VDA

6

Quality Management in the Automotive Industry

Basics for Quality Audits

Auditing and Certification

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1st Edition 1998

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Auditing and Certification

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Verband der Automobilindustrie e.V. (VDA)

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ISSN 0943-9412

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Preface

Shorter model cycles and development times, increasing international competition and the increasing pressure of costs, demand new organizationalstructures and shorter information paths in the automotive industry. There are higher product expectations and product liability is viewed from a new legal basis. In order to meet all these requirements, VDA has described it's quality standards in the VDA 6 volumes.

The first issues of volume 6 of the VDA publications „QM in the Automotive Industry„ 1991, based on the DIN ISO 9001 and 9004 standards, also issued in German in 1997, raised together with manufacturers and suppliers, very quickly received a good response.

In further revisions, the new edition of the standard series DIN EN ISO 9000 and requirements from the standards E.A.Q.F. (Evaluation d'Apitude Qualite Fournisseurs, France) and AVSQ (Associazione Nazionale Industrie Automobilistiche, Italy) were integrated.

Within the framework of mutual recognition of audits between car manufacturers and suppliers, as well as of certificates issued by independent, recognized certification bodies (registrars), it was necessary to describe in more detail, the requirements, rules and procedures in a single volume and to provide this volume to all concerned parties.

This volume is therefore aimed at :

- Companies that have implemented quality systems according to the VDA quality standard and will have these internally or externally audited (by customers or certification bodies),

- Companies that wish to evaluate the quality systems, processes and products of their suppliers,

- VDA authorized certification bodies.

In this volume, following requirements are regulated:

- Qualification of system auditors at certification bodies, car manufacturers and suppliers.
- Procedures for auditing quality systems.
- The certification process.
- Application of the evaluation method at audits and certifications.

Furthermore, the guidelines in this volume reflect current findings, trends and implementing regulations to the ruling standards.

It is possible, using the synopses, to compare quality systems based on differing ruling standards with the requirements of the VDA publications Volume 6 Part 1 (VDA 6.1) and Part 2 (VDA 6.2).

In order to facilitate the use of the volume as a reference book, it has been compiled in a ring binder, so that it can be revised with current documents at any time.

Not only companies in the automotive industry can benefit from the VDA 6 volumes. Companies outside of the automotive industry can also find many useful suggestions for setting up and expanding of their quality systems.

We thank the following involved companies and their employees for their input in the preparation of this VDA publication:

BMW AG, Munich
Robert Bosch GmbH, Stuttgart
Daimler-Benz AG, Stuttgart
DCS (DEKRA Certification Services) GmbH, Stuttgart
DGQ (Deutsche Gesellschaft für Qualität) e.V., Frankfurt on the Main
DNV (DET NORSKE VERITAS) ZERTIFIZIERUNG GmbH, Essen
DQS (Deutsche Gesellschaft zur Zertifizierung von Managementsystemen) mbH), Frankfurt on the Main
3M Deutschland GmbH, Neuss
GLYCO-METALL-WERKE, Glyco B.V.&Co KG, Wiesbaden
ITT AUTOMOTIVE EUROPE GmbH, Frankfurt on the Main
Johnson Controls GmbH & Co. KG, Espelkamp
MAN Nutzfahrzeuge AG, Munich
Siemens AG, Automobiltechnik, Würzburg
ÖQS (Österreichische Vereinigung zur Zertifizierung von Qualitäts- und Management-Systemen), Vienna
SQS (Schweizerische Vereinigung für Qualitäts- und Management-Systeme), Zollikofen
Thyssen Krupp Stahl AG, Duisburg
TüV Rheinland Anlagentechnik GmbH, Cologne
TÜV Management Service GmbH, Munich
Unternehmensgruppe TÜV Süddeutschland
Volkswagen AG, Wolfsburg
ZDH-ZERT Verein für Qualität im Handwerk in der gewerblichen Wirtschaft e.V., Bonn
GKN, Löhr und Bromkamp GmbH, Offenbach on the Main

Our thanks also go out to all those people, who have given us suggestions for improvement.

Frankfurt on the Main, in March 1998

VERBAND DER AUTOMOBILINDUSTRIE E.V. (VDA)

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1 VDA Strategy for Quality Management in the Automotive Industry

The term „quality„ has always changed it's meaning throughout the course of time and is still changing. It no longer encompasses just product quality but is increasingly applied to the company structure with it's influence on the employees and customers, so that the development from product quality to company quality is clearly recognizable.

Company quality can only be realized with comprehensive quality management, which encompasses all employees, customers, processes and the resulting products. Conventional quality systems and their auditing and certification no longer suffice.

The automotive industry will and must move more in the direction of „Total Quality Management" (TQM), as defined, for example, by the European Foundation for Quality Management (EFQM) in their model for the European Quality Award (EQA) and by the holding company „Ludwig Erhard Award for Outstanding Performance in Competition„. Here the following points are most important:

- International comparability
- Freedom to develop company specific focal points
- Evaluation of the trends for all business fields, in longer-term connection and with continuous improvement
- Continuous checks and improvements of the implemented methods
- Continuous checks of the meaningfulness and resulting conclusions of the examined data.

The following future fields of operation result for the VDA :

- To accompany the further development of quality management

- To implement the requirements of the EQA-Model and the Ludwig Erhard Award for Outstanding Performance in Competition in the automotive industry.

The VDA quality strategy is a complete quality management system along the net product chain, i.e. the quality of products and services is explained as the final result of all activities, in all company processes.

Apart from manufacturing works and suppliers, areas associated more closely with the end customer, are more strongly involved.

Thereby, the service share of the final result increases, the nearer the process chain is oriented to the end customer. (Fig.1-1).

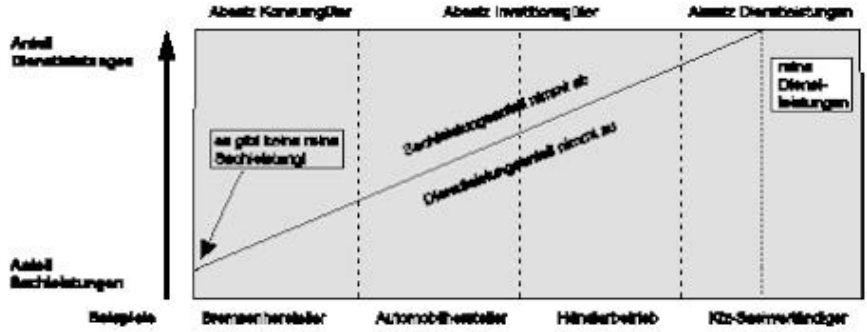

Fig. 1-1: Area of application of the VDA 6 volumes

Quality management today encompasses all areas of a company and its functions, in horizontal and vertical structuring. Quality systems control the cooperation of all involved areas, identify potential for improvement and thereby, decidedly influence thecompany's performance.

In order to offer car manufactures, their suppliers and affiliated services and service companies, a uniform and comparable evaluation of their quality systems, processes, products and services, the VDA has worked out a quality standard of the German Automotive Industry described in the VDA 6 volumes (Fig.1-2).

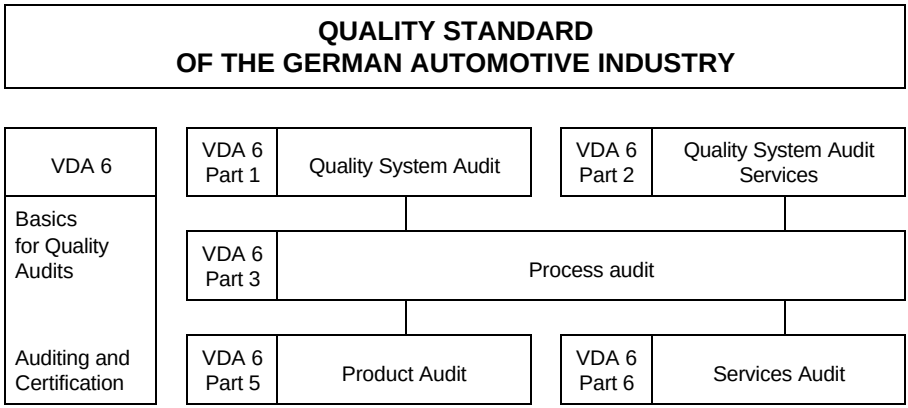

Fig. 1-2 Structure of the VDA 6 volumes

2 Quality Systems

2.1 Quality System Structure

2.1.1 Quality Cycle for Products

2.1.2 Quality Cycle for Services

2.2 Ruling Standards of the Automotive Industry

2.3 Implementation of a Quality System

2.4 Quality Element Representatives

2 Quality Systems

According to DIN EN ISO 9004-1 (Chap. 4.4) a quality system consists of the organizational structure, procedures, processes and recourses necessary for the realization of quality management.

A company which wishes to exist successfully on the market, will, amongst others, set quality goals. These goals need to be adjusted to customer requirements and expectations. They express quality culture as part of the whole company culture and are objectives for the performance of the company.

The resulting quality policy (where necessary supplemented by quality guiding principles or a quality model) is the basis for the setting up and appropriate application of a quality system.

There is no model quality system, which offers an equally good solution for every area of application. The quality system can only be determined by the company concerned, possibly in co-operation with its customers.

The quality system is working, when it provides confidence, that

a) the system is understood, realized, maintained and effective.

b) the products actually satisfy customer needs and expectations,

c) the demands of the company, as well as environmental protection are included,

d) main emphasis is put on problem prevention instead of relying on their being discovered after it happens.

Its implementation has to be monitored systematically.

2.1 Structure of the Quality System

2.1.1 Quality Cycle for Products

The quality system includes all activities which affect the quality of a product. It contains all phases in the life cycle of a product and process, as can be seen in the following figure:

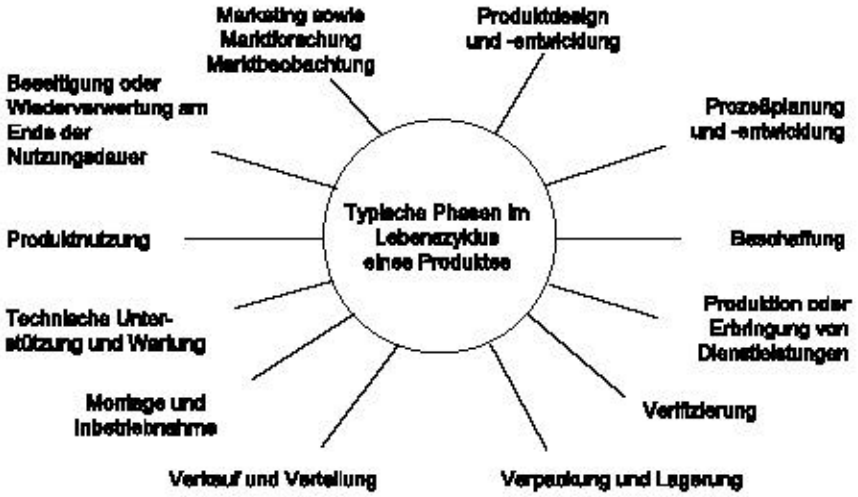

Fig. 2.1.1-1 Quality Cycle for Products

2.1.2 Quality Cycle for Services

Service quality, from the customers point of view, is directly influencedby marketing, design and the provision of services, as well as measures taken as reactions to feedback. The relationships are shown in the following figure.

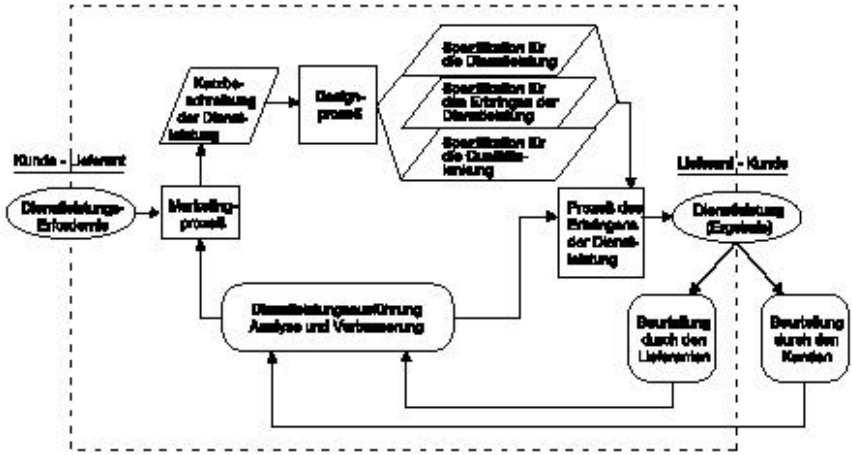

Fig. 2.1.2-1 Quality Cycle for Services

2.2 Ruling Standards of the Automotive Industry

With the publication of the DIN EN ISO 9000ff a basis for the setting up of quality systems has been established which, however, alone, do not fulfil the requirements of the automotive industry.

Therefore, international automotive-specific questionnaires were designed, which established the recommendations of the standard.

These questionnaires and ruling standards were initially only valid for 2nd party (customer/supplier) audits. To promote mutual recognition, these ruling standards were then released for certifications (3rd party) through approved certification bodies.

The following table lists these ruling standards.

List of ruling standards:

Ruling standard	Issue date	Publisher	Area of application
DIN EN ISO 9001 Quality systems Model for quality assurance in design, development, production, installation and servicing	August 1994	International Organization for Standardization (ISO) Techn. Committee ISO/TC 176	International model for quality assurance
Brief description: International model for differing branches. Builds the basis for all requirement catalogues of the automotive industry listed below.			
DIN EN ISO 9004-1 Quality management and elements of a quality System	August 1994	International Organization for Standardization (ISO) Techn.l Committee ISO/TC 176	Guidelines for quality systems
Brief description: Superior guidelines which describe the elements of the quality system in more detail then the DIN EN ISO 9001 version.			
VDA 6.1 Quality system audit Quality management in the Automotive Industry	3rd, completely revised edition 1996/1	Verband der Automobilindustrie e.V. VDA (Association of the German Automotive Industry e.V.)	German Automotive Industry and its suppliers
Brief description: Ruling standard of the German Automotive Industry with the extended automobile-specific standard content based on ISO 9001 and 9004-1 recognizedby ANFIA (AVSQ 94) and EAQF.			
E.A.Q.F. Evaluation d´Aptitude Qualite Fournisseurs	June 1994	PSA Peugeot, Citroen, Renault and Volvo Car F.I.E.V.	For suppliers of the French Automotive Industry
Brief description: Ruling standard of the French Automobile Manufacturers with the extended automobile-specific standard content based on ISO 9001. Is recognized by VDA and ANFIA.			
AVSQ ´94 Quality system requirements	April 1994	Associazione Nazionale Industrie Automobilistiche	For suppliers of the Italian Automotive Industry
Brief description: Ruling standard of the Italian Automotive Industry with the extended automobile-specific standard content based on ISO 9001. Is recognized by VDA through the agreement with the French Automotive Industry.			

Note: The DIN EN ISO 9002 is regarded as a model for quality assurance without design and development

Ruling standard	Issue date	Publisher	Area of application
QS-9000 Quality system requirements	February 1995	Chrysler Ford General Motors and others	Worldwide, for suppliers of the US-American Automotive Industry
Brief description: Ruling standard of the American Automotive Industry with extended automobile-specific standard content based on the ISO 9001.			
KBA Additional questions on Road Traffic Law	June 1996	Kraftfahrt Bundesamt KBA (Federal Automotive Agency)	Manufacturers of cars, car trailers, systems, component parts and individual technical units
Brief description: Additional requirements of the KBA on quality systems according to DIN ISO 9001/2 for companies, which are responsible for bring vehicles etc. into the traffic system via EU type approval.			
DIN EN ISO 9004-2 Quality management and elements of a quality assurance system	June 1992	International Organization for Standardization (ISO) Techn. Committee ISO/TC 176	Guidelines for Services
Brief description: Main subjects are customer service, improved performance standard, improved product quality, increased market shares.			
VDA 6.2 Quality system audit Services	1. Edition 1997	Verband der Automobilindustrie e.V. (VDA)	Service organizations
Brief description: Ruling standard of the German Automotive Industry with automobile-specific service content based on the ISO 9001 and ISO 9004-2.			
EFQM **EQA-criteria** (European Quality Award)	Is reviewed annually	European Foundation for Quality Management (EFQM)	All branches (Industry, trade, services, craft etc.)
Brief description: The model of the European Foundation for Quality Management describes a company using nine criteria. Leadership, employee attitude, policy and strategy, resources, processes, employee satisfaction, customer satisfaction, company responsibilities, company performance are evaluated.			

Ruling standard	Issue date	Publisher	Area of application
LEP Ludwig-Erhard-Award (Award for outstanding performance in competition)	April 1997	Top associations of the German economy, as well as the technical scientific societies DGQ and VDI	All branches (Industry, trade, services, craft, public sector etc.)
Brief description: The model of the Ludwig-Erhard-Award is based on the EFQM-Model and evaluates companies according to the following criteria. Means and Methods: Leadership conduct, employee attitude, company policy/strategy, resources input, processes Results: Employee satisfaction, customer satisfaction, influences on society, company success.			

2.3 Implementation of a Quality System

As a first step during the introduction of a quality system, the specific company processes are described.

The documentation of the quality system has to correspond with the conditions of the respective company as it represents a company ruling standard.

The proper documentation of all work processes and activities offers the possibility to

- show the control of a working process
- train employees
- realize improvement programs.

The following figure shows the typical hierarchy of the quality system documents:

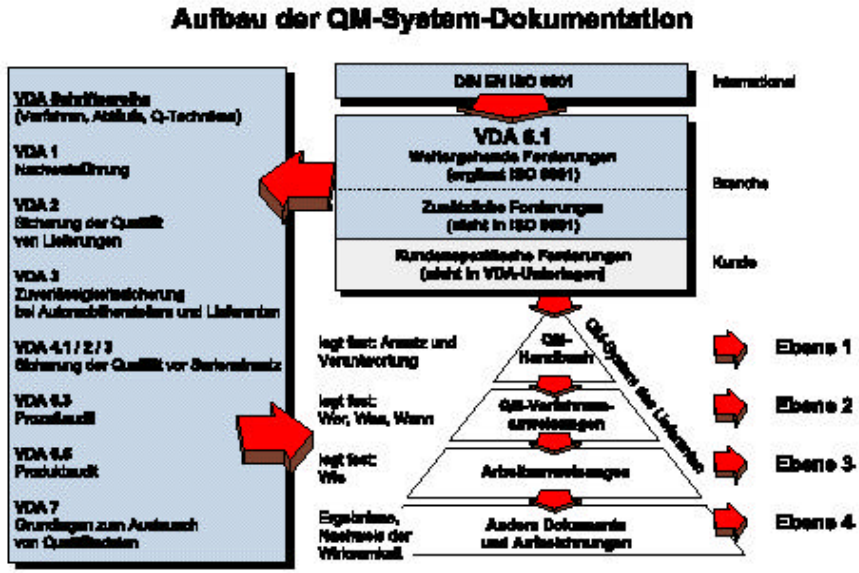

Figure 2.3-1: Typical hierarchy of quality system documents

After preparation of the quality system description it is important to carry out the implementation in all involved areas of the company. The following points are essential for a successful start:

- Carrying out functional and comprehensive training on the application of the quality system with the participation of the responsible departments;
- Initiation of the quality system by the company management from a given point of time;
- Performing of a comprehensive internal quality system audit in order to identify any deficiencies in the documentation and application.

If a certification of the quality system is planned, it is recommended that an external qualified, or certification body carry out a pre-audit which

- identifies any existing deficiencies prior to certification;
- clearly defines the necessary corrective actions.

The complete practical application of the procedures and processes described in the quality manual and other documents, is above all, decisive for a successful certification. Consistent application in the daily work process is the key to the use of the quality system. This, however, demands the full and constant personal commitment of the company management, department heads and all employees.

2.4 Quality Element Representatives

For all individual quality elements, company representatives are to be assigned who are also responsible to the auditor during the audit, to answer any questions.

Past experience of the audit and certification process has shown that the following arrangement according to Figure 2.4-1 (VDA 6.1) and Figure 2.4-2 (VDA 6.2) can be recommended:

Quality Element		Element Representative (Function within the company)
01	Management responsibility	Management representative
02	Quality system	Management and quality representative
03	Internal quality audits	Quality representative
04	Training	Head of personnel
05	Financial considerations of quality systems	Head of controlling/finances
06	Product safety	Management representative /Jurist
Z1	Company strategy	Management representative
07	Contract Review/Quality in marketing	Head of sales and marketing
08	Design Control (Product development)	Head of development
09	Process Planning (Process development)	Head of production
10	Document and Data Control	Head of quality management
11	Purchasing	Head of purchasing
12	Control of customer-supplied products	Head of sales and marketing
13	Product identification/traceability	Head of production/ quality management
14	Process Control	Head of production
15	Inspection and testing	Head of production/ quality management
16	Control of inspection, measuring and test equipment	Head of quality management
17	Control of nonconforming products	Head of production
18	Corrective and preventive action	Head of production
19	Handling, storage, preservation, packaging and delivery	Head of production /storage and delivery
20	Control of quality records	Head of quality management
21	Servicing (Customer service, duties after production)	Head of sales and marketing / production
22	Statistical techniques	Head of development/production

Fig. 2.4-1: Quality elements with corresponding representatives for VDA 6.1

Quality Element		Element Representative (Function within the company)
01	Management responsibility	Management representative
02	Quality system	Management and quality representative
03	Internal quality audits	Quality representative
04	Training, Personnel	Head of personnel
05	Financial considerations to quality systems	Controlling/Finances
06	Product safety	Management representative
Z1	Company strategy	Management representative
07	Market research	Head of department
08	Development	Head of department
09	Preparation of service	Head of department
10	Advertising and marketing	Head of sales/marketing
11	Sales and marketing /service agreements	Head of department
12	Purchasing	Head of purchasing
13	Service performance	Head of department
14	Customer support (subsequent support, product monitoring)	Head of department
15	Analysis of service improvement	Management representative
16	Document and Data Control (objectives)	Quality representative
17	Control of quality records (verification)	Quality representative

Figure 2.4-2: Quality elements with corresponding representatives for VDA 6.2

3 Auditing in Quality Management

3.1 System Audit

3.2 Process Audit

3.3 Product Audit

3.4 Differentiation between System Audit, Process and Product Audit

3 Auditing in Quality Management

The DIN EN ISO 8402/1995 gives a comprehensive definition for quality audits. According to it, a quality audit is „a systematic and independent examination, in order to ascertain, if the quality activities and related results, comply with given instructions, and if these instructions are efficiently put into action and are suitable to achieve their objectives.„

This definition describes aptly for all types of audit, their purpose and aim, irrelevant of who carries them out on whose behalf, or the object or feature with which they are dealing.

The distinguishing line between the three fundamental types of audits; system, process and product audit, is not always clearly definable in individual cases.

What is clear, however, is the differentiation between internal and external audits. Internal quality audits are so called First Party Audits (own audits), they primarily serve the safeguarding and improvement of the quality capability of a company.

External quality audits serve mainly as proof of quality capability to others. Here, one differentiates between a Second Party Audit (Customer Audit) and a Third Party Audit (Certification / Re-audit).

3.1 System Audit

The basics for the branch specific auditing of systems in the German Automotive Industry are clearly described for material products in VDA 6.1 and for non-material products (services) in VDA 6.2.

During a system audit, deviations from the ruling standards and the reasons for them, with regard to the organization of the company and internal processes, can be determined.

Internal system audits (1st Party) are carried out by the audited company (their own company). The basis of the internal system audit is the quality documentation raised by the company itself.

The company management arranges for the drawing up and carrying out of an audit program. The audit results are to be included in the evaluation of the quality system by the company management.

During a 2nd Party Audit, the customer audits his suppliers directly. They can also be accepted by other customers.

During a 3rd Party Audit, external system audits are carried out by an independent, accredited institution with the aim of awarding a certificate (Certification audit). Within the validity period of the certificate (three years), surveillance audits are carried out (at least once a year).

3.2 Process Audit

The basics for the branch specific auditing of processes and procedures in the German Automotive Industry are clearly described in VDA 6.3.

Process audits serve to evaluate and identify the capability of processes.

Under process capability, one understands the exact reproducibility of results within given tolerances; i.e. if the process is suitable to achieve a reproducible result.

Deviations and their causes with regard to activities which lead directly or indirectly to a product coming into being, as well as the effectiveness of process specific documents, are identified.

Typical processes are, amongst others:

- Manufacturing of a product (Production process)
- Inspection of a product (Inspection process)
- Transportation of a product (Transport process)
- Order processing (Process of order handling)
- Production planning (Process of planning the effective use of machines with regards to number and time)

The process audit should be used as an instrument to improve processes; therefore, it is useful during a process audit to cover as much ground as possible. One then gains a more meaningful picture of the stability of a process. In connection with this, removing the cause of faults has clear priority over the mere detection of faults.

The process audit serves the evaluation of the effectiveness of quality measures on a particular process. During the course of this, the conformance, for example, between the process quality with work and process or procedure instructions, recipes, technical product specifications and customer requirements, is examined in combination.

The effectiveness, usefulness and composition of the procedure documents are included and consequently, the elements of the quality system are also assessed.

3.3 Product Audit

Products

The basics for the branch specific auditing of products in the German automotive industry are clearly described in VDA 6.5.

The product audit serves the assessment and evaluation of the effectiveness of quality measures on a particular product.

Thereby, the conformance of the product quality with the customer specifications, customer requirements, technical specifications, test and manufacturing documents is examined. Here also, the effectiveness and usefulness of the documents are assessed in combination.

Services

The basics and assessment of branch specific auditing of services in the German Automotive Industry are clearly described in VDA 6.6.

The following areas have been defined as service business criteria in the automobile manufacturing business: service specifications, complaint management, progress/flexibility, personnel, communication, means and resources.

3.4 Differentiation between System Audit, Process and Product Audit.

The system audit analyzes the elements of a quality system, especially with regard to it's efficiency using system descriptions and norms or guidelines. For this purpose, the modules of the organizational structure of a company are thoroughly examined.

This occurs with the assistance of the available documentation. The audited area must provide evidence that it fulfils the requirements of a standard or guideline with regard to the quality system.

The process audit presupposes that a demonstrable quality system is in place. It differs fundamentally from a system audit in it's objective and content, as it questions the capability of a given process to fulfil the customer requirements with regard to the reproducibility of product properties. The process audit is, therefore, a management tool to improve processes through the analysis of operations.

The process audit differs substantially from the product audit in task, proceedings and content. The principal difference exists in that the product audit is primarily an instrument of proof confirming the achieved product properties. The planned product properties are compared with actual properties with the help of product descriptions.

Important differentiation criteria are portrayed in the following table using examples.

Relationship between System, Process and Product/Service Audits

The system audit refers to the fundamental commitments and requirements of the quality system and their practical application. It takes into account structural and functional aspects and examines in a crucial manner, the interplay of cross-sectional functions and tasks. During auditing, the completeness and effectiveness of the installed quality system becomes apparent.

The process audit serves the assessment/measurement of the process and procedure quality, the suppliers at their respective process stage, and the satisfaction of customer requirements.

The product or services audit evaluates established quality features and the effectiveness of the available quality assurance measures.

Process and product audits are integral parts of a quality system and the results from these types of audits can give indications to errors in the quality system.

The independent and separately applicable audit types are to some extent similar and complement each other in a complete assessment of the quality capabilities of a company.

Whilst the fulfilling of the quality system requirements can also be proven by certification (through a third party), process and product audits are exclusively carried out by car manufacturers or suppliers. (Fig. 3.4-1).

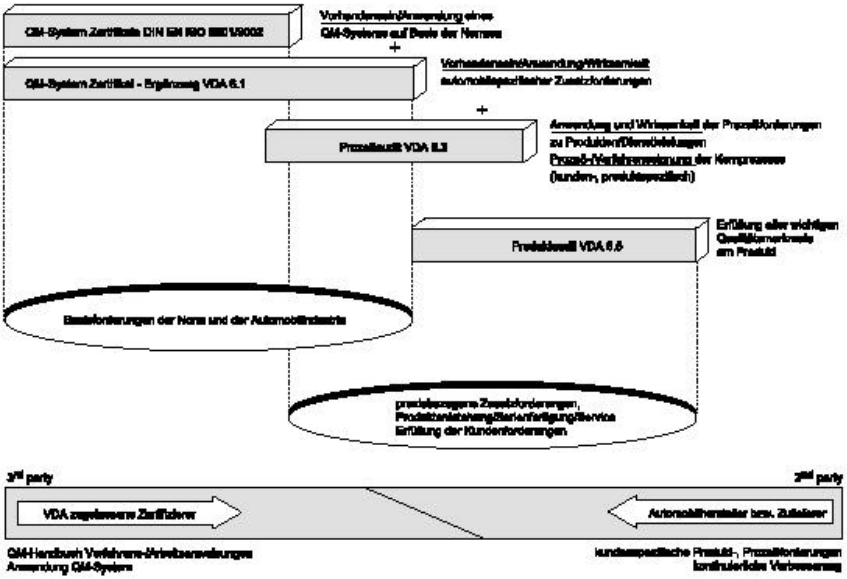

Fig. 3.4-1: Relationship between system, process and product audit.

Title	System Audit	Process Audit	Product Audit
Object	Systems Elements of the quality system Process organization Documentation	Processes Machines Plants Production processes Installation processes Service activities	Products Materials Parts Sub-assemblies End products Vehicles Services
Features	System properties Completeness Effectiveness Implementation Accuracy	Process properties Parameters Degree of effectiveness Proceedings Organization	Product properties Identity Measurements Surface finish Material properties Results of services
Documents	System descriptions Quality manual Quality instructions Quality documents	Process descriptions Manufacturing and inspection plans Control plans Machine settings Servicing plans Process instructions	Product descriptions Specifications Drawings Evaluation standards Sample
Question	Does the system conform with the standards, guidelines and internal objectives?	Is the process suitable for portraying the reproducibility of a product?	Does the product correspond to the given specification?
Purpose, Aim	Analyses of systems, Ascertaining the system conformity	Analyses of processes Process improvement	Confirmation of the achieved product properties
Type	Management tool	Management tool	Technical control
Result	Management Review Demonstration of the effectiveness of the quality system Reports Catalog of measures	Reports Analyses Catalog of measures	Product data Yes / No Degree of compliance
Personnel qualification	Engineer/Technician	Skilled worker/Technician	Skilled worker / Quality control personnel
Auditor requirements	Analytical skills	Analytical, technical skills	Normal technical skills
Scope	Comprehensive	Important Processes	Small sampling of important products
Duration	Days	Hours to days	Hours

Fig. 3.4-1: Comparison of audit types

4 Certification to VDA 6.1 (3rd Party Audit)

4.1 Basic Conditions

4.2 Audit Process

4.3 Evaluation

4.4 Audit Report

4.5 Certification Options

4 Certification to VDA 6.1 (3rd Party Audit)

The requirements outlined in the following, are compulsory for all certification bodies to ensure that audit results are mutually comparable. Therefore, for audits performed in accordance with the following paragraphs, only the VDA 6.1 questionnaire is binding.

4.1 Basic Conditions

4.1.1 Defining Company Specifics

Prior to the actual audit planning, the company to be audited/certified has to give information to company size, sites, product groups and special arrangements with clients, as decisions based on this information will be made regarding the audit length and audit personnel required. Furthermore, it has to be determined in the pre-contract phase, whether the company to be audited/certified performsproduct development and which elements or element questions are not relevant. This is done with the help of questionnaires prior to, rather than at the audit; these points have a vital influence on time consumed for the document review and the audit at site.

4.1.2 Determining the Audit Time

Audit days for a quality system certification according to VDA 6.1

1) As a basis for a certification according to VDA 6.1, the following table applies

At-site Mandays (without document review)			
Number of full time employees in the unit to be certified	Initial Certification	Annual Surveillance Audit	Re-Audit after 3 years
up to 20	3	1	2
21 - 100	5	1,5	3
101 - 500	7	2	4
501 - 2000	10	3	6
2001 - 10000	14	4,5	9
> 10000	15	5	10

Figure 4.1.2-1 At-site Mandays for a quality system certification according to VDA 6.1

2) The figures given in the table are minimum values. Under differing circumstances regarding

- organizational structure of a company
- diversity of the product range
- different processes along the production cycle
- sites
– working structures (shift models)

additions may be necessary.

3) If the element 08 Product Design (Development Responsibility) and/ or the element Z1 Company Strategy are not included in the certification process, then the minimum values given in the table above are to be reduced by 10% (for the element 08 Product Design) and by 5% (for the element Z1 Company Strategy) respectively, taking into account point 2.

4) If the audit duration is four mandays or more, an audit team has to be assigned.

5) Adjustment of the audit days for a matrix certification

If a company has more than one site which all fall under the same quality system, then a reduction of the audit days can be applied to the sites. The head office in which the central functions are located, is to be audited, applying the full amount of mandays given in Table 4.1.2-1 corresponding to the number of full time employees working there. For every additional site, the figure corresponding to the number of full time employees working there, has to be taken from table 4.1.2-1 and can then be reduced by up to 30 % depending on the circumstances. 70 % of a single certification as stated in Figure 4.1.2-1 definitely need to be performed forevery site.

6) Deviations from the values given in the table need to be justified in writing and understandable for third parties, by the director of the certification body or the branch representative and have to be submitted to the VDA. The justifications are checked randomly or as befits the occasion by the VDA.

7) Prior to certification the complete time required e.g. for document review, Pre-Audit where necessary, certification at site and a certification report showing the potential for improvement, has to be determined in a binding contract between the parties.

4.1.3 Auditor Selection

When selecting the auditor, attention must be paid that at least one auditor has the necessary branch specific qualifications for the company to be audited.

All auditors must be VDA 6.1 certified.

4.2 Audit Process

4.2.1 Audit Plan (Audit Schedule)

The audit plan lists the element representatives of the participating departments and the set audit schedule. The audit plan set up in agreement with the company to be audited has to be followed by the audit team.

4.2.2 Document Review

The focal points of evaluation are:

- Type
- Structure
- Comprehensibility
- Suitability
- Conformity with ruling standards (VDA 6.1 or 6.2, ISO ...)
- Non-contradictory

The extent of documentation depends on the size, complexity, structure and products of the company.

The result of the review has to be provided in writing (for internal audits this can be given verbally).

This includes:

- Conformity with the ruling standard (elimination of nonconformities by the time of the certification audit)
- Notes/Additional comments
- Questioning of unclear points
- Definition of further actions.

4.2.3 Opening Meeting

The opening meeting is held with the element representatives, the company management and the audit team. Everybody introduce themselves and the audit schedule is briefly discussed.

The aim, purpose and course of the audit are explained. The Lead Auditor gives general instructions to behavior during the audit. Open questions are mutually resolved.

4.2.4 At-Site Audit and Findings

The audit team carries out the audit to the established audit plan. At-site interviews are carried out, samples taken and observations noted. Interviewees receive feedback from the auditor regarding their statements. Nonconformities are discussed immediately. The Lead Auditor prepares the closing meeting, gives his preliminary findings and discusses further actions.

The results of the interviews, samples and observations lead to evaluations. The sum of the evaluations results in a statement regarding the degree of compliance.

The audit should be process-orientated and not structured, so that the representatives have to answer the quality elements question by question.

4.2.5 Closing Meeting

If possible, the same people present at the opening meeting take part in the closing meeting. The Lead Auditor explains the results and clarifies further actions.

The persons responsible for corrective actions and completion dates are determined.

4.2.6 Reporting

The Lead Auditor writes a final report. He comments on each element and describes the potential for improvement. Here attention should be paid that every nonconformity is stated in writing and referenced to the ruling standard.

To better understanding of the nonconformity, examples should be given.

An overall statement regarding the company and its quality system is made in summary. The subsequent steps pertaining to the next audit and further actions are also described.

4.2.7 Verification Visit

Should a verification visit be required, the nonconformities found at the initial audit are reviewed and newly evaluated by an auditor of the initial audit team.

No longer then three months may pass between the initial audit and the verification visit, so that the rating can be awarded.

4.2.8 Certificate Supplement

A certificate is issued by the certification body at a degree of compliance of ≥ 90 % when the evaluation requirements as given in Chapter 4.3. are met and after presentation of the audit report approved by the decisions committee of the certification body.

At a degree of compliance of > 95 %, VDA reserves the right to examine the audit report.

Appendix 1

VDA

LOGO
of the certification body

CERTIFICATE SUPPLEMENT

ONLY VALID IN CONNECTION WITH THE CERTIFICATE REGISTRATION NO. .....

VDA VERBAND DER AUTOMOBILINDUSTRIE E.V.

The
(Name of the certification body)

VDA/C.-No. 000/96

hereby certifies, that the company

Sample Ltd.
Sample Street 00
D-00000 Sample Town

Location:

Manufacturer of (Product group)
for the Automotive Industry

is using a

Quality System
according to VDA 6, Part 1
– Material products -

This quality system is a supplementary qualification to the referenced quality system on the ISO certificate.

Degree of compliance: ..... %
* (with/without company strategy/with/without product design)

Verification has been made based on the certification audit, Report No..: .....
This certificate is valid until (DD/MM/YY)
Date of issue (DD/MM/YY)

(Signature Certification Body)

(Address Certification Body)

* must be stated

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4.2.8-1: VDA 6.1 Certificate Supplement

4.3 Evaluation

The quality system is evaluated according to VDA 6.1 using the degree of compliance [%].

The determination of the degree of compliance is laid down in VDA 6.1.

4.4 Audit Report

The Lead Auditor is responsible for the accuracy and completeness of the report. A brief and concise form should be aimed for. The report has to be complete, defined and clear.

Report Content

The complete content of the quality system audit to VDA 6.1 has to be documented with the following forms:

a) Overall evaluation of the quality system of the supplier/company

b) Overall grading (only for customer/supplier audits)

c) Summary of results

d) Summary of evaluated questions

e) Explanations regarding the actual status (Nonconformity report)

f) Individual measures

g) Summary of corrective actions

h) Referenced documents

Report Recipients

The distribution is to be agreed with the management or its representatives.

Time Schedule

The quality audit report should be completed within 15 working days, if not otherwise agreed with the customer.

4.5 Certification Options

4.5.1 Initial Certification

An initial certification is considered for those companies which do not yet have a DIN EN ISO 9001/2 certificate.

In order to receive a certificate, a minimum degree of conformity of 90% has to be reached (the value is to be rounded off to 90%). A certificate may not be issued, if:

- one or more quality elements only reach a degree of conformity of less then 75%,

- one or more questions receive 0 points and the noncompliance has a significant impact on process or product quality or is likely to lead to failure of the quality system.

4.5.2 Extension Audit (Up grade)

Companies that are already certified according to DIN EN ISO 9001/2 (Verification level 9003 is not relevant), can also verify the fulfillment of the VDA 6.1 requirements during a Surveillance or Re-Audit.

Over and above the following elements mentioned, all other elements have to be considered in a manner that ensures each element is fully evaluated at least once during the validityof the certificate. The additional VDA 6.1 requirements as opposed to the ruling standard applied so far, need to be

fully taken into account, whereby the principles of DIN EN ISO can be followed. The additional VDA 6.1 requirements are to be audited in supplement. Hereby VDA 6.1 is to be fully applied.

In the case of an up grade during a Surveillance Audit, only half of the initial audit time is required.

In the case of an up grade during a Re-Audit, the full audit time for an initial audit is required. The audit evaluation is based only on the audited elements.

Basis DIN EN ISO 9001/9002

The following procedure has to be understood as a provisional solution, in recognition of already verified performance (certification according to DIN EN ISO 9001/2 through accredited certification bodies). The evaluation of the audit result represents a degree of compliance according to set criteria.

These are:

- Elements 01 - 06
- Z1 Company strategy (if required)
- Element 08 (if relevant)
- Element 07 and 09
- Element 17 and 18 (current customer complaints)
- Handling of the findings/conditions/comments resulting from the previous audit (audit report).

Basis QS-9000

In the case of an up grade from QS 9000 to VDA 6.1 the following elements have to be reviewed:

- Element 01 - 06
- Element Z1
- Element 08, 09 and 18.

The at-site mandays stated in Table 4.1.2-1 are, at least, to be applied.

4.5.3 Certificate Maintenance

The complete quality system of a supplier must be reviewed at least every three years through a Re-Audit. Hereby, every site or every works must be audited and stated on the certificate taking into account the product groups.

The Re-Audit is to be carried out analog to the procedure of the initial certification. The focal point of the Re-Audit lies with further development of the quality system, with regards to continuos improvement and the TQM principle.

The quality system is to be reviewed annually by a Surveillance Audit. Hereby, only a part of the quality system may be audited, as long as all elements are taken into account within a three year cycle. In any case, every works, site and development location must be subjected to a Surveillance Audit once a year. The audit report has to state clearly, which part of the quality system has been evaluated at each audit.

No improvement of the degree of compliance according to VDA 6.1 can be made based on a Surveillance Audit.

If during a Surveillance Audit substantial nonconformities are identified, such nonconformities are to be documented. The nonconformities have to be corrected within a period of three months. The correction of the weak spots is to be demonstrated during a verification visit. Should the verification be unsuccessful, the audit to VDA 6.1 has to be repeated completely or the certificate is withdrawn.

The following elements of VDA 6.1 are always to be audited during a Surveillance Audit:

- Element 01, 02, 03, 04, 05
- Z1 Company strategy (if required)
- Element 09
- Element 18 (current customer complaints)
- Spot checks of selected quality elements of the net product chain

In addition, the following points should be considered for VDA 6.1:

a) Findings, resulting from the auditing of the elements.

b) Have the nonconformities, findings and comments to the last audit been actioned or taken into account?

c) Which changes within the system have taken place?

d) Is a **Continual Improvement Program (CIP)** run and is progress also made with this?

The validity of the VDA certificate supplement is based on the validity of the underlying ISO certificate.

5 VDA Certificate (2nd Party Audit)

5.1 Awarding of a Certificate

5.2 Applying for a VDA Certificate

5 VDA Certificate (2nd Party Audit)

VDA 6.1 enables a classification into A, AB, B or C for 2nd party audits, based on the degree of compliance [%]. In certain cases, a re-grading from A to AB or from AB to B is to be carried out, according to set criteria.

At a degree of compliance of ≥ 90 %, a VDA 6.1or 6.2 certificate can be awarded according to Chapter 5.1. It is applied for at the VDA by a VDA Lead Auditor, after presentation of the audit report and approval of an authorized representative of the company to which the VDA Lead Auditor is contracted.

VDA

VERBAND DER AUTOMOBILINDUSTRIE E.V.

Certificate

In the Company

Area

A

QUALITY SYSTEM AUDIT

according to Volume 6, Part 2 of the VDA Publication
„Quality Management in the Automotive Industry„
based on DIN EN ISO 9001, 9002, 9004-1 and DIN ISO 9004-2
was carried out with the following result:

Degree of compliance: Percent:

Issued on: Valid until:

The audit was carried out by: _____ Company/Signature of Authorized Representative Lead-Auditor(s): _____ _____ Date _____	Registered VDA No. _____ (VDA Stamp) Signature _____

Fig 5-1: Example: VDA 6.1 Certificate

The VDA certificate serves as verification that a 2nd party audit has been carried out. The criteria given in EN 45012 regarding independence and impartiality are to be maintained by the auditors.

The purpose of the certificate is to document the higher qualification of the quality system and to inspire mutual confidence.

5.1 Awarding of a Certificate

The VDA 6.1 or VDA 6.2 certificate can be awarded if:

1. a VDA authorized Lead Auditor has carried out a complete audit according to VDA 6.1 or VDA 6.2, a degree of compliance of at least 90 % has been achieved and no down-grading will take place.

2. a certificate according to DIN EN ISO 9001/2 is available and at least 10 spot checks of varying quality elements have been carried out by the Lead Auditor .

A precondition is the use of the At-site Mandays Table 4.1.2-1.

Hereby the elements

VDA 6.1 and VDA 6.2

05 Financial considerations of a quality system
06 Product safety
Z1 Company strategy

VDA 6.1		**VDA 6.2**	
07	Contract review	09	Preparation of services
09	Process planning	10	Advertising and Marketing
17	Control of nonconforming products	14	Customer services
18	Corrective and preventive actions	15	Analysis and improvement of services

must generally be checked in addition.

5.2 Applying for a VDA Certificate

The certificate can be applied for at the VDA, by an authorized representative of the company for which the VDA Lead Auditor works under contract. A registration of the audit at the VDA requires that the Lead Auditor be entered in the auditor register of the VDA.

The complete audit report is to be attached to the application for certificate, if the total degree of compliance is ≥ 95 %.

The certificate must be signed by the Lead Auditor.

After review, the certificate is assigned a registration number, as well as the signature of a director or legally binding representative of the VDA.

To the
Verband der Automobilindustrie e.V (VDA)
Qualitätsmanagement-Center
Lindenstr. 5

D-60325 Frankfurt am Main

Application for Issue of a VDA-6.2 Certificate

Audited Company:

Location:

Degree of compliance:

For verification of the forms VDA 6.1 or VDA 6.2 Main Section 8, are to be attached as copies.

Lead Auditor:

Company:

Co-Auditor:

Company:

Audit: from until

ð Full Audit
ð Supplement to an existing certificate

Location/Date	Signature Lead Auditor	Location/Date	Signature Audited Company

Fig 5.2-1 Application Form

Summary of Audit Verifications

Audit Type / Verification	Internal Audit 1st party	Customer Audit 2nd party	Cert. Audit 3rd party
VDA 6.1 Certificate Supplement	-	-	X
VDA 6.1 Certificate	-	X	-
VDA 6.2 Certificate	-	X	-

Requirements for VDA Verification

	VDA-Certificate	Cert. Supplement
Criteria for compliance with the requirements		
a) Full Audit, Degree of compliance ≥ 90 % - all quality elements ≥ 75 % - no crucial question marked with 0 points	X X X	X X X
b) Certificate according to DIN EN ISO 9001/2 available, 10 spot checks of various elements - all quality elements ≥ 75 % - no crucial question marked with 0 points	X X X	X X X
VDA Registration Number	X	-
Certificate Registration Number	-	X
Application for VDA 6 Verifications		
VDA Lead Auditor and authorized representative of the company, in which the Lead Auditor works	X	-
VDA 6.1 Certified Auditor from the certification body.	-	X
Qualifications of the Auditors		
Quality auditor according to EOQ-Guidelines with final examination or equivalent	X	X
Evidence ≥ 3 audits per year	X	X

6 Qualification of Auditors

6.1 „VDA 6.1 Certified Auditor“

6.2 VDA Lead Auditor

6.3 Internal System Auditor

6.4 Process Auditor

6.5 Product Auditor

6 Qualification of Auditors

In order to ensure comparability of audit results, it is necessary that auditors comply with a given qualification profile.

6.1 „VDA 6.1 Certified Auditor“

Auditors for VDA 6.1 must have the training and the certificate „ VDA 6.1 Certified Auditor „ from a VDA authorized Personnel Registrar (see QMC Report).

In order to be entered for this training and examination, the following basic qualifications must be fulfilled:

a) Technical Qualification to Auditor

The auditor must be an examined auditor according to EOQ-Guidelines or have an equivalent qualification with examination (min. 150 hours of training in quality subjects, techniques, methods and auditor training with exam). The verification must be in the form of a certificate, no more than three years old.

b) Work experience

The auditor must have at least four years of industrial experience in the manufacturing industry, in one or more of the branches - Chemistry / Synthetics, Electric / Electronics or Metal - in the automotive industry (as manufacturer, supplier or sub-supplier), or in a trade with comparable high requirements (such as aircraft construction, defense technology, nuclear technology, railway vehicles). Of these four years, at least 2 must have been carried out in a quality activity. Theend of these four years must not lay back more than six years.

c) Audit experience

The auditor must have carried out at least three external audits as Lead Auditor in the last year. These audits can be 2nd party audits in the automotive industry, certification audits (Initial or Re-audits) or concern audits in the automotive industry.

The enrollment for the course and examination occurs through the branch representative of the certification body or the director or authorized representative of a VDA member company. VDA decides about admission and advises the Personnel Registrar.

At the end of the „VDA 6.1 Certified Auditor“ course, the auditor must sit an examination. The examination consists of a written and oral part. Both parts must be passed.

After successfully passing the examination, the auditor receives the certificate „VDA 6.1 Certified Auditor„.

6.2 VDA Lead Auditor

VDA Lead Auditors are 2nd party auditors of VDA member companies, who are registered at the VDA. These auditors are entitled (Chapter 5) to apply for the VDA certificate for the company that they have audited. These auditors must fulfil the criteria described in the VDA Recommendation 6002.

The application to be taken up in the list of the VDA registered Lead Auditors is to be made through the director or authorized representative of a VDA member company. If the application is successful, the auditor receives an identification card „VDA Lead Auditor„ with a validity of three years.

The qualification criteria for a VDA Lead Auditor are the same as for a Certified Auditor (Chapter 6.1). However, an examination is not required.

6.3 Internal System Auditor

Internal system auditors must be trained in elementary quality techniques, methods and standards, as well as auditing techniques.

Furthermore, these auditors must be qualified to the peculiarities of VDA 6.1.

Their qualification must be carried out by VDA 6.1 Certified Auditors or through VDA Lead Auditors.

This can be verified through an appropriate introduction or training course.

6.4 Process Auditor

The qualification criteria for process auditors are described in Volume 6.3. An example is shown in Table 6.4.1

Occupational Requirements	Selection criteria
a) Occupational qualification with technical training in the area of Quality Assurance	a) has written and oral fluency in the language of the country
b) Knowledge of inspection techniques	b) can recognize relationships
c) Basic knowledge of statistics, control card technology	c) distinctly quality conscious
d) Knowledge of the machines and process capability verifications	d) can proceed analytically (e.g. can separate important from unimportant, can quickly identify the core of a problem)
e) Basic knowledge of further quality methods and tools	e) is able to communicate and work in a team
f) Basic knowledge of technical communication	f) can defend his own standpoint even in the face of opposition
g) Knowledge of the quality policy of the company	g) can listen and ask searching questions
h) Basic knowledge of EDP (PC Basic training)	h) can apply adequate technical and expert knowledge
i) 3 Process audits together with an expert	
j) 4 Years work experience, of which 2 in process management	
k) Written and oral fluency in the language of the country	

Tab. 6.4.1 Requirement Profile for a Process Auditor (example)

6.5 Product Auditor

The qualification criteria for product auditors are described in Volume 6.5. An example is shown in Table 6.5.1

Occupational Requirements	Selection criteria
a) Occupational qualification with technical training in the area of Quality Assurance b) Knowledge of inspection techniques c) Basic knowledge of statistics d) Basic knowledge of the process capability verifications e) View of quality assurance methods and tools f) Basic knowledge of technical communication g) Knowledge of the quality policy of the company h) Quality conscious i) Basic knowledge of EDP (PC Basic training) j) 4 Years work experience, of which 2 years in the area of quality assurance k) Written and oral fluency in the language of the country	a) has written and oral fluency in the language of the country b) can recognize relationships c) can proceed analytically (e.g. can separate important from unimportant, can quickly identify the core of the problem) d) is able to communicate and work in a team e) can defend his own standpoint even in the face of opposition f) can listen and ask searching questions g) can apply adequate technical and expert knowledge

Tab. 6.5.1 Requirements Profile for a Product Auditor (example)

7 Comparison Tables (Synopses)

7.1 **VDA 6.1, 3rd Edition 1996/VDA 6, 2nd Edition 1993**

7.2 **VDA 6.1, 3rd Edition 1996/DIN EN ISO 9001: 1994**

7.3 **VDA 6.3, DIN EN ISO 9004-1**

7.4 **VDA 6.1 1996, 3rd Edition 1996 /**
Evaluation d'aptitude qualité fournisseurs (EAQF)$_{94}$

7.5 **VDA 6.1 1996/*AVSQ$_{94}$***

7.6 **VDA 6.1, 3rd Edition 1996/QS-9000**

7.7 **QS-9000/VDA 6.1, 3rd Edition 1996**

7.8 **VDA 6.2/DIN EN ISO 9001/2:94**

7.10 **ISO 9001:94/VDA 6 Part 2**

7 Comparison tables (Synopses)

The comparison tables are built up according to the following schematic representation:

Comparison basis	Subject in Question	Norm/Technical Ruling Standard/ Cross references
Element No. Question No.	Main statement	Element No. Paragraph No. Question No.

Fig. 7-1: Explanation of the Comparison tables

VDA 6 Part 1, 3rd Edition 1996	VDA 6, 2nd. Edition 1993 DIN EN ISO 1001: 1994 $EAQF_{94}$ $AVSQ_{94}$ QS-9000
QS-9000 VDA 6 Part 2, 1997 ISO 9001: 1994	VDA 6 Part 1, 3rd. Edition DIN EN ISO 9001/2: 1994 VDA 6 Part 2

Fig. 7-2: Summary of the comparison tables

7.1 VDA 6.1, 3rd Edition 1996/VDA 6, 2nd Edition 1993

VDA 6 Part 1	Subject in question	VDA 6 2nd Edition
U	**Company management**	
01.	Management responsibility	
01.1	Quality policy	01.01
01.2	Quality objectives	01.02
01.3	Continual improvement	Not included
01.4	Quality system, resources for personnel and other costs	Not included
01.5	Management representative	02.03
01.6	Management review	01.04
02.	Quality system	
02.1	Quality Manual	02.04
02.2	Scope of the quality system	02.01
02.3	Responsibility and authority	02.02
02.4	Project management	Not included
02.5	Quality planning	Not included
02.6	Quality plans	Not included
03.	Internal Audits	
03.1	Auditor qualification	02.06
03.2	Internal quality audits	02.05
03.3	Corrective actions and their documentation	Not included
03.4	Product and Process audits	Not included
04.	Training	
04.1	Training program	05.01
04.2	Further education in quality techniques	05.02
04.3	Executives further education	05.03
04.4	New appointments, Staff movements	05.04
04.5	Qualification	05.05
04.6	Promotion of quality awareness	05.06
04.7	Presentation of the achieved quality	05.07
05.	Financial considerations to Quality systems	
05.1	Reporting method	Not included
05.2	Reporting frequency	Not included
05.3	Internal error costs	03.04
05.4	External error costs	03.05

VDA 6 Part 1	Subject in question	VDA 6 2nd Edition
06.	Product safety	
06.1	Product liability principles	04.01
06.2	Products requiring documentation	04.02
06.3	Recognition of product risks	04.03
06.4	Limitation of nonconforming units	04.04
Z1.	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	Not included
Z1.2	Company performance assessment methods and CIP usage	Not included
Z1.3	Performance data, company wide / Comparison	Not included
Z1.4	Customer satisfaction, measurement and changes	Not included
Z1.5	Employee satisfaction	Not included
P	**Product and Process**	
07.	Contract review / Quality in marketing	
07.1	Marketing function	Not included
07.2	Contract review	06.01
07.3	Quotation structure	Not included
07.4	Customer quality requirements	06.02
07.5	Performance specification known	06.03
08.	Design control	
08.1	Product development plan	07.01
08.2	Quality requirements fully considered	07.04
08.3	Product sampling	07.03
08.4	Quality evaluations	07.05
08.5	Design release	07.06
08.6	Result of development work	07.07
08.7	Transmittal of development experiences	07.02
09.	Process planning (Process development)	
09.1	Process development plan for new / changed products	07.01
09.2	Production plans, Work instructions	09.01
09.3	Quality requirements fully considered	07.04
09.4	Quality evaluation of processes and procedures	07.05
09.5	Approval of processes and procedures	07.06
09.6	Results of process planning and development work	07.07
09.7	Transmittal of process planning experiences	07.02

VDA 6 Part 1	Subject in question	VDA 6 2nd Edition
10.	Document and data control	
10.1	Quality relevant documents, responsibilities, procedures	16.01
10.2	Approval and revision	16.02
10.3	Safekeeping	16.04
10.4	Timely implementation of customer documentation	Not included
10.5	Invalid documents	Not included
11.	Purchasing	
11.1	Order documents	08.01
11.2	Selection of suppliers	08.02
11.3	Sample verifications	08.03
11.4	Suppliers quality performance	08.04
11.5	Quality control agreements	08.05
11.6	Receiving inspection and testing	08.06
11.7	Traceability	08.07
12.	Control of customer-supplied product	
12.1	Agreed quality measures	18.01
12.2	Minimum scope of inspection and testing	18.02
12.3	Reporting of nonconformities	18.03
12.4	Quality history	Not included
13.	Process control/ Identification and traceability/Inspection and testing status	
13.1	Marking of products	10.02
13.2	Process control measures	10.03
13.3	Process parameter records	10.07
13.4	Storage of operating equipment	10.05
13.5	Quality goal / consequent process, dispatch	Not included
13.6	Traceability	10.02, 10.04
13.7	Release at restarts	10.01
14.	Process control	
14.1	Machine and process capability checks	09.02, 09.07
14.2	Production release	09.03, 09.04
14.3	Control of the relevant process parameters	Not included
14.4	Maintenance, preventive servicing	10.06
14.5	Special processes	Not included
14.6	Environmental conditions specified / maintained	09.08
14.7	Evaluation of the effectiveness of production processes	Not included

VDA 6 Part 1	Subject in question	VDA 6 2nd Edition
15.	Inspection and testing	
15.1	Inspection and testing schedules	08.06, 09.05, 09.06
15.2	Inspection and test plans, inspection and test procedures	09.06
15.3	Quality records for externally purchased products	11.01
15.4	Quality records for work stages	11.02
15.5	Quality records for the end product	11.03
15.6	Periodic inspections and tests	11.04
16.	Control of inspection, measuring and test equipment	
16.1	Control and calibration system	12.01
16.2	Connection to national / international standards	12.01
16.3	Measurement uncertainty of the measuring and test equipment	12.02
16.4	Inspection, measuring and test equipment capabilities	12.03
16.5	Control of non-conforming inspection, measuring and test equipment	12.04
17.	Control of nonconforming products	
17.1	Disposition of nonconforming units	13.01
17.2	Concessions	13.02
17.3	Corrective actions	13.03
17.4	Recognition of repeat nonconformities	13.04
18.	Corrective and preventive actions	
18.1	Ordering corrective actions	14.01
18.2	Estimation of the nonconformity risk	14.02
18.3	Analysis of the cause of the nonconformity	14.03
18.4	Preventive action to avoid repeat nonconformities	14.04
19.	Handling, storage, packaging, preservation and delivery	
19.1	Handling of products	15.01
19.2	Packaging and marking process	Not included
19.3	Measures to prevent transport damages	15.02
19.4	Correction of packaging nonconformities	15.03
19.5	Identification of the products	15.04
19.6	Delivery reliability	Not included
20.	Control of quality records	
20.1	Quality relevant documents	16.01
20.2	Analysis of quality records	16.03
20.3	Safekeeping	16.04
20.4	Customer access to quality records	Not included

VDA 6 Part 1	Subject in question	VDA 6 2nd Edition
21.	Quality in the operating phase/Servicing/Customer services	
21.1	Operation and installation instructions	15.06
21.2	Product observation / Field failure – Early warning system	06.04, 15
21.3	Field failure analysis	06.05
21.4	Customer service information	15.05
21.5	Servicing	Not included
22.	Statistical techniques (in the case of)	
22.1	Technique planning	Not included
22.2	Development / Trail	17.01
22.3	External purchases	17.02
22.4	Process development and control	17.03
22.5	Final inspection and testing	17.04
22.6	Analysis of field failures	17.05

7.2 VDA 6.1, 3rd Edition 1996/DIN EN ISO 9001: 1994

VDA 6 Part 1	Subject in question	DIN EN ISO 9001
U	**Company management**	
01.	Management responsibility	4.1
01.1	Quality policy	4.1.1
01.2	Quality objectives	4.1.1
01.3	Continual improvement	Not included
01.4	Quality system, resources for personnel and other costs	4.1.2.2
01.5	Management representative	4.1.2.1, 4.1.2.3
01.6	Management review	4.1.3
02.	Quality system	4.2
02.1	Quality Manual	4.2.1, 4.2.2
02.2	Scope of the Quality system	4.1.2
02.3	Responsibility and authority	4.1.2.1
02.4	Project management	(4.4.3)
02.5	Quality planning	4.2.3
02.6.	Quality plans	4.2.3
03.	Internal Audits	4.17
03.1	Auditor qualification	4.17.2
03.2	Internal quality audits	4.17.1, 4.17.3
03.3	Corrective actions and their documentation	Not included
03.4	Product and Process audits	Not included
04.	Training	4.18
04.1	Training program	4.18
04.2	Further education in quality techniques	4.18
04.3	Executives further education	4.18, 4.1.2.2
04.4	New appointments, Staff movements	4.18
04.5	Qualification	4.18
04.6	Promotion of quality awareness	Not included
04.7	Presentation of the achieved quality	Not included
05.	Financial considerations to Quality systems	
05.1	Reporting method	Not included
05.2	Reporting frequency	(4.1.3)
05.3	Internal error costs	Not included
05.4	External error costs	Not included

VDA 6 Part 1	Subject in question	DIN EN ISO 9001
06.	Product safety	
06.1	Product liability principles	Not included
06.2	Products requiring documentation	(4.2.3 a-g)
06.3	Recognition of product risks	(4.8)
06.4	Limitation of nonconforming units	Not included
Z1.	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	Not included
Z1.2	Company performance assessment methods and CIP usage	Not included
Z1.3	Performance data, company wide / Comparison	Not included
Z1.4	Customer satisfaction, measurement and changes	Not included
Z1.5	Employee satisfaction	Not included
P	**Product and Process**	
07.	Contract review / Quality in marketing	4.3
07.1	Marketing function	Not included
07.2	Contract review	4.3.1, 4.3.2
07.3	Quotation structure	Not included
07.4	Customer quality requirements	4.2.3, 4.3.2a
07.5	Performance specification known	4.3.2c
08.	Design control	4.4
08.1	Product / Process development plan	4.4.1, 4.4.2, 4.4.4, 4.4.5
08.2	Quality requirements fully considered	4.4.4, 4.3.2c
08.3	Product / Process sampling	4.4.7, 4.4.8
08.4	Quality evaluations	4.4.6
08.5	Design release	4.4.8, 4.4.3, 4.4.5
08.6	Result of development work	4.4.5
08.7	Transmittal of development experiences	4.4.3, 4.4.5
09.	Process planning (Process development)	4.4, (4.9)
09.1	Process development plan for new / changed products	4.4.1, 4.4.2, 4.4.4, 4.4.5
09.2	Production plans, Work instructions	4.9 Par.1, 4.9a
09.3	Quality requirements fully considered	4.4.4, 4.3.2c
09.4	Quality evaluation of processes and procedures	4.4.6
09.5	Approval of processes and procedures	4.4.8, 4.4.3, 4.4.5
09.6	Results of process planning and development work	4.4.5
09.7	Transmittal of process planning experiences	4.4.3, 4.4.5

VDA 6 Part 1	Subject in question	DIN EN ISO 9001
10.	Document and data control	4.5
10.1	Quality relevant documents, responsibilities, procedures	4.5.1 to 3
10.2	Approval and revision	4.5.2, 4.5.3
10.3	Safekeeping	4.3.4
10.4	Timely implementation of customer documentation	4.5.2
11.	Purchasing	4.6
11.1	Order documents	4.6.2, 4.6.3, 4.6.4.2
11.2	Selection of suppliers	4.6.1, 4.6.2a
11.3	Sample verifications	4.6.1, 4.6.2b
11.4	Suppliers quality performance	4.6.1, 4.6.2c
11.5	Quality control agreements	4.6.2b, (4.6.4)
11.6	Receiving inspection and testing	4.6.4, 4.10.1
11.7	Traceability	4.8
12.	Control of customer-supplied product	4.7
12.1	Agreed quality measures	4.7
12.2	Minimum scope of inspection and testing	4.7
12.3	Reporting of nonconformities	4.7
12.4	Quality history	4.7
13.	Process control/ Identification + traceability / Inspection and testing status	4.9, (4.8, 4.11, 4.12, 4.19.6)
13.1	Marking of products	4.8, 4.12
13.2	Process control measures	4.9d
13.3	Process parameter records	4.9 (Par. 4), 4.16
13.4	Storage of operating equipment	4.11.2h
13.5	Quality goal / consequent process, dispatch	4.12
13.6	Traceability	4.8 (Par. 2)
13.7	Release at restarts	4.9e
14.	Process control	4.9
14.1	Machine and process capability checks	4.9b
14.2	Production release	4.9c, -d, -e
14.3	Control of the relevant process parameters	4.9d, 4.9f
14.4	Maintenance, preventive servicing	4.9g
14.5	Special processes	4.9 Par. 2, 3
14.6	Environmental conditions specified / maintained	4.9b, 4.11.2g
14.7	Evaluation of the effectiveness of production processes	Not included

VDA 6 Part 1	Subject in question	DIN EN ISO 9001
15.	Inspection and testing	4.10, (4.2.3)
15.1	Inspection and testing schedules	4.2.3b,-c, -d, -e
15.2	Inspection and test plans, inspection and test procedures	4.10.1
15.3	Quality records for externally purchase products	4.6.4.1, 4.10.1, 4.10.2
15.4	Quality records for work stages	4.10.1, 4.10.3, 4.12
15.5	Quality records for the end product	4.10.1, 4.10.4
15.6	Periodic inspections and tests	(4.10.1)
16.	Control of inspection, measuring and test equipment	4.11
16.1	Control and calibration system	4.11.1,4.11.2b, -c, -d, -e, -g, -i
16.2	Connection to national / international standards	4.11.2b
16.3	Measurement uncertainty of the measuring and test equipment	4.11.2a
16.4	Inspection, measuring and test equipment capabilities	(4.11.2a)
16.5	Control of non-conforming inspection, measuring and test equipment	4.11.2f
17.	Control of nonconforming products	4.13
17.1	Disposition of nonconforming units	4.13.1, 4.13.2
17.2	Concessions	4.13.2
17.3	Corrective actions	4.13.2
17.4	Recognition of repeat nonconformities	4.14.2a
18.	Corrective and preventive actions	4.14
18.1	Ordering corrective actions	4.14.1, 4.14.2
18.2	Estimation of the nonconformity risk	4.14.3
18.3	Analysis of the cause of the nonconformity	4.14.2b
18.4	Preventive action to avoid repeat nonconformities	4.14.2d
19.	Handling, storage, packaging, preservation and delivery	4.15
19.1	Handling of products	4.15.1, 4.15.2, 4.15.3
19.2	Packaging and marking process	4.15.4
19.3	Measures to prevent transport damages	4.15.4, 4.15.5, 4.15.6
19.4	Correction of packaging nonconformities	4.15.1 with 4.14.1
19.5	Identification of the products	4.15.4
19.6	Delivery reliability	Not included

VDA 6 Part 1	Subject in question	DIN EN ISO 9001
20.	Control of quality records	4.16
20.1	Quality relevant documents	4.16
20.2	Analysis of quality records	4.16
20.3	Safekeeping	4.16, 4.3.4
20.4	Customer access to quality records	4.16
21.	Quality in the operating phase/Servicing/Customer services	(4.19)
21.1	Operation and installation instructions	(4.19)
21.2	Product observation / Field failure – Early warning system	Not included
21.3	Field failure analysis	(4.14.2b)
21.4	Customer service information	Not included
21.5	Servicing	4.19
22.	Statistical Techniques (in the case of)	4.20
22.1	Technique planning	4.20.1
22.2	Development / Trail	4.20
22.3	External purchases	4.20
22.4	Process development and control	4.20
22.5	Final inspection and testing	4.20
22.6	Analysis of field failures	4.20

7.3 VDA 6.3, DIN EN ISO 9004-1

VDA 6 Part 3	Subject in question	DIN EN ISO 9004-1
Part U	**Company management**	
01	Management responsibility	
01.1	Quality policy	4.2
01.2	Quality objectives	4.3.1
01.3	Continual improvement	-
01.4	Quality system, resources for personnel and other costs	5.2.4
01.5	Management representative	5.2.2; 5.2.3
01.6	Management review	5.5
02	Quality system	
02.1	Quality Manual	5.3.2
02.2	Scope of the Quality system	5.1; 5.2; 5.6
02.3	Responsibility and authority	5.2.2
02.4	Project management	5.2.6
02.5	Quality planning	5.3.3
02.6	Quality plans	5.2.6
03	Internal Audits	
03.1	Auditor qualification	5.5
03.2	Internal quality audits	5.4; 5.5
03.3	Corrective actions and their documentation	6.2.2
03.4	Product and Process audits	6.2.2
04	Training, Personnel	
04.1	Training program	18.1.1
04.2	Further education in quality techniques	18.1.1
04.3	Executives further education	18.1.2
04.4	New appointments, Staff movements	18.1.3
04.5	Qualification	18.2
04.6	Promotion of quality awareness	18.3.1
04.7	Presentation of the achieved quality	18.3.4
05	Financial considerations to Quality systems	
05.1	Reporting method	6.1
05.2	Reporting frequency	6.3
05.3	Internal error costs	6.2.2
05.4	External error costs	6.2.2

VDA 6 Part 3	Subject in question	DIN EN ISO 9004-1
06	Product safety	
06.1	Product liability principles	-
06.2	Products requiring documentation	19
06.3	Recognition of product risks	19a,b
06.4	Limitation of nonconforming units	19d,e
Z1	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	-
Z1.2	Company performance assessment methods and CIP usage	-
Z1.3	Performance data, company wide / Comparison	-
Z1.4	Customer satisfaction, measurement and changes	-
Z1.5	Employee satisfaction	-
P	**Product and Process**	
07	Contract review / Quality in marketing	
07.1	Marketing function	7.1a-c
07.2	Contract review	7.1a
07.3	Quotation structure	-
07.4	Customer quality requirements	7.1d
07.5	Performance specification known	7.2
08	Design control	
08.1	Product / Process development plan	8.1; 8.2; 8.10
08.2	Quality requirements fully considered	8.2.4; 8.4.2a-b
08.3	Product / Process sampling	8.3; 8.5
08.4	Quality evaluations	8.2.3; 8.3; 8.4.2
08.5	Design release	8.6; 8.7
08.6	Result of development work	8.6; 8.8
08.7	Transmittal of development experiences	8.9
09	Process planning (Process development)	
09.1	Process development plan for new / changed products	(8.1, 8.2 8.10)
09.2	Production plans, Work instructions	(10.1.1)
09.3	Quality requirements fully considered	(8.2.4 8.4.2a-b)
09.4	Quality evaluation of processes and procedures	(8.2.3; 8.3; 8.4.2)
09.5	Approval of processes and procedures	(8.6; 8.7;)
09.6	Results of process planning and development work	(8.6; 8.8)
09.7	Transmittal of process planning experiences	(8.9)

VDA 6 Part 3	Subject in question	DIN EN ISO 9004-1
10	Document and data control	
10.1	Quality relevant documents, responsibilities, procedures	17.1
10.2	Approval and revision	17.1
10.3	Safekeeping	17.3
10.4	Timely implementation of customer documentation	17.3
10.5	Invalid documents	17.1
11	Purchasing	
11.1	Order documents	9.2
11.2	Selection of suppliers	9.3
11.3	Sample verifications	9.3b
11.4	Suppliers quality performance	9.4; 9.8
11.5	Quality control agreements	9.5
11.6	Receiving inspection and testing	9.7
11.7	Traceability	9.8
12	Control of customer-supplied product	
12.1	Agreed quality measures	-
12.2	Minimum scope of inspection and testing	-
12.3	Reporting of nonconformities	-
12.4	Quality history	-
13	Process control/ Identification and traceability/Inspection and testing status	
13.1	Marking of products	11.2
13.2	Process control measures	11.4
13.3	Process parameter records	11.4; 11.5
13.4	Storage of operating equipment	11.3
13.5	Quality goal / consequent process, dispatch	11.7
13.6	Traceability	11.2
13.7	Release at restarts	11.1
14	Process control	
14.1	Machine and process capability checks	10.1.1
14.2	Production release	10.1.1
14.3	Control of the relevant process parameters	10.1.2; 10.2
14.4	Maintenance, preventive servicing	10.3
14.5	Special processes	11.4 Par.3
14.6	Environmental conditions specified / maintained	10.3
14.7	Evaluation of the effectiveness of production processes	-

VDA 6 Part 3	Subject in question	DIN EN ISO 9004-1
15	Inspection and testing	
15.1	Inspection and testing schedules	10.1.3
15.2	Inspection and test plans, inspection and test procedures	10.1.4
15.3	Quality records for externally purchased products	12.1
15.4	Quality records for work stages	12.2
15.5	Quality records for the end product	12.3a
15.6	Periodic inspections and tests	12.3b
16	Control of inspection, measuring and test equipment	
16.1	Control and calibration system	13.1; 13.2
16.2	Connection to national / international standards	13.2b
16.3	Measurement uncertainty of the measuring and test equipment	13.2b
16.4	Inspection, measuring and test equipment capabilities	13.1
16.5	Control of non-conforming inspection, measuring and test equipment	13.4
17	Control of nonconforming products	
17.1	Disposition of nonconforming units	14.2
17.2	Concessions	14.5
17.3	Corrective actions	14.6
17.4	Recognition of repeat nonconformities	14.7
18	Corrective and preventive actions	
18.1	Ordering corrective actions	15.2
18.2	Estimation of the nonconformity risk	15.6
18.3	Analysis of the cause of the nonconformity	15.4; 15.5
18.4	Preventive action to avoid repeat nonconformities	15.7; 15.8
19	Handling, storage, packaging, preservation and delivery	
19.1	Handling of products	(10.4)
19.2	Packaging and marking process	16.2
19.3	Measures to prevent transport damages	16.1
19.4	Correction of packaging nonconformities	16.1; 16.2
19.5	Identification of the products	16.1; 16.2
19.6	Delivery reliability	-
20	Control of quality records	
20.1	Quality relevant documents	17.1
20.2	Analysis of quality records	17.3
20.3	Safekeeping	17.3
20.4	Customer access to quality records	-

VDA 6 Part 3	Subject in question	DIN EN ISO 9004-1
21	Quality in the operating phase / Servicing/ Customer services	
21.1	Operation and installation instructions	16.4.3
21.2	Product observation / Field failure – Early warning system	7.3; 16.5; 16.6
21.3	Field failure analysis	7.3
21.4	Customer service information	16.4.1
21.5	Servicing	16.4
22	Statistical Techniques (in the case of)	
22.1	Technique planning	20.1
22.2	Development / Trail	20.1b,h; 20.2
22.3	External purchases	20.1f; 20.2
22.4	Process development and control	20.1c-g; 20.2
22.5	Final inspection and testing	20.1f; 20.2
22.6	Analysis of field failures	20.1a,h; 20.2

7.4 VDA 6.1 1996, 3rd Edition 1996/ Evaluation d'aptitude qualité fournisseurs $(EAQF)_{94}$

VDA 6 Part 1	Subject in question	$EAQF_{94}$
U	**Company management**	
01.	Management responsibility	
01.1	Quality policy	1.1/1.2
01.2	Quality objectives	1,3
01.3	Continual improvement	1.2/1.5
01.4	Quality system, resources for personnel and other costs	1.5/1.7
01.5	Management representative	1.4
01.6	Management review	1.8
02.	Quality system	
02.1	Quality Manual	2.1/2.2
02.2	Scope of the quality system	2.2/2.3
02.3	Responsibility and authority	2.2
02.4	Project management	4.1/4.2
02.5	Quality planning	
02.6.	Quality plans	2.3
03.	Interne Audits	
03.1	Auditor qualification	17.2
03.2	Internal quality audits	17.1/17.3
03.3	Corrective actions and their documentation	17.1
03.4	Production and process audits	9.21/10.4
04.	Training	
04.1	Training program	18.1
04.2	Further education in quality techniques	18.1/18.2
04.3	Executives further education	18.3
04.4	New appointments, Staff movements	18.4
04.5	Qualification	18.5
04.6	Promotion of quality awareness	18.6
04.7	Presentation of the achieved quality	2.5/2.6/18.7
05.	Financial considerations to quality systems	
05.1	Reporting method	
05.2	Reporting frequency	
05.3	Internal error costs	21.1/21.2
05.4	External error costs	21.1/21.2

VDA 6 Part 1	Subject in question	*EAQF*$_{94}$
06.	Product safety	
06.1	Product liability principles	22.1
06.2	Products requiring documentation	22.3/22.4
06.3	Recognition of product risks	
06.4	Limitation of nonconforming units	
Z1.	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	1.2
Z1.2	Company performance assessment methods and CIP usage	
Z1.3	Performance data, company wide / Comparison	
Z1.4	Customer satisfaction, measurement and changes	
Z1.5	Employee satisfaction	
P	**Product and Process**	
07.	Contract review / Quality in marketing	
07.1	Marketing function	3.1/3.2
07.2	Contract review	3.3/3.5
07.3	Quotation structure	3.2/3.5
07.4	Customer quality requirements	3.4/3.5
07.5	Performance specification known	
08.	Design control	
08.1	Product / Process development plan	4.1/4.2/4.4/4.5/ 4.7/4.9
08.2	Quality requirements fully considered	4.10/4.11/4.12/ 4.13/4.15
08.3	Product / Process trails	4.14/4.15/8.4
08.4	Quality evaluations	4.6/4.7/4.15 - 17/ 4.20/4.21
08.5	Design release	4.1/4.2/4.3
08.6	Result of development work	4.22/4.26
08.7	Transmittal of development experiences	4.13/4.16/4.17
09.	Process planning (Process development)	
09.1	Process development plan for new / changed products	4.27
09.2	Production plans, Work instructions	4.16/4.22/4.26
09.3	Quality requirements fully considered	9.4/9.6
09.4	Quality evaluation of processes and procedures	9.10
09.5	Approval of processes and procedures	9.3/9.7/9.10
09.6	Results of process planning and development work	9.9
09.7	Transmittal of process planning experiences	9.9

VDA 6 Part 1	Subject in question	*EAQF*$_{94}$
10.	Document and data control	
10.1	Quality relevant documents, responsibilities, procedures	5.1
10.2	Approval and revision	5.2
10.3	Safekeeping	5.2/5.3
10.4	Timely implementation of customer documents	5.2/5.3
10.5	Invalid documents	5.2
11.	Purchasing	
11.1	Order documents	6.2/6.3
11.2	Selection of suppliers	6.1
11.3	Sample verifications	6.5
11.4	Suppliers quality performance	6.1/6.8/6.10
11.5	Quality control agreements	6.4
11.6	Receiving inspection and testing	6.8/6.9
11.7	Traceability	6.7
12.	Control of customer-supplied product	
12.1	Agreed quality measures	
12.2	Minimum scope of inspection and testing	7.1
12.3	Reporting of nonconformities	7.1
12.4	Quality history	-
13.	Process control / Identification and traceability / Inspection and testing	
13.1	Marking of products	8.1/8.2
13.2	Process control measures	8.2/10.4
13.3	Process parameter records	
13.4	Storage of operating equipment	
13.5	Quality goal / consequent process / dispatch	12.1/12.2
13.6	Traceability	8.3
13.7	Release at restart	9.11
14.	Process control	
14.1	Machine and process capability verifications	9.3/9.4
14.2	Production release	9.3
14.3	Control of the relevant process parameters	9.4/9.5
14.4	Maintenance, preventive servicing	9.2/9.19/9.20
14.5	Special processes	9.6/9.17
14.6	Environmental conditions specified / maintained	9.12/9.13/9.19/ 9.20
14.7	Evaluation of the effectiveness of production processes	9.5/9.18/9.21

VDA 6 Part 1	Subject in question	*EAQF*$_{94}$
15.	Inspection and testing	
15.1	Inspection and testing schedules	9.5/9.8/9.9/10.2
15.2	Inspection and test plans, inspections and test procedures	10.2
15.3	Quality records for externally purchased products	10.1
15.4	Quality records for work stages	10.1-10.5
15.5	Quality records for the end product	10.3/10.4
15.6	Periodic inspections and tests	
16.	Control of inspection, measuring and test equipment	
16.1	Control and calibration system	11.1/11.2/11.4
16.2	Connection to national / international standards	11.2
16.3	Measurement uncertainty of the measuring and test equipment	11.1/11.2
16.4	Inspection, measuring and test equipment capabilities	11.3
16.5	Control of nonconforming inspection, measuring and test equipment	11.2/11.3
17.	Control of nonconforming product	
17.1	Disposition of nonconforming units	13.3/13.4
17.2	Concessions	13.3/13.4
17.3	Corrective actions	13.4
17.4	Recognition of repeat nonconformities	
18.	Corrective and preventive actions	
18.1	Ordering corrective actions	14.1
18.2	Estimation of the nonconformity risk	14.2/14.3
18.3	Analysis of the cause of the nonconformity	14.3
18.4	Preventive action to avoid repeat nonconformities	14.2
19.	Handling, storage, packaging, preservation and delivery	
19.1	Handling of products	15.1/15.2/15.4
19.2	Packaging and marking process	15.4
19.3	Measure to prevent transport damages	15.1/15.2
19.4	Correction of packing nonconformities	15.4
19.5	Identification of the product	15.2/15.3/15.4
19.6	Delivery reliability	15.5
20.	Control of quality records	
20.1	Quality relevant documents	16.1
20.2	Analysis of quality records	16.1
20.3	Safekeeping	16.2
20.4	Customer access to quality records	

VDA 6 Part 1	Subject in question	*EAQF*$_{94}$
21.	Quality in the operating phase/Servicing/Customer services	
21.1	Operating and installation instructions	19.1
21.2	Product observation / Field failure – early warning system	19.2/19.3
21.3	Field failure analysis	19.2/19.3
21.4	Customer service information	19.2
21.5	Servicing	
22.	Statistical techniques (in the case of)	
22.1	Technique planning	20.1
22.2	Development / trail	20.2
22.3	External purchases	
22.4	Process development and control	20.2
22.5	Final inspection and testing	20.2
22.6	Analysis of field failures	20.2

7.5 VDA 6.1 1996/*AVSQ$_{94}$*

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
U	**Company management**	
01.	Management responsibility	
01.1	Quality policy	4.1.1
01.2	Quality objectives	4.1.1 b
01.3	Continual improvement	4.1.1 b
01.4	Quality system, resources for personnel and other costs	4.1.2.2 a,b
01.5	Management representative	4.1.2.3
01.6	Management review	4.1.3
02.	Quality system	
02.1	Quality Manual	4.1.2.1b/ 4.2.1/ 4.2.2
02.2	Scope of the quality system	4.1.2.1 a,b,c/ 4.2.2
02.3	Responsibility and authority	4.1.2.1 a,b / 4.2.2
02.4	Project management	4.4.3 a, b/ 4.4.4 a
02.5	Quality planning	4.2.3 a, b/ 4.4.5/ 4.4.7 a
02.6.	Quality plans	4.2.3 a,b/ 4.4.3 a,b
03.	Interne Audits	
03.1	Auditor qualification	4.17 c
03.2	Internal quality audits	4.17 a, b
03.3	Corrective actions and their documentation	4.17 d
03.4	Production and process audits	not included
04.	Training	
04.1	Training program	4.1.2.2 b/ 4.18 a, b, f
04.2	Further education in quality techniques	4.18 b
04.3	Executives further education	4.18 c
04.4	New appointments, Staff movements	4.18 d
04.5	Qualification	4.18 e
04.6	Promotion of quality awareness	4.18 g
04.7	Presentation of the achieved quality	4.18 h

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
05.	Financial considerations to quality systems	
05.1	Reporting method	4.21
05.2	Reporting frequency	4.1.3/ 4.21
05.3	Internal error costs	4.21
05.4	External error costs	4.21
06.	Product safety	
06.1	Product liability principles	4.1.2.1d/4.2.3b 4.4.4 d/ 4.9 u / 4.22 a
06.2	Products requiring documentation	4.4.2 g / 4.22 b, c, d
06.3	Recognition of product risks	4.4.2 g, h, i
06.4	Limitation of nonconforming units	4.4.8 b,c/ 4.22 b,c
Z1.	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	not included
Z1.2	Company performance assessment methods and CIP usage	4.4.2 d/ 4.4.4 b
Z1.3	Performance data, company wide / Comparison	4.4.4 c
Z1.4	Customer satisfaction, measurement and changes	not included
Z1.5	Employee satisfaction	not included
P	**Product and Process**	
07.	Contract review / Quality in marketing	
07.1	Marketing function	4.3.1
07.2	Contract review	4.3.1/ 4.3.2 a, c,d / 4.3.3/ 4.3.4
07.3	Quotation structure	4.3.2 d
07.4	Customer quality requirements	4.3.2 a, b
07.5	Performance specification known	4.2.3 b/ 4.3.2 a
08.	Design control	
08.1	Product / Process development plan	4.4.1 / 4.4.2 a, b, c, e, f / 4.4.7 c / 4.4.9 a
08.2	Quality requirements fully considered	4.4.2 g, h, l, m / 4.4.3 b / 4.4.4 b / 4.4.5 / 4.4.7 a, b
08.3	Product / Process trails	4.4.5/ 4.4.7 d / 4.4.8 b,c

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
08.4	Quality evaluations	4.4.5 / 4.4.7 a, b, c, d
08.5	Design release	4.4.6 c/4.4.8 a,b
08.6	Result of development work	4.3.2 b / 4.4.4 a / 4.4.6 a
08.7	Transmittal of development experiences	4.4.4 b, d/ 4.4.6 a
09.	Process planning (Process development)	
09.1	Process development plan for new / changed products	4.4.1/ 4.4.2 a, b, c, e, f / 4.4.3 a,b/ 4.4.4 a / 4.4.5 /4.4.7 a, c / 4.9 a
09.2	Production plans, Work instructions	4.9 d,e,f,h
09.3	Quality requirements fully considered	4.2.3 a/4.3.2 a/ 4.4.2 i / 4.4.5 / 4.4.7 a/4.9 b,d,g
09.4	Quality evaluation of processes and procedures	4.4.5 / 4.4.6 b / 4.4.7 a, b, c, d/ 4.9 b, g, l, p
09.5	Approval of processes and procedures	4.4.6 a, b, c / 4.4.8 a, b, c / 4.9 l, n
09.6	Results of process planning and development work	4.4.6 a/4.9 e, h
09.7	Transmittal of process planning experiences	4.4.3 b/4.4.4.b/ 4.4.6 a, b, c
10.	Document and data control	
10.1	Quality relevant documents, responsibilities, procedures	4.5.1/ 4.5.2 a
10.2	Approval and revision	4.5.1 / 4.5.2 a, b / 4.5.3 a, b
10.3	Safekeeping	4.5.2 b, c
10.4	Timely implementation of customer documents	4.5.1 / 4.5.3 b
10.5	Invalid documents	4.5.2 b, c
11.	Purchasing	
11.1	Order documents	4.6.1/4.6.3 a, b
11.2	Selection of suppliers	4.6.2a/4.6.4c,d
11.3	Sample verifications	4.6.4 b, d / 4.10.2 a
11.4	Suppliers quality performance	4.6.2 b, c / 4.6.4 b, c

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
11.5	Quality control agreements	4.6.2 b / 4.6.4 a / 4.10.1
11.6	Receiving inspection and testing	4.6.1/4.6.4 b,c/ 4.10.1/4.10.2 b, c
11.7	Traceability	4.6.2 c / 4.6.3 b / 4.8 a, c
12.	Control of customer-supplied product	
12.1	Agreed quality measures	4.7
12.2	Minimum scope of inspection and testing	4.7
12.3	Reporting of nonconformities	4.7
12.4	Quality history	not included
13.	Process control / Identification and traceability / Inspection and testing	
13.1	Marking of products	4.8 a, b / 4.12
13.2	Process control measures	4.8 b / 4.9 e, f / 4.10.3 b
13.3	Process parameter records	4.8 c / 4.9 h, i / 4.16 b
13.4	Storage of operating equipment	4.9 o / 4.11.2 f
13.5	Quality goal / consequent process / dispatch	4.8 b / 4.12
13.6	Traceability	4.8 c
13.7	Release at restart	4.9 m, n
14.	Process control	
14.1	Machine and process capability verifications	4.9 f,g,i,p
14.2	Production release	4.9 b, c, e, g, l, m, n, p
14.3	Control of the relevant process parameters	4.9 f, g, h, i / 4.16 b
14.4	Maintenance, preventive servicing	4.9 o
14.5	Special processes	4.9 p, u
14.6	Environmental conditions specified / maintained	4.9 q, r, s / 4.11.2 e, f
14.7	Evaluation of the effectiveness of production processes	4.9 a, e, m, n, t

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
15.	Inspection and testing	
15.1	Inspection and testing schedules	4.2.3 a/4.10.1/ 4.10.2 a/ 4.10.3.a/ 4.10.4 a
15.2	Inspection and test plans, inspections and test procedures	4.10.1/4.10.3a/ 4.10.4 a/ 4.10.5 a, b
15.3	Quality records for externally purchased products	4.10.2 a, b,c / 4.10.5 a, b
15.4	Quality records for work stages	4.10.3 a, b, c/ 4.10.5a, b/4.12
15.5	Quality records for the end product	4.10.4 a, b, c / 4.10.5 a, b
15.6	Periodic inspections and tests	4.10.4 a,c
16.	Control of inspection, measuring and test equipment	
16.1	Control and calibration system	4.11.1 a,b/ 4.11.2 a,b,c,e
16.2	Connection to national / international standards	4.11.2 b, c
16.3	Measurement uncertainty of the measuring and test equipment	4.11.2 a,f
16.4	Inspection, measuring and test equipment capabilities	4.11.1 b
16.5	Control of nonconforming inspection, measuring and test equipment	4.11.2 d
17.	Control of nonconforming product	
17.1	Disposition of nonconforming units	4.13.1 / 4.13.2 a
17.2	Concessions	4.13.2 c, d
17.3	Corrective actions	4.13.2 a, b
17.4	Recognition of repeat nonconformities	4.14.2 b, c / 4.14.3 a, b / (4.4.4 b)
18.	Corrective and preventive actions	
18.1	Ordering corrective actions	4.14.1/ 4.14.2 a,b,c/ 4.14.3 a,b
18.2	Estimation of the nonconformity risk	4.14.3 a, b
18.3	Analysis of the cause of the nonconformity	4.14.2 b / 4.14.3 a, b
18.4	Preventive action to avoid repeat nonconformities	4.14.2 b, c / 4.14.3 a, b / (4.4.4 b)

VDA 6 Part 1	Subject in question	*AVSQ$_{94}$*
19.	Handling, storage, packaging, preservation and delivery	
19.1	Handling of products	4.15.1/4.15.3 b
19.2	Packaging and marking process	4.15.4
19.3	Measure to prevent transport damages	4.15.2/4.15.3a/ 4.15.5/4.15.6a
19.4	Correction of packing nonconformities	4.14.2 b, c
19.5	Identification of the product	4.15.5
19.6	Delivery reliability	4.15.6 b
20.	Control of quality records	
20.1	Quality relevant documents	4.16 a, b
20.2	Analysis of quality records	4.16 a, b, c
20.3	Safekeeping	4.3.4/4.10.5 a, b/ 4.16 d
20.4	Customer access to quality records	4.16 a, c, d
21.	Quality in the operating phase	
21.1	Operating and installation instructions	4.19 c
21.2	Product observation / Field failure – early warning system	4.19 d
21.3	Field failure analysis	4.14.2 b, c/4.19 d
21.4	Customer service information	4.19 a, b, d
21.5	Servicing	4.19 a, b
22.	Statistical techniques (in the case of)	
22.1	Technique planning	4.20.1
22.2	Development / trail	4.20.2
22.3	External purchases	(4.20.1)
22.4	Process development and control	(4.20.1)
22.5	Final inspection and testing	(4.20.1)
22.6	Analysis of field failures	(4.20.2)

Note:

1) VDA 6.1 partially does not cover the following AVSQ questions:
   4.1.2.1 d regarding personnel safety (Health and Safety standards) and environmental protection
   4.2.3 b regarding Management
   4.4.9 regarding established procedures
   4.9 c regarding evaluation procedures
   4.13.2 d regarding every mix up

2) VDA 6.1 does not cover the following AVSQ questions:
   4.1.2.2 c
   4.4.9 b Question is not clear
   4.19 e Question is to be taken in connection with element 4.19.

7.6 VDA 6.1, 3rd Edition 1996/QS-9000

VDA 6 Part 1	Subject in question	QS-9000
U	**Company management**	
01.	Management responsibility	
01.1	Quality policy	4.1.1
01.2	Quality objectives	4.1.1
01.3	Continual improvement	II.2.1; II.2.2; II.2.3
01.4	Quality system, resources for personnel and other costs	4.1.2.2
01.5	Management representative	4.1.2.1, 4.1.2.3
01.6	Management review	4.1.3
02.	Quality system	
02.1	Quality Manual	4.2.1, 4.2.2
02.2	Scope of the quality system	4.1.2.1; 4.2.1
02.3	Responsibility and authority	4.1.2.1; 4.2.2; 4.4.1; 4.4.3
02.4	Project management	4.2.3, 4.4.3
02.5	Quality planning	4.2.3
02.6	Quality plans	4.2.3; 4.4.3; 4.9.2; 4.9.4
03.	Interne Audits	
03.1	Auditor qualification	4.17
03.2	Internal quality audits	4.17
03.3	Corrective actions and their documentation	4.17
03.4	Production and process audits	4.10.1; (4.17)
04.	Training, personnel	
04.1	Training program	4.18
04.2	Further education in quality techniques	4.18;4.20.2; II.2.3
04.3	Executives further education	4.1.2.2;4.18; II.2.3

VDA 6 Part 1	Subject in question	QS-9000
04.4	New appointments, staff movements	4.18
04.5	Qualification	4.4.2; 4-18; II.2.3
04.6	Promotion of quality awareness	(4.18)
04.7	Presentation of the achieved quality	(4.18)
05.	Financial consideration to quality systems	
05.1	Reporting method	4.1.3; II.2.3
05.2	Reporting frequency	4.1.3; II.2.2
05.3	Internal error costs	II.2.2
05.4	External error costs	II.2.2
06.	Product safety	
06.1	Product liability principles	-
06.2	Products requiring documentation	4.2.3; 4.5.1; 4.9; 4.9.1
06.3	Recognition of product risks	-
06.4	Limitation of nonconforming units	4.8
Z	**Company strategy**	
Z1.	Company strategy	
Z1.1	Company plan regarding costs, sales, quality, etc.	4.1.4
Z1.2	Company performance assessment methods and CIP usage	4.1.4;4.1.5; II.2.2
Z1.3	Performance data, company wide / Comparison	4.1.5
Z1.4	Customer satisfaction, measurement and changes	4.1.6; II.2.2
Z1.5	Employee satisfaction	-
P	**Product and Process**	
07.	Contract review / Quality in marketing	
07.1	Marketing function	4.2.3
07.2	Contract review	4.3.1; 4.3.2; 4.3.3; 4.3.4; 4.9.4
07.3	Quotation structure	-
07.4	Customer quality requirements	4.3.2
07.5	Performance specification known	4.3.2

VDA 6 Part 1	Subject in question	QS-9000
08.	Design control	
08.1	Product / Process development plan	4.2.3; 4.4.1; 4.4.2; 4.4.4; 4.4.5; 4.4.9
08.2	Quality requirements fully considered	4.3.2; 4.4.2; 4.4.4; 4.9
08.3	Product / Process trails	4.4.7; 4.4.8
08.4	Quality evaluations	4.4.6; 4.4.7;4.4.9
08.5	Design release	4.4.3;4.4.5; 4.4.8; (4.4.9); II1.1;II.1.2
08.6	Result of development work	4.4.5
08.7	Transmittal of development experiences	4.4.3; 4.4.5
09.	Process planning (Process development)	
09.1	Process development plan for new / changed products	4.2.3; 4.4.1; 4.4.9; II.3.1
09.2	Production plans, Work instructions	4.2.1; 4.9; 4.9.1; 4.9.7; II.3.1
09.3	Quality requirements fully considered	4.3.2; 4.4.5; II.3.2; II.3.3
09.4	Quality evaluation of processes and procedures	II.1.1; II.3.2
09.5	Approval of processes and procedures	II.1.1
09.6	Results of process planning and development work	4.9.1
09.7	Transmittal of process planning experiences	II.3.2; II.3.3
10.	Document and data control	
10.1	Quality relevant documents, responsibilities, procedures	4.5.1; 4.5.2
10.2	Approval and revision	4.5.2; 4.5.3
10.3	Safekeeping	4.3.4
10.4	Timely implementation of customer documents	4.5.1; 4.5.2
10.5	Invalid documents	4.5.2; 4.5.3
11.	Purchasing	
11.1	Order documents	4.6.2;4.6.3;4.6.4; II.31; II.3.3
11.2	Selection of suppliers	4.6.1; 4.6.2
11.3	Sample verifications	4.6.1; 4.6.2; II.1.1

VDA 6 Part 1	Subject in question	QS-9000
11.4	Suppliers quality performance	4.6.2
11.5	Quality control agreements	4.6.2; 4.6.3; 4.6.4
11.6	Receiving inspection and testing	4.6.1;4.6.4;4.10 .2
11.7	Traceability	4.8
12.	Control of customer-supplied product	
12.1	Agreed quality measures	4.7
12.2	Minimum scope of inspection and testing	4.7
12.3	Reporting of nonconformities	4.7
12.4	Quality history	-
13.	Process control / Identification and traceability / Inspection and testing	
13.1	Marking of products	4.8; 4.12
13.2	Process control measures	4.9; 4.10.3
13.3	Process parameter records	4.9; 4.10.3
13.4	Storage of operating equipment	4.11.2; II.3.4
13.5	Quality goal / consequent process / dispatch	4.10.3; 4.12
13.6	Traceability	4.8
13.7	Release at restart	4.9.5; 4.10.3; 4.10.4; II.1.1
14.	Process control	
14.1	Machine and process capability verifications	4.9;4.92.;4.9.3; 4.9.4; (II.3.2)
14.2	Production release	4.9;4.9.2;4.9.3; 4.9.4;4.9.6; 4.10.4; 4.17; II.1.1;II.1.2
14.3	Control of the relevant process parameters	4.9; 4.9.3; 4.9.4; 4.20.2
14.4	Maintenance, preventive servicing	4.9; II.3.3; II.3.4
14.5	Special processes	4.9
14.6	Environmental conditions specified / maintained	4.9; 4.11.2; 4.15.3; II.3.1
14.7	Evaluation of the effectiveness of production processes	II.2.2
15.	Inspection and testing	
15.1	Inspection and testing schedules	4.2.3
15.2	Inspection and test plans, inspections and test procedures	4.9.1; 4.10.1
15.3	Quality records for externally purchased products	4.6.4;4.9.7;4.10 .1; 4.10.2; 4.10.5; 4.16

VDA 6 Part 1	Subject in question	QS-9000
15.4	Quality records for work stages	4.10.1;4.10.3; 4.10.5;4.12;4.16
15.5	Quality records for the end product	4.10.1; 4.10.4; 4.10.5; 4.16
15.6	Periodic inspections and tests	4.10.1; 4.10.4; 4.10.5; 4.16
16.	Control of inspection, measuring and test equipment	
16.1	Control and calibration system	4.11.1; 4.11.2; 4.11.3
16.2	Connection to national / international standards	4.11.2
16.3	Measurement uncertainty of the measuring and test equipment	4.11.2
16.4	Inspection, measuring and test equipment capabilities	4.11.2; 4.11.4
16.5	Control of nonconforming inspection, measuring and test equipment	4.11.2; 4.11.4
17.	Control of nonconforming product	
17.1	Disposition of nonconforming units	4.13.1; 4.13.2
17.2	Concessions	4.13.2; 4.13.4
17.3	Corrective actions	4.13.2; 4.13.3
17.4	Recognition of repeat nonconformities	4.14.2
18.	Corrective and preventive actions	
18.1	Ordering corrective actions	4.1.2.1; 4.13.3; 4.14.1; 4.14.2
18.2	Estimation of the nonconformity risk	4-14-3
18.3	Analysis of the cause of the nonconformity	4.14.2
18.4	Preventive action to avoid repeat nonconformities	4.14.1; 4.14.2; 4.14.3
19.	Handling, storage, packaging, preservation and delivery	
19.1	Handling of products	4.15.1; 4.15.2; 4.15.3
19.2	Packaging and marking process	4.15.4
19.3	Measure to prevent transport damages	4.15.3; 4.15.4; 4.15.5; 4.15.6
19.4	Correction of packing nonconformities	4.14.1; 4.15.1
19.5	Identification of the product	4.15.4
19.6	Delivery reliability	4.15.6; II.2.2

VDA 6 Part 1	Subject in question	QS-9000
20.	Control of quality records	
20.1	Quality relevant documents	4.3.3; 4.10.5; 4.11.3; 4.16
20.2	Analysis of quality records	4.10.5; 4.16
20.3	Safekeeping	4.3.4;4.10.5;4.16
20.4	Customer access to quality records	4.10.5; 4.16
21.	Quality in the operating phase	
21.1	Operating and installation instructions	4.19
21.2	Product observation / Field failure – early warning system	4.19
21.3	Field failure analysis	4.14.2; 4.19
21.4	Customer service information	4.19
21.5	Servicing	4.19
22.	Statistical techniques (in the case of)	
22.1	Technique planning	4.20.1
22.2	Development / trail	4.20.2
22.3	External purchases	4.20.2
22.4	Process development and control	4.20.2
22.5	Final inspection and testing	4.20.2
22.6	Analysis of field failures	4.20.2

7.7 QS-9000/VDA 6.1, 3rd Edition 1996

QS-9000	Subject in question	VDA 6, Part 1
4.1	Management responsibility	
4.1.1	Quality policy	01.1; 01.2
4.1.2	Organization	
4.1.2.2	Responsibility and authority	01.5; 02.2; 02.3; 18.1
4.1.2.2	Resources	01.4; 04.3
4.1.2.3	Management representative	01.5
4.1.3	Management review	01.6; 05.1; 05.2
4.1.4	Company plan	Z1.1; Z1.2
4.1.5	Analysis and use of data at company level	Z1.2; Z1.3
4.1.6	Customer satisfaction	Z1.4
4.2	Quality system	
4.2.1	General	02.1; 02.2; 09.2
4.2.2	Quality system procedures	02.1; 02.3
4.2.3	Quality planning	02.4; 02.5; 02.6; 06.2; 07.1; 08.1; 09.1; 15.1
4.3.	Contract review	
4.3.1	General	07.2
4.3.2	Review	07.2; 07.4; 07.5; 08.2; 09.3
4.3.3	Amendment to a contract	07.2
4.3.4	Records	07.2; 10.3; 20.1; 20.3
4.4	Design control	
4.4.1	General	02.3; 08.1; 09.1
4.4.2	Design and development planning	04.5; 08.1; 08.2
4.4.3	Organizational and technical interfaces	02.3; 02.4; 02.6; 08.5; 08.7
4.4.4	Design input	08.1, 08.2

QS-9000	Subject in question	VDA 6, Part 1
4.4.5	Design output	08.1; 08.5; 08.6; 08.7; 09.3
4.4.6	Design review	08.4
4.4.7	Design verification	08.3; 08.4
4.4.8	Design validation	08.3; 08.5
4.4.9	Design changes	08.1; 08.4; (08.5); 09.1
4.5.	Document and data control	
4.5.1	General	06.2; 10.1; 10.4
4.5.2	Document and data approval and issue	10.1; 10.2; 10.4; 10.5
4.5.3	Documents and data changes	10.2; 10.5
4.6.	Purchasing	
4.6.1	General	11.2; 11.3; 11.6
4.6.2	Evaluation of subcontractors	11.1; 11.2; 11.3; 11.4; 11.5
4.6.3	Purchasing data	11.1; 11.5
4.6.4	Verification of purchased products	11.1; 11.5; 11.6; 15.3
4.7.	Control of customer-supplied product	
4.7	General	12.1; 12.2; 12.3
4.8.	Product identification and traceability	
4.8	General	06.4; 11.7; 13.1; 13.6
4.9.	Process control	
	General	06.2; 08.2; 09.2; 13.2; 13.3; 14.1 to 14.6
4.9.1	Process monitoring and work instructions	06.2; 09.2; 09.6; 15.2
4.9.2	Preliminary process capability requirements	14.1; 14.2
4.9.3	Continuing process performance requirements	02.6; 14.1; 14.2; 14.3

QS-9000	Subject in question	VDA 6, Part 1
4.9.4	Changed preliminary or continuing process capability requirements	02.6; 07.2, 14.1; 14.2; 14.3
4.9.5	Tooling check	13.7
4.9.6	Process change	14.2
4.9.7	Appearance dependant parts	09.2; 15.2
4.10.	Inspection and testing	
4.10.1	General	03.4; 15.2; 15.3; 15.4; 15.5; 15.6
4.10.2	Receiving inspection and testing	11.6; 15.3
4.10.3	In-process inspection and testing	13.2; 13.3; 13.5; 13.7; 15.4
4.10.4	Final inspection and testing	13.7; 14.2; 15.5; 15.6
4.10.5	Inspection and test records	15.3-15.6; 20.1 to 20.4
4.11.	Control of inspection, measuring and test equipment	
4.11.1	General	16.1
4.11.2	Control procedures	13.4; 14.6; 16.1; 16.2; 16.3; 16.4; 16.5
4.11.3	Inspection measuring and test equipment records	16.1; 20.1
4.11.4	Examination of measuring systems	16.4; 16.5
4.12.	Inspection and test status	
4.12	General	13.; 13.5; 15.4
4.13.	Control of nonconforming product	
4.13.1	General	17.1
4.13.2	Review and disposition of nonconforming product	17.1; 17.2; 17.3
4.13.3	Inspection and test of reworked product	17.3; 18.1
4.13.4	Release of products through concession (nonconformity approval)	17.2
4.14.	Corrective and preventive actions	
4.14.1	General	18.1; 18.4; 19.4
4.14.2	Corrective actions	17.4; 18.1; 18.3; 18.4; 21.3
4.14.3	Preventive actions	18.2; 18.4

QS-9000	Subject in question	VDA 6, Part 1
4.15.	Handling, storage, packaging, preservation and delivery	
4.15.1	General	19.1; 19.4
4.15.2	Handling	19.1
4.15.3	Storage	14.6; 19.1; 19.3
4.15.4	Packaging	19.2; 19.3; 19.5
4.15.5	Preservation	19.3
4.15.6	Delivery	19.3; 19.6
4.16	Control of quality records	
4.16	General	20.1 to 20.4; 15.3 to 15.6
4.17	Internal quality audits	
4.17	General	03.1; 03.2; 03.3; (03.4); 14.2
4.18	Training	
4.18	General	04.1; 04.2; 04.3; 04.4; 04.5; 04.6; 04.7
4.19.	Servicing	
4.19	General	21.1 bis 21.5
4.20.	Statistical techniques	
4.20.1	Identification of need	22.1
4.20.2	Procedures	04.2; 14.3; 22.2 to 22.6

	Main paragraph II – Branch specific requirements	
1.	Production part – release procedure	
1.1	General	08.5; 09.4; 09.5; 11.3; 13.7; 14.2; VDA2
1.2	Review of technical changes	08.5; 14.2; VDA2
2.	Continual improvements	
2.1	General	01.3; Z1.2; (Z1.5)
2.2	Product and quality improvement	01.3; 05.2; 05.3; 05.4; Z1.2; Z1.4; 14.7; 19.6
2.3	Continual improvement techniques	01.3; 04.2; 04.3; 04.5; 05.1
3.	Production capabilities	
3.1	Planning and effectiveness of equipment, plants and processes	09.1; 09.2; 11.1; 14.6
3.2	Preventing nonconformities	09.3; 09.4; 09.7; (14.1)
3.3	Tool design and production	09.3; 09.7; 11.1; 14.4
3.4	Tool control	13.4; 14.4
	Main paragraph III – Customer specific requirements	
	Chrysler – specific requirements	-
	Ford - specific requirements	-
	General Motors - specific requirements	-

7.8 VDA 6.2/DIN EN ISO 9001/2:94

VDA 6 Part 2	Subject in question	*DIN EN ISO 9001*
U	**Company management**	
01.	Management responsibility	4.1
01.1	Quality policy	4.1.1
01.2	Quality objectives	4.1.1
01.3	Continual improvement	not included
01.4	Required resources	4.1.2.2
01.5	Management representative	4.1.2.1, 4.1.2.3
01.6	Management review	4.1.3
02.	Quality system	4.1, 4.2
02.1	Quality Manual	4.2.1, 4.2.2
02.2	Scope of the quality system	4.1.2
02.3	Duties, responsibility and authority	4.1.2.1
02.4	Quality planning	4.2.3, *4.3.2 a*
02.5	Implementing the quality system	not included
03.	Internal quality audits	4.17
03.1	Qualification and independence of the auditors	4.17.2
03.2	Audit planning	4.17.1, 4.17.3
03.3	Corrective actions and their documentation	4.14
03.4	Product / Services and Process audits	not included
04.	Training, personnel	4.18
04.1	Managing employees	4.18
04.2	Employee qualification	4.18
04.3	Further development of the employees	4.18
04.4	Agreement and achievement of targets	not included
04.5	Motivation of the employees	not included
04.6	Establishing employee satisfaction	not included

VDA 6 Part 2	Subject in question	*DIN EN ISO 9001*
05.	Financial considerations to quality systems	not included
05.1	Reporting procedure	not included
05.2	Reporting frequency	(4.1.3)
05.3	Internal error costs	not included
05.4	External error costs	not included
06.	Product safety	not included
06.1	Product liability principles	not included
06.2	Procedure for the recognition of risks	(4.8)
06.3	Establishing and implementing safety regulations	not included
06.4	Completeness of operating manuals / instructions	not included
06.4	Recognition of dangers at commissioning and during use	not included
Z1.	Company strategy	not included
Z1.1	Company plan regarding costs, sales, quality etc.	not included
Z1.2	Company performance assessment methods and CIP usage	not included
Z1.3	Performance data, company wide / Comparison	not included
Z1.4	Customer satisfaction, measurement and changes	not included
Z1.5	Promotion of employee satisfaction	not included
07.	Market research	4.4
07.1	Responsibility and jurisdiction	4.4
07.2	Investigating the need for new products / services	not included
07.3	Customer product / services requirements	not included
07.4	Benchmarks and competition analyses	not included
07.5	Expansion of products offered due to market analyses	not included
08.	Development	4.4
08.1	Responsibility and jurisdiction	4.4.1,*4.4.2, 4.4.3*
08.2	Raising of performance specifications	4.4.4
08.3	Development results	4.4.5
08.4	Verification of the meeting of requirements / expectations	4.4.6, *4.4.7*
08.5	Development changes	4.4.9

VDA 6 Part 2	Subject in question	*DIN EN ISO 9001*
09.	Preparation of services	4.3, 4.4, 4.10
09.1	Implementation of performance specifications	4.3.2 c
09.2	Procedure for introduction of new products / services	4.4.5
09.3	Procedure for monitoring / evaluation	4.10.1
09.4	Examination and release of new products / services	4.4.8
10.	Advertising	not included
10.1	Planning and implementation responsibilities	not included
10.2	Consideration of questionnaires and market analyses	not included
10.3	Reputation requirements of the service provider	not included
10.4	Does the advertising comply with laws and customer expectations	not included
10.5	Investigation of advertising success	not included
10.6	Competence of the service provider as an advertising agent	not included
11.	Sales	4.3
11.1	Contract review procedures and responsibilities	4.3.1
11.2	Identification of customer needs and expectations	not included
11.3	Examination of the practicability/feasibility	*4.3.2 b*,4.3.2 c
11.4	Order confirmations	4.3.4
11.5	Procedure for amendments to a contract	4.3.4
12.	Purchasing	4.6, 13
12.1	Supplier evaluation procedures and responsibilities	4.6.2
12.2	List of approved suppliers	4.6.2 a
12.3	Purchasing procedures and responsibilities	*4.6.1*, 4.6.3
12.4	Order documents / quality requirements	4.6.3
12.5	Verification of purchased products / services	4.6.4, *4.10.2*
12.6	Handling of delivery complaints	*13*
12.7	Continual evaluation of suppliers and maintaining quality records	*4.6.2b*, 4.6.2c

VDA 6 Part 2	Subject in question	*DIN EN ISO 9001*
13.	Provision of Services	4.7, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.15
13.1	Supplied products and services	4.7
13.2	Order completion procedures and responsibilities	4.9, 4.10, 4.12
13.3	Identification and traceability	4.8
13.4	Final inspection and testing and delivery to customer	4.10
13.5	Control of nonconforming products / services	4.13
13.6	Handling, storage, packaging, preservation and delivery etc.	4.15
13.7	Suitability / accuracy of production, inspection & testing equipment	4.9, 4.11
14.	Customer services	4.10,4.14, 4.19
14.1	Customer services procedures and responsibilities	4.19
14.2	Product observation in the operating phase	4.14.2
14.3	Acceptance and effects of services provided	not included
14.4	Involvement of the customer in evaluation of services	4.10.4
15.	Analysis and improvement of services	4.14,4.19, 4.20
15.1	Investigation and performance procedures and responsibilities	4.14.1, 4.14.2, 4.19
15.2	Analysis of nonconformity causes	4.14.2 b
15.3	Input of statistical techniques	4.20
15.4	Preventive actions procedures	4.14.3
15.5	Improvement program	not included
16.	Document and data control (input)	4.5, 4.16
16.1	Procedures and responsibilities	4.5.1, 4.5.2
16.2	Releases, distribution and amendments	4.5.2, 4.5.3
16.3	Safekeeping of input documents	4.16
16.4	Inclusion of external documents	4.5.2
17.	Control of quality records (verifications)	4.16
17.1	Procedures and responsibilities	4.16
17.2	Analysis and distribution of records	4.16
17.3	Safekeeping of verification documents	4.16
17.4	Customer access	4.16

7.10 ISO 9001:94/VDA 6 Part 2

DIN EN ISO9001	Element acc. to DIN EN ISO 9001	VDA 6 Part 2
4.1	Management responsibility	01; 02; (05)
4.1.1	Quality policy	01.1; 01.2
4.1.2.2	Organization , responsibility and authority	01.5; 02.2; 02.3
4.1.2.2	Organization, resources	01.4
4.1.2.3	Organization, management representative	01.5
4.1.3	Management review	01.6; (05.3)
4.2	Quality system	02
4.2.1	General	02.1
4.2.2	Quality procedures	02.1
4.2.3	Quality planning	02.4
4.3.	Contract review	02; 09; 11; 17
4.3.1	General	11.1
4.3.2a	Review, requirements documented and understood	02.4
4.3.2b	Review for deviations between quotation/order	11.3
4.3.2c	Ability to comply with the requirements	09.1; 11.3
4.3.3	Amendments	11.4; 11.5
4.3.4	Records	17
4.4	Design control	07; 08; 09
4.4.1	General	07.1; 08.1
4.4.2	Design and development planning	08.1
4.4.3	Organizational and technical interfaces	08.1
4.4.4	Design input	08.2
4.4.5	Design output	08.3; 09.2
4.4.6	Design review	08.4
4.4.7	Design verification	08.4
4.4.8	Design validation	09.4
4.4.9	Design changes	08.5
4.5.	Document and data control	16
4.5.1	General	16.1
4.5.2	Document and data approval and issue	16.1; 16.2; 16.4
4.5.3	Document and data changes	16.2

DIN EN ISO9001	Element acc. to DIN EN ISO 9001	VDA 6 Part 2
4.6.	Purchasing	12
4.6.1	General	12.3
4.6.2a	Evaluation of subcontractors Suitability : evaluation and selection	12.1; 12.2
4.6.2b	Monitoring : capabilities and performance	12.7
4.6.2c	Recording of data to above	12.7
4.6.3	Purchasing data	11.1; 11.5
4.6.4.1	Verification of purchased product (supplier verification at subcontractor's premises)	12.5
4.6.4.2	Verification of purchased product (customer verification of subcontracted product)	12.5
4.7.	Control of customer-supplied product	13.1
4.8.	Product identification and traceability	(06.2); 13.3
4.9.	Process control	13; 17
Par. 1	Planning of production, installation and servicing processes which influence quality	13.2
a	Procedures	13.2
b	Suitable equipment and environmental conditions	13.7
c	Compliance with standards, quality plans and procedures	13.2
d	Suitable process parameters	13.2
e	Approval of processes and equipment	13.2
f	Criteria for workmanship	13.2
g	Criteria for workmanship	13.2
e	Release	13.2
Par. 2, 3	Special processes	13.2
Par. 4	Records for quality processes, equipment and personnel	17
4.10.	Inspection and testing	12; 13; 17
4.10.1	General	09.3; 13.2; 13.4
4.10.2	Receiving inspection and testing	12.5
4.10.2.1	Utilization after verification	12.5
4.10.2.2	Scope and type of receiving inspection and testing	12.5
4.10.2.3	Pre-releases and concessions	12.5
4.10.3	In-process inspection and testing	13.4
4.10.4	Final inspection and testing	13.4; 14.4
4.10.5	Inspection and test records	13.4; 17
4.11.	Control of inspection, measuring and test equipment	13.7
4.11.1	General	13.7

DIN EN ISO9001	Element acc. to DIN EN ISO 9001	VDA 6 Part 2
4.11.2a	Define inspection, measuring and test equipment and their verification	13.7
4.11.2b	Define inspection, measuring and test equipment and their calibration	13.7
4.11.2c	Establish procedures to control this	13.7
4.11.2d	Identify calibration status	13.7
4.11.2e	Maintain and archive calibration records	13.7
4.11.2f	Assessing and documenting previous inspection and test results when inspection, measuring or test equipment is found out of calibration	13.7
4.11.2g	Environmental conditions for measurements	13.7
4.11.2h	Handling, preservation and storage of inspection, measuring and test equipment	13.7
4.11.2i	Safeguarding the calibration status	13.7
4.12.	Inspection and test status	**13.2**
4.13.	Control of nonconforming product	13.5
4.13.1	General	13.5
4.13.2	Review and disposition of nonconforming product	13.5

DIN EN ISO9001	Element acc. to DIN EN ISO 9001	VDA 6 Part 2
4.14.	Corrective and preventive action	14; 15
4.14.1	General	15.1
4.14.2a	Corrective actions / Effective elimination of nonconformties	14.2; 15.1
4.14.2b	Investigating the cause of nonconformities in relation to product, process and quality system	15.2
4.14.2c	Establishing corrective actions	15.1
4.14.2d	Controls to ensure corrective actions are effective	15.1
4.14.3	Preventive actions	15.4
4.15.	Handling, storage. Packaging, preservation and delivery	13
4.15.1	General	13.6
4.15.2	Handling	13.6
4.15.3	Storage	13.6
4.15.4	Packaging	13.6
4.15.5	Preservation	13.6
4.15.6	Delivery	13.6
4.16	Control of quality records	16.3; 17
4.17	Internal Quality audits	03
Par. 1	Procedures	03.2
Par. 2	Audit and auditor planning	03.1
Par. 3	Recording and distribution of the results	03.2
Par. 4	Verification visit for corrective actions	03.2
4.18	Training	01
4.19.	Servicing	14.1; 15.1
4.20.	Statistical techniques	15
4.20.1	Identification of the need	15.3
4.20.2	Procedures	15.3

8 VDA Publication - Quality Management in the Automotive Industry

8.1 VDA Volume 6

8.2 Further Volumes of VDA Publications

8 VDA Publication - Quality Management in the Automotive Industry

8.1 VDA Volume 6

In the following matrix, VDA 6 Volumes which are to be used by manufacturers, suppliers of material products, as well as their subcontractors and service companies in the automotive industry, have been placed in relation to each other.

Band-Titel	Hersteller	Lieferant	Dienstleister	Bemerkung
6 Grundlagen für Qualitätsaudits	X	X	X	Basis für die Auditierung nach 6.1, 6.2, 6.3, 6.5, 6.6 und die Zertifizierung nach 6.1
6.1 QM-Systemaudit	X	X	(X)	auch Lieferanten bzw. Unterlieferanten von Teilen, Baugruppen, Systemen und Modulen sowie Maschinen, Anlagen, Werkzeugen, Rohstoffen, Heilbezug; Logistikunternehmen
6.2 QM-Systemaudit Dienstleistungen	X		X	Händlerbetriebe, Zubehörhandel, Ausliefer-logistik, Sachverständige, Schulung
6.3 Prozeßaudit	X	X	X	4.1, 4.2 und 4.3 sind mitgeltende Schriften
6.5 Produktaudit	X	X		siehe auch 6.1
6.6 Dienstleistungsaudit	X		X	siehe auch 6.2

Anmerkung: bei internen Dienstleistungen kann Band 6.2 analog 6.1 in Anwendung gebracht werden (interne Systemaudits - 1st party)

Fig. 8.1-1 Matrix for application of VDA 6 publications

8.1.1 VDA Vol. 6, Part 1 (VDA 6.1) Quality System Audit

The volume contains a questionnaire to enable assessment of a quality system and the corresponding evaluation system. It's application is primarily aimed at companies which manufacture material products.

The content of the questionnaire goes clearly beyond the requirements of DIN EN ISO 9001 or 9002. It also contains all elements of DIN EN ISO 9004, Part 1. In addition, further branch specific requirements of the

European ($EAQF_{94}$ and $AVSQ_{95}$) and American Automotive Industries have been taken up and supplemented by the inclusion of leading thoughts form the TQM model of the European Foundation for Quality Management (EFQM).

The questionnaires is divided into two areas:

- Part U: Questions to company management
- Part P: Questions to product and processes.

Thereby, one continually reoccurring problem in the realization and review of quality systems receives special status: the quality related management responsibilities. These duties are dealt with in Part U. The following elements are to be especially mentioned:

- financial considerations to quality systems
- employee motivation
- product liability and product safety
- clear and implemented company strategy.

The requirements for an established company strategy are shown in the EFQM model. According to this, the company management, including the executive levels, must deal with the following subjects:

- company planning
- establishing company performance with new targets
- comparison of company wide performance data with competitors regarding productivity, economy, quality position and efficiency
- establishing and promoting customer satisfaction
- establishing and promoting employee satisfaction.

In Part P, the product and process related quality elements are dealt with from a system point of view.

To improve understanding, the individual requirements to each question are explained and, using practical examples, assistance for a possible implementation is given.

All questions are quantitatively evaluated and the final result is expressed as a degree of conformity between 0 and 100 %.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	1 2 3 4.1, 4.2, 4.3 7 8, 9

8.1.2 VDA Vol. 6, Part 2 (VDA 6.2) Quality System Audit - Services

Bad quality in service companies can nullify the best efforts of all the proceeding links in a process chain and place activities aimed towards customer satisfaction in query. With this background, it is understandable that the aim must be to set up quality systems integrally, to connect production and marketing (services). VDA Volume 6, Part 2 represents a step in this direction.

In this volume, a quality system specifically orientated towards the requirements of service providers in the automotive industry is represented. It is aimed at car dealers, component dealers, distributors, special workshops (tuning, wheel rim and tire specialists, bodywork and paint shops, filling stations,car washes), expert organizations and educational institutions etc. but also offers other service branches hints to actual analysis, set up and auditing of their quality systems. Likewise, services which are provided within the framework of manufacturing a material product (marketing, sales, customer training) can be evaluated using this questionnaire.

The fundamental structure and evaluation is identical to VDA 6.1, from which Part U, regarding the basic requirements, has been almost completely copied, whilst Part P is geared towards the typical interests of service companies. It is orientated to service processes along the net product chain, from market research and development to customer services. Basically, VDA 6.2 involves all employees, service processes and business procedures of a company and pays special attention to the continual improvement of quality, price, service and schedule reliability.

8.1.3 VDA Volume 6, Part 3 (VDA 6.3) Process Audit

The link between the system and product audit is the process audit, which gives a statement on the capability of processes during the planning and manufacturing of products and provision of services.

Process audits serve the assessment and quality capabilities of processes. They should lead to competent and controlled processes, which are well able to withstand variable disturbances.

This is achieved, for example, by the following:

- Preventive actions
- Corrective actions
- Continual Improvement Programs (CIP)

An essential part of a process audit is the localization and structuring of processes. There it deals with the establishing of internal and external interfaces and the assignment of the relevant process owner, who is responsible for:

- process description
- process instructions
- work and inspection instructions
- work and inspection plans
- process control and improvement

that are, amongst others, the main subject of the audit.

To schematize proceedings, differing questionnaires for material and non-material processes have been developed, which can be expanded to incorporate specific procedure needs.

The core of VDA 6.3 is the quantitative evaluation following VDA 6.1 and 6.2.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	1 2 4.1, 4.2, 4.3 6.1, 6.2

8.1.4 VDA Volume 6, Part 5 (VDA 6.5) Product Audit

The product audit is one of the oldest methods which give a statement to the quality of products prior to their delivery to the customer. It assesses the effectiveness of quality assurance through the examination of a small number of products and/or parts and confirms the quality competence of the production process based on the quality of a product. Thereby it is verified if the product complies with the given specifications and/or special customer/supplier agreements.

A product audit concerns - the planning
- the evaluation
- the documentation

of reviews
- of quantitative characteristics
- of material products (VDA 6.5)
- after completion of a production stage
- prior to delivery to an internal/external customer
- on the basis of reference values
- through an independent auditor.

Product audits are carried out regularly or for a specific reason, they do not, however, serve as a substitute for checks during the production process. They can be carried out on the results of all business processes in product development, manufacturing and marketing. VDA Volume 6.5 deals primarily with it's application in product manufacturing (the application on results from service processes is described in VDA Volume 6.6).

Finding a standard evaluation system is still difficult. As the variation span here is so wide, a number of methods have been represented in the examples, which each company can adopt or modify and bring into application.

A summary of the product audit in comparison to other types of audits and inspections is given in Fig. 8.1.4-1.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	1 6.1

	Product Audit	System Audit	Process Audit	100% inspection and testing	Final inspection and testing in serial production	Inspection verification First sample	Inspection verification Works inspection certificate	S P C
Performance frequency	According to plan, as a rule, serval times a year	According to plan, as a rule, once a year	According to plan and as necessary	Continuously	Continuously	According to customer requirements	According to plan and as necessary	Continuously
Checked characteristics	Select according to customer requirements/expectations and important process/product characteristics	Elements of the quality system	Selected, as requires for process control	Qualitative characteristics, incompetent characteristics	Selected, product-related, according to customer expectations	According to customer requirements	According to customer requirements	Selected, as required for process control
Capability parameters	Short term capability of the product characteristic on the basis of the selected sample	Degree of compliance with the system objectives	Short term capability of the product characteristic on the basis of the selected sample	Qualitative characteristic with e.g. cpk < 1,33	Short and long term capabilities of the product characteristics	According to customer requirements		Automatic identification of the short and long term capabilities
Applied verification methods	Selected, specific for the product	Review of the documents compared to the objective, the application in practice	Selected, specific for the process	Selected, specific for the product	Selected standard method, specific for the product	Selected with the agreement of the customer		Selected, specific for the process or product
Qualification of the auditors	Knowledge of product, also from the point of view of the customer	DIN ISO 10011, Part 2 + EOQ Certificate + VDA 6 certificate	Knowledge of the process	Knowledge of the characteristics	Knowledge of the characteristics and of customer expectations	Knowledge of the characteristics, customer requirements and relevant standards		Knowledge and experience of control card technology
Necessary documents	Drawings, specifications, work and inspection instructions	Quality manual, procedures and work instructions	Process plan, process parameters, inspection instructions	Catalog of deviations for qualitative characteristics, inspection instructions	Catalog of deviations for qualitative characteristics, specifications, drawings, inspection instructions	Specifications, drawings, inspection instructions, standards		Quality control cards, inspection instructions
Documentation /Records	Inspection results, audit report	Results according to questionnaire, audit report, nonconformity analysis with corrective actions	Inspection record, audit report, nonconformity analysis with corrective actions	Statistics to inspection results, nonconformity analysis with corrective actions	Inspection record and statistics to inspection results, nonconformity analysis with corrective actions	First sample inspection report	Works inspection certificate	Control cards with evaluation

Figure 8.1.4-1: A product audit in comparison to other types of audit and inspections

8.1.5 VDA Volume 6, Part 6 (VDA 6.6) Service Audit

Manufacturers and trade or service businesses share the same interest in holding a long term, secure and profitable market position. With a product like a car, the life expectancy, with proper care and attention (servicing), is very high, i.e. the product and especially customer services become very important. This means, particularly in the automotive branch, that without strong and long term customer loyalty to car makes and their dealers, survival on the market is not possible.

It is therefore of prime importance to know the expectations and satisfaction of customers, as well as consciously and systematically working to the action requirements derived from them.

For material products, it is relatively simple to call on objective, comprehensive characteristics for assessing quality. Examples for this are specifications, important process and product characteristics or other countable parameters.

With services, it is not so simple to define and standardize these, as they are influenced by a number of individual customer and surrounding, determining factors. Therefore it is even more important to identify such parameters.

A service audit enables the user to periodically carry out desired/actual value comparisons regarding service relevant subjects from a customers point of view, and to introduce necessary corrective or improving actions.

It represents, thereby, basic preconditions to securing customer service quality.

The following audit instruments are described in a service audit according to VDA 6.6

- Standard compliance
- Customer survey
- Employee survey
- Service test

For the examination of service processes, from customer order to customer use, the audit instruments „standard fulfillment“ and„employee survey“ are used to measure performance inside a business whereas the audit instruments „customer survey“ and „service test“ measure outside, directly at, or better, for the customer (Fig. 8.1.5-1).

The review of standard compliance implies the measurement of quantifiable, customer relevant services or criteria. The maintenance and improvement of these values must be constantly compared to customer satisfaction. This can be done with the customer survey and service test.

The employee survey is a good analysis and motivation instrument within a company. It connects standard compliance, the customer survey and the service test.

During the customer survey and the service test, relative parameters are determined, which are dependent on the customer expectations and their fulfillment.

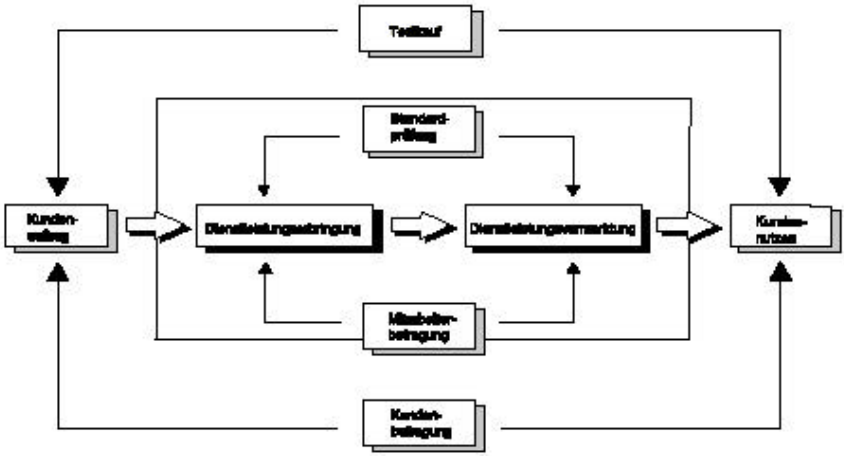

Bild 8.1.5-1: Prozeß Dienstleistungsaudit

8.2 Further Volumes of VDA-Publications

In connection with the quality standard of the German Automotive Industry (VDA 6) other volumes are also important, as they contain supplementary information and if necessary are to be consulted. Figure 8.2-1 provides a summary of these.

Band-Titel	Hersteller	Lieferant	Dienstleister	Bemerkung
1 Nachweisführung	x	x	x	Regelung der Nachweisführung zur Erfüllung der gesetzlichen Vorschriften
2 Sicherung der Qualität von Lieferungen	x	x	x	Empfehlung für die Zusammenarbeit zwischen Kunde und Lieferanten/Unterlieferanten/Dienstleistern
3 Zuverlässigkeitssicherung	x	x		technische Zuverlässigkeit, Auswerteverfahren
4.1 Sicherung der Qualität vor Serieneinsatz - Partnerschaftliche Zusammenarbeit, Abläufe, Methoden	x	x		- Einsatz von Methoden zur Entwicklung des 0-Fehler-Produktes, siehe auch Band 7 - FMEA - Projektmanagement
4.2 Sicherung der Qualität vor Serieneinsatz - FMEA	x	x		FMEA
4.3 Projektmanagement	x	x	x	Auch für Projektmanagements und Ingenieurbüros
7 Grundlagen zum Austausch von Qualitätsdaten	x			siehe auch 4.1 und 4.2

Figure 8.2-1 Matrix for the use of applicable volumes

8.2.1 VDA Band 1 (VDA 1) Quality Evidence

Objectives

Vehicles underlie different legal requirements in individual states. The manufacturer must be able to prove compliance with these regulations at any given time. Manufacturers and suppliers have to ensure through organizational measures, that compliance with legal requirements is constantly reviewed. Evidence for this is the documentation.

Main Contents

This publication particularly deals with

- documentation and securing thereof
- retention period
- responsibility
- organizational aids
- archiving.

Furthermore, this volume gives practical advice on documenting, using examples.

Responsibility

The manufacturer has full responsibility towards the authorities, except for spare parts directly distributed by suppliers.

The different responsibilities are shown in the following table:

1. Internal development and production of the manufacturer	The manufacturer has full responsibility for design and production quality
2. Internal development of the manufacturer, external production by a supplier	The manufacturer has full responsibility for the complete unit. He has to ensure, that the supplier meets the specified requirements. The product and production method must not be altered without prior approval of the manufacturer. The supplier has full responsibility for the production quality and has to supply parts conforming to set specifications.
3. Internal development and production by the supplier	The manufacturer is responsible for choosing the correct constructive units for a specific vehicle type. If necessary, the supplier mustenforce the homologation or similar approvals for these products. The supplier has full responsibility for the construction and constant satisfactory production quality in accordance with the specifications agreed with the manufacturer.
4. Internal development of the supplier, external production by a sub-contractor	The full responsibility applies as under Par. 3. For the supplier/sub-contractor relationship Par. 2 applies.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	2 4.1, 4.2, 4.3 6 ...

8.2.2 VDA Volume 2 (VDA 2) Quality Assurance of Supplies

The VDA publication aims to minimize friction losses at the interfaces between the suppliers and car manufacturers.

The presently available third edition of this volume became necessary, in order to adjust past procedures for the assessment of quality performance of serial supplies and first sample testing and approval to international quality standards in the Automotive Industry. Thereby, e.g. requirements and guidelines from QS 9000 and PPAP (Production Part Approval Process) were taken into account and fundamentally newly described.

Suppliers are involved in the product development at an early stage, to make use of experience and development potential for more complex delivery scopes for both partners.

Recommendations are provided which are generally applicable to every type of supplier/customer relationship. They can also be applied for the cooperation between suppliers and their subcontractor.

The volume mainly deals with

- the selection of suppliers,
- the approval of the production process and product for serial supply (Production Process and Product Approval)
- the evaluation of the quality performance of suppliers in the series
- and quality assurance agreements.

These recommendations are assigned to three phases (competition, planning, pre-series) at which point, they should usefully be valid.

The selection of the supplier depends on the product or service which has to be purchased. Here attention should be paid that the supplier is selected as early as possible, so that the cooperation can begin at an early stage of development.

Criteria are:

- Quality capability and quality awareness
- Quality performance and productivity
- Delivery reliability and delivery flexibility
- Schedule and cost discipline
- Communication and cooperation
- Environmental awareness
- Development potential
- Economic productivity (yield power) of the company.

The type of suppliers are illustrated in the following summary:

Type of supplier	Definition	Responsibility
System supplier	Development and production of subassemblies which can be defined functionally (brakes, steering, car body, driving gear, airbag)	Responsible for the system and the relevant components/ single parts
Component supplier/Parts supplier with development responsibility	Development and supply of products consisting of various single parts and represent a functional unit (clutch, wheel, headlights, speedometer, indicator)	Responsible for the component and the relevant single parts
Parts supplier without development responsibility	Supply of single parts according to given drawings and specifications, which are provided by the purchaser or from a standard.	Responsible for the single parts
Module supplier	Development/supply of complex subassemblies with specific function and adjustment to concrete total systems (Front-End-Module, seat combinations, central electrical module, door module). The module may contain functionally definable systems which are developed and produced by other suppliers.	Responsible for the quality and all other functions of the complete module.
Material (raw material) supplier	One can differentiate between material suppliers which supply materials according to specification, and material suppliers/developers which develop and deliver a raw material for a concrete use.	Uniformity of the specified materials

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	1 3 4.1, 4.3 6.1, 6.5 7

8.2.3 VDA Volume 3 (VDA 3)
Ensuring Reliability at Car Manufacturers and Suppliers

For time and cost reasons, a customer expects the constant functional readiness of his vehicle. He wants to be able to rely on his vehicle at all times. Even during warranty, when repair costs burden him less, he is not willing to accept any time his vehicle may have to spend in a repair shop caused by susceptibility to failures or even breakdowns. He expects reliability.

VDA 3 describes procedures to ensure reliability and using practical examples leads step by step into the area of technical reliability, from early failures to breakdowns due to age, wear or fatigue.

During the development of a product, the following processes take place:

- Order receipt with specifications regarding the requirements to be met
- Development and sample trials of the product
- Preparation and production of the product
- Pre-series and testing of the product
- Serial production of the product.

Quality assurance directly influences production by testing the parts. As hereby compliance with reliability requirements is not ensured, additional tests are necessary.

The volume describes general evaluation procedures (action in case of failure etc.), data evaluation and reliability of assemblies. Furthermore, necessary measures for ensuring reliability are stated.

The fulfillment of reliability requirements must normally be proven by the supplier at the first sample inspection. It also has to be ensured, that the supplier carries out regular series testing of the established reliability characteristics. Furthermore, the supplier has the right to have access to all field information known to the recipient, in the case of a field failure of his product.

8.2.4 VDA Volume 4, Part 1 (VDA 4.1)
Quality Assurance prior to Serial Application
Partnerships
Processes
Methods

In order to develop a new product with quality competent concepts and process-orientated design as well as qualitatively controlled production, different methods have been practiced and further developed in the Automotive Industry in the last few years.

Complex relationships and dependence on the system require methodical measures to ensure quality in the pre-serial phase. Thereto, following methods are describe in the VDA-Volume 4.1:

- Total Quality Management (TQM)
- Partnerships during
  - project management
  - simultaneous Engineering
- Development processes with trials and reviews
- Quality Function Deployment (QFD)
- Fault Tree Analysis (FTA)
- Design of Experiments (DOE)
- Process capability assessment
- other elementary aids
  - flow chart
  - histograms
  - quality control card
  - Cause-Effect-Diagram (Ishikawa Diagram)
  - Pareto-Analysis

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	4.2 6.1

8.2.5 VDA Volume 4, Part 2 (VDA 4.2) Quality Assurance prior to Serial Application

System FMEA

The system FMEA is a team-orientated method to minimize risk in the development and planning process and promotes interdisciplinary cooperation of the involved areas. Furthermore, it provides documentation about expert knowledge in a company. As a method to prevent nonconformities, it should be used at a very early stage of the product development process, in order to review the existing development and planning status with regards to possible nonconformities and the introduction of preventive actions to eliminate them.

The procedure described in VDA Volume 4.2 represents a further development of the FMEA method in the direction of system analysis. For the setting up of a system FMEA for products or processes, the following steps, supplementary to the existing design or process FMEA, are required:

- Structuring of the system to be analyzed into system elements and the demonstration of their functional relationships.
- Deduction of possible failures of a system element from its previously described functions.
- The given logical connection of related failures of different system elements, in order to be able to describe the possible causes of the failure to be analyzed in the system FMEA.

Fields of application of the system FMEA are product development and process planning. A „system FMEA product„ regards possible failures of product systems as possible nonconformities. Failure analyses extend step by step, where necessary, to layout errors of individual components.

The „system FMEA process„ regards the possible failures of a production process (e.g. production, installation, logistics or transport processes) as possible nonconformities.

8.2.6 VDA Volume 4, Part 3 (VDA 4.3)
Quality Assurance prior to Serial Application
Project Planning

The quality work in the Automotive Industry has strongly decentralized, been extended to all expert areas of a company and runs, especially during the development phase, simultaneously (Simultaneous Engineering),. Volume 4, Part 3 represents a supplement and expansion to this, as it places emphasis on the uniform description of a project process for new products and processes. The aim hereby is to prepare and plan all measures necessary to achieve performance that satisfies the customer, systematically and at an early stage.

Suggestions for this volume come from already published procedures of European and American car manufacturers. Especially the procedure of "Advanced Product Quality Planning" (APQP), as described by Chrysler, Ford and General Motors, has been incorporated.

The described procedure is characterized by:

- uniform project management
- parallel processing of different functions (SE)
- connection of functions through common project management for product and process development
- team work in SE teams
- Controlling through relatively frequent hold points (Milestones).

The volume explains the general process of a project based on a given plan which gives a summary of the functions to be carried out and the results to be checked at the "Milestones" during the process.

The *functions* describe basic activities, which are carried out during the project. *Milestones* represent check points/hold points within the project process during the execution of the functions.

The volume mainly presents, in the form of exemplary checklists (or applying the requirements of APQP), the activities to be carried out until the respective milestones are reached (input for milestones). At these check points the given

results are to be checked with respect to their existence and compliance with requirements. Based on the evaluation of the results, the release to succeeding work stages is determined.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	1.1 4.2 6.1

8.2.7 VDA Volume 7 (VDA 7) Basics for the Interchange of Quality Data

In order to follow the flow of the communication and information with internal and external partners in a consistent and efficient manner,the introduction of electronic data interchange (EDI), should also be aimed for with regards to quality data. This applies especially to the transmission of inspection and test reports.

This volume was set up to bring about uniform execution of electronicdata interchange based on the Electronic Data Interchange for Administration, Commerce and Transport (EDIFACT). The standardized EDIFACT-message type „QUALITY„ (DIN 16 561, Part 8) is used. It is determined, how

- first sample test reports
- serial test reports
- commentaries and
- inspection and testing certificates/records

are to be designed, in order to be able to prepare them as a quality data message. The structure and set up of this message are as such, that the stated inspection and testing report types do not have to use all segments nor that all data elements within a segment have to be used. In cooperation with the DIN, an independent subset of the quality data message has been established for each type of inspection and testing report.

In this volume, reference is made to these other VDA volumes which contain supplementary information and if necessary, are to be consulted.	2

9 References and Applicable Documents

9 References and Applicable Documents

Quality information 01 to 06

QMC Report 07ff

VDA Guidelines 6001	Auditing with VDA 6.1Certificate
VDA Guidelines 6002	VDA Lead Auditors
VDA Guidelines 6010	Basics for the Certification of a Quality System according to VDA Volume 6, Part 1 (VDA 6.1) through a Certification Body
VDA Guidelines 6011	Accreditation Procedure for Certification Bodies
Standards	DIN EN ISO 8402 DIN EN ISO 9000-9004 DIN EN ISO 10011 DIN EN ISO 45012

Attention should be paid to the DGQ Publication 11-10 „Guide to the process-orientated Assessment of Quality Systems according to DIN EN ISO 9001 to 9003„.

10 Definitions

10.1 General Definitions according to DIN EN ISO 8402/1995 (Extract)

10.2 Quality-related Definitions according to DIN EN ISO 8402/1995 (Extract)

10.3 Definitions for the Quality System according to DIN EN ISO 8402/1995 (Extract)

10.4 Definitions for Tools and Techniques according to DIN EN ISO 8402/1995 (Extract)

10.5 Additional Definitions (Definitions for this Publication)

10 Definitions

Many common words in daily use are - compared to the application of their full meaning in a dictionary - used in a specific or limited way in the field of quality.Reasons for this are, for example:

Different economic and industrial sectors have adopted quality-related terminology, which suits their specific requirements, as their own. This led to the introduction of numerous definitions by quality experts in the various industry and economy sectors..

The following definitions serve the uniform use of language for this publication and have been taken from the DIN ISO 8402: 1995. The figure behind # is the Reference No. of the standard.

10.1 General Definitions according to DIN EN ISO 8402/1995 (Extract)

10.1.1 Unit

Is that which can be individually described and examined.

Note: *A unit can be e.g.*
- an activity or a process
- a product
- an organization, a system or a person or a combination thereof.

10.1.2 Process

Is a set of interactive resources and activities, which transform inputs into outputs.

Note: *The resources can be personnel, finances, plants, equipment, techniques and methods.*

10.1.3 Procedure

Is a defined manner in which an activity is carried out.

Note 1: *In many cases procedures are documented (e.g. procedures of a quality system)*

Note 2: *When a procedure is documented, the terms „documented procedure„ or „procedure„ are often used.*

Note 3: *A documented procedure or procedure normally contains the purpose and area of application of an activity; what needs to be done and by whom; when, where and how it needs to be done; which materials, equipment and documents have to be used; and how these must be controlled and recorded.*

10.1.4 Product

Is the result of activities and processes.

Note 1: *A product may be a service, hardware, processed materials, software or a combination thereof.*

Note 2: *A product can be tangible (e.g. assemblies or processed materials) or intangible (e.g. knowledge or concepts), or a combination thereof.*

Note 3: *A product can be intended (e.g. product offered to customers) or unintended (e.g. pollutants or undesirable effects).*

10.1.5 Service

Is an action or performance, provided at the interface between supplier and customer, as well as through internal supplier activities, aimed at fulfilling customer requirements.

Note 1: *The supplier or customer can be represented at the interface by personnel or facilities.*

Note 2: *Customer activities at the interface to the supplier can be essential when providing a service.*

Note 3: *Supply or use of tangible products can be part of providing a service.*

Note 4: *A service may be connected with the production and supply of a tangible product.*

10.1.7 Organization

An organization may be a company, corporation, business, enterprise or institution or part thereof, registered or non-registered, public or private, with its own functions and administration.

10.1.8 Organizational Structure

The responsibilities, authorities and interrelations regulated in a system, which enable the organization to fulfill its duties.

10.1.9 Customer

Is the receiver of a product provided by the supplier.

Note 1: *In a contractual situation, the customer may be called „purchaser„.*

Note 2: *The customer can be the end user, user, beneficiary or purchaser.*

Note 3: *The customer, in relation to the organization, may be external or internal.*

10.1.10 Supplier

Is an organization, which provides a product to the customer.

Note 1: *In a contractual situation the supplier may be called „contractor„.*

Note 2: *A supplier can be e.g. a manufacturer, distributor, importer, an assembly firm or a service company.*

Note 3: *The supplier, in relation to the organization, may be external or internal.*

10.2 Quality-related Definitions according to DIN EN ISO 8402/1995 (Extract)

10.2.1 Quality Requirements

Are the formulation of needs or their conversion into a set of established quantitative or qualitative requirements for the characteristics of a unit, to enable its realization and verification.

Note 1: *It is essential that quality requirements reflect the established and given needs of the customer.*

Note 2: *The term „requirement„ includes market-based, contractual, as well as internal requirements of a company. They may be developed, defined and up-dated in the various planning phases.*

Note 3: *Established quantitative requirements of the characteristics include e.g. nominal values, ratings, limit deviations and tolerance.*

Note 4: *The quality requirement should be expressed in functional conditions and be documented.*

10.2.2 Inspection and Testing

Are activities, such as the measuring and examining of one or more characteristics of a unit, as well as comparing of the results with set requirements, to establish, whether conformity for every characteristic has been reached.

10.2.3 Verification

Is a confirmation based on an examination and the provision of evidence (2.19) that established requirements have been met.

Note 1: *In design and development, verification concerns the process of evaluating the results of an activity in order to determine the conformity of this activity with the set requirements.*

Note 2: *The term „verified„ is used to describe this status.*

10.2.4 Validation

*Is a confirmation based on an assessment and the provision of **evidence**, that special requirements have been fulfilled for a given application.*

Note 1: *In design and development, validation concerns the process of examininga product, in order to determine its conformity with the requirements of the user.*

Note 2: ***Validation** is usually carried out on the **end product** under set operating conditions. It may be required at an earlier stage.*

Note 3: *The term „validated„ is used to describe this status.*

Note 4: *Multiple validations can be carried out, if different applications are intended.*

10.2.5 Evidence

Is information, which can be proven to be correct and which is based on facts that have been determined through observation, measurement, examination or other means of investigation.

10.3 Definitions for Quality Systems according to DIN EN ISO 8402/1995 (Extract)

10.3.1 Quality Policy

Comprehensive intentions and objectives of an organization regarding quality, as defined by the management.

Note: The quality policy is an element of the company policy and is approved by the management.

10.3.2 Quality System

Organizational structure, procedures, processes and resources required for the realization of quality management.

Note 1: The quality system should be such that it achieves the quality objectives.

Note 2: The quality system of a company is mainly aimed at meeting the internal needs of the company. It is more extensive then the requirements of a single customer who only evaluates the part of the quality system relevant (to him).

Note 3: For contractual or other obligatory purposes of quality assessment, it may be required that certain quality system elements are shown to be implemented.

10.3.3 Quality Manual

Is a document, which contains the stated quality policy and the description of the quality system of an organization.

Note 1: *A quality manual may refer to the entire company activity or just parts of it. Title and purpose of the manual reflect the scope of application.*

Note 2: *A quality manual usually contains or refers at least to:*

a) the quality policy;

b) the responsibilities and authorities (jurisdictions) as well as the interrelations of personnel who are responsible for; execute; assess or evaluate quality-related activities;.

b) the procedures of the quality system and corresponding work instructions;

c) a procedure that establishes the review, revision and administration of the manual.

Note 3: *A quality manual may differ in comprehensiveness and format in order to reflect the needs of a company. It may consist of more then one document. Depending on the purpose of the manual, a title may be used such as „Quality assurance manual„*

10.4 Definitions for Tools and Techniques according to DIN EN ISO 8402/1995 (Extract)

10.4.1 Quality Audit

Systematic and independent examination to establish, whether the quality activities and related results conform with given instructions and if these instructions are actually implemented and are suitable, to meet the objectives.

Note 1: *The quality audit is typically applied to a quality system or an element thereof or to a process or product (including services), but is not restricted to these. Such quality audits are often called „System Audit„, „Procedure Audit„, „Product Audit„, „Service Audit„.*

Note 2: *Quality audits are carried out by people who have no direct responsibility in the area to be audited. However, preferably they should be work together with the personnel concerned.*

Note 3: *One purpose of a qualityaudit is to evaluate whether an improvement or a corrective action is required. A quality audit should not be mixed up with the activities of quality monitoring or reviewing which are carried out for process control or product receiving.*

Note 4: *Quality audits may be carried out for internal or external purposes.*

10.4.2 Quality Audit Findings

Are facts determined during the course of a quality audit and verified by evidence.

10.4.3 Audited Company

*The **company** that is being audited*

10.4.4 Quality Auditor

*Is the **person** qualified to carry out audits.*

Note: A quality auditor assigned to lead a quality audit is called „Quality Lead Auditor„.

10.4.5 Corrective Actions

Are activities carried out to eliminate the causes of an existing error, inefficiency or undesired situation in order to prevent its recurrence.

Note 1: Corrective actions can bring about changes in e.g. procedures or systems to achieve an improvement in any stage of the quality cycle.

Note 2: One has to differentiate between a „correction„ and a „corrective action„:

- *A „correction" concerns a repair, a rework or an adjustment and refers to the treatment of an existing efect;*
- *„Corrective action" refers to the elimination of the cause of the defect.*

10.5 Additional Definitions (Provision for the present publication)

10.5.1 System

Is the structure of a company in which the jurisdiction (responsibilities, authorities), interrelations, as well as procedures (#.1.3) and processes (#.1.2) are provided with the necessary resources to enable realization of a task.

10.5.2 Method

Is a scheduled procedure, (#.1.3) to given means and a given purpose which leads to technical proficiency in the solution of theoretical and practical tasks.

10.5.3 Serial Production

Is the manufacturing of products (#.1.4) of the same type and design, in recurrent orders.

10.5.4 Quality System Procedures

Quality system procedures are specific instructions that are required in order to fulfil given quality-related activities. They are to be put into force by signature.

10.5.5 Work Instructions (Inspection and Testing Instructions)

Are detailed descriptions of the working steps of an activity. Definitions of individual activities and detailed instructions, order-neutral, as well as order-related.

Note: Includes technical know-how

Quality Management in the Automotive Industry

Volume 1	Quality Evidence Guidelines for Documenting and Archiving Quality Requirements
Volume 2	Quality Assurance of Supplies Supplier Selection/Sampling/Quality Performance in the Series-
Volume 3	Ensuring Reliability of Car Manufacturers and Suppliers -Procedures and examples-
Volume 4 Part 1	Quality Assurance prior to Serial Application -Partnerships, Processes, Methods
Volume 4 Part 2	Quality Assurance prior to Serial Application -System FMEA-
Volume 4 Part 3	Quality Assurance prior to Serial Application -Project Planning-
Volume 6 Part 1	Quality System Audit, Basics DIN EN ISO 9001 and DIN EN ISO 9004
Volume 6 Part 2	System Audit – Services
Volume 6 Part 3	Process Audit
Volume 6 Part 5	Product Audit
Volume 7	Basics for Interchange of Quality Data -Electronic Transfer of Quality Data-
Volume 8	Guidelines for Quality Assurance of Trailer, Superstructure and Container Manufacturers
Volume 9	Emissions and Consumption

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