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Content

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Revisions:

Compared to VN 1576-2 (2014-02), the following changes have been made:

a) Content and editorial revision, adaptation to new layout.

b) Chap. 1, 2, 3, 4: Scope, area of application, purpose and normative references newly included.

c) Chap. 6: Replacing Chapters 1.1.1 and 1.1.2. Anti-corrosion agents no longer explicitly mentioned, general data on the requisite properties only. Anti-corrosion agents classified into group 1 and group 2.

d) Chap. 7: Preservation matrix revised: Transport type truck, rail and air amalgamated to land/air; transport type container deleted; adapted to the newly defined preservation methods.

e) Chap. 8, 9: Preservation methods defined based on the roll cover design. K 6, K 7 and K 10 revised; K 8 and K 9 deleted; K 8a, K 8b, K 9a, K 9b, K 11, K 12 and K 13 newly included.

1 Scope

This standard applies across the group to the entire scope of Voith Paper and its subcontractors.

2 Area of application

This standard applies in particular to the preservation and storage of rolls for paper machines, coating machines, calenders and also winders.

3 Purpose

This standard defines measures for preservation and storage of rolls in order to prevent corrosive influences causing damage during transport and storage.

4 Normative references

VN 1576-1 Preservation and Storage
Part 1: General preservation and storage

Unless stated otherwise, the most recent version of this standard shall apply.

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.
Rapid temperature changes lead to damage or destruction of the roll cover.

6 Anti-corrosion agents

The anti-corrosion agents to be used are classified into two groups based on properties and use. Both groups are defined in VN 1576-1.
In addition, flexible lamella protective mats and insulating foam mats are used to preserve rolls.

6.1 Use of flexible lamella protective mat

Lay the lamella protective mat (impact protection) over the face length and fasten with tightening strap. Never attach directly to the coating. Tension the tightening strap only lightly.

6.2 Use of insulating foam mat

The cold/heat insulating mat must rest snugly over the face length and be bonded tightly at the points of impact (adhesive tape).

7 Preservation matrix

Goods	Transport type		Storage
	Land/Air	Sea	
	Preservation method		
Rolls with a shell from non-alloy or low-alloy steel, uncoated	K 6, K 7	K 7	B
Rolls with a shell from non-alloy or low-alloy steel, uncoated drilled/grooved	K 11	K 11	B
Rolls with a shell from non-alloy or low-alloy steel with cover (rubber, polyurethane, composite material, stainless steel cover)	K 8b, K 9b	K 9b	A
Rolls with chrome cover	K 8a, K 9a	K 9a	A
Rolls with cover (thermally sprayed coating)	K 10	K 10	A
Rolls with a shell from stainless steel, uncoated or with thermally sprayed coating or with honeycomb lattice or screen fabric	K 12	K 12	A
Rolls with a shell from stainless steel with cover (rubber, polyurethane)	K 13	K 13	A

8 Preservation for rolls with a shell from non-alloy or low-alloy steel

8.1 Preservation method K 6: Preservation for uncoated and undrilled rolls

- Coating with a group 1 anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper (e.g. oiled paper or paraffin paper) overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).
- For transport on pedestals, the face length must be additionally protected with a flexible lamella protective mat.

8.2 Preservation method K 7: Preservation for uncoated and undrilled rolls

- Apply a group 1 or group 2 anti-corrosion agent to the roll shell.
- Wrap roll shell with anti-corrosion paper (e.g. oiled paper or paraffin paper) overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

8.3 Preservation method K 8a: Preservation for coated rolls – chrome

- The chrome coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper BRANOrost R overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- If, in exceptional cases, transport occurs on pedestals, the roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

8.4 Preservation method K 8b: Preservation for coated rolls – rubber, polyurethane, composite material, stainless steel cover

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).

- Boreholes and tapped holes are preserved with a group 1 or group 2 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 9a: Preservation for coated rolls – chrome

- The chrome coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper BRANOrost R overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- If, in exceptional cases, transport occurs on pedestals, the roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

8.6 Preservation method K 9b: Preservation for coated rolls – rubber, polyurethane, composite material, stainless steel cover

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

8.7 Preservation method K 10: Preservation for drilled, coated rolls – thermally sprayed coating

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with packaging paper and board (corrugated board).
- Apply drying agent on the top half of the roll shell. Per m³, approx. 10 bags of drying agent (unit 8) are needed.
- Apply 10 bags of drying agent (unit 8) each on drive-side and front-side bearing assemblies.
- Shrink-wrap roll completely with aluminum compound foil (200 °C – 40 N/cm² - 2 s) and/or exhaust air.

8.8 Preservation method K 11: Preservation for uncoated drilled/grooved rolls

- Wrap roll shell with anti-corrosion paper BRANOrost R overlapping and wrinkle-free.
- Apply drying agent on the top half of the roll shell. Per m³, approx. 10 bags of drying agent (unit 8) are needed.
- Apply 10 bags of drying agent (unit 8) each on drive-side and front-side bearing assemblies.
- Wrap roll completely with VCI foil. The butt joints must be tightly bonded with adhesive tape.

9 Preservation for rolls with a shell from stainless steel

9.1 Preservation method K 12: Preservation for uncoated rolls or with thermally sprayed coating or with honeycomb lattice/screen fabric

- Wrap roll shell with reinforced paper wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

9.2 Preservation method K 13: Preservation for coated rolls – rubber, polyurethane, composite material

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 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).

10 Storage

The storage conditions are identified by a single-digit characteristic letter according to VN 1576-1.

Table 1: Storage conditions

Characteristic letter	Storage	Roll type
A	Storage in tempered buildings (+10 °C to +35 °C).	Coated rolls
B	Storage in dry, unheated buildings.	Uncoated rolls, if A is not possible

The storage of rolls outdoors is strictly prohibited.