

Influence of thread geometry on the performance of retaining anaerobic adhesives

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Abstract-

The main aim of this work is to study the influence of the geometry of screws on torsion tests when they are retained with adhesives. The geometry of different types of screw threads has been studied, measuring theoretical and real length values to determine the stress undergone by the thread when tightened and/or retained by anaerobic adhesives. Three kinds of joints are subjected to a torsion test to determine their loosening torque. According to their torque, joint loosening load as well as generated stress can be calculated. When tightened, the real contact area is observed to be lower than the theoretical area, and real stresses are therefore higher than the theoretical ones. The same can be observed when only adhesive is applied; the real bonded area is lower than the theoretical, while higher real stresses than theoretical are observed. When adhesive and tightening are combined, the stress due to the influence of the adhesive is calculated, since the strength ratio attributable to either friction or adhesion remains unknown. These can only be determined through the measurement of real thread dimensions.

Index Terms- Anaerobic adhesives, Screw, Torsion test, Real contact area

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