



**International
Standard**

ISO 6996

**Bunkering — Meter verification using
master Coriolis mass flow meter**

*Soutage — Vérification des compteurs au moyen d'un compteur
massique étalon à effet Coriolis*

**First edition
2024-03**

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Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Safety, health and environment during meter verification	3
5 Metrological requirements for master meter	4
5.1 General	4
5.2 Master meter requirements	4
5.3 Maintenance of master meter status	5
6 Meter verification process	5
6.1 General	5
6.2 Requirements	5
6.3 Meter verification setup	5
6.4 Procedures	8
6.4.1 Pre-test meeting	8
6.4.2 Steps and actions	8
6.5 Documentation	9
Annex A (informative) Safety, health and environment	10
Annex B (informative) Uncertainty budget for meter verification	13
Annex C (normative) Critical performance parameter checklist for meter under test	14
Annex D (normative) Meter verification report	15
Bibliography	17

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).

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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*.

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.

Introduction

The objective of this document is to set qualifying requirements for the master Corolis mass flow meter in the bunkering context as well as to establish meter verification requirements and a verification procedure for using the master meter. The meter verification is performed to:

- a) verify the mass flow meter (MFM) that is used for custody transfer;
- b) track the meter stability of the duty meter used in the MFM system at regular intervals during its commercial service.

Regular meter verification provides another option to MFM users other than regular re-calibration. It is more efficient, less costly and less time-consuming to monitor the measurement performance of the MFM over time in compliance with the metrological requirements for custody transfer.

This document is intended to complement the meter verification requirements in ISO 22192 and ISO 6963.

In this document, the following verbal forms are used:

- “shall” indicates a requirement;
- “should” indicates a recommendation;
- “may” indicates a permission;
- “can” indicates a possibility or a capability.

Bunkering — Meter verification using master Coriolis mass flow meter

1 Scope

This document specifies the criteria and metrological requirements to qualify a master meter and subsequently maintain its qualification. It establishes requirements and procedures for meter verification, using a master mass flow meter to verify the accuracy and functionality of a duty meter installed on a bunker tanker or at a terminal.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

accuracy

closeness of agreement between a measured quantity value and a true quantity value of a measurand

[SOURCE: ISO/IEC Guide 99:2007, 2.13, modified — Notes 1, 2 and 3 to entry deleted.]

3.2

error

E

measured quantity value minus a reference quantity value

[SOURCE: ISO/IEC Guide 99:2007, 2.16, modified — Notes 1 and 2 to entry deleted.]

3.3

error percentage

$E\%$

error (3.2) divided by the same reference quantity value

3.4

master meter

Coriolis mass flow meter which is qualified to verify the *meter under test* (3.9)

3.5

maximum mass flow rate

Q_{\max}

maximum flow rate to which the *meter under test* (3.9) and the *master meter* (3.4) have been qualified to operate in compliance with the required accuracy