



Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 1/11
Types of protection, letter symbol					Issuing date: February 06, 2013

History of Revisions:			
Rev.	Revision Text	Date	Author
00	Creation	February 06, 2013	Torsten Tattermusch

Table of Contents

1	General	2
1.1	Abbreviations/Terms and Definitions	2
1.2	Purpose and use	2
1.3	Basic requirements and documents applicable as well	2
1.4	Structure of the letter symbols	3
1.5	Examples of designation	3
1.6	Classification of vehicle parts	4
2	Requirements	4
2.1	Number of test specimens	4
2.2	Screws, nuts, threaded and molded parts	4
2.3	Frictional behavior	4
2.4	Pollutant prevention	5
2.5	Layer thickness	5
2.6	Adhesion and brittleness	5
2.7	Color, gloss, graining	5
2.8	Agents disturbing wetting	5
2.9	Welded subassemblies	5
2.10	Text on the drawing	5
3	Resistance tests	6
3.1	Matrix for resistance tests	6
3-2	Evaluation of the salt spray test	7
3.3	Corrosion cycle test KWT-4/4/16	8
3.3.1	Principle of the test	8
3.3.2	Inspection, measuring and test equipment	8
3.3.3	Storage over the weekend	8
3.3.4	Inspection and testing of components	8
3.3.5	Evaluation	9
4	Documents applicable as well	10
4.1	General standards and regulations and guidelines and directives	10
4.2	VDA and MCTS Guidelines and Directives	10
5	Special features	11
5.1	Legal requirements	11
5.2	Safety requirements	11
5.3	Function	11
5.4	Environmental requirements/recycling	11

Approval	Author	Author	Manager	Standards
First Name, Name	T. Tattermusch		M. Schwarzer	S. Kafka
Date	April 30, 2013		30.4.2013	
Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.				Printing date: 04/30/2013

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 2/11

1 General

1.1 Abbreviations/Terms and Definitions

ASSYc	assembly
c	test cycles ("cycling")
H	heavy-duty protection ("heavy duty")
h	duration in hours ("hours")
KTL	"kathodische Tauchlackierung (Kataphorese)" (cathodic immersion painting - cataphoresis)
KWT	"Korrosionswechseltest" (corrosion cycle test)
L	light-duty protection ("light duty")
M	medium-duty protection ("medium duty")
NSS	"neutrale Salzsprühnebelprüfung" (neutral salt spray test)
OfI	"Oberflächenschutz" (surface protection)
RT	room temperature
s	with a scribing trace ("scribed")
SSNT	"Salzsprühnebeltest" (salt spray test)
sw	"schwarz" (black)

1.2 Purpose and use


This Standard applies to the surface protection of single parts made of metallic base materials, incl. their coating and assemblies, as surface protection on vehicle parts in drawings and technical documentation. It does not apply to magnesium parts.

1.3 Basic requirements and documents applicable as well

The Standard does not apply to high-tensile steel or standard parts with zinc coats with tensile strengths to the amount of $R_m > 1000$ MPa and threaded parts of the strength class ≥ 10.9 . In order to obtain optimal adhesion of the paint, an electrolyte whose content of brighteners is as low as possible should be used for galvanization (Note: This point is included in anticipation of a later supplement of the Standard by adding zinc coats).

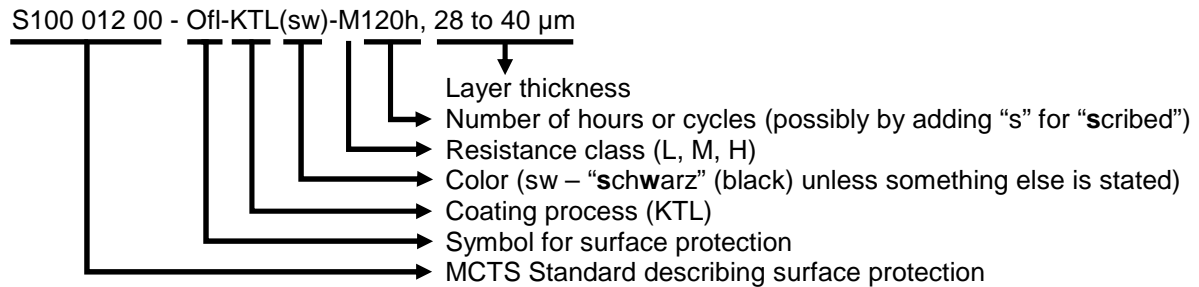
In order to improve corrosion resistance, aftertreatment in passivation solutions is possible for parts that have been galvanized electrolytically or coated with zinc alloys. Yellowish passivations corresponding to the look of yellow chromating containing Cr(VI) are not admissible. Removing the coat and applying the coat again afterwards (if the coat has been applied incorrectly) and/or repair coating will, in the single case, require consent given by MCTS.

Either the parts have not been pretreated, or they have been hot-galvanized or galvanized electrolytically as semi-finished products or single pieces and can additionally be phosphatized.

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 3/11

1.4 Structure of the letter symbols

A letter symbol will be placed after the symbol for surface protection (“**O**berflächenschutz” (OfI-)). This letter symbol is made up of the distinguishing letters for coating, the resistance class and information on the type of inspection and testing and duration (number of hours or test cycles). If several tests are to be made for one surface protection, they will be separated by a slash “/”.



1.5 Examples of designation


A letter symbol will be placed after the symbol for surface protection (“**O**berflächenschutz” - (OfI-)). This letter symbol is made up of the abbreviation for the coating process, the distinguishing letters for the resistance class and information on the type of inspection and testing and duration (number of hours or test cycles).

Example 1: S100 012 00 - OfI-KTL(sw)-H500hs

OfI	“ O berflächenschutz” (Surface protection)
H	Heavy-duty protection (“heavy duty”)
500h	500 hours salt spray test acc. to ISO 9227
s	with a scribing trace (“scribed”)

Example 2: S100 012 00 - OfI-KTL(sw)-H60cs

OfI	“ O berflächenschutz” (Surface protection)
H	Heavy-duty protection (“heavy duty”)
60c	60 test cycles (“60 cycles”) acc. to KW-4416 (see 3.3)
s	with a scribing trace (“scribed”)

Issuing Department	Standard <small>Rev. 08</small>		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 4/11

1.6 Classification of vehicle parts

Depending on their use, their place of installation and possibly additional basic requirements, the vehicle parts will have to be allocated to the respective resistance class according to their possible corrosion load.

Resistance class	Groups of parts	Corrosion load
Light-duty protection Distinguishing letter: L (for "light duty")	Parts that are not visible in the installed state, whose corrosion prevention only serves as protection during transport and for whose perfect function corrosion prevention is not necessary	Low load
Medium-duty protection Distinguishing letter: M (for "medium duty")	Components in the interior and exterior in a protected installation position. Not for connecting elements	Medium load
Heavy-duty protection Distinguishing letter: H (for "heavy duty")	Parts that are exposed to direct outer weathering (e.g. roof caps, paneling parts, car top rodding); parts that can be seen in the installed state (even from the roof bottom); parts for which corrosion prevention is necessary to guarantee a perfect function; parts, e.g. connecting elements, which can be used in the interior or exterior in order to reduce the variety of components.	High load

Table 1: Resistance classes

2 Requirements

2.1 Number of test specimens

For enabling a complete test, three sets of the component or assembly will have to be tested. In the single case, deviations will be admissible upon approval given by MCTS and will have to be defined at the project start or before the order is placed.


2.2 Screws, nuts, threaded and molded parts

As for screws, nuts and similar threaded and molded parts, the test requirements acc. to Table 2 will apply to the areas free from threads. As for the threaded profile and the shaft, the next lower resistance class will be used.

When applying the protective layers, the following must be considered: As for external threads, the "h" position (acc. to the ISO code system for tolerances and linear sizes, see DIN ISO 286-1) must not be exceeded. As for internal threads, the "H" position must be reached. Deviations from this will be stated on the MCTS drawing separately.

2.3 Frictional behavior

The effect of surface protection on frictional behavior, above all for parts with metric ISO threads, will have to be identified by making tests and aligned to the properties of use (see VDA 235-203).

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 5/11

2.4 Pollutant prevention

Pollutant prevention according to VDA 232-101 and 2000/53/EC.

2.5 Layer thickness

For KTL, the layer thickness in μm amounts to $> 15 \mu\text{m}$. In cavities, the layer thickness may deviate by up to 20 per cent. However, it will have to amount to at least $12 \mu\text{m}$. In the single case, thick-layer KTL with a layer thickness of $35 \mu\text{m}$ or more will be possible as specified by MCTS. In the single case, deviations will be admissible upon approval given by MCTS. The layer thickness will be stated in the text on the drawing.

2.6 Adhesion and brittleness

Cross-cut test according to DIN EN ISO 2409. Requirement: characteristic value 0 to 1.

2.7 Color, gloss, graining

Color as specified in the drawing; otherwise black unless stated differently.

If a color is defined according to the table of colors, this will have to be hinted at on the drawing. This also applies to the gloss as well as graining.

The MCTS Standard *S100 002 00 – Begrenzung von Oberflächenfehlern (S100 002 00 – Limitation of surface faults)* shall be applicable.

2.8 Agents disturbing wetting

The MCTS Standard *S100 008 00 01 – Schmierstoffe/Lubricants - Kühl-, Schmierstoffe, Öle und Fette; Liste freigegebener Stoffe für die Oberflächenbeschichtung (Positivliste) (S100 008 00 01 - Lubricants - Coolants, lubricants, oils and greases: list of materials and substances approved for surface coating ("ok" list))* shall be applicable.

Sliding agents and oils serving for corrosion prevention must be free from silicone oils and other agents significantly disturbing wetting.

2.9 Welded subassemblies

Before KTL coating, components that are joined to welded subassemblies need a zinc coat. This zinc coat will be defined by MCTS. It can be applied by galvanizing semi-finished products or unit loads and will have to be stated on the drawing separately.

2.10 Text on the drawing


For coating, e.g. with surface protection KTL black with medium resistance demands 120 h salt spray fog and a layer thickness of 28 to $40 \mu\text{m}$, the following will have to be stated on the drawing:

"S100 012 00 - OfI-KTL(sw)-M120h, 28 to $40 \mu\text{m}$ "

Additional coating requirements will have to be stated separately.

Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.

Printing date:
05/07/2013

Issuing Department	Standard <small>Rev. 08</small>		X	Standard			
				Technical Delivery Instructions			
				Specification			
EKM	No.:	S100 012 00	Rev.:	00			
Surface protection for metal parts						Page:	6/11
Types of protection, letter symbols						Issuing date:	February 06, 2013

3 Resistance tests

3.1 Matrix for resistance tests

The resistance tests are enumerated in Table 2 below.

No.	Property	OfI- KTL(sw)- M96h	OfI- KTL(sw)- M120h	OfI- KTL(sw)- H240h	OfI- KTL(sw)- H300h	OfI- KTL(sw)- H360h	OfI- KTL(sw)- H480h	OfI- KTL(sw)- H500h	OfI- KTL(sw)- H600h	OfI- KTL(sw)- H720h	OfI- KTL(sw)- H840h	OfI- KTL(sw)- H960h	OfI-KTL(sw)- H240hs/30cs	OfI- KTL(sw)- H60cs
1	Corrosion behavior ¹⁾													
1.1	After aging in the salt spray fog acc. to DIN EN ISO 9227, assessment acc. to DIN EN ISO 4628													
1.1.1	Intermediate assessment			every 120 h			240 h	144 h	every 240 h				120 h	
1.1.2	without scribe mark, no blisters, no corrosion of the base metal	96 h	120 h	240 h	300 h	360 h	480 h	300 h	⁴⁾	⁴⁾	⁴⁾	⁴⁾	-	-
1.1.3	without scribe mark, no blisters, no more than 5 % corrosion of the base metal	-	-	-	-	-	-	500 h	600 h	720 h	840 h	960 h	-	-
1.1.4	with scribe mark ²⁾	-	-	-	-	-	-	-	-	-	-	-	240 h	-
1.2	After a corrosion change test (see Chapter 3.3 Corrosion cycle test KWT-4/4/16)													
1.2.1	Intermediate assessment of all 5 cycles after a 2-day rest													
1.2.2	Surface, including cutting edges and weld seams, free from corrosion of the base metal	-	-	-	-	-	-	-	-	-	-	-	5 cycles	-
1.2.3	No formation of blisters, no zinc corrosion on the surface; on cutting edges and weld seams, zinc corrosion and formation of bubbles are admissible, in single cases; delamination on the scribe mark ≤ 1.5 mm	-	-	-	-	-	-	-	-	-	-	-	15 cycles	-
1.2.4	No formation of blisters, no zinc corrosion on the surface outside the scribing trace; on the cutting edges and weld seams, slight zinc corrosion and formation of bubbles are admissible; delamination on the scribe mark ≤ 2,5.mm; cross-cut test acc. to DIN EN ISO 2409: characteristic value < 1	-	-	-	-	-	-	-	-	-	-	-	30 cycles	60 cycles
1.3	after storage in condensation-water atmospheres DIN EN ISO 6270-2													
1.3.1	no blisters, no corrosion of the base metal; cross-cut test acc. to DIN EN ISO 2409, requirement: characteristic value 0 to 1	144 h ³⁾	144 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾	300 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾	240 h ³⁾
2	Resistance to chemicals (to be demonstrated by the supplier or MCTS at the supplier's costs and expenses)													
2.1	General resistance to chemicals	VDA 621-412 acc. to Test A, evaluation acc. to DIN EN ISO 4628-1, Table 3												
2.2	EFTEC - EFBOND DW 646 (activator)	DIN EN 1465 - Adhesives - Determination of tensile lap-shear strength of bonded assemblies; DIN EN ISO 11339 - Adhesives - T-peel test for flexible-to-flexible bonded assemblies												
2.3	EFTEC - EFBOND DV 954 V1 (primer)	DIN EN 1465 - Adhesives - Determination of tensile lap-shear strength of bonded assemblies; DIN EN ISO 11339 - Adhesives - T-peel test for flexible-to-flexible bonded assemblies												
2.4	EFTEC - EFBOND DV 954 V2 (primer)	DIN EN 1465 - Adhesives - Determination of tensile lap-shear strength of bonded assemblies; DIN EN ISO 11339 - Adhesives - T-peel test for flexible-to-flexible bonded assemblies												

¹⁾ As for surface areas on weld seams and contact areas due to design, incl. an adjacent zone of no more than 2.5 mm from the weak point (area without paint/weld seam), the requirements of the next lower resistance class shall apply.


²⁾ Scribing trace acc. to DIN EN ISO 7253, Section 8.5, and DIN EN ISO 4628-8

³⁾ subsequently at least 30 min. acclimatization at room temperature (23 ± 5 °C)

⁴⁾ Intermediate assessment upon coordination; to be determined at the project start or order placement

Table 2: Resistance tests

Approval	Author	Author	Manager	Standards
First Name, Name	T. Tattermusch		M. Schwarzer	S. Kafka
Date	April 30, 2013			
Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.				Printing date: 5/7/2013
S100 012 00		07.05.13/ Tattermusch, Torsten		Page 6/11
Registered office: Bietigheim-Bissingen Stuttgarter Straße 59 - 74321 Bietigheim-Bissingen HRB 302455 - Amtsgericht Stuttgart		General Managers: Uwe Geissinger Helmut Spaetgens		

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	No.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 7/11
Types of protection, letter symbols					Issuing date: February 06, 2013

3-2 Evaluation of the salt spray test

The test specimens will be assessed after the periods stated in 1.1 of "Table 2: Resistance tests", e.g. 144 h, 300 h or 500 h, relating to

- the corrosion mode (corrosion of the coat and/or base metal);
- the type of corrosion (rust on the area or edge);
- start and progress of corrosion
- as well as in terms of other changes of the coats serving for corrosion prevention, such as delamination, bubbles and the like.

In principle, changing the test program is only admissible upon approval given by MCTS and will have to be defined at the project start or before the order is placed.

Organic coats must be assessed acc. to DIN EN ISO 4628-1, Table 3.

The scribing trace needs to be assessed for delamination and corrosion acc. to DIN EN ISO 4628-8 and for filiform corrosion acc. to DIN EN ISO 4628-10.


Disbonding phenomena on painted plates can be studied by using a non-destructive thermographic method to quantitatively assess the development and extension of faulty points.

After the degree of rusting Ri 5 acc. to DIN EN ISO 4628-3 has been reached or after rusting-through, the test will be finished.

The following data will have to be stated in the test protocol:

- Subject under study: e.g. painted plates
- measures for corrosion prevention: e.g. painting (layer thickness: 96 µm as measured in the center of the plate)
- Test: start/end
- Assessment:
 - Start of corrosion of the base metal: e.g. after 120 h: corrosion on the area Ri 2
 - Formation of bubbles: e.g. 240 h: degree of blistering 2 (S4)
 - Delamination: e.g. d = 3 mm
 - End of the test: e.g. after 300 h
- Summary: e.g. "The test specimen has passed the resistance tests acc. to S100 012 00."

Approval	Author	Author	Manager	Standards
First Name, Name	<i>T. Tattermusch</i>		<i>M. Schwarzer</i>	S. Kafka
Date	April 30, 2013			
Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.				Printing date: 5/7/2013

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	Nr.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 8/11

3.3 Corrosion cycle test KWT-4/4/16

3.3.1 Principle of the test

The test is a cyclically changing combination of different climatic and/or corrosive loads.

A test cycle is made up of:

- 4 h salt spray test, test process NSS acc. to DIN EN ISO 9227;
- 4 h storage in standard atmospheres ISO 554–23/50;
- 16 h storage in humid/hot (condensation-water) atmospheres CH acc. to DIN EN ISO 6270-2

In principle, changing the test program is only admissible upon approval given by MCTS and will have to be defined at the project start or before the order is placed.

After every 5 cycles, there will be a 2-day rest in standard atmospheres acc. to ISO 554–23/50. A test lasting for 15 cycles will take altogether 3 weeks.

This test method serves to assess the corrosion behavior under static load due to salt, humidity and temperature.

In order to assess adhesion of coats, disbonding on a scribing trace can be studied. The scribe to be applied (see DIN EN ISO 17872) will have to be made up to the metallic base material and loaded in a vertical position. Assessment of the scribing trace for delamination and corrosion will have to be done acc. to DIN EN ISO 4628-8.

It is not possible to establish a correlation to the corrosion mechanism at real driving mode directly. For on the vehicle, the damage patterns and corrosion curves will be complex and cannot be completely acquired and reflected by static corrosion load.

It is admissible to interrupt the test for a short time in order to inspect and/or take out test specimens.

3.3.2 Inspection, measuring and test equipment


The devices for the subassemblies, components or plates used as specimens can be tested in suitable single devices or interchangeable devices. must meet the requirements placed by DIN EN ISO 6270-2, DIN EN ISO 9227 and ISO 554.

3.3.3 Storage over the weekend

In the phase of rest, the test specimen will be stored in standard atmospheres acc. to ISO 554–23/50 in a horizontal and closed position either in a suitable garage / hall or in the test chamber.

3.3.4 Inspection and testing of components

At least 3 parts are necessary for enabling a complete study. If necessary, cavities will have to be made accessible by being separated/opened or by choosing a position deviating from the installation position.

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	Nr.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 9/11

3.3.5 Evaluation

The test specimens will be assessed after 5, 15, 30, 60 and 90 cycles according to the test requirements relating to

- the corrosion mode (corrosion of the coat and/or base metal);
- the type of corrosion (rust on the area or edge);
- start and progress of corrosion

as well as in terms of other changes of the coats serving for corrosion prevention, such as delamination, bubbles and the like.

Organic coats can be assessed acc. to DIN EN ISO 4628-1, Table 3.


The scribing trace needs to be assessed for delamination and corrosion acc. to DIN EN ISO 4628-8 and for filiform corrosion acc. to DIN EN ISO 4628-10.

Disbonding phenomena on painted plates can be studied by using a non-destructive thermographic method to quantitatively assess the development and extension of faulty points.

After the degree of rusting Ri 5 acc to DIN EN ISO 4628-3 has been reached or after rusting through, the test will be finished.

The following data will have to be stated in the test protocol:

- Subject under study: e.g. painted plates
- measures for corrosion prevention: e.g. painting (layer thickness: 96 µm as measured in the center of the plate)
- Test: start/end
- Assessment:
- Start of corrosion of the base metal: e.g. after 15 cycles: area corrosion Ri 2
- Formation of bubbles: e.g. after 18 cycles: degree of bubbling 2 (S4)
- Delamination: e.g. d = 3 mm
- End of the test: e.g. after 300 h

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	Nr.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 10/11

4 Documents applicable as well

These Technical Delivery Instructions of Magna Car Top Systems GmbH include references to requirements from other publications. These documents applicable as well will be listed below. If no date is stated for references, the latest issue of the referenced publication shall be applicable.

4.1 General standards and regulations and guidelines and directives


DIN EN 1465	Adhesives - Determination of tensile lap-shear strength of bonded assemblies
DIN EN ISO 11339	Adhesives - T-peel test for flexible-to-flexible bonded assemblies
DIN EN ISO 17872	Paints and varnishes - Guidelines for the introduction of scribe marks through coatings on metallic panels for corrosion testing
DIN EN ISO 2409	Paints and varnishes - Cross-cut test
DIN EN ISO 4628	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance
DIN EN ISO 4628-1	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 1: General introduction and designation system
DIN EN ISO 4628-3	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting
DIN EN ISO 4628-8	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 8: Assessment of degree of delamination and corrosion around a scribe or other artificial defect
DIN EN ISO 4628-10	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 10: Assessment of degree of filiform corrosion
DIN EN ISO 6270-2	Paints and varnishes - Determination of resistance to humidity - Part 2: Procedure for exposing test specimens in condensation-water atmospheres
DIN EN ISO 9227	Corrosion tests in artificial atmospheres - Salt spray tests
ISO 554	Standard atmospheres for conditioning and/or testing - Specifications

4.2 VDA and MCTS Guidelines and Directives

VDA 235-203	Screwing behavior / coefficients of friction
VDA 621-412	Resistance of vehicle paints to chemicals
MCTS S100 008 00 01	Lubricants - Coolants, lubricants, oils and greases: list of materials and substances approved for surface coating ("ok" list) - "Schmierstoffe/Lubricants - Kühl-, Schmierstoffe, Öle und Fette; Liste freigegebener Stoffe für die Oberflächenbeschichtung (Positivliste)"

Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.

Printing date:
07.05.2013

Issuing Department	Standard Rev. 08		X	Standard	
				Technical Delivery Instructions	
				Specification	
EKM	Nr.:	S100 012 00	Rev.:	00	
Surface protection for metal parts					Page: 11/11

5 Special features

5.1 Legal requirements

No data

5.2 Safety requirements

No data

5.3 Function

No data

5.4 Environmental requirements/recycling

2000/53/EC

DIRECTIVE 2000/53/EC OF THE EUROPEAN PARLIAMENT AND OF
THE COUNCIL of 18 September 2000 on end-of-life vehicles
Global Automotive Declarable Substance List – GADSL

VDA 232-101

Confidential. All rights reserved. No part of this document may be transmitted or reproduced without the prior written permission of Magna Car Top Systems GmbH.

Printing date:
07.05.2013