

**Kolbisepõlemismootorid. Käsitsi käivitamise seadised.  
Osa 2: Katkestusnurga katsemeetod**

Reciprocating internal combustion engines - Hand starting equipment - Part 2: Method of testing the angle of disengagement

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 11102-2:2009 sisaldab Euroopa standardi EN ISO 11102-2:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.07.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.02.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 11102-2:2009 consists of the English text of the European standard EN ISO 11102-2:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.07.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

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**Võtmesõnad:** füüsilised testid., kolbmootorid, käivitusseadmed, käsitsi juhitud seadmed, mootorikäivitid, sisepelemismootorid, testimine

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English Version

Reciprocating internal combustion engines - Handle starting  
equipment - Part 2: Method of testing the angle of  
disengagement (ISO 11102-2:1997)

Moteurs alternatifs à combustion interne - Dispositifs de  
démarrage à la manivelle - Partie 2: Méthode d'essai de  
l'angle de désengagement (ISO 11102-2:1997)

Hubkolben-Verbrennungsmotoren - Handkurbel-  
Starteinrichtungen - Teil 2: Verfahren zur Messung des  
Aulösewinkels (ISO 11102-2:1997)

This European Standard was approved by CEN on 26 January 2009.

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## Foreword

The text of ISO 11102-2:1997 has been prepared by Technical Committee ISO/TC 70 "Internal combustion engines" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11102-2:2009 by Technical Committee CEN/TC 270 "Internal combustion engines" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 11102-2:1997.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directives.

For relationship with EC Directives, see informative Annex ZA and ZB, which are integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

### Endorsement notice

The text of ISO 11102-2:1997 has been approved by CEN as a EN ISO 11102-2:2009 without any modification.

## **Annex ZA (informative)**

### **Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 98/37/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

**WARNING —** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

## **Annex ZB (informative)**

### **Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

**WARNING** — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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# Reciprocating internal combustion engines — Handle starting equipment —

## Part 2:

## Method of testing the angle of disengagement

### 1 Scope

This part of ISO 11102 describes the method for testing the angle of disengagement of starting handle equipment i.e. testing of the essential safety requirements according to ISO 11102-1 for reciprocating internal combustion engines for land, rail and marine use, excluding engines used to propel road vehicles and aircraft. It may be applied to engines used to propel road construction, earth moving machines and for other applications where no suitable international standards exist.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 11102. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11102 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 11102-1:1997, *Reciprocating internal combustion engines — Handle starting equipment — Part 1: Safety requirements and tests*.

### 3 Testing of the disengagement travel

#### 3.1 Apparatus

The test shall be carried out on the type of reciprocating internal combustion engine for which the starting handle was designed. The engine shall be mounted on test equipment as generally indicated in figure 1 or 2, as appropriate.

#### 3.2 Procedure

Set the stop (3) so that the starting handle grip lies horizontally. For the first test hang a mass (5) of 5 kg from the centre of the grip (2). Turn the engine flywheel (6) smoothly in its reverse direction using the crankhandle (7). Measure the distance moved before disengagement occurs on the scale (4) using a mark on the shank (1) of the starting handle. Repeat the above procedure with a 50 kg mass.

NOTE — The direction of rotation of the crankhandle may differ from that of the engine (as defined in ISO 1204) depending on the coupling of the crankhandle to the engine (e.g. it may be linked to the crankshaft, camshaft, geardrive or belt drive).