 consists of the following parts, under the general title *Hand-held non-electric power tools — Safety requirements*:

— *Part 1:* Assembly power tools for non-threaded mechanical fasteners

— *Part 2:* Cutting-off and crimping power tools

— *Part 3* - Drills and tappers

— *Part 4* - Non rotary percussive power tools

— *Part 5* - Rotary, percussive power drills

— *Part 6* - Assembly power tools for threaded fasteners

— *Part 7* - Grinders

— *Part 8* - Sanders and polishers

— *Part 9* - Die grinders

— *Part 10* - Compression power tools

— *Part 11* - Nibblers and shears

— *Part 12* - Circular, oscillating and reciprocating saws

— *Part 13* - Fastener driving tools

Introduction

This International Standard is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of other standards, for machines that have been designed and built according to the provisions of this type C standard.

The Standard consists of a number of independent parts for individual types of hand-held non-electric power tools.

Certain parts of the series cover hand-held non-electric power tools, driven by internal combustion engines powered by gaseous or liquid fuel. In these parts, the safety aspects relating to internal combustion engines are found in a normative annex.

The parts are type C standards and refer to pertinent Standards of type A and B where such standards are applicable.

Hand-held non-electric power tools — Safety requirements — Part 13: Part 13: Fastener driving tools

1 Scope

This part of ISO 11148 specifies safety requirements for hand-held non-electric power tools (hereinafter “fastener driving tools”) intended for installation of a fastener, forming a mechanical connection or attachment with the workpiece which are for example wood and wood-based materials, plastic materials, fibre materials – loose or compacted, cementitious materials, metals and combinations of these materials. The fastener driving tools for fasteners can be powered by compressed air or combustible gases (which may be ignited by a battery or accumulator) and the energy is transmitted to an impacted element by an intermediary component that does not leave the device. These tools are intended to be used by one operator and supported by the operator's hand or hands, with or without a suspension, e.g. a balancer.

This part of ISO 11148 is applicable to fastener driving tools in which energy is applied to a loaded fastener for the purpose of driving this into a workpiece.

This part of ISO 11148 is not applicable to fastener driving tools in which the energy for driving fasteners is drawn from powder-actuated cartridges, hydraulics or from any type of electrical supply.

This part of ISO 11148 is not applicable to special requirements and modifications of hand-held power tools for the purpose of mounting them in a fixture.

This part of ISO 11148 deals with all significant hazards, hazardous situations or hazardous events relevant to fastener driving tools for fasteners when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer, with the exception of the use of power tools in potentially explosive atmospheres.

NOTE EN 13463-1 gives requirements for non- electrical equipment for potentially explosive atmospheres.

2 Normative references

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

EN 12096, *Mechanical vibration – Declaration and verification of vibration emission values*

EN 12549, *Acoustics – Noise test code for fastener driving tools - Engineering method*

ISO 3857-3, *Compressors – Pneumatic tools and machines, Vocabulary – Part 3: Pneumatic tools and machines*

ISO 3864-2, *Graphical symbols – Safety colours and safety signs – Part 2 Design principles for product safety labels*

ISO 7010, *Safety colours and safety signs – Safety signs in workplaces and public areas – Overview of standardised safety signs*

ISO 4871, *Acoustics – Declaration and verification of noise emission values of machinery and equipment*

ISO 5391, *Pneumatic tools and machines – Vocabulary*

ISO/TR 11688-1, *Acoustics – Recommended practice for the design of low-noise machinery and equipment. Planning*

ISO/TR 11688-2, *Acoustics – Recommended practice for the design of low-noise machinery and equipment Introduction to the physics of low-noise design*

ISO 12100, *Safety of machinery – General principles for design – risk assessment and risk reduction*

ISO 13732-1, *Ergonomics of the thermal environment -- Methods for the assessment of human responses to contact with surfaces -- Part 1: Hot surfaces*

ISO 13732-3, E*rgonomics of the thermal environment -- Methods for the assessment of human responses to contact with surfaces -- Part 3: Cold surfaces*

CR1030-1, *Hand-arm vibration – Guidelines for vibration hazards reduction – Engineering methods by design of machinery*

ISO 7250, *Basic human body measurements for technological design – Series*

EN 15895, *Cartridge operated hand-held tools – Safety requirements. Fixing and hard marking tools*

EN 1005-3, *Safety of machinery – Human physical performance – Recommended force limits for machinery operation*

EN 1005-4, *Safety of machinery – Human physical performance – Evaluation of working postures and movements in relation to machinery*

EN ISO 28927-13, *Hand-held portable power tools - Test methods for evaluation of vibration emission - Part 13: Fastener driving tools*

NOTE This standard is under development as at June 2014

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100, ISO 3857-3, ISO 5391 and the following apply.

3.1 General terms

3.1.1
hand-held power tool
machine operated by one or two hands and driven by rotary or linear motors powered by compressed air, gaseous or liquid fuel (which may be ignited by a battery or an accumulator) or stored energy (e.g. by a spring) to do mechanical work and so designed that the motor and the mechanism form an assembly that can easily be brought to its place of operation

NOTE Hand-held power tools driven by compressed air or gas are called pneumatic tools (or air tools).

3.1.1.1
pneumatic tool
tool, where energy to drive the fasteners comes from compressed air

3.1.1.2
gas tool
tool, where energy to drive the fasteners comes from combustion of gases

3.1.2
tool orientations

3.1.2.1
horizontal-down
tool orientation, where the tool nose is normal to a horizontal work surface and pointed downwards

3.1.2.2
horizontal-up
tool orientation where the tool nose is normal to a horizontal work surface and pointed upwards

3.1.2.3
Vertical
tool orientation where the tool nose is normal to a vertical work surface

3.1.3
production application
high volume professional application such as pallets, furniture, manufactured housing, upholstery and sheathing

3.2 Terms and definitions related to fastener driving tools

3.2.1
fastener driving tool
hand-held power tool in which energy is applied in a linear motion to a loaded fastener for the purpose of driving the fastener into defined materials

3.2.1.1
coil nailer
a nailer that drives fasteners from a collated coil of nails, the primary purpose of this tool being production applications

3.2.1.2
heavy-duty stapler or bradder
a stapler or bradder capable of driving:

- fastener of 18 gauge / 1.2mm nominal diameter or heavier wire, or

- fastener having nominal thickness of 0.8mm or larger, or

- fastener having nominal width of 1.2mm or larger

the primary purpose of these tools being production applications.

3.2.1.3
light-duty tool
a tool capable of driving fasteners where the mass of the fastener is less than 0.5g and the length is ≤ 26mm or less than 0.4 g if the length is ≤ 36mm or the tool is operated by hitting the tool in a designated area

3.2.1.4
Pinner
tool capable of driving headless fasteners up to 51mm in length and a maximum gauge of 23 (0,64mm) diameter

NOTE There are pinners with larger gauge.

3.2.1.5
single-blow tool
a fastener driving tool that drives the fastener with a single stroke of the driver element

3.2.1.6
multi-blow tool
as opposed to a single-blow tool, a fastener driving tool that drives the fastener with more than one stroke of the driving element

3.2.2
Fastener
mechanical device used for securing fixings to surfaces, or joining materials together, such as: nails, staples and pins

3.2.3
collating material
material for joining together single fasteners in strips or coils with e.g., adhesive, paper or plastic tape, plastic strap or wire

3.2.4
trigger
tool control operated manually by a tool operator

3.2.4.1
actuation mode selector
tool control, set by the operator, so that the tool operates in a specific actuation mode

3.2.4.2
dual activation
two devices such as triggers, levers or switches that work in conjunction with each other such that both devices require activation to actuate the tool (a sequence of activation may be necessary for tool actuation)

3.2.5
extended workpiece contact
control element or assembly that is extended from the tool and is retracted by pressing on the workpiece, preventing the tool from driving a fastener when not pressed against the workpiece

3.2.5.1
retracted workpiece contact
workpiece contact that is retracted and extends when the trigger is activated, preventing the tool from driving a fastener when not pressed against the workpiece

3.2.6
actuation modes with workpiece contact
NOTE to entry: The evaluation of actuation modes is given in 5.2.5.1

3.2.6.1
full sequential actuation
actuation mode which allows single driving operations via the trigger after the workpiece contact has been operated and further driving operations are only performed after the trigger and the workpiece contact have been returned to the non driving position

3.2.6.2
single sequential actuation
actuation mode which allows single driving operations via the trigger, after the workpiece contact has been operated, and further driving operations are only performed after the trigger has been returned to the non-driving position whilst the workpiece contact remains in the operating position

3.2.6.3
contact actuation
actuation mode which allows the tool to operate by operating the workpiece contact whilst the trigger is continually depressed and held

3.2.6.4
continual contact actuation
actuation mode in which the driving operations continue as long as the trigger and the workpiece contact remain in their operating positions

3.2.6.5
contact actuation with automatic reversion
a contact actuation system with more than one operating control including a workpiece contact in which either operating control is first activated and operation starts when the other operating control is activated within prescribed periods of time as described by 6.3 with operation continuing as long as actuation is maintained, and regardless of the initial sequence, the actuation system reverts to single-sequential actuation, full-sequential actuation, neutral or off within a prescribed period of time as described by 6.3 if actuation is not maintained

3.2.6.5.1
contact actuation with automatic reversion (sequential actuation first)
an actuation system with more than one operating control, including a workpiece contact in which the workpiece contact is first actuated and operation starts when trigger is actuated with operation continuing as long as trigger remains depressed, thereafter the actuation system reverting to single-sequential actuation, full-sequential actuation, neutral or off in a prescribed period of time if operation is not maintained

3.2.6.5.2
contact actuation with automatic reversion (contact actuation first)
an actuation system with more than one operating control, including a workpiece contact in which the trigger is first actuated and operation starts when work-piece contact is activated within prescribed periods of time as described by 6.3 with operation continuing as long as trigger remains depressed, the actuation system reverting to single-sequential actuation, full-sequential actuation, neutral or off in a prescribed period of time as described by 6.3 if operation is not maintained

3.2.6.6
selective actuation
an actuation system that allows discrete selection of two or more of the following actuation systems, single-sequential actuation, full-sequential actuation or contact actuation; one or more of the selections shall be single-sequential actuation or full-sequential actuation

3.2.7
gas container and related items for gas tools

3.2.7.1
gas container
non-refillable container which stores and dispenses, using a release device, a combustible gas, compressed or liquefied (Figs 1 & 2)

3.2.7.2
metering valve
mechanical or electro-mechanical mechanism designed to control quantity of the combustible gas provided to the gas tool which can be either fitted directly onto the release device, integrated into the release device or be a part of the gas tool

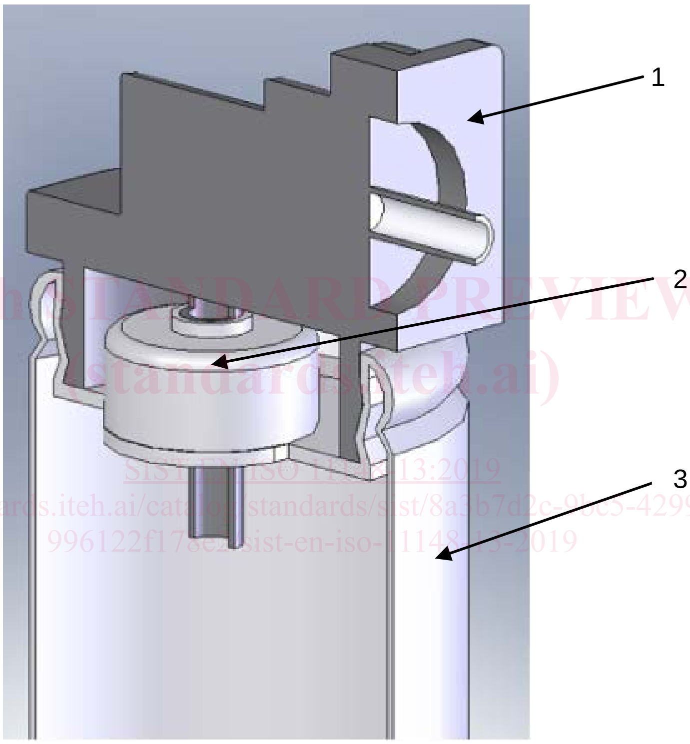
NOTE to entry: A typical metering valve is shown in Figure 1

3.2.7.3
release device
valve mechanism which allows the combustible contents of the gas container to be dispensed and is a part of the gas container

NOTE to entry: Typical release devices are shown in Figure 1 and 2

3.2.7.4
adapter
fitting, typically installed on the gas container by the user, that allows the gas container to be connected to the gas tool

NOTE to entry: A typical adapter is shown in Figure 2



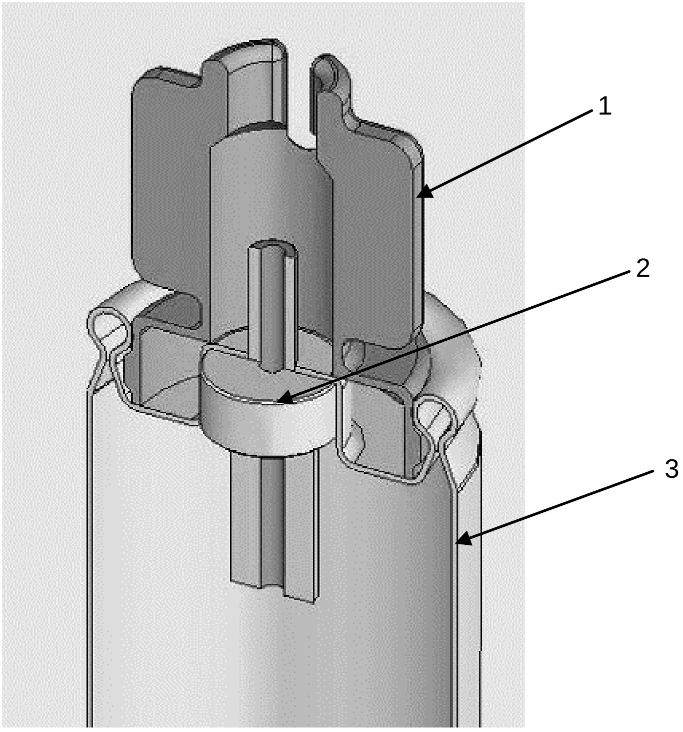
Key

1 metering valve

2 release device

3 gas container

Figure 1 - Example of gas container, release device and metering valve



Key
1 adapter
2 release device
3 gas container

Figure 2 - Example of gas container, adapter and release device. In this case, metering valve (not shown) is a part of the tool

3.2.7.5
gas container chamber
compartment in the gas tool where the gas container is installed

3.2.8
battery or accumulator
any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable)

3.2.9
tool without workpiece contact
any tool that drives a fastener and which does not have a workpiece contact

3.2.10
actuation modes on fastener driving tools without workpiece contact

3.2.10.1
single actuation
actuation mode in which the trigger has to be operated for each driving operation