International Standard 6267

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Alpine skis — Measurement of bending vibrations

Skis alpins — Mesurage des vibrations en flexion

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6267 was developed by Technical Committee ISO/TC 83, *Sports and recreational equipment*, and was circulated to the member bodies in March 1979.

It has been approved by the member bodies of the following countries :

Austria	Italy	Switzerland
Czechoslovakia	New Zealand	USA
France	Poland	USSR
Germany, F. R.	Romania	
India	South Africa, Rep. of	

No member body expressed disapproval of the document.

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Alpine skis — Measurement of bending vibrations

1 Scope and field of application

This International Standard specifies a method for the determination of the natural frequency and the half life of the bending vibrations of an alpine ski which is clamped in the binding mounting area and can vibrate in the ski forebody.

It is applicable to skis having nominal lengths of 150 cm or more.

2 Definitions

For the purpose of this International Standard, the following definitions apply :

2.1 vibration period, T : The time, in seconds, between two successive phases, for example vibration peaks, of a vibrating ski.

2.2 natural frequency, f : The number of vibrations per unit time of a vibrating ski.

NOTE — The relationship between the natural frequency and the vibration period is given by the formula

$$f = 1/T$$

2.3 half life, $t_{1/2}$: The time, in seconds, required for reduction of the initial amplitude of vibration to half its value while the ski vibrates.

2.4 initial deflection : The deflection imposed on the ski at the start of test (i.e. $2{,}5\ ^{+\,0{,}5}_{0}$ mm), corresponding to amplitude a_0 on the vibration chart (see figure 2).

2.5 initial amplitude, a_1 : The first amplitude which most closely corresponds to a 2 mm deflection of the ski at the measurement point. (The thirty succeeding vibrations are used for the evaluation).

3 Test apparatus

The test apparatus shall consist of a clamping device, a release and an inductive displacement transducer (see figure 1).

3.1 Clamping device

The clamping device shall have a mass of at least 100 kg, in order to avoid resonance effects, and shall comprise a vice having a flat jaw and three clamps, each of width 30 mm and covering the width of the ski, spaced at intervals of at least 150 mm.

Dimensions in millimetres

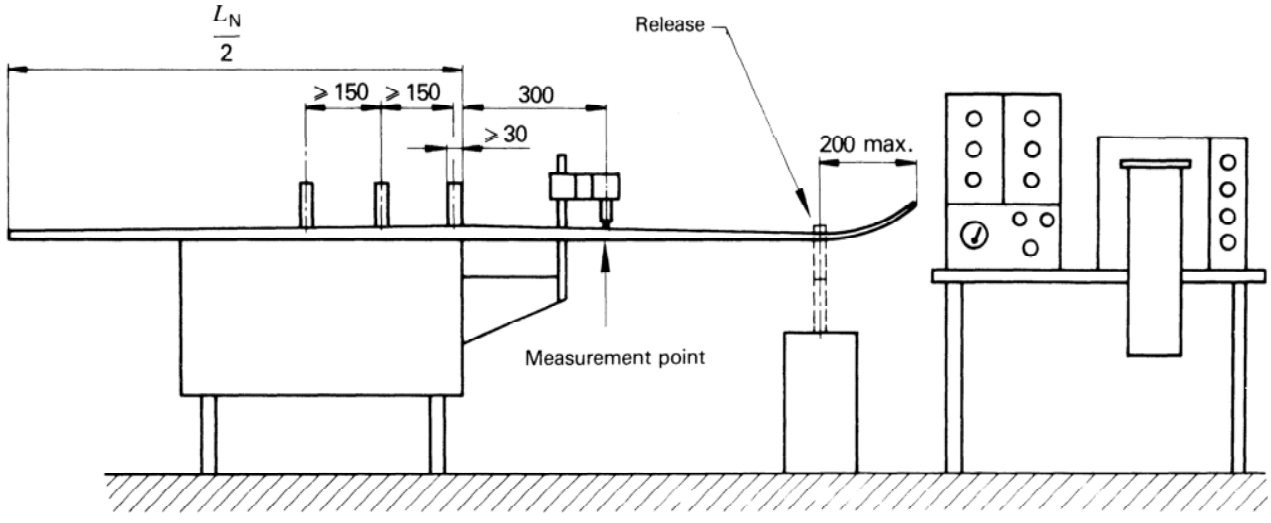

Figure 1 — Test apparatus

3.2 Release

The release device shall not create superimposed torsional vibrations or induce impact loading on the ski and shall be placed not more than 200 mm from the tip of the ski. The initial deflection of the ski shall be caused either mechanically or by a weight and shall be $2{,}5\ ^{+0{,}5}_{0}$ mm at the measurement point.

3.3 Inductive displacement transducer

The vibrations of the ski shall be measured by means of an inductive displacement transducer which shall be connected to the clamping device and shall record the vibrations on a chart recorder.

4 Conditioning

Condition the ski at a room temperature of 23 ± 5 °C.

5 Procedure

Clamp the ski as shown in figure 1.

Attach the pickup rod of the displacement transducer to the top surface or running surface of the ski in such a way that it follows exactly the movement of the ski. After adjustment of the recording instruments, displace the ski through $2{,}5\ ^{+0{,}5}_{0}$ mm, release it and record the vibrations.

6 Evaluation

Record the following values obtained from the vibration chart (see figure 2) :

a) the initial deflection of the ski;

b) the initial amplitude, a_1;

c) the half life, $t_{1/2}$, in seconds;

d) the vibration period T, in seconds, calculated from

$$T = \frac{t_{30}}{30}$$

where t_{30} is the time for 30 complete vibrations;

e) the natural frequency, f, in hertz calculated from the formula

$$f = \frac{1}{T}$$

7 Test report

The test report shall include the following information :

a) the reference of this International Standard, i.e. ISO 6267;

b) the brand of ski;

c) the designation of the model;

d) the manufacturer's registration number;

e) the nominal length of the ski;

f) the vibration period;

g) the natural frequency;

h) the half life;

j) any deviation from the specified procedure and the reasons therefore.

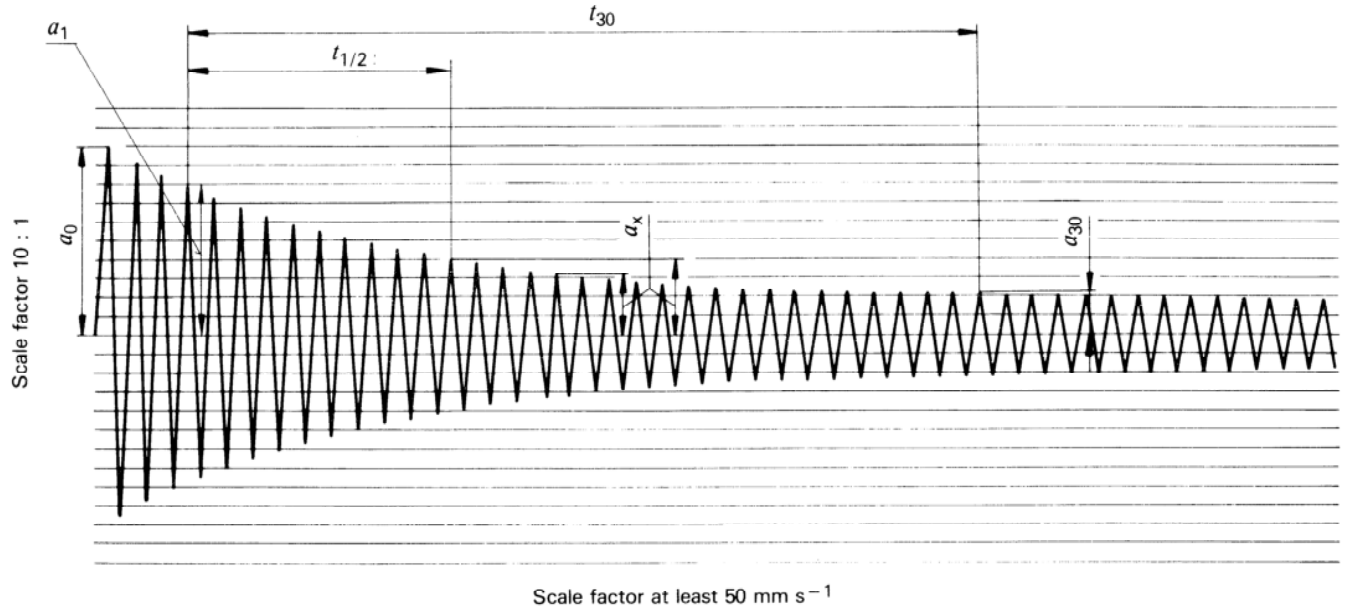

Figure 2 — Typical vibration chart