Care for your assets since 1938
Silvani is one of the leading companies in safety and protection against fire and it is part of United Technologies Group since 2006. Silvani has a wide international experience gained in more than 70 years of activity all over the world and is operating as a system integrator, thus providing access to its customers to an extensive product portfolio through a single point of contact and delivering engineered solutions.

Silvani can offer a great variety of materials and services: ranging from mobile equipment to complex fixed systems; from engineering and design to on-site erection; from production to customer assistance for maintenance, repair and upgrading.

Silvani has protected on-shore and offshore systems of many chemical, petrochemical and energy-related industries, as well as a large number of oil jetties and harbours and its presence in the civil and military sectors is well established.

Silvani also manufactures a complete range of fire fighting vehicles for fire brigades and fire operators in industries such as petrochemical complexes and civil and military airports.

All activities are consistent with a Quality System that is certified and conforms to the requirements of:
- UNI EN ISO 9001,
- ISO 14001,
- PED (97/23/EC),
- ATEX (94/9/EC),
- MED (96/98/EC module B&D),
- CPD (89/106/CE),
- UL-162
- FM
- RINa

At Silvani, we are committed to deliver effective solutions, which help to keep people and property safe.

This responsibility has been a central tenet of our company and it’s why we work every day on improving our products and developing new technologies.

At Silvani, we have an obligation to our customers, employees, suppliers, and communities to deliver innovative and industry-leading products and services. In doing so, we measure our conduct against the highest ethical standards worldwide.

Protecting the health and safety of our employees, customers and the natural environment is a core value within Silvani.

Our policy requires that every behavior:
- strives to eliminate all employee injuries by making the workplace free from hazards,
- complies with legal and regulatory requirements and the policies, standards and practices of the corporation,
- establishes safety and environmental goals and the business plans necessary to achieve these goals,
- provides accurate and timely measurement and reporting of performance,
- implements and periodically evaluates systems and processes in order to reduce risks,
- integrates safety and environmental considerations into investment decisions, the design of services and products, and in dealings with suppliers and contractors.
Sikani has built up and established comprehensive and extensive engineering skills and Project management ability over many years of activity and has an extensive and successful track record in particular complex area of operations where Sikani excels in standards, quality, efficiency and commercial attractiveness.

- Oil & Gas Plants
- Petrochemical Plants
- Offshore
- Power Plants

Sikani is committed to provide fully comprehensive engineered solution to its customers, assisting them from the development phase till the after sales services.

Staff and organization

Sikani avails itself of qualified personnel with in-depth experience in their specialized fields, devoted to cover all managerial and technical disciplines:

- project management
- engineering
- procurement
- manufacturing
- testing
- construction supervision
- commissioning and start up supervision
- training and post sales service

Sikani HQ is based in Italy, where marketing and sales, administration, operations, engineering and procurement offices are based. Thanks to its representation offices worldwide, the HQ provides the regional units with all necessary assistance required to achieve Customers satisfaction through a successful project execution.

Project Approach

Project Management, Engineering Services, Procurement, System Integration and Testing are carried out at Sikani HQ, where the project is executed and controlled in compliance with customer specific requirements and with Sikani Quality Management System and Environmental Management System, thus assuring:

- uniform execution and quality,
- updated information about execution, progress, delivery and completion,
- successful coordination between all stakeholders,
- detailed engineering development having constructability as a design pillar for the proper exploitation of Safety, Quality, Productivity, Operability, Maintainability and Cost effectiveness.

A perfect matching leading to the design and delivery of efficient, operable, reliable and safe systems.

Training

Sikani provides Customized Training Programs for Customers personnel consisting of:

- Class-room Training
- Simulator Training
- Supplier Shop Training
- Host Plant Training
- On the Job Training at Site
Silvani is providing the largest range of Monitors.

- Materials (Carbon steel, Stainless steel, Bronze, Light Alloy)
- Available flow rates from 500 litres per minute up to 60000 litres per minute (depending on the monitor model)
- Complete range of operation modes:
  - Manual Operated (CV)
  - Self Oscillating (AU)
  - Electric Operated (TCE)
  - Hydraulic Operated (TCO)
  - Electric/Hydraulic Operated (TEO)
  - Radio or Water turbine controlled
- Single or multiple agents

Silvani monitors are adapted to a large span of applications (Tank farms, jetties, helidecks, offshore & marine...) and they are certified by major bodies. Silvani monitors are completely designed and tested internally in order to optimise all the technical characteristics (e.g. materials, hydraulic performance, pressure drops) and to maintain the maximum flexibility to adapt them for special customer requests.

Customised solutions and special arrangements available on request.

Silvani is proposing the full scope of fire fighting equipment, with special manufacture suitable for all the most aggressive environmental conditions such as offshore, artic and desert installations.

Silvani components and equipment are all designed and manufactured in accordance with recognised international standards and procedures like NFPA, UNI, GOST, NF, ARAMCO etc.

- Boxes for Fire Hoses and Reels
- Fire Emergency Cabinets
- Fast Attack Speed Motor Boat
- Fire Hoses
- Hose Reels Water & Water / Foam
- Packaged Solutions for Helidecks protection
- Portable Foam Inductor
- Portable Foam Branch-pipe
- Portable Motor-Driven Pumps
- Safety Equipment Cabinets
- Safety Showers
- Steam Branch-pipe
- Water Branch-pipe
- Water / Foam nozzles
- Wet & Dry Hydrants
- Wheeled/Portable Extinguisher

These equipment are developed at Silvani or can be sourced locally to match specific regulations.
These fire fighting systems are realised to be used during large-scale emergencies. They allow rapid intervention in any fire scenarios (industrial, chemical and petrochemical, marine, urban) where long throw and high capacity are indispensable. The pumping systems are more powerful than any other type of fire fighting system used (generally triple that of a fire truck). These mobile systems are among the largest in the world in terms of capacity, throw, and pumping distance.

Typical composing modules:
- Water intake and 1st boosting pump stage combined;
- Intermediary boosting pump stages(s);
- Delivering stage can be offered as an additional containerized boosting section with monitor installed on top or as a trailer mounted monitor;
- All these stages are interconnected via a dedicated flexible fire hose network with the aim to reduce materials involved and setup time.

Highly reliable, versatile and easy to operate
Silvani avails itself of qualified personnel with in-depth experience in their specialized fields, devoted to cover all managerial and technical disciplines:
- Stand alone and specially designed based on scenarios of full surface fires (and exposure protection) and can be operated from a safe distance with simple and fast deployment.
- Unlimited operation time, due to easiness of recharge (while in function).
- Booster pump for low pressure water supply systems and additional containerized boosting modules to allow water supply from either a natural source (through containerized submersible pumps) or the plant water main ring.
- Pump bypass for high pressure water supply systems.
- Stream or fog jet pattern (water or foam).
- Supply of foam to external equipment (low, medium, high expansion), either simultaneous to or independent from monitor operation.
- Water or foam flow capacity range from 8000 liters per minute up to 60000 liters per minute depending on monitor installed.

Cost effective
- One unit can protect more areas and the same truck can be used to transport different versions of the unit.
- The truck used to transport one unit can also be used for other services.
- Several versions can be carried by the same type of truck.
- No particular maintenance is required.

Achieved performances flow rate 40,000 lt/min
Silvani designs, assembles and delivers the full range of gas protection systems available on the market. All hydraulic calculations, piping route and detailed design are carried out internally using dedicated software tools certified by the major international bodies such as UL, FM, VDS.

Silvani systems are manufactured and delivered in accordance with different Local Approval and Standards (such as ARH, GOST, UNI EN, NFPA etc.) and with major bodies (UL and FM) listing or approval.

Summary of Silvani’s portfolio

**Argonite** is an inert gas blend of argon and nitrogen. Cylinders can be installed even over 100 meters away from the protected areas. System is available with stored pressure of cylinder with 200 and 300 bar and using directional valves then multiple protections of areas with single cylinders bank is possible.

**Inergen** is an inert gas blend of argon, nitrogen and CO2. Cylinders can be installed even over 100 meters away from the protected areas. System is available with stored pressure of cylinder with 200 and 300 bar and is possible used directional valve for multiple protections of areas with single cylinders bank.

**CO2** High and low CO2 pressure systems are designed to provide automatic discharge for a variety of hazards risk and directional valves to protect multiple areas with single cylinders bank can be used.

**FM200** is a Chemical gas for total flooding applications and it provides rapid suppression with a short discharge time and with a relatively small cylinder storage footprint.

Our offer includes High Pressure system, which is used for large volumes requiring longer agent flow distances and it is capable to reach up to 100 meters from cylinder bank.

**Novec** is fire protection fluid for total flooding applications and it provides rapid suppression with a short discharge time and with a relatively small cylinder storage footprint.

Novec fluid discharges as a colourless, electrically non-conductive and non-corrosive gas that does not damage sensitive equipment.

Silvani addresses the design and manufacture of Fire and Gas systems and equipment to Power, Petrochemicals, Oil & Gas and Industrial sectors. Thanks to its engineering expertise, Silvani has the ability to customize any system to perfectly match customer’s requirements in this critical area of safety supply and genuine support to major contracting project teams during feasibility, conceptual design, detailed design engineering, build and commissioning has been provided along the years.

Silvani systems are supplied fully certified and in compliance with the most recent prescriptions.

**Integrated Fire & Gas Systems**

Our system designs are based on customer specified PLC model and Addressable Control Panels as preferred. The component supports the option of either single or redundant system architecture for CPU and I/O modules, Communication Module and Power Supply, complete with operating station including graphic display pages. Silvani’s offer is completed with its own design Addressable/Conventional Fire & Gas Control Panel CS400R type.

**Addressable and Conventional Fire Alarm Systems**

Silvani provides systems in accordance with NFPA-72 and EN54. Whether it is a single fire panel or a more complex system composed of many local panels in a network, including communication capability to the Control Room DCS, Silvani engineering team is able to support customers to achieve the most efficient solution leveraging existing relationships with major instrumentation manufacturers.

**Fire & Gas Detection Systems**

As system integrator Silvani has access to sensors and monitoring detection systems capable to accommodate most applications and which are designed to operate in hazardous environments. The modular design of these products and systems provides a flexible approach and easy integration in every projects. They are built with best quality components/materials, thus providing the highest level of safety, reliability and protection.
Silvani designs and manufactures Low / Medium & High Expansion Foam systems. Silvani foam systems are all in accordance with recognised international standards and end-users basis of design like NFPA, UNI, GOST, API, SHELL, AGIP, TOTAL, EXXON, SAUDI ARAMCO etc.

**Mixing Systems**
- In line proportioner
- Bladder tank
- Balanced pressure proportioner
- Pump proportioner

**Customised skids**
- Storage tank area
- LNG area
- Unloading area
- Fuel storage & process area

**Customised and specific equipment**
- Foam storage tank
- Foam makers
- Foam monitor
- Foam nozzle
- Medium and High expansion foam generator
- Deluge foam skid

**Foam compounds**
- Proteinic
- Fluoroproteinic
- Syntetic
- Universal

One of the most common fire scenario for floating tanks is a rim fire and NFPA 11 standard requires foam chambers/pourers on the perimeter of the tank, which is effective but two weak points can be identified:

a. The rim fires, in the early stages, are relatively small and may be managed by a smaller water/foam application
b. The foam chamber system are often fed by the general tank-farm foam system, that is normally quite large.

This means : inertia, delay, damage to the rim and unnecessary waste of foam

In other words; a fire that may be extinguished by a small and quick system, causes a larger and slower system to go in operation. To address these negative points, RIMSEAL protection systems were introduced.

- “First strike” system is designed to extinguish small fires avoiding main foam discharge and rim damage;
- It must be SELF-STANDING (automatic operation without interaction with Control Systems);
- It must be EFFECTIVE on fire;
- It must be virtually MAINTENANCE FREE;
- ...and it must be CHEAP.

**Silvani Rimseal System**
- Employs a pre-mixed AFFF foam solution contained in the vessel (AFFF is preferred to FFFP for fastest performance and solution lifetime).
- The tank is pressurized with Nitrogen to nominal 25 barg.
- Completely self-standing: the fire detection is made by specifically designed detection pipe, synthetic material, that bursts at a given temperature. The pipe is UV resistant, chemical agent resistant, not subject to decomposition with time.
- The pressure loss causes the main valve to open.
- Designed to be gas tight for years under intermittent pressure condition (day-night).
- Modular design: a 250 litres vessel covers 40 metres rim circumference.
Silvani addresses specific project and customer requirements thus delivering systems suitable for all the most aggressive environmental conditions such as offshore, artic and desert installations. Silvani water systems are all designed and manufactured in accordance with recognised international standards like NFPA, UNI, GOST, API, FM.

Design, supply and production of:
- Deluge Systems Medium & High velocity
- Deluge Valves
- FF Pumps Skids & Preassembled Pumps Containers
- Preaction Valves
- Sprinkler system – Wet, Dry and Pre-action
- Water pump stations
- Water Mist Systems for Land & Marine applications
- Wet & Dry Alarm Valve for sprinkler systems
- Accessories

Silvani produces and supplies powder systems assuring the following major features:
- Automatic and manual control
- Suitable for onshore installations, marine applications (merchant and military ship), fire trucks
- Coped with remote control monitors
- Suitable for both dry chemical and special risk pow
Quality and effectiveness

People safety and assets protection first, these are the pillars of our service activity.
Our after sales service covers from on-call intervention till complete frame service agreements for preventive maintenance.

We serve and assist you in:
- Pre-commissioning & Commissioning
- Final acceptance test
- Technical consultancies
- Training
- Customer service
- Spare parts supply

All this with just one single interface, which has in mind maintenance costs optimization and the proper functioning of your system.

Our service and maintenance pillars

- Joint definition of the intervention program
- Tailored planning with the certainty to have available next to you all the expertise of Silvani’s technicians during periodical inspections
- System integrity check
- Fault detection and corrective actions

Customer Focus
Process Control
Supplier Partnerships
Continuous Improvement
Consistency of Purpose
Certifications

Customer is fully committed to the concept of Total Quality Management recognizing that business continuity can only be achieved by balancing and satisfying the needs and expectations of all its shareholders.


Silvani owners the following memberships:

- Silvani products/systems are manufactured in accordance with International Standards and Directives.
- Silvani and its products are and have been certified by the major bodies.

Quality and Environment

Customer is the final arbiter of product and service quality.
Facts, measurement and information are the basis for management.
Relationships with suppliers are based on mutual conﬁdence and integration.
Original thinking and innovation is encouraged and encountered problems are seen as opportunities to progress and learn.

Silvani adopts stringent Ethic Rules and Code. Integrity is key to our reputation in the marketplace: the way we behave builds our reputation.
Policy and strategy are deployed to ensure behavior is consistent with organizational values.

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Main References

Dear [Name],

Thank you for your interest in our [Product/Service].

To ensure that we meet your specific requirements, we have compiled a list of references for you to review. The list includes a variety of industries and locations, demonstrating our capability to deliver excellence across different sectors.

Here is a breakdown of the references:

- **REFINERIES / PETROCHEM**
  - BIR EL M’SANA (Algeria)
  - BIR SEBA (Algeria)
  - EL MERK (Algeria)
  - HAOUED BERKAOUI (Algeria)
  - HASSI R’MEL (Algeria)
  - IN AMENAS (Algeria)
  - CLOV (Angola)
  - GORGON LNG (Australia)
  - ICHTHYS LNG (Australia)
  - SHAH DENIZ (Azerbaijan)
  - HORIZON OIL SANDS (Canada)
  - ABU QIR (Egypt)
  - DAMIETTA (Egypt)
  - PORT SAID LNG (Egypt)
  - GASCO / BELAVIM (Egypt)
  - DONINGI SENIOR LNG (Indonesia)
  - TANGGUH LNG (Indonesia)
  - SOUTH PARS (Iran)

- **OIL & GAS**
  - WEST QURNA (Iraq)
  - ZUBAIR (Iraq)
  - ADRIATIC LNG (Italy)
  - KHASHAGAN (Kazakhstan)
  - MUSANDAM (Oman)
  - CLP RAS ALFAN LNG (Oman)
  - BARZAN (Qatar)
  - SAKHALIN LNG (Russia)
  - SSIP (Saudi Arabia)
  - YOLOTEN (Tukey/Maristan)
  - SHAH GAS (UAE)
  - SOUTH HOOK (UK)
  - KHARRIR (Ukraine)

- **POWER GENERATION**
  - MUJARRA TAWAR / CILEGON (Indonesia)
  - HUNSTOWN II (Ireland)
  - AL MANSURYA (Iraq)
  - AZITO (Ivory Coast)
  - AL QATRANA (Jordan)
  - AL SARIR / EL FEEL (Lybia)
  - SOWAN (Lybia)
  - AL WABA / RABIGH (Saudi Arabia)
  - JUBAIL (Saudi Arabia)
  - BASRAH (Iraq)
  - DAURA (Iraq)
  - KIRKUK (Iraq)
  - SAMAA (Iraq)
  - LARR MA / BATNA / TERGA (Algeria)
  - PARANA (Argentina)
  - PINJARRA (Australia)
  - KULNA (Bangladesh)
  - MEJILLONES (Chile)
  - NEHUENC (Chile)
  - SAN ISIDORO (Chile)
  - CHANG BIN & FONG DER (China)
  - EL GAMIL (Egypt)
  - DAULE PERIPA (Ecuador)
  - FORISSA RESERVE (Finland)
  - ALIVERI (Greece)
  - LAMMA (Hong Kong)
  - FEDERICO II (Italy)
  - MODUGO (Italy)
  - OKPAI (Nigeria)
  - SOCHAR II & BARKA II (Oman)
  - PARANA (Argentina)
  - PINJARRA (Australia)
  - KULNA (Bangladesh)
  - MEJILLONES (Chile)
  - NEHUENC (Chile)
  - SAN ISIDORO (Chile)
  - CHANG BIN & FONG DER (China)
  - EL GAMIL (Egypt)
  - DAULE PERIPA (Ecuador)
  - FORISSA RESERVE (Finland)
  - ALIVERI (Greece)
  - LAMMA (Hong Kong)
  - FEDERICO II (Italy)
  - MODUGO (Italy)

Along the years Silvani protected more than:

- 140 GAS PLANTS
- 90 OFFSHORE
- 70 OIL PLANTS
- 55 PETROCHEMICAL PLANTS
- 160 POWER PLANTS

Per the reference list above, we have successfully completed projects in all regions from [Region A] to [Region B]. Our expertise covers the entire value chain, from exploration to production, and we are committed to delivering high-quality solutions.

Please let us know if you require any further information or if you would like to discuss your specific needs. We are confident that our solutions will meet your expectations and exceed your requirements.

Thank you for considering Silvani as your partner in [Product/Service].

Best regards,

[Your Name]
[Your Position]
[Your Company]