

Cold open–die steel forging is a fundamental manufacturing process that has been a linchpin of various industries for centuries. It involves the deformation of a solid steel workpiece by compressive forces applied using open dies, producing intricate shapes and components used in critical applications such as aerospace, automotive, construction, and energy sectors. The process is characterized by severe plastic deformation and complex material flow patterns, making it vital for designers and engineers to gain a deep understanding of the mechanics involved in order to optimize the process. The software package Abaqus Explicit is at the forefront of numerical simulations for dynamic and transient events such as cold forging.