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Pump system energy assessment

Évaluation énergétique des systèmes de pompage



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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Identification of the assessment team, authority and functions	8
4.1 Identification of assessment team functions.....	8
4.2 Assessment team structure, leadership and competency.....	9
4.3 Facility management support.....	9
4.4 Communications.....	9
4.5 Access to facilities, personnel and information.....	9
4.6 Assessment objectives, scope and boundaries.....	10
4.7 Action plan.....	10
4.7.1 General.....	10
4.7.2 Assessment scheduling.....	11
4.8 Initial Data Collection and Evaluation.....	11
4.8.1 General.....	11
4.8.2 Initial facility specialist interviews.....	11
4.8.3 Energy project history.....	11
4.8.4 Energy cost.....	11
4.8.5 Initial system data.....	12
4.9 Objective check.....	12
5 Conducting the Assessment	12
5.1 Assessment Levels.....	12
5.1.1 General.....	12
5.1.2 Level 1 assessments.....	13
5.1.3 Level 2 assessments.....	14
5.1.4 Level 3 Assessments.....	14
5.2 Walk Through.....	15
5.3 Understanding system functional requirements.....	16
5.4 Determining system boundaries and system energy demand.....	16
5.5 Information needed to assess the efficiency of a pumping system.....	16
5.5.1 General.....	16
5.5.2 Electrical motor/drive information.....	16
5.5.3 Pump information.....	17
5.5.4 Liquid properties information.....	18
5.5.5 Detailed system data.....	18
5.5.6 Measured data.....	19
5.6 Data collection.....	19
5.6.1 System information.....	19
5.6.2 Measurement of pump and motor operating data.....	20
5.6.3 Pressure.....	20
5.6.4 Flow.....	20
5.6.5 Input power.....	20
5.7 Cross validation.....	21
5.8 Wrap-up meeting and presentation of initial findings and recommendations.....	21
6 Reporting and documentation	21
6.1 Final assessment report.....	21
6.2 Data for third party review.....	21
6.3 Review of final report by assessment team members.....	22
Annex A (normative) Report Contents	23

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Annex B (informative) Recommendations on efficient system operation and energy reduction - Examples	27
Annex C (informative) Expertise, experience and competencies	45
Annex D (informative) Recommended guidelines for analysis software	48
Annex E (informative) Example of prescreening worksheet	50
Annex F (informative) Specific Energy	51
Annex G (informative) Pumping system parasitic power	55
Annex H (informative) Example of pumping system efficiency indicator	58
Bibliography	61

Foreword

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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.