

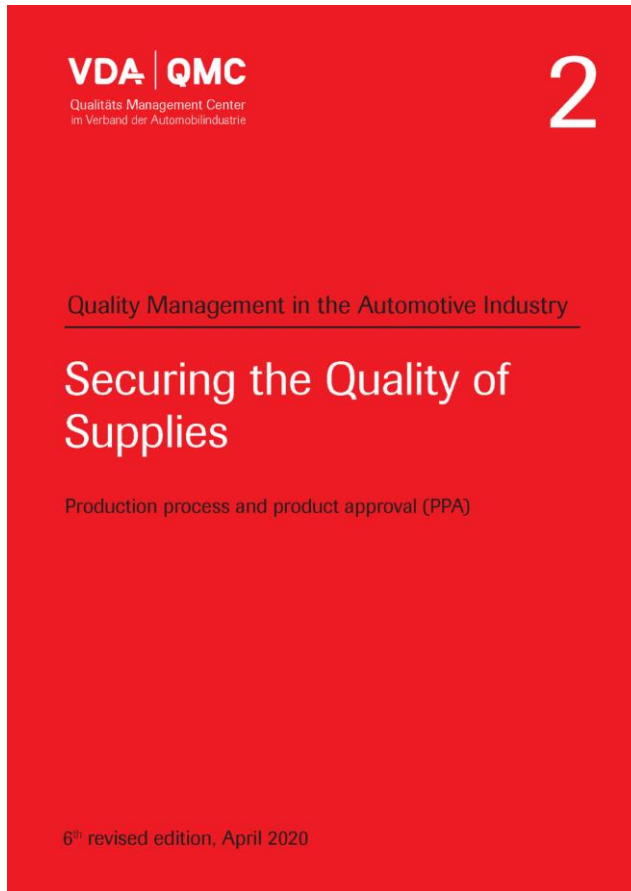
PPA procedure of purchased parts – Guideline for suppliers

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Content

1. Production proces and product approval (PPA)
2. Initiation of the PPA procedure
3. PPA deliverables/Scope of documentation
4. BMG - Additional requirements of the VW Group
 1. BMG for single components
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5. Installation release – Additional requirements of the Mercedes-Benz AG
6. Development release - Additional requirements of the Mercedes-Benz AG
7. Releases from other companies
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10. Material Quality Verification - VW 52000
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Production process and product approval (PPA)



1. The PPA procedure at SEBN group occurs on the basis of **VDA 2, edition from April 2020.**
2. The supplier is under an obligation to present the documents agreed with SEBN concerning PPA procedure (scope and content) including free sample parts.
3. The PPA procedure described in the VDA 2 aims at a full release **(internal and at the customer)** of a product including the associated production process for series production.

Internal - independently of the PPA procedure towards SEBN, the supplier carries out an internal PPA procedure and documents the results. Thereby, the supplier executes the deliverables according to the requirements in Table 1.

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Initiation of the PPA procedure

The PPA procedure is initiated for:

1. New parts

2. Changes to products

3. Re-use

Use of lines, machines, tools, cavities and nests after 12 or more months of standstill/ non-use for the specific product.

4. Customer-specific agreements (e.g. requalification)

In case of changes to products the initiation towards SEBN is carried out according to the Trigger Matrix (Appendix 8, VDA 2) or SEBN specific agreements.

Initiation of the PPA procedure

Decision options of the trigger matrix

1) Is it a change?		2) Does it apply to Special Characteristics towards the customer?		If customer-specific agreements have been made, they must be complied with!		
3) Does it apply to the technical interface to the customer? (e.g. connection to customer component/assembly with respect to geometry, optics, haptics, functionality, software, etc.)		4) Change type?				
5) Does it apply to contract documents (e.g. specification sheet, customer drawing, records, specifications, ...)?		6) Does it apply to fit, form, function, performance, reliability?				
Y	Y/N	All	Y/N	Y/N	Ch in the Special Characteristics of the product, component (electro/mechanical), production process, etc. specified with the customer, ...	A
Y	All	Y/N	Y/N	Y/N	e.g. attachment to vehicle, electron connections, electron components, ... Electron components (see ZVEI "Product/Process Change Notifications - Guideline for Automotive Electronic Components")	A
Y	N	Design Ch *	Y	Y	e.g. Ch in design, tools, ...	A
			Y	Y	e.g. Ch in product software through (changed) functional software requirements	A
			Y	Y	e.g. Ch in product software through (changed) non-functional software requirements	A
			N	N	e.g. Ch in sealing material, Ch in an EMC capacitor, ...	A
			Y	Y	e.g. Ch of dimension not contained in the customer drawing	A
			N	N	Ch of substance / material	A
			N	N	Ch in requirements of internal specs or tolerance change, outside of customer spec	A
			N	N	Ch in requirements of internal specs or tolerance change, still within customer spec	A
			N	N	Ch of name / designation of parts / materials with same composition	-
			N	N	Ch in roughing levels (e.g. pre-roughing dimension of a shaft, reception of wafers, ...)	-
		Process Ch	Y	Y/N	e.g. Ch in the process chain (including supplier, duplication of production lines, ...)	A
			Y	Y	e.g. Ch of test, test flow or other reasons, ...	A
			Y	Y	e.g. Ch in curing parameters, injection temperature, ...	A
			Y	Y	e.g. Ch in the process chain (including supplier, duplication of production lines, ...)	A
			N	N	Ch in number of cavities in tool, follow-on/enhancement tools	I
			N	N	Duplication of production and test equipment within an existing line	I
			N	N	Procurement and use of a new machine type	I
			N	N	Ch to existing tool, new device, new poka-yoke	I
			N	N	Ch to process including roughing levels (as in no. 12)	-
			N	N	Ch of setting parameters, operating equipment, injection temperature, ...	-
N	N	Manufacturing / Assembly	N	N	Ch in test method, risk higher	N
			N	N	Ch in test method, risk unchanged / lower, same process sequence	-
			N	N	Expansion of testing without method change (e.g. increase in samples)	-
			N	N	Reduction / elimination of test not relevant to customer (e.g. sampling)	-
			N	N	Tools from line to line, equivalent lines	-
		Production relocation	N	N	Relocation of facilities with mobile design within a production plant without changing process chain	-
			N	N	Location Ch: relocation of facilities, parallel production (not for roughing levels as in no. 12)	A
		Logistics	Y	Y/N	Ch of supplier, new second supplier, supplier changes sub-supplier	I
			Y	Y/N	New forwarder or ESP, SLC	I
			N	Y/N	Packaging towards the customer, shipping, invoicing	I
			Y	Y/N	Internal packaging (e.g. plant-plant, in-house, ...) and sub-suppliers	-
			Y	Y/N	Document adaptation to condition of approved product	-
Doc.	N	Y	Y/N	Document adaptation to condition of approved product or correction of formal errors	-	
		N	Y/N	Ch in non-product-related documents (e.g. work instructions, ...)	-	
		N	N	Reuse of lines, facilities, machines, tools, cavities, and molds after a standstill of 12 months or more*	-	
		N	N	Maintenance / servicing of existing tools, tools subject to rapid wear (e.g. lathe tools, honing mandrels)	-	
		N	N	Replacement of identical or functionally equivalent machine, replacement of identical test equipment	-	

The table must be edited in the direction of the arrow

Y Yes
N No
NA Not allowed

- Customer involvement not required (Note: PPA documentation must be internally archived)
- I Customer must be informed. In accordance with IATF 16949, the customer must be granted a term of 2 weeks to provide a statement.
- A Customer agreement required, execution of PPA procedure
- Ch Change
- ESP External service provider
- SLC Supplier logistics center (also applies to warehousing)
- * or other authorized series production documents made available to the customer (e.g. proposal drawing, control plan)
- ** No consent of the customer is required for recommissioning; all PPA-relevant activities must be carried out according to an A

— = Customer involvement not required

(Note: PPA documentation must be internally archived)

| = Customer must be informed

In accordance with IATF 16949, the customer must be granted a term of 2 weeks to provide a statement.

A = Customer agreement required, execution of PPA procedure

Initiation of the PPA procedure

Additional requirements of the Mercedes-Benz AG

Trigger	Daimler specialist department for the PPA Process	Daimler operative procurement	Daimler logistics
New parts	D		
Product modification* (approved by Development)	D	A	
Production relocation	D	A	A
Production process modification**	D		A
Test process modification	A		
Production stoppage for more than 12 months	D		
Use of new, modified or replacement tools (not applicable to metal cutting tools)	D	A	
Change in 2nd-tier suppliers (Daimler 2nd-tier). In the case of parts with special characteristics (DS, DZ), the above obligation exists up to the supplier responsible for the characteristic.	D	A	
Change in 2nd-tier supplier locations (Daimler 2nd-tier) for deliveries with DS/DZ features.	D	A	
Change in 2nd-tier supplier locations (Daimler 2nd-tier).	A	A	
Modifications in the Partner's purchased parts/primary material/stock	D		
No unconditional series production approval	D		
Failed requalification	D		
<p>*Includes modifications of material as well</p> <p>** Also includes modifications to the logistical value chain</p> <p>D = Execution of the PPA Process by the Partner</p> <p>A = Obligation of disclosure in written form by the Partner to the Daimler specialist department.</p> <p>Implementation and scope of the PPA Process is decided by the Daimler specialist department.</p>			

1. VDA 2 does not include all trigger criteria which are binding for Mercedes-Benz.
2. As part of the PPA procedure for Mercedes projects, the trigger criteria of the Mercedes-Benz Special Terms (MBST) must also be taken into consideration.

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PPA deliverables/Scope of documentation

VDA-No.	Deliverables insofar as they are applicable to the product	Organization	PPA-A
0.1	Cover sheet for PPA report/PPA evaluation	D	S
0.2	Self-assessment for product, production process, and if appl. software	D	S
1. Deliverables of the product development			
1.1	Technical specifications	D	A
1.2	Approved design changes	D	A
1.3	Design, engineering approvals	D	A
1.4	Material data via IMDS	D	S
1.5	Design-FMEA	D	A
2. Deliverables of the production process development			
2.1	Process flowchart	D	A
2.2	Process FMEA	D	A
2.3	Control Plan (CP)	D	A
3. Deliverables of the product verification <i>Exclusively for the requirements from the technical specifications agreed upon with the customer.</i>			
3.1	Geometry, dimensions	D	A
3.2	Material (strength, physical properties, etc.)	D	A
3.3	Function	D	A
3.4	Haptics	D	A
3.5	Acoustics	D	A
3.6	Odor	D	A

VDA-No.	Deliverables insofar as they are applicable to the product	Organization	PPA-A
3.7	Appearance	D	A
3.8	Surface requirement	D	A
3.9	Technical cleanliness	D	A
3.10	Reliability	D	A
3.11	Resistance to electrostatic discharge (ESD)	D	A
3.12	Electrical safety/high-voltage safety	D	A
3.13	Electromagnetic compatibility (EMC)	D	A
4. Deliverables of the production process validation			
4.1	Assurance of Special Characteristics; according to technical specifications and agreed characteristics (e.g. poka-yoke, 100% inspection, process capabilities, etc.)	D	A
4.2	Laboratory qualification	D	A
4.3	Samples incl. labeling (e.g. identification of series, production lot etc. that allow conclusions to be made about the documentation accompanying production)	D	A
4.4	Master sample	D	A
4.5	Production capacity	D	A
4.6	Tools	D	A
5. General deliverables			
5.1	Evidence of compliance with legal requirements	D	S
5.2	PPA status of supply chain	D	A
5.3	Test equipment list for product and production process	D	A

VDA-No.	Deliverables insofar as they are applicable to the product	Organization	PPA-A
5.4	Measurement equipment analysis studies product and production process	D	A
5.5	Part history	D	S
5.6	Evidence of suitability of the employed load carriers including storage	D	A
5.7	Documentation of the agreements regarding the diagnosis and analysis process: • Complaints handling (e.g. 8D) • Field failure analysis	D	A
5.8	Documentation of the agreements regarding Layout inspection and functional testing	D	A
5.9	Other	D	A
6. Deliverables for software			
6.1	SW release (e.g. Appendix 5 "Cover Sheet PPA software")	D	S
6.2	Definition of the scope of the SW product	D	S
6.3	Reference to contractually stipulated quality requirements	D	S
6.4	Documentation of technical SW specifications (functional and non-functional)	D	A
6.5	Implementation of the requirements from 6.3 and 6.4, especially the Special Characteristics	D	A
6.6	Documentation of FOSS (free and open-source software)	D	S
6.7	List of known errors	D	S
6.8	Documentation of development tools	D	A
6.9	Documentation of testing tools	D	A

VDA-No.	Deliverables insofar as they are applicable to the product	Organization	PPA-A
6.10	Documentation of version management	D	A
6.11	Documentation of a process evaluation (e.g. Automotive SPICE®)	D	A

PPA-A PPA Agreement

S Submission to customer

D If applicable: Execution, documentation, and archiving by the organization (if appl. for inspection by the customer)

A All submission items that go beyond the minimum scope must be agreed upon between the organization and the customer in the PPA agreement.

PPA deliverables/Scope of documentation

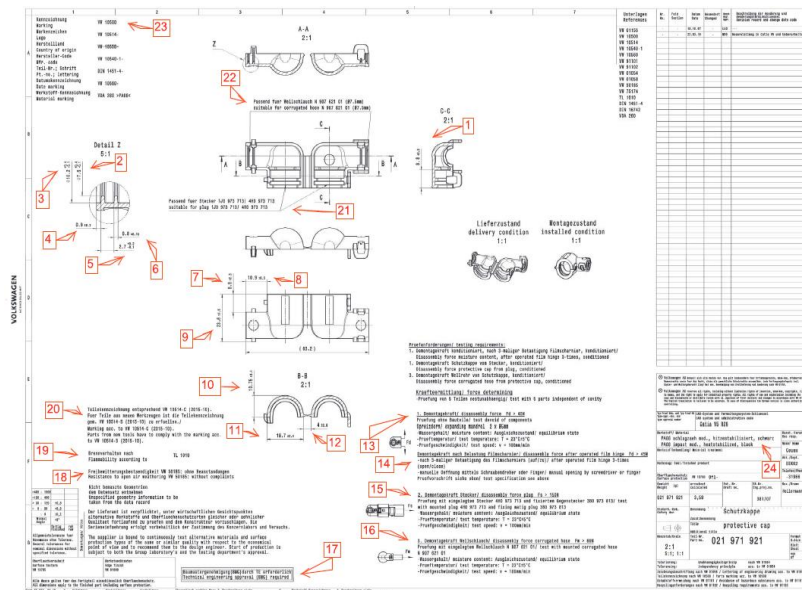
PPA documentation required by SEBN

VDA no.	Deliverables insofar as they are applicable to the product	Comments	Material group 910... terminals, cable socket, current bridge, etc.	Material group 920... connectors, electromechanical box, actuator, electronic components: control units, etc.	Material group 930... grommets, seals, rubber parts, etc.	Material group 940... corrugated tube, plastic tubes, insulated and oil tubes, clips, holders, washing water line, etc.	Material group 950... foam tubes, etc.	Material group 960... tapes, etc.	Material group 970... wires, twisted wires, etc.	Material group 980... antennas, Amec wires, Airbag wire harnesses, ABS sensor wires, etc.	Material group 990... cable ties, cable guide, protective caps, brackets, fuse boxes, cable feeds, clips, heat protection mats, heat- shrink tubes, screws, fuses, relays, etc.
0.1	Cover sheet for PPA report and PPA evaluation		S	S	S	S	S	S	S	S	S
0.2	Self-assessment for product, production process, and if appl. Software		S	S	S	S	S	S	S	S	S
1.1	Technical specifications	Customer/OEM drawing or manufacturer drawing	S	S	S	S	S	S	S	S	S
1.3	Design, engineering approvals	1. Technical engineering approval (BMG) if according to the drawing required - VW Group 2. Development release - Mercedes-Benz	S	S	S	S	S	S	S	S	S
1.4	Material data via IMDS	The IMDS no. must be entered on the cover sheet of the PPA report and sent to IMDS ID no. 4244	S	S	S	S	S	S	S	S	S
3.1	Geometry, dimensions	Test results	S	S	S	S	S	S	S	S	S
3.2	Material (strength, physical properties, etc.)	Inspection certificate/Material certificate	S	S	S	S	S	S	S	S	S
4.3	Samples including labeling	Quantity according to the agreement and free of charge	S	S	S	S	S	S	S	S	S
5.1	Evidence of compliance with legal requirements	(e.g. Current certificates/country-specific authorization concerning environment, safety, recycling, etc.)	S	S	S	S	S	S	S	S	S
5.2	PPA status of supply chain	VW Group: According to the LAH.000.971 as an evidence for the PPA status in the supply chain for delivered ZSBs (e.g. WWL, ABS, airbags or antennas) all components must be listed in a material list according to the VW drawing with the release status from sub-supplier Mercedes-Benz: As an evidence for the PPA status in the supply chain for delivered ZSBs (WWL, ABS, airbags, antennas) all components must be listed in a material list with the release status from sub-supplier	-	-	-	S	-	-	-	S	S
5.5	Part history	Documentation of all changes to the product and production process	S	S	S	S	S	S	S	S	S
5.8	Documentation of the agreements regarding requalification	VDA 2 cover sheet to SEBN with reference to the requalification: - every 3 years/VW Group - every 12 months/VW Group (concerns D/TLD components) - in the last year of delivery as well (VW Group) - every 12 months for each type of part/Mercedes-Benz AG The evidence of conformity must be archived by the supplier and must not be older than the frequency of the requalification cycles (e.g. data of series production tests, product audits)	S	S	S	S	S	S	S	S	S
5.9	Other: BMG concerning basic manufactured cable (BK)	Concerns only antennas	-	-	-	-	-	-	-	S	-
	Certificate concerning flammability according to the TL 1010	Concerns only VW Group, applies if required according to the drawing- the frequency is determined by the customer/OEM	S	S	S	S	S	S	S	S	S
	Microsection catalogue	Contains: (terminal part number and manufacturer, wire cross section and type, tool number) Microsection may not be older than 6 months - VW Group	-	-	-	-	-	-	-	S	-
	Technical specification concerning unwind strength and adhesive strength, etc.	Concerns only tapes	-	-	-	-	-	S	-	-	-

S – Submission to SEBN

Drawing for PPA procedure – General additional requirements

2. The drawing including positioned grounds is to attach to the PPA documentation (examples below).



3. All requirements specified in the drawing (dimensions/markings) must be compared in the PPA documentation with the "specification-actual" values.

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BMG - Additional requirements of the VW Group

BMG for single components

When a new BMG is required?

	Yes	No
technical change of component	x	
change of material	x	
change of manufacturer marking	x	
relocation of tool	x	
change of manufacturing location	x	
tool duplication/new tool	x	
change of production process (e.g. duplication of production lines, adjustment from manual to fully automated process)	x	
change of software	x	
change of supplier (new second supplier, supplier changes the sub-supplier)	x	
text changes on the drawing		x
change of color (e.g. new wire color is added to the drawing)		x

The examples mentioned when a new BMG is required based on the Supplier Guide for Product Development, which describes the requirements of the VW Group concerning the BMG.

Supplier Guide for Product Development

2.3.1 Group approvals

1 a – Technical engineering approval (BMG)


In order to verify that these components are suitable for use in the vehicle, build samples are prepared, which are checked by the appropriate Development divisions. Following successful testing, a technical engineering approval is issued by the responsible department.

Basic conditions

- ❑ The technical engineering approval is issued by the appropriate Development division. The decision to issue this approval is based on build samples manufactured under production conditions using production tools. The technical engineering approval is only issued after the appropriate department has conducted testing with positive results, taking into consideration laboratory examinations that may be required. If laboratory examinations are required, the departments work closely together with the Volkswagen Group Materials Laboratory (see also section 2.8 "Materials-related processes and requirements")
- ❑ The technical engineering approval remains valid as long as none of the properties present at the time of the approval examinations are changed. Such properties include dimensions, material, manufacturer, markings, manufacturing processes, place of manufacture, equipment, tools, and software.
- ❑ The supplier is responsible for complying with the approved model phase.
- ❑ The supplier must inform the appropriate departments in Procurement and Development before making changes to the component. The primary developer then decides, based on the indicated changes, whether a repeat of the build sample inspection is necessary for the issuance of the technical engineering approval and, if so, which test scopes are required.

VOLKSWAGEN
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**Supplier Guide
for Product Development**



Group Development Management
Version 4

BMG - Additional requirements of the VW Group

BMG for single components

4. For the usage of components with a missing BMG is a permission of deviation (AWE) necessary.
The supplier is under an obligation to request the AWE at the VW group development (component developer).

AWE examples:

Abweicherlaubnis: V17J24 E (20170208196)	Status: 410 11/280 11 Teilenummer: 5Q0.937.700.B	Änderungstitel: VERBAU 73-POL. BCM-STECKER OHNE BMG	Herkunft: Technische Entwicklung Motiv: BMG fehlt Priorität: S2 - Sonstige Änderungen
Verantwortl.: CECEN, UFUK Tel.: +49-5361-9-31966 Abteilung: EEKX/2 Werk: 11	Entwicklungsauftrag: Modellpflegepunkt: Plattform: FMK Nr.: ABG: NEIN	-CO2 (g/km): -Gewicht (g): Anlagen/Ans./TUL-Vers.: A / 01 / 01	
Serienfachgruppe: ELEKTRIK	SET: E1	Gültigkeit (KW) von: 06/17 bis: 18/17 Einsatzmeldung: NEIN	
Federführende Konstruktionsabtlg.: EEKX2		AE wird abgelöst durch: OHNE TS Status: / Typprüfung: NEIN Variantenveränderung: Teileaufbrauch: JA	
Inhalt und Begründung: MASNAHME: Verbau der o.g. 73-pol. FK-Gehäusen aus neuen Duplikationswerkzeugen ohne BMG. Durchführung der "PG7" gemäß VW75174 und BMG-Erteilung. HINWEIS: "Prüfgruppe 7 (PG 7)" gemäß VW75174 kann derzeit wegen fehlender Gegenstücke (spezielle Musteranfertigung) nicht durchgeführt werden. Teile aus Duplikationswerkzeugen wurden begutachtet. Alle sonstigen BMG-Prüfungen sind i.O., Teile sind steckbar/verwendbar. ABGESTIMMT MIT BAUTEILEVERANTWORTLICHEM, WEITEREN BETROFFENEN: Peters, Dietmar (EEKX) +49-5361-9-72376		TMA: FVR - Audi TT/TTS/TTRS R FV0 - Audi TT/TTS/TTRS C F3A - Audi Q4 A-CUV AU32 F3G - Audi Q3 China AU3 F30 - Audi Q3 - AU326 GAD - Audi Q2 China - AU GAG - X55 BEV AU276/0CN GAD - Audi Q2 - AU276 17A - JETTA 17G - Sagitar CN 2GA - T-Roc 2GB - Gol / Voyage 2GD - T-Roc LWB 2G0 - POLO Betr. Fertigungswerke: 11 - WOLFSBURG (VW AG) 15 - EMDEN (VW AG) 16 - GYÖR 2 (AUDI HUNGA. 21 - INGOLSTADT (AUDI AG) 22 - NECKARSULM (AUDI AG) 28 - ZITICAU (VW SACHSEN) 29 - DRESDEN (AUTOMOBIL M 31 - MLADA BOLESLAV (SKOD 33 - KVASINY (SKODA) 42 - PAMPLONA (VW NAVARRA 43 - SETUBAL (AUTOEUROPA) 49 - MARTORELL (SEAT) 50 - NISCHNI NOWGOROD (VW 51 - ANCHIETA (VW DO BRAS	
ABTEILUNGSLEITER: PETERS, DIETMAR 24.02.2017 UNTERABTEILUNGSLEITER: I.V. HANKAMMER, ANDREAS 24.02.2017 BEARBEITER: CECEN, UFUK 24.02.2017		GENEHMIGUNG TECHN.-ENTWICKLUNG VW 22.03.2017 TEAM11 Freitag,Thomas +49-5361-9-80380 PTEAM11 Ohlmann,Joerg +49-5361-9-33938	

KÜO-AE 20170322355 (20170322355)	Projekt: VW276/0BU_K	Änderungstitel: VERBAU VON SCHUTZKAPPE UND WASSERLEITUNG OHNE EMG	Teilenummer: TAB.016.622.B	Status:031/ / 067
Verantwortl.: PORRELLA,GIOSEPPE Tel.: +49-5361-9-49537 Abteilung: EEKB/6 Werk: 11 Fachgruppe: E SET: E1	Entwicklungsauftrag: E42848 Modellpflegepu Kalkulationsmodell: NEIN Einbaurate: PR-Nr.: 4F2 ABG: NEIN	EMV-Relevant: NEIN Erprobung erf.: NEIN Absicherung erf.: JA VFP: 48/16 PVS: 05/17 OS: 18/17 SOP: 31/17 Gültigkeit (KW) von: 13/17 bis: 24/17	-CO2 (g/km): Anlagen/Ans./TUL-Vers.: A / 01 / 00 -Gewicht (g): A / 01 / 00	
Motiv: Technik			AE wird abgelöst durch: OHNE TS	
Federführende Konstruktionsabtlg.: EEKB6			Status: /	
Betr. Abtlg.: EEKB6 Betr. Fachgruppen:			Variantenveränderung:	
Inhalt und Begründung: PROBLEM: EMG-Prüfungen für die Schutzkappe 4A1 971 883_D und die Wasserleitungen 2GA_955_663_ / _B / _E sind noch nicht abgeschlossen.			Variantenveränderung: TMA: 2GA - T-Roc 2GD - T-Roc LWB Betr. Fertigungswerke: 43 - SETUBAL (AUTOEURO C4 - FOSHAN (FAW-VW)	
AUSLÖSER (ABNAHMEFAHRT, VERSUCH, MEISTERBOCK ETC.):				
GEHÖRT ZU BEGEHREN/VORHABEN:				
<u>URSACHE:</u> Verzögerungen bei der Validierung.				
<u>MASNAHME:</u> Verbau der Schutzkappe 4A1 971 883_D und der Wasserleitungen 2GA_955_663_ / _B / _E ohne EMG in den PVS-Fahrzeugen.				
ABGESTIMMT MIT BAUTEILEVERANTWORTLICHEM, WEITEREN BETROFFENEN:				

5. The AWE must contain the projects affected by SEBN.

BMG - Additional requirements of the VW Group

BMG for assembly system - Antennas

1. According to the LAH.000.971 (Quality requirements for wiring harnesses) for release process of antennas the supplier is obliged to submit the **BMG for assembly system**.
2. The requirements regarding the BMG for assembly system are described in the following specifications and named as **basic manufactured cable (BK)**:
 - **LAH V03 825** - Manufactured Coaxial Cables,
 - **LAH V03 825 D** - Manufactured HSD and HSDe cables,
 - **LAH V03 825 E** – Manufactured cables for 1000 BASE-T1 Ethernet.
3. Basis manufactured cable (BK) consists of assembly of two components: **wire+terminal***
 - * In order to obtain the BMG for BK, the BMG and initial sample release for both standard parts must be available.
 - The BMG (V03...) issued for basic manufactured cables (BK) replaces the BMG and initial sample release of the two single components (wire and terminal) of the associated basic assembly.
 - Other single components shown on the antenna drawing, such as housings, adhesive tapes, cable ties, shrink tubes, etc., must be sampled by antenna manufacturer in accordance with VDA 2. The same regulation applies to the wires and terminals which have no relation to the basic assembly (there is no V03... number).
4. The changes (e.g. new wire or terminal supplier, etc.) must be evaluated by the antenna manufacturer in accordance with VDA 2 and reported to SEBN. The scope of the PPA procedure must be agreed with SEBN.

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6. Development release - Additional requirements of the Mercedes-Benz AG
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Installation release – Additional requirements of the Mercedes-Benz AG

Installation release (VBF) for single components

1. For the installation of the parts in test vehicles (E-vehicles)- prototypes and pre-series release vehicles (A-vehicles)- VFF, the installation release (VBF) from the responsible development department at Mercedes-Benz is required.
2. If the development release (EF) is already available at this time (E-vehicle and A-vehicle), the EF is binding due to its higher significance (VBF is no longer required).

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Development release-Additional requirements of the Mercedes-Benz AG

Development release for single components

1. **According to the LHV 310 001 – Common Requirements pertaining to the Component Requirement Specifications**, the development release must be issued by the responsible development department for all series parts (D samples).

CRQ-132	The D-samples are series production parts, with which production process and product approval (PPA) has been carried out with the objective of achieving series production supply release.
CRQ-140	Development release from the client is available.
CRQ-141	<u>Sample production:</u> D-samples are produced and tested using production tools under series production conditions (stabilized production).

2. The development release is issued for the respective production location. If the same component is manufactured at different production locations the development release must be issued for each location.
3. The development release for the respective production location is one of requirements for a successful completion of the PPA procedure.
4. For the usage of components with a missing development release is a permission of deviation (AWE) necessary.
The supplier is under an obligation to request the AWE at the Mercedes-Benz AG development (component developer).

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Releases from other companies

1. The PPF process of other companies is recognized by the SEBN Group provide that it was carried out based on VDA 2.

This includes :

- **all releases of SEBN Group plants,**
 - **all releases of VW Group plants (VW, Audi, Seat, Skoda, Porsche, etc.),**
 - **all releases of Mercedes-Benz plants for passenger cars (Sample card/Musterkarte is not a release)**
 - **all releases from other wire harness manufactureres (e.g. Dräxlmaier, Kromberg&Schubert, Fujikura, Leoni, etc.).**
2. Concerning releases from other companies, the cover sheet (BeOn, PIA or VDA 2 form) including BMG (if required) or development release (Mercedes-Benz) must be submitted to SEBN.
In addition, the IMDS data must be sent to IMDS no. 4244 (Sumitomo Electric Bordnetze SE).
 3. The results of the PPA process from other associations (e.g. AIAG PPAP) can only be recognized if the additional PPA documentation (required according to the VDA 2 but not according to the AIAG) will be presented to SEBN:
 - Self-assessment for product, production process, and if applicable software (VDA-No. 0.2),
 - Evidence of compliance with legal requirements (VDA-No. 5.1),
 - PPA status of supply chain (if applicable, VDA-No. 5.2)
 - Part history (VDA-No. 5.5),
 - Deliverables for software (if applicable, VDA-No. 6.1, 6.2, 6.3, 6.6, 6.7).

Releases from other companies

4. The releases must correspond to the latest approved customer drawing.
Releases for parts without customer part number (e.g. single components of ZSBs) must correspond to the latest drawing agreed between SEBN and supplier.
5. For all approvals for VW Group, the designation of the production location and DUNS number in BMG and PPF documentation must be identical.
6. In exceptional cases, SEBN reserves the right to use its own PPA procedure.

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PPA procedure of ZSBs

VW Group

1. ZSBs with VW part number

- The PPA procedure occurs based on the latest released VW Group drawing,
- When the ZSB is subject to technical engineering approval (BMG), the BMG has to be presented,
- If no BMG or release is available, the AWE (permission of deviation) from the customer (OEM) is required to use the ZSB,
- The requirement for successfully completing the PPA procedure for ZSB is the BMG presence (if required) of single components for a relevant production location and release (Customer-ready/Ready for series production) of single components (according to the latest drawing).

2. ZSBs with internal SEBN part number (without VW part number)

- The PPA procedure occurs based on latest released customer (OEM) or manufacturer drawing,
- The manufacturer drawing has to be released by SEBN,
- The requirement for successful completion of the PPA procedure for ZSB is the BMG presence (if required) of single components for a relevant production location and release (Customer-ready/Ready for series production) of single components (according to the latest drawing).

PPA procedure of ZSBs

VW Group

3. Single components of ZSBs

The supplier is responsible for the release of all components of his supply chain and is under an obligation to present these with the PPA documentation.

3 a. Single components of the VW Group (VW part number) at ZSBs

- In case of single components of the VW group these must be released according to the current VW Group drawing,
- When the single components is subject to the technical engineering approval, the BMG has to be presented,
- If no BMG or PPF documentation for the single components is available, the AWE (permission of deviation) from the customer (OEM) is required to use the ZSB.

3 b. Single components without VW part number at ZSBs

- In case of single components without VW part number these must be released according to the current manufacturer drawing,
- If no release for the single components is available, the AWE (permission of deviation) from the customer (OEM) is required to use the ZSB.

4. In case of changes to single components of ZSB (e.g. new part, change of supplier, technical change to the part, new tool, relocation of tool, relocation of the manufacturing location), the supplier is obliged to submit a new PPA procedure for the ZSB to SEBN.

PPA procedure of ZSBs

VW Group

5. Multiple variants of ZSBs may be released in a common PPA procedure (e.g. AMEC or airbag wires, antennas):
 - The release of product families is only to be used if the products are manufactured with the same production processes and production facilities and have the same product characteristic,
 - The fulfillment of requirements for characteristics of product families can be demonstrated on the basis of a one product. The evidence applies across the board to the whole product family,
 - The details of the PPA procedure for the release of product families are to be agreed in the coordination of the PPA procedure with SEBN.

PPA procedure of ZSBs

PPA status of supply chain/VW Group

According to the LAH.000.971 as an evidence for the PPA status in the supply chain for delivered ZSBs (e.g. ABS, airbags or antennas), all components must be listed in a material list according to the VW drawing with the release status from sub-supplier.

List of materials to >drawing number<; status: >date<

Supplier assembly part/ DUNS-No.: >Supplier< / >DUNS - No.<

Creation date: >date<

Creator (complete): >name<

Supplier part no.	Corporate part no.	Designation	Manufacturer + production location	DUNS no. component manufacturer	Drawing date	BMG BMG obligation yes:>enter no.> BMG obligation no: "no BMG obligation"	BMG date	PPA approved organisation	PPA release date	PPA report no.	Grade	Date of last requalification

PPA procedure of ZSBs

Mercedes-Benz AG

1. ZSBs with Mercedes-Benz part number

- The PPA procedure occurs based on the latest released Mercedes-Benz drawing,
- If no PPF documentation for the ZSB is available, the AWE from the customer (OEM) is required to use the ZSB,
- The requirement for successfully completing the PPA procedure for ZSB is the EF presence (if required) of single components for a relevant production location and release (Customer-ready/Ready for series production) of single components (according to the latest drawing).

2. ZSBs with internal SEBN part number (without Mercedes-Benz) part number)

- The PPA procedure occurs based on latest released customer (OEM) or manufacturer drawing,
- The manufacturer drawing has to be released by SEBN,
- If no PPF documentation for the ZSB is available, the AWE from the customer (OEM) is required to use the ZSB
- The requirement for successful completion of the PPA procedure for ZSB is the EF presence (if required) of single components for a relevant production location and release (Customer-ready/Ready for series production) of single components (according to the latest drawing).

PPA procedure of ZSBs

Mercedes-Benz AG

3. Single components of ZSBs

The supplier is responsible for the release of all components of his supply chain and is under an obligation to present these with the PPA documentation.

3 a. Single components of the Mercedes-Benz AG (Mercedes part number) at ZSBs

- In case of single components of the Mercedes-Benz AG these must be released according to the current Mercedes drawing,
- When the single components is subject to the development release, the EF for the relevant production location has to be presented,
- If no EF or PPF documentation for the single components is available, the AWE (permission of deviation) from the customer (OEM) is required to use the ZSB.

3 b. Single components without Mercedes part number at ZSBs

- In case of single components without Mercedes part number these must be released according to the current manufacturer drawing,
- If no release for the single components is available, the AWE (permission of deviation) from the customer (OEM) is required to use the ZSB.

4. In case of changes to single components of ZSB (e.g. new part, change of supplier, technical change to the part, new tool, relocation of tool, relocation of the manufacturing location), the supplier is obliged to submit a new PPA procedure for the ZSB to SEBN.

PPA procedure of ZSBs




Mercedes-Benz AG

5. Multiple variants of ZSBs may be released in a common PPA procedure (e.g. AMEC or airbag wires, antennas):
 - The release of product families is only to be used if the products are manufactured with the same production processes and production facilities and have the same product characteristic,
 - The fulfillment of requirements for characteristics of product families can be demonstrated on the basis of a one product. The evidence applies across the board to the whole product family,
 - The details of the PPA procedure for the release of product families are to be agreed in the coordination of the PPA procedure with SEBN.

PPA procedure of ZSBs

PPA status of supply chain/Mercedes-Benz AG

As an evidence for the PPA status in the supply chain for delivered ZSBs (e.g. ABS, airbags or antennas), all components shown in the drawing (for each drawing number) must be listed in a material list with the release status from sub-supplier.

Mercedes-Benz part number	Supplier part number	Part description	Manufacturer+ production location	Drawing date	Development release number	Development release date	PPA approved organisation	PPA date	PPA report number	PPA status	Date of last requalification
										 - Customer-ready/ Ready for series production	
										 - Customer-ready temporary/ Ready for series production temporary	
										 - Not customer-ready/ Not ready for series production	

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IMDS - Declaration of constituent materials

1. The constituent materials of products must be documented in the material data sheet (MDS).
The material data is collected and transmitted along the supply chain.
2. The material data sheets have to be created via IMDS under www.mdssystem.com and send to **IMDS-ID 4244** (Sumitomo Electric Bordnetze SE).
3. The supplier is under an obligation to ensure that the sent material data sheets are veridical and are shown according to the mandatory, detailed and current specifications of the IMDS-Recommendations.
4. The verification of the material data of purchased parts in the IMDS by the SEBN locations takes place in accordance with the SCM-W-451 based on the following requirements:
 - VW AG guideline for the creation of Material Data Sheets,
 - VW 01155 – Vehicle Parts
Approval of first supply and changes,
 - VW 91101 – Environmental Standard for Articles
Material and Chemical Conformity,
 - VW 91102 – Environmental Standard for Vehicles
Recycling Requirements, Use of Recycled Material, Recyclability Type Approval.

IMDS - Declaration of constituent materials

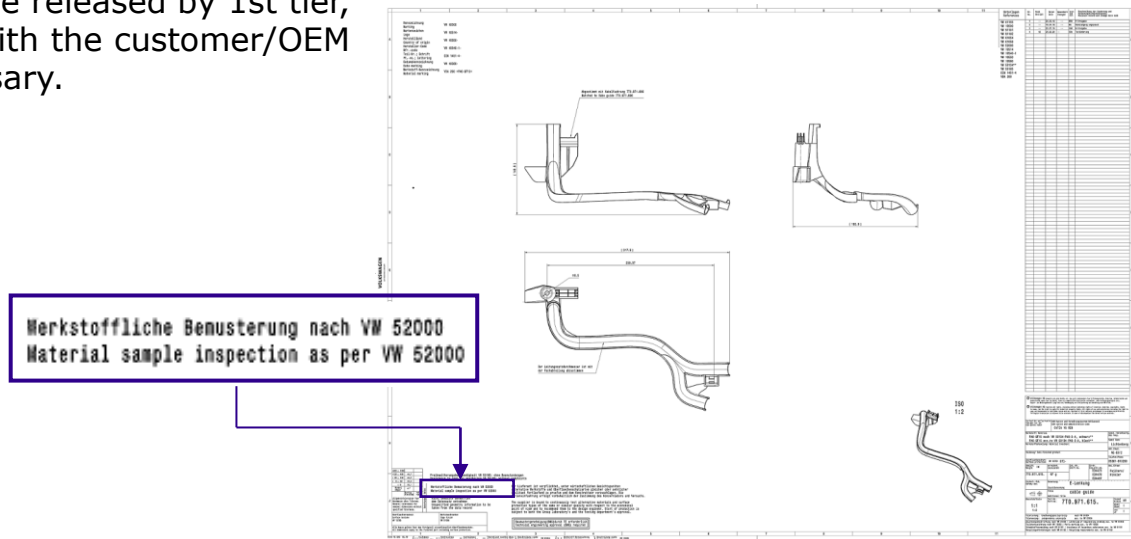
5. The complete IMDS number, it means ID/version number, must be entered in the PPA documentation.
6. When using the PPA process for a product family (e.g. wires), a separate MDS should be sent for each SEBN number of the family.

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Material Quality Verification – VW 52000

1. VW 52000 specifies the requirements for materials testing and for the evaluation and documentation of the test results.
2. In case that this standard is listed on a purchased part drawing, applies to all material quality verification during the development phase (especially for a build sample inspection) and to the production process and product approval procedure (PPA procedure) **at the Volkswagen Group**.
If this is not the case, no evidence in the form of the standard test report is required.
3. Should the VW 52000 change so that the standard should also apply to components which are released by 1st tier, a new evaluation and discussion with the customer/OEM regarding wire harnesses is necessary.



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Result of PPA procedure

1. Customer-ready/Ready for series production

Serial delivery of the products has been approved:

- The agreed customer requirements are completely fulfilled,
- As an alternative, deviations are accepted permanently by the customer following a joint risk assessment carried out by the organization and the customer.
A separate deviation approval is not necessary.

The PPA procedure towards customer is closed

- The agreed customer requirements are not completely fulfilled.
Deviations are accepted by the customer for a limited time or quantity following a joint risk assessment carried out by the organization and the customer.
A separate deviation approval is not necessary if not otherwise agreed between the organization and the customer.

Update of PPA documentation is required

After the implementation of the agreed actions, the updated PPA documentation must be submitted.

Customer decision				
Customer-ready/Ready for series production		Not customer-ready / Not ready for series production		
PPA procedure towards customer closed				
Update of PPA documentation required		New PPA procedure required		
Report number/version Customer				
Name			Remark	
Department				
Telephone				
E-mail/Fax				
Date			Signature	

Result of PPA procedure

2. Not customer-ready/Not ready for series production The serial delivery approval is not granted:

Customer decision			
Customer-ready/Ready for series production		Not customer-ready / Not ready for series production	
PPA procedure towards customer closed		New PPA procedure required	
Update of PPA documentation required			
Report number/version Customer			
Name		Remark	
Department			
Telephone			
E-mail/Fax		Signature	
Date			

- Legal requirements have not been met,
- The agreed customer requirements have not been fulfilled (e.g. BMG is missing, IMDS requirements are not fulfilled, marking of the plastic parts according to VW 10500 is missing, processing and assembly of the parts is very difficult or the function is affected negatively),
- A permission of deviation **may not be granted**.
Delivery of products **is not permitted**.

A new PPA procedure is required

Important for the customer decision:

- ✓ The worst individual result determines the overall result,
- ✓ The decision concerning submission updated PPP documentation must be made by the customer,
- ✓ Adjustments to the specifications are to be documented by the customer in the release document for the PPA

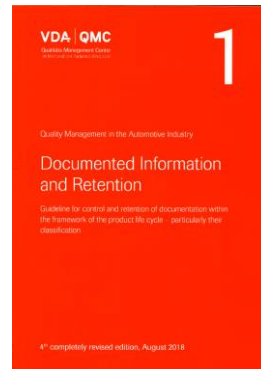
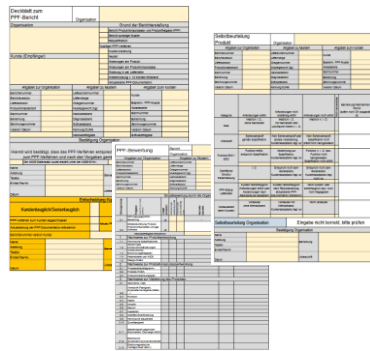
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Retention periods

After PPA procedure, the initial sample reports, technical engineering approvals, development releases and measures must be retain for 30 years from the date of creation (according to the VDA 1). The same period concerns the reference samples (according to the VDA 2).

Retention period 30 years



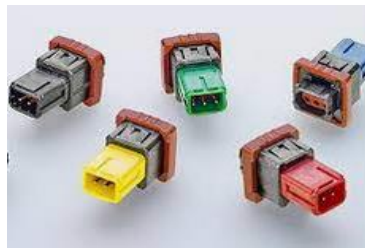
Class Product development

Class designation	Documentation of the series/end product, including releases
Description	This class encompasses all releases and other documents subject to mandatory documentation for the development of the series- or end product. This documentation documents products, components and parts properties and functions of the series-/end product. This also includes all changes after series release subject to release and documentation. This class also includes release documentation for early milestones in the production process (e.g. design- or planning releases) and all documentation for administration, control and evaluation.
Retention period	30 years, beginning with the event
Event	Day generated
Examples	<ul style="list-style-type: none"> Release reports, prototype technical releases, confirmations/certificates of non-objection of suppliers, planning releases, technical program planning committee/brand planning committee Development releases, result sheet safety verification, <u>first sample reports</u>, release-rele release-relevant test reports specifications, system spec
References	

Production class

Class designation	Documentation of the quality assurance for production planning
Description	This class encompasses documents subject to documentation for proof of quality-ensured production. This includes documents which confirm the compliance of the quality of production and the manufacturing processes with the requirements (technical specifications, test- and manufacturing plans), or, if applicable, verify remedial measures.
Retention period	30 years beginning with event
Event	Date generated
Examples	<ul style="list-style-type: none"> <u>Samples documentation and measures, initial sample reports</u> Conformity of Production test protocols and -reports Production-, release documentation, process requirements, instructions for gluing - sealing - insulating, Stage of maturity evaluations, test reports, Process-FMEA, Machine- and process aptitude examinations (MFU/PFU) Conformity declarations
References	-

Retention period 30 years



Master sample

The organization must retain a master sample for the same period as for the documentation of the PPA procedure.

Procedures deviating from this must be agreed upon between the organization and the customer

4.4

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Requalification

1. All products (purchased parts and also manufactured products) have to undergo a requalification testing.
2. The requalification testing of all products is required according to:
 - IATF 16949 - Chapter 8.6.2
 - Formel Q konkret - Chapter 4.7 (VW AG)
 - VDA 2 - Chapter 10
 - VDA 6.3 - Chapter 5.2 and 7.1
 - VDA 6.4 - Chapter 8.2.4.1
 - VDA Product manufacture and product delivery
„Robust production process“- Chapter 5.3.4
 - LHV 310 001 – Chapter 3.2 (Mercedes Benz AG)
3. With the requalification testing, the supplier confirms that all characteristics proven for „Customer-ready/Ready for series production“ **still continue to meet the drawing requirements** regarding dimensions, material and function **during series production.**
4. The requalification does not replace the initial sample release.
For this reason, the material list has been supplemented by a column „Date of last requalification“ in accordance with the LAH.000.971 - Quality requirements for wiring harnesses.

The requalification starts with the completion of the PPA process.

Requalification

Cover sheet PPA report		Organization
Organization		Reason for report creation
		Report on production process and product approval (PPA)
		Report on other samples
		Requalification
		Trigger of PPA procedure
		Sample presentation
Customer (recipient)		New part
		Changes to product
		Changes to production process
		Change to supply chain
		Re-use > 12 months standstill
		Updated PPA documentation
Information about the organization		Information about samples
Report number		Delivery note number
Report version		Delivery quantity
Delivery location		Batch number
Production location		Sample weight [kg]
Part Number		Hardware version
Name		Diagnosis status
Drawing number		Software version
Version / Date		Identification/DUNS
Bauteil mit besonderer Archivierungspflicht		Hardware approval
		Software approval
Confirmation of organization		
It is hereby confirmed that the PPA procedure was carried out in accordance with the agreements made in the PPA agreement and the specifications of VDA Volume 2.		
The IMDS record was created under the MDS ID No.:		
Name		Remark
Department		
Telephone		
E-mail/Fax		
Date		Signature
Customer decision		
Customer-ready/Ready for series production		Not customer-ready / Not ready for series production
PPA procedure towards customer closed		
Update of PPA documentation required		New PPA procedure required
Report number/version Customer		
Name		Remark
Department		
Telephone		
E-mail/Fax		
Date		Signature

5. The supplier is under an obligation to conduct the requalification testing according to the customer requirements (OEM) and to present it to SEBN:

- **every 3 years/VW Group**
- **every 12 months/VW Group (concerns D/TLD parts)**
- **must also take place in the last year of delivery (VW Group)**
- **every 12 months for every type of parts/Mercedes-Benz AG**

6. SEBN Group requires for requalification testing the cover sheet according to VDA 2 (when the requalification is carried out by SEBN) – Reason for report creation „Requalification“.

The evidence of conformity for the requalification testing must be documented internally by the supplier, upon request submitted to SEBN and may not be older than the frequency of the requalification cycles.

For this purpose, data of series production tests and product audits may be used. During the requalification testing, the supplier must also check the validity of the IMDS data (e.g. change in legal requirements) and send it to SEBN.

7. In case of requalification, the products may be formed in a product families. This is applicable if the products are manufactured with the same production processes and production facilities and have the same product characteristics.

WAS UNS VERBINDET

UNSERE WERTE

Ver-
antwortung

Wir handeln **verantwortungsvoll** und sind bereit für Veränderungen im Sinne des langfristigen Unternehmenserfolgs.

Respekt

Wir gehen **respektvoll** und wertschätzend miteinander um.

Vetrauen

Wir **vertrauen** uns und lernen voneinander.

Zusammen-
halt

Wir arbeiten vernetzt über Grenzen hinweg und halten als Team **zusammen**.



SWS WAY

Action principles for all of us in the Sumitomo harness business

PROFESSIONALISM

•Customer satisfaction •Honesty & Integrity •Pride in what we do

TEAMWORK

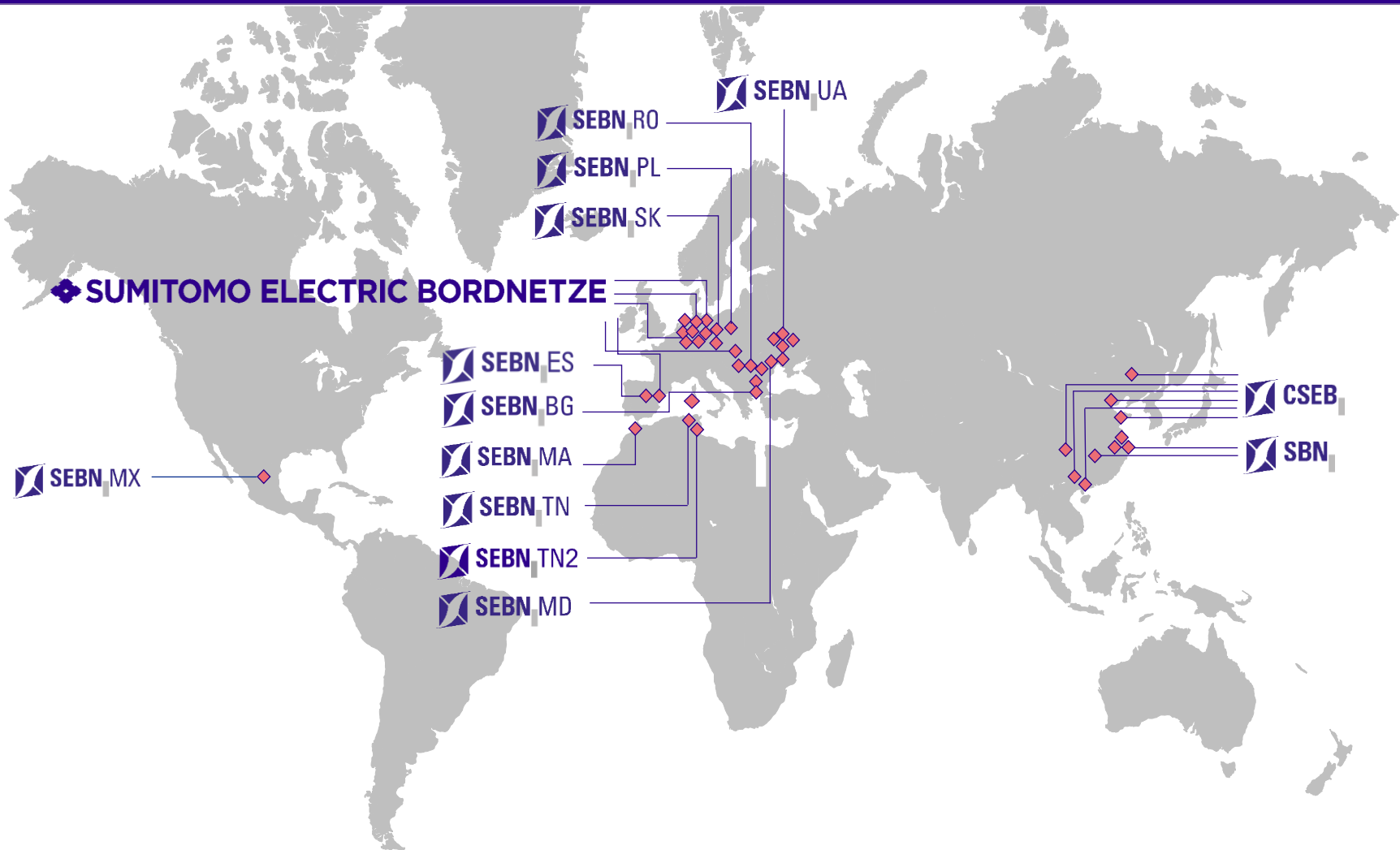
•Mutual communication •Accountability & Cooperation •Diversity & Inclusion

CHALLENGE

•Forward thinking •Learning from experience •Ambition & Perseverance

Geschäftsführung: Masanori Ibuki (Vorsitzender der Geschäftsführung),
Takao Nagase, Carsten Schulze, Kazumitsu Fukada, Sven-Uwe Niemann, Claus Nottbrock

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SUMITOMO ELECTRIC BORDNETZE

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