

IMPROVING PART DESIGN PROTECTS CUSTOMER FROM JOINT FAILURE

ONE KEY COMPONENT OF THE FIELD ENGINEERING PHILOSOPHY IS TO ALWAYS PROMOTE THE BEST FASTENER DESIGN PRACTICES. OTHER DISTRIBUTORS MAY SIMPLY SUPPLY PARTS "TO PRINT," FIELD OFTEN TIMES WILL IDENTIFY WAYS TO IMPROVE THE DESIGN OF A PART.

CHALLENGE

While at a customer facility, a Field team member observed that a percentage of double ended studs were exhibiting external strip out during assembly. This resulted in the entire sub assembly having to be scrapped.

The Field team member also observed an issue where a similar double ended stud was exhibiting brittle fracture several hours after assembly in a different application.

SOLUTION

After examination of the applications it was determined that both parts were used in similar applications and had the same assembly torque and the same mating hex nut. It was further discovered that one part was made from un-heat treated steel and the other was neutral hardened then zinc plated. The Field team performed tests on both parts to determine a solution. After testing, Field recommended both parts to be manufactured to SAE J429 Grade 5 standards and to remove the hex nut as it provided no benefit.

RESULTS

Manufacturing the parts to SAE J429 Grade 5 standard increased the strip out resistance and the ductility of the fasteners, while improving the safety factor from 1.2in lbs to 75.1in lbs. It also reduced the susceptibility of hydrogen embrittlement failures.

FIELD SERVICES PROVIDED

Product Redesign
Application Problem Solving
Testing



More than parts, Field is a full-service, data-driven, on-demand engineering partner with a unique technical approach to inventory management of, and supply chain solutions for, fasteners and other Class "C" items—contractually guaranteeing to lower your total cost of fastening.