SLOVENSKI STANDARD
SIST EN 62006:2011

01-april-2011

Vodni stroji - Prevzemni preskusi majhnih hidroelektrarn (IEC 62006:2010)

Hydraulic machines - Acceptance tests of small hydroelectric installations (IEC 62006:2010)

Hydraulische Maschinen - Abnahmemessungen an Kleinwasserkraft-Anlagen (IEC 62006:2010)

Machines hydrauliques - Essais de réception des petits aménagements hydroélectriques (CEI 62006:2010)

Ta slovenski standard je istoveten z: **EN 62006:2011**

ICS:

27.140	Vodna energija	Hydraulic energy engineering

SIST EN 62006:2011 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62006

February 2011

ICS 27.140

English version

Hydraulic machines - Acceptance tests of small hydroelectric installations

(IEC 62006:2010)

Machines hydrauliques - Essais de réception des petits aménagements hydroélectriques (CEI 62006:2010)

Hydraulische Maschinen - Abnahmemessungen an Kleinwasserkraft-Anlagen (IEC 62006:2010)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 4/254/FDIS, future edition 1 of IEC 62006, prepared by IEC TC 4, Hydraulic turbines, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62006 on 2011-01-02.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2011-10-02
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-02

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62006:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60994	NOTE	Harmonized as EN 60994.
IEC 61116	NOTE	Harmonized as EN 61116.
IEC 61260	NOTE	Harmonized as EN 61260.
ISO 4373	NOTE	Harmonized as EN ISO 4373.
ISO 5167 series	NOTE	Harmonized in EN ISO 5167 series (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60041	1991	Field acceptance tests to determine the hydraulic performance of hydraulic turbines, storage pumps and pump-turbines	EN 60041	1994
IEC 60193	-	Hydraulic turbines, storage pumps and pump-turbines - Model acceptance tests	EN 60193	-
IEC 60308	-	Hydraulic turbines - Testing of control systems	EN 60308	-
IEC 60609	Series	Hydraulic turbines, storage pumps and pump-turbines - Cavitation pitting evaluation	EN 60609	Series
IEC 60651	-	Sound level meters	EN 60651	-
IEC 61362	-	Guide to specification of hydraulic turbine control systems	EN 61362	-
ISO 1680	-	Acoustics - Test code for the measurement of airborne noise emitted by rotating electrical machines	EN ISO 1680	-
ISO 1940-1	2003	Mechanical vibration - Balance quality requirements for rotors in a constant (rigid) state - Part 1: Specification and verification of balance tolerances	-	-
ISO 3746	-	Acoustics - Determination of sound power levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane	EN ISO 3746	-
ISO 4412	Series	Hydraulic fluid power - Test code for determination of airborne noise levels	-	-
ISO 5168	-	Measurement of fluid flow - Estimation of uncertainly of a flow-rate measurement	-	-
ISO 7919-5	-	Mechanical vibration - Evaluation of machine vibration by measurements on rotating shafts - Part 5: Machine sets in hydraulic power generating and pumping plants	-	-
ISO 10816-3	-	Mechanical vibration - Evaluation of machine vibration by measurements on non-rotating parts - Part 3: Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15 000 r/min when measured in situ	-	-

Publication	Year	Title	EN/HD	Year
ANSI/IEEE 810	-	Hydraulic Turbine and Generator Integrally Forged Shaft Couplings and Shaft Runout Tolerances	-	-

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NORME INTERNATIONALE

colour inside

Hydraulic machines – Acceptance tests of small hydroelectric installations

Machines hydrauliques – Essais de réception des petits aménagements hydroélectriques

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 62006 has been prepared by IEC technical committee 4: Hydraulic turbines.

The text of this standard is based on the following documents:

FDIS	Report on voting
4/254/FDIS	4/257/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

HYDRAULIC MACHINES – ACCEPTANCE TESTS OF SMALL HYDROELECTRIC INSTALLATIONS

1 Scope

This International Standard defines the test, the measuring methods and the contractual guarantee conditions for field acceptance tests of the generating machinery in small hydroelectric power installations. It applies to installations containing impulse or reaction turbines with unit power up to about 15 MW and reference diameter of about 3 m. The driven generator can be of synchronous or asynchronous type.

This International Standard contains information about most of the tests required for acceptance of the hydraulic turbine such as safety approval tests, trial operating and reliability tests, as well for verification of cavitation, noise and vibration conditions, if required.

This standard represents the typical methods used on smaller hydroelectric installations, and is divided into three classes as follows (see Table 1 for more detail):

Class A	Normal test program (panel measurement) To determine the maximum power output of the installation.	**Default**
Class B	Extended test program To determine the performance characteristics of the installation.	**Recommended**
Class C	Comprehensive test program To determine the absolute efficiency of the installation.	**Optional**

NOTE All classes contain safety tests, trial operating tests, and reliability tests.

This standard gives all necessary references for the contract in order to execute the test, evaluate, calculate and compare the result to the guarantee for all the classes A, B and C.

The manufacturer or consulting engineer is responsible for ensuring that standardized connections are installed for performing these tests. This standard does not cover the structural details of a hydroelectric installation or its component parts.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60041:1991, *Field acceptance tests to determine the hydraulic performance of hydraulic turbines, storage pumps and pump turbines*

IEC 60193, *Hydraulic turbines, storage pumps and pump-turbines – Model acceptance tests*

IEC 60308, *Hydraulic turbines – Testing of control systems*

IEC 60609 (all parts), *Hydraulic turbines, storage pumps and pump-turbines – Cavitation pitting evaluation*

IEC 60651, *Specification for sound level meters*