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Surface treatment - Directives and instructions

Contents **Page**

Changes from previous issue

New section 14.1 Surface treatment requirements for small parts have been introduced.

New standard STD4514 Categorization of small parts, fastening systems and their coatings have been added in chapter 14.1.

Changes are shaded.

1 Introduction

The purpose is to set rules for how to work with Scania's surface coated parts and how to fulfil the requirements.

This document is intended for designers, supplier's and others who need to have an overall view of Scania's requirements regarding surface coated parts and the surface appearance.

It is also intended to give a comprehensive view of Scania standards - STD related to the surface properties.

2 Scope

This standard is applicable for all materials which have been surface treated to provide a surface coating for protection or decoration.

The standard also defines how to designate a surface coating in a drawing or other technical documentation.

3 Terms and definitions

Contact surface =	An area with a radius of at least 10 mm from the outer edge of a hole or areas defined as contact surfaces in the technical documentation.
Coloured =	Used for plastic and rubber parts which has a colour through the use of pigments or dyes mixed in the polymeric material. The concept "coloured" is used for parts that have not been painted.
PD =	Scania technical document for supplementary information, see STD4081.
Electro coating =	Electro dip coating process (ED-coating) or Katodische Tauch Lackierung (KTL).
Exterior part =	Part that will be mounted on the outside of the cab or the bus or on the chassi.
Finish painted =	The material has been painted and no additional surface treatment process will be done.
Interior part =	Part which is mounted inside the cab or the bus.
Master standard =	Scania's original standard which represents a well-defined appearance or specification. A master standard exists only in a single copy and shall be stored at Scania. See STD4102.

Wet paint =	A liquid based polymeric substance which after curing result in a solid layer.
Paint =	An powder or liquid based polymeric substance which after curing result in a solid layer. Please note that both primer and top coat is also included in the phrase “Paint”.
Painted =	Applied with a paint.
Primer =	An powder a or a liquid polymeric substance intended to improve adhesion for a top coat. A primer can also improve corrosion protection, stone chip resistance or help to achieve correct colour of a finish painted product. Please note that a electro coating is classified as a primer.
Powder paint =	A powder based polymeric substance which after curing result in a solid layer.
Scania Lexicon =	Scania Lexicon is Scania's corporate term database. The Scania Lexicon objective is to create prerequisites for a uniform, consistent usage of designations in-house and towards the customer.
Surface coating =	a layer or film spread over a surface for protection or decoration. Reference Scania Lexicon.
TB =	Scania document for technical regulations, see STD804.
Top coat =	A paint with the aim to provide the final surface properties of the part, e.g. colour, gloss and chemical resistance. Please note that a primer is not classified as a top coat.

4 Surface treatment directive

Scania trucks, buses and industrial and marine engines shall have a surface treatment which provides an attractive appearance and corrosion protection with satisfactory durability.

The surface treatment shall have such a quality that the products provide a good overall impression for up to six months of storage outdoors before delivery to the final customer.

Neither visible corrosion nor any other visible change of surfaces shall exist before delivery to the final customer.

Only minor changes in appearance and corrosion protection on the chassis, engine and power train are acceptable during the first year of operation.

After three to five years, no larger repairs shall need to be carried out due to corrosion or any other kind of decomposition of surface treated areas.

After three to five years, there shall not be any visible corrosion on the cab or bus body (A and B surfaces according to table 1). Only limited changes are permitted in the appearance during this period.

The requirements for surface treatment of components are dependent on the component position on the vehicle. The cab and the bus body have the highest requirements of appearance and colour.

The cab and the bus body shall have a colour according to customer specification. The chassis, chassis components and powertrain shall normally be coloured “sub-grey”.

Tyres, rubber parts, small brackets and parts shall normally be coloured black.

Industrial and marine engines shall normally be coloured orange.

Customer adapted surface treatment means deviations from the mentioned requirements particularly regarding colour. Affected components are stated in PD 1723840 and PD 1535214.

To a large extent part and component painting is practised, i.e. each individual part shall be surface treated individually.

Table 1. Classification of the surface properties a part shall have according to the surface treatment directive.

Surface finish	**Exposure to corrosion and mechanical load**		
	Minor effect	**Moderate effect**	**Intense effect**
	1	**2**	**3**
Extremely good **A** Prominent position in cab and bus body	Interior cab and bus *Example:* *Interior window moulding*	Interior cab and bus *Example:* *Handle (stanchion)* *Instrument panel*	Exterior front and side of cab and bus body up to upper edge of door line. *Example:* *Exterior front* *Door* *Sun visor* *Rear view mirror*
Very good **B** Less visible position in cab and bus body	Interior cab and bus *Example:* *Roof shelf* *Inner roof panel*	Exterior over the door line on cab and bus body as well as interior cab and bus. *Example:* *Roof air deflector* *Bus interior* *Seat frame*	Exterior back side of cab and bus body up to the upper edge of the door line. *Example:* *Customer adapted painting according to PD1723840.* *Screws and nuts* *Trailer connection bracket*
Good **C** Chassis and hidden position in cab and bus body.	Seldom visible. Hidden surface inside cab or protected position in engine compartment. *Example:* *Instrument panel bracket*	Position from gearbox and forwards. *Example:* *Cab bracket* *Cable duct inside the frame* *Steering wheel column*	Position from and including the gearbox and backwards. *Example:* *Industrial and marine engine* *Air tank* *Frame side member* *Chassis mounted brackets* *Upper side of gearbox* *Chassis mounted pipes*
Moderate **D** Powertrain	In engine compartment *Example:* *Cylinder block* *Valve cover* *Cylinder head* *Cool water pipes*	Chassis parts and power train parts positioned from the gearbox and forwards. *Example:* *Lower side of engine*	Chassis parts and power train parts positioned from and including the gearbox and backwards. *Example:* *Lower side of gearbox* *Axles*

5 General requirements

1. All requirements regarding surface coated parts concern the properties of the part at delivery to Scania or after being surface coated at a Scania facility.
2. All suppliers of surface treatment shall fulfil the requirements in STD4310.
3. In terms of interpretation, STD4310 always takes precedence over drawings, other STD, TB and PD documents.

6 Environment

All suppliers shall comply with the environmental requirements in STD4158, STD4159 and STD4400.

7 Pre-treatment of metal or plastic parts before application of a surface coating

For edges, the requirements in STD4443 are valid.

For welds and surfaces generally, the requirements according to preparation grade 2 or preparation grade 3 in ISO8501-3 are valid.

8 Painting around through holes and blind holes

In general, the surfaces around holes shall be regarded as “Contact surfaces”.

The maximum permitted coating thickness requirement exists to minimize the risk for the loss of clamping force in the screw joint and the risk that the coating breaks down.

The supplier shall pay attention to drawings with through holes and holes with threads, when the note “Contact surface” is missing in a drawing.

9 Marks from hanging

These marks are visible after the parts have been surface coated.

The marks arise from contact points between non-surface coated part and the mounting equipment needed to hold the parts during the surface treatment process.

a. The supplier shall pay special attention to all A and B classified surfaces. A and B classified surfaces shall not have any marks from hanging in areas which are visible after assembly at Scania.

b. To avoid touch-up painting for painted parts (valid for A,B,C and D classified surfaces), contact points between the non-surface coated part and the mounting equipment shall be located in, by Scania approved areas for hanging marks.

c. If touch-up painting cannot be avoided, the hanging marks that have been touch-up painted shall have the same colour as the surrounding areas. For A and B classified surfaces point a. is still valid.

If needed, the supplier shall contact Scania for guidance.

10 Old designations in drawing

If a drawing refers to an old designation or a withdrawn standard, the supplier shall contact Scania for guidance.

For requirements, see STD4111 chapter 13.4 for guidance.

11 Parts with corrosion protection agents

Corrosion protection agents shall be applied on metal surfaces or areas which may corrode or change in appearance during transport, storage or use.

STD4345 is applicable for underbody corrosion protection of buses and coaches.

STD4354 is applicable for external parts of the truck and bus chassis and for axles.

STD4355 is applicable for hollows and crevices in truck cabs.

12 Scania standards for different surface coating systems

The aim of chapter 12 is to help the user and give a short description of common surface coating systems at Scania and the technical documentation that apply for the specific coating system.

See also chapter 14 Drawing designations and interpretation.

12.1 Sheet moulding compound (SMC) materials

Specific requirements are applicable for sheet moulding compound materials ready for painting with topcoat, see TB1679.

12.2 Only primer painted parts

1. All primer painted parts shall fulfil relevant requirements in STD4113, STD4121 or STD4103, depending on the base material and/or area of application.
2. The supplier of primer painted parts delivered to Scania shall use a primer paint compatible with Scania in-house paint systems and processes.

12.3 Coloured and painted plastic parts

Plastic parts that are painted shall fulfil the requirements in STD4121 or TB4087.

Requirements for visual appearance, see point 1 and 2 in chapter 12.3.

1. STD4314 shall be used when evaluating the visual appearance of all interior and exterior coloured plastic parts. STD4314 shall also be applied for interior painted plastic parts.
2. STD4101 shall be used when evaluating the visual appearance of all exterior painted plastic parts.

12.4 Phosphate conversion coated parts

The requirements in STD4291 for classification P1, P2 or P3 shall be fulfilled.

1. The function of classification P1 is to provide a base for painting. If a paint system have a phosphate conversion coating the requirements in STD4291 and STD4113 shall be fulfilled.
2. The function of classification P2 and P3 is to improve corrosion protection or facilitate sliding action. They shall have an after treatment according to STD4291.

12.5 Different coating systems for metal parts

1. Phosphate conversion coating - only powder primer painted at delivery to Scania or after being primer painted at a Scania facility. (only applicable for cab and cab related metal parts).

   STD4111 - STD4103

2. Phosphate conversion coating - only primer painted at delivery to Scania
   (applicable for all parts except cab and cab related metal parts).

   STD4111 - STD4113

3. Phosphate conversion coating - primer painted - top coat painted metal parts.

   STD4111 - STD4113 - STD4101

4. Non specified pre-treatment - primer painted - top coat painted metal parts.

   STD4111 - STD4113- STD4101
   Note :
   Certain pre-treatments may not have the correct fundamental properties to fulfil all requirements in STD4113. It is recommended to evaluate the coating system in pilot studies before start of PPAP.

5. Non specified pre-treatment - finish painted metal parts

   STD4111 - STD4113 - STD4101
   Note :
   Certain pre-treatments may not have the correct fundamental properties to fulfil all requirements in STD4113. It is recommended to evaluate the coating system in pilot studies before start of PPAP.

12.6 Different coating systems for polymeric parts

1. Exterior polymeric parts which are only primer painted at delivery to Scania.

   STD4111 – STD4121

2. Finish painted exterior polymeric parts.

   STD4111 – STD4121 – STD4101

3. Finish painted interior polymeric parts.

   STD4111 – TB4087 - STD4314

4. Coloured exterior polymeric parts.

   STD4111 – STD4314

5. Coloured interior polymeric parts.

   STD4111 – STD4314

12.7 Chromium plated parts

Hard chromium plated metal parts

1. STD4111 – STD3152 - STD4343

Decorative chromium plated metal parts

2. STD4111 – STD3152 - STD4346

Decorative chromium plated polymeric parts

3. STD4111 – STD4346 – STD4378

12.8 Anodised aluminium without a paint.

STD4446 is applicable for anodic oxide coatings on wrought and cast aluminium and aluminium alloys.

STD4446 is not applicable for anodised aluminium parts which are to be painted.

13 Designation of surface properties in a drawing

Chapter 13 set rules for how to designate the properties of a surface coating or an appearance of a part.

The main designation in a drawing for surface coated parts consists of four parts, see figure 1.

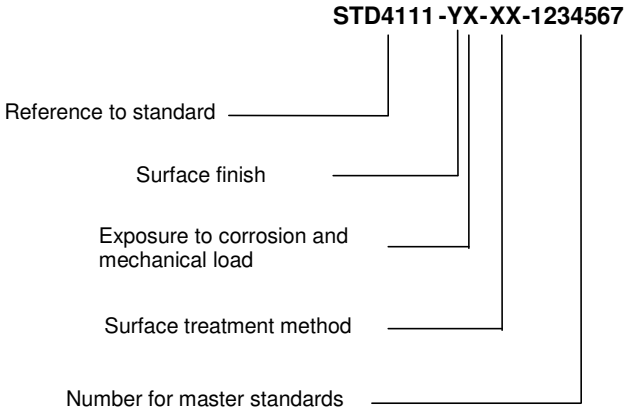


Figure 1.

Reference to standard: Shall always be STD4111.
Note: For phosphate conversion coatings, see chapter 13.6 Phosphate conversion coatings.

Surface finish: According to table 1.

Exposure to corrosion and mechanical load: According to table 1.

Surface treatment method: See chapter 13.2 Surface treatment method.

Number for master standards: A Scania master standard number

13.1 Surface properties

The drawing designation for the surface properties, surface finish and corrosion, are defined in table 1. The designation “-YX-shall start with a letter (A,B,C,D) followed by a number (1,2,3).

Table 1 in chapter 4 is a detailed guide for how to choose the correct requirement level for the application according to the surface treatment directive.

13.2 Surface treatment method

The abbreviation for surface treatment method are described below.

- PP Organic surface treatment with powder paint.
- PF Organic surface treatment with powder paint or wet paint. (free of choice)
- PS Organic surface treatment according to specified method which is stated by a note in the drawing.
- IF Surface coatings on iron or steel which shall comply with requirements according to STD4165.
- IS All inorganic surface coatings not specified in STD4165 shall use the designation –IS-. Applicable Scania standard, TB or PD and additional requirements shall be stated in the note.
- C Coloured Plastic and rubber materials

13.3 Dimensioning of surface coated parts

According to STD388.

13.4 Old designation in a drawing

The phrases used in drawings and specifications:

“Flake” = based on flake coating.

“Flake coating” = based on flake coating.

“Zn-Ni” = based on Zn-Ni.

“Fe/Zn” = based on Zn.

All designations refer to requirements specified in STD4111, Chapter 14.

13.5 Flake coatings and electrolytic zinc coatings (STD4165)

Drawing designation for general requirements valid for all types of surface coatings specified in STD4165= STD4111-YX-IF.

Y defines requirements for appearance.
X defines requirements for corrosion resistance.

To define a specific surface coating, additional requirements shall be indicated by a note, see chapter 13.5.1.

13.5.1 Specific requirements

If only specific types of surface coatings are acceptable, the addition of a specific requirement in the drawing is mandatory.

The surface coating shall be specified depending on the properties needed to fulfil the requirements for the surface coated part.

To define the surface coating use the designation principle below

General requirements:
STD4111-YX-IF

Specific requirements:
Add the requirement after “-IF”, if more space is needed use a note in the drawing. The requirements used shall be according to chapter 13.5.1.1 and 13.5.1.2.

13.5.1.1 Specific coatings with temperature resistance requirements

For temperature resistance, the surface coatings are classified in 3 requirements levels:

1. If not otherwise stated, see general requirements in STD4165.
2. T200 = Add note in drawing
3. T300 = Add note in drawing

If the surface coating shall be able to withstand higher temperature than the general temperature resistance requirement in STD4165, the drawing designation T200 (200°C) or T300 (300°C) shall be used.

See STD4165 for all requirements.

13.5.1.2 Specific coatings with electrical conductivity requirements.

The requirement shall be specified as an additional requirement on the drawing with text “Electrical Conductive”.

For fasteners, “Electrical Conductive” refer to requirements in STD4472.

13.6 Phosphate conversion coated parts

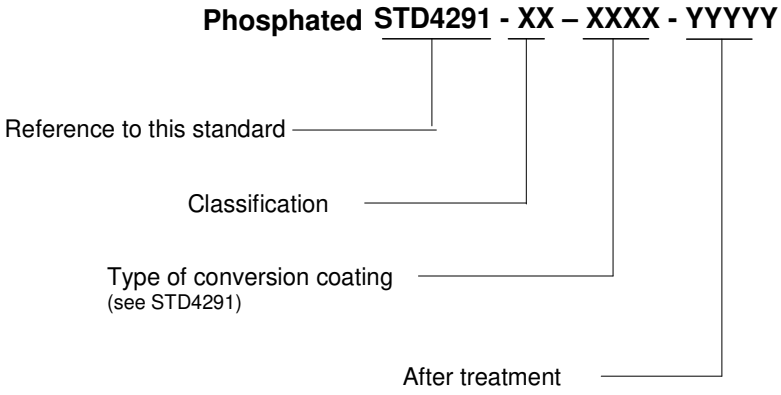
Requirements for P1 in STD4291 shall not be stated in the drawing.

The function of P1 is to provide a base for painting and the requirements are according to chapter 12.4 Phosphate conversion coated parts.

Requirements for P2 and P3 shall be stated explicit in the drawing.

The drawing designation consists of three or four parts:

1. Reference to standard
2. Classification (P2 or P3) refers to the application of the phosphate conversion coating. Phosphate coating as a base for temporary corrosion resistance or phosphate coating to facilitate sliding action.
3. Type of phosphate conversion coating refers to coating type e.g. zinc phosphate or manganese phosphate.
4. After treatment shall also be stated according to STD4291.



13.7 Painting around through holes and holes with threads.

Areas on parts that are defined as contact surfaces in screw joints shall be marked in the drawing with the text ”Contact surface”.

13.8 Coloured plastic and rubber parts

Parts of coloured plastic and rubber shall be indicated by a note in the drawing with a texture and a master standard number.

13.9 Only primer painted parts

A part that is delivered to Scania in only a primer painted condition shall be designated in the drawing according to chapter 14.

13.10 Areas on parts which are not surface coated

Surfaces on a part that is not going to be surface treated shall be marked the text ’’Uncoated’’.

14 Drawing designations and interpretation

Figure 2 below illustrates the title block in a Scania drawing.

The box “Surface treatment “ shall have a drawing designation or if there is not enough space have the designation “See note”.

The note is placed in the drawing as illustrated in figure 2.

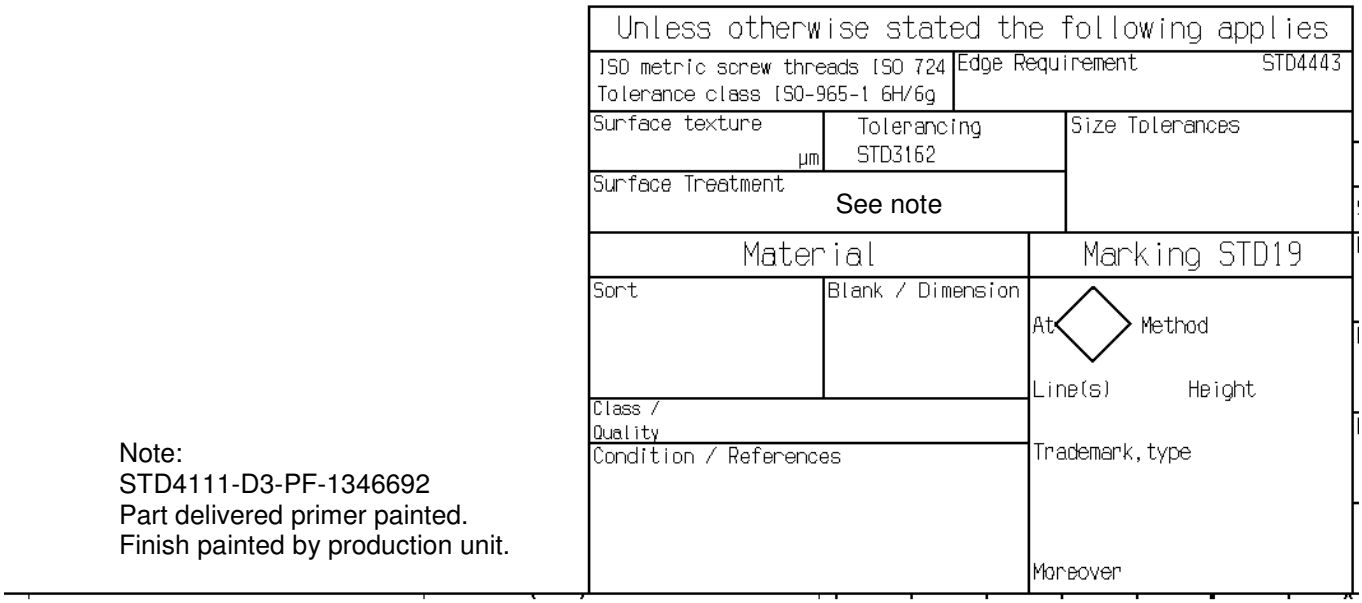


Figure 2. Title block in a Scania drawing with an example of a drawing designation.

14.1 Surface treatment requirements for small parts

For small parts, see STD4514 for their drawing designations, surface coating requirements and other related requirements.

14.2 Table of content for specific surface coatings

This chapter is intended to give guidance which section Ex is appropriate depending on the specific surface coating.

Ex 1	Metal part with phosphate conversions coating
Ex 2-7	Metal part with flake coating or electrolytic zinc coating
Ex 8	Metal part with only electro coating.
Ex 9	A cab and cab related metal part which is only primer painted at delivery to Scania and shall be finish painted by Scania
Ex 10	Metal part which is only primer painted at delivery to Scania and shall be finish painted by Scania.
Ex 11-13	Metal part which is finish painted and has a reference to a Scania master standard.
Ex 14-15	Non-coloured and coloured plastic parts.

Ex 16 Aluminium.

Ex 17 Part with a top layer of electroplated nickel, tin, chromium or hot dip galvanising treatment.

14.3 Table of content for drawing designation

This chapter is intended to give guidance which section Ex is appropriate depending on the drawing designation.

Please note that old drawing designations can deviate from the drawing designations below.

Drawing designation	**Sections**
STD4291	Ex 1
STD4111-B2-IF	Ex 2
STD4111-B3-IF	Ex 3-7
STD4111-D1-PS	Ex 8
STD4111-A3-PS	Ex 9
STD4111-B3-PS	Ex 10
STD4111-A3-PP	Ex 11
STD4111-C3-PP	Ex 12
STD4111-D3-PF	Ex 13
STD4111-B3-PF	Ex 14
STD4111-B3-C	Ex 15
STD4111-YX-IS, See note	Ex 16-17

Ex 1 Metal part with a phosphate conversion coating

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
Phosphated STD4291-P2-Znph/Mnph - oiled

Explanation to the drawing designation above

STD4291:	STD4291 has a reference to STD4111 and overall requirements applicable for all surface coated parts and the phosphate conversion coatings.
Phosphated STD4291-P2-Znph/Mnph oiled:	Requirements for class P2 in STD4291.
Znph/Mnph:	zinc phosphate or manganese phosphate coating can be used, see STD4291.
Oiled	The conversion coating shall be oiled to improve corrosion protection, see STD4291.

Ex 2 Metal part with surface coatings based on flake coatings or electrolytic zinc coatings
- Corrosion requirement B2
- Temperature resistance requirement 80°C

Indicate in the box “Surface treatment”:
STD4111-B2-IF

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
B:	Reference to surface finish requirements in STD4111, table 1.
2:	Reference to requirement in: STD4165, corrosion level 2. STD4111, table 1 Classification of the surface properties.
IF:	Reference to requirements in STD4165.

See STD4111, chapter 13.5 for explanation of this drawing designation.

Ex 3 Metal part with surface coating based on flake coatings or electrolytic zinc coatings
- Corrosion requirement B3
- Temperature resistance requirement 80°C

Indicate in the box “Surface treatment”:
STD4111-B3-IF

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to requirement in:
STD4165, corrosion level 3.
STD4111, table 1 Classification of the surface properties.
IF: Reference to requirements in STD4165.

See STD4111, chapter 13.5 for more information regarding this drawing designation.

Ex 4 Metal part with surface coating based on specific electrolytic zinc coatings
- Corrosion requirement B3
- Temperature resistance requirement 80°C
- Electrical conductive

Indicate in the box “Surface treatment”:
STD4111-B3-IF - Electrical conductive

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to requirement in:
STD4165, corrosion level 3.
STD4111, table 1 Classification of the surface properties.
IF: Reference to requirements in STD4165.

Electrical conductive = Depending on type of part, see general and specific requirements in STD4165.

See STD4111, chapter 13.5 for more information regarding this drawing designation.

Ex 5 Metal part with surface coating based on flake coatings or electrolytic zinc coatings
- Corrosion requirement B3
- Temperature resistance requirement 200°C

Indicate in the box “Surface treatment”:
STD4111-B3-IF- T200

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to requirement in:
STD4165, corrosion level 3.
STD4111, table 1 Classification of the surface properties..
IF: Reference to requirements in STD4165.

T200: Specific temperature requirement according to STD4165.

See STD4111, chapter 13.5 for more information regarding this drawing designation.

Ex 6 Metal part with surface coating based on specific electrolytic zinc coatings
- Corrosion requirement B3
- Temperature resistance requirement 200°C
- Electrical conductive

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-B3-IF- T200 and Electrical conductive

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to requirement in:
STD4165, corrosion level 3.
STD4111, table 1 Classification of the surface properties.
IF: Reference to requirements in STD4165.

T200: Specific temperature requirement according to STD4165.

Electrical conductive = Depending on type of part, see general and specific requirements in STD4165.

See STD4111, chapter 13.5 for more information regarding this drawing designation.

Ex 7 Metal part with surface coating based on specific electrolytic zinc coatings
- Corrosion requirement B3
- Temperature resistance requirement 300°C

Indicate in the box “Surface treatment”:
STD4111-B3-IF- T300

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to requirement in:
STD4165, corrosion level 3.
STD4111, table 1 Classification of the surface properties.
IF: Reference to requirements in STD4165.

T300: Specific temperature requirement according to STD4165.

See STD4111, chapter 13.5 for more information regarding this drawing designation.

Ex 8 Metal part with only a electro coating

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-D1-PS
Only electro coating

Explanation to the drawing designation above

STD4111: Reference to STD4111.
D: Reference to surface finish requirements in STD4113.
1: Reference to corrosion class 1 in STD4113.
PS: The part shall be surface treated according to specified method stated in the note.

Only electro coating: Only surface coated with an electro coating.

Ex 9 A cab and cab related metal part which is only primer painted at delivery to Scania and shall be finish painted by Scania

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-A3-PS-1346692
Cab and cab related metal part delivered to Scania primer painted.
Finish painted by Scania.

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
A:	Reference to surface finish requirements in STD4111, table 1.
3:	Reference to corrosion class 3.
PS:	The part shall be surface treated according to specified method stated in the note.
1346692:	Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Cab and cab related metal part delivered to Scania primer painted.
The part shall fulfil the requirements in STD4103 regarding primer painted surfaces.

Finish painted by Scania.
Shall fulfil the requirement A3 in STD4103 regarding finish painted surfaces.

Ex 10 Metal part which is only primer painted at delivery to Scania and shall be finish painted by Scania

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-B3-PS-1346692
Part delivered to Scania primer painted.
Finish painted by Scania.

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
B:	Reference to surface finish requirements in STD4111, table 1.
3:	Reference to corrosion class 3 in STD4113.
PS:	The part shall be surface treated according to specified method stated in the note.
1346692:	Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Part delivered to Scania primer painted:
The part shall fulfil the requirements in STD4113 regarding primer painted surfaces.

Finish painted by Scania:
Shall fulfil requirements B3 in STD4113 regarding finish painted surfaces.

Ex 11 Metal part which is finish painted and has a reference to a Scania master standard.

Indicate in the box “Surface treatment”:
STD4111-A3-PP-1346692

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
A:	Reference to surface finish requirements in STD4111, table 1.
3:	Reference to corrosion class 3 in STD4113.
PP:	The part shall be painted with powder paint and fulfil requirements in STD4113.
1346692:	Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Ex 12 Metal part which is finish painted and has a reference to a Scania master standard.

Indicate in the box “Surface treatment”:
STD4111-C3-PP-1346692

Explanation to the drawing designation above

STD4111: Reference to STD4111.
C: Reference to surface finish requirements in STD4111, table 1.
3: Reference to corrosion class 3 in STD4113.
PP: The part shall be painted with powder paint and fulfil requirements in STD4113.
1346692: Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Ex 13 Metal part which is finish painted and has a reference to a Scania master standard

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-D3-PF-1346692

Explanation to the drawing designation above

STD4111: Reference to STD4111.
D: Reference to surface finish requirements in STD4111, table 1.
3: Reference to corrosion class 3 in STD4113.
PF: The part shall be painted with powder paint or liquid paint and fulfil the requirements in STD4113.
1346692: Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Ex 14 Non-coloured plastic part for exterior use which is finish painted and has a reference to a Scania master standard.

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-B3-PF-1346692

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
B:	Reference to surface finish requirements in STD4101.
3:	Reference to requirements in STD4121.
PF:	The part shall be painted with liquid paint and fulfil requirements in STD4121.
1346692:	Reference to Scania master standard number regarding surface appearance. See Scania standards STD4101 and STD4102.

Ex 15 Coloured plastic part for exterior use which has a reference to a Scania master standard.

Indicate in the box “Surface treatment”:
STD4111-B3-C-1346692.

Explanation to the drawing designation above

STD4111:	Reference to STD4111.
B:	Reference to surface finish requirements in STD4314.
3:	Reference to requirements in STD4121.
C:	The part shall fulfil requirements in STD4121.
1346692:	Reference to Scania master standard number regarding surface appearance. See STD4102.

Ex 16 Anodised aluminium part

Indicate in the box “Surface treatment”:
STD4111-B3-IS, See note
Note in the drawing with text:
Anodised

The thickness of the anodized layer must be minimum 10 µm and sealed.

Explanation to the drawing designation above

STD4111: Reference to STD4111.
B: Reference to surface finish requirements in STD4111, table 1.
3: Reference to corrosion class 3 in STD4446.
IS: The part shall be surface treated according to the note.

Anodised. The thickness of the anodized layer must be minimum 10 µm and sealed.

It is also important to define the colour of the anodised layer.

If possible, this shall be defined by the use of an appropriate Scania master standard number.

Ex 17 Parts with a top layer of electroplated nickel, tin, chromium or hot dip galvanising treatment

Indicate in the box “Surface treatment”:
See note
Note in the drawing with text:
STD4111-YX-IS+ “Add the sentence in the column note in table Ex17.”

Explanation to the drawing designation above

STD4111: Reference to STD4111.
Y: Reference to surface finish requirements.
Shall be determined.
X: Reference to requirements.
Shall be determined.
IS: Inorganic surface coating according to the specified method
See table Ex 17, column Note.

If needed, contact Department of Material technology for guidance.

Table Ex 17.

Scania Standard	Description	Note
STD662	Hot dip galvanising	Hot dip galvanising according to STD662
STD668	Electroplated coatings of nickel	Nickel plating according to STD668
STD670	Electroplated coatings of tin	Tin plating according to STD670
STD4343	Hard chromium plating	Hard chromium plating according to STD4343
STD4346	Decorative chromium plating	Decorative chromium plating according to STD4346

15 Appurtenant documents

The documents listed below supplement this standard and are necessary for the application of the standard.

The latest issue of the document applies when the issue has not been stated.

Document designation	Issue	Title
STD388	-	Dimensioning of coated parts
STD662	-	Hot dip galvanizing
STD668	-	Electroplated coatings of nickel
STD670	-	Electroplated coatings of tin
STD804	-	Documentation rules for technical regulation
STD3152	-	Hydrogen embrittlement
STD4081	-	Documentation rules for technical product data - PD
STD4101	-	Organic surface treatment – Surface appearance
STD4102	-	Master standards and standards for colours, textures and fabrics
STD4103	-	Surface treatment – Powder primer for cab and cab related parts - Requirements
STD4113	-	Organic surface treatment - Painting of metals - Requirements
STD4121	-	Organic surface treatment - Exterior plastics - Requirements
STD4165	-	Corrosion protection surface coatings - Flake coatings and electrolytic zinc coatings
STD4291	-	Phosphate conversion coatings
STD4310	-	Additional requirements for suppliers of surface treatment
STD4314	-	Surface requirements - plastics part
STD4343	-	Hard chromium plating

Document designation	Issue	Title
STD4345	-	Anti-corrosion agents for vehicles – under body protection
STD4346	-	Decorative chromium plating
STD4354	-	Permanent corrosion protection agents
STD4355	-	Anti-corrosion agents for hollows and crevices in truck cabs
STD4378	-	Appearance requirements of chrome plated polymer parts – exterior applications
STD4443	-	Edges of Undefined Shape – Burrs, Undercuts and Passings - Vocabulary, indications and recommendations
STD4446	-	Anodised aluminium
STD4472	-	Electrical conductivity for fasteners
STD4514	-	Categorization of small parts, fastening systems and their coatings
TB1679	-	Sheet Moulding Compound (SMC) material for exterior use on chassis and cabs
TB4087	-	Requirements for painted front surfaces in instrument panel
SS-ISO 8501-3	2	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 3: Preparation grades of welds, cut edges and other areas with surface imperfections (ISO 8501-3:2006, IDT)
Scania Lexicon	-	Scania Lexicon is Scania's corporate term database.

Annex Change history

ECO	STD issue	Change description
-	16	New section 14.1 Surface treatment requirements for small parts have been introduced. New standard STD4514 Categorization of small parts, fastening systems and their coatings have been added in chapter 14.1.
-	15	Chapter 9 Threaded fasteners or holes with threads is moved to STD4165. Chapter 12 Trailers and Bodywork Chapter 13 Repainting and touching up a paint system Chapter 14.1 PD-documents for surface coated parts Chapter 16.3 Vocabulary for inorganic surface treatments Chapter 16.8 Inorganic surface treatment have been removed Chapter 13.5.1.2 (Previous Chapter 16.6.1.2) Specific coatings with electrical conductivity requirements have been updated. New example of drawing designation added in chapter 14.