INTERNATIONAL STANDARD

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Hard coal — Determination of caking index

Houille — Détermination de l'indice d'agglutination

Reference number
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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 15585 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 5, *Method of analysis*.

Hard coal — Determination of caking index

1 Scope

This International Standard specifies a method of determination of caking index of hard coal. It is applicable to the evaluation of caking power of bituminous coal with random reflectance of vitrinite, R_r, greater than 0,6 % and less than or equal to 1,8 % ($> 0{,}6\ \% \leqslant 1{,}8\ \%$).

2 Normative references

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

ISO 562, *Hard coal and coke — Determination of volatile matter*

ISO 589, *Hard coal — Determination of total moisture*

ISO 1171, *Solid mineral fuels — Determination of ash*

3 Terms and definitions

3.1
caking index
measure of the magnitude of the binding strength between coal particles or between coal particles and inert particles after coal is heated at 850 °C.

4 Principle

A portion of prepared sample of coal of limited size range and the standard anthracite are mixed under defined conditions, and the mixture is carbonized rapidly. The crucible coke thus obtained is tested for strength in a drum conforming to certain specifications. The caking power of the test sample is expressed by the abrasive strength, i.e. resistance to breakage of the crucible coke.

5 Reagent

5.1 Standard anthracite, having a moisture of less than 2,5 mass % air-dried basis, an ash of less than 4 mass % dry basis and a volatile matter of less than 8 mass % dry, ash free basis. The size limits are 0,1 mm to 0,2 mm, the undersize content of 0,1 mm should not be more than 6 mass % and the oversize content of 0,2 mm should not be more than 4 mass %.

NOTE Annexes A and B provide information on the extraction, preparation and testing of standard anthracite.

6 Apparatus

6.1 **Balance**, capable of weighing to the nearest 0,01 g.

6.2 **Crucible**, porcelain, having the following dimensions (see Figure 1):

a) external diameter at the top: 40 mm ± 1,5 mm;

b) internal diameter at the base: 20 mm ± 1,5 mm;

c) external height: 40 mm ± 1,5 mm;

d) wall thickness: less than 2 mm.

Dimensions in millimetres

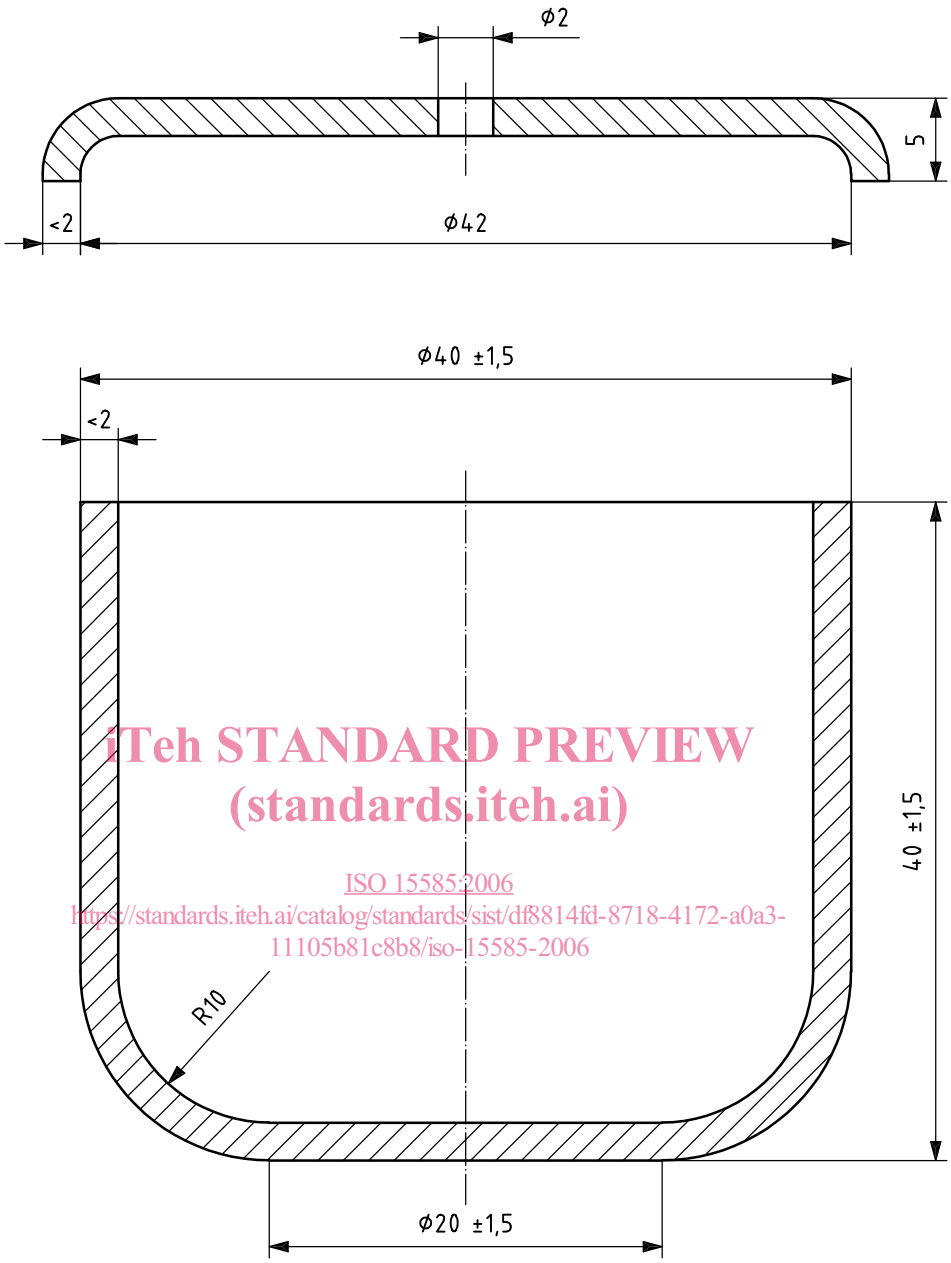


Figure 1 — Crucible and lid

6.3 **Lid**, porcelain, 1,5 mm to 2,0 mm thick, with a hole 2 mm in diameter in the centre (see Figure 1).

6.4 **Stirrer**, made of 1,0 mm to 1,5 mm diameter metal wire, having an 8 mm loop at one end (see Figure 2).

Dimensions in millimetres

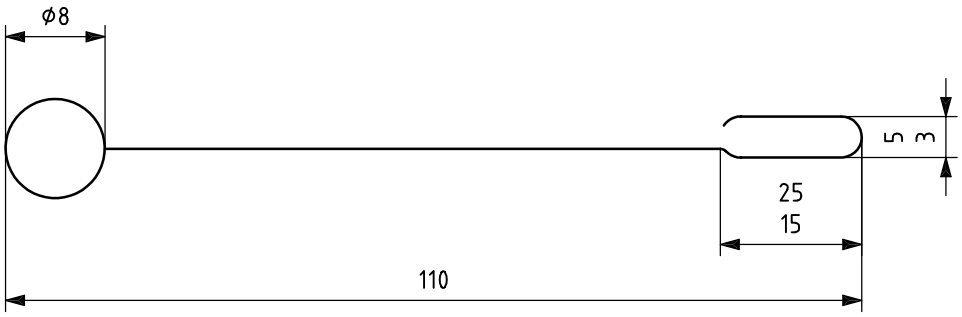


Figure 2 — Stirrer

6.5 Heat resistant weight, composed for example of Nichrome [1)] steel, with a mass of 110 g to 115 g (see Figure 3).

Dimensions in millimetres

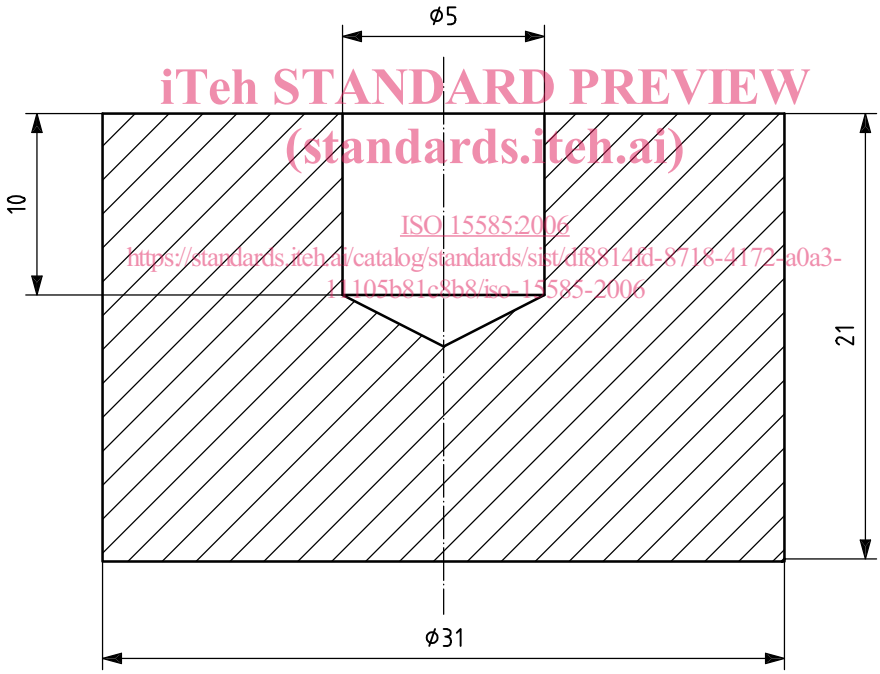
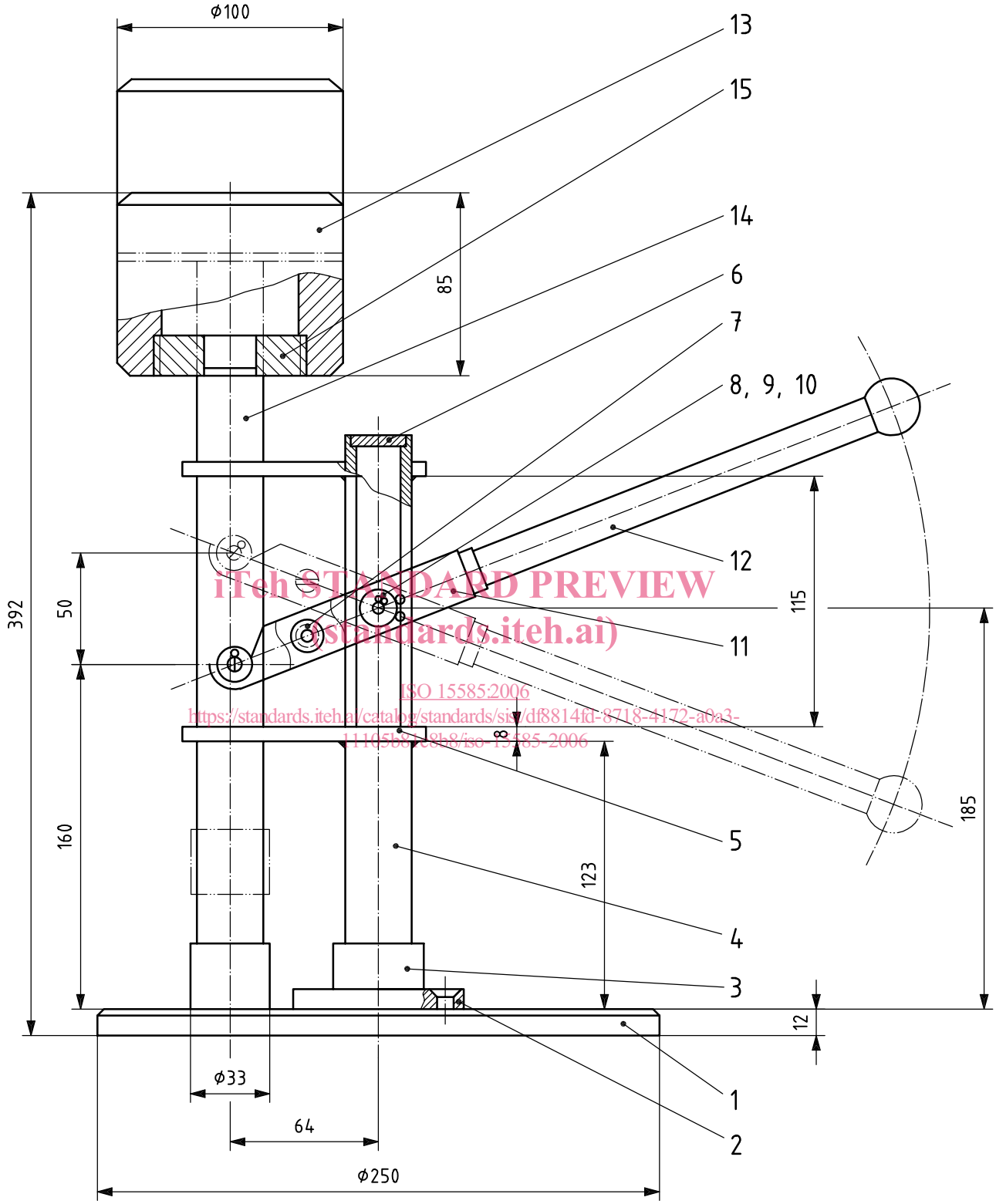


Figure 3 — Steel weight

6.6 Press, for compressing the mixture of coal and standard anthracite under the weight of a 6 kg mass (see Figure 4).

1) Nichrome is an example of a suitable product available commercially. This information is given for the convenience of users of ISO 15585 and does not constitute an endorsement by ISO of this product.

Dimensions in millimetres



Key

1	bottom plate	6	dead plate	11	carriage
2	screw	7	back-up shaft	12	hand knob
3	round base	8	small shaft	13	press
4	steel tube	9	dump	14	lighting vertical shaft
5	connecting board	10	forelock	15	plug

Figure 4 — Press used for compressing the mixture of anthracite and test coal