



Add value.
Inspire trust.

Your Quality
Management Partner
in Aerospace

TÜV SÜD at a glance



150+
YEARS OF
SAFETY, SECURITY
& SUSTAINABILITY



1,000+
LOCATIONS
WORLDWIDE



25,000+
EMPLOYEES



574,000
CERTIFICATES



1-STOP
SOLUTIONS
PROVIDER



€2.6
BILLION IN
ANNUAL
REVENUE



41%
OF REVENUE
OUTSIDE
GERMANY



100%
INDEPENDENT
&
IMPARTIAL

* As of 2019-12-31

Adding value to the aerospace industry

TÜV SÜD is an independent testing and certification organisation that has sustained strong ties to the aerospace industry. Our services support customers in ensuring the highest quality and safety standards across their operations - a core requirement and non-negotiable for the aerospace industry. Based on our strong track record, top companies in the market have chosen TÜV SÜD as their trusted partner.

We enable global market access for aerospace companies by certifying their quality management systems and by testing and certifying their products and systems. Together with our customers, we ensure the safety of their production, machinery and manufacturing processes according to the highest standards. Customers also count on us when it comes to safeguarding their new and existing buildings, infrastructure and data centers. As one of the leading providers for trainings and qualification in quality management, we enable our customers' most important resource: their employees. With our secure cloud storage solutions and cyber security services we provide business solutions that reduce risk, inspire trust and add value to institutions, businesses and customers worldwide.

Our accreditations, certifications, recognitions and services

We are accredited as certification body e.g. by

- ANAB (USA)
- ACCREDIA, CICPND (Italy)
- DAkkS (Germany)
- ENAC (Spain)
- IAQG (Aerospace)
- NABCB (India)
- SAC (Singapore)
- UKAS (UK)

We hold certifications e.g. according to

- NADCAP
- EASA part 145
- EN 9100
- ITANDTB
- ISO 17025

We are recognised e.g. by

- Airbus, Avio Aero, BAE Systems, Curtiss-Wright, BE Aerospace, Collins Aerospace, GE Transportation, ITP Aero, Leonardo, Pankl, Rolls-Royce Deutschland, Safran Aero Engines, Safran Transmission Systems, Thales Alenia Space, Ultra Electronics, UTC Aerospace Actuation Systems

We provide services e.g. according to the standards of

- EN / AS 9100 (Quality Management in Aerospace)
- RTCA-DO 160 (Environmental Conditions and Test Procedures for Airborne Equipment)
- NADCAP
- ITANDTB Italia (NDT personnel qualification)
- ISO / ASTM 52920 and DIN SPEC 17071 (Additive Manufacturing)
- ISO / ASTM 52942 and DIN 35225 (Additive Manufacturing)
- Boeing D6-16050 series, D6-36440, 787B3-0147, 787B3-0838
- Airbus ABD0100.1.2, ABD0100.1.8, ABD0100.1.8.1
- Def Stan 59-411, 00-35
- MIL STD 461, 704 series, 810
- IEC 60068 (Environmental Testing)
- EMC Directive 2014/30/EU and RED 2014/53/EU

Aerospace manufacturing

Management certification and sustainability

- Quality Management System: EN / AS 9100 series
- Occupational Health & Safety Management Systems: ISO 45001
- Environmental Management System: ISO 14001
- Energy Management System: ISO 50001
- Information Security System: ISO / IEC 27001
- Business Continuity Management: ISO 22301
- Industry 4.0 Readiness Index
- Asset Management ISO 55001
- Sustainability services for employees, buildings, supply chain and products

Manufacturing services

- Additive Manufacturing Quality Management
- Machinery Safety, Functional Safety, CE Service and Risk Assessment
- Factory Acceptance Test Witnessing
- Occupational Health and Safety ISO 45001

Procurement and SCM services

- Risk control at suppliers' sites
- Audit services and field engineering (incl. QM audits, pre-shipment inspections and CE marking services)
- Technical appraisals
- Tender support
- Qualification of Additive Manufacturing suppliers

Engineering and design

- Advisory in Additive Manufacturing, Composite Structures, Battery and Hydrogen Technologies
- Evaluation and Verification of Raw Materials
- Design and Components Verification

Data center and digital infrastructure services

- Secure Data Storage in the Cloud
- Testing & Commissioning and Certification of Data Centers
- Cyber Security Assessments

MRO services

- Certification according to EN / AS 9110
- Environmental Testing according to RTCA-D0160
- Non-destructive Testing (NDT) and Destructive Testing (DT)
- NADCAP advisory for NDT and DT processes

Sales

- Product Certification and Approval according to international market requirements
- Advisory on required National Certificates and Approvals for Export

Testing, qualification and documentation services

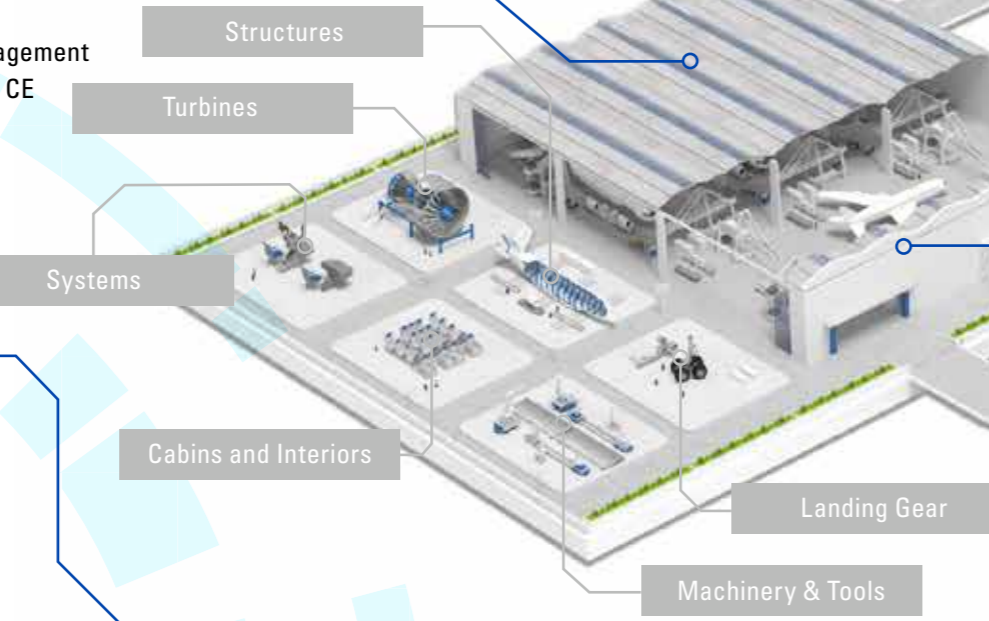
- Non-destructive Testing (NDT) and Destructive Testing (DT)
- Environmental Testing according to RTCA-D0160
- EMC Testing
- Testing of Additive Manufactured Parts
- Testing of Batteries and Fuel Cells
- Raw Material Testing

Training

- Quality Management
- Project Management
- Aviation Legislation
- Qualification and Assessment of Internal Auditors (e.g. QM Auditors)
- Trainings on High Voltage Systems, Battery Technology, Hydrogen Handling, Operation of Additive Manufacturing machinery, Functional Safety in Engineering and Design
- Rollout and management of International Qualification Programs and Web-based Trainings

Real estate services

- Risk Management and Property Loss Control according to internationally recognised Insurance Standards
- Simulation for Energy Optimisation, Fire Protection and Building Physics
- Mandatory Building Inspections: electrical, fire safety, pressure equipment, lifts, x-ray
- Technical Due Diligences and Technical Appraisals
- Building Information Modeling (BIM)
- Sustainability Certification for Buildings



Management certification and sustainability

EN / AS 9100 series

TÜV SÜD certifies your Quality Management System according to EN / AS 9100 series – a certification that is more and more established as standard for the aerospace industry. A certification according to EN / AS 9100 automatically includes ISO 9001 and covers Quality Management according to ten clauses:

1. Scope	6. Planning
2. Normative references	7. Support
3. Terms and definitions	8. Operation
4. Context of the organisation	9. Performance evaluation
5. Leadership	10. Improvement

TÜV SÜD covers the full EN / AS 91XX series:

- EN / AS 9100 for production companies
- EN / AS 9110 for MROs
- EN / AS 9120 for distributors and suppliers

Other management certifications

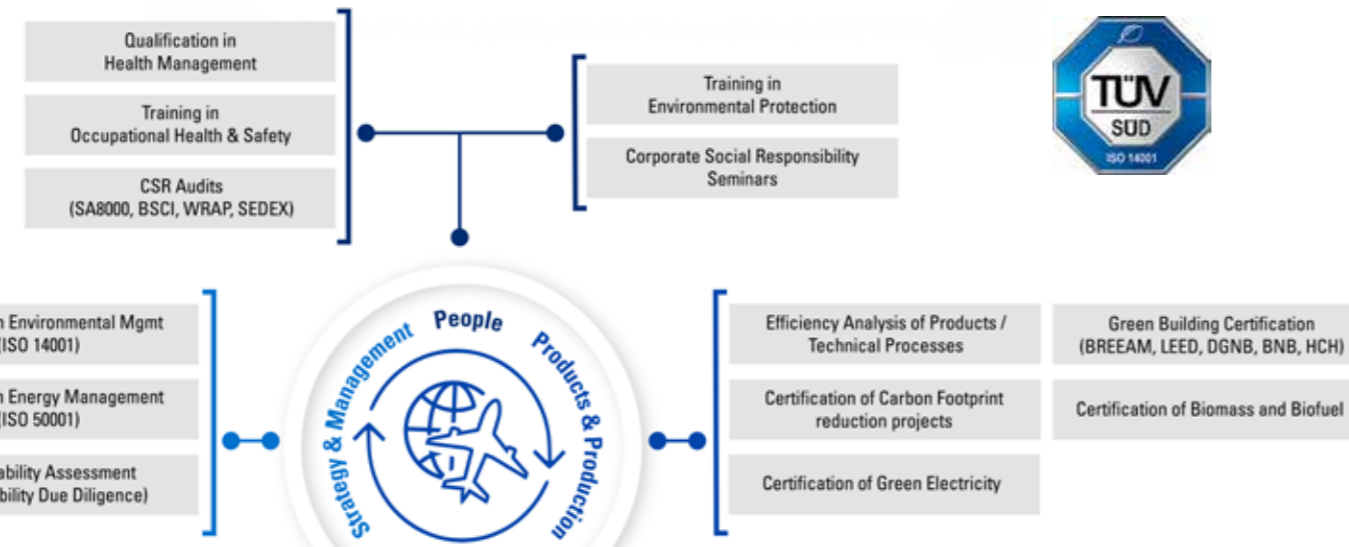
Demonstrate your organisation's ability to meet the highest standards and to maintain professional operations in all relevant management areas, such as:

- Occupational Health & Safety Management System: ISO 45001
- Environmental Management System: ISO 14001
- Energy Management System: ISO 50001
- Information Security System: ISO / IEC 27001
- Business Continuity Management: ISO 22301
- Industry 4.0 Readiness Index
- Asset Management ISO 55001



Sustainability

With our services you can show your commitment to environmental, social and economic sustainability:



Sales

Global Market Access

TÜV SÜD's Global Market Access (GMA) services support customers in selling their products successfully in various markets:

- Tailored solutions** - Based on research of regulatory requirements, certification stipulations and schemes for target markets and products
- Interface to regulators** - Interface to governmental organisations and certification bodies on behalf of clients lacking local representation.
- Testing** - Product testing for a single product or family of products in accordance with required test standards

EMC/EMF and wireless testing and approval

Electromagnetic Compatibility (EMC) and Electromagnetic Field (EMF) Testings are mandatory requirements in most markets. TÜV SÜD assists in resolving any EMC / EMF regulatory and functional issues, from design concept to final production.

Our services in EMC / EMF include:

- EMC testing, e.g. EN/IEC 61000, CISPR
- Wireless testing, e.g. EN / FCC / RSS / ARIB
- EMC Directive 2014/30/EU and RED 2014/53/EU
- Certification Body for FCC, ISSED, MIC e.g. ETSI EN 301 489-series / RFID / FCC

Battery testing

- Performance & Lifecycle testing
- Abuse & Safety testing
- Crash tests
- Environmental, Durability and IP testing
- Customised testing

Product certification services (selection)

Industrial components

- Worldwide Wireless Type Approvals
- Conformity with IEC 61850 / 61400-25
- Industrial Control Equipment

Machinery and components

- Machinery Directive Annex X, I, IV
- Standard EN 12417: Machine tools - Safety - Machining centres
- Standard EN 60204-1: Safety of machinery - Electrical equipment of machines
- Field Labeling for USA according to NFPA 79
- Special Inspection for Canada CSA SPE-1000
- Limited Production Certification (LPC)
- Panel Shop Program for USA and Canada
- NRTL series certification for USA and Canada
- Explosion protection for machinery / (HazLoc, Atex, IECex)
- Panels UL 508A
- KCs Mark for machinery (KOSHA)
- Russia: EAC (Gost R), TR certificate

IT and laboratory equipments

- IT Equipment according: EN/IEC/UL 62368-1
- Laboratory and measurement equipment: EN/IEC/UL 61010-1 / -2-X

Manufacturing

Aerospace manufacturing services

Innovative and connected production processes are subject to a number of regulations in the areas of machinery safety, operational health and safety and environmental protection. Our services include:

- Machinery Directive
- CE Conformity
- Robotic Safety
- Electrical Safety
- Low Voltage Directive 2014/35/EC
- Explosion Protection, e.g. ATEX 2014/34/EU
- Pressure Equipment Directive
- Risk Assessments
- Functional Safety requirements
- Automated Guided Vehicles (AGVs)
- Industrial Cyber Security IEC 62443
- Safety in Human Machine Interaction (HMI)
- Clean Room Certification
- Environmental Due Diligence and Certification

Additive manufacturing

TÜV SÜD supports you in increasing the quality of your Additive Manufacturing operations from a prototype stage to an industry grade mass production level:



Company

Certification of industrial Additive Manufacturing sites according to latest standards (AM DIN SPEC 17071, ISO ASTM 52920)



Hardware

Qualification of Additive Manufacturing hardware to ensure process stability and to achieve reproducible quality



Materials

Testing of feedstock and final material properties in TÜV SÜD laboratories

Additive Manufacturing feedstock supplier certification



Training

Additive Manufacturing specific trainings: Machine Operator (DIN 35225, ISO / ASTM 52942), Health & Safety, Quality & Production Manager, Business Strategist

Did you know?

TÜV SÜD also offers a Smart Industry Readiness Index (SIRI) that includes an individual gap-analysis at your premises and a clear action plan to transition into Industry 4.0.

Did you know?

Are you planning to start Additive Manufacturing activities? Talk to our renown AM experts to plan your facilities and to select the right applications with cost saving potentials.

Testing, qualification and documentation

Destructive and non-destructive testing

Destructive and non-destructive testing are essential parts of aerospace manufacturing and industry requirements. Our services include:

- NDT (Level I-III): Eddi Current, Ultrasonic, Nital Etch, Computer Tomography, etc., incl. availability of a level III expert for every NDT method
 - DT: all mechanical tests and failure analysis
 - Embedded lab: testing either conducted in one of our international test labs or as an embedded lab at your premises
 - Special testing procedures for additive manufactured parts and composite structures (or a combination thereof)
 - Technical training, education and qualification of NDT experts up to Level III
 - Engineering and provision of DT and NDT test benches
 - In-house research center for innovative testing methods, e.g. virtual testing
- Our services are available by NADCAP certified labs and personnel.

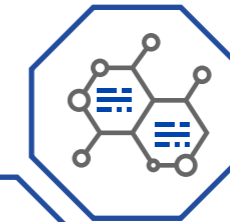
Non-destructive tests



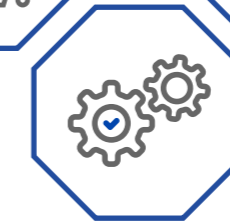
Organometallic analyses



Chemical analyses



Mechanical tests



Further technological tests

Laboratory qualification testing

We offer a one-stop service, giving you a single point of contact capable of managing your project from initial offer through to issue of final report. We have core competences in the following areas:

- Managing requirements
- Programme Management
- Electromagnetic Compatibility (EMC) & Environmental Testing
- Training Courses

We have comprehensive equipped testing facilities and are an accredited test laboratory for testing both at our permanent premises and off-site. These facilities are designed specifically to meet the demanding requirements of the latest test standards including RTCA DO-160, EN60529 and IEC60068.

We have a comprehensive range of Environmental (Climatic & Mechanical), Electromagnetic Compatibility (EMC) and Electromagnetic Interference (EMI) test facilities including:



Altitude



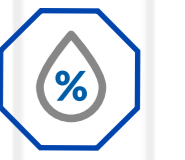
Combined Environment



EMC



Fluid Susceptibility



Humidity



Lightning



Pressure



Shock

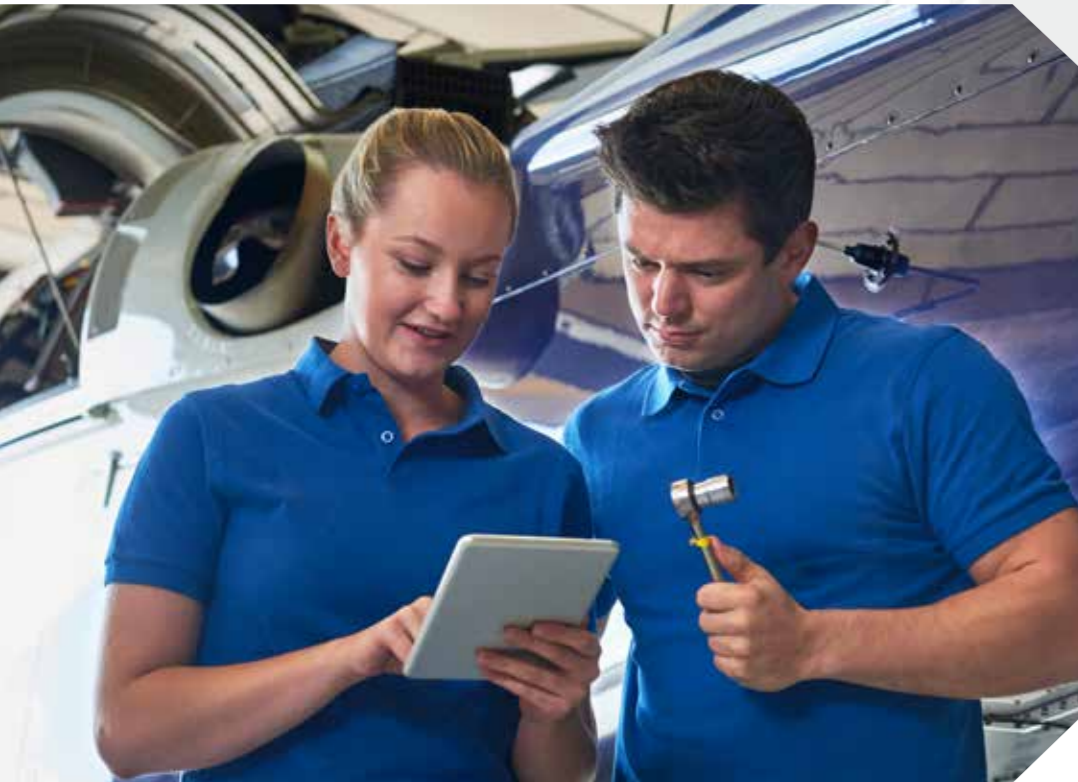


Temperature



Vibration

Procurement and SCM



As quality management and strict regulation by national and international authorities gets stricter, Supply Chain Management has become a critical success factor for aerospace companies. TÜV SÜD partners as your solution provider in:

- Creating “bulletproof” technical RFQs
- Ensuring that suppliers comply with applicable standards and requirements
- Providing technical appraisal as a respected 3rd party to address disputes with suppliers
- Providing 3rd party (visual, NDT, DT) inspection for goods incoming

Risk control at suppliers’ sites

Supply chains were hit severely by fire and natural hazard losses that happened at suppliers sites. TÜV SÜD Global Risk Consultants has a worldwide presence to conduct fire/natural hazards inspections to evaluate the property risk and help to improve the risk situation at suppliers’ sites.

Audit services and field engineering

Sourcing from non-21-G suppliers requires SCM departments to ensure full compliance with quality management standards in the supplier’s organisation in order to conduct regular audits and to pursue full documentation. We support you with:

- Quality Management Audits
- Supplier Qualification Audits
- Pre-shipment Assessments on Product Quality at supplier’s site
- Material Property Inspection and Delivery Assessment
- CE Services and Risk Assessment

Technical appraisal

As a globally recognised neutral third-party organisation, TÜV SÜD has the technical expertise to help settle disputes, e.g. with suppliers by providing technical appraisals.

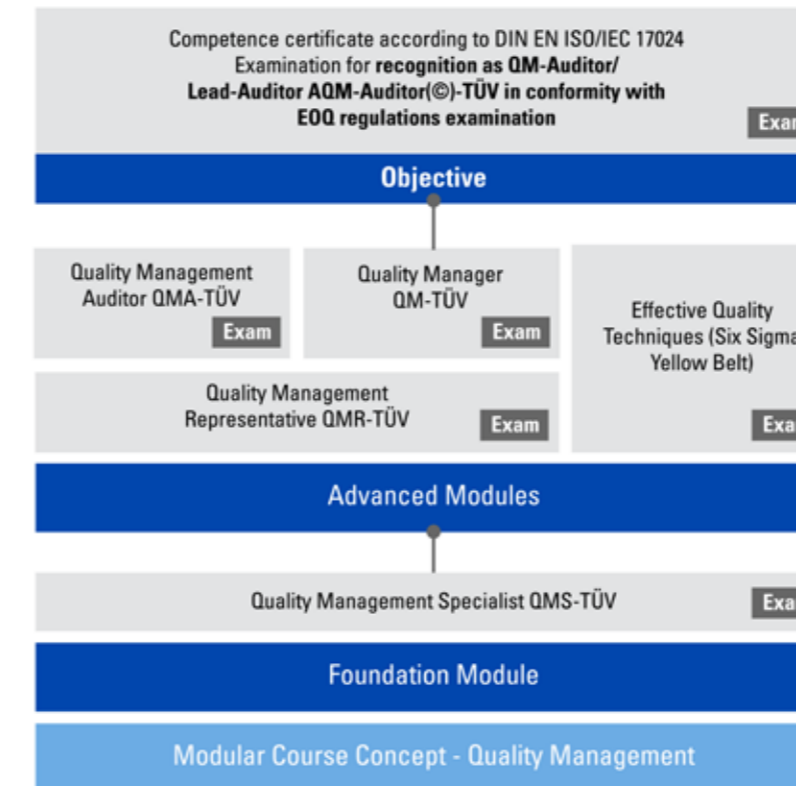
Tender support

TÜV SÜD is your partner in advising and reviewing technical RFQ documents when you seek to purchase production machinery, related equipment or building infrastructure. Our experts are familiar with applicable rules and regulations so that you can set your requirements correctly from the very beginning. TÜV SÜD’s technical RFQ support minimises risk of addendum cost and ensures compliance with industry standards and regulations.

Training

FAA and EASA regulations have increased their focus on employee qualification and training. TÜV SÜD provides you with qualified trainings in quality management and a range of specialised technical topics.

Quality management trainings



TÜV SÜD is your partner for:

- Standard trainings including Aviation Law and Quality Management for Aerospace according to EN / AS 9100
- On-site trainings according to your individual needs and requirements

Technical trainings

We support you with various professional technical trainings for topics like:

- Additive Manufacturing: role-based education for machine operators (DIN 35225), project engineers, quality managers and business strategists
- Hydrogen / Fuel Cell safety and storage
- Functional Safety of Machinery
- NDT Expert Level I - III for every NDT method
- Battery safety and handling of high voltage systems



Management trainings

TÜV SÜD offers Management Trainings in the area of:

- Operational Health and Safety Management
- Information Security and Data Protection
- Risk Management
- Project Management
- Environmental Management
- Process Management
- Energy Management
- Facility Management

Real estate

New building

Are you planning a new office, manufacturing or logistics building?

Talk to our TÜV SÜD experts early, to ensure that your project:

- Gets realised and commissioned on time (e.g. Project Management and Quality Assurance)
- Avoids unexpected rejections and disapprovals by authorities (e.g. Technical Design Review)
- Is designed in a way that minimises OPEX (e.g. BIM services)
- Gains the confidence of insurers and can be insured at favourable conditions (e.g. construction warranty inspection)
- Receives the quality you paid for (e.g. Quality control services)

Existing building and regular inspections

Are you operating an existing building? Talk to TÜV SÜD to get:

- An overview of which regular inspections shall be conducted to be compliant with applicable local laws and regulations
- Property loss prevention services (e.g. Fire and Natural Hazards Analysis, Infrared Thermographical Surveys), available worldwide with local engineers
- Regular performance of jurisdictional building inspections
- Advisory, quality control and technical support related to Facility Management services

TÜV SÜD is an expert in using modern BIM technology to realise remarkable savings in building-related OPEX.

Sustainability certifications

Are you looking for a way to demonstrate your sustainability to customers, employees and investors? TÜV SÜD offers the following services:

- Certification according to BREEAM, LEED and many more national green building standards
- Environmental Management System Certification according to ISO 14001
- Energy management certification according to ISO 50001 and ISO 16247
- Simulation and optimisation of energy consumption
- Certification of buildings' carbon footprint (or carbon neutrality)
- Assessment of water and waste water management

Are you planning to purchase or sell existing buildings? We support you in:

- Market valuation of buildings according to RICS, HypZert, etc.
- Technical Due Diligence on building quality and compliance with laws and standards (e.g. performance of regular jurisdictional inspections)

Did you know?

Our experts support you as neutral, trusted advisors in all building related aspects and our appraisals are valued by investors, insurance companies, authorities and suppliers alike.



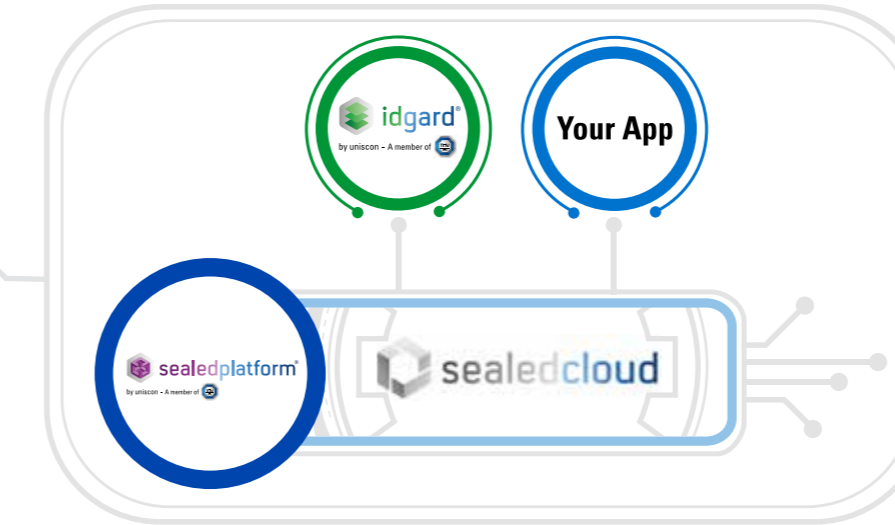
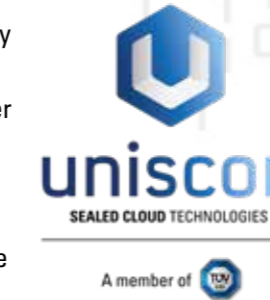
Data center and digital infrastructure

Secure cloud

Data security is of utmost importance for the security of existing operations and for the trust in future digital services. In regular data centers, data is either kept safe by encryption (but encrypted data can no longer be processed), or it can be processed (but is no longer safe as it is unencrypted). The Uniscon Sealed Platform is TÜV SÜD's patented cloud service for secure cloud environments, that delivers both:

- Secure cloud storage by encryption, and
- Safe processing of data in the cloud.

The Sealed Platform gives no privileged access to administrators and operators, and it fulfils IT security requirements of even the most demanding applications.

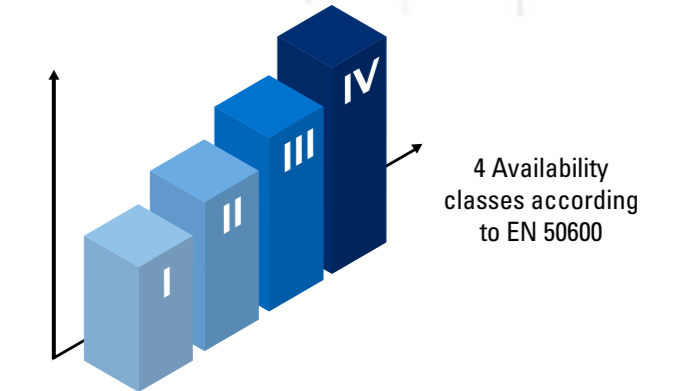


Data center certification and advisory services

Data centers are the backbones of modern and connected production environments, and they serve as the basis of new digital services for your customers. In an industry where failure is not an option, demonstrating your data center's reliability is of utmost importance. TÜV SÜD certifies and tests data centers in tandem with:

- EN 50600 / TIA 942:2010 Tier-Levels
- Tempest testing

EN 50600 standard defines four availability classes for data centers



4 Availability classes according to EN 50600

TÜV SÜD's advisory services for data centers include:

- Commissioning Agent Services
- Disaster recovery site
- Technical Due Diligence
- Risk assessments
- GAP analyses and design reviews

Your benefits

Increased product quality

We help you to develop the best materials, products and systems possible, run your production equipment securely, and safely and to ensure quality in every step of your operation. Trained personnel, approved QM systems and advanced testing methods help you deliver superior products that earn you trust in one of the most demanding industries.



Minimise risk

We ensure that your products are safe, reliable and comply with applicable norms, standards and regulations. Our experts in EHS, machinery safety and real estate safeguard your production processes, your buildings and your most valuable asset: your employees.



Greater market access and increased sales

We ensure your products comply with local regulations and industry specific standards, thereby enabling international trade. TÜV SÜD is recognised by many national governments as a Notified Body or Certification Body, and is accredited to approve your products and systems according to your target country's national requirements.



Increase efficiency and speed

We support you in avoiding unexpected product recalls or market rejections. Whether you are building manufacturing plants, commissioning or operating your machinery or selling your products on national or international markets – partner with us to always be on time.



Enabling access to global markets

Over 1,000 TÜV SÜD locations in about 50 countries

With an extensive network of multidisciplinary experts, accredited laboratories and offices established in the world's major business hubs and key production centres, we are ready to support your need for safety, security and sustainability wherever you do business: We support you in achieving international market access and we serve as your competent Quality Management partner in Aerospace worldwide.

Germany (HQ)

Argentina
Austria
Bahrain
Bangladesh
Belgium
Bosnia & Herzegovina
Brazil
Canada
China
Croatia
Czech Republic
Denmark
Egypt
Finland
France
Hungary
India
Indonesia
Ireland
Italy
Japan
Malaysia
Mexico

Netherlands
Oman
Philippines
Poland
Portugal
Qatar
Romania
Saudi Arabia
Singapore
Slovakia
Slovenia
South Africa
South Korea
Spain
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Sweden
Switzerland
Thailand
Turkey
UAE
United Kingdom
USA
Vietnam



Disclaimer: Not all services mentioned in this brochure are available in every country or with local experts. Please contact us under aerospace@tuvsud.com with your individual needs and we will be glad to provide a solution that meets your requirements.



Contact us today to learn more about our aerospace services

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