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Fastställt

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Liquid pumps – Pump units with frequency inverters – Guarantee and compatibility tests

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Vätskepumpar – Pumpenheter med frekvensomvandlare – Garanti- och kompatibilitetsprovningar

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Postadress: SIS, Box 6455, 113 82 STOCKHOLM
Telefon: 08 - 610 30 00. Telefax: 08 - 30 77 57

Upplysningar om **sakinnehållet** i standarden lämnas av SMS.
Telefon: 08 - 459 56 00. Telefax: 08 - 667 85 42
E-post: info@sms-standard.se
Prisgrupp N

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English version

Liquid pumps - Pump units with frequency inverters - Guarantee and compatibility tests

Pompes pour liquides - Groupes de pompage équipés d'un variateur de fréquence - Essais de garantie et de compatibilité

Flüssigkeitspumpen - Pumpenaggregate mit Frequenzumrichter - Garantie- und Verträglichkeitsprüfungen

This European Standard was approved by CEN on 16 April 1999.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 197 "Pumps", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Several standards define the acceptance testing of liquid pumps, and the means for the verification of the guarantee performance of the pump.

Electric motors for alternating current operate at speeds which are dependent upon the number of poles, and the power line frequency. By means of an inverter, the frequency can be varied and a pump operated over a range of speed related duty points. The design of the inverter requires special care in selecting and matching the electric motor and the test instrumentation to be used during the tests, as well as in analysing the readings taken, in order for a true assessment to be made of the pump performance and of the compatibility of the elements making up the unit.

1 Scope

This European Standard defines the procedures to be used for the verification of the guaranteed performance of a pump when supplied together with a motor and an inverter to control operating speed. It defines also the method of demonstrating the compatibility of the elements forming the pump unit. The application of this standard should be by agreement between the purchaser and the supplier.

This European Standard applies to liquid pumps driven by electric motors controlled by non-integral variable speed inverter systems. It does not apply to a pump unit comprising a pump, a motor, and inverter circuits forming an integrated whole, nor where these items are supplied as individual items to be installed together on site, nor where the items are the subject of other standards.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 5198:1995 *Centrifugal, mixed flow and axial pumps – Code for hydraulic performance tests – Precision grade.*

prEN ISO 9906:1995 *Rotodynamic pumps – Code for hydraulic performance tests for acceptance – Grades 1 and 2 (ISO/DIS 9906 :1995).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply :

3.1 frequency inverter (or inverter)

an electronic device for varying the frequency of an electric supply

For the purposes of this standard, the device will be separate from the pump but is to be supplied as part of the pump unit.

3.2 compatibility test

a procedure for functional testing to demonstrate that all elements of the pump/motor/inverter system function together smoothly and free from difficulties over the intended operating range

3.3 guarantee test

a procedure for the verification of the guaranteed performance of the pump/motor/inverter system at one or more duty points

3.4 overall system

the arrangement comprising the pump, driver, and inverter complete with all auxiliary items essential for operating the pump at variable speeds

4 Testing arrangements

The arrangements for the tests, the test conditions and the instrumentation shall be in conformance to a Standard such as prEN ISO 9906:1995 or ISO 5198 unless otherwise agreed between the purchaser and the manufacturer/supplier.