



SLOVENSKI STANDARD
oSIST prEN IEC 63132-6:2022
01-maj-2022

**Navodila za postopke vgradnje in tolerance hidroelektričnih strojev - 6. del:
Vertikalne Peltonove turbine**

Guide for installation procedures and tolerances of hydroelectric machines - Part 6:
Vertical Pelton turbines

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PREVIEW

Lignes directrices des procédures et tolérances d'installation des machines
hydroélectriques - Partie 6: Turbines Pelton verticales

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Ta slovenski standard je istoveten z: prEN IEC 63132-6:2022

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ICS:

27.140 Vodna energija Hydraulic energy engineering

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4/433/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 63132-6 ED1	
DATE OF CIRCULATION: 2022-03-25	CLOSING DATE FOR VOTING: 2022-06-17
SUPERSEDES DOCUMENTS: 4/387/NP, 4/401A/RVN	

IEC TC 4 : HYDRAULIC TURBINES	
SECRETARIAT: Canada	SECRETARY: Mrs Christine Geraghty
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
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TITLE:

Guide for installation procedures and tolerances of hydroelectric machines - Part 6: Vertical Pelton turbines

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

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DRAFT

GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF HYDROELECTRIC MACHINES

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Part 6: Vertical Pelton turbines (standards.iteh.ai)

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86 **INTERNATIONAL ELECTROTECHNICAL COMMISSION**
87

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89 **GUIDANCE FOR INSTALLATION PROCEDURES AND TOLERANCES OF**
90 **HYDROELECTRIC MACHINES**

91 **Part 6: VERTICAL PELTON TURBINES**
92

93 **FOREWORD**
94

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129 This Guide has been prepared by IEC technical committee No.4: Hydraulic turbines.XX:

130 The text of this guide is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

131
132 Full information on the voting for the approval of this guide can be found in the report on
133 voting indicated in the above table.

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

135 A list of all parts in the IEC 63132 series, published under the general title *Guidance for*
136 *installation procedures and tolerances of hydroelectric machines*, can be found on the IEC
137 website.

138 The committee has decided that the contents of this publication will remain unchanged until
139 the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data
140 related to the specific publication. At this date, the publication will be

141

- 142 • reconfirmed,
143 • withdrawn,
144 • replaced by a revised edition, or
145 • amended.

146

147 IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it
148 contains colours which are considered to be useful for the correct understanding of its content

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150 **GUIDE FOR INSTALLATION PROCEDURES AND TOLERANCES OF**
151 **HYDROELECTRIC MACHINES-**

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Part 6: Vertical Pelton turbines

155 **1 Scope**

156 The purpose of this guide is to establish, in a general way, suitable procedures and
157 tolerances for the installation of Pelton vertical turbines. This guide presents a typical
158 assembly and whenever the word “turbine” is used in this part, it refers to a vertical Pelton
159 turbine. There are many possible ways to assemble a unit. The size of the machine, the
160 design of the machine, the layout of the powerhouse or the delivery schedule of the
161 components are some of the elements that could result in additional steps, or the elimination
162 of some steps and/or assembly sequences.

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

165 The guide excludes matters of purely commercial interest, except those inextricably bound up
166 with the conduct of installation.

167 The tolerances in this guide have been established upon Best Practices and experience,
168 although it is recognized that other standards are specifying different tolerances

169 Wherever the guide specifies that documents, drawings or information shall be supplied by a
170 manufacturer (or by manufacturers), each individual manufacturer shall be required to furnish
171 the appropriate information for their own supply only.

172

173 **2 Normative reference** [oSIST prEN IEC 63132-6:2022](https://standards.iteh.ai/catalog/standards/sist/cd005076-612f-4708-8768-ba6133d48542/osist-pren-iec-63132-6-2022)

174 There are no normative references in this document.
<https://standards.iteh.ai/catalog/standards/sist/cd005076-612f-4708-8768-ba6133d48542/osist-pren-iec-63132-6-2022>

175

176 **3 Terms and definition**

177 No terms and definitions are listed in this document.

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

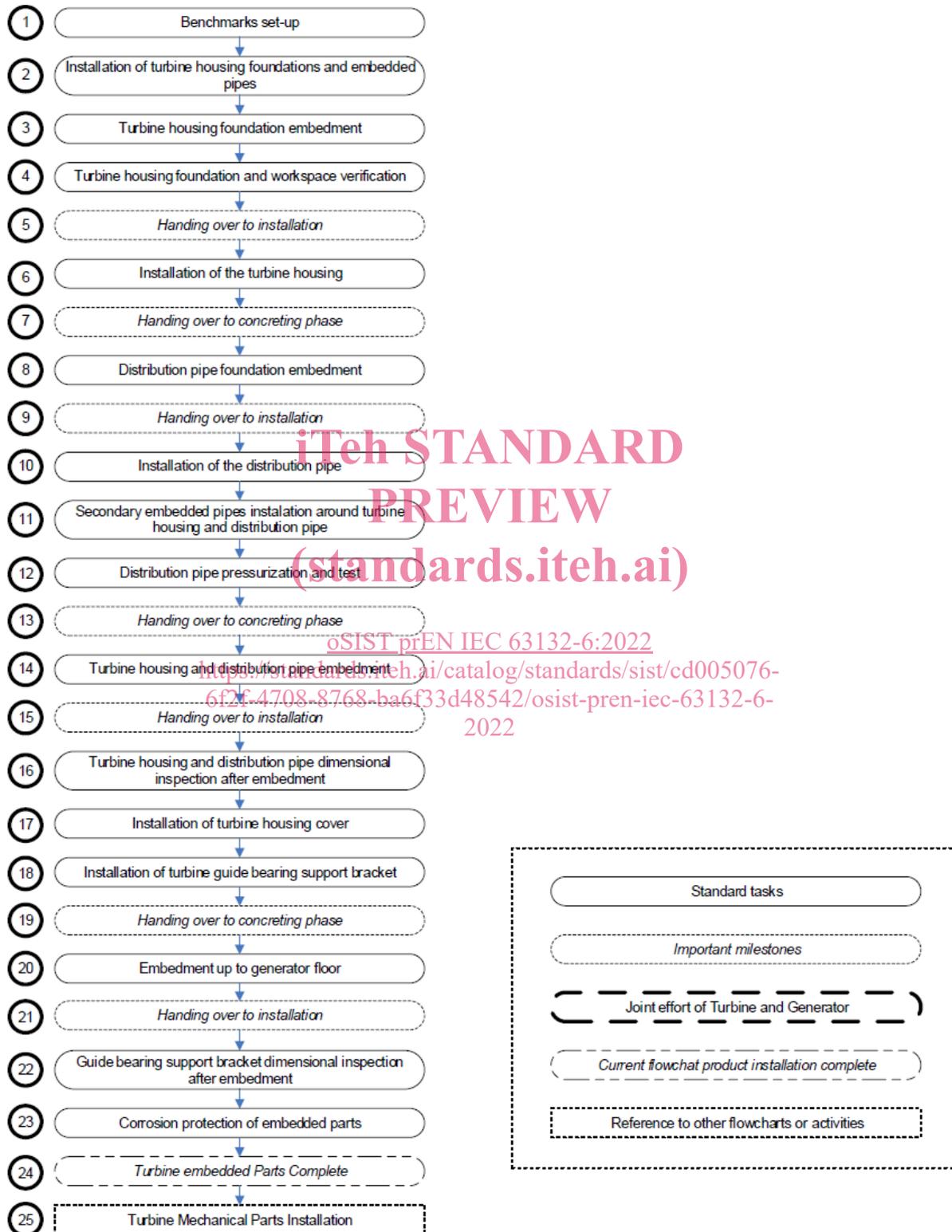
- 180
- IEC Electropedia: available at <http://www.electropedia.org/>
 - ISO Online browsing platform: available at <http://www.iso.org/obp>
- 181

182

183 **4 Installation flowchart**

184 **4.1 Turbine embedded parts**

185 Figure 1 shows generic installation flowchart for Pelton turbine embedded parts.



186

187

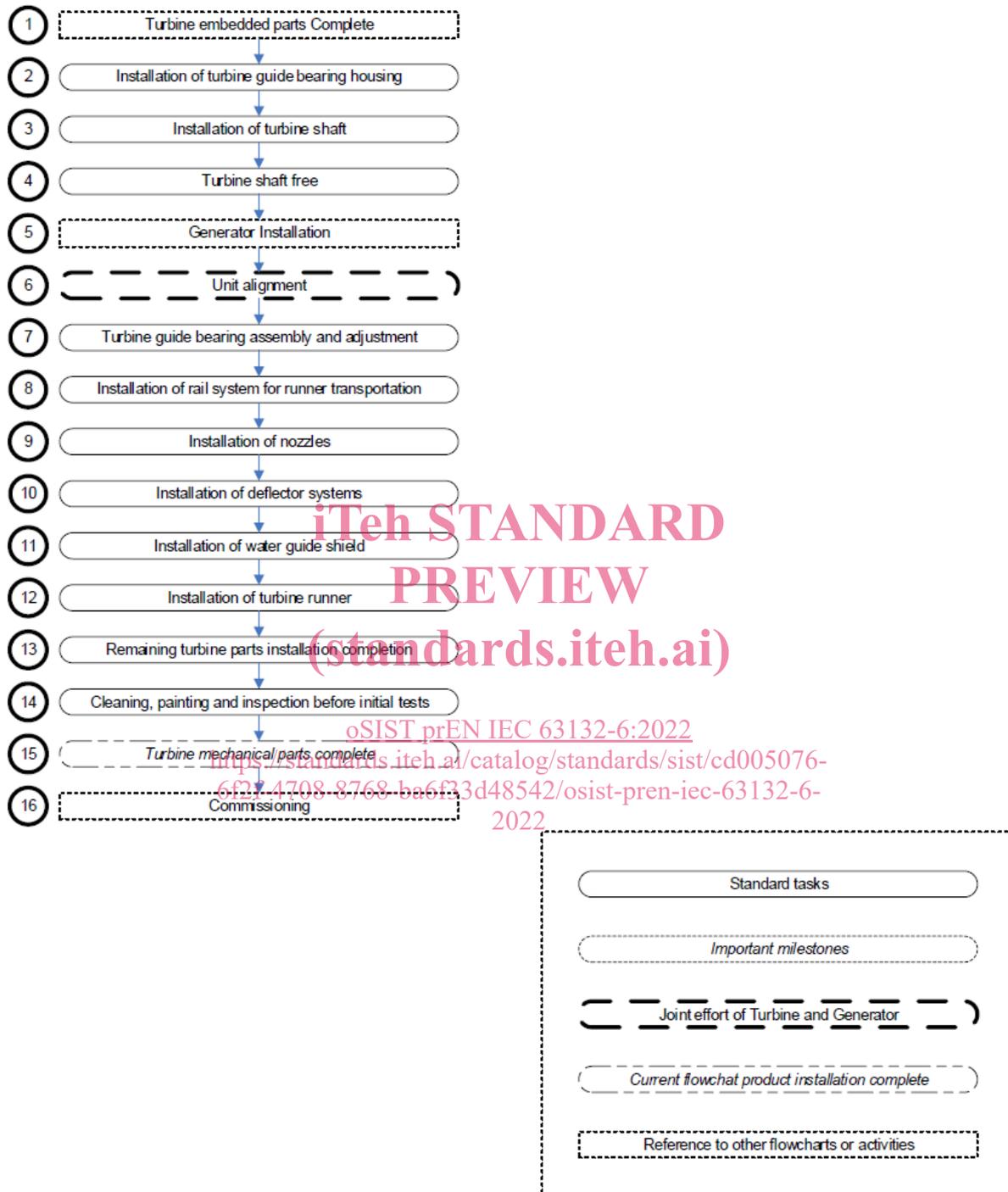
Figure 1 – Generic installation flowchart – Pelton turbine embedded parts

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189

190 **4.2 Turbine mechanical parts**

191 Figure 2 shows generic installation flowchart for Pelton turbine mechanical parts.



192

193 **Figure 2 – Generic installation flowchart – Pelton turbine mechanical parts**

194

195

196 5 Steps

197 5.1 Turbine embedded parts

198 5.1.1 Step 1: Benchmarks set-up

199 a) Objective of work in the step

200 – Set-up benchmarks to be used for starting proper installation of the turbine and
201 generator.

202 b) Explanation of work

203 – Sufficient benchmarks should be provided to establish the unit centreline, axis and
204 elevation.

205 c) Recommendations

206 N/A

207 d) Additional Information

208 Depending on the project delivery system (EPC, Design Build, etc.), the benchmarks or their
209 reference points could be provided by the owner, civil contractor, etc. Whoever provides the
210 benchmarks or reference points is responsible to make sure they are correct.

211 The benchmark type (x, y, z coordinates, defining axis and elevations, etc.) should be agreed
212 to prior to the work commencing.

213 The turbine supplier should take care to transfer the necessary benchmarks throughout the
214 erection and/or concreting processes so that the benchmarks remain accessible as the unit is
215 assembled.

216

217 5.1.2 Step 2: Installation of turbine housing foundations and embedded pipes

218 a) Objective of work in the step

219 – Install primary embedded pipes and turbine housing foundations in the correct
220 locations.

221 b) Explanation of work

222 – Install the primary embedded pipes and supporting systems.

223 – Install the foundation components for turbine housing and rail system for turbine parts
224 transportation etc.

225 c) Recommendations

226 Different designs require different tolerances; therefore, it is recommended that the turbine
227 supplier should provide the tolerances. It is considered as a best practice to perform:

228 – NDT as applicable (i.e. Visual inspections, pressure tests of the piping, test of welding
229 seams).

230 – Measures to prevent the concrete from entering the pipes or contaminating the
231 machined surfaces of foundations during concreting.

232 d) Additional Information

233 The contract should define which party is responsible to install the primary embedded pipes
234 and/or the foundation components.

235 Depending on the design, the rail system for turbine parts transportation may not require
236 foundation components.

237 Depending on the size of unit, a support column for platform might be installed in the water
238 passage below the turbine housing.

239