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STN	**Peltonove hydraulické turbíny** **Preberacie skúšky na modeli**	**STN** **EN IEC 63461** 08 5009

Pelton hydraulic turbines - Model acceptance tests

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/24

Obsahuje: EN IEC 63461:2024, IEC 63461:2024

Oznámením tejto normy sa od 02.08.2027 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63461

August 2024

ICS 27.140

Supersedes EN IEC 60193:2019

English Version

Pelton hydraulic turbines - Model acceptance tests (IEC 63461:2024)

Turbines Pelton - Essais de réception sur modèle (IEC 63461:2024)

Hydraulische Pelton Turbinen - Modellabnahmeprüfungen (IEC 63461:2024)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 4/460/CDV, future edition 1 of IEC 63461, prepared by IEC/TC 4 "Hydraulic turbines" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63461:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2025-05-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-08-02

This document supersedes EN IEC 60193:2019 and all of its amendments and corrigenda (if any).

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 63461:2024 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 standard indicated:

IEC 60041:1991	NOTE	Approved as EN 60041:1994
IEC 60609-1:2004	NOTE	Approved as EN 60609-1:2005 (not modified)
IEC 60609-2:1997	NOTE	Approved as EN 60609-2:1999 (not modified)
IEC 60994:1991	NOTE	Approved as EN 60994:1992 (not modified)
ISO 4006:1991	NOTE	Approved as EN 24006:1993 (not modified)
ISO 4373:2022	NOTE	Approved as EN ISO 4373:2022 (not modified)
ISO 5167-1:2022	NOTE	Approved as EN ISO 5167-1:2022 (not modified)
ISO 20456:2017	NOTE	Approved as EN ISO 20456:2019 (not modified)
ISO 80000-4:2019	NOTE	Approved as EN ISO 80000-4:2019 (not modified)
ISO 80000-11:2019	NOTE	Approved as EN ISO 80000-11:2020 (not modified)
ISO 21920-2:2021	NOTE	Approved as EN ISO 21920-2:2022 (not modified)
IEC 60609 series	NOTE	Approved as EN 60609 series

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
ISO 2186	2007	Fluid flow in closed conduits_- Connections for pressure signal transmissions between primary and secondary elements	-	-
ISO 2533	1975	Standard Atmosphere	-	-
ISO 4185	1980	Measurement of liquid flow in closed conduits - Weighing method	EN 24185	1993
-	-		+ AC	1993
ISO 8316	1987	Measurement of liquid flow in closed conduits - Method by collection of the liquid in a volumetric tank	EN ISO 8316	1995

IEC 63461

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INTERNATIONAL STANDARD

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Turbines Pelton – Essais de réception sur modèle

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC 63461 has been prepared by IEC technical committee 4: Hydraulic turbines. It is an International Standard.

This first edition of IEC 63461 cancels and replaces the third edition of IEC 60193 published in 2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the Pelton-specific requirements are being removed;
b) the new standard is published as a stand-alone publication.

The text of this International Standard is based on the following documents:

Draft	Report on voting
4/460/CDV	4/483/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

PELTON HYDRAULIC TURBINES – MODEL ACCEPTANCE TESTS

1 Scope

This document applies to laboratory model tests of any type of Pelton hydraulic turbine.

This document applies to models of prototype machines with unit power greater than 5 MW. Full application of the procedures herein described is not generally justified for machines with smaller power. Nevertheless, this document can be used for such machines by agreement between the purchaser and the supplier.

This document excludes all matters of purely commercial interest, except those inextricably bound up with the conduct of the tests.

This document is concerned with neither the structural details of the machines nor the mechanical properties of their components, so long as these do not affect model performance or the relationship between model and prototype performances.

This document covers the arrangements for model acceptance tests to be performed on Pelton turbines to determine if the main hydraulic performance contract guarantees (see 9.2) have been satisfied.

It contains the rules governing test conduct and provides measures to be taken if any phase of the tests is disputed.

The main objectives of this document are:

– to define the terms and quantities used;
– to specify methods of testing and of measuring the quantities involved, in order to ascertain the hydraulic performance of the model;
– to specify the methods of computation of results and of comparison with guarantees;
– to determine if the contract guarantees that fall within the scope of this document have been fulfilled;
– to define the extent, content and structure of the final report.

The guarantees can be given in one of the following ways:

– guarantees for prototype hydraulic performance, computed from model test results considering scale effects;
– guarantees for model hydraulic performance.

Moreover, additional performance data (see Clause 10) can be needed for the design or the operation of the prototype of the hydraulic machine. Contrary to the requirements of Clause 8 related to main hydraulic performance, the information of these additional data given in Clause 10 is considered only as recommendation or guidance to the user (see 10.1).

Model acceptance tests are performed if the expected field conditions for acceptance tests (see IEC 60041:1991) would not allow the verification of guarantees given for the prototype machine.

It is important that the method for performance conversion from model to prototype be clearly defined in the main hydraulic performance contract.

This document can also be applied to model tests for other purposes, i.e. comparative tests and research and development work.

If model acceptance tests have been performed, field tests can be limited to index tests (see IEC 60041:1991).

If a contradiction is found between this document and any other document, this document prevails.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 2186:2007, *Fluid flow in closed conduits – Connections for pressure signal transmissions between primary and secondary elements*

ISO 2533:1975, *Standard atmosphere*

ISO 4185:1980, *Measurement of liquid flow in closed conduits – Weighing method*

ISO 8316:1987, *Measurement of liquid flow in closed conduits – Method by collection of the liquid in a volumetric tank*