Risk Management and Safety Assurance for Rail

Helping clients in the rail industry to manage risk to people, assets, business and the environment.
Risktec is an independent and specialist risk management consulting and training company, and is part of the TÜV Rheinland Group.
About Risktec

Risktec was formed with the specific aim of helping clients to manage health, safety, security, environment (HSSE) and business risk, and has been part of the TÜV Rheinland Group since 2014.

We strongly believe the following key factors differentiate us in the marketplace:

OUR VALUES & CULTURE
The key values underpinning our culture are Teamwork, Integrity, Empowerment and Solutions. We work collaboratively, both within Risktec and when working with clients. We act with honesty, integrity and consistently high ethical standards. We empower everyone to deliver all aspects of a project to the best of their ability in a supportive, open and trusting environment. We are responsive and flexible to our clients’ needs, delivering complete and pragmatic solutions.

OUR INDEPENDENCE
Our independence is achieved through our selected range of services, our company values and our legal structure. Our services are independent from design, construction and operations, and as such we offer truly impartial advice. Our company values include integrity, which means we are open about difficult issues. Finally, TÜV Rheinland has no shareholders with conflicting corporate goals to satisfy, enabling us to take a long-term view in everything we do.

OUR APPROACH
We are committed to providing clients with solutions, built on a sound understanding of the client’s business and the issues they face. Throughout a project we work with our clients to ensure ownership of the solution. We believe this philosophy leads to mutually trusting relationships with our clients. We highlight the positives, but also do not shy away from identifying weaknesses. In this way we help clients to objectively understand their risks and the quality of their systems for managing them.

CLIENT SATISFACTION
Ultimately it is our clients who decide how well we are doing and we place great emphasis on their feedback. Consequently twice a year we survey the clients of all our active projects and we are delighted to receive consistently high levels of customer satisfaction (see page 10). This feedback drives continuous improvement across the business.
Our Experience

Risktec has a substantial track record of providing system safety and assurance services to support the development and upgrade of rail transportation systems in the UK and internationally. We have experience across a wide range of systems throughout all stages of the system lifecycle and a proven track record of meeting the challenges of specific projects. In working with us, clients can be assured of responsive, high quality technical support delivered by experienced consultants, tailored to meet specific circumstances.

**Areas of Expertise**
- Infrastructure (civils and track)
- Underground systems
- Rolling stock
- Signalling and telecoms
- Asset lifecycle optimisation
- UK, EU and International standards and safety legislation
- Independent safety assessment
- Transport of hazardous goods

**Clients**
- Mainline rail operators
- Light rail operators
- Metro rail operators
- Freight operators
- Programme management companies
- Signalling providers
- Rolling stock providers
- Infrastructure managers
- Product suppliers
- Hazardous goods transport companies
- Industry bodies and regulators

**System Lifecycle**
- Concept selection
- Design
- Construction and commissioning
- Operations and maintenance
- Upgrade and extension
- Optimisation

**Industry Challenges**
- System capacity and reliability
- Innovative technology
- Digitalisation
- Ageing infrastructure
- System security
- Cultural challenges
- Changing regulatory requirements
- Accident investigation and root cause analysis
Risktec’s expertise is in high hazard industries and other sectors where the impact of loss is high.
Our Services...

RISK ENGINEERING

Identifying, analysing, evaluating and treating the risks associated with facilities, operations and equipment to acceptable levels.

HAZARD IDENTIFICATION
- HAZID / ENVID studies
- Hazard records / logs / registers
- HAZOP studies
- FMEA / FMECA studies

QUALITATIVE RISK ANALYSIS
- Specification of minimum safety requirement
- Specification of trip settings / limits / conditions of operation
- Risk assessment matrix
- Risk ranking / Risk assessments
- Bowtie analysis
- Security risk assessment

QUANTITATIVE RISK ANALYSIS
- Consequence analysis
- Frequency analysis
- Risk analysis and evaluation
- System reliability analysis

RISK REDUCTION AND ALARP
- ALARP assessment
- Risk reduction workshop
- Cost benefit analysis
- Sensitivity and uncertainty analysis
- Support with stakeholder consultation

FUNCTIONAL SAFETY
- Fault and event tree analysis
- Layer of Protection Analysis (LOPA)
- SIL assessment (assignment, verification and validation)
- System specification
- Safety requirements specification

RELIABILITY, AVAILABILITY & MAINTAINABILITY
- Reliability, Availability and Maintainability (RAM) assessment
- Reliability Block Diagram (RBD) assessment
- Monte-Carlo simulation
- Maintenance, inspection and testing optimisation

SYSTEM ASSURANCE
- Safety system specification
- Development of safety requirement specifications
- Safety assurance planning and process development
INDEPENDENT REVIEW AND AUDIT
- Developing audit strategies
- Desktop technical assessments
- Peer reviews / Site audits
- Identifying technical weaknesses
- Identifying where practices deviate from procedures
- Identifying conflicting attitudes at different organisational levels
- Ranking identified risk exposures
- Developing plans for improved management control
- Supporting implementation

SAFETY CASES
- Safety case development or updates
- Pre-submission readiness review
- Regulatory compliance review
- Periodic review
- Safety case roll-out training and communication materials
- Electronic / living safety cases

HUMAN FACTORS ENGINEERING (HFE)
- HFE screening and Human Factors Integration (HFI) planning and management
- Safety Critical Task Assessment (SCTA)
- Ergonomic assessment of equipment and workplaces
- Cab and control centre ergonomic studies
- 3D CAD model reviews
- Human Machine Interface (HMI) assessment
- Alarm management
- Workload analysis and manning studies
- Human error identification, quantification and reduction
- HFE planning for construction and commissioning

VENDOR INSPECTION & ASSESSMENT
- Third party inspection and expediting
- Pre-shipment inspection
- Loading / unloading inspection
- Factory acceptance tests
- Quality assurance / quality control
- Vendor capability assessment
RISK MANAGEMENT

Managing HSSE and business risk.

HSSE MANAGEMENT SYSTEMS
• Integrated HSSE Management Systems
• HSSE requirements
• Change management systems
• Document management systems
• Independent third-party audits and reviews
• Pragmatic and cost-effective, risk-based improvement strategies and programmes

BUSINESS CONTINUITY MANAGEMENT
• Threat identification
• Business impact assessment and risk analysis
• Business continuity strategies
• Business continuity plans

EMERGENCY PLANNING & CRISIS MANAGEMENT
• Potential emergency and crisis scenarios
• Emergency and crisis management strategies, plans and procedures
• Emergency control centre reviews and optimisation
• Facilitating desktop and field drills and exercises
• Assessing and auditing adequacy of emergency arrangements

SECURITY RISK MANAGEMENT
• Security risk awareness
• Security vulnerability assessment
• Cyber security assessment
• Security management strategies and response plans
• Security awareness and training programmes
• Security audits and reviews
• Investigation of security incidents
CULTURE & BEHAVIOUR

Accelerating cultural and behavioural improvement, and ensuring a solid foundation for building sustainable improvements in risk control.

CULTURE & BEHAVIOURAL SAFETY
- Safety culture/climate assessment and cultural change support
- Safety leadership workshops
- Behavioural safety strategy and programme development and associated support
- Behavioural safety measurement
- Incident investigation and root cause analysis

COMPETENCE MANAGEMENT
- Analysis of current arrangements against best practice competency standards
- Capture of competency requirements - organisational, team and personal
- Role and task analysis
- Competency assessment and training needs analysis (TNA)
- Competency management system development
- HR system integration, personnel planning and optimisation
- Developing and verifying competence assurance systems

WORKPLACE SAFETY
- Worksite risk assessment method development, linked to contractor management and safe systems of work
- User friendly procedures and working instructions
- Permit to work systems
- Health and industrial hygiene assessment

LEARNING & RESOURCING

Training in Risk and Safety Management leading to formal qualifications or tailored to meet your specific requirements.

Providing specialist risk, HSSE and engineering associates to work at client offices, project locations or industrial sites anywhere in the world.

TRAINING AND EDUCATION
- Postgraduate Certificate, Diploma or Master’s Degree (MSc) in Risk and Safety Management
- Degree Apprenticeship in Risk and Safety Management
- Risktec Professional Qualification (RPQ) in Risk and Safety Management
- Training courses from single modules to multi-year programmes for corporate clients
- Game based learning
- Delivery via face-to-face, distance or blended learning
- Accredited by professional engineering institutions and industry bodies

RESOURCING
- Delivered by our professional resource solutions business, ASTEC, which has access to a huge pool of professional associates
- Short-term or long-term assignments
Client Satisfaction

Twice a year we survey the clients of all our active projects. The response rate is high for such surveys and we very much appreciate the time and effort spent by our clients in providing feedback to us. This feedback greatly helps us strive to continuously improve our service.

The survey asks questions encompassing all aspects of our service, from responsiveness and flexibility, through technical quality, to commercial issues. We are delighted to receive consistently high levels of customer satisfaction across all questions. This means we are able to build long-term sustainable relationships with all our clients, with over 85% of our revenue coming from existing clients. However, we also continuously seek new clients and each year over 30% of our clients are new.

Example high levels of client satisfaction:*  
- 97% of clients rate the technical knowledge of our personnel as very good or good (we view ‘fair’ as not good enough).  
- 97% of clients view us as easy to do business with.  
- 98% of clients believe they have received good value from Risktec compared to other consultants.  
- 99.7% of clients would recommend us.

*Cumulative survey results to date. The current scores are displayed on our website risktec.tuv.com

Global Experience with Risktec

Risktec has its principal office in Warrington in the UK, with other offices in key locations in Europe, Middle East, South East Asia and North America. Our activities are supported by a comprehensive network of TÜV Rheinland offices and local representatives in other regions around the world. Our intention is to be close to our clients.

We have delivered projects in over 75 countries worldwide.
For further information, including office contact details, visit: risktec.tuv.com or email: enquiries@risktec.tuv.com

You can also find us on:

@TUVRisktec

Linkedin

YouTube