Abstract

Cracking of hexagonal brass connector of a boiler tubing assembly caused leakage and interruption of the function of a water heating circuit. Destructive damage was provoked after two years in service. Visual examination, light and scanning electron microscopy coupled with local elemental energy dispersive X-ray spectroscopy (SEM/EDS) were used as the principal analytical techniques for the present investigation. The collected investigation findings suggest that failure was induced via progressive cracking, attributed probably to fatigue initiated from surface flaws existed on the thread root surface. Recommendations mainly concerned revision of the alloy selection and quality assurance of tubing assembly procedure during installation.