

ICS 25.020

Supersedes  
[SN 200-7:2016-05](#)

## Table of contents

	Page
Introduction .....	1
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>2</b>
<b>3 Terms and definitions .....</b>	<b>2</b>
<b>4 Basic specifications .....</b>	<b>3</b>
4.1 Hazardous materials and execution .....	3
4.2 Component surfaces in stainless and acid-resistant steel .....	3
4.3 Component surfaces made of steel, cast steel and cast iron .....	3
4.4 Accessible surfaces .....	3
<b>5 Surface preparation .....</b>	<b>4</b>
5.1 Permanent corrosion protection .....	4
5.2 Temporary corrosion protection .....	4
<b>6 Coating .....</b>	<b>5</b>
6.1 General notes .....	5
6.2 Permanent corrosion protection .....	5
6.3 Temporary corrosion protection .....	9
<b>7 Inspection .....</b>	<b>10</b>
7.1 In-process examination by the coater .....	10
7.2 Acceptance inspection of the finished coat by SMS group .....	11
<b>8 Documentation .....</b>	<b>11</b>
<b>Annex A (normative) Test record on in-process supervision by the coater .....</b>	<b>12</b>
<b>Bibliography .....</b>	<b>13</b>
<b>Revisions .....</b>	<b>13</b>
<b>Previous editions .....</b>	<b>13</b>

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## Introduction

The manufacturing requirements specified in this part of SN 200 are used to achieve the relevant SMS product quality. Consequently, these requirements must always be satisfied, unless otherwise stipulated in drawings, purchase order documents, and/or other manufacturing documents.

This standard is indicated as a binding document in drawing title blocks, contracts and/or purchase order documents. If the requirements cannot be fulfilled, SMS group must be consulted.

## 1 Scope

This company standard specifies for SMS group the basic requirements for the corrosion protection of components made of steel, cast steel, and cast iron, as well as the stipulations relating to checks and inspections.

## 2 Normative references

The following documents, which are quoted here either in whole or in part, are required for the application of the present document. Dated references refer only to the dated edition indicated. Undated references refer to the most recent edition of the respective document including all revisions.

DIN 25410:2012-07	Nuclear facilities – Surface cleanliness of components
DIN EN ISO 2178	Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method
DIN EN ISO 2360	Non-conductive coatings on non-magnetic electrically conductive base metals – Measurement of coating thickness – Amplitude-sensitive eddy current method
DIN EN ISO 2409	Paints and varnishes – Cross-cut test
DIN EN ISO 2808	Paints and varnishes – Determination of film thickness
DIN EN ISO 2813	Paints and varnishes – Determination of gloss value at 20°, 60° and 85°
DIN EN ISO 3882	Metallic and other inorganic coatings – Review of methods of measurement of thickness
DIN EN ISO 4624	Paints and varnishes – Pull-off test for adhesion
DIN EN ISO 4625-1	Binders for paints and varnishes – Determination of softening point – Part 1: Ring-and-ball method
DIN EN ISO 8501-1:2007-10	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings
DIN EN ISO 8501-3:2007-10	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings
DIN EN ISO 8503-2	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings
DIN EN ISO 11124-1:2018-12	Preparation of steel substrates before application of paints and related products – Specifications for metallic blast-cleaning abrasives – Part 1: General introduction and classification
DIN EN ISO 12944-4:2018-04	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 4: Types of surface and surface preparation
DIN EN ISO 12944-5:2020-03	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 5: Coating systems
DIN EN ISO 12944-7	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 7: Execution and supervision of paint work
DIN EN ISO 12944-8	Paints and varnishes – Corrosion protection of steel structures by protective paint systems – Part 8: Development of specifications for new work and maintenance
DIN EN 14879-2:2007-02	Organic coating systems and linings for protection of industrial apparatus and plants against corrosion caused by aggressive media – Part 2: Coatings on metallic components
SN 200-1	Manufacturing instructions – Requirements and principles
SN 200-5	Manufacturing instructions – Mechanical processing
SN 274-2	Corrosion protection – Requirements for coating materials

## 3 Terms and definitions

The terms of [SN 274-1](#) are valid for the application of this document.

## 4 Basic specifications

### 4.1 Hazardous materials and execution

Compliance with the regulations on hazardous materials according to [SN 200-1](#) shall be ensured. Manufacturers who are not bound by Directive 2010/75/EU can also use coats that contain solvents.

The coater shall always be responsible for the correct execution of the corrosion protection, i.e. the preparation and pretreatment of the surface as well as the application of the coat.

### 4.2 Component surfaces in stainless and acid-resistant steel

As a rule, component surfaces in stainless and acid-resistant steel are not provided with corrosion protection.

Annealing colors, slag, and annealing scale shall be removed from the component surface by pickling and/or blast cleaning (e.g. with glass beads). Dirt, dust, oil, grease, cooling lubricants etc. shall be removed from the component surface by washing.

Pipelines, vessels and pipe fastening elements made of stainless and acid-resistant steel shall be pickled, blasted or brushed to remove scale layers or annealing colors and to ensure the formation of a passivation layer. Slag and scale must be removed completely. Annealing colors are acceptable up to color scale brown; refer to [DIN 25410:2012-07](#), Annex F (informative), annealing colors 1 and 2.

### 4.3 Component surfaces made of steel, cast steel and cast iron

#### 4.3.1 Component surfaces with permanent corrosion protection

All surfaces made of steel, cast steel, and cast iron shall always be provided with permanent corrosion protection of coating category P.I.W.1+120 according to Section 6.1. In the case of deviations from the above, the manufacturing documents (e.g. coating table) shall specify the relevant coating category.

The external coating of pipework, vessels/tanks and follow-up spares shall be made only with a base coat. Spare parts for X-Roll® Oil Bearing shall always be coated with coating category P.I.W.1+120.

Areas that are inaccessible after assembly must be provided with full, permanent corrosion protection before final assembly. To ensure the traceability of the various coats (prime, intermediate, and cover coats), they must be of different color tones.

#### 4.3.2 Component surfaces with temporary corrosion protection

Parts screwed onto or protruding into tanks/vessels as well as contact and functional surfaces on components shall always be provided with temporary corrosion protection as specified in Section 6.2. In the case of deviations from the above, the manufacturing documents (e.g. coating table) shall specify the relevant coating category.

#### Note:

Contact or functional faces are surfaces of a component that act together with other component surfaces or that are relevant for the function of the component. Contact surfaces and functional surfaces are surfaces produced either by machining and/or by bright drawing. If the coater cannot see whether it is a contact and/or functional surface, he must consult the person responsible for the product.

To avoid rusting under the coat, corrosion protection coats shall be applied only on dry surfaces.

Temporary corrosion protection of component surfaces shall be applied only after completion of assembly, functional testing or acceptance inspection of the machine or components.

Field welds marked with a symbol (Fig. 1) in the drawing are provided with only temporary corrosion protection in the area of the heat-affected zone.



Fig. 1 – Symbol - field weld

#### 4.3.3 Component surfaces without corrosion protection

Pipelines shall not be provided with internal coating. At the fitting ends of pipelines, 200 mm shall be left without corrosion protection coat.

### 4.4 Accessible surfaces

Coating category P.R12.I.O.2.+100 shall preferably be used for accessible surfaces.

Gratings, grating steps and bulb plates with galvanized surfaces must never be coated with either permanent or temporary corrosion protection.

## 5 Surface preparation

### 5.1 Permanent corrosion protection

#### 5.1.1 Degree of preparation

The surfaces of the component to be coated shall be assessed according to [DIN EN ISO 8501-1:2007-10](#) and prepared according to [DIN EN ISO 8501-3:2007-10](#) as follows:

**P2 Thorough preparation:** Most imperfections are remedied.

In addition, all material edges shall be deburred at least according to [SN 200-5](#).

#### 5.1.2 Standard preparation grade

Before the coating system is applied to the component surface, annealing colors, rust, slag, rolling skin, annealing scale, old paint shall be removed from the surface according to [DIN EN ISO 12944-4:2018-04](#), see excerpt in Table 1.

Salts, oils, greases, cooling lubricants etc. shall be removed before blast-cleaning and in accordance with the process for removing foreign contaminants according to [DIN EN ISO 12944-4:2018-04](#), Annex C (informative).

Machined surfaces to be provided with permanent corrosion protection shall be free of oil, grease, salts, cooling lubricants etc. These surfaces may be mechanically roughened or treated with chemical agents in advance, in order to improve adhesion of the coating material.

The use of an adhesive primer or a surface-tolerant base coating is only permitted if it is suitable for the coating system to be used.

Such contaminants must be removed in accordance with the procedures for removal of extraneous layers and foreign matter according to [DIN EN ISO 12944-4:2018-04](#), Annex C (informative).

For pipelines and vessels without a manhole, standard preparation grade Sa 2½ is required on outside surfaces. The inside surfaces of the pipelines shall be pickled and passivated. Pickling residues shall be removed by blowing them out.

For central and oil film bearings, water and compressed air systems, cleanliness level Sa 2½, and for hydraulic tanks, cleanliness level Sa 3 according to Table 1 is required.

#### Note:

Pickling and passivating shall not be carried out on:

- Pipes made with precision steel tubes according to [DIN EN 10305-1 to 6](#) that have been neither welded nor heat-treated (e.g. pipes in conjunction with cutting ring couplings or similar methods, e.g. WALFORM; see [SN 888](#)).
- Pipes that have undergone welding or heat treatment with specific protection against atmospheric oxygen (e.g. by means of forming gases) and do not exhibit any oxidation or scale buildup.

Table 1 – Standard preparation grades for primary (full-)surface preparation

Standard preparation grade	Methods for surface preparation	Main features of prepared surfaces (For further details, refer also to DIN EN ISO 8501-1)
Sa 2 ½ <sup>a)</sup>	Blast-cleaning	Rolling skin, rust, coatings, and foreign matter have been removed. Remaining traces of contamination must only be discernible as slight spots or streaky shades.
Sa 3 <sup>b)</sup>		Rolling skin, rust, coatings, and foreign matter have been removed. The surface must have a uniform metallic color.
St 3 <sup>c)</sup>	Mechanical surface preparation and/or preparation by hand	Loose rolling skin, loose rust, loose coatings, and loose foreign particles have been removed. Nevertheless, the surface must be much more thoroughly prepared than for St 2, such that it has a metallic gloss.
Be <sup>d)</sup>	Pickling with acid	Rolling skin, rust and coating residues have been completely removed. Coats must be removed using appropriate agents before pickling with acid.
<sup>a)</sup> Application for exposure to normal corrosion <sup>b)</sup> Application for exposure to particularly heavy corrosion <sup>c)</sup> Application for particularly large and/or heavy components <sup>d)</sup> Alternative application for small parts		

#### 5.1.3 Roughness

The roughness of the selected coating material must conform to the coating material manufacturer's specifications. A metallic blast-cleaning abrasive (M) with a sharp-edged grain shape (G) according to [DIN EN ISO 11124-1:2018-12](#) must be used.

### 5.2 Temporary corrosion protection

Blast cleaned or pickled surfaces shall be cleaned before temporary corrosion protection is applied. To avoid rusting under the coat, corrosion protection coats shall be applied only on dry surfaces.

## 6 Coating

### 6.1 General notes

If a coating system has been selected for a coating category and this coating system is applied in several stages (e.g. prime coating and subsequent layer), and these stages are completed by different coaters, the relevant coating binder bases must be checked for their intermixability; SMS group must be consulted, if necessary (see [DIN EN ISO 12944-5:2020-03](#)/Table B.2). The coater must enter the relevant data according to Annex A (normative) and enclose the information with the manufacturing documents for the component to be coated.

### 6.2 Permanent corrosion protection

#### 6.2.1 General

The weld areas shall be thoroughly cleaned to remove the alkaline or acid constituents of the filler metals and to avoid their destructive effects.

After preparation of the component surface, the first prime coat shall be applied within 6 hours to avoid new formation of rust. When the surface is prepared by pickling in a phosphoric acid bath, the coat shall be applied at the earliest 48 hours later to avoid chemical changes of the coating material.

#### 6.2.2 Colors

The colors are indicated in the specifications in the other manufacturing documents (e.g. coating table etc.).

If no information on the color is given, SMS must be consulted. Colors shall be of the "silk gloss" type as defined in [DIN EN ISO 2813](#).

#### 6.2.3 Coating category for permanent corrosion protection

All surfaces made of steel, cast steel, and cast iron shall always be provided with permanent corrosion protection of coating category P.I.W.1+120 according to Table 2. In the case of deviations from the above, the manufacturing documents (e.g. coating table) shall specify the relevant coating category.

Applicable coating materials for the coating categories given in Table 2 through Table 5 can be found in [SN 274-2](#), Supplementary Sheet 1. The use of technically equivalent coating materials is allowed only provided that the conformity with the requirements made on the coating categories according to [SN 274-2](#) can be proven.

Table 2 – Permanent water-resistant corrosion protection

Coating category (CC)	Recommended degree of purity <sup>a)</sup>	Possible coating materials	Explanation of coating category	Examples of application	Required information <sup>b)</sup>
<b>P.I.W.1.+120</b>	Sa 2 ½	See SN 274-2 Supplementary sheet 1	<b>P.</b> = Permanent corrosion protection <b>I.</b> = no climatic effects <b>W.1.</b> = Negative impact from short-term effect of water on the component surface <b>+120</b> = Ambient temperature up to +120°C	Application of external coating of machine and structural steel components, pipelines and vessels made of steel in general for indoor installation (for general applications in hot and cold rolling mills, strip processing lines, continuous casters, and steelmaking plants)	no
	St3				
	Be				
	Metallically bright				
<b>P.A.W.1.+120</b>	Sa 2 ½		<b>P.</b> = Permanent corrosion protection <b>A.</b> = Full climatic effects <b>W.1.</b> = Negative impact by short-term effect of water on the component surface <b>+120</b> = Ambient temperature to +120°C	Application of external coating of machine and structural steel components, pipelines and vessels made of steel in general for outdoor installation (for general applications in hot and cold rolling mills, strip processing lines, continuous casters, and steelmaking plants)	yes
	St3				
	Be				
	Metallically bright				
<b>P.S.W.1.+120</b>	Sa 2 ½		<b>P.</b> = Permanent corrosion protection <b>S.</b> = Conditional climatic impact caused by the effect of aerosols containing chloride in the environment <b>W.1.</b> = Negative impact due to short-term effects of water on the component surface <b>+120</b> = Ambient temperature up to 120°C	Application of external coating of machine components and structural steel components, pipelines and vessels made of steel in general for coastal installation	yes
	St3				
	Be				
	Metallically bright				
<b>P.I.W.3.+40</b>	Sa 2 ½		<b>P.</b> = Permanent corrosion protection <b>I.</b> = No climatic effects <b>W.3.</b> = Negative impact due to effect of water for an unlimited period of time <b>+40</b> = Ambient temperature up to 40°C	Internal coats of vessels/tanks (water and compressed-air systems)	yes
	St3				
<b>P.R12.I.O.2.+100 <sup>c)</sup></b>	Sa 2½	See SN 274-2 Supplementary sheet 1	<b>P.</b> = Permanent non-slip corrosion protection <b>R12.</b> = Slip resistance R12 acc. to DIN 51130 <b>I.</b> = No climatic influences <b>O.2.</b> = Negative impact due to permanent or frequent effects of organic chemicals (e.g. mineral oils, aromatic and aliphatic hydrocarbons, alcohols, phenols etc.) <b>+100</b> = Ambient temperature up to +100°C	Non-slip coat for smooth plates (plate flooring)	yes
<sup>a)</sup> According to <a href="#">DIN EN ISO 12944-4</a> <sup>b)</sup> No separate information in the manufacturing documents, e.g. SMS group coating table <sup>c)</sup> All component sides must first be coated with permanent corrosion protection (e.g. P.I.W.1.+120), then a non-slip coating with PR.12.I.O.2.+100 on the walkable surface					

Table 3 – Permanent corrosion protection (resistance to chemicals in general)

Coating category (CC)	Recommended degree of purity <sup>a)</sup>	Possible coating materials	Explanation of coating category	Examples of application	Required information <sup>b)</sup>
P.I.O.2.+120	Sa 2 ½	See SN 274-2 Supplementary sheet 1	<b>P.</b> = Permanent corrosion protection <b>I.</b> = No climatic effects <b>O.2.</b> = Negative impact due to permanent or frequent effects of organic chemicals (e.g. aromatic and aliphatic hydrocarbons, alcohols, phenols etc.) <b>+120</b> = Ambient temperature up to +120°C	External coating of machines or parts thereof that are permanently or frequently exposed to the effects of organic chemical fumes and/or chemical splashes (for cold rolling mills, aluminum rolling mills, stainless steel mills)	yes
	St3				
	Be				
P.I.A.2.+150	Sa 2 ½		<b>P.</b> = Permanent corrosion protection <b>I.</b> = No climatic effects <b>A.2.</b> = Negative impact due to permanent or frequent effects of inorganic chemicals (e.g. inorganic, oxidizing and non-oxidizing acids, bases, salts etc.) <b>+150</b> = Ambient temperature up to +150°C	External coating of machines or parts thereof that are permanently or frequently exposed to the effects of organic chemical fumes and/or chemical splashes (for cold, aluminum and special-steel rolling mills)	yes
	St3				
	Be				

<sup>a)</sup> According to [DIN EN ISO 12944-4](#)  
<sup>b)</sup> In manufacturing documents, e.g. coating table by SMS group

Table 4 – Permanent corrosion protection (resistance to mineral oil)

Coating category (CC)	Recommended degree of purity <sup>a)</sup>	Possible coating materials	Explanation of coating category	Examples of application	Required information <sup>b)</sup>
P.I.M.2.+120	Sa 2 ½	See SN 274-2 Supplementary sheet 1	P. = Permanent corrosion protection I. = No climatic influences M.2. = Negative impact due to permanent or frequent effects of hot mineral oil +120 = Ambient temperature up to +120°C	Hydraulic equipment (supply stations, valve units, accumulator stations) Pneumatic equipment (valve panels), interconnecting pipework (ICP) for hydraulic equipment Interconnecting pipework (ICP) for pneumatic equipment, machine piping for hydraulic / pneumatic equipment	yes
P.I.M.3.+80 <sup>c)</sup>	Sa 2 ½		P. = Permanent corrosion protection I. = No climatic effects M.3. = Negative impact due to permanently hot mineral oil +80 = Ambient temperature to +80°C	Internal coating of tank (hydraulic systems)	yes
	St3				
P.I.M.3.+100 <sup>c)</sup>	Sa 2 ½		P. = Permanent corrosion protection I. = No climatic effects M.3. = Negative impact due to permanently hot mineral oil +100 = Ambient temperature to +100°C	Internal coating of tank (centralized oil and oil-film systems)	yes
	St3				
P.I.M.3.+150 <sup>c)</sup>	Sa 2 ½		P. = Permanent corrosion protection I. = No climatic effects M.3. = Negative impact due to permanently hot mineral oil +150 = Ambient temperature to +150°C	Internal coating of e.g. gear housing and gearbox internals such as welded wheels and oil flingers	yes
	St3				
	Sa3				
	Be				

<sup>a)</sup> According to [DIN EN ISO 12944-4](#)

<sup>b)</sup> In manufacturing documents, e.g. coating table by SMS group

<sup>c)</sup> Note: Before edition [SN 274-2:2022-07](#) was published, the designation was P.I.O.3.+....

Table 5 – Permanent corrosion protection (resistance to heat)

Coating category (CC)	Recommend ed degree of purity <sup>a)</sup>	Possible coating materials	Explanation of coating category	Examples of application	Information required <sup>b)</sup>
<b>P.I.K.0.+400</b>	Sa 2½	See SN 274-2 Supplement ary sheet 1	<b>P.</b> = Permanent corrosion protection <b>I.</b> = No climatic effects <b>K.0.</b> = No substances that act on the component surface <b>+400</b> = Ambient temperature to +400°C	External coating of machines or parts thereof that are exposed to high temperatures (hot zones in hot rolling mills, continuous casters, etc.)	yes
	St3				
<b>P.A.K.0.+400</b>	Sa 2½		<b>P.</b> = Permanent corrosion protection <b>A.</b> = Full climatic effects <b>K.0.</b> = No substances that act on the component surface <b>+400</b> = Ambient temperature to +400°C		yes
	St3				
<b>P.I.K.0.+600</b>	Sa 3		<b>P.</b> = Permanent corrosion protection <b>I.</b> = No climatic effects <b>K.0.</b> = No substances that act on the component surface <b>+600</b> = Ambient temperature to +600°C	External coating of machines or parts thereof that are exposed to higher temperatures (extremely hot zones in continuous casting plants, steelmaking facilities, etc.)	yes
	Sa 2½				
	St3				
<b>P.A.K.0.+600</b>	Sa 3		<b>P.</b> = Permanent corrosion protection <b>A.</b> = Full climatic effects <b>K.0.</b> = No substances that act on the component surface <b>+600</b> = Ambient temperature to +600°C		yes
	Sa 2½				
	St3				
<sup>a)</sup> According to <a href="#">DIN EN ISO 12944-4</a> <sup>b)</sup> In manufacturing documents, e.g. coating table by SMS group					



### 6.3 Temporary corrosion protection

Unless otherwise specified in the manufacturing documents (e.g. coating table), temporary corrosion protection shall be provided according to Table 6

- on parts screwed onto or protruding into tanks/vessels using a coating material of coating category T.I.W.1 - L.W.1.+40;
- on contact surfaces and internal functional surfaces using a coating material of coating category T.I.W.1 - L.W.1.+40;
- on external functional surfaces using a coating material of coating category T.I.W.1 - L.W.1.+40, T.I.W.2 - L.W.2.+40 or T.I.W.2 - L.W.2.+90. The coating category shall be selected as required for transport and storage purposes following consultation with SMS group.
- on contact and functional surfaces of components intended for intermediate storage and/or for quick dispatch using a coating material of coating category T.I.W.1- L.K.0.+40.

Applicable coating materials for the coating categories as in Table 6 are shown in SN 274-2, [Supplementary Sheet 1](#).

The use of technically equivalent coating materials is allowed only provided that the conformity with the requirements made on the coating categories according to [SN 274-2](#) can be proven.

Table 6 – Temporary corrosion protection

Coating category (CC)	Recommended degree of purity <sup>a)</sup>	Possible coating material	Explanation	Examples of application
T.I.W.1- L.K.0.+40	Sa 3 <sup>b)</sup>	See SN 274-2 Supplementary sheet 1	<b>T</b> = Temporary corrosion protection <b>I.</b> = No climatic influences <b>W.1</b> = Negative impact due to short-term effects of water on the component surface (e.g. splashes, fumes, and condensation). <b>L.</b> = Limited climatic influences <b>K.0.</b> = No influence of substances/liquids on component surfaces <b>+40</b> = Ambient temperature for indoor and outdoor storage up to +40°C	<b>Preservation of internal and external component surfaces for intermediate storage</b> Applied to all bright metallic surfaces for short-term shipment or storage
T.I.W.1 - L.W.1.+40			<b>T</b> = Temporary corrosion protection <b>I.</b> = No climatic influences <b>W.1</b> = Negative impact due to short-term effects of water on the component surface (e.g. splashes, fumes, and condensation). <b>L.</b> = Limited climatic influences <b>W.1</b> = Negative impact due to short-term effects of water on the component surface <b>+40</b> = Ambient temperature for indoor and outdoor storage up to +40°C	<b>Preservation of internal component surfaces</b> Applied to all bright metallic surfaces such as gearbox internals etc.
T.I.W.2 - L.W.2.+40			<b>T.</b> = Temporary corrosion protection <b>I.</b> = No climatic influences <b>W.2</b> = Negative impact due to permanent or frequent effects of water on the component surface (e.g. splashes, fumes, and condensation) <b>L.</b> = Limited climatic influences <b>W.2</b> = Negative impact due to permanent or frequent effects of water on the component surface (e.g. splashes, fumes, and condensation) <b>+40</b> = Ambient temperature in indoor and outdoor storage up to +40°C	<b>Preservation of external component surfaces</b> Applied to all bright metallic surfaces
T.I.W.2 - L.W.2.+90			<b>T</b> = Temporary corrosion protection <b>I.</b> = No climatic influences <b>W.2</b> = Negative impact due to permanent or frequent effects of water on the component surface (e.g. splashes, fumes, and condensation) <b>L.</b> = Limited climatic influences <b>W.2</b> = Negative impact due to permanent or frequent effects of water on the component surface (e.g. splashes, fumes, and condensation) <b>+90</b> = Ambient temperature in indoor and outdoor storage up to +90°C	<b>Preservation of internal component surfaces</b> Applied to all bright metallic surfaces such as gearbox internals etc.

<sup>a)</sup> According to DIN EN ISO 12944-4

<sup>b)</sup> if Sa 3 is specified, the characteristics of cleanliness levels in the case of temporary corrosion protection are understood to be in accordance with DIN EN ISO 12944-4:1998-07 and not the assigned rust removal method Sa = blast cleaning.

## 7 Inspection

### 7.1 In-process examination by the coater

#### 7.1.1 General notes

Only at the request of SMS group does the coater have to document the in-process supervision of the coating procedure in the form of a test record in accordance with Annex A (normative). SMS group reserves the right to request submission of this document when required.

Exception:

If a coating system from one coating category is applied in several stages (e.g. prime coating and subsequent coat) that are completed by different coaters, the test record based on Annex A (normative) must always be completed and enclosed with the manufacturing documents; see also Section 6.1.

#### 7.1.2 Permanent and non-slip permanent corrosion protection

##### 7.1.2.1 Incoming inspection of the coating material

The coater shall carry out the incoming inspection of the coating materials as follows:

- Examination of the package marking for conformity with the data in the manufacturing documents
- Visual check of the color of the coating material

##### 7.1.2.2 Coating suitability of the component

Prior to coating, the coater shall check that the surface condition, surface cleanliness, roughness, and surface preparation grades comply with the relevant specifications in accordance with [DIN EN ISO 12944-4](#) and/or [DIN EN ISO 8503-2](#).

##### 7.1.2.3 Ambient conditions

The coater shall examine and document the conformity with the necessary ambient conditions, including the ambient temperature, material temperature, dew point, relative humidity etc. (as indicated by the coating material manufacturer) throughout the entire duration of coating (i.e. from the beginning of surface preparation to the end of the reaction time).

##### 7.1.2.4 Coating method

The coater shall check, on the basis of the coating material producer's specification, the conformity with the prescribed coating method including mixture ratios, processing time, pot life, post-treatment as well as the specified structure of the coat.

##### 7.1.2.5 Individual layer thickness

Conformity with the individual layer thickness of a coat according to the specifications from the coating material manufacturer shall be examined and documented by means of a wet film thickness measurement according to [DIN EN ISO 3882](#) or dry film thickness in the case of ferro-magnetic substrates according to [DIN EN ISO 2178](#), and in the case of non-magnetic substrates by means of the eddy current method according to [DIN EN ISO 2360](#).

#### 7.1.3 Temporary corrosion protection

##### 7.1.3.1 Incoming inspection of the coating material

The coater shall carry out the initial inspections of the coating materials as follows:

- Examination of the package marking for conformity with the data in the manufacturing documents

##### 7.1.3.2 Coating suitability of the component

Prior to coating, the coater shall check that the surface condition, surface cleanliness, and the roughness comply with the relevant specifications in accordance with [DIN EN ISO 12944-4](#) and/or [DIN EN ISO 8503-2](#).

## 7.2 Acceptance inspection of the finished coat by SMS group

### 7.2.1 Basic specifications

The coating materials used shall always be certified by means of safety data sheets and product data sheets. SMS group reserves the right in individual cases to check whether coating has been properly executed as specified below (Sections 7.2.2 and 7.2.3).

If destructive testing of the coating is agreed, it must be carried out on sample plates made during the manufacturing process according to Sections 7.2.2.2 and 7.2.3.2.

If no sample plates have been made, the examinations shall be carried out on the coated component in accordance with 7.2.2.1 and 7.2.2.2. For this purpose, a sample surface must be determined according to [ISO 12944-7 and -8](#) and the test and evaluation must be documented. The damaged area(s) must be repaired in accordance with [ISO 12944-8](#).

### 7.2.2 Permanent and non-slip permanent corrosion protection

#### 7.2.2.1 Acceptance inspection of the finished component

The following inspections shall be carried out on the finish-coated component and documented by means of a test record:

- Visual test of the coating with regard to the surface condition and, among other things, uncoated areas, bubbles, coverability, cracks of any kind, areas of disbonded coating, chalking, inclusions, mechanical or thermal damage, pores, rust, homogeneity, degree of gloss, etc.
- This is done by making a visual check of each component/assembly.
- [DIN EN ISO 2808](#) - the dry layer thickness of the coating system shall be determined according to the specifications of the respective coating material manufacturer using equipment for non-destructive testing according to [DIN EN ISO 2808](#) by means of methods 7C or 7D.
- [DIN EN ISO 2808](#) - the coloring coats, i.e. the prime coat and the subsequent coats, shall be determined using the destructive wedge-cut method 6B in accordance with [ISO 2808](#).
- The color shall be visually examined and/or compared using a color fan deck according to the specifications in the manufacturing documents.

#### 7.2.2.2 Acceptance inspection of sample plates

Examinations as specified in Section 7.2.2.1 shall be carried out on sample plates according to [DIN EN 14879-2:2007-02](#) and documented by means of a test record.

In addition, the adhesive strength of the coat shall be examined, preferably in the form of a pull-off test in accordance with the following standard:

- [DIN EN ISO 4624](#) - Pull-off test for adhesion; for coatings with an NDFT of up to  $\leq 250\mu\text{m}$ , the use of the cross-cut test may be agreed
- [DIN EN ISO 2409](#) - Cross-cut test for coatings up to an NDFT  $\leq 250\mu\text{m}$ . The specified cross-cut value of 0-1 according to [DIN EN ISO 2409](#) after 0 load hours as stipulated in [SN 274-2](#) must be complied with.

The position of the parting plane shall be assessed according to [DIN EN ISO 4625-1](#).

### 7.2.3 Temporary corrosion protection

#### 7.2.3.1 Acceptance inspection of the finished component

The following examinations shall be carried out on the finish-coated component:

- Visual check of the surface condition of the coat.
- Examination of the layer thickness of the coating system according to the specifications of the coating material manufacturer using equipment for non-destructive testing as stipulated in [DIN EN ISO 2808](#).

#### 7.2.3.2 Acceptance inspection of sample plates

Examinations as specified in Section 7.2.2.1 shall be carried out on sample plates.

The requirements to be met by the sample plates are specified in the relevant standards and must be taken into account in the testing methods used.

## 8 Documentation

All inspection records for corrosion protection must be compiled in accordance with the relevant parts of [DIN EN ISO 12944](#).

**Annex A**  
(normative)

**Test record on in-process supervision by the coater**

<b>Customer:</b> <b>SMS group</b>					
<b>Name of coater:</b>		<b>Coating category:</b>			
		<b>Coating material producer:</b>			
<b>Project definition:</b> <sup>a)</sup>		<b>Data on implemented coating system:</b>			
<b>Material no.:</b> <sup>c)</sup>					
<b>WBS element:</b> <sup>b)</sup>		<b>Prime coat</b>	<b>Intermediate coat</b>	<b>Cover coat</b>	<b>Others</b>
<sup>a)</sup> Previous designation: "Codeword" <sup>b)</sup> Previous designation: "Project no." <sup>c)</sup> Previous designation: "Drawing no."					
<b>1. Check before coating</b>					
<b>1.1 Rust grade</b> (DIN EN ISO 8501) Initial condition of the surface	A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>				
<b>1.2 Surface cleanliness level</b> (DIN EN ISO 12944-4)	Sa2 ½ <input type="checkbox"/> Sa3 <input type="checkbox"/> St2 <input type="checkbox"/> St3 <input type="checkbox"/> Be <input type="checkbox"/>				
<b>1.3 Degree of surface preparation</b> (DIN EN ISO 8501-3)	<b>P2</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>P3</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>1.4 Component surface</b>	Steel <input type="checkbox"/> Cast steel <input type="checkbox"/> Cast iron <input type="checkbox"/>				
<b>1.5 Roughness</b> (surface profile comparators DIN EN ISO 8503)	Grit <input type="checkbox"/> Shot <input type="checkbox"/>		Fine <input type="checkbox"/> Medium <input type="checkbox"/> Coarse <input type="checkbox"/>		
<b>1.6 Check for contamination</b> (DIN EN ISO 8502)	Oil/grease <input type="checkbox"/> Dust <input type="checkbox"/>		Chloride testing <input type="checkbox"/> (only upon request by SMS group)		
<b>1.7 Examination of the coating material</b>	Color <input type="checkbox"/> Stirred, no skin formation <input type="checkbox"/> Package durability <input type="checkbox"/> Package marking <input type="checkbox"/>				
<b>1.8 Examination of the ambient conditions</b>	Dew point check <input type="checkbox"/> Air temperature >3 °C, 3 °C above dew point <80% rel. humidity <input type="checkbox"/> Component temperature min. +3 °C <input type="checkbox"/> Surface accessibility <input type="checkbox"/>				
<b>2. Check during coating/between coating steps</b>					
<b>2.1 Place of application</b>	Manuf. works <input type="checkbox"/> Workshop <input type="checkbox"/> Constr. site <input type="checkbox"/> _____ <input type="checkbox"/>				
<b>2.2 Method of application</b>	Brush/roller <input type="checkbox"/> Airless spraying <input type="checkbox"/> Compr. air spraying <input type="checkbox"/>				
<b>2.3 Additional work</b>	Edge protection provided <input type="checkbox"/> _____ <input type="checkbox"/>				
<b>2.4 Check of wet film thickness</b> (NSD) (DIN 2808)	Prime coat ____µm <input type="checkbox"/> Intermediate coat ____µm <input type="checkbox"/> Cover coat ____µm <input type="checkbox"/>				
<b>2.5 Examination of the ambient conditions</b>	Dew point check <input type="checkbox"/> Air temperature >3 °C, 3 °C above dew point <80% rel. humidity <input type="checkbox"/> Component temperature min. +3 °C <input type="checkbox"/> Application conditions <input type="checkbox"/>				
<b>2.6 Further processing check</b>	Drying time observed <input type="checkbox"/> Retouching time observed <input type="checkbox"/> Air humidity observed >50 % <input type="checkbox"/> (hygroscopically hardening coat e.g. zinc-rich ethyl silicate prime coat)				
<b>Remarks on the tests:</b>					
<b>Objections</b> Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Refer to remarks		<b>Repetition</b> Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>Release</b> Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>Place of test:</b>	<b>Tester:</b>	<b>Date:</b>	<b>Supplier:</b>	<b>Date:</b>	

## Bibliography

305/2011 EUV	Regulation laying down harmonized conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
DIN 8591:2003-09	Manufacturing processes disassembling – Classification, subdivision, definitions
DIN 8593-0	Manufacturing processes joining – Part 0: General; Classification, subdivision, terms and definitions
DIN EN 10305-1	Steel tubes for precision applications – Technical delivery conditions – Part 1: Seamless cold-drawn tubes
DIN EN 10305-2	Steel tubes for precision applications – Technical delivery conditions – Part 2: Welded cold drawn tubes
DIN EN 10305-3	Steel tubes for precision applications – Technical delivery conditions – Part 3: Welded cold sized tubes
DIN EN 10305-4	Steel tubes for precision applications – Technical delivery conditions – Part 4: Seamless cold-drawn tubes for hydraulic and pneumatic power systems
DIN EN 10305-5	Steel tubes for precision applications – Technical delivery conditions – Part 5: Welded, cold-sized square and rectangular tubes
SN 274-1	Corrosion protection – Coating categories and specifications in manufacturing documents
SN 888	WALFORMplus, guideline for design and manufacture

## Revisions

Amendments made in comparison with [SN 200-7:2016-05](#):

Editorial revisions	New introduction added Updating of the normative references; Standard completely revised, SN 274-2_2017-10 partly incorporated; Field weld without corrosion protection added;
Section 4.3.3	Added;
Section 4.4	Degree of preparation text redrafted;
Section 5.1.1	Cleanliness level text redrafted;
Section 5.1.2	Roughness added;
Section 5.1.3	Added;
Section 6.1	Information on paintable sealing agent added;
Section 6.2.1	Information on color deleted and reference made to manufacturing documents;
Section 6.2.2	glossy changed to silky gloss
Section 6.2.3	Coating categories from SN 274-2 incorporated; Permanent non-slip corrosion protection added in Table 1; PR.12.I.O.2.+100 changed to P.R12.I.O.2.+100; Coating category P.I.M.2.+120 added to Table 4; Coating categories P.I.O.3.+80, P.I.O.3.+100 and P.I.O.3.+150 changed to P.I.M.3.+80, P.I.M.3.+100 and P.I.M.3.+150 in Table 4
Section 6.3	Reference to contact and functional faces added;
Section 7	Coating categories from SN 274-2 incorporated;
Annex A	Examination from SN 274-2 incorporated; Report from SN 274-2 incorporated

## Previous editions

SN 200:1971-09, 1975-11, 1978-01, 1981-01, 1985-01, 1992-03, 1996-03, 1999-09, 2003-09, 2007-02, 2010-09  
SN 200-7:2016-05