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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Hydraulic turbines, storage pumps and pump-turbines – Rehabilitation and performance improvement

Turbines hydrauliques, pompes d'accumulation et pompes turbines – Réhabilitation et amélioration des performances

IEC 62256:2008

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HYDRAULIC TURBINES, STORAGE PUMPS AND PUMP-TURBINES – REHABILITATION AND PERFORMANCE IMPROVEMENT

FOREWORD

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International Standard IEC 62256 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
4/231/FDIS	4/234/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.

This standard is intended as a guide.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn,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.

INTRODUCTION

Hydro plant owners make significant investments annually in rehabilitating plant equipment (turbines, generators, transformers, penstocks, gates etc.) and structures in order to improve the level of service to their customers and to optimize their revenue. In the absence of guidelines, owners may be spending needlessly, or may be taking unnecessary risks and thereby achieving results that are less than optimal. This guide is intended to be a tool in the optimisation and decision process.

IEC TC 4 wishes to thank IEA for providing its document “Guidelines on Methodology for Hydroelectric Francis Turbine Upgrading by Runner Replacement” as a starting point for the writing of this document. IEC TC 4 appreciates this contribution and acknowledges that the IEA document provided a good foundation upon which to build this IEC document.

HYDRAULIC TURBINES, STORAGE PUMPS AND PUMP-TURBINES – REHABILITATION AND PERFORMANCE IMPROVEMENT

1 Scope and object

The scope of this International Standard covers turbines, storage pumps and pump-turbines of all sizes and of the following types:

- Francis;
- Kaplan;
- propeller;
- Pelton (turbines only);
- Bulb.

Wherever turbines or turbine components are referred to in the text of this guide, they shall be interpreted also to mean the comparable units or components of storage pumps or pump-turbines as the case requires.

The Guide also identifies without detailed discussion, other powerhouse equipment that could affect or be affected by a turbine, storage pump, or pump-turbine rehabilitation.

The object of this guide is to assist in identifying, evaluating and executing rehabilitation and performance improvement projects for hydraulic turbines, storage pumps and pump-turbines. This guide can be used by owners, consultants, and suppliers to define:

- needs and economics for rehabilitation and performance improvement;
- scope of work;
- specifications;
- evaluation of results.

The Guide is intended to be:

- an aid in the decision process;
- an extensive source of information on rehabilitation;
- an identification of the key milestones in the rehabilitation process;
- an identification of the points that should be addressed in the decision processes.

The Guide is not intended to be a detailed engineering manual nor a maintenance guide.

2 Nomenclature

For the purpose of this document, the term “rehabilitation” is defined as some combination of:

- restoration of equipment capacity and/or equipment efficiency to near “as-new” levels;