INTERNATIONAL STANDARD

ISO 9284

First edition
1992-07-01

Abrasive grains — Test-sieving machines

Grains abrasifs — Machine à tamiser de contrôle

Reference number
ISO 9284:1992(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 9284 was prepared by Technical Committee ISO/TC 29, *Small tools*, Sub-Committee SC 5, *Grinding wheels and abrasives*.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Abrasive grains — Test-sieving machines

1 Scope

This International Standard specifies the operational and technical requirements, and gives guidance on the installation, checking and maintenance of test-sieving machines. These machines are used for determining the size distribution of bonded and coated abrasive macrograins.

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 2591-1:1988, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate.*

ISO 6344-1:—[1], *Coated abrasives — Grain size analysis — Part 1: Definitions, designation and principle.*

ISO 6344-2:—[1], *Coated abrasives — Grain size analysis — Part 2: Determination of grain size distribution of macrogrits P 12 to P 220.*

ISO 8486:1986, *Bonded abrasives — Grain size analysis — Designation and determination of grain size distribution of macrogrits F4 to F220.*

3 Operational requirements

Under defined operating conditions, mechanical test sieving can produce results comparable with those obtained by manual sieving.

The results obtained by using test-sieving machines shall be reproducible and shall comply with the requirements specified in ISO 8486, ISO 6344-1, ISO 6344-2 and ISO 2591-1.

The reproducibility of the determination of the grain size distribution of abrasive grains by means of sieving is assured only when the appropriate test-sieving machines, test sieves and operating instructions are used.

4 Technical description

Examples of test-sieving machines are illustrated in figure 1a) and figure 1b).

Test-sieving machines usually consist of the following basic components:

a) support and frame;

b) electric motor;

c) gear drive for the conversion of the rotary motion of the motor into the specified eccentric rotary motion of the nest of sieves and into the tapping action;

d) switch which is actuated by means of a time switch;

e) tapper for the execution of the vertical strokes (which are specified for a given unit of time) on the cover of the nest of sieves;

f) retainer for the bottom pan and nest of sieves, which allows them to move in the specified manner;

g) cover for the sieves, fitted with a funnel-shaped insert with a plug (usually made of cork) on which the tapper strikes.

In addition the following is necessary for the operation of test-sieving machines:

1) To be published.

h) base plate;

i) a nest of five test sieves.

j) bottom pan.

5 Technical requirements

5.1 Nest of test sieves and sieve frames

The nest of test sieves shall be mounted in the sieving machine in such a way that the prescribed movements are possible without any obstruction. Attention shall be paid to the manufacturer's recommendations.

The sieve frames of the test sieves shall have the following dimensions:

— diameter, 200 mm;

— height, 50 mm.

The nest of test sieves to be used for a particular type of macrograin shall be as specified in the applicable standard.

5.2 Sieving time

The test-sieving machines shall be provided with a time switch to guarantee that sieving is carried out for the prescribed time.

6 Installation of test-sieving machines

The test-sieving machine shall be fixed on a suitable base-plate of sufficient mass in such a way that external vibrations cannot reach the machine.

The test-sieving machine shall be installed to be horizontal.

As an example, the test-sieving machine, type A [see figure 1a)], shall be fixed on a concrete base-plate having a width of at least 625 mm, a depth of 500 mm and a height of 550 mm. For the design of the concrete base-plate as well as for the arrangement of the assembly bolts, see figure 2.

The concrete base-plate should be placed on a vibration-absorbing board, made, for example, of hard felt, which serves also to compensate for unevenness of the ground.

The ground shall be free from vibrations, i.e. it should be natural soil. Where it is not possible to meet this requirement, the test-sieving machine should be installed in such a way that the forces and moments which occur during the operation of the machine are transmitted via the load-bearing structure to the foundations.

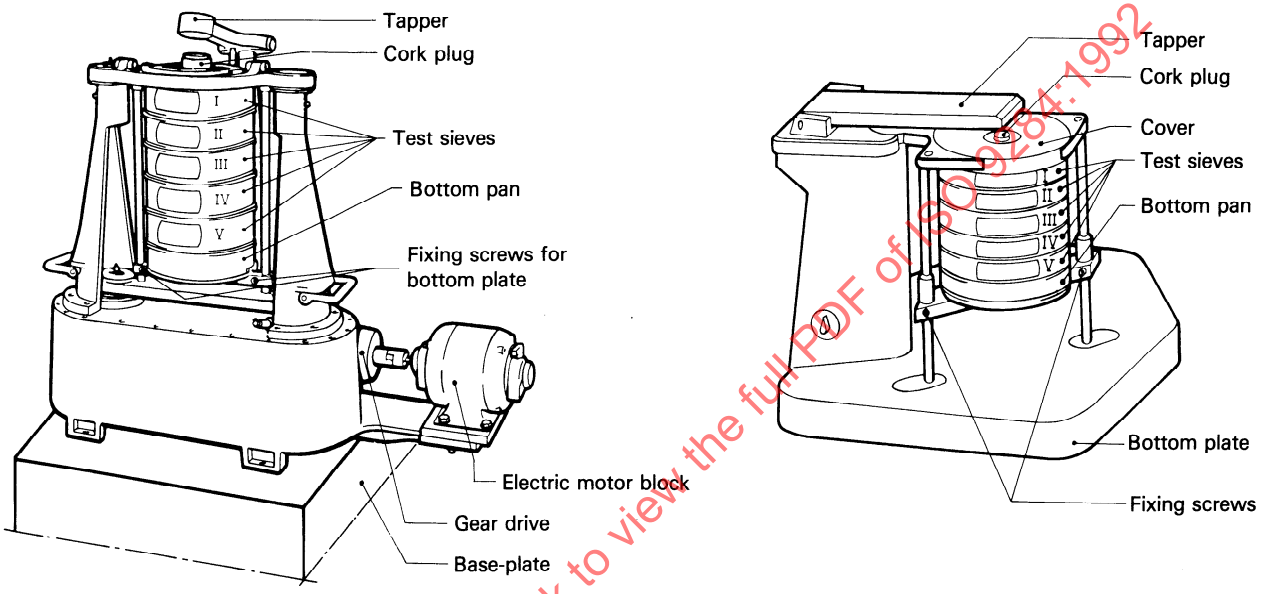
If an acoustic cabinet is used, it shall not be attached either to the sieving machine or to the concrete block.

7 Checking of test-sieving machines

The efficiency of test-sieving machines shall be checked at appropriate intervals. In particular, the performance of the tapper and the precision of the time switch shall be checked.

8 Maintenance of test-sieving machines

In order to maintain the efficiency and operational reliability of test-sieving machines, it is recommended that the manufacturer's instructions concerning maintenance are followed.



a) Type A

b) Type B

NOTE — This figure illustrates RO-TAP test-sieving machines, type A and type B.

RO-TAP is the trade-name of a specific test-sieving machine. For further information contact your national standards organization.

This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of the product named.

Figure 1 — Examples of test-sieving machines

Dimensions in millimetres

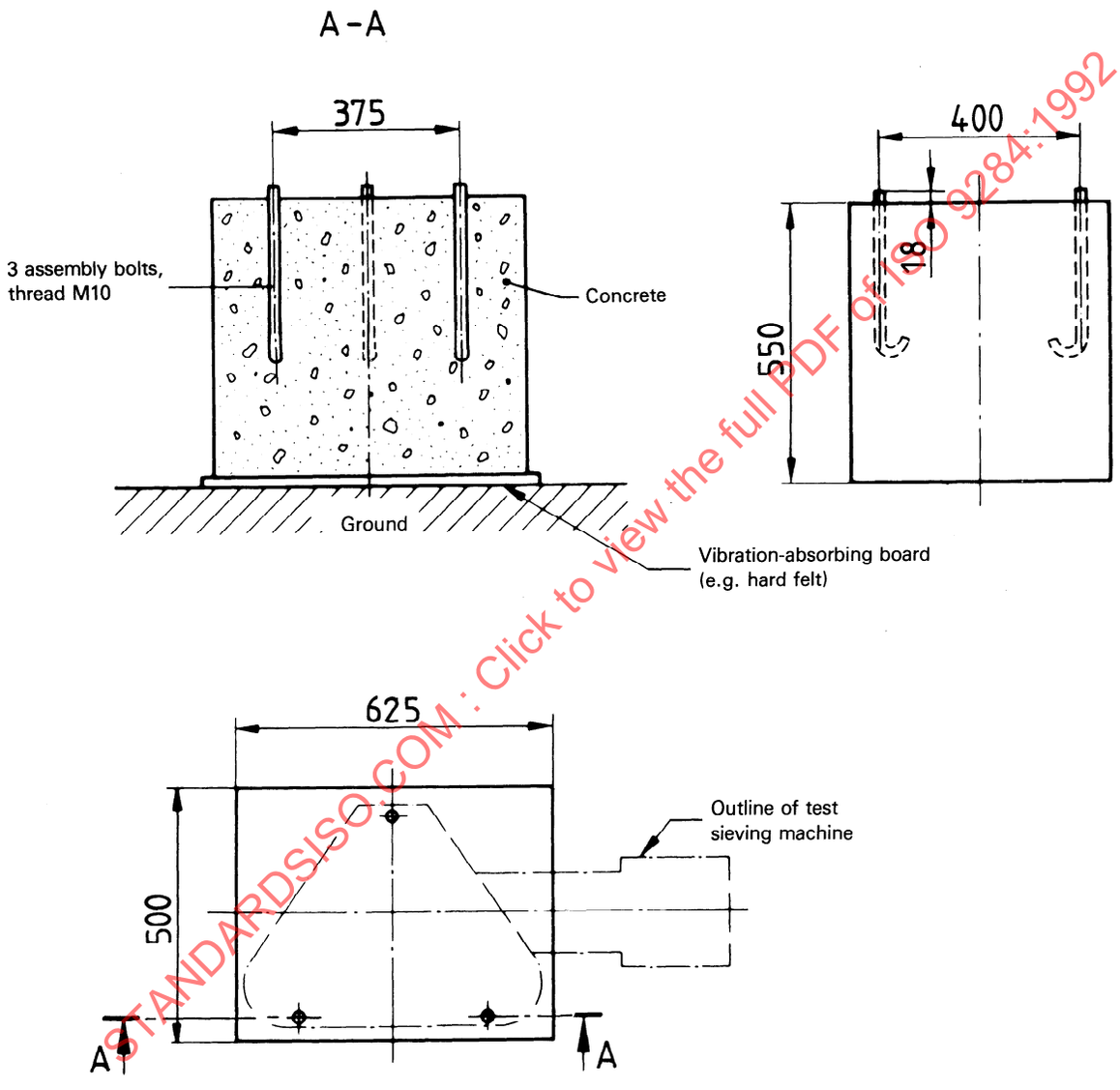


Figure 2 — Base-plate and mating dimensions for the assembly of test-sieving machines, type A