

Guidance for installation procedures and tolerances of hydroelectric machines - Part 3: Vertical Francis turbines or pump-turbines

## EESTI STANDARDI EESSÕNA

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English Version

Guidance for installation procedures and tolerances of  
hydroelectric machines - Part 3: Vertical Francis turbines or  
pump-turbines  
(IEC 63132-3:2020)

Lignes directrices des procédures et tolérances  
d'installation des machines hydroélectriques - Partie 3:  
Turbines ou pompe-turbines Francis verticales  
(IEC 63132-3:2020)

Leitfaden für Installations-Prozeduren und -Toleranzen von  
hydroelektrischen Maschinen - Teil 3: Vertikale Francis-  
oder Pumpturbinen  
(IEC 63132-3:2020)

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## European foreword

The text of document 4/382/FDIS, future edition 1 of IEC 63132-3, prepared by IEC/TC 4 "Hydraulic turbines" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63132-3:2020.

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IEC 63132-1	NOTE	Harmonized as EN IEC 63132-1
IEC 63132-2	NOTE	Harmonized as EN IEC 63132-2

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Guidance for installation procedures and tolerances of hydroelectric machines –  
Part 3: Vertical Francis turbines or pump-turbines**

**Lignes directrices des procédures et tolérances d'installation des machines  
hydroélectriques –  
Partie 3: Turbines ou pompe-turbines Francis verticales**



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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Guidance for installation procedures and tolerances of hydroelectric machines –  
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**Lignes directrices des procédures et tolérances d'installation des machines  
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Partie 3: Turbines ou pompe-turbines Francis verticales**

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## GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF HYDROELECTRIC MACHINES –

### Part 3: Vertical Francis turbines or pump-turbines

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4/382/FDIS	4/392/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 63132 series, published under the general title *Guidance for installation procedures and tolerances of hydroelectric machines*, can be found on the IEC website.

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# GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF HYDROELECTRIC MACHINES –

## Part 3: Vertical Francis turbines or pump-turbines

### 1 Scope

The purpose of this this part of IEC 63132 is to establish, in a general way, suitable procedures and tolerances for the installation of a vertical Francis turbine or pump-turbine. This document presents a typical assembly and whenever the word “turbine” is used in this document, it refers to a vertical Francis turbine or a pump-turbine. There are many possible ways to assemble a unit. The size of the machine, design of the machine, layout of the powerhouse or delivery schedule of the components are some of the elements that could result in additional steps, the elimination of some steps and/or assembly sequences.

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The tolerances in this document have been established upon best practices and experience, although it is recognized that other standards specify different tolerances.

Wherever this document specifies that documents, drawings or information is 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/>
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### 4 Installation flowchart

#### 4.1 Turbine embedded parts

Figure 1 shows a generic installation flowchart for Francis turbine or pumped-turbine embedded parts.