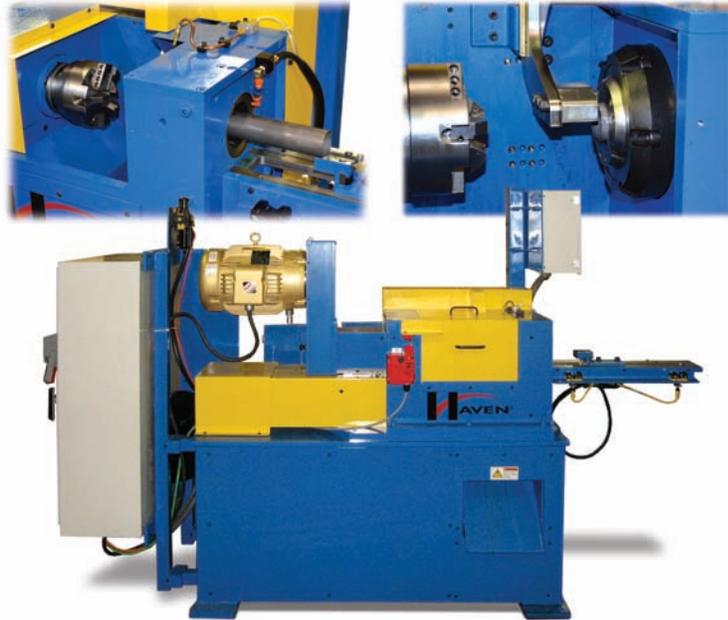




"We needed better control and Haven was able to work with us to provide a machine that gives us that control."

David Anderson, Advanced Manufacturing Engineer, Tenneco Hartwell

Tenneco Kettering relies on Haven's end finishing technology to custom build a Single End Tube Finishing Machine



Background

Tenneco is one of the world's leading designers, manufacturers, and distributors of emission control and ride control products and systems for the automotive original equipment market as well as for the automotive parts aftermarket. Since becoming an independent company in 1999, Tenneco has consistently focused on harnessing leading-edge technology, utilizing their manufacturing expertise, and focusing their dedication to the customer and customer service to solidify its leadership in the global automotive supply industry. With over

24,000 employees working in over 80 manufacturing and 14 engineering centers around the globe, Tenneco has earned its reputation as both a leader and an innovator in the automotive industry. Many familiar and respected automobile manufacturers around the world rely on Tenneco to supply quality products with consistent high quality at competitive prices. Tenneco is constantly searching for new ways to better serve their customers and to deliver the consistent high quality at a fair price that those manufacturers have come to expect from them.

INDUSTRY

Automotive Industry Supplier: Designers, manufacturers, and distributors of emission control and ride control products and systems

HAVEN APPLICATIONS

Single End Tube Finishing Machine

SUMMARY

Although still in the product launch phase of the new manufacturing process, Studebaker is pleased with the results he has achieved so far. "We needed better control and Haven was able to work with us to provide a machine that gives us that control!"

Features of the Haven Single End-finisher:

- Servo ball feed control
- Programmable feed parameters from the operator's panel
- Feeding motion includes "peck feed" for breaking chips (pecking cycle)
- Multi-functional capability
 - Reduce the outside diameter for a distance of 1.0"
 - Counter bore tube I.D.
 - Standard ID/OD chamfer and end face
- Precision Microcentric collet part clamping
- Electric motor driven spindle with AC frequency variable speed drive
- Maximum tube diameter of 2.5"
- Allen-Bradley CopactLogix processor and Panelview Plus 6" operator interface
- All electric controls, no hydraulics
- Compact design ideal for cellular manufacturing (just-in-time)

About Tenneco Kettering

Manufacturing Plant
Kettering, Ohio

Line of Business

Emission control and ride control products and systems

Target Markets

High end sport/luxury vehicles

Haven Customer Since 2008

Haven Products in Use

- Single End Tube Finishing Machine
- Pressure Tube Ballizer

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“During the design process Haven was very communicative and easy to work with”

Paul Studebaker, Advanced Manufacturing Engineer, Tenneco Kettering



Challenge

Last year Tenneco was approached with an opportunity to capture additional market share by supplying ride control products for one of the leading manufacturers of high end sport/luxury vehicles at one of their state-of-the-art North American manufacturing facilities. A major challenge that the opportunity presented was the higher tolerances that the potential customer required in the manufacture of their shock absorbers. Paul Studebaker, Manufacturing Engineer for Tenneco's Kettering (Ohio) manufacturing plant, has worked in several capacities of increasing responsibility in the Kettering facility since he graduated from Wright State University near Detroit with a degree in Systems Engineering. Throughout his 20+ years in the automotive parts manufacturing business, he had not been required to produce a product with the demanding tolerances that would be required to meet this contract's specifications. He welcomed the challenge and began researching new methods and manufacturing equipment that would help him meet those high specifications.

As part of the process of researching equipment that would meet their needs, Studebaker spoke with David Anderson, Advanced Manufacturing Engineer in charge of tubing capacity for ride control at Tenneco's Hartwell (GA) manufacturing plant. Anderson had used Haven Manufacturing's equipment since the late 1970s with excellent results. According to Anderson, they stick with Haven because, "we have had very good results with the durability of Haven machines." He also

cites the quick changeover and the high output of his Haven equipment as major factors in his recommendation of Haven for the Kettering plant. Studebaker was familiar with Haven equipment and had actually purchased a used Haven machine for another manufacturing process in the Kettering plant after seeing it in use at one of the company's Canada facilities. He had been impressed with the durability and output of the Haven manufactured equipment and decided to move forward with Anderson's recommendation.

Haven Solution

Working with Studebaker and Anderson, Haven Manufacturing was able to design a custom built "Single End Tube Finishing Machine." One of the concerns that Tenneco had about the manufacturing process for the new product was the thinner walled tubes that would need to be processed. Tenneco believed that the Haven design would give them better control for the "neck down" chamfering and finishing process during the manufacture of the outer housing of the shock absorber and to help assure that the housing remained within the tolerance established by their customer. Studebaker is quick to note that, "during the design process Haven was very communicative and easy to work with." Adding that when he visited the Haven manufacturing facility in Brunswick (GA) he asked for "a few small modifications" and Haven was very quick to comply.

Other notable features of the Haven Single End-finisher include:

- Servo ball feed control
- Programmable feed parameters from the operator's panel
- Feeding motion includes "peck feed" for breaking chips (pecking cycle)
- Multi-functional capability
 - Reduce the outside diameter for a distance of 1.0"
 - Counter bore tube I.D.
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Integrated Tube Processing Systems

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