INTERNATIONAL STANDARD

ISO 8662-10

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Hand-held portable power tools — Measurement of vibrations at the handle —

Part 10:
Nibblers and shears

Machines à moteur portatives — Mesurage des vibrations au niveau des poignées —

Partie 10: Grignoteuses et cisailles

Contents

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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.

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.

International Standard ISO 8662-10 was prepared by Technical Committee ISO/TC 118, *Compressors, pneumatic tools and pneumatic machines*, Subcommittee SC 3, *Pneumatic tools and machines*.

ISO 8662 consists of the following parts, under the general title *Hand-held portable power tools — Measurement of vibrations at the handle:*

- *Part 1: General*
- *Part 2: Chipping hammers and riveting hammers*
- *Part 3: Rock drills and rotary hammers*
- *Part 4: Grinders*
- *Part 5: Pavement breakers and hammers for construction work*
- *Part 6: Impact drills*
- *Part 7: Wrenches, screwdrivers and nut runners with impact, impulse or ratchet action*
- *Part 8: Polishers and rotary, orbital or random sanders*

— *Part 9: Rammers*

— *Part 10: Nibblers and shears*

— *Part 11: Fastener driving tools (nailers)*

— *Part 12: Saws and files with reciprocating action and saws with oscillating or rotating action*

— *Part 13: Die grinders*

— *Part 14: Stone-working tools and needle scalers*

Annex A of this part of ISO 8662 is for information only.

Introduction

This part of ISO 8662 specifies how a type test for the measurement of vibrations at the handles of nibblers and shears shall be performed. It supplements ISO 8662-1, which gives the general specifications for the measurement of vibrations at the handle of hand-held power tools. It specifies the operation of the power tool under type test and other requirements for the performance of the type test.

Nibblers and shears are used for cutting metal sheets. The principle of operation of the nibbler or the shear is that energy from a motor is transmitted to a mechanism causing a reciprocating motion. For the nibbler, a punch is driven through a die for cutting metal sheet or other material, and for the shears, a pair of metal blades cuts the sheet.

Nibblers and shears may be electrically, pneumatically or hydraulically driven.

Hand-held portable power tools — Measurement of vibrations at the handle —

Part 10:
Nibblers and shears

1 Scope

This part of ISO 8662 specifies a laboratory method of measuring the vibrations at the handles of hand-held pneumatically or hydraulically driven nibblers and shears. It is a type-test procedure for establishing the vibration value at the handles of the power tool when operating on a specified load.

It is intended that the results be used to compare different power tools or different models of the same type of power tool. With the operation specified for the power tools, the values obtained will give an indication of those found in real work situations.

2 Normative references

The following standards provide provisions which, through reference in this text, constitute provisions of this part of ISO 8662. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this part of ISO 8662 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2787:1984, *Rotary and percussive pneumatic tools — Acceptance test*.

ISO 8662-1:1988, *Hand-held portable power tools — Measurement of vibrations at the handle — Part 1: General*.

3 Quantities to be measured

Quantities to be measured are as follows:

a) the root-mean-square (r.m.s.) acceleration in accordance with ISO 8662-1:1988, 3.1, presented as a weighted acceleration in accordance with ISO 8662-1:1988, 3.3;

b) the air or hydraulic pressure;

c) the reciprocating frequency.

4 Instrumentation

4.1 General

The specifications for the instrumentation given in ISO 8662-1:1988, 4.1 to 4.6 apply.

4.2 Transducer

The specification for the transducer given in ISO 8662-1:1988, 4.1 applies.

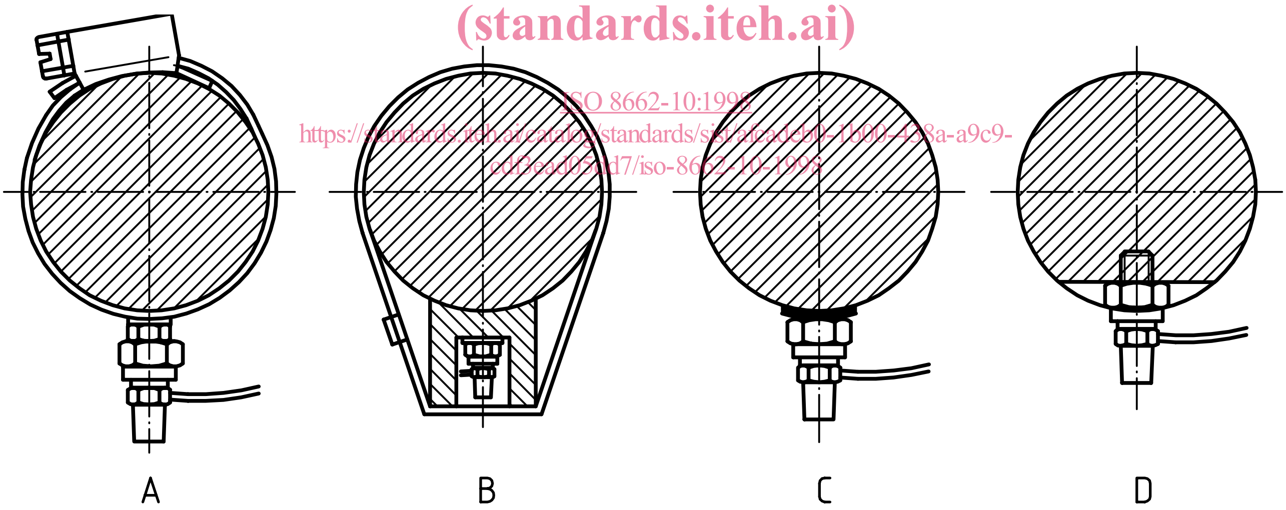
4.3 Mechanical filters

It is normally not necessary to use a mechanical filter for measurements according to this part of ISO 8662 (see ISO 8662-1:1988, 4.3).

4.4 Fastening of the transducer

Fastening of the transducer on the power tool handle shall be in accordance with ISO 8662-1:1988, 4.2. Small transducers may be affixed by using a suitable adhesive wax on a flat surface or by using a suitable resin. The fastening of the transducer shall be in accordance with the transducer manufacturer's instructions (see figure 1).

If the handle has a soft resilient cover this shall be removed, or a clamp, on which the transducer is mounted, shall be tightened securely around the resilient cover. If the tool has a handle with resilient cover, the test report shall state the action taken.



The transducer may be mounted in one of four ways:

- A: Using a hose clip to which a block is brazed or welded;
- B: Using an adaptor to which the transducer is screwed. The adaptor is mounted with the use of plastic straps;
- C: Using a suitable adhesive;
- D: Grinding a flat surface and drilling and tapping a hole.

Figure 1 — Options for the fastening of transducers

4.5 Auxiliary equipment

The supply air pressure shall be measured using a precision class pressure gauge, in accordance with ISO 2787. The hydraulic pressure shall be measured with the same accuracy as the air pressure.

The reciprocating frequency of the power tool during the test can be determined by an electronic filter, using the signal from the vibration transducer or other suitable means.

4.6 Calibration

Calibration shall be carried out in accordance with ISO 8662-1:1988, 4.8.

5 Measurement direction and measurement location

5.1 Measurement direction

Measurements shall be made in the *z*-direction (see figure 2), i.e. the direction of the reciprocating operation.

5.2 Measurement location

Measurements shall be made on the main handle, where the operator normally holds the power tool and applies the feed force. The normal position of the transducer shall be on the underside of the handle halfway along its length. If the placing of the trigger makes this impossible, then the transducer shall be placed as close as possible to the hand position between the index and the middle finger, see figure 2.

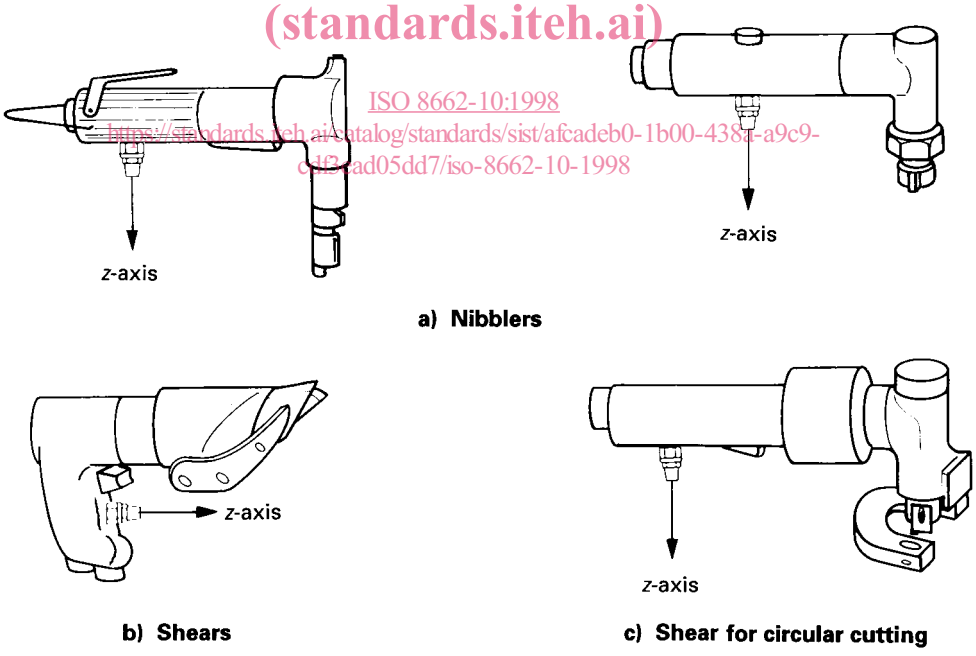


Figure 2 — Measurement direction and example of transducer position