



## WELDING STRESSES

The problem of welding stresses at the heat affected zone has been tackled by a variety of means and their success varies. Thermal or mechanical stress relieving reduces residual tensile stresses, but has less effect on applied stresses.

Hammer or needle peening are techniques adopting the same principles of shot peening but the significant difference between them are the process controls so consistency and coverage are a problem. Shot peening has been developed to become a reliable production method.

A welded area will benefit from controlled shot peening, however a greater benefit can be achieved by peening a dressed

weld. This is because the areas of stress concentration have been reduced and impurities close to the weld surface have been removed.

## CORROSION FATIGUE / STRESS CORROSION CRACKING

Stress corrosion cracking is a progressive fracture mechanism in metals caused by the simultaneous interaction of a corrosive environment and a sustained tensile stress. Failures are often sudden and unpredictable and may occur after a few hours, months or years. Stress corrosion cracking generates from static tensile stresses which may be residual or applied, whereas corrosion fatigue comes from cyclic tensile stresses.

Compressive residual stresses can be used to prevent or delay both stress corrosion cracking and corrosion fatigue. The application of controlled shot peening will induce a deep layer of residual compressive stress to establish defect or damage tolerance necessary to resist in service problems.

## SITE WORK

Controlled Shot Peening is applied to many structures on site for the chemical, oil and gas, highway and construction, power generation, aerospace and other large transport industries.

The controls mentioned earlier are applied in all of these situations. Media is taken to site and examined initially and continuously to ensure the desired profile of residual compressive stress is maintained. We have portable machines to impart the necessary level of intensity required for site work on welded structures. For coverage inspection, fluorescent dyes can be effectively applied on-site using low voltage equipment and suitable localised enclosures.

We are completely self-sufficient in manufacturing our own tools and are able to adapt or build equipment to suit.

We ensure our onsite teams are experienced in health and safety regulations for field work for all key industries.

Please view our website [www.cwst.co.uk](http://www.cwst.co.uk) for all facility contact details worldwide.

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