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Portable chain-saws — Technical data

Scies à chaîne portatives — Données techniques

Reference number
ISO 6532:1993(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. 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 6532 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 17, *Manually portable forest machinery*.

This second edition cancels and replaces the first edition (ISO 6532:1982), of which it constitutes a technical revision.

International Organization for Standardization
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Portable chain-saws — Technical data

1 Scope

This International Standard provides the format for specification of the technical data for portable, hand-held chain-saws with combustion engines, in accordance with the vocabulary in ISO 6531.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 3448:1992, *Industrial liquid lubricants — ISO viscosity classification.*

ISO 6531:1982, *Machinery for forestry — Portable chain saws — Vocabulary.*

ISO 6535:1991, *Portable chain-saws — Chain brake performance.*

ISO 7182:1984, *Acoustics — Measurement at the operator's position of airborne noise emitted by chain saws.*

ISO 7293:1983, *Forestry machinery — Portable chain saws — Engine performance and fuel consumption.*

ISO 7505:1986, *Forestry machinery — Chain saws — Measurement of hand-transmitted vibration.*

ISO 9207:—[1], *Manually portable chain-saws with internal combustion engine — Determination of sound power levels.*

ISO 9518:1992, *Forestry machinery — Portable chain-saws — Kickback test.*

3 Technical data

3.1 Masses

The following masses shall be specified:

a) saw without guide-bar and chain, empty tanks: ..... kg

b) saw with specified guide-bar and chain, empty tanks: ..... kg

c) saw with specified guide-bar and chain, full tanks: ..... kg

3.2 Volumes

The following volumes shall be specified:

a) fuel tank: l

b) tank for chain lubricating oil: l

3.3 Guide-bar

The following guide-bar details shall be specified:

a) usable cutting length of specified guide-bar: ..... cm

b) recommended maximum usable cutting length of guide-bar: ..... cm

c) width of guide-bar groove: ..... mm

d) nose size: ..... mm

1) To be published.

3.4 Chain

The following chain details shall be specified:

a) specified pitch: ..... mm

NOTE 1 The pitch may also be given in inches.

b) specified gauge (thickness of drive links): ..... mm

c) number of drive links for specified length of guide-bar and specified sprocket: .....

d) chain speed at 1,33 times the maximum power speed or maximum speed, whichever is less: ..... m/s

3.5 Drive sprocket

The following drive sprocket details shall be specified:

a) specified number of teeth: .....

b) specified pitch: ..... mm

NOTE 2 The pitch may also be given in inches.

3.6 External dimensions

The following external dimensions (see figure 1) shall be specified:

a) length: ..... mm

NOTE 3 If the front hand-guard is behind the saw housing in its normal operating position, the length is measured to the foremost part of the saw housing. In the case of a fixed spiked bumper, the bumper is considered to be part of the saw housing.

b) width: ..... mm

c) height: ..... mm

3.7 Size of engine

The engine details shall be indicated as follows:

a) engine displacement: ..... cm^3

b) maximum shaft brake power, measured in accordance with ISO 7293: ..... kW

c) engine rotational speeds:

1) at maximum engine power: ..... s^{-1}

2) recommended maximum speed: ..... s^{-1}

3) recommended speed at idling: ..... s^{-1}

4) engine speed at the beginning of clutch engagement: ..... s^{-1}

NOTE 4 These rotational speeds may alternatively or additionally be given in min^{-1}.

3.8 Fuel consumption

The following fuel consumptions, measured in accordance with ISO 7293, shall be given:

a) fuel consumption at maximum engine power: ..... l/h

b) specified fuel consumption at maximum engine power: ..... g/(kW·h)

3.9 Sound pressure levels

The following A-weighted sound pressure levels, measured in accordance with ISO 7182, shall be given:

a) idling (L_{pI}): ..... dB

b) full load (L_{pFL}): ..... dB

c) racing (L_{pR}): ..... dB

d) octave band analysis (if required): .....

Additionally an equivalent sound pressure level (L_{peq}) may be calculated as follows:

a) chain-saws with an engine displacement < 80 cm^3

$$L_{peq} = 10 \lg\left[\frac{1}{3}\left(10^{0,1L_{pI}} + 10^{0,1L_{pFL}} + 10^{0,1L_{pR}}\right)\right]$$

b) chain-saws with an engine displacement ⩾ 80 cm^3

$$L_{peq} = 10 \lg\left[\frac{1}{2}\left(10^{0,1L_{pI}} + 10^{0,1L_{pFL}}\right)\right]$$

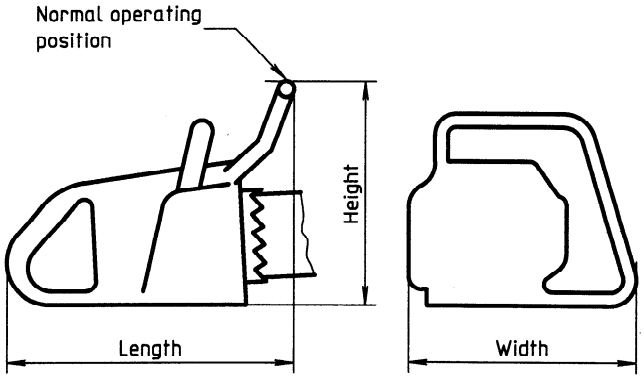

Figure 1 — External dimensions of saw excluding guide-bar and chain

3.10 Sound power levels

The following A-weighted sound power levels, measured in accordance with ISO 9207, shall be given:

a) idling (L_{WI}): ..... dB
b) full load (L_{WFL}): ..... dB
c) racing (L_{WR}): ..... dB

Additionally an equivalent sound power level (L_{Weq}) may be calculated as follows:

a) chain-saws with an engine displacement $< 80\ cm^3$

$$L_{Weq} = 10\ \lg\left[\frac{1}{3}\left(10^{0,1L_{WI}} + 10^{0,1L_{WFL}} + 10^{0,1L_{WR}}\right)\right]$$

b) chain-saws with an engine displacement $\geqslant 80\ cm^3$

$$L_{Weq} = 10\ \lg\left[\frac{1}{2}\left(10^{0,1L_{WI}} + 10^{0,1L_{WFL}}\right)\right]$$

3.11 Chain lubrication

a) The following oil consumption of the automatic lubricating system for the chain at the engine speed corresponding to maximum engine power, with a viscosity of oil of ISO VG 100, in accordance with ISO 3448, shall be given.

1) adjustable maximum: ..... cm^3/min
2) adjustable minimum: ..... cm^3/min
3) fixed: ..... cm^3/min

b) Manual: ..... $cm^3/stroke$

3.12 Chain brake

The chain brake performance shall be measured in accordance with ISO 6535, and the following times given:

a) average braking time from racing speed: ..... ms
b) maximum braking time from racing speed: ..... ms

3.13 Vibration levels

The vibration levels at the following speeds shall be measured in accordance with ISO 7505, and the results given:

a) idling: ..... m/s^2
b) full load: ..... m/s^2
c) racing: ..... m/s^2

3.14 Kickback levels

The kickback levels, i.e. the maximum angle for any recommended combination of specified guide-bar, chain and drive sprocket shall be measured in accordance with ISO 9518, and the results given:

a) computed kickback angle without brake: ..... °
b) computed kickback angle with brake: ..... °
c) chain stop angle: ..... °

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