Design and analysis of DTH drill bit

ABSTRACT:

DTH is short for “down-the-hole”. Since the DTH method was originally developed to drill large-diameter holes downwards in surface-drilling applications, its name originated from the fact that the percussion mechanism followed the bit down into the hole. Applications were later found for the DTH method underground, where the direction of drilling is generally upwards instead of downwards. Today, DTH drills are developed to drill faster and deeper. As these types of drills are often used in quarry mines, it is within this industry that they are becoming more advanced.

 The present work is directed towards the modeling of DTH drill bit in solid works and the bit is analyzed in solid works simulation tool for the von misses stresses, strain developed, resultant deformation and areas below FOS=1 for pressure loading by applying two different type of materials namely alloy steel and titanium alloy .finally the best material is selected for DTH drill bit based on the results.