Is your job “safe operation”? So is ours.

Today at ROSEN, our products and services support all of the critical aspects of the Integrity Management Process. We are proud of our position as the knowledge hub for the inspection and analysis of oil and gas assets.

Our aim is simple: We help our customers to get the best from their valuable assets. There are 3 elements to our value proposition:

- **Safety and Compliance**: We implement systems and guidelines in accordance with regulations and industry best-practices.
- **Lifetime**: We assess the Fitness-for-Purpose of assets and propose measures to extend safe operating life.
- **Performance**: We identify ways to improve asset safety, reliability and efficiency.

Work with us to operate your assets safely, reliably and efficiently.
Operators in the oil and gas industry are confronted with more and more challenges. The economic situation is tense, assets age and regulations impose stricter requirements. A rigorous Integrity Management Process is recognized as the best way to meet these challenges. ROSEN offers cost effective state-of-the-art solutions in each discipline. The environment today requires the highest levels of competence, expertise and knowledge to reach the right conclusions.

ROSEN defines policies and procedures based on the best practice seen across the world and aligned with the latest standards.

ROSEN provides the full range of data management services. We generate a fully digitized asset register allowing rapid access to reliable data for analysis.

ROSEN evaluates potential threats and the likelihood of failure events. On this basis, we help you to implement risk-reduction and mitigation measures.
Data-driven analysis can create highly granular results. Performance indicators provide a way to ensure the right focus.

ROSEN provides follow-up analysis for all types of inspection technologies. Our goal is to identify the best possible corrective measures.

Working with all the major operators, ROSEN audits against the benchmarks set by the very best.
Our Portfolio

One contact - all specialists on hand

At ROSEN, you will find the advantages of having highly specialized units, all under the same roof; whether you require a Fitness for Purpose Assessment or a large-scale integrity program implementation.

ROSEN can offer you the full range of required systems and services; from high level procedural and organizational definitions to detailed engineering assessments. As part of the ROSEN Group, we are backed up by a substantial R&D team and therefore have access to the most sophisticated technologies – ensuring that you lead the way.

Our locally established hubs house their own experts and have direct immediate access to a worldwide network of in-house engineers. Benefit from our expertise.
What we do

- AIM System
  - AIMS Review & Implementation
  - Asset Register & Data Integration
  - Risk Assessment
  - Data Services

- Integrity Software
  - ROAIMS for Pipelines
  - ROAIMS Dashboard
  - Hosted Solutions

- Engineering & Consultancy
  - Corrosion Control & Management
  - Risk & Reliability Services
  - Welding & Materials
  - Specialist Studies & Testing
  - Flexibles
  - Stress Analysis, Fracture & Fatigue
  - Flow Assurance

- Integrity Assessment Services
  - Fitness for Purpose Assessment
  - Corrosion Growth Assessment
  - Strain / Stress Assessment
  - Crack Assessment
  - Geo-Hazard Services

- Performance on the job

- Best practice defined

- Expertise in place

- Results on the run

The Solution
AIM System – Best practice defined
AIMS Review & Implementation

ROSEN has developed proven, structured methods for implementing an Asset Integrity Management System (AIMS).

In close cooperation, we develop a system around international standards and local requirements. Furthermore, we support the implementation and — ultimately most importantly — the training and knowledge transfer.

The core elements of our system:
- People (staff organizational structure & training)
- Procedures (Integrity Management Manual)
- Methodologies
- Defined KPIs in line with corporate policy
- Data (regular updates)
- Software (defined software workflows)

Integrity Software – Performance on the job
ROAIMS for Pipelines

ROSEN's Asset Integrity Management Software (ROAIMS) supports all key steps in your digitally-enabled Integrity Management Process — auditable, reliable and cost-effective.

Key functions:
- Data management: fully digital asset register (PODS-compliant)
- Risk assessment: screening and prioritization
- Defect assessment: Immediate repairs and dig planning
- Corrosion growth: future repair and inspection planning
- Aboveground surveys: Collect and assess CP, DCVG and other records
- Task management: Follow-up of digs and repairs (also via SAP/MAXIMO interfaces)
- GIS analysis: ESRI-enabled consequence assessments and spatial visualization/querying
- Dashboard: KPIs and Reporting

Request a demo (integrity@rosen-group.com) to see how ROAIMS can support you with your day-to-day activities.
Engineering & Consultancy – Expertise in place

The Solution
Corrosion Control & Management

The experts at ROSEN understand the nature of corrosion. We have developed appropriate mitigation strategies, so operators can rely on a secure and effective flow of production. We also consider the importance of cost savings (CAPEX & OPEX) to our clients. Our offering in detail:

- Corrosion Risk Assessments and Corrosion Management Strategies
- Root Cause (failure) Analysis and mitigation action plans
- Aging Asset Life Extension
- Trending and analyzing inspection and monitoring data
- MIC audits and chemical treatments
- Corrosion awareness training
- Inhibitor and pigging optimization

Risk & Reliability Services

Today Risk Analysis is an essential tool to plan and prioritize inspection and rehabilitation measures. ROSEN offers a variety of risk assessment and management services — adjusted to the needs of operators and their assets. Our offering ranges from established risk and reliability methodologies to bespoke risk modelling. The services at a glance:

- Quantitative Pipeline Risk Assessment Model (ROSEN QPRAM or customer-specific)
- Risk Based Inspection and Management (RBI)
- Environmental Impact Identification (ENVID)
- Hazard and Operability (HAZOP)
- Hazard Identification (HAZID)
- Cost benefit analysis (CBA)

<table>
<thead>
<tr>
<th>Asset Types</th>
<th>Pipeline (Transmission &amp; Distribution)</th>
<th>Offshore Facilities (Platforms, FPSOs)</th>
<th>Onshore Facilities (Refining, Processing &amp; Storage)</th>
<th>Auxiliaries (Compressor &amp; Valve Stations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable Standards</td>
<td>ASME B31.8S</td>
<td>API 510/580</td>
<td>API 510/580</td>
<td>API 581</td>
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<tr>
<td></td>
<td>API 1160</td>
<td>581/653/584</td>
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<td></td>
<td>DNV-RP-F116</td>
<td>EEMUA 159</td>
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| QPRAM                        | ☑                                       |                                       |                                                     |                                          |
| RBI                          | ☑                                       | ☑                                      | ☑                                                    | ☑                                        |
| ENVID                        | ☑                                       | ☑                                      | ☑                                                    | ☑                                        |
| HAZOP                        | ☑                                       | ☑                                      | ☑                                                    | ☑                                        |
| HAZID                        | ☑                                       | ☑                                      | ☑                                                    | ☑                                        |
| CBA                          | ☑                                       | ☑                                      | ☑                                                    | ☑                                        |
Integrity Assessment Services – Results on the run
Post Inspection

We know that inspection and engineering must go hand in hand. You will benefit from our high-end inspection technologies even more if you decide to use the broad range of follow up assessment services we offer. By combining inspection and assessment we can reduce uncertainty, increase safety and minimise costs. We provide balanced, safe, accurate advice based on demonstrable competence and unparalleled experience.

ROSEN assessments are always in accordance with industry standards (e.g. ASME B31.G), recommended practices (e.g. API 579, DNV-RP-F101) and guidelines (e.g. EPRG, PDAM).

<table>
<thead>
<tr>
<th>ILI Service</th>
<th>Geometry (RoGeo)</th>
<th>Metal Loss (RoCorr)</th>
<th>Crack Detection (RoCD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosion Growth Assessment</td>
<td></td>
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<td></td>
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<tr>
<td>Fitness for Purpose Assessment</td>
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<tr>
<td>Dent Strain/Stress</td>
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<tr>
<td>Crack Assessment</td>
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<td>Bending Strain*</td>
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* Inertial measurement unit (IMU) is prerequisite.
Adding value — where needed, when needed

Solutions from the wellhead to the end customer

Enterprises in the oil and gas industry all face similar challenges, whether a tank farm operator, a transmission pipeline operator or a gas distribution company. The assets are valuable, their integrity is crucial. ROSEN’s expertise covers all the disciplines needed for these diverse assets. Some examples:

- **Proactive Corrosion Management for topsides** leading to decreasing maintenance costs.
- **Fully integrated Flow Assurance Consultancy for production pipelines** applied in cleaning and inspection optimization and corrosion control.
- **Risk-Based Inspections based on API 580/581 or EEMUA to prioritize tanks for out-of-service inspections for tankfarms.**
Integrity Management Procedures and Guidelines for **all assets** in accordance with ISO 55000.

Full range of Integrity Assessment Services for **transmission pipelines** giving detailed future integrity management plans.

Qualified and reliable materials, component and equipment testing for **plastic distribution pipe systems.**
Trusted Expertise

Leading the field of Integrity Solutions

Take advantage of the biggest and most experienced engineering team in the industry. ROSEN offers solutions tailored for a long-term investment horizon. As a family owned business we are independent of volatile financial markets and continually invest in improving our competency and technology. We give you the answers you need: sustainably and flexibly.

- The most experienced team in the industry
- 200+ years of corrosion management experience
- 300+ satisfied customers
- 400+ post inspection services per year
- In-house software development and 24/7 software support

Use this opportunity and benefit from a unique collection of competence!