


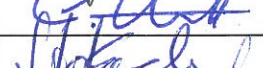
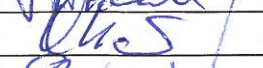

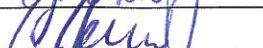

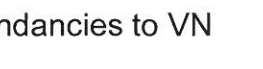
GENERAL INSTRUCTION  
 Project handbook - section 7.2  
 preservation and packing instruction

PHBM\_PPD08-  
 1801\_IPS\_Preservation and Packing  
 Base Instructions

PDM ID No  
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# PRESERVATION AND PACKING BASE INSTRUCTIONS

	Name	Date	Signature
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Checked by	Hauff, we	2017-02-10	
Checked by	Krahe, wp	2017-02-06	
Checked by	Miller, weq	2017-02-06	
Checked by	Schwarz, wf	2017-02-14	
Approved by	Kaipf, w3	2017-02-15	
Approved by	Kienle, gf	2017-02-20	

Rev 10 - 2017-01-31 work out as an overview for the supplier (redundancies to VN deleted)

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### 1 Objective

This Instruction gives an overview of the measures to be taken for the shipping preservation, packing and site-storage of Turbine, Generator, Governor, BOP and Automation components in order to prevent them from damage during transport, shipment and storage.

It considers the conservation for seaworthy packing and also for short term storage at site.

This document covers the general aspects of the contract and will be supplemented by modules for the specific parts.

**Note:**

**For preservation and packing, a standard period of 12 months is assumed for the duration of site storage until the parts are assembled or installed if not indicated otherwise**

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### 2 Reference Documents

- VN - Standard 1576-1      **Preservation and Storage**
- VN - Standard 1576-2      **Preservation and Storage of Rolls**
  
- VN - Standard 1577-1      **General Packing Standard**
- VN - Standard 1577-2      **Packaging Standard for Rolls**

### ISPM 15 GUIDELINES FOR REGULATING WOOD PACKAGING MATERIAL

HPE packaging guidelines



Federal Association for Wooden Packages  
and Export V Packing (HPE) e.V.

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### 3 Matrix / Codes for Preservation and Packing

<u>Matrix / Codes</u>	<u>Reference Document</u>
Preservation matrix	see chapter 4 of this document
Preservation codes (K0 – K10)	VN 1576-1 VN 1576-2 for shafts
Goods classes (GK1 - GK9)	VN 1577-1 VN 1577-2 item 4 for shafts
Packing matrix	see chapter 5 of this document
Packing categories (VK0 - VK10)	VN 1577-1 item 5 VN 1577-2 item 5 for shafts
Storage Codes (S0 – S5)	see chapter 6 of this document

### 4 Preservation matrix

	Transport types					
	Truck	Rail	Sea	Container	Air	
Goods class (GK)	Preservation 3)					Storage 4)
Corrosion-resistant materials <sup>1)</sup>	K 0	K 0	K 0	K 0	K 0	S3, S4
Materials sensitive to corrosion <sup>2)</sup>	K 1, K 2	K 1, K 2	K 1, K 2, K3	K 1, K 2, K3	K 1, K 2	S3
Shafts, trunnions	K 6	K 6	K 6	K 6	K 6	S2, S3
Electrical and electronic devices	K 4, K 5	K 4, K 5	K 4, K 5	K 4, K 5	K 4, K 5	S1, S2

1) Including components of 18.8 material

2) Including Turbine components of 13.4 material

3) In **VN 1576-1 item 1.2 + VN 1576-2 item 1.2 for shafts** the preservation codes are

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described in detail.

4) See chapter 6 "Storage Code" for storage requirements

### 5 Packing matrix

If several means of transportation are used for goods shipping, packing, it must be in accordance with the highest packing category / transport class.

Goods class (GK)	Transport types					Storage Code
	Truck	Rail	Sea	Container <sup>1)</sup>	Air	
	Packing category (VK)					
GK 1	VK 0, VK 1, VK 3, VK 4, VK 10	VK 0, VK 1, VK 3, VK 4, VK 10	VK 1, VK 3, VK 8, VK 10	VK 1, VK 3, VK 7	VK 2, VK 4, VK 7	<b>S 4</b>
GK 2	VK 0, VK 5, VK 10	VK 0, VK 5, VK 10	VK 5a, VK 10	VK 5, VK 5a	VK 5	<b>S 3</b>
GK 3	VK 0, VK 2, VK 3, VK 4, VK 6, VK 7, VK 10	VK 2, VK 3, VK 4, VK 6, VK 7, VK 10	VK 3, VK 6, VK 8, VK 10	VK 2, VK 3, VK 4, VK 6, VK 7	VK 2, VK 3, VK 4, VK 6, VK 7	<b>S 4</b>
GK 4	VK 2, VK 7, VK 10	VK 2, VK 7, VK 10	VK 8, VK 10	VK 2, VK 7	VK 2, VK 7	<b>S 3</b>
GK 5	VK 2, VK 4, VK 6, VK 7, VK 10	VK 2, VK 4, VK 6, VK 7, VK 10	VK 6, VK 8, VK 10	VK 6, VK 7, VK 8	VK 2, VK 4, VK 6, VK 7	<b>S 3</b>
GK 6	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b, VK 10	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b, VK 10	VK 6, VK 8, VK 8a, VK 8b, VK 9, VK 10	VK 6, VK 8, VK 8a, VK 8b, VK 9	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b	<b>S 2</b>
GK 7	VK 2, VK 4, VK 7, VK 8, VK 10	VK 2, VK 4, VK 7, VK 8, VK 10	VK 8, VK 9, VK 10	VK 8, VK 9	VK 4, VK 7	<b>S 1</b>
GK 8	VK 9, VK 10	VK 9, VK 10	VK 9, VK 10	VK 9	VK 9	<b>S 1<sup>2)</sup></b>
GK 9	<b>Attention must always be paid to legal requirements!</b>					

1. Like transport class 3 (sea freight) but transported in shipping container. A shipping container is not considered to be packed but a means of conveyance and / or transport container.

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2. 2) If required, air-conditioning must be indicated additionally.

### 6 Storage code

The required storage conditions for the various turbine, generator, governor, BOP and Automation components are specified in the table below and have to be applied to the individual components.

Storage Code	Location	Description
S 0	Indoor	Refrigerated 3°C/37°F to 10°C/50°F
S 1		Heated /Refrigerated 5°C/41°F to 25°C/77°F HC 1*
S 2		Heated above 5°C/41°F frost free HC 2*
S 3		Not heated
S 4	Outdoor	Covered, ventilated, off ground
S 5		Uncovered on blocks, off ground

\* HC 1= Humidity controlled (less than 50%)

\* HC 2= Humidity less than 70%

**Note:** Both ends of the pipe bundles have to covered by appropriate means (net, etc.) to prevent the inner pipes from slipping out during handling.

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### 7 General conditions for preservation and packing

The packing shall be suitable for various handling operations, long distance ocean and inland transportation, as well as it shall ensure the protections of goods therein contained against weather elements or other, not only during the time required for transport and transshipment, but also for at site storage at climate condition of the plant site for a total time not less than **12 months**.

For any different typology of packing not covered by this specification, the contractor shall propose at time of the quotation submittal on the basis of proper manufacturing experiences, other packing solutions that in his opinion are more economic and more suitable for specific applications and needs. Any alternative proposals submitted after the placement of order will not be considered.

The regulations of the respective countries for importation of wooden packing material according to IPPC Standard No. 15 (valid at time of importation) are to be observed.

#### 7.1 Guarantee

The contractor guarantees the contractual design of the packing according to the state of the art, in particular the best quality and suitability of the packing material, as well as suitability of the packing, taking into account the goods to be packed and the actual stresses, for the warranty period set forth in the relevant contracts.

The contractor is responsible for all goods losses and/or damages deriving from defective packing.

#### 7.2 Deviations in preservation and packing

For preservation and packing of equipment for hydro power plants, the requirements and procedures kindly refer to VN 1576-1/2, VN 1577-1/2 and International Standard for WOOD PACKING MATERIAL:

If packing is not specified by Voith and the contractor cannot unambiguously determine

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the goods class, Voith Hydro must be contacted.

1. The contractor is responsible for selecting the packing category, corrosion protection according to this document and the materials to be used. If wooden supports, pallets, crates, part packing, etc. are made the packing must be reasonably designed for the weight and properties of the goods as described herein.
2. This packing standard must be understood as minimum requirements. If additional measures are required in the contractor's experience to protect the goods, they must be taken in agreement with Voith Hydro.
3. The contractor is obliged to use economical and space-saving packing. Options of co-packing must considered and utilized after discussion with Voith Hydro.
4. Packing must generally be designed in such a manner that the packed goods and the packing can be transported and stored without damage. Furthermore, the packing must withstand several transshipments during transport.
5. Small parts (bolts, nuts, washers, etc.) must be packed in plastic bags.
6. The climatic conditions of sea transport (e.g. contact to salt water, condensation water, salty air, temperature variations, etc.) must be taken into account especially with respect to corrosion protection and selection of the packing category.
7. The designation and description of the content of packing must completely and fully correspond with the packing lists. A copy of this packing list must be attached waterproofed to the packing (in a metal or plastic frame). Special care must be taken that there is no indication of the supplier (neutral paper or packing list handed over by Voith Hydro). If the packing is specified in other documents (e.g. project guideline, drawing, etc.) for specific orders or products, these specifications must be met.
8. Packing must take special care to pack assemblies together
9. Dangerous goods have always to be packed separately , never together with non-dangerous goods; shipping documents for dangerous goods have to be as well separately

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### 8 Shipping Instruction:

Please refer to the "General Shipping Instruction for Sub suppliers of Voith Hydro GmbH & Co.KG). This document describes the related document requirements (kind and due dates in General).

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