Irish Standard
I.S. EN ISO 14414:2015&A1:2016

Pump system energy assessment (ISO/ASME 14414:2015)

I.S. EN ISO 14414:2015&A1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN ISO 14414:2015/A1:2016

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National Foreword

I.S. EN ISO 14414:2015&A1:2016 is the adopted Irish version of the European Document EN ISO 14414:2015, Pump system energy assessment (ISO/ASME 14414:2015)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 14414:2015/A1

April 2016

ICS 23.080

English Version

Pump system energy assessment - Amendment 1 (ISO 14414:2015/Amd 1:2016)

Évaluation énergétique des systèmes de pompage - Amendement 1 (ISO 14414:2015/Amd 1:2016)

Energetische Bewertung von Pumpensystemen - Änderung 1 (ISO 14414:2015/Amd 1:2016)

This amendment A1 modifies the European Standard EN ISO 14414:2015; it was approved by CEN on 12 April 2016.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN ISO 14414:2015/A1:2016) has been prepared by Technical Committee ISO/TC 115 “Pumps” in collaboration with Technical Committee CEN/TC 197 “Pumps” the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN ISO 14414:2015 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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Endorsement notice

The text of ISO 14414:2015/Amd 1:2016 has been approved by CEN as EN ISO 14414:2015/A1:2016 without any modification.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 14414

April 2015

ICS 23.080

English Version

Pump system energy assessment (ISO/ASME 14414:2015)

Evaluation énergétique des systèmes de pompage
(ISO/ASME 14414:2015)

Energetische Bewertung von Pumpensystemen
(ISO/ASME 14414:2015)

This European Standard was approved by CEN on 10 January 2015.

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Endorsement notice

The text of ISO/ASME 14414:2015 has been approved by CEN as EN ISO 14414:2015 without any modification.

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INTERNATIONAL STANDARD

ISO/ASME 14414

First edition
2015-04-01

Pump system energy assessment

Évaluation énergétique des systèmes de pompage

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Foreword

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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. www.iso.org/directives

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ISO/ASME 14414 was prepared by ISO/TC 115, *Pumps,* in collaboration with ASME EA Standards Committee — *Industrial System Energy Assessment*.

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This standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

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ISO/ASME 14414 was approved as an American National Standard by the American National Standards Institute on 2015-02-06.

Introduction

Pumping systems account for a significant portion of a facility's energy consumption in many industries. In the majority of pumping systems the energy added to the working liquid by the pump is much greater than is required by the process. The excess energy added to the system (e.g. due to throttled control valve) increases heat, noise and vibration but also can bring the system's maintenance costs. The addition of excessive energy to the system often results in over-sizing piping system components such as pumps, process components, and control valves, resulting in an increase in capital costs.

This International Standard provides a method to assess pump systems, to identify and quantify pump system energy consumption reduction opportunities and reliability improvement opportunities. It gives a common definition for what constitutes an assessment for both users and providers of assessment services. Its objective is to provide clarity for these types of services which have been variously described as energy assessments, energy audits, energy surveys and energy studies.

In all cases, systems (energy-using logical groups of equipment organized to perform a specific function) are analysed through various techniques such as measurement, resulting in identification, documentation and prioritization of energy performance improvement opportunities.

When contracting for assessment services, facility personnel may use this International Standard to define and communicate their desired scope of assessment activity to third party contractors or consultants.

This International Standard is expected to contribute to decreased energy consumption and consequently to decreased carbon footprint.

This International Standard includes the required assessment report content in Annex A. It gives examples of efficient system operation and energy reduction opportunities in Annex B, information on competencies and experiences welcomed to perform audit in Annex C, guidelines for analysis software in Annex D, a typical example of pre-screening worksheet in Annex E, information on specific energy in Annex F, information on the concept of parasitic power in Annex G and examples of pumping system efficiency indicator in Annex H.

This International Standard is developed within the framework of ISO 50001, ISO 50002 and ISO 50003.

INTERNATIONAL STANDARD

Pump system energy assessment

1 Scope

This International Standard sets the requirements for conducting and reporting the results of a pumping system energy assessment (hereafter referenced as “assessment”) that considers the entire pumping system, from energy inputs to the work performed as the result of these inputs.

The objective of a pumping system energy assessment is to determine the current energy consumption of an existing system and identify ways to improve system efficiency.

These requirements consist of

— organizing and conducting an assessment,

— analysing the data from the assessment, and

— reporting and documenting assessment findings.

This International Standard is designed to be applied, to open and closed loop pumping systems typically used at industrial, institutional, commercial, and municipal facilities, when requested.

This International Standard is focused on assessing electrically-driven pumping systems, which are dominant in most facilities, but is applicable with other types of drivers, such as steam turbines and engines, and drives such as belt.

The International Standard does not

a) specify how to design a pumping system,

b) give detailed qualifications and expertise required of the person using the International Standard although provides a list of body of knowledge in Annex C,

c) address the training or certification of persons,

d) specify how to implement the recommendations developed during the assessment, but does include requirements for an action plan,

e) specify how to measure and validate the energy savings that result from implementing assessment recommendations,

f) specify how to make measurements and how to calibrate test equipment used during the assessment,

g) specify how to estimate the implementation cost or conduct financial analysis for recommendations developed during the assessment,

h) specify specific steps required for safe operation of equipment during the assessment. The facility personnel in charge of normal operation of the equipment are responsible for ensuring that it is operated safely during the data collection phase of the assessment,

i) address issues of intellectual property, security, confidentiality, and safety.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.