IEC 60045-1

Edition 2.0 2020-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Steam turbines –
Part 1: Specifications

Turbines à vapeur –
Partie 1: Spécifications

IEC 60045-1:2020-05(en-fr)

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Steam turbines – Part 1: Specifications

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STEAM TURBINES –

Part 1: Specifications

FOREWORD

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International Standard IEC 60045-1 has been prepared by IEC technical committee 5: Steam turbines.

This second edition cancels and replaces the first edition published in 1991. This edition constitutes a technical revision.

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

a) Scope clarification and boundaries of applicability;
b) general update to state-of-the-art technology;
c) integration of product safety: Clause 5;
d) integration of automation, incorporating the former annex on electronic governors: Clause 11;
e) Informative Annex A on welding added.

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

FDIS	Report on voting
5/231/FDIS	5/232/RVD

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.

A list of all parts in the IEC 60045 series, published under the general title *Steam turbines*, can be found on the IEC website.

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- withdrawn,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.

INTRODUCTION

The first edition of IEC 60045 was issued in 1931. Subsequent revisions were made, the last being in 1991. In daily practice this document has added tremendous value throughout the years giving guidance in the tendering processes for steam turbines worldwide. Intensive development has resulted in new specific application requirements, the availability of more highly rated turbines, and tremendous advances in automation and control. The new revision of this document was consequently driven by the motivation to close the gap to available technology and a wish to provide a single standard valid for a wide range of industrial and utility steam turbine applications.

Specifically, in the beginning of the 21st century renewable energy sources are rapidly taking shares on the electricity market and steam turbines play an important role in the shift of energy systems:

– They are key components for new power plant concepts as for concentrated solar power (CSP), for geothermal power or in combined heat and power applications;
– They are requested to provide flexible thermal backup power generation with high efficiency (combined cycle) to compensate the increased volatility of the electrical grids;
– Higher steam parameters are technically viable and contribute to more efficient utilisation of energy sources and investments.

In the area of automation and controls the integration of relevant safety standards was necessary and a complete new Clause 5 is dedicated to this. Also, automation itself has formed its own Clause 11 integrating the former aspects of governing, controls, instrumentation and protection paving the way towards digitalization of power plants.

The overall structure of the document is intentionally kept close to the former revision to promote seamless application of the document.

Wherever practicable, this document takes into account the scope for applying to smaller turbines developments originally intended for larger machines, without implying that such applications would always be necessary or advantageous.