ADDITIVE/SUBTRACTIVE MANUFACTURING

TOOL & DIE

CONCEPT Tool and die are critical components in both additive and subtractive manufacturing processes. In additive manufacturing, tools and dies are used to create molds or patterns to form 3D printed objects. In subtractive manufacturing, tools and dies remove material from a workpiece to create the desired shape or form. This process can involve various cutting tools such as drills, lathes or milling machines, which are designed to remove material from the workpiece in a precise, controlled manner.

BACKGROUND

The history of Tool & Die can be traced back to the early days of human civilization when stone tools were first created. Over time, the use of tools evolved and became more sophisticated, leading to the development of metalworking techniques and the creation of precision tools and dies. In the early 20th century, the advent of mass production and the rise of the automotive industry led to a significant increase in demand for precision tools and dies. The introduction of computer-aided design and manufacturing (CAD/CAM) technologies in the 1980s and 1990s revolutionized the field, making it possible to design and manufacture complex parts with a high degree of accuracy and repeatability. The advent of additive manufacturing in the 21st century has further expanded the capabilities of tool and die makers, making it possible to create complex geometries and customized parts in a wide range of materials.

REAL WORLD CONNECTIONS

One example of Tool & Die in Nebraska is the production of agricultural equipment by companies such as John Deere.