

**TOORNAFTA JA VEDELAD NAFTATOOTED
VERTIKAALSETE SILINDRILISTE MAHUTITE
KALIBREERIMINE**

**Osa 5: Elektro-optiline välimiste kauguste
mõõtemeetod (ISO 7507-5:2000)**

Petroleum and liquid petroleum products
Calibration of vertical cylindrical tanks
Part 5: External electro-optical distance-ranging method
(ISO 7507-5:2000)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-ISO 7507-5:2006 "Toornafta ja vedelad naftatooted. Vertikaalsete silindriliste mahutite kalibreerimine. Osa 5: Elektrooptiline välimiste kauguste mõõtemetod" sisaldab rahvusvahelise standardi ISO 7507-5:2000 "Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 5: External electro-optical distance-ranging method" identset ingliskeelset teksti.	This Estonian Standard EVS-ISO 7507-5:2006 consists of the identical English text of the International Standard ISO 7507-5:2000 "Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 5: External electro-optical distance-ranging method".
Standardi avaldamise korraldas Eesti Standardikeskus.	Estonian standard is published by the Estonian Centre for Standardisation.
Standard EVS-ISO 7507-5:2006 on kinnitatud Eesti Standardikeskuse 06.12.2006 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teataja 2007. aasta jaanuarikuu numbris.	This standard is ratified with the order of Estonian Centre for Standardisation dated 06.12.2006 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from Estonian Centre for Standardisation.

Käsitlusala

Käesolev osa standardist ISO 7507 määratleb soojusenergia ja üle viie meetrise läbimõõduga vertikaalsete silindriliste mahutite kalibreerimise meetodi, mille korral mõõdetakse mahutit väljastpoolt, kasutades elektrooptilist kauguse mõõtmise (*electro-optical distance-ranging* (EODR)) meetodit, samuti käsitleb standard mahuti mahutabeli loomist.

Käesolev osa standardist ISO 7507 on kasutatav nii ülespoole kui allapoole suunatud põhjakoonusega mahutite korral kui ka tasapinnalise põhjaga mahutite korral.

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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 3.

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 part of ISO 7507 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7507-5 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 3, *Static petroleum measurement*.

ISO 7507 consists of the following parts, under the general title *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks*:

- *Part 1: Strapping method*
- *Part 2: Optical-reference-line method*
- *Part 3: Optical-triangulation method*
- *Part 4: Internal electro-optical distance-ranging method*
- *Part 5: External electro-optical distance-ranging method*
- *Part 6: Recommendations for monitoring, checking and verification of tank calibration and capacity table*

Annex A of this part of ISO 7507 is for information only.

Introduction

This International Standard forms part of a series on tank calibration methods including the following:

- a) ISO 4269-1, *Petroleum and liquid petroleum products — Tank calibration by liquid measurement — Part 1: Incremental method using volumetric meters.*
- b) ISO 7507-1, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 1: Strapping method.*
- c) ISO 7507-2, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 2: Optical-reference-line method.*
- d) ISO 7507-3, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 3: Optical-triangulation method.*
- e) ISO 7507-4, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 4: Internal electro-optical distance-ranging method.*
- f) ISO 8311, *Refrigerated light hydrocarbon fluids — Calibration of membrane tanks and independent prismatic tanks in ships — Physical measurement.*
- g) ISO 9091-1, *Refrigerated light-hydrocarbon fluids — Calibration of spherical tanks in ships — Part 1: Stereo-photogrammetry.*
- h) ISO 9091-2, *Refrigerated light hydrocarbon fluids — Calibration of spherical tanks in ships — Part 2: Triangulation measurement.*

The method is an alternative to other calibration methods such as the strapping method (ISO 7507-1), the optical-reference-line method (ISO 7507-2), the optical-triangulation method (ISO 7507-3), and the internal electro-optical distance-ranging method (ISO 7507-4).

Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks —

Part 5:

External electro-optical distance-ranging method

1 Scope

This part of ISO 7507 specifies a method for the calibration of non-insulated vertical cylindrical tanks having diameters greater than 5 m, by means of external measurement using an electro-optical distance-ranging method (EODR), and for the subsequent compilation of tank capacity tables.

This part of ISO 7507 is applicable to tanks with cone-up or cone-down bottoms as well as to tanks with flat bottoms.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 7507. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 7507 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 4512:—¹⁾, *Petroleum and liquid petroleum products — Equipment for measurement of liquid levels in storage tanks — Manual methods.*

ISO 7507-1:1993, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 1: Strapping method.*

ISO 7507-4:1995, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 4: Internal electro-optical distance-ranging method.*

IEC 60079-10:1995, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas.*

IEC 60825-1:1998, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide.*

3 Terms and definitions

For the purposes of this part of ISO 7507, the terms and definitions given in ISO 7507-1 and ISO 7507-4 and the following apply.

¹⁾ To be published.