No hot work and low heat solutions

SPS no hot work composite repair is not a new concept. SPS is a permanent, class approved reinstatement and strengthening solution used for no hot work and low heat composite repairs since 2003.

A no hot work or low heat SPS installation solution, or a mixture with some hot work in permissible areas, will be selected when responding to a client's requirements. The most suitable method is specified based on the loading and environmental conditions.

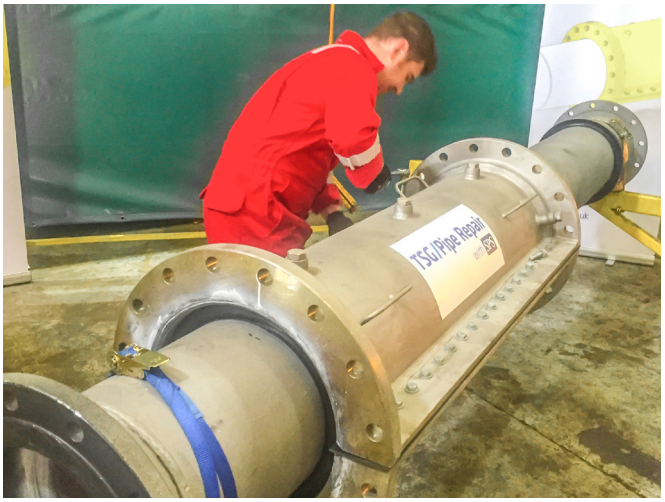
SPS uses existing plating as one side of a new steel composite panel created by a new top plate, perimeter bars and an elastomer core. The resulting panel fully restores or enhances the strength of the original structure.

No Hot Work

Structural adhesives are used to fix perimeter bars to the existing plating. With the absence of welding, adjacent sensitive areas remain in use during the reinstatement. The cured elastomer securely bonds the top plate to reinstate or even strengthen the original structure. Bolted solutions have also been designed and installed in projects.

Pipe Repair

TSG/Pipe Repair with SPS is a permanent class-approved pipework repair solution used where structural integrity, containment or protection against corrosion is needed. This no hot works bolted design is a very cost-effective alternative to pipework replacement and is a permanent solution. Installation is carried out in-service by a small specialist team with no requirement to break containment of the original pipework.



Low Heat Solutions

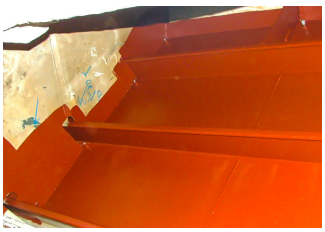
In these low heat solutions, perimeter bars are not welded directly to the existing plating but to the adjacent structural members (e.g. bulkheads, web frames, stiffeners) or alternatively fixed to the existing plating using structural adhesives. A combination of the two techniques can also be used.

Cruise Ship Pacific Star

This repair was carried out whilst the vessel was in service. Perimeter bars were adhered to the tank top using an engineered structural adhesive and top plates were welded from above on top of the perimeter bars. Welding directly to the tank top plating was not permitted due to the fuel oil tanks below.

LNG Carriers

A low heat method that kept all welding away from the inner hull plating to eliminate the risk of damage to the cryogenic membrane containment system was used for these SPS repairs. A conventional repair required cropping the structure by drilling or grinding (as no flame cutting on inner hull is allowed) and replacing areas of plating and associated structures in a temperature controlled environment.



Below the Waterline Repairs

When considering below the waterline repairs cofferdams, dive vessel teams, high costs, long schedules and unnecessary risk spring to mind. SPS is a permanent class-approved method of below the waterline shell plating repair, undertaken from inside the platform. The process requires no cofferdams or divers and costs a fraction of conventional repair methods.

Balmoral FPV

The Balmoral FPV is a semi-submersible production vessel operating in the North Sea. SPS was used to reinstate the bottom shell plating that had suffered pitting corrosion in the pontoon thruster and pump rooms. A low heat method was utilised, avoiding water-backed welding to the shell plating that would be vulnerable to hydrogen induced cracking. The repairs works were completed from the inside pontoons whilst the rig remained afloat, in-service without taking the platform off-station, considerably reducing cost.