

VOITH STANDARD (VS)



Preservation and Storage – Part 1: General preservation and storage

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Abstract:

This standard defines the general preservation and storage procedures to be applied at Voith and its subcontractors.

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Revisions

Compared to **VN 1576-1:2019-03**, the following changes have been made:

- a) *Editorial revision, adaptation to new chapter structure and layout*
- b) *Reference to previous document (previously VN 1576-01) added to header.*
- c) *Chapter 1 Scope expanded.*
- d) *Chapter 4 Terms and definitions added.*
- e) *Chapter 6 Anti-corrosion agents expanded.*
- f) *Chapter 7 Preservation matrix expanded*
- g) *Chapter 9 Storage at Voith Hydro*
- h) *Table 4: Storage codes added*
- i) *Chapter 10 ESD protective measures added*
- j) *Normative references added.*

Earlier editions

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Contents

1	Scope	4
2	Area of Application	4
3	Purpose	4
3.1	National and international standards and regulations	4
4	Terms and definitions	4
5	General	5
6	Anti-corrosion agents	5
6.1	Group 1 anti-corrosion agents	5
6.2	Group 2 anti-corrosion agents	5
7	Preservation matrix	6
8	Preservation methods	7
8.1	Preservation method K 0: No preservation	7
8.2	Preservation method K 1: VCI method (volatile corrosion inhibitor)	7
8.3	Preservation method K 2: Thin-layer preservation	7
8.4	Preservation method K 3: Thick-layer preservation	7
8.5	Preservation method K 4: Plastic sack open at bottom	7
8.6	Preservation method K 5: Closed plastic sack	7
9	Storage	8
9.1	<i>Storage at Voith Paper and Voith Turbo</i>	8
9.2	<i>Storage at Voith Hydro</i>	8
10	ESD protective measures	8
11	Normative references	9
12	List of tables	9
13	Contact	10

1 Scope

This standard applies for the Voith Group **and its subsuppliers**. Essentially, this standard also applies for companies of the Voith Group unless contractually specified otherwise. Valid for US Group companies only if accepted by their respective board of directors.

2 Area of Application

This standard is applicable in all areas in which components are preserved and stored.

3 Purpose

Due to different conditions in the Voith Divisions as well as in the respective locations worldwide, this Voith Standard defines the regulations which must be complied with as minimum standards worldwide. If country-specific regulations require additional requirements beyond the minimum standard described here, these must also be complied with.

3.1 National and international standards and regulations

The application of standards and regulations declared binding by law is mandatory. For undated rules, the latest version shall apply.

The minimum standard for Voith is described in this Standard.

4 Terms and definitions

Table 1: Terms and definitions

VN / VS	Voith Standard
VCI	Volatile Corrosion Inhibitor
ESD	Electronic Static Discharge

5 General

All parts made of stainless materials (e.g. stainless steel, aluminum, bronze, plastic, etc.) are not preserved. For all preserved parts, a waterproof barrier layer must be used as separating layer from the wooden support. Uncoated paper or board must **not** be used because of possible moisture.

6 Anti-corrosion agents

The anti-corrosion agents to be used are described solely through their properties and are classified into two groups. The preservation method to be employed for a particular product can be found in the preservation matrix, Chapter 7. In addition, the necessary storage condition is identified by a single-digit characteristic letter.

When selecting a suitable anti-corrosion agent, attention must be paid to the storage period!

The minimum storage period for Voith Paper is 9 months and for Voith Hydro 12 months. These periods must be taken into account (see VS 1577-1 Chapter 5.1, Special notes 11.)!

If these storage periods are exceeded, the packaging and preservation procedures must be reviewed and rectified if necessary.

The preservation and storage of rolls (VP) is defined in VN 1576-2.

6.1 Group 1 anti-corrosion agents

The anti-corrosion agent must be a dewatering fluid. As a minimum, the agent is applied in an immersion bath or by spraying. During the process, a waxy/greasy protective film forms on the component. The anti-corrosion agent is resistant to alkaline carry-over and is used on metal parts. It is normally suitable for preservation during transport and storage. However, the corrosion inhibitor is rather unsuitable for outdoor storage.

6.2 Group 2 anti-corrosion agents

The wax-based anti-corrosion agent is applied by means of a low-pressure spray gun or a brush. During the application process, the temperature of the substrate must be 10 – 35°C. A waxy, transparent and solid film forms. Adequate ventilation must be provided for the hardening process and in order to inhibit the formation of flammable liquids. The partially-hardened film must not be allowed to come into contact with an ignition source under any circumstances. As a minimum, no other product should be applied above or below this coating due to the potential incompatibility between the various materials. It is suitable for preservation during transport and storage indoor and outdoor.

7 Preservation matrix

The preservation method to be applied for particular goods can be found in the preservation matrix below.

Table 2: Preservation matrix

Goods	Transport type		Storage code Voith Paper & Voith Turbo	Storage code Voith Hydro
	Land/Air	Sea		
Corrosion-resistant materials	K0	K0	B, C, D	S4, S5
Corrosion-sensitive materials	K1, K2	K1, K2, K3	B	S2, S3
Electrical and electronic devices	K4, K5	K4, K5	A	S0, S1

8 Preservation methods

There are five different preservation methods.

8.1 Preservation method K 0: No preservation

The part does not require any preservation.

8.2 Preservation method K 1: VCI method (volatile corrosion inhibitor)

Preservation in corrosion-inhibiting atmosphere (e.g. VCI method).

Recommended for small component parts, bulk goods, etc.

8.3 Preservation method K 2: Thin-layer preservation

Preservation for all bright and unpainted outer surfaces:

- Coating with a group 1 anti-corrosion agent.
- Covering or wrapping the parts preserved in this way in oil-impregnated paper.

8.4 Preservation method K 3: Thick-layer preservation

Preservation for all bright and unpainted outer surfaces:

- The use of a group 2 anti-corrosion agent is preferred. A group 1 anti-corrosion agent should be used only following consultation with Voith. It should be noted, however, that boreholes and tapped holes are preserved with a group 1 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

8.5 Preservation method K 4: Plastic sack open at bottom

In the as-delivered condition, electrical and electronic devices must be in a plastic sack that is open at bottom.

8.6 Preservation method K 5: Closed plastic sack

In the as-delivered condition, electrical and electronic devices must be in a sealed plastic sack. Care must be taken to ensure that an adequate quantity of drying agent (silica gel or diatomaceous earth) is added

9 Storage

If storage conditions are not specified for the order, Table 2 shall apply. The necessary storage conditions are identified by a single-digit characteristic letter.

9.1 Storage at Voith Paper and Voith Turbo

Table 3: Storage conditions

Characteristic letter	Storage
A	Indoor storage tempered building (+10°C to +35°C)
B	Internal storage unheated, dry building
C	Outdoor storage roofed or protected with a tarpaulin and paved ground
D	Outdoor storage with paved ground (only permissible if damage to the packing and the component can be excluded due to influence of weather)

9.2 Storage at Voith Hydro

Table 4: Storage codes

Storage code	Storage location	Description
S 0	Indoor (storage in buildings/containers)	Air-conditioned 3°C/37°F to 10°C/50°F
S 1		Heated / air-conditioned 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 storage	On paved ground, with plastic covering, underlay of squared timber, for example
S 5		On paved ground, on blocks without plastic covering, underlay of squared timber, for example

For code letters D at Voith Paper and S4-S5 at Voith Hydro, the following applies: "Outdoor storage on paved ground is permitted only if damage to the packaging and to the component by the influence of weather can be ruled out".

10 ESD protective measures

Electrostatically sensitive parts must be packed in accordance with their ESD requirements (IEC 61340-5-3) at K 4 and K 5.

11 Normative references

The following documents are referenced in the text in such a way that some parts thereof or their entire contents constitute requirements of this document. For dated references, only the edition mentioned shall apply. For undated references, the last edition of the referenced document (including all modifications) shall apply.

Table 5: Normative references

Document	Title
IEC 61340-5-3	Electrostatics - Part 5-3: Protection of electronic devices against electrostatic phenomena - Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices
VS 1576-02	Preservation and storage Part 2: Preservation and storage of rolls

12 List of tables

Table 1: Terms and definitions4

Table 2: Preservation matrix.....6

Table 3: Storage conditions.....8

Table 4: Storage codes8

Table 5: Normative references9

13 Contact

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