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**Guidance for installation procedures and tolerances of hydroelectric machines –
Part 5: Bulb turbines and generators**

**Lignes directrices des procédures et tolérances d'installation des machines
hydroélectriques –
Partie 5: Turbines et alternateurs de type bulbe**



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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF HYDROELECTRIC MACHINES –

Part 5: Bulb turbines and generators

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

Draft	Report on voting
4/456/FDIS	4/462/RVD

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.

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GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF HYDROELECTRIC MACHINES –

Part 5: Bulb turbines and generators

1 Scope

The purpose of this document is to establish, in a general way, suitable procedures and tolerances for the installation of bulb turbine and generator. This document presents a typical assembly and whenever the words “turbine” and “generator” are used in this part, it refers to bulb turbine and generator. There are many possible ways to assemble a unit. The size of the machine, the design of the machine, the layout of the powerhouse, the sequence of concreting or the delivery schedule of the components are some of the elements that could result in additional steps, or the elimination of some steps and/or assembly sequences.

It is understood that a publication of this type will be binding only if, and to the extent that, both contracting parties have agreed upon it.

The document excludes matters of purely commercial interest, except those inextricably bound up with the conduct of installation. It also excludes specific parts of the civil works but this aspect of the work should be taken into consideration during the assembly of the units.

Wherever the document specifies that documents, drawings or information are supplied by a manufacturer (or by manufacturers), each individual manufacturer will furnish the appropriate information for their own supply only.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Installation flowchart

4.1 Turbine and generator embedded parts

Figure 1 shows a generic installation flowchart for bulb turbine and generator embedded parts.