

TOORNAFTA JA VEDELAD NAFTATOOTED
Vedelikutaseme ja temperatuuri automaatne mõõtmine
mahutites
Osa 1: Vedelikutaseme mõõtmine tavarõhumahutites

Petroleum and liquid petroleum products
Measurement of level and temperature in storage tanks
by automatic methods
Part 1: Measurement of level in atmospheric tanks
(ISO 4266-1:2023, identical)

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

<p>See Eesti standard EVS-ISO 4266-1:2024 sisaldab rahvusvahelise standardi ISO 4266-1:2023 „Petroleum and liquid petroleum products. Measurement of level and temperature in storage tanks by automatic methods. Part 1: Measurement of level in atmospheric tanks“ identset ingliskeelset teksti.</p> <p>Ettepaneku rahvusvahelise standardi ümbertrüki meetodil ülevõtuks on esitanud EVS/TK 38, standardi avaldamist on korraldanud Eesti Standardimis- ja Akrediteerimiskeskus.</p> <p>Standard EVS-ISO 4266-1:2024 on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian Standard EVS-ISO 4266-1:2024 consists of the identical English text of the International Standard ISO 4266-1:2023 „Petroleum and liquid petroleum products. Measurement of level and temperature in storage tanks by automatic methods. Part 1: Measurement of level in atmospheric tanks“</p> <p>Proposal to adopt the International Standard by reprint method has been presented by EVS/TC 38, the Estonian Standard has been published by the Estonian Centre for Standardisation and Accreditation.</p> <p>Standard EVS-ISO 4266-1:2024 has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>This standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
---	--

Käsitlusala

See dokument esitab nõuded ja juhised automaatsete nivoomõõturite (ingl *automatic level gauges*, ALGs) täpsuse, paigalduse, kasutuselevõtu, kalibreerimise ja vastavuse hindamise kohta. See rakendub nii kontaktset kui ka kontaktivaba tüüpi automaatsetele nivoomõõturitele, mida kasutatakse rahaliste tehingute / valdaja vahetuse aluseks olevates rakendustes tavarõhumahutites hoiustatavate vähem kui 100 kPa Reidi aururõhuga toornafta ja naftasaaduste vedelikutaseme mõõtmisel.

See dokument ei ole rakendatav ALG-ga vedelikutaseme mõõtmisel külmikmahutites.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 75.180.30

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autoriõiguse kaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about standards copyright protection, please contact the Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

Contents	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Precautions	3
4.1 Safety precautions	3
4.2 Equipment precautions.....	3
4.3 General precautions.....	3
5 Accuracy	4
5.1 Intrinsic error of ALGs.....	4
5.2 Calibration prior to installation.....	4
5.3 Error caused by installation and operating conditions.....	4
5.4 Overall accuracy	5
5.4.1 General.....	5
5.4.2 Use of ALGs for fiscal/custody transfer purposes	5
6 Installation of ALGs	5
6.1 General	5
6.2 Mounting location.....	5
6.3 Manufacturer's requirements.....	5
6.4 Installation.....	5
6.5 Still-well design	11
7 Initial setting and initial verification of ALGs in the field	12
7.1 General	12
7.2 General precautions.....	12
7.2.1 Initial requirements	12
7.2.2 Manual reference level measurement procedure.....	12
7.2.3 Reference measurement tape and weight certification	12
7.2.4 Effect of weather	12
7.2.5 ALG technology-specific considerations.....	12
7.2.6 Application-specific considerations	12
7.3 Initial settings of ALGs	13
7.3.1 Setting against manual reference ullage measurements.....	13
7.3.2 Setting against manual reference dip (innage) measurements	13
7.4 Initial verification	14
7.4.1 General.....	14
7.4.2 Verification conditions.....	15
7.4.3 Initial verification procedures	15
7.5 Record keeping	17
8 Subsequent verification of ALGs	17
8.1 General	17
8.2 Frequency of subsequent verification.....	17
8.3 Procedure for subsequent verification	17
8.4 Tolerance for subsequent verification	17
9 Data communication and receiving	18
Bibliography	19

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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.

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 second edition cancels and replaces the first edition (ISO 4266-1:2002), which has been technically revised.

The main changes are as follows:

- it has been specified in the scope that this document includes fiscal/custody transfer applications;
- in [4.3.2](#), it has been clarified that temperatures should be measured and recorded simultaneously with the level;
- in [6.5.7](#), the perforation distance on still-well's from 300 mm to 150 mm has been updated.

A list of all parts in the ISO 4266 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.

Petroleum and liquid petroleum products — Measurement of level and temperature in storage tanks by automatic methods —

Part 1: Measurement of level in atmospheric tanks

1 Scope

This document gives requirements and guidance on the accuracy, installation, commissioning, calibration and verification of automatic level gauges (ALGs). It applies to ALGs which are both intrusive and non-intrusive types, in fiscal/custody transfer applications for measuring the level of petroleum and petroleum products having a Reid vapour pressure less than 100 kPa, stored in atmospheric storage tanks.

This document is not applicable to the measurement of level in refrigerated storage tanks with ALG equipment.

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 1998 (all parts), *Petroleum industry — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1998 (all parts) 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

automatic level gauge

ALG

automatic tank gauge

ATG

instrument that continuously measures liquid height [*dip* (3.2) or *ullage* (3.10)] in storage tanks

3.2

dip

innage

vertical distance between the *dipping datum plate* (3.3) and the liquid level