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Surface treatment - Directives and instructions

Contents **Page**

Introduction

This standard is part of a series of Scania standards about surface treatment. Scania's general surface treatment requirements are described in this standard ("the surface treatment directive"), as are general instructions for surface treatment.

Instructions for optimal design with regard to surface treatment can be found in the *Surface Treatment Guide* used internally at Scania.

The choice of surface treatment and surface treatment method is specified using a code in accordance with this standard. This code also indicates the property requirements which are applicable to every type of surface treatment and which are described in:

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

Together with:

STD 4101: Organic surface treatment – Surface appearance

STD 4314: Surface requirements - Plastic parts

STD4102: Master standards and standards for colours, textures and fabrics

Figure 1 shows the structure for how surface treatment standards are related.

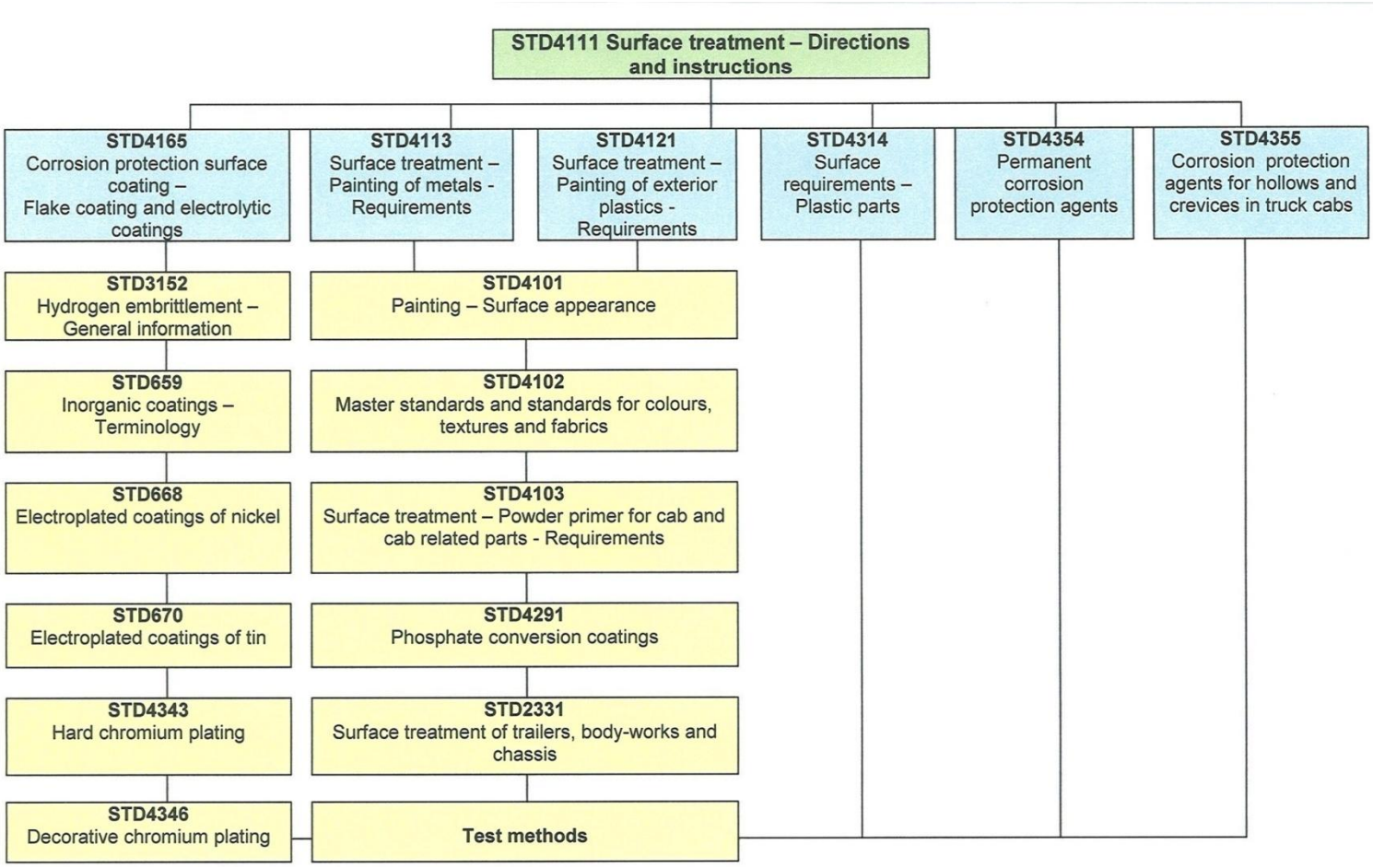


Figure 1. Standard structure

Changes from previous issue

The standard is revised.

Changes are shaded.

1 Scope and field of application

This standard specifies Scania surface treatment directives and instructions for how surface treatment shall be specified on drawing. The standard also gives directions for selection of surface treatments together with general guidelines on how surface treatment should be formulated and performed.

2 Directives

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.

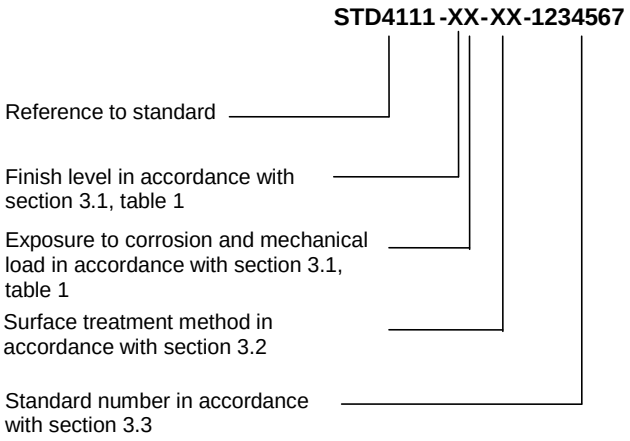
Customer adapted surface treatment means deviations from the mentioned requirements particularly regarding colour. Affected components are stated in PD 1723840 and PD 1535214.

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

3 Designation on drawing for a surface treated part

The designation on a drawing for surface treatment consists of three parts: level of requirements, surface treatment methods and standard number.

- The level of requirements describes the surface treatment demands based on how visible the surface is and to what extent the surface area is subjected to stresses. See section 3.1, table 1.
- The surface treatment method states if inorganic or organic surface treatment such as paint, paint directly in the tool or foliation shall be used and also in the latter case if the surface shall be treated with powder paint or other topcoat that is free of choice. Colouring of plastic material is also specified as a surface treatment method. See section 3.2.
- The standard number states colour, gloss and texture. See section 3.3.



The designation refers to the part in its final execution.

When a part shall be delivered to Scania in only primer painted condition, this shall be stated on drawing with a note, see section 5, example 2.

For painted parts that shall be painted by Scania, compatibility with the paint system and process that are used at the actual production unit concerned needs to be verified before the start of production.

For spare and production parts which are just primer painted, at least the requirements according to section 4 in STD4113 or STD4121 shall be met.

Surfaces on a part that is not going to be surface treated shall be marked partially and with the text ''Uncoated''.

Contact surfaces in screw joints shall be marked on the drawing with partial marking and the text ”Contact surface”.

Note that on some drawings information on “Contact surface” is missing. If uncertain as to whether or not the actual surface shall be regarded as “Contact surface”, the supplier shall contact Scania.

In general the surfaces around holes shall be regarded as “Contact surfaces”, i.e. these surfaces shall have the requirements for the maximum permitted coating thickness according to STD4113. This refers to the surface around holes with a radius of at least 10 mm from the outer edge of the hole. This requirement exists to minimise the risk for the loss of clamping force in the screw joint and the risk that the paint coating breaks down.

There are also friction requirements for the surface treatment in the mechanical joint and under the bracket. In order to secure the correct torque at assembly friction shall be tested and fulfil requirements according to STD3950.

For when plastic parts that are normally coloured are painted in special order (FFU), the painted part shall fulfil the same level of requirement as the coloured part. For example, a mudguard which is classed as B3 in coloured condition is also classed as B3 in painted condition.

3.1 Determination of requirement level

The level of requirements is designated by a letter and number combination according to table 1. The letter states the appearance requirement and the number states the exposure of the part to corrosion and mechanical load.

Table 1 shows a rough division into different requirement levels together with examples of different parts. The table shall be regarded as an aid for the responsible designer when determining the level of requirements.

Different surfaces on a part can have different requirement levels depending on how visible or exposed the surfaces are. The designation on the drawing, alternatively in a technical regulation (TB) or technical product data (PD), always determines the level of requirement for the part concerned.

For a surface treated part each level of requirement has a direct connection to the appearance requirements in STD4101 and STD4314 respectively and the property requirements in STD4113, STD4121 and STD4165.

Table 1 Requirement levels, with examples

Surface finish	Exposure to corrosion and mechanical load		
	Minor effect **1**	**Moderate effect** **2**	**Intense effect** **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* *Chair 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*
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** Positioning 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*

3.2 Determination of surface treatment method

For guidelines regarding the choice of surface treatment, see section 4.

The method is designated as follows:

- PP Organic surface treatment with powder paint
- PF Organic surface treatment with powder or wet paint (free of choice)
- PS Organic surface treatment with specified method which is stated by a note on the drawing
- IF Inorganic surface coating on iron or steel which comply with requirements according to STD4165.
- IS Inorganic surface coating according to specified method which is stated in a note on the drawing. Requirement according to STD4165 is valid for iron and steel substrates if others is not stated in the note. For other types of substrates the requirements and type of surface treatment has to be specified.
- C Colouring - plastic and rubber

3.3 Choice of standard

Standards for colour and gloss are normally indicated for organic surface treatment. Some of Scania's standards, e.g. subgrey, are defined in STD4101 together with the other appearance requirements.

Standards for coloured plastic are normally indicated with a texture and colour standard.

The standard for colour is designated with a seven digit part number. For more information regarding standards, see STD4102.

For inorganic surface treatment, standard is not normally indicated. Appearance requirements are specified in STD4165. When colour requirements deviated from those in STD4165 the surface treatment method shall be specified. For flake coatings the colour, grey/silver or black, shall be specified.

3.4 Supplementary requirements

In STD4113 and STD4121 as well as STD4165 are the property requirements for organic and inorganic surface treated parts. In some cases not all of the stated requirements are enough and hence further requirements can be made on.

Specification of the surface treatment method and supplementary requirements are indicated in a note on the drawing.

The note is written in English.

Specific supplementary requirements for surface treated parts are defined based on the surrounding environment and area of use. For example, heat resistance, resistance to hot oil, windscreen cleaning fluid, specific friction demands, etc. can be required.

STD4113 and STD4121 provide examples of a number of common chemicals and test methods which can be given as supplementary requirements.

The specification of supplementary requirements shall state both the property requirement and suitable standardised test methods, e.g.

STD4111-A3-PF-standard number, see note.

Note: Resistant to engine oil, 120 ºC for 96 h. Method ISO 2812-1, method 1 (immersion)

Inorganic surface treatment specified by the code –IS- requires a nomination of standard for surface treatment method, type of surface treatment and requirements in the note. Additional requirements for iron and steel substrates can be added in the note if STD4165 is not sufficient due to special purposes.

Table 2 gives examples of the most common method descriptions for inorganic surface treatment that can be used when code –IS- is given.

Table 2

Standard	**Description**	**Note exempel** **STD4111-XX-IS +**
STD662	Property requirements for hot dip galvanized parts	Note: Hot dip galvanizing according to STD662
STD668	Property requirements for electrolytically applied nickel coatings	Note: Nickel plating according to STD668
STD670	Property requirements for electrolytically applied tin coatings	Note. Tin plating according to STD670
STD4343	Property requirements for electrolytical hard chromium plating	Note: Hard chromium plating according to STD4343
STD4346	Property requirements for decorative chromium plating	Note: Decorative chromium plating according to STD4346
ISO2081	Electroplated coatings of zinc with supplementary treatments on iron or steel	Note: Electroplated coating ISO2081-Fe/ZnNi8/F/T2[1)]

[1)] Substrate of iron or steel. Requirement according to STD4165

More examples of information of special requirements are found in section 5 and in-house on the homepage *Surface Treatment Guide* on Scania Inline.

3.5 Older designations

In general, the following translation of this standard can be used for technical documents with designations according to earlier standards.

If there are any uncertainties, contact Scania.

Inorganic surface treatment:	
Earlier designation	**Designation according to STD4111**
STD4125-Zn/Al C7	STD4111-B3-IF-flake coating
STD3947-Fe/Zn-Fe 5 C4	STD4111-B1-IF
STD3947-Fe/Zn-Fe 8 C4	STD4111-B3-IF
STD3947-Fe/Zn-Fe 12 C	STD4111-B3-IS-thickness 12 micrometer
STD3947-Fe/Zn-Fe 15 C4	STD4111-B3-IS-thickness 15 micrometer

Note: Hexavalent crome is found in STD4159.

Organic surface treatment:	
Earlier designation	**Designation in accordance with STD4111**
MÅ1-MÅ4	STD4111-C1-PF-1346692
MÅ5	STD4111-A/B3-PF-Customer colour
MÅ6-MÅ16	STD4111-C1-PF-1346692
MÅ(1-16) + MÅ26	STD4111-A/B3-1366386
MÅ(1-16) + MÅ27	STD4111-C3-PP-1346692
MÅ(1-16) + MÅ28	STD4111-A/B1-PF-1346690
MÅ(1-16) +MÅ29, 39	STD4111-A/B/C1-3-PF-1366271
MÅ(1-16) + MÅ30	STD4111-A/B3-PF1346691
MÅ(1-16) +MÅ32	STD4111-A3-PF1346693
MÅ(1-16) +MÅ35, 37, 38 (P)*	STD4111-B/C3-PP-1346692
MÅ(1-16) +MÅ36, 40	STD4111-C3-PF-1387297
MÅ(1-16) +MÅ45	STD4111-D1-PF-1366388 Heat resistant
MÅ(1-16) +MÅ46	STD4111-D1-PF-1366271 Heat resistant
MÅ(1-16) +MÅ49	STD4111-D1-PF-1346692 or 1366387
MÅ(1-16) +MÅ60, 61, 62, 63	STD4111-B3-PF-customer colour

* P means that powder paint shall be used.

4 Guidelines for surface treatment

The choice of surface treatment is always controlled by property requirements. Below are some guidelines given for which surface treatments that may fulfill stated requirements. Internally at Scania, the *Surface Treatment Guide* website can also be used as a directive.

Organic surface treatment is used mainly on parts which have stringent demands for durability and/or where there are stringent demands on surface finish.

The part and component painting used within Scania create special requirements for surfaces included in clamping joints. These areas are specified on the drawing with the designation “Contact surface". On these surfaces only mechanically stable paints such as powder paint, electro coating or alternatively inorganic surface coating are permitted to be used. The special requirements applicable, e.g. layer thickness, are found in STD4113.

Inorganic surface treatment is appropriate primarily for threaded fasteners due to dimension requirements, but is also used for other small parts which can be coated as what are known as volume goods, and hence provide value for money. An inorganic surface coating does not permit as good surface finish or corrosion protection as organic surface treatment and must therefore be avoided for parts with prominent position.

Surface treatment of parts or entire vehicles for special purposes will take place using painting systems in accordance with an agreement with the customer.

Appearance requirements for exterior painted parts can be found in STD4101. Corresponding requirements for painted interior parts and coloured interior and exterior plastic parts is found in STD4314.

Property requirements for organic surface treated metal parts are found in STD4113.

Property requirements for organic surface treated polymer parts are found in STD4121.

Property and appearance requirements for inorganic coated parts are found in STD4165.

Property requirements for hot dip galvanized parts are found in STD662.

Property requirements for electrolytically applied nickel coatings are found in STD668.

Property requirements for electrolytically applied tin coatings are found in STD670.

While choosing surface treatment method and material, STD4158 and 4159 shall be considered.

4.1 Surface treatment of metallic materials

Scania demands regarding surface treatment on the surface treated part is based on the final properties. This however defines requirements by indirect means on how the surface treatment process (cleaning of the material, the presence of welding oxides and welding sparks, pretreatment methods, drying, handling of goods, etc.) is designed and how quality is assured.

The supplier of the surface treatment shall be assessed and approved in accordance with STD3868. An account for the surface treatment process, pre-treatment chemicals and paint material shall always be available and on demand be presented for the responsible purchaser on Scania by the supplier.

Supplementary requirements for suppliers of organic and inorganic surface treatment of metallic materials is described in STD4307 respectively STD4310.

All changes in the surface treatment process and paint material shall be approved by Scania before implementation. An application for a change is handled through a procedure called Supplier Change Request (SCR). See STD3868.

The property requirements for painted metallic materials are found in STD4113 and are absolutely controlling the choice of surface treatment. In order to fulfil these requirements following organic surface treatment system (pre-treatment and painting) is usually required for respectively material:

4.1.1 Sheet metal

The surfaces shall be degreased and chemically pretreated. Any corrosion products (rust) must be removed before the chemical pretreatment.

Iron phosphate shall not be used on parts with a requirement level greater than 1. Zinc phosphate or similar shall be used for all other requirement levels.

For parts in requirement level 1, painting with only topcoat may be sufficient.

Primer of the type electro coating (ED, KTL) is preferred, but other types may be relevant.

The type of topcoat is specified with the drawing designation, see section 3.

4.1.2 Hot-worked materials (castings, forgings or other coarse goods)

The surfaces shall be cleaned of lubricants, dirt and corrosion products, mill scale, welding oxides by means of degreasing and mechanical pretreatment (blasting). In some cases, pickling may replace blasting.

Iron phosphate shall not be used on parts with a requirement level greater than 1. Zinc phosphate or similar shall be used for all other requirement levels.

If chemical pretreatment is not applicable, a specially designed paint system must be used to meet the requirements in STD4113.

For parts in requirement level 1, painting with only topcoat may be sufficient.

Primer of the type electro coating (ED, KTL) is preferred, but other types may be relevant.

The type of topcoat is specified with the drawing designation, see section 3.

4.1.3 Aluminum

Surfaces shall be cleaned of corrosion products, oxides, lubricants, dirt, etc. by means of degreasing, mechanical and/or chemical cleaning.

To provide a good base prior to painting, the aluminum surface normally has to be pretreated with one of the following options:

- Anodizing without sealing
- Provided with what is known as a "conversion layer" of silanes, zirconium salt, etc.
- Passivation (i.e. trivalent chrome layer)

In certain cases etching primer paint works if the pretreatment is carried out carefully.

Mechanical pretreatment shall be made using abrasive materials that are inert or made of more noble metal than the aluminum material. Residues from a steel brush or blasting with steel balls are a potential cause for adhesion failure due to bi-metal corrosion.

The nomination of different aluminium alloys varies depending of referred standard. Scania parts shall be specified by using the European norm AA EN-AW for aluminium type, i.e AA EN-AW6063. Table 3 gives an overview of which AA EN-AW standards that corresponds to other contries material standards.

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Table 3

Europa	Sweden	Germany		Canada	Great Britain
AA EN-AW	**SS**	**W.Nr.**	**DIN 1712**	**ALCAN**	**B.S.**
1080A	4004	3.0285	Al 99,8	99,8	-
1070A	4005	3.0275	Al 99,7	99,7	1070A
1050A	4007	3.0255	Al 99,5	1 S	1050A
1350	4008	3.0257	E-Al 99,5	C 1S	1350
1200	4010	3.0205	Al 99	2S	1200
3103	4054	3.0515	AlMn1	3S	3103
6060	4103	3.3206	AlMgSi0,5	50S	-
6063	4104	-	-	50S	6063
5005A	4106	3.3315	AlMg1	B 57S	5005
6005	4107	3.2316	AlMgSi0,8	51 S	-
6005A	4107	-	AlMgSi0,7	-	-
5052	4120	3.3523	AlMg2,5	57S	5052
5754	4125	3.3535	AlMg3	53S	-
5083	4140	3.3547	AlMg4,5Mn	D 54S	5083
6082/6351	4212	3.2315	AlMgSi1	B 51S	6082
2007	4335	3.1645	AlCuMgPb	-	-
2014	4338	3.1255	AlCuSiMn	26S	2014
2011	4355	3.1655	AlCuBiPb	28S	2011
7020	4425	3.4335	AlZn4,5Mg1	D 74S	7020
6012/6262	6201	3.0615	AlMgSiPb	-	-
7075	6958	3.4365	AlZnMgCu 1,5	75S	7075

4.1.4 Pretreatment of welds, edges and other surface defects

Welds, edges and other surface defects which may occur during jointing, cutting and machining prior to painting shall be pretreated to a minimum level of P2 in accordance with ISO 8501-3.

4.2 Organic surface treatment of polymer materials

Property requirements for painted parts made from polymer materials are found in STD4121 and are absolutely controlling the choice of surface treatment. In order to meet these requirements, pretreatment is generally normally required in the form of degreasing and that a primer specially adapted for the polymer material is used prior to topcoat application.

STD4121 is also valid for parts painted directly in the tool or foliation.

Parts made from plastic for exterior use are often designed to be used unpainted, but in many cases they are nevertheless painted for aesthetic reasons at Scania at special order (FFU), and also by customers on the aftermarket. Therefore, when choosing plastics, the paintability of the material must be taken into account.

Parts that are surface treated within FFU are described in PD 1723840.

4.2.1 Glass-reinforced plastic

Parts made from glass-reinforced plastic may be manufactured in a wide variety of ways such as manual lay-up, "resin injection moulding (RIM)" or "sheet moulding compound (SMC)". When manufacturing parts from glass-reinforced plastic, any release agents used must be assessed carefully to ensure that adhesion properties to following paint layer is not negatively affected.

The primer selected should provide good stone chip protection as the glass-reinforced plastic generally has a high level of surface hardness with low elastic properties, which makes the material more susceptible to stone chips.

Manual lay-up parts often have a porous structure on the rear which is difficult to achieve a high finish on.

Requirements for SMC-materials are described in TB1679.

4.2.2 Thermoplastics

Thermoplastics such as polypropylene (PP), polyamide (PA), etc. may require a specially developed primer or a controlled pretreatment, e.g. flame treatment, in order to meet adhesion requirements.

Flexible thermoplastic parts may require a specially adapted primer and topcoat paint system in order to meet the flexibility requirements described in STD4121. Otherwise there is a risk of the paint layers making the plastic brittle to the extent that the part fails to meet the functional requirements.

4.3 Marks from hanging

These marks, defects in surface treatment, are inevitable in industrial painting processes due to hanging of the parts. The choice of hanging unit, placement on the part, size, etc. must be made by the surface treatment supplier considering the final position of the part after assembly. This means that the inevitable damage to the paintwork shall be positioned so that its negative impact on the paint quality is kept to a minimum.

Touching up may be required to achieve complete corrosion protection.

4.4 Masking

In general, dimensions in drawings shall be maintained after application of the surface treatment according to STD388. This generally means that threads have to be masked.

Electro coating (ED, KTL) is generally permitted in threads, but this has to be taken into account when designing the threads (type and dimension).

Other paints than electro coating are never permitted in threads. Threads should be masked with the aid of a conical plug or similar in order to protect the input thread from paint. The contact surface of the bolt head must not be masked.

Note that surfaces around holes are regarded as contact surfaces.

4.5 Inorganic surface treatment of steel

The property requirements for inorganic surface treated metallic materials are stated in STD 4165. These requirements are normally fulfilled with a coating of zinc-iron alloy or a flake coating.

The flake coating shall be used on materials where there is a risk for hydrogen embrittlement, see STD3152 and on parts with high corrosion requirements, level 3. Flake coating is also suitable in combination with aluminium in order to minimize the risk for bimetal corrosion.

4.6 Inorganic surface treatment of aluminium

For inorganic surface treatment of aluminium, e.g. anodisation of aluminium, there are no documented corrosion resistance requirements other than those specified in this standard. For this reason, a note must be provided in addition to the surface treatment code in accordance with section 3:

"Note: Anodised

The thickness of the anodised layer must be minimum 10 µm and sealed, and requirements according to STD4111 shall be fulfilled"

Unless otherwise stated, corrosion testing of aluminium shall be carried out according to ASTM G85-2, version A3 ”seawater acidified test” (SWAAT) for 1000 hours. A maximum of 5% of the surface is permitted to be corroded after the corrosion testing.

If anodising is recommended due to a requirement for wear resistant surface, the sealing can be excluded. However the wear resistance requirement shall be stated in a note on the drawing.

4.7 No surface treatment

Parts made of aluminium, brass, stainless steel etc. can possess sufficient corrosion resistance, colour and surface finish without surface treatment, depending on material composition. However the appearance can change in time and this can be acceptable depending on positioning.

In exceptional cases, one can choose not to surface treat even though this leads to corrosion. In this case it shall be stated on the drawing so that it clearly indicates that the choice to exclude the surface treatment is intentional.

4.8 Special corrosion protection

Special corrosion protection shall be applied on the surfaces without ordinary surface treatment, for example machined surfaces between two components. Requirements for special anti-corrosion agents can be found in STD4354.

Special corrosion protection which is applied regularly is handled in PD1764755 for trucks.

Special transport protection is necessary for markets receiving deliveries by boat. The surface areas affected by this are handled in PD1760825.

PD1781163, PD1758111and PD1785112 handles the application of temporary corrosion protection for bus chassis types UB, IB and EB.

5 Examples of drawing specifications

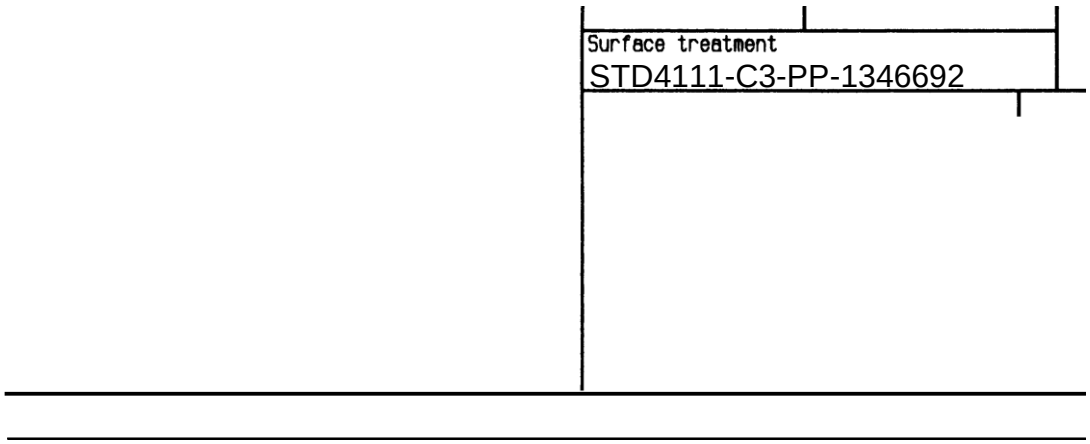
The following examples show how the surface treatment for a part is indicated on drawing.

There are more examples in-house on the homepage Surface Treatment Guide (Scania Inline).

Example 1 - Finish painted part in metal

The designation means that the part shall meet property requirements for requirement level C3 stated in STD4113 and finish requirement for requirement level C stated in STD4101.

-PP- means that the part shall be painted and that powder paint shall be used. Contact surfaces are indicated by a marking in the drawing.



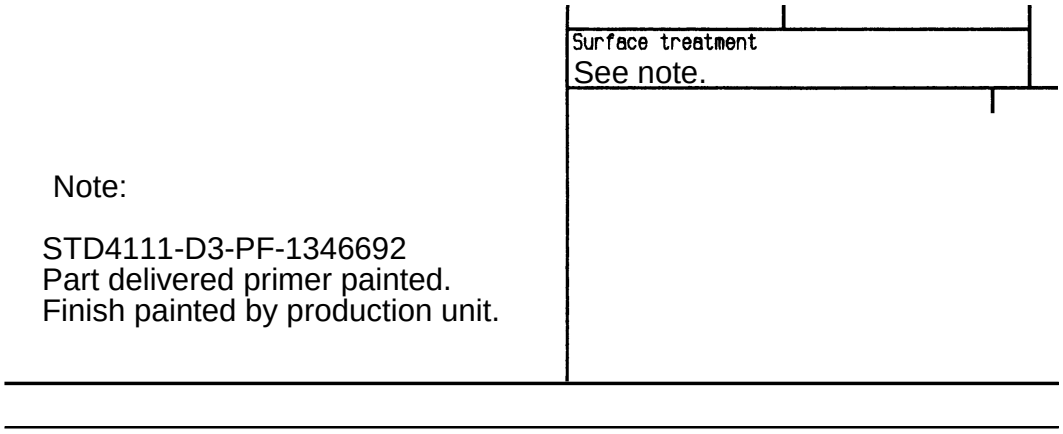
Example 2 - Supplementary requirements - Part supplied unpainted - Topcoat to be applied by Scania

The part shall be delivered so that when it is finish painted the property requirements shall be in compliance with STD4113 according to requirement level D3 and finish requirement for level D stated in STD4101.

The part in only primer painted condition shall meet property requirements for requirement level D3 stated in STD4113, section 4 and finish level D stated in STD4101.

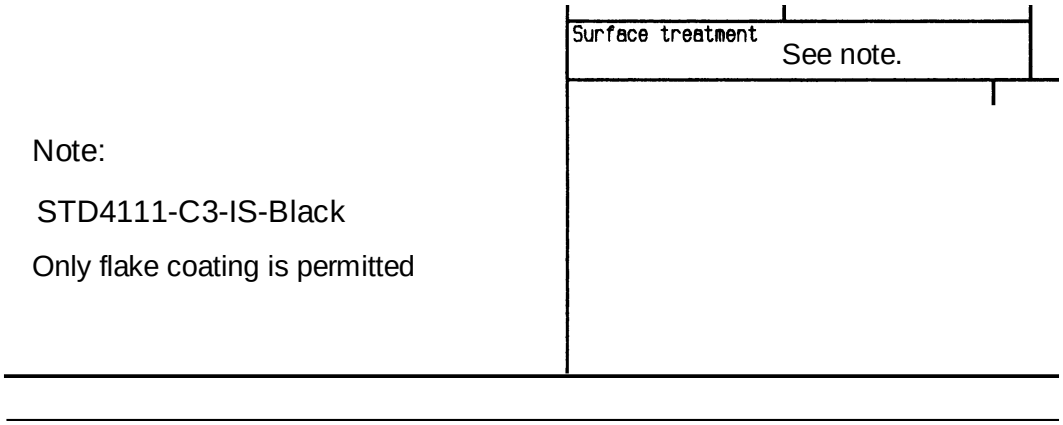
Responsible designer decides together with actual Scania production unit which surface treatment the part shall have at delivery with respect to repainting possibility.

Note that the designation indicates the final execution.



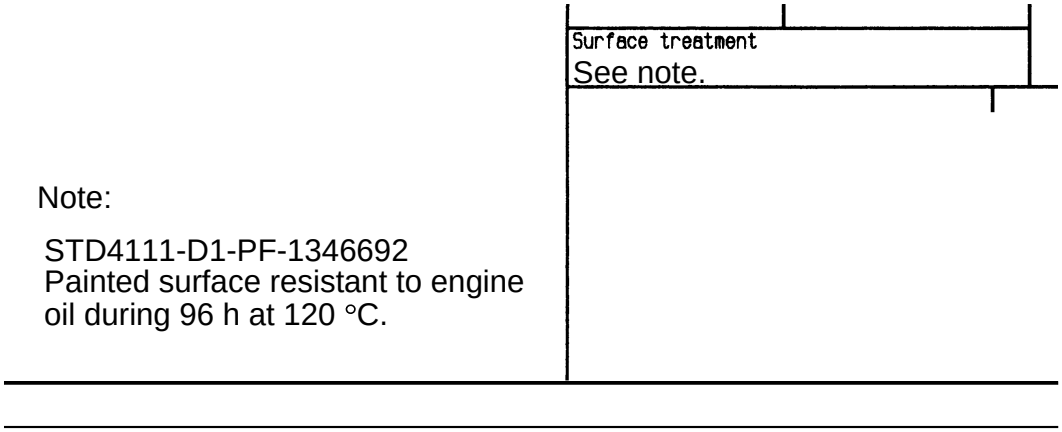
Example 3 - Supplementary requirements - Inorganic surface treatment with flake coating

The part shall meet the property requirements stated in STD4165 for requirement level C3. Finish requirements are also stated in STD4165 for inorganic surface treatment. In this case design has decided that the colour of the flake coated part shall be black. Alternatively grey/silver could be chosen.



Example 4 - Supplementary requirements - Extra oil-resistant paint

The part shall be painted with a paint that is free of choice (-PF-) which shall meet the property requirements stated in STD4113 or STD4121 for requirement level D1 as well as the chemical requirements stated in the note. The note also states the test method. Common chemicals and test methods are stated in STD4113 and STD4121 but shall be indicated with a note as in the example. Finish level D according to the stated requirement in STD4101 shall also be met.

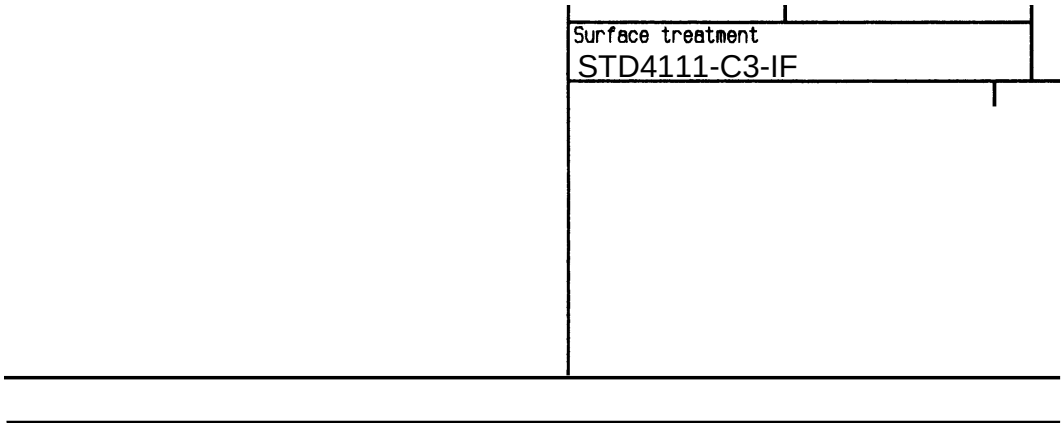


Note:

STD4111-D1-PF-1346692
Painted surface resistant to engine oil during 96 h at 120 °C.

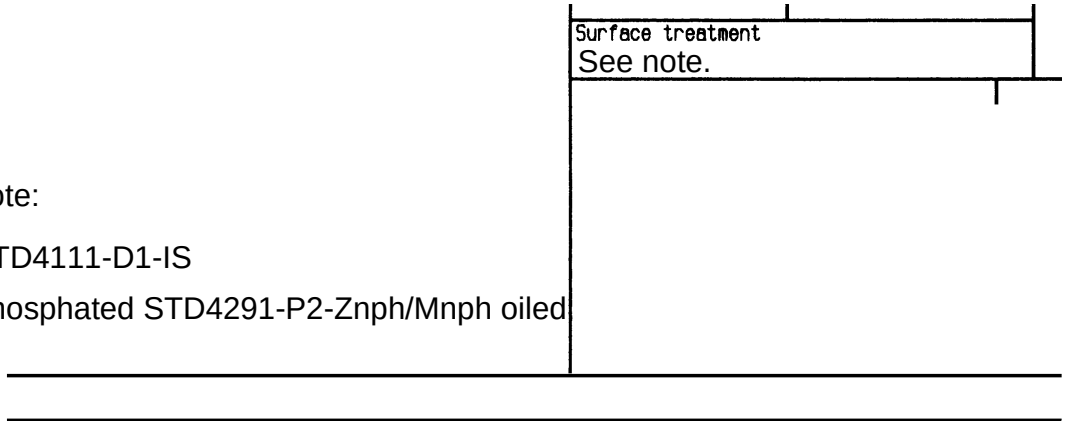
Example 5 - Small bracket or console on frame

The part shall be treated with an inorganic surface treatment that is free of choice and that fulfils the property and finish requirements stated in STD4165.



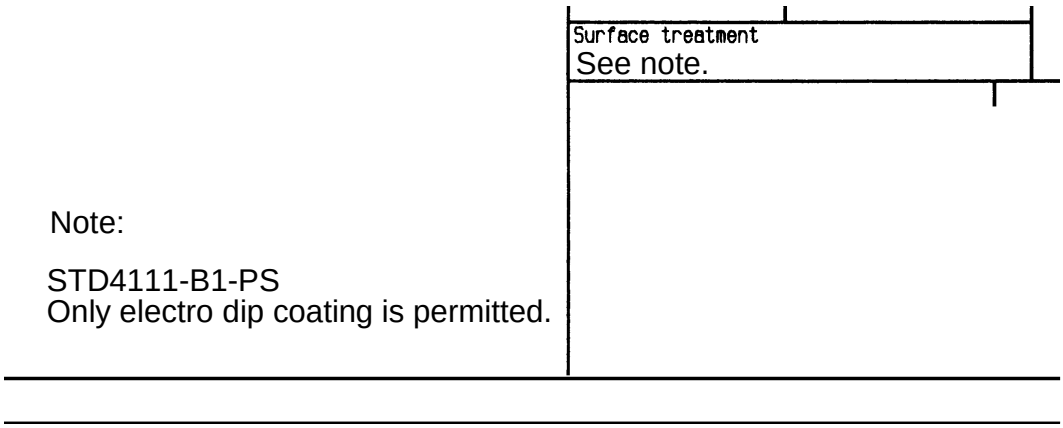
Example 6 - Screw with specified surface treatment - Phosphatising

For example, a screw intended for mounting inside an engine. When -IS- is stated the requirement according to the stated standard or other technical description (STD, TB, PD) shall be met for the given requirement level, in this case STD4291.



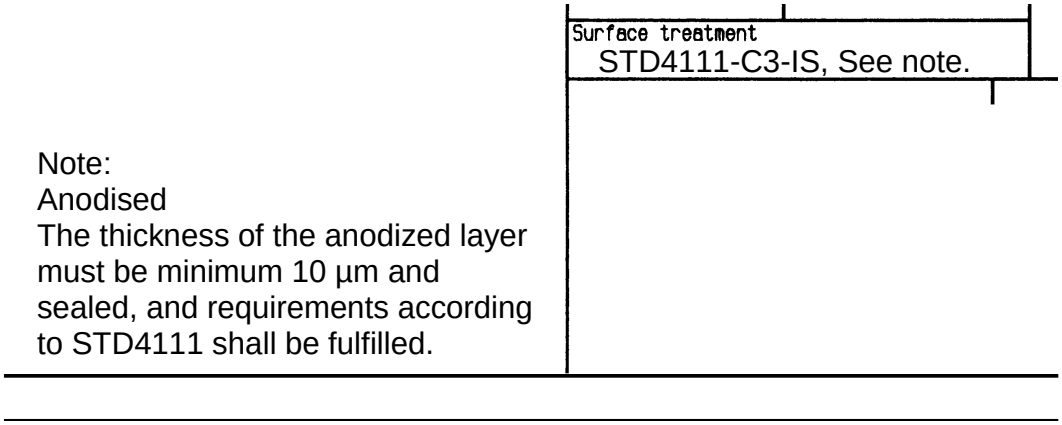
Example 7 - Small metal part with electrocoat paint (ED) only

Property requirements for requirement level B1 stated in STD4113 as well as finish requirements for level B stated in STD4101 shall be met. The part shall be painted with a special surface treatment according to the note.



Example 8 - Aluminium part with specified surface treatment - anodisation

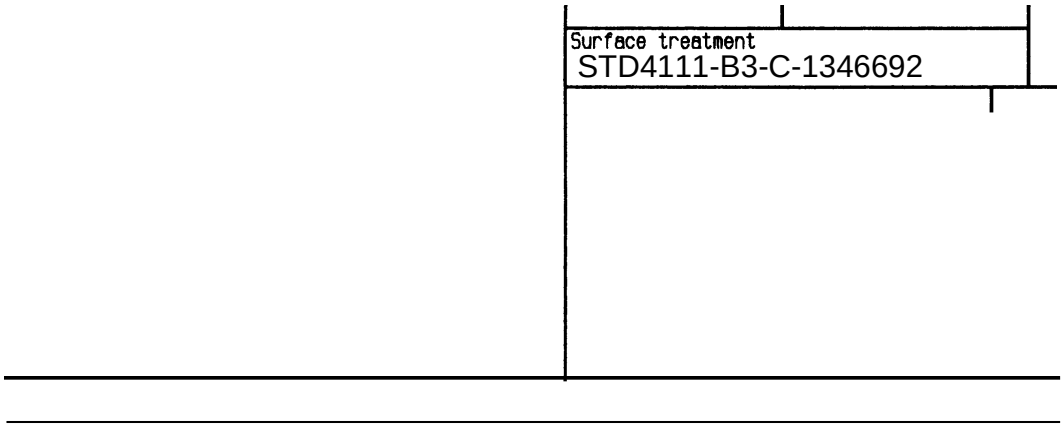
Requirements and test methods for anodised and sealed aluminium are stated in STD4111 according to the note.



Example 9 - Coloured plastic part for exterior use on chassis

Surface finish requirements for level B stated in STD4314 shall be met for the coloured part.

If the part is painted by Scania as a special order (FFU), property requirements for level B3 stated in STD4121 shall be met as well as surface finish requirements for level B stated in STD4101.



6 Appurtenant documents

The specified documents supplement this standard and are required for application of the standard.

Where no version has been specified, the latest version of the document is applicable.

Document designation	Issue	Title
STD388		Måttsättning av ytbelagda artiklar Dimension of coated parts
STD659	-	Oorganiska ytbeläggningar- Terminologi Inorganic coatings - Terminology
STD662	-	Varmförzinkning Hot dip galvanizing
STD668	-	Elektrolytiska nickelbeläggningar Electroplated coatings of nickel
STD670	-	Elektrolytiska tennbeläggningar Electroplated coatings of tin
STD3152	-	Väteförsprödning - Allmän information Hydrogen embrittlement - General information
STD4101	-	Organic surface treatment – Surface appearance
STD4102	-	Masterlikare och likare för kulörer, mönster och textilier Master standards and standards for colours, textures and fabrics
STD4113	-	Organic surface treatment - Painting of metals - Requirements
STD4121	-	Organic surface treatment - Exterior plastics - Requirements
STD4158	-	Kemiska ämnen som inte får användas - Scanias svarta lista Chemical substances which shall not be used - Scania Black list
STD4159	-	Kemiska ämnen med begränsad användning - Scanias grå lista Chemical substances with limited use - Scania Grey list

STD4165en	-	Corrosion protection surface coatings - Flake coatings and electrolytic zinc coatings
STD4291en	-	Phosphate conversion coatings
STD4314en	-	Surface requirements - plastics part
STD4354	-	Permanent corrosion protection agents
SS-ISO 8501-3	2	Behandling av stålytor före beläggning med färg och liknande produkter - Visuell utvärdering av ytrenhet - Del 3: Förbehandlingsgrader för svetsar, kanter och andra områden med defekter (ISO 8501-3:2006, IDT) 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)
ASTM G 85	2002	Standard Practice for Modified Salt Spray (Fog) Testing
Surface Treatment Guide (Scania Inline)		Internal Scania