IATF 16949:2016
Volkswagen Group
Customer Specific Requirements

Neil Barnett / Oliver Smith
Bentley Motors - Supplier Audit (GQ/SQ)

VWAG Group – CSR applies to all brands

IATF 16949:2016 Volkswagen Group Customer Specific Requirements

AUTOMOTIVE
QUALITY MANAGEMENT
SYSTEM STANDARD

IATF 16949:2016

Quality management system requirements for automotive production and relevant service parts organizations

International
Automotive
Task Force

1st Edition
1 October 2016

+

VOLKSWAGEN

IATF 16949:
Customer-Specific-Requirements (CSR's)
of Volkswagen Group

January 2018

+

Formel Q Documents

BENTLEY

VWAG *Brand*

Customer Specific Requirements

Additional to Formel Q

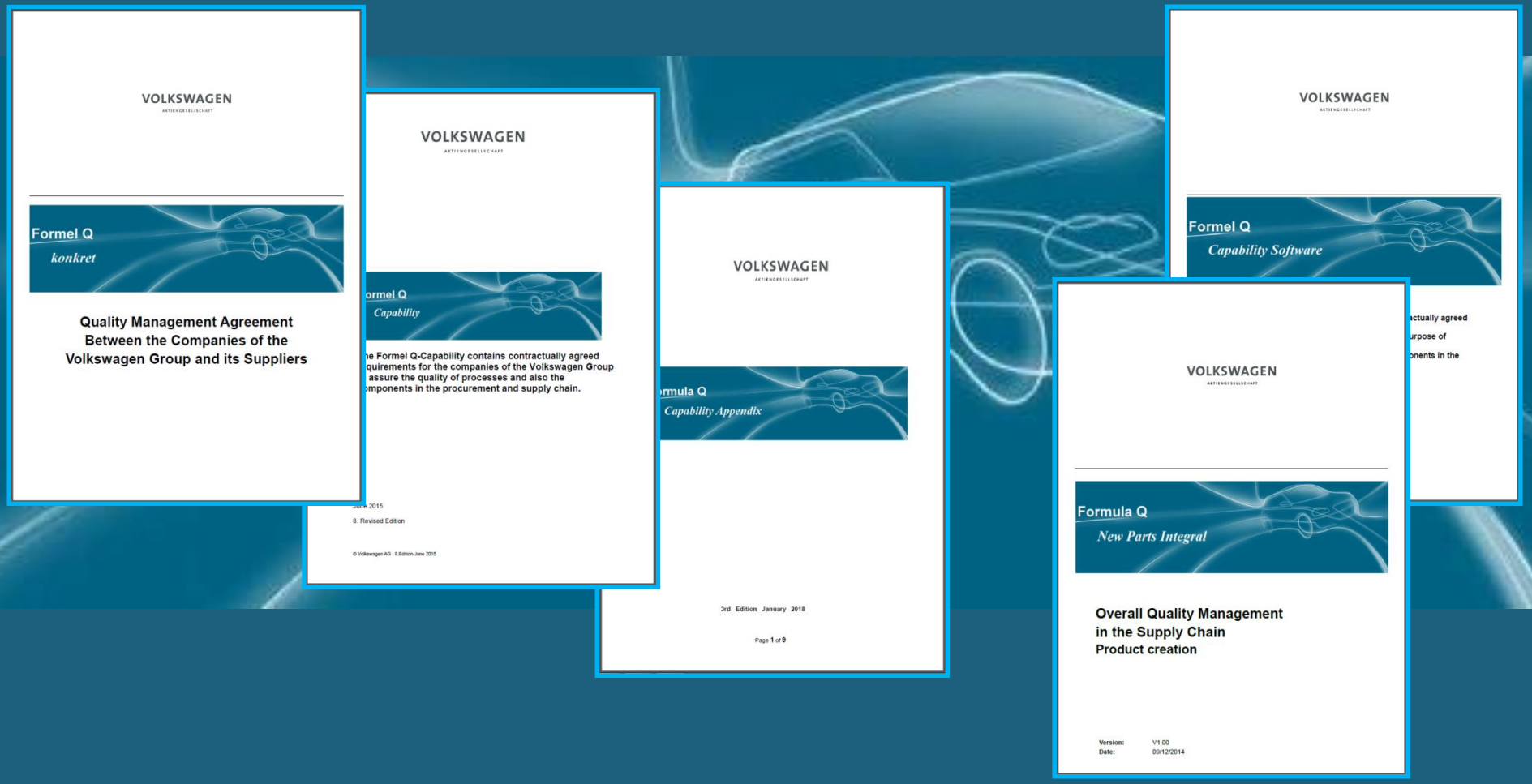
BENTLEY

Bentley Quality Lastenheft

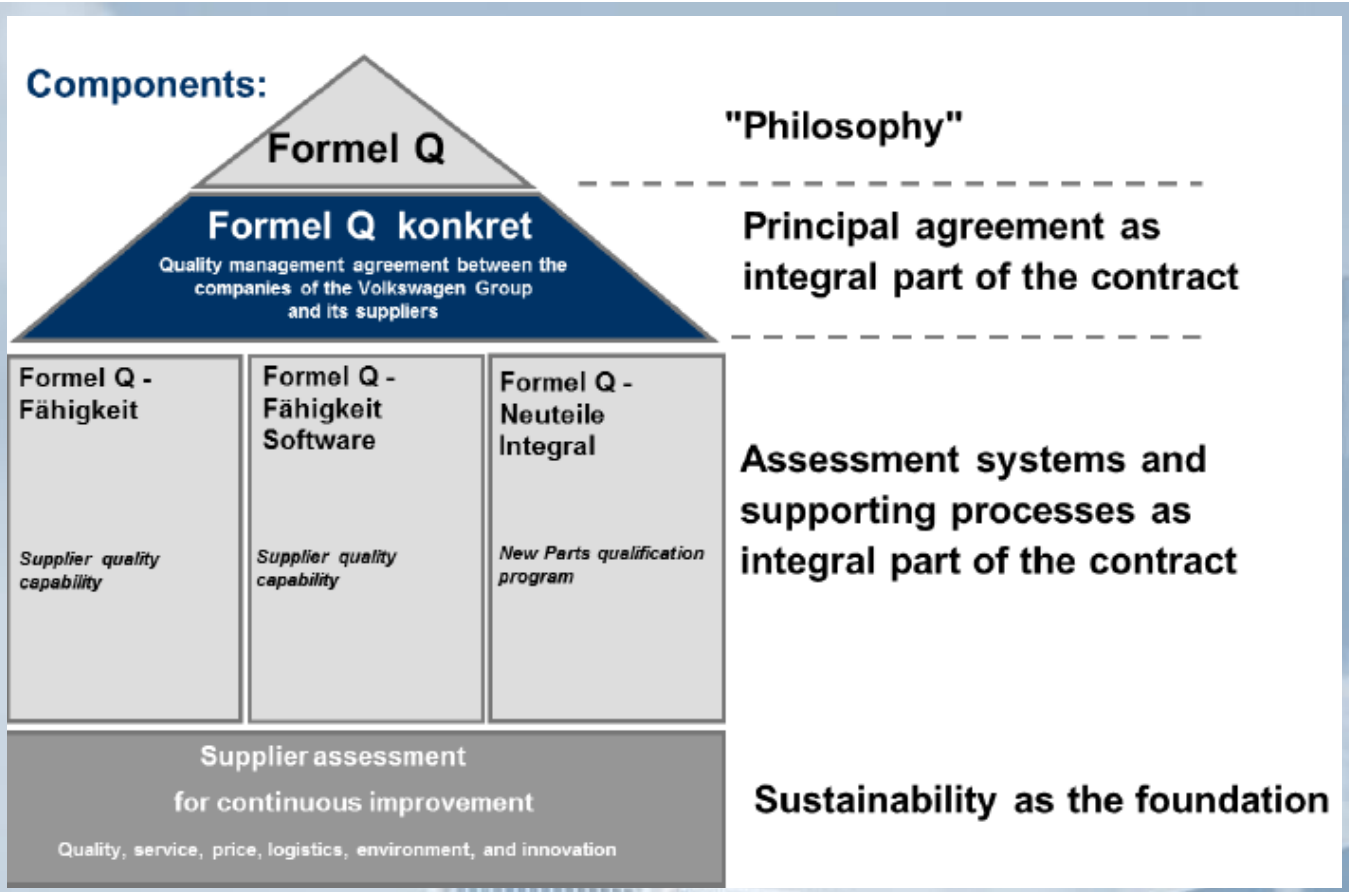
BENTLEY

TSD 4238 -
Quality agreement between
Bentley Motors Ltd.,
and its suppliers

Formel Q Documents



Formel Q House Introduction



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- 8.2.1.1 Customer Communication - supplemental
- 8.2.3.1.2/ 8.3.3.3 Customer-designated special characteristics
- 8.3.2.1 Design and development planning – supplemental
- 8.3.2.3 Development of products with embedded software
- 8.3.6.1/8.5.6 Design and development changes – supplemental / Control of changes
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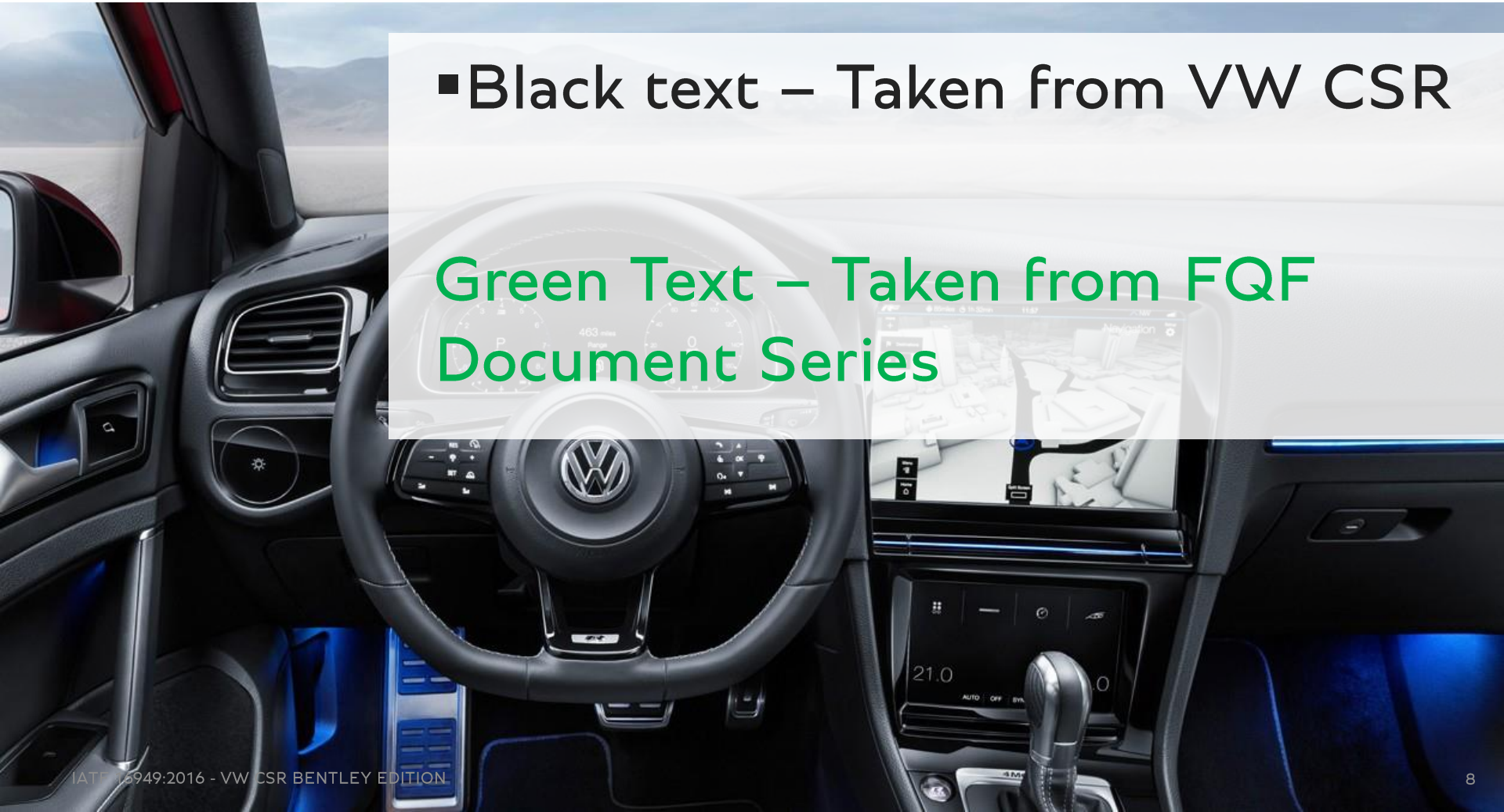
- 8.6.1 Release of products and services
- 8.6.2 Layout inspection and functional testing (deutsch: Requalifikationsprüfung)
- 8.6.5 Statutory and regulatory conformity
- 8.7.1.7 Nonconforming product disposition
- 9.1.2.1 Customer satisfaction — supplemental
- 9.2 Internal Audit
- 9.2.2.4 Product audit
- 10.2.5 Warranty management systems

Document Key



- Black text – Taken from VW CSR

Green Text – Taken from FQF Document Series

Sections

4.4.1.2 Product safety (PSB)

- VWAG requires a management role defined as “Product Safety Representative”.

- See Formel-Q-konkret, Chapter 4.2 – Product Safety Representative (PSB) and “Produktsicherheitsbeauftragten bei Lieferanten (PSB)” “Product Safety Representative (PSB)” in www.vwgroupsupply.com

- VW-specific Remark to “Note”: VWAG considers the “special approval” a responsibility of the supplier. No additional approval by VWAG is required.

“Specify the product safety officer (PSB) in the delivery database on the corporate business platform (LDB) for each location. The training of the PSB must have been carried out by a course recognised by Volkswagen AG”.

Formel Q Capability 8.0 Appendix – Section 7.5

VW approved training is available via SMMT IF.

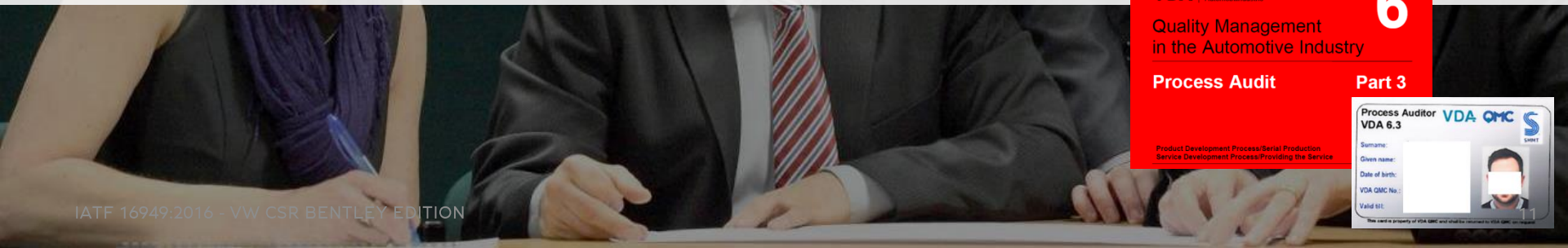
7.2.4 / 8.4.2.4.1 Second party auditor competency / Second party audits

- Formel-Q-Capability Appendix (Chapter 2; 5.7)

- The process-audits in the supply chain must be conducted in accordance to Formel-Q-Capability by certified VDA 6.3 auditors (see auditor qualification in Section 3.2 of FQF 8.0).

"must be conducted by certified VDA 6.3 auditors. This requirement is met with a qualification Certified Process Auditor VDA 6.3".

"Alternatively trained as a Quality Auditor, for example, according to EOQ guidelines or ISO / TS 16949 (IATF 16949) tested and certified by appropriately accredited Certification Bodies, is accepted as a base. These certificates are limited in time and may be extended only in cases of proven audit experience. These basic qualifications are only recognized with additional evidence of VDA 6.3 training." Formel Q Capability 8.0 – Section 3.2



8.2.1.1 Customer Communication - supplemental

- Formel-Q-Capability Appendix (Chapter 2; 7.2)

Access approval for the VOLKSWAGEN Group Communication Platform (www.vwgroupsupply.com)

"Maintaining the supplier database (LDB-B2B): among others Production Location, Contact data, Performance Range / DUNS No. / KRIAS No. Quality Management Certificate.

The manufacturing plant must strictly only have one DUNS no. with respect to Volkswagen AG. According to the drawing, the components must be labelled with the location-specific 3-digit Herstellercode (Manufacturer) code.

Obligation to keep the parts history up to date (see VW01155 / VDA Volume 2)"

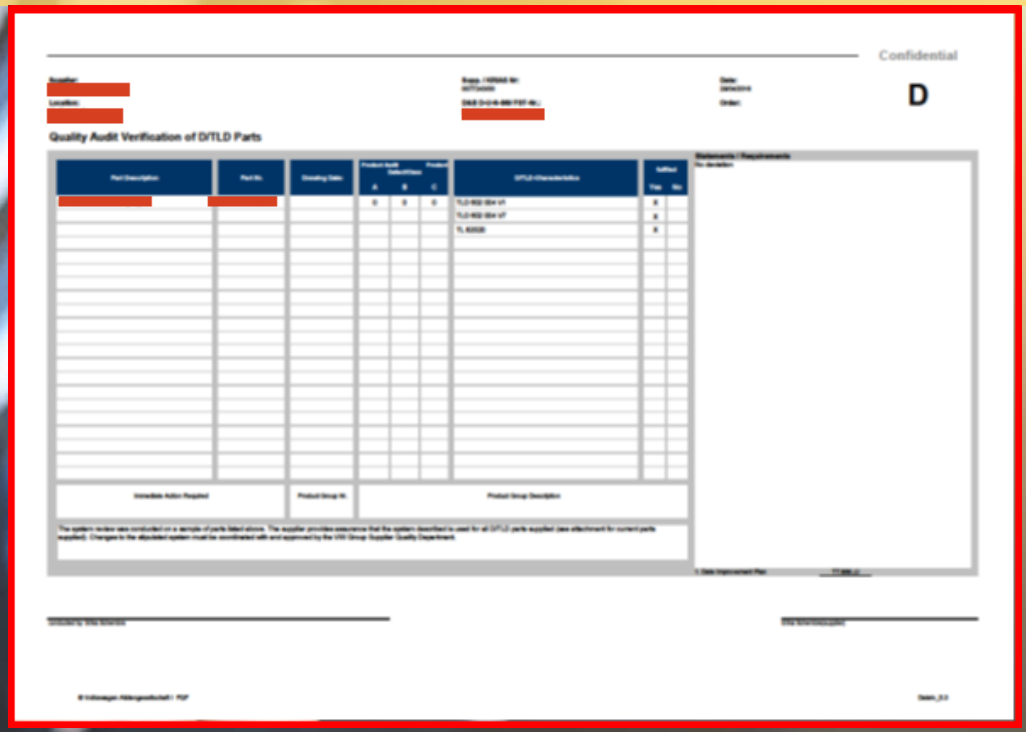
Formel Q Capability 8.0 Appendix – Section 7.2

8.2.3.1.2/ 8.3.3.3 Customer-designated special characteristics

- VWAG requires suppliers that supply parts with D/TLD-marking, to perform an annual self-audit according to the VW-defined D/TLD-Audit. (See: Formel-Q-Capability (Chapter 7) – Quality Verification for D/TLD-Parts; Formel-Q-Capability Appendix (Chapter 2; 6.2.3; D/TLD-requirements)

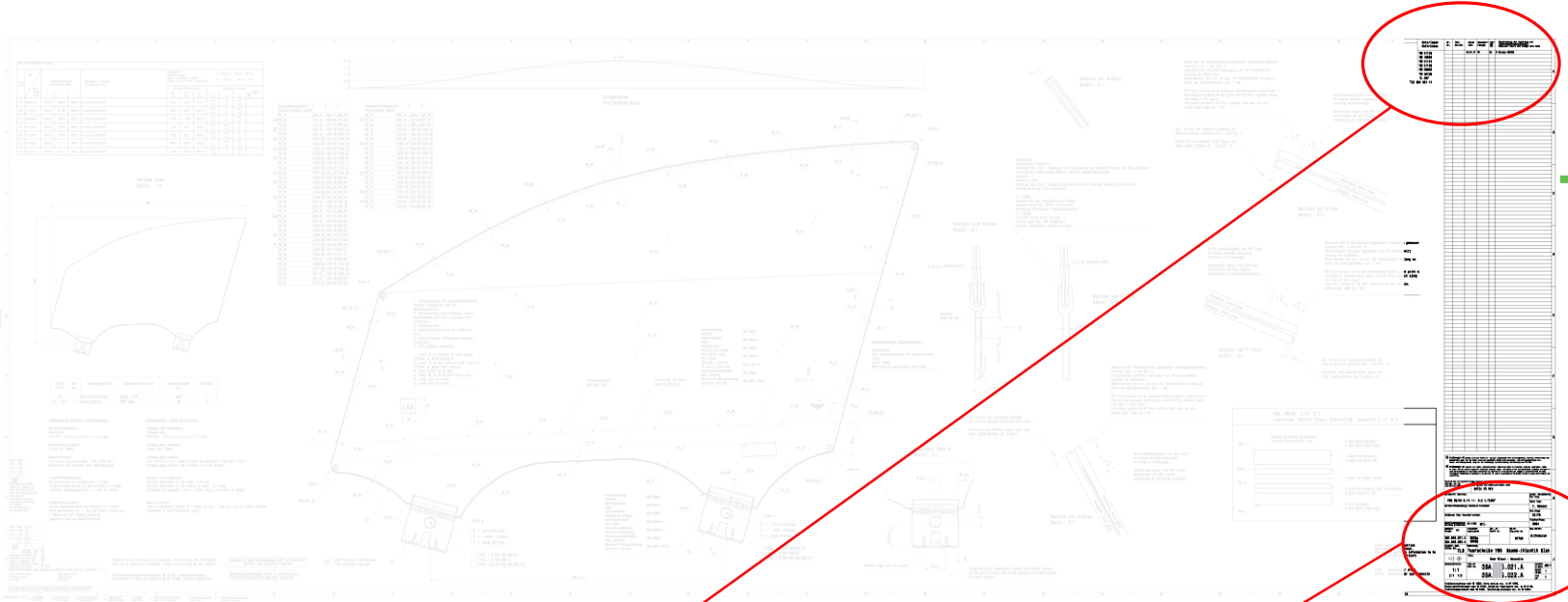
"The supplier is obliged to include all special features (e.g. TLD characteristics) specified by the customer in his approach for monitoring special features.
- Including Sub-Suppliers.
- Tracking list for all "D/TLD parts of the Customers."
- Perform a D / TLD self-assessment at least once a year. The self-assessment must not be longer than 12 months apart.
-Compliance of labelling of Products with National and International conformity requirements. .."

Formel Q Capability 8.0 Appendix – Section 6.2.3


Confidential

D

Quality Audit Verification of D/TLD Parts



Unterlagen References	Nr. No.	Feld Section	Datum Date	Geaendert Changed	Genehmigt Appr.	Beschreibung der Aenderung und Aenderungsstatuschluessel Revision record and change cate code
VW 01155			08.04.14	TN	NG	B Release E93830
VW 10500						
VW 91101						
VW 91102						
~~VW 93000~~						
VW 50185						
TL 957						
TLD 804 001 V1						

A

CAD-System und Verrechnungssystem-Schluessel
CAD system and administration code
CATIA V5 R19

Werkstoff/ Material
YSG DG/AK 5.14 +/- 0.2 n.TL957

Kennt.-Verantwortg.
Doc resp.

Name/ Name
T. Newson

Werkstoffbehandlung/ Material treatment

Abt./Dept.
EK/TD

Halbzeug/ Semi-finished product

Telefon/Phone
6884

Oberflaechenschutz / Surface protection VW 93750 Ofl.

Gewicht Weight (g)	errechnet calculated	Ent.-Nr. Draft no.	EN-Nr. Eng.proj.no.	Gez./Drawn
36A.845.021.A	3633g		BY736	M.Chomczuk
36A.845.022.A	3633g			

Sicherh.-Dok. / Safety doc. TLD

Benennung / Name
Tuerscheibe VSG Daemm-/Akustik Glas

Title
Door Glass - Acoustic

Massstab/Scale
1:1
2:1 1:3

Format/Size A0+1
Blatt/Sheet 1
von/of 1

Teilekennzeichnung nach VW 10500. Parts marking acc. to VW 10500.
Recyclinganforderungen nach VW 91102. Recycling requirements acc. to VW 91102.
Toleranzgrundsatz nach VW 01004. Tolerancing principle acc. to VW 01004.

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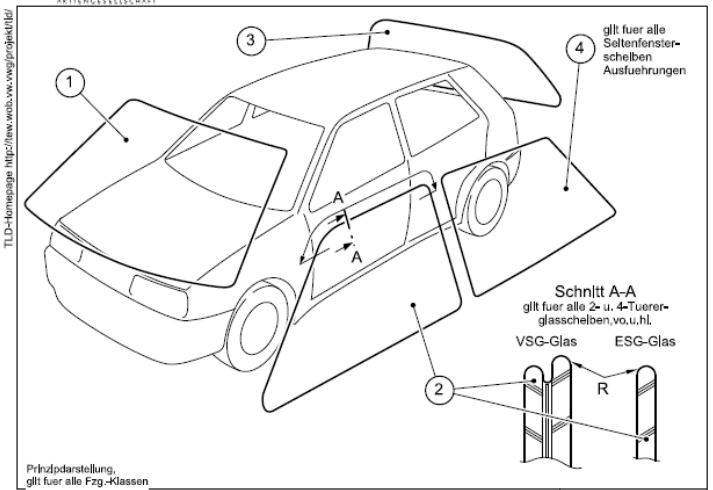
TLD-Homepage http://ww.wobs.vw.vwg/projekt/tld/

D-Merkmale



☐ Baugruppe ◯ Positionen von D-Merkmalen

Computergrafik gez.: HM Technik

Pos. Nr.	Teil-Benennung	Dokumentationspflichtige Merkmale	Entscheidungs-Basis	Bemerkung
1	Windschutzscheibe	**A Qualitaetsanforderung**	FMVSS 205	.
		1) TL-957	ECE-R 43	
			GB 9656	
		B Beschriftung	FMVSS 205	
		1) Uebereinstimmung der ECE- und DOT-Nummer nach Freigabe	ECE-R 43	
			GB 9656	
2	Tuerfensterscheibe	siehe Pos.1	siehe Pos.1	
		und		
		C Masse	siehe Pos.1	
		1) Kantenradius R		
3	Heckscheibe	siehe Pos.1	siehe Pos.1	
4	Seitenfensterscheibe	siehe Pos.1	siehe Pos.1	

Aenderung	.	.		.
11.Aenderung	10.03.16	1	Entscheidungs-Basis geaendert	HMT Wolf
10.Aenderung	31.08.07	.	Formblatt ueberarbeitet	Igs Wolf
9.Aenderung	25.07.06		Homepage ber.;Einsch.-Basis ber.	Igs Wolf
8.Aenderung	28.02.01		Grafik neu gez.; Pos.1B geaend.; Schn.fuer VSG-Glas zugef.	HM Wgd.
7.Aenderung	04.12.97		Pos. 3 entf.; Nr.-Folge aufgerueckt	Wgd.
6.Aenderung	01.97		Formblatt ueberarbeitet	Wgd.
5.Aenderung	08.07.96		Formblatt ueberarbeitet, EG/ECE-Gesetze zugefuegt	Wgd.

Erstausgabe	Datum: 06.84	Pos. Nr.	Fachverantwortung: TE-Wob, Wolf Tel.: 24984	Erstellt: Volkswagen TE Wolfsburg	Fachverantw. Aenderungen

Benennung: Verglasung

Detail-Benennung: Scheiben

Ident.-Nr.: **TLD 804 001 V1**

Blatt 1 von 1

Form FF 236 07-12

VOLKSWAGEN
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Group standard — Updated translation: January 2018 — **TL 957** Issue 2018-10

Class. No.: 8FG00 — **D**

Descriptors: silicate glass, vehicle window glass, glass pane, window glass

Silicate Glass for Vehicle Windows

Quality Requirements

Previous issues

TL 957: 1966-10, 1968-07, 1970-05, 1975-06, 1981-11, 1982-09, 1984-09, 1985-07, 1985-11, 1986-08, 1987-01, 1988-03, 1988-06, 1989-07, 1993-07, 1997-07, 1999-02, 2000-06, 2000-09, 2001-11, 2002-10, 2006-02, 2008-10, 2011-09, 2011-11

Changes

The following changes have been made to TL 957: 2011-11:

- Section 4 "Abbreviations" expanded
- Section 5.1 "Basic requirements" redefined
- Section 5.5 "Marking (glass labeling)" expanded
- Section 10.7 "Transmission optics of side glass (TSG) from continuous prestressing process-es", requirements restricted to tempered safety glass
- Section 12.4.2 "Stresses at window glass edge" revised
- Section 12.5.2 "Visual inspection" revised

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VWNORM-2015-07e

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1 Scope

This standard defines the requirements and tests for vehicle window glass and sunroofs/glass sunroofs made of silicate glass.

2 Symbols and abbreviations

⊓ Requirements marked with a documentation bar are subject to mandatory documentation.

D Safety documentation: Compliance with legal provisions as well as Volkswagen Group specifications for functionally important parts (FIPs) is mandatory.

3 Designation

Quality requirements according to Technical Supply Specification TL 957

BENTLEY

5.5.1 Location of marking

Location of marking as per table 1

Table 1 – Marking

Window glass type	Location
Windshield	Bottom right
Rear window	Bottom left
Fixed side window glass	Rear bottom
Hinged window	
Quarter glass, front door	
Quarter glass, rear door	
Sliding window	
Front or rear door drop glass	

5.5.1.1 Dimensions of markings

Height ≤ 24.5 mm
Width ≤ 31 mm

5.5.1.2 Logo

As per VW 10514.

5.5.2 Manufacturer's code, company name

Font size 2 mm

5.5.2.1 ECE approval mark

a ∅ ≥ 8 mm, E $\frac{a}{2}$, font size $\frac{a}{3}$

E.g.

⊓ 5.5.2.2 USA registration

Font size 1.8 mm

5.5.2.3 Date

Date as per German Association for the Automotive Industry VDA 261
Font size 1.8 mm

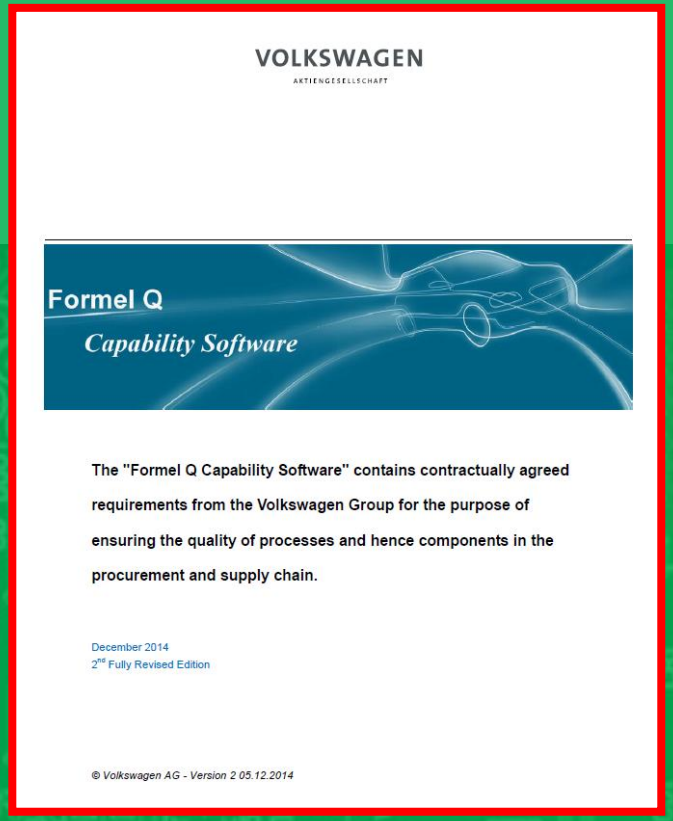
8.3.2.1 Design and development planning – supplemental

- VWAG requires all Suppliers to implement the Maturity Level Assurance process (QPN-I)
- See: Formel-Q-konkret (Chapter 3.1). *This is now completed 'Online'*

8.3.2.3 Development of products with embedded software

- VWAG requirements regarding sub-supplier management are described in Formel Q-Capability Software

- (Chapter 8) as well as in other applicable documents indicated in Formel Q-Capability Software (Chapter 2)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Formel Q
Capability Software

The "Formel Q Capability Software" contains contractually agreed requirements from the Volkswagen Group for the purpose of ensuring the quality of processes and hence components in the procurement and supply chain.

December 2014
2nd Fully Revised Edition

© Volkswagen AG - Version 2 05.12.2014

8.3.6.1/8.5.6 Design and development changes – supplemental / Control of changes

- VWAG requires its suppliers to obtain documented approval, or a documented waiver, prior to production, See Formel-Q-konkret, (Chapter 4.5) - Change management and Volkswagen Standard VW 01155

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Group standard VW 01155
Issue 2013-02

Class. No.: 01190
Descriptors: vehicle parts, supply parts, first supply

Vehicle Parts
Approval of First Supply and Changes

Preface

This Standard contains a normative appendix that describes the requirements for the preparation of material data sheets in the International Material Data System (IMDS) and Material Information Sheet System (MISS).

Previous issues

VW 01155: 1988-01, 1995-12, 1999-10, 2000-12, 2004-06, 2005-02, 2006-01, 2009-10, 2009-11, 2011-06

Changes

The following changes have been made to VW 01155: 2011-06:
– Extended to include all parts of a vehicle

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Numerical notation acc. to ISO/IEC Directives, Part 2.

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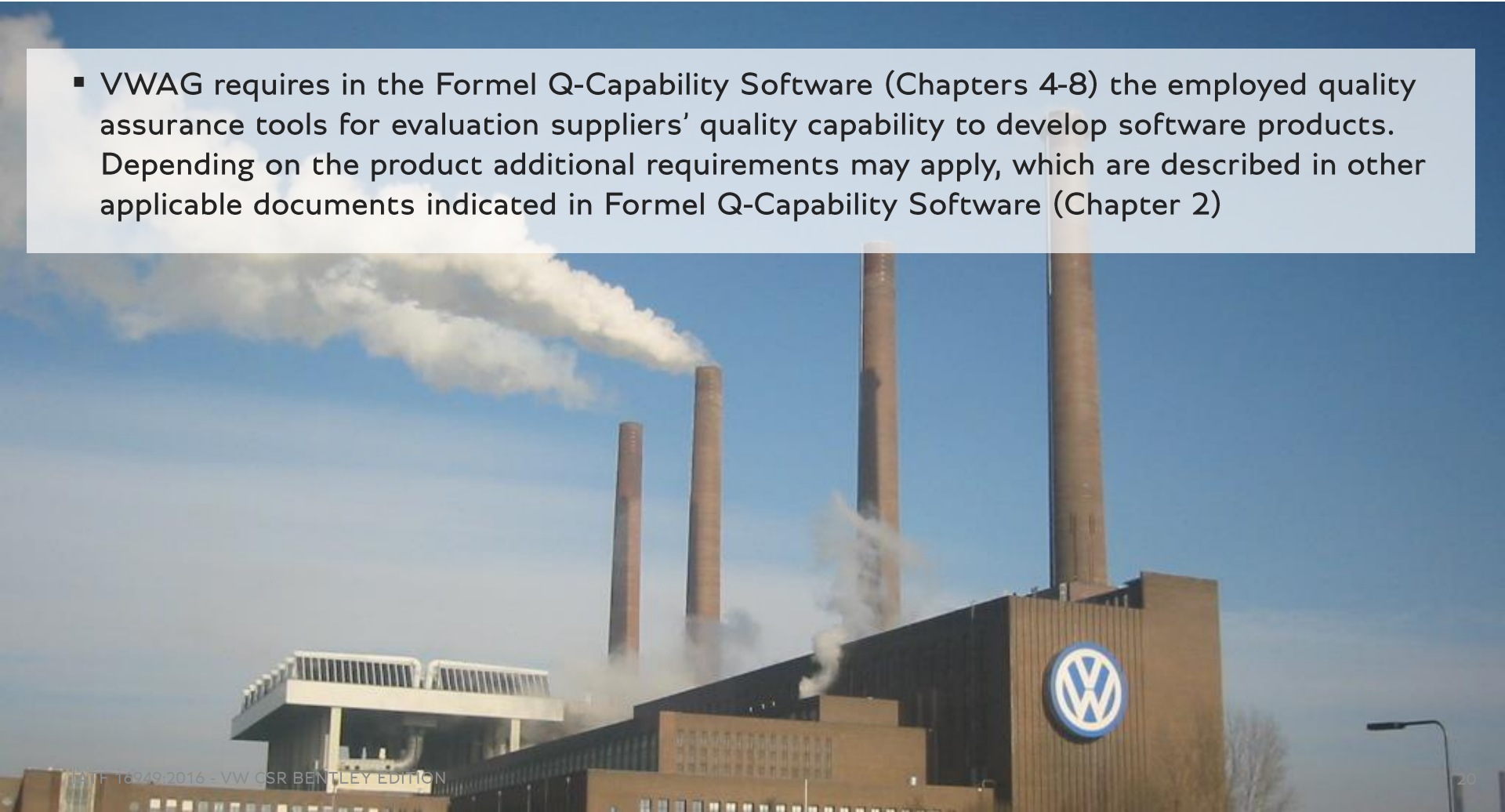
VWNORM-2012-05n

8.4.1.2 e) Supplier selection process

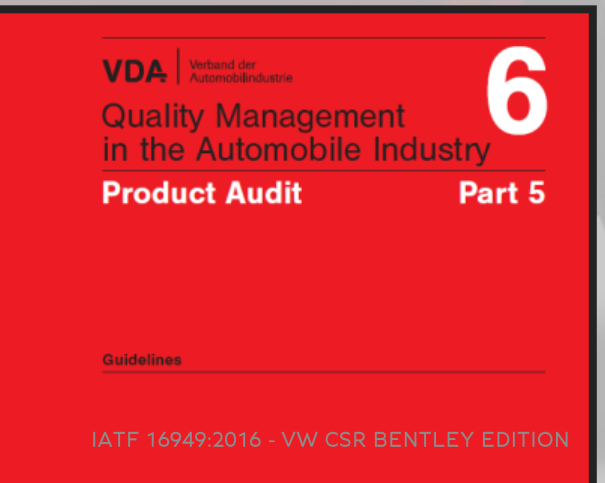
- VWAG requires in the Formel Q-Capability Software (Chapters 4-8) the employed quality assurance tools for evaluation suppliers' quality capability to develop software products. Depending on the product additional requirements may apply, which are described in other applicable documents indicated in Formel Q-Capability Software (Chapter 2)



8.5.1.1 Control plan

- (see: Formel-Q-capability, (Chapter 4.2) Product Audit)
- The Product Audit must be defined on the Product Control plan. Product Audit shall take place at least every 12 months for each product manufactured as a Series Production part.

"The Supplier is obliged to conduct Product Audits according to VDA 6.5. The Product Audit shall take place at least every 12 months for each Product manufactured as a Series Production part.
For simplification, in the overall portfolio of Manufactured Products Categories / Product families can be formed (analog VDA 6.5)." Formel Q Capability 8.0 – Section 4.2



8.5.1.6 g) Management of production tooling and manufacturing, test, inspection tooling and equipment

- Volkswagen Group Standard VW 34022 for Marking of Tools, Auxiliary Tools, Test Equipment, and Gages (Identification Plate) must be ensured.

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Group standard — VW 34022
Issue 2016-03

Class. No.: 34000

Descriptors: tool, special production equipment, production tool, test tool, prototype tool, hand tool, machining tool, auxiliary tool, testing equipment, gage, fixture, marking, property marking, identification plate, identification

Marking of Tools, Auxiliary Tools, Test Equipment, and Gages (Identification Plate)

Requirements

Preface

The design of tools can be very different depending on the application. Examples of this include the dimensions, material, production, and quality of the component that must be produced, or the number of pieces of the component.

Accordingly, the fields required for the marking in an identification plate differ depending on the application.

Nevertheless, there must be a consistent number range with mandatory input fields, in order to be able to uniquely identify tools independently of (IT) systems.

Previous issues

VW 34022: 2004-10, 2011-01, 2011-09, 2012-02, 2012-08, 2013-04, 2014-07, 2015-06

Changes

The following changes have been made to VW 34022: 2015-06:
- Department abbreviations of technical responsibility and Standards departments updated
- Section 5.3 "Simplified marking" added

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5 Marking

If no data contents are specified, the marking must include the following information; see also figure 1:

- Heading: "Property of [purchaser]"
- Issuing office; see section 4 (4.1a, 4.2a, and 4.3a)
- Inventory number/tool number; see section 4 (4.1b, 4.2b, and 4.3b)
- Part number
- Part designation
- Vehicle project
- Total weight of the tool
- Dimensions
- The date the tool was manufactured

Property of Volkswagen AG

DUNS:	
Inventory number:	
Part number:	
Part designation:	
Project:	
Weight:	
Dimensions:	L: W: H:
Issue date:	

Figure 1 – Marking plate (example for a production tool recorded in inventory)

8.6.1 Release of products and services

- Formel-Q-konkret (Chapter 3.2) - Initial Sample testing and approval:

- The sample testing is to be based on VDA vol.2. The latest version of Formel Q-Neuteile Integral contains additional, more detailed Customer requirements regarding the sample testing process. This section 3.2 defines rules for designated parts in assemblies and for assuring consistent component quality.

- Responsibility for the initial sample testing and approval of designated parts in higher-level assemblies resides with the first-tier Supplier in coordination with the receiving plant (if there is more than one, with the receiving plant of first use, which is generally also the type leader plant). (refer for complete requirements to Formel-Q-konkret, Chapter 3.2)

8.6.2 Layout inspection and functional testing (deutsch: Requalifikationsprüfung)

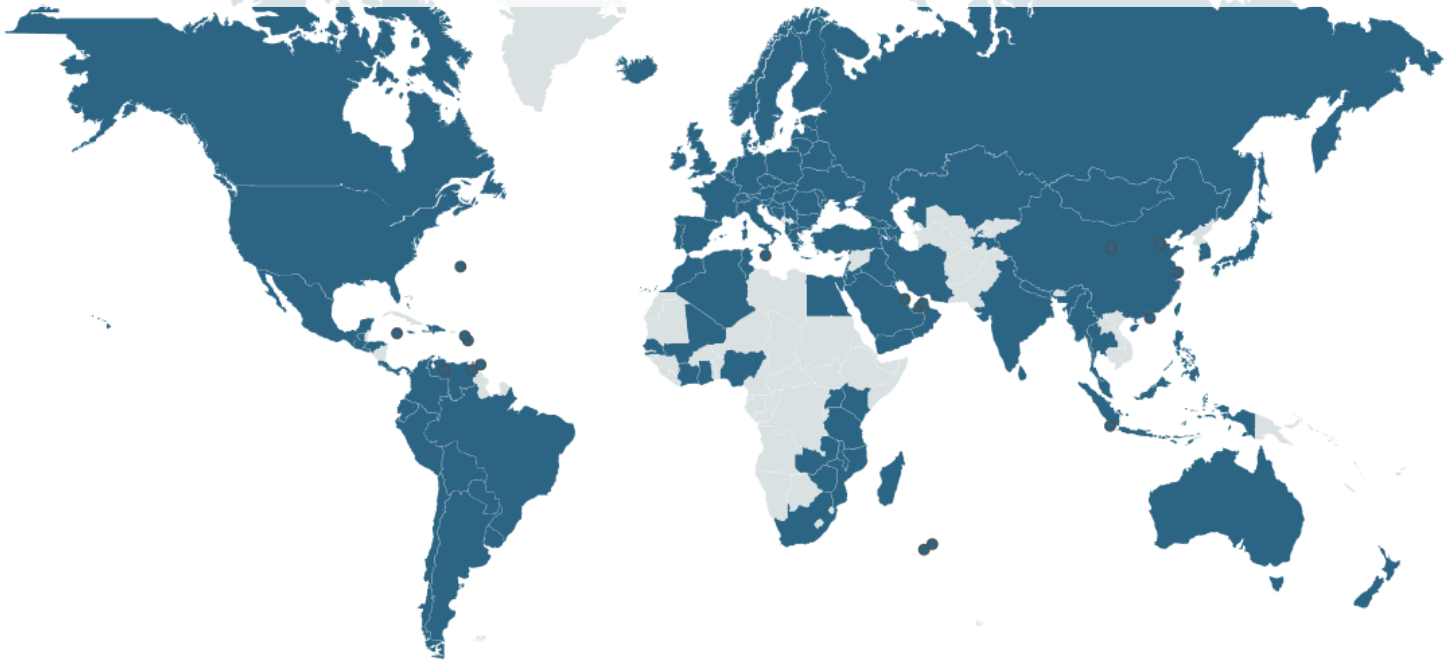
- Formel-Q-konkret (Chapter 4.6) – Requalification

- In the context of Volkswagen Group the term "*Requalification*" is equivalent to the IATF-term "*layout inspection and functional testing*":

- To ensure quality, the Supplier must carry out a regular requalification of its scope of supply in accordance VDA publication "Robust Production Processes" (section 5.3.4). Volkswagen Group requires a complete requalification (equivalent to Production-and-Process-approval/initial sample release) at least every **three** years. Requalification cycles can be defined by legislation, government agencies, and by component-specific requirements (e.g. in the performance specifications/Lastenheft) and must be implemented in the related product control plan. Any deviation from the requalification content must be agreed between the supplier and the customer.

8.6.5 Statutory and regulatory conformity

- It is to expect a worldwide use if certain destinations were not specifically restricted by Volkswagen Group

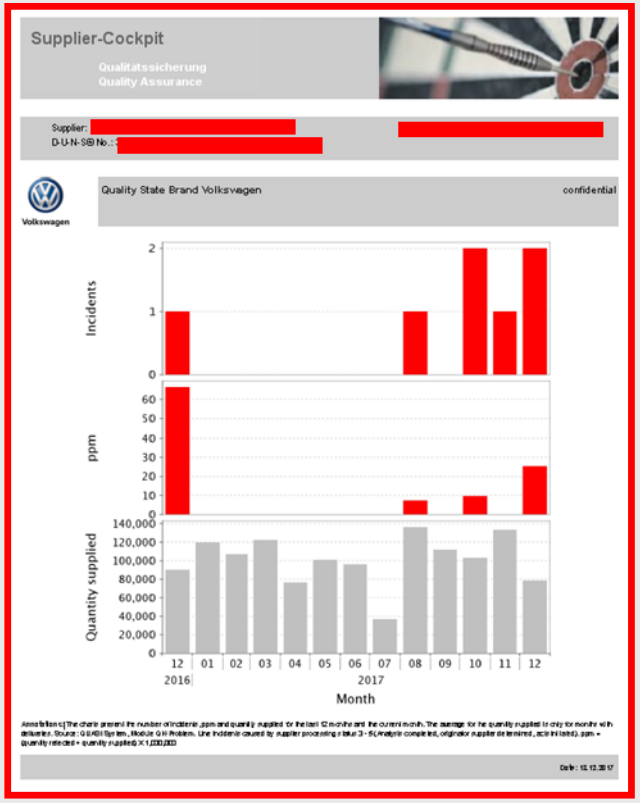


8.7.1.7 Nonconforming product disposition

- Must include suitable inspection and evidences of sub-supplier parts

9.1.2.1 Customer satisfaction — supplemental

- Customer Score Card (Volkswagen Group B2B - “SCQ”)
- See also: ADP Score-Card-Training-Module (IATF)



Month	12/2016	1/2017	2/2017	3/2017	4/2017	5/2017	6/2017	7/2017	8/2017	9/2017	10/2017	11/2017	Sum	12/2017
Incidents	1	0	0	0	0	0	0	0	1	0	2	1	5	2
- reported from Final Vehicle Audit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorted by customer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sorted by supplier	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reworked by customer	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reworked by supplier	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scrap	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Return shipping	6	0	0	0	0	0	0	0	0	0	1	0	7	2
Parts without problem sheet	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quantity supplied	90226	119945	107017	122272	76577	101140	96165	26251	126426	111927	102100	122592	1225254	72722
ppm	66	0	0	0	0	0	0	0	7	0	9	0	46	25

Date: 12.12.2017

9.2 Internal Audit

- VWAG requires a yearly Supplier Self Audit (VA/SL) acc. Formel-Q-capability (Chapter 3), a Self Audit has valid time period of max. 12 months. A specific Self-Audit-Format is supplied on Volkswagen Group B2B www.vwgroupsupply.com “Format for Supplier Self Audit”
- Supplier Self Audit (VA/SL) must be conducted by certified VDA 6.3 auditors (see auditor qualification in Section 3.2 of FQF 8.0).
- Formel-Q- Capability-Appendix must be considered.
- In case of D/TLD-marked parts supplied to VWAG, a D/TLD-Supplier-Self-Audit acc. Formel-Q-capability is required within every 12 months(Chapter 7: “Quality Verification Audit for D/TLD Parts”)

VDA 6.3 Prozessaudit Revision 2016

VDA QMC

Audit report VDA 6.3 Evaluation of quality capability

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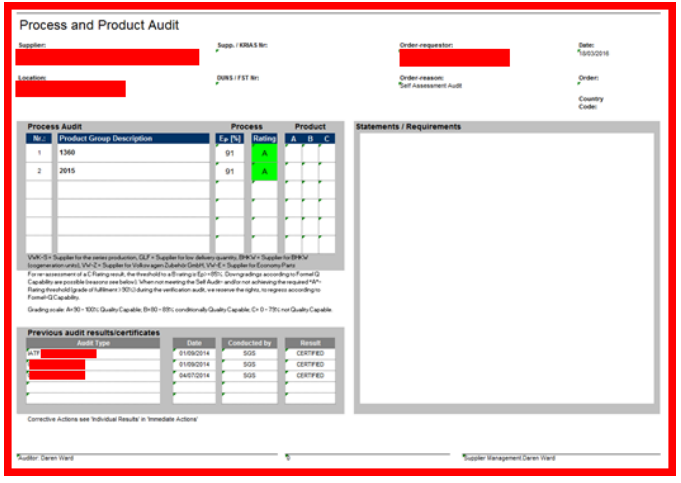

Process and Product Audit

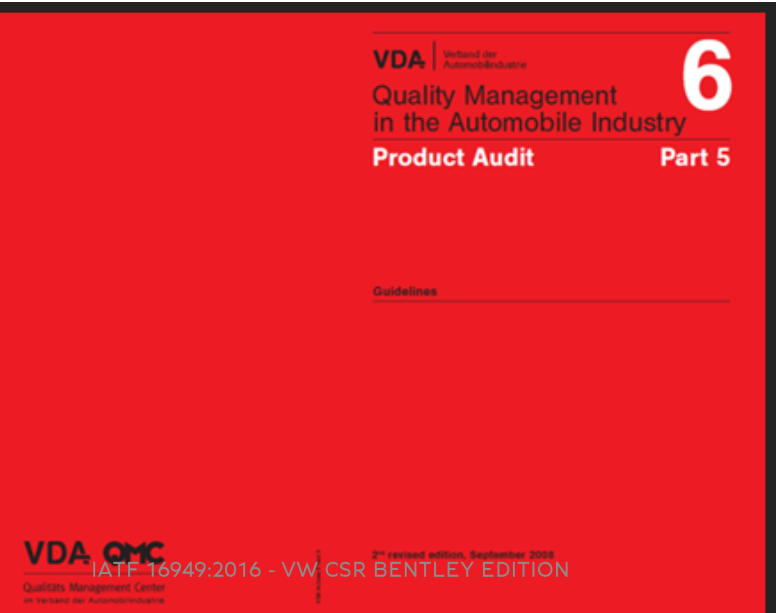
Process Audit

Statements / Requirements

Previous audit results/certificates

9.2.2.4 Product audit

- Product Audit acc. Formel-Q-capability (Chapter 4) – Product Audit
- The Supplier is obliged to conduct Product Audits according to VDA 6.5
- Product Audit shall take place at least every 12 months for each product manufactured as a Series Production part.
- For any A and B-faults as well as systematic C-faults caused by the supplier, the supplier shall immediately inform the Supplier Quality department of the Customer by reporting the issue. The implementation of further necessary actions is to be coordinated.

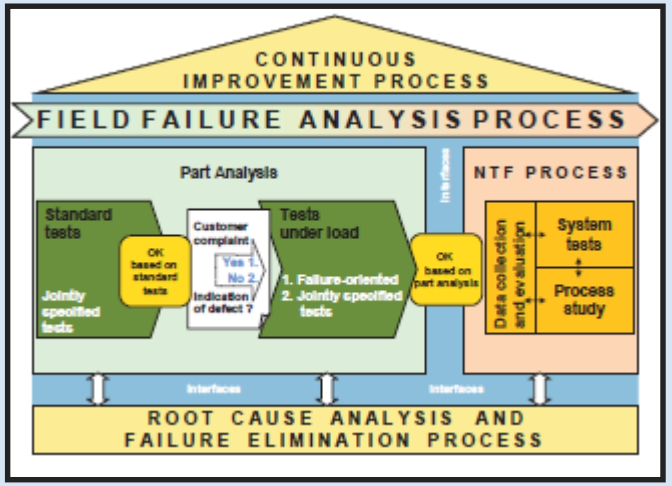


"The Supplier is obliged to conduct Product Audits according to VDA 6.5. The Product Audit shall take place at least every 12 months for each Product manufactured as a Series Production part.
For simplification, in the overall portfolio of Manufactured Products Categories / Product families can be formed (analog VDA 6.5)."

Formel Q Capability 8.0 – Section 4.2

10.2.5 Warranty management systems

- The process of Failure Analysis including NTF shall be implemented. Procedure shall comply with VDA Volume “Field Failure Analysis“



industrie e.V.

VDA | Verband der Automobilindustrie

Joint Quality Management in the Supply Chain

Marketing and Service

• Field failure analysis

Source: VDA Marketing and Service – Field Failure Analysis

BENTLEY
Thank You
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