



Solent Composite Solutions

Critical asset protection and loss prevention
with low life cycle cost



ProTek™ Fire and Blast
Restraint System
delivers process safety
compliance worldwide

www.solentcomposites.com



ProTek™
Passive Fire & Blast Restraint System

Passive Fire and Blast Protection

Re-defining the standards for fire and blast protection, thermal insulation and acoustic attenuation



ProTek™
Passive Fire & Blast Restraint System



Following the recommendations made as a result of the Piper Alpha disaster in 1988, a major research programme was conducted by the SCS technology team in cooperation with the British Gas Research Station Spadeadam, HSE Buxton, Warrington Fire Research and SINTEF Norway. Over £250,000 was invested in fire and blast tests to develop the ProTek™ restraint system, which has since been adopted in over 600 installations over the last 18 years by almost every major oil company for offshore and onshore facilities worldwide - particularly in the North Sea and the Arctic.

The widespread adoption of ProTek™ at the StatoilHydro Snøhvit LNG plant and Ormen Lange gas processing plant is testimony to the very high performance and compliance to the standards achieved - including NORSOK R-004 and ISO 22899 (formerly OTI 95634). Evaluation of composite materials adopting ISO 15663 demonstrates significantly lower life cycle costs compared with more traditional materials.

ProTek™ Quality Assurance and Certification

SCS design methodology for fire and blast enclosures has been certified by DNV. Fire and blast tests are witnessed and certified by DNV or Lloyds Register. SCS is registered by both Achilles JOS certification number 25494, and FPAL.



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Passive Fire and Blast Protection

Solent Composite Solutions has an unrivalled track record in the design and manufacture of ProTek™ jet fire and blast protection systems, which have been adopted for a wide variety of demanding applications in the offshore oil and gas sector protecting critical assets and personnel in hazardous areas including:

ESDV/Actuator protection

- Fire and Blast walls and doors
- Riser hang-off PFP
- Marine fire partitions
- TSR's, escape-ways and refuge areas
- Splash zone riser protection
- Offshore Modules

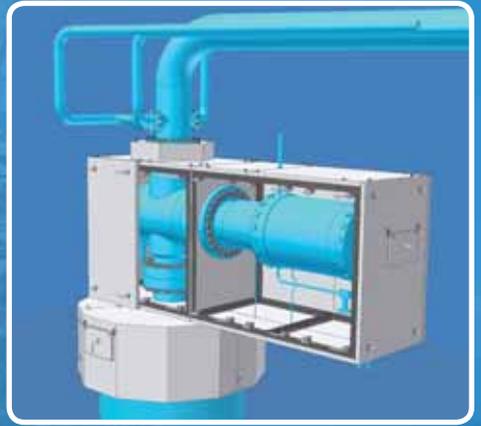
The ProTek™ system comprises composite multi-layer structural panels mounted on a corrosion resistant steel frame providing an extremely lightweight rigid structure, capable of managing severe blast and wind loads. The versatile modular design permits rapid on-site assembly to accommodate pipes, tubes, cables and other penetrations, even in very congested areas. ProTek™ is virtually inert, thus providing exceptional corrosion and weather resistance over a long life cycle - significantly higher than traditional soft jackets or spray-up systems, especially in the splash zone.

ProTek™ composite PFP enclosures have a projected design life in excess of 35 years in global climatic conditions. Zero maintenance is required, and equipment service is quick and easy via latched lift-off panels. No special skills, tools or equipment are needed and no hot work is required during installation, thus expensive shut downs are avoided.

Subsea

ProTek™ composite epoxy resin based structures have exceptional strength to weight ratio and are very stable and fatigue resistant over a wide range of conditions. This makes them ideal for subsea applications, particularly in deep waters, where ROV's are used for installation. SCS has many years experience in the design and manufacture of subsea structures and encapsulations that provide dropped object and over-trawl protection, including:

- SSBV enclosures
- Control pod housings
- Riser system components
- Secondary structures for deepwater risers
- Deepwater buoyancy
- Mud mats
- Lightweight well-head umbilical connectors
- Lightweight ROV tools
- High strength underwater grouting



ProTek™ Structure

Back, Glass/Epoxy Structural Laminate

Phenolic Insulation Core

Ceramic Insulation Core

Front, Glass/Epoxy Structural Laminate

Reactive Ablative Coating

White Gelcoat



Sample Projects



ProTek™ Fire Tests

The photographs below illustrate ProTek™ panels tested against a hydrocarbon fire in accordance with the Norwegian Petroleum Directorate. ProTek™ retains integrity and load bearing stability throughout the 2 hour test, fulfilling J120 rating for hydrocarbon jet fire and H150 hydrocarbon furnace fire.

In practice, critical safety equipment can be protected with ProTek™ for 2 hours at 65°C in a 1200°C jet fire without additional insulation, even after a blast of up to 1.5 Barg.

Over 600 offshore and onshore installations over the last 18 years with every major oil company

HAZARDOUS SIDE



BEFORE: EXPOSED SIDE



BEFORE: BACK SIDE



AFTER: EXPOSED SIDE
showing negligible damage



AFTER: BACK SIDE
panel integrity maintained



Client: StatoilHydro
Equipment: ESDV and actuator enclosure
Platform: Snøhvit LNG plant Melkøya



Client: Exxon
 Equipment: Riser hang-off covers
 Platform: Jotun Ringhorne Jurassic FPSO



Client: Woodside
 Equipment: ESDV and actuator enclosure
 Platform: Laminaria FPSO

ProTek™ Track Record

SCS has delivered risk-free ProTek™ fire and blast protection to the oil and gas industry since the early 90's, with an extensive track record in Norway and the North Sea. Blast resistance up to 1.5 Barg and over 2 hours jet fire make ProTek™ the natural choice for risk mitigation in hazardous areas. ProTek™ is fully weather resistant to worldwide conditions in any environment, being entirely impervious to water absorption and atmospheric corrosion with no pollution risk to water or air. Sound attenuation of up to 38 DB noise reduction complies with the latest NORSOK standard.

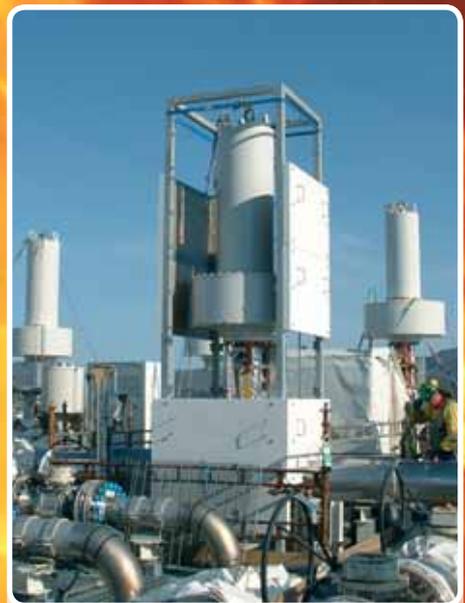
SCS couples advanced composite engineering technology with robust project management that ensures timely delivery, consistent high quality and the lowest life cycle cost in the industry.



Client: StatoilHydro
 Equipment: ESDV enclosure
 Platform: Snøhvit LNG plant Melkøya



Client: StatoilHydro/Shell
 Equipment: Blown down valve protection
 Platform: Ormen Lange gas plant Nyhamna



Client: StatoilHydro
 Equipment: ESDV and actuator protection
 Platform: Snøhvit LNG plant Melkøya



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COMPOSITES TECHNOLOGY EXPERTISE

Pioneering innovative designs in composites has been a hallmark of SCS' competence since 1992. High performance structures using epoxy, glass and carbon laminates have provided unique engineered solutions in many demanding industries - energy, aerospace, defence, construction, automotive and marine. Today SCS focuses largely on energy - fossil fuels, renewables - wind, wave, tidal, and nuclear. Advancing material and process technology in composites continues to allow SCS to achieve performance levels not easily obtainable with traditional materials. SCS employs FEA and other advanced modelling techniques to optimise design, engineering and final performance.



**Technical integrity with long service life
- risk management at acceptable cost**



Our heritage, your reassurance

Solent Composites Solutions are leaders in the design and manufacturing of innovative structural composite systems for the offshore oil & gas industry. High performance composite technology and a quality driven heritage enable SCS to deliver high value, risk free solutions in one of the most demanding sectors in the energy industry. SCS has a DNV certified integrated management system (IMS) including ISO 9001 Quality, ISO14001 Environmental, and OHSAS 18001 Health & Safety.

For more information please contact:

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