

HavenTrak™ Flying Shear Tube Cutting

Overview

Today's highly competitive metal tube market calls for tube manufacturers to find innovative, yet economical, solutions to meet their customer's increasingly difficult demands. Metal tubes are a vital part of countless industrial and consumer products. Defense, aerospace, furniture, automotive, HVAC, medical, fitness and recreation are just a few of the industries

that rely on metal tubes. The number of applications increases daily, as does the requirement for high quality and competitive pricing. Successful tube manufacturers need the means to meet these expectations while controlling production costs.



SUMMARY:

The HavenTrak™ Flying Shear tube cutting machine is the economical, precision cutting solution tube manufacturers need to remain competitive in the global marketplace. This cutting system has furthered Haven's global reputation for over 50 years of innovation, reliability, quality, and cost savings. The HavenTrak™ minimizes cost by providing an accurate and distortion free cut that eliminates the need for secondary operations. This system is simple to operate, easily maintained, and built for longevity. The HavenTrak™ Flying Shear tube cutting machine also has the highest return on investment of any competitive system. Visit Haven Manufacturing's website, www.havencut.com, to learn how very satisfied customers rely on Haven to meet their service requirements and achieve their profitability goals.

Challenge

Successful tube manufacturers know the importance of offering customers quality tubing at a competitive price. Tube manufacturers face the challenge of providing competitive pricing by controlling costs to achieve the profitability objectives needed to reinvest in their business. Every piece of mill line equipment must offer value through superior performance, cost-savings, and durability. The process must be efficient and

accurate, eliminating the need for secondary operations. Also, each component must be designed to fit seamlessly into the mill line to minimize integration time and cost.

These challenges continue to pressure companies throughout the global marketplace. Manufacturers require a high quality, low cost cutting system to precisely cut tubes to mill length. The cutting machine must control costs

by reducing material loss and providing a distortion free cut which requires no further processing. The system must be quick and simple to configure, requiring less expensive machine operators. The machine must also be easily installed and maintained. Finally, the cutting system must be of solid construction and built for long-term reliability.

Solution

Haven Manufacturing, the world leader in Dual-Blade Shear cutoff technology, has partnered with Universal Controls Group, creator of the revolutionary U-Trak™ closed-loop length control system, to develop a product uniquely suited to meet the challenges of minimizing cost and maintaining quality. The HavenTrak™ Flying Shear tube cutting machine is designed to accurately and cleanly cut metal tubing while reducing production costs. The HavenTrak™ solution is the innovative combination of Haven's Dual-Blade Shear cutoff head, propelled by Universal Controls Group's U-Trak™ Length Control System.

The U-Trak-HD™ roller screw bridge accelerator accelerates the Haven cut head to mill line speed. The 75mm precision roller screw is reinforced with heavy duty end bearing support units which provide increased accuracy. The roller screw is coupled to a closed-loop servo motor. A separate encoder tracks the configured length and mill line speed for the accelerator system. Once the accelerator has matched the Dual-Blade Shear cutoff head speed with mill line speed, the cutting cycle begins.

To describe this innovative cutting method in more detail, first a clamping die secures the tube. The clamping die is designed for the specific tube shape, to prevent damage to the tube and to maintain close length tolerance. A hydraulic cylinder provides the die clamping function and a separate dual-acting hydraulic cylinder controls the stroke for the cutting motion. This unique system adapts by using low pressure for thinner wall tubes and shifts to high pressure for greater wall thickness.

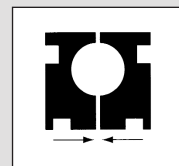
Dual-blade Shear cutting is a series of two mechanically synchronized steps, referred to as "nick and shear". First, the horizontal "nick" blade shaves a flat groove across the top of the

tube. Next, the vertical "shear" blade enters through the groove and shears the tube clean with minimal burr. The material removed by the shear blade collapses onto itself and is then pushed downward until it clears the tube and deposits onto a scrap conveyor. After the cut, the clamping die opens and the accelerator returns the cut head to home position to begin a new cycle.

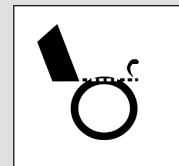


Universal Controls Group's U-Trak™ closed-loop length control system.

Dual-Blade Shear Cutoff Technology



Clamping dies hold tube securely to prevent damage and maintain close length tolerance.



Horizontal blade makes initial scarfing cut as vertical blade begins to descend.



The vertical blade enters through the scarf and shears the tube clean and burrless.

Benefits and Future

The HavenTrak™ Flying Shear tube cutting machine offers greater precision and value. It has a cut length tolerance of ± 0.010 inch (± 0.25 mm). The U-TRAK™ control system offers a cycle rate of up to 31 CPM and a maximum mill speed of 250 FPM, depending on wall thickness and part length. Additionally, the heavy duty roller screw design maintains accuracy, rigidity, and low friction throughout every cut cycle.

The HavenTrak™ technology produces a clean cut, eliminating the need for a secondary

de-dimple operation. It is easy to maintain, with simple tool change and access to all areas of the machine. The durable Dual-Blade Shear cut head is a standard Haven design featuring quick change tooling, automatic lubrication and a micro-mist blade cooling system. The hydraulic controls feature non-proprietary, stock industrial components. The U-Trak™ controls are easily configured and operated with a touch screen control panel and intuitive menus. Universal Controls Group offers off-the-shelf programming

modules for easy upgrades and system integration. The HavenTrak's compact design is easily installed and the entire unit can be moved by forklift.

The HavenTrak™ Flying Shear tube cutting machine is constructed to Haven's high standards for durability and quality. Haven's machines are known internationally for reliability, highest uptime, and lowest total cost of ownership of any competitive cutting system.

Call us today 912.265.7536



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