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

**Part 2:  
Optical-reference-line method or  
electro-optical distance-ranging  
method**

*Pétrole et produits pétroliers liquides — Jaugeage des réservoirs  
cylindriques verticaux —*

*Partie 2: Mesurage par ligne de référence optique ou mesurage  
électro-optique de la distance*



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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, Subcommittee SC 2, *Measurement of petroleum and related products*.

This third edition cancels and replaces the second edition (ISO 7507-2:2005), which has been technically revised.

The main changes are as follows:

- offsets between reference circumference and specified levels are measured by electro-optical distance-ranging method.

A list of all parts in the ISO 7507 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document forms part of a family of documents on tank calibration listed in the Bibliography as References [2] to [6], as well as ISO 7507-1 and ISO 7507-4 which are listed in [Clause 2](#).



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

## Part 2:

## Optical-reference-line method or electro-optical distance-ranging method

### 1 Scope

This document specifies methods for the calibration of tanks above eight metres in diameter with cylindrical courses that are vertical. It provides two methods for determining the volumetric quantity of the liquid contained within a tank at gauged liquid levels.

**NOTE** For optical-reference-line method, the optical (offset) measurements required to determine the circumferences can be taken internally or externally, provided that insulation is removed if tank is insulated.

The methods are suitable for tilted tanks with up to 3 % deviation from the vertical provided that a correction is applied for the measurement tilt, as described in ISO 7507-1.

These methods are alternatives to other methods such as strapping (ISO 7507-1) and the optical-triangulation method (ISO 7507-3).

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 4269, *Petroleum and liquid petroleum products — Tank calibration by liquid measurement — Incremental method using volumetric meters*

ISO 7507-1:2003, *Petroleum and liquid petroleum products — Calibration of vertical cylindrical tanks — Part 1: Strapping method*

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

### 3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **optical-reference-line**

vertical optical ray (virtual) that is established using the optical device at a given location