

a report by  
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### **Conformity Assessment Standards in the Automotive Industry - History**

Automobile manufacturers and their suppliers have developed and used specific quality-assurance standards. Until the early 1980s, each manufacturer had its own standard requirements, as was the case of Ford Motor Company's pioneer Q-101. Efforts to harmonise requirements by geographic area, first made in the mid 1980s, later culminated in the following standards:

- Supplier quality assurance (AQF) methodology, which later evolved into the present supplier quality assessment (EAQF) standard, applied by French automobile makers Renault, Peugeot and Citroën.
- Quality system requirements (QS-9000) methodology, applied by American car makers Chrysler, Ford and General Motors (GM).
- The German automotive industry quality standard (VDA) methodology, used by the automobile manufacturers Audi, BMW and Mercedes-Benz.
- The Italian automotive industry quality standard (AVSQ) methodology, applied by manufacturers Fiat and Iveco.

In the 1990s, representatives of these four groups of manufacturers, in conjunction with the International Organization for Standardization (ISO), harmonised these standards into a single common text, namely the ISO technical specification, ISO/TS 16949, applicable to them all and based on the internationally reputed ISO 9001:1994. This technical specification has been reviewed to align it with the ISO 9001:2000 standard. The date of the 2<sup>o</sup> edition of ISO/TS 16949 in English is 2002-03-01. The amendments introduced are more a matter of form than content and, as in the previous version, the specification follows the same general outline as the ISO 9001 standard - in this case, the 2000 version - but expanding each section to include automobile manufacturer requirements.

It was in this context that the Asociación Española de Normalización y Certificación/Spanish

Standardisation and Certification Association (AENOR) undertook certification activities in the automotive industry, adapting to the changes as they appeared. Thus, in 1996, under a contract with the French automobile manufacturers, AENOR obtained authorisation to certify systems to their EAQF/94 standard. Also in 1996, it was accredited, through the Entidad Nacional de Acreditación/National Accreditation Entity (ENAC), to certify quality systems to the QS-9000 standard and, in 1998, AENOR was authorised by VDA to certify to its VDA 6.1 standard. That made AENOR the only body in the world qualified to certify to all three standards.

In December 1999, AENOR conducted the world's first audit to the ISO/TS 16949, which served as a pilot test witnessed by International Automotive Task Force (IATF) representatives. In 2000 it obtained authorisation to issue ISO/TS 16949 certificates. In 2001, AENOR was authorised to certify to the VDA 6.4 standard, applicable to machine and equipment tooling manufacturers. Actually, AENOR is in process for obtaining the IATF authorization for issuing certificates based on ISO/TS 16949:2002. Hence, since 1998, AENOR is the only body worldwide qualified to certify to all five of the automotive standards mentioned.

### **ISO/TS 16949**

ISO/TS 16949 is a technical specification drafted by ISO and adopted by consensus for use in a particular industry, namely the automobile industry. Its drafting process was shorter than for ISO standards, since ISO/TS 16949 must be reviewed every three years, compared with every five years for ISO standards.

The stages involved in ISO/TS 16949 development and application are as follows:

- First phase - ISO/TS 16949 certification is conducted in accordance with the IATF certification scheme, accepted by IATF members as equivalent to certification to their respective standards. ISO/TS 16949 certification will be voluntary.

- Second phase - adaptation of ISO/TS 16949 to ISO 9001:2000. Publication of the second edition of ISO/TS 16949, which will become the single standard applied by all IATF member organisations.

The advantages of using the ISO/TS16949 with respect to the automotive quality systems standards are that it improves product and service quality, enhances confidence in global procurement, levels differences in and increases the effectiveness of the supply chain, reduces second-party system audits, reduces third-party multiple certifications and provides for a common language that substantially improves the understanding of quality requirements.

**Documentary Structure of ISO/TS 16949**

**Document-establishing Requirements**

- ISO 9001 - establishes international quality system requirements.
- ISO/TS 16949 - establishes international quality system requirements for the automobile industry.
- Customer-specific requirements - establish international automobile quality-system requirements for a particular customer. To date, such requirements are in place for GM, Chrysler and Ford.
- ISO/TS 16949 checklist, mandatory in third-party certifications.
- Rules for third-party certification bodies.

**Customer Support or Reference Documents**

- advanced quality planning, control plan;
- statistical process control;
- measurement-system analysis; and
- failure-mode effects and criticality analysis.

Figure 1: Standards - Evolution over Time

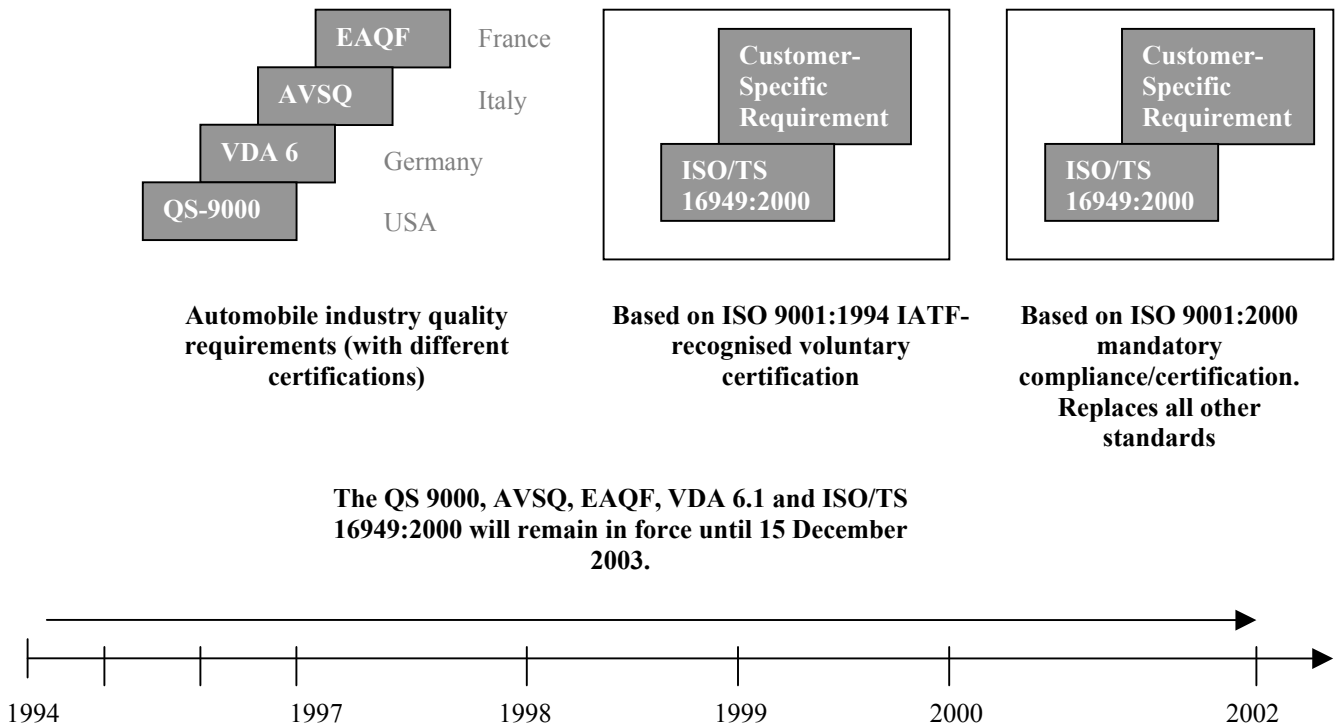
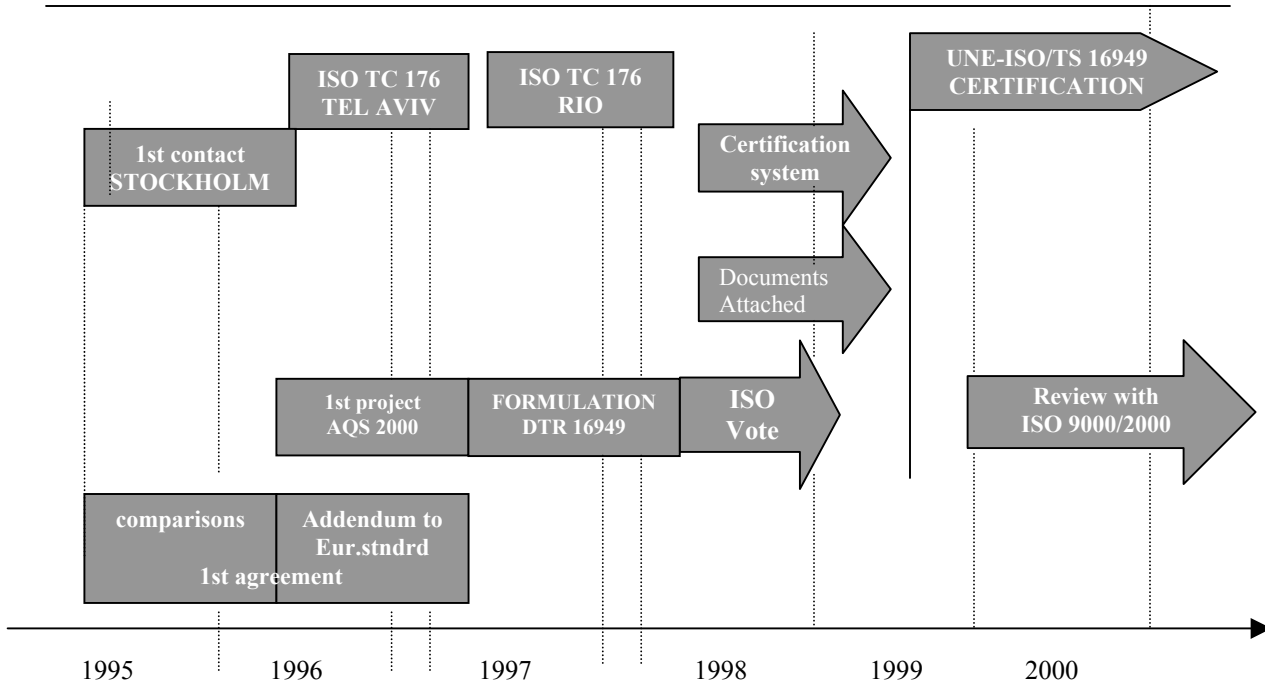


Figure 2: IATF Accomplishments



**ISO/TS 16949 Content**

The goal of this technical specification is the development of quality-management systems that provide for continual improvement, emphasising defect prevention and the reduction of variation and waste in the supply chain. ISO/TS 16949 defines the fundamental quality-management system requirements for those subscribing to this document.

**Object**

This technical specification, in conjunction with ISO 9001:1994, defines quality-management system requirements for the design and development, production and, when relevant, installation and service of automotive-related products.

**Scope**

ISO/TS 16949 is applicable to all supplier and subcontractor part production and service sites that provide customer-specified products.

It should be noted that ‘remote locations’ form part of the site audit insofar as they support the site but they

cannot obtain stand-alone certification to this technical specification.

ISO/TS 16949 can be applied throughout the automotive supply chain and features a series of requirements that are more demanding than the ISO 9001 standard requirements:

- deployment of company strategy;
- continual improvement techniques such as benchmarking;
- teamwork and decision-making, in particular in design and production;
- measuring customer satisfaction;
- measuring collaborator satisfaction;
- continual improvement and effectiveness;
- product quality planning;
- production process design;
- product acceptance according to customer requirements;
- qualification requirements defined;
- internal laboratories conforming to the ISO 17025 standard;

- measurement system analysis;
- formalised problem-solving methods;
- product delivery techniques;
- internal audits on all production shifts and the product development process.

the QS-9000, EAQF-94, VDA 6.1 and VDA 6.4 standard requirements, its prestige as a certifying entity mounted and it had to meet a series of differential specifications with respect to the procedures employed in connection with the ISO9000 standard, presently still in effect, such as:-

**AENOR Leadership**

When, in 1996, AENOR embarked on the system certification to the automotive quality-systems standards described above, the it laid the grounds for a new approach to diversification of its certification products. As AENOR acquired authorisation to certify systems to

- external validation of AENOR procedures;
- third-party examination and qualification of its auditors;
- direct surveillance of AENOR processes by automobile manufacturers;
- more complex audits; and

Figure 3

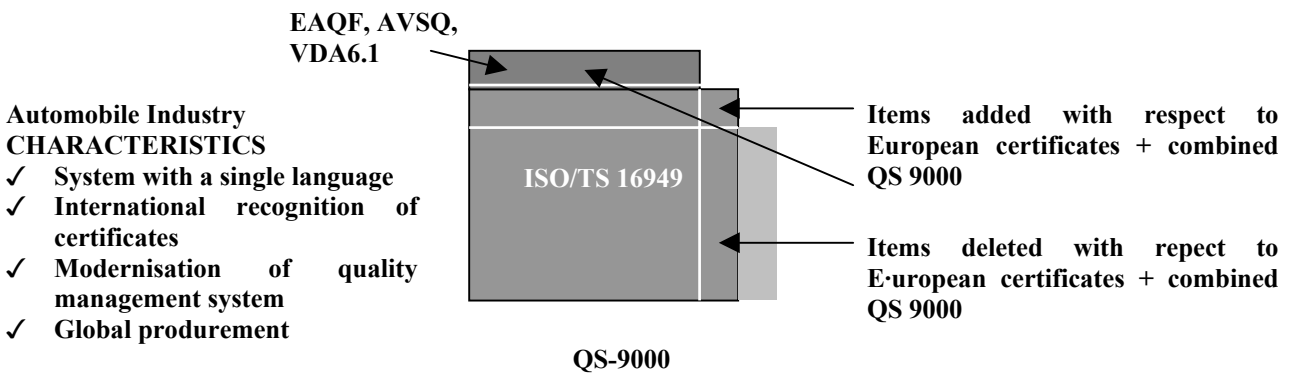
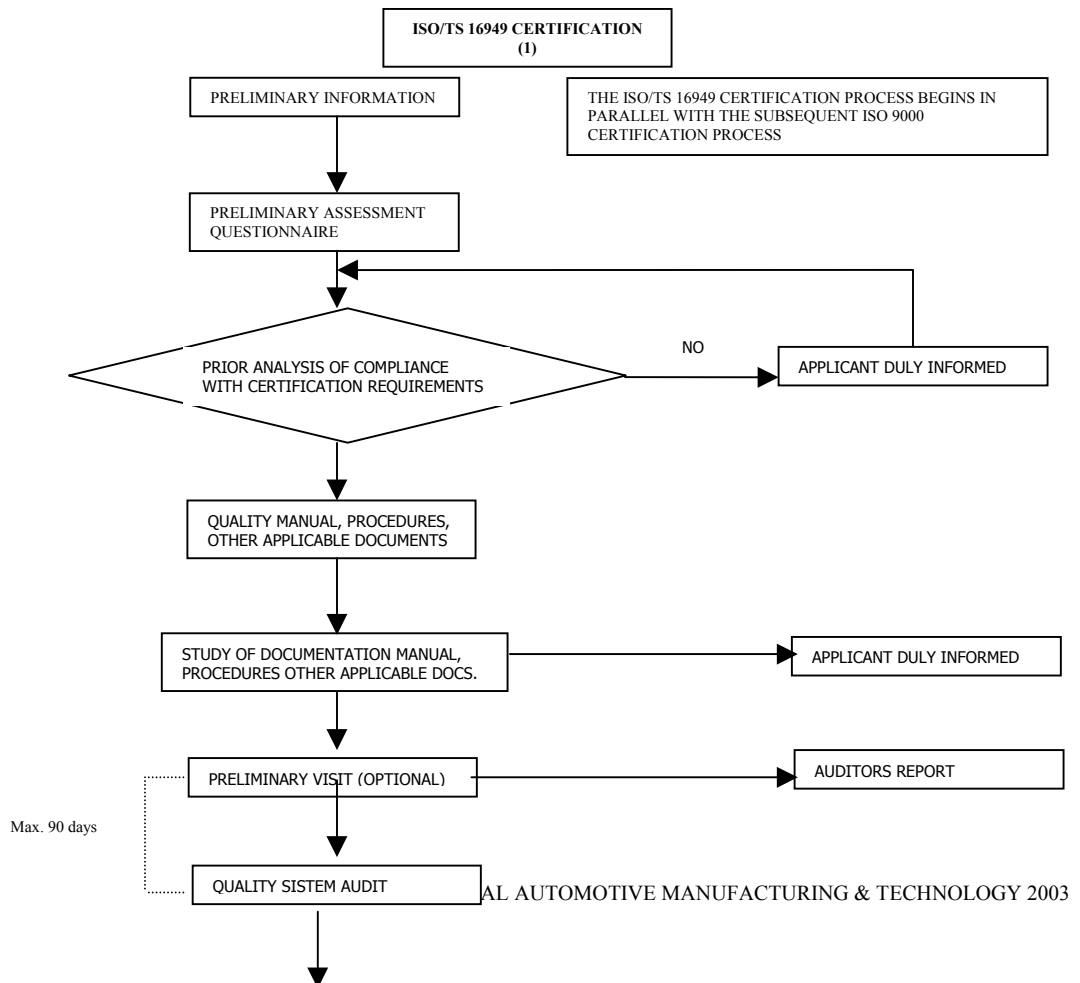
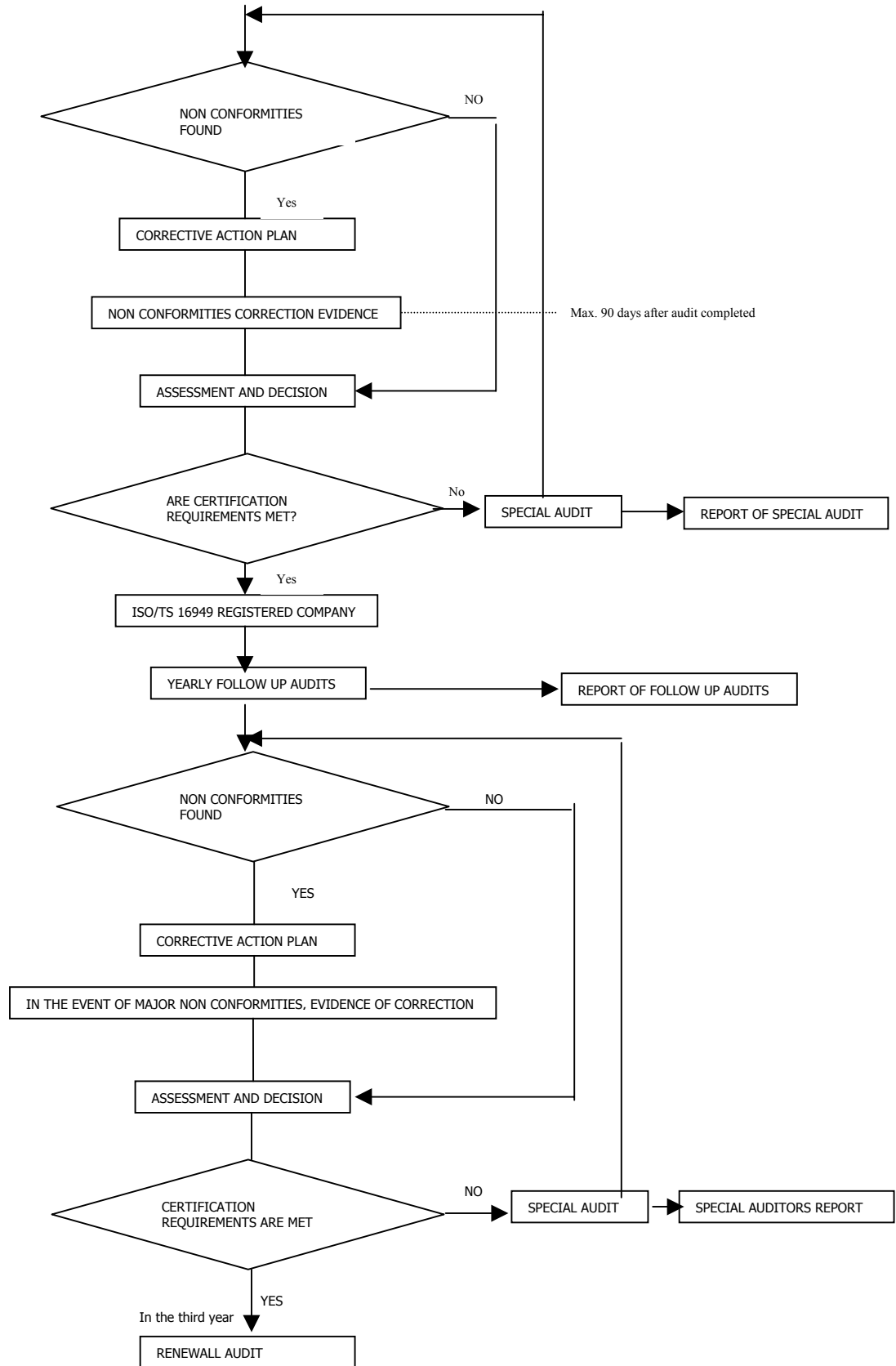


Figure 4: The ISO/TS 16949 Certification Process



# The Role Of AENOR in the Automotive Industry



<p>The process continues except in the event of non-compliance or cancellation by the party concerned</p>	<p>(*)Serious or recurring non-compliance may give rise to withdrawal of the certificate (see registered Firm General Rules)</p>
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- joint audits to simultaneously ascertain conformity to two or more quality standards.

At this time, AENOR has issued 779 quality-system certificates, in effect conforming to the following four automotive quality-systems standards:

- QS-9000 245
- EAQF-94: 214
- VDA 6.1: 69
- ISO/TS 16949: 251

These results should be judged less from the standpoint of quantity - the figures account for only approximately 5% of system certifications - than from the standpoint of quality, since they strengthen both AENOR leadership and its mark, as each automotive certificate goes hand-in-hand with an AENOR Registered Company certificate.

### **The Future**

The three quality standards and the AVSQ have been fused into a single standard, ISO/TS 16949, which is common to all American, French, German and Italian car makers and which, in its 2002 version, also covers Japanese manufacturers' requirements. In the years to come, this standard will replace all of its predecessors and all component and raw material suppliers operating on the automotive market will be certified to it.

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