

CNC Machining of Automotive Parts

Application Note

Southland CNC of Cornelia, Georgia, is a second Tier supplier to the automotive industry, providing machined components to all three American and the six largest foreign auto manufacturers.

The company which was started 13 years ago in President/Owner Keith Armour's garage on a single machine, has now grown to 21 high-capacity machining centers.

Southland machines a mix of parts that include production runs of very high volume and other production runs of relatively low volume. Southland uses dedicated hydraulic clamping fixtures for its high volume production runs because these fixtures greatly decrease production time. These fixtures also provide clamping pressure that is consistent and repeatable, which improves machining accuracy.

Problem

The customer-supplied fixturing Southland had been using was not providing the efficiency needed to meet cost and schedule goals for the high volume production run. They needed a new fixture that would reduce cycle time with faster load/unload times, error-free loading and which would result in less scrap.

Solution

Southland chose Advanced Machine & Engineering Co. (AME) to provide its first tombstone hydraulic fixture because the fixturing solution was competitively priced and specifically designed by AME engineering to fit Southland's production needs and efficiency goals.

The fixture, which provides automatic clamp and release, is designed with locating dowels to assure error-free handling. Each component to be machined is handled only twice: once as it is loaded into the fixture, and a second time as it is unloaded. Because the fixture is a windowed fixture, the component is completely machined on all four sides without additional handling.



Front and back views of AME's dedicated hydraulic fixture for Southland CNC show the window feature that allows machining of all four sides of the part without additional handling.

The initial application of the fixture reduced Southland's cycle time by nearly forty percent with its faster and error-free parts loading, which allowed Southland to meet the high production volume without additional machines. Keith Armour, President/Owner, stated that the AME-produced fixturing has been very reliable. One fixture was in operation 20 hours a day, five days a week for more than two years without a single problem. Because of this reliability and the cooperation and innovation AME provided, Southland added a second fixture that is used on the vertical machine centers, and a fixture dedicated to horizontal machines.

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