

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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

**Turbines hydrauliques, pompes d'accumulation et pompes-turbines –  
Essais de réception sur modèle**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HYDRAULIC TURBINES, STORAGE PUMPS AND PUMP-TURBINES –  
MODEL ACCEPTANCE TESTS**

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International Standard IEC 60193 has been prepared by IEC technical committee 4: Hydraulic turbines.

This third edition cancels and replaces the second edition published in 1999. This edition constitutes a technical revision.

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

- a) update to methods/measuring tools currently used for checking dimensions on both model and prototype;
- b) update to requirements of accuracy in the dimensional check procedure as a result of new technology;

- c) merging of tables/sections with redundant information in dimension check in 5.2;
- d) update to methods of measuring discharge;
- e) update to pressure fluctuation methods and terminology;
- f) specification of measuring times for accurate pressure fluctuation analyses in the model;
- g) redefine definition for the transposition of pressure fluctuations to prototype;
- h) update to surface waviness requirements in prototype;
- i) redefining methods/references in clause on cavitation nuclei content (5.7.3.2.2);
- j) update to 7.3 and review of methods on radial thrust measurements;
- k) update to 7.4 (Hydraulic loads on control components);
- l) update and develop methodology in 7.5 for testing in the extended operating range;
- m) update to 7.6 concerning index testing;
- n) update to methods for measuring roughness;
- o) updates to references;
- p) updates to figures;
- q) revision of sigma definition;
- r) reference to new method of transposition in accordance with IEC 62097.

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

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

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

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

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