

# **An experimental study on quasi-CW fibre laser drilling of Hastelloy- X Alloy**

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HASTELLOY X is a wrought nickel base alloy with excellent high temperature strength and oxidation resistance and this alloy is one of the most widely used nickel base superalloy for gas turbine engine for combustion zone components such as transition duct, combustor cans, spray bars and flame holders as well as in afterburners. Laser drilling of cooling holes in this alloy is well established however, this alloy exhibit a relatively high susceptibility to microcracking in the recast layer with cracks often extending into the parent material (also referred to as base metal).

In this work, a parametric study was performed to investigate the crack behavior of Hastelloy- X alloy during trepan and percussion drilling respectively.