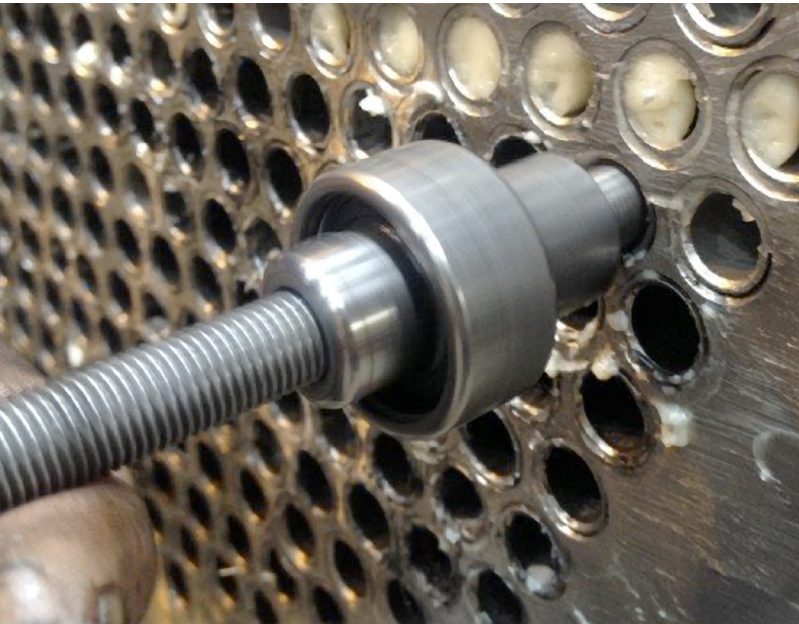


Production Trial Results In 4X More Tool Life Than Airetool Expanders



QUICK SUMMARY

The Challenge

- Quickly produce consistently high quality vessels for customers.
- Decreased tool life, inconsistent quality and poor vendor service were increasing production costs.
- Find a better solution to meet their customer's demands and reduce costs.

The Solution

- Head to head production trial comparing Elliott's 24 Series with Airetool expanders.

The Results

- 1,040 expansions from the 24 Series without any breaks and minimal wear.
- 3-4 times better tool life with the 24 Series.
- Faster expansion times compared to Airetool.
- Less downtime replacing broken tooling.

The Challenge

A major US based heat exchanger manufacturer, requires consistent and reliable tool life and quality in order to meet their customers' demands and produce satisfying results.

The manufacturer has been dealing with the challenge of unacceptable tool quality and declining service levels from their primary and secondary expander vendors. Decreased tool life, inconsistencies in expansion and poor service increase production costs and are points of pain for the manufacturer.

Shorter tool life results in a decrease in their productivity as the operators must

stop the job to replace the mandrels and rolls when they wear or break. Inconsistencies in the target ID were frustrating and might result in rerolling and additional time added onto a job. Lastly, the declining service levels – including increased lead times and lack of availability for their tube tool needs – were sources of frustration to the manufacturer as they met their commitments to customers.

The Corporate Manufacturing Engineer was ready for a better solution. He decided a trial comparing their current primary vendor, Airetool, with Elliott would help decide if a vendor change would increase their tool life and productivity.

The Solution

To determine if the manufacturer could gain tool life and increase the quality and consistency in their expansions, the Corporate Manufacturing Engineer requested a trial to compare Elliott's 24 Series Condenser Expander with their current vendor in demanding applications that would test the tooling.

The scope of the production trial was oriented toward tool life and expansion consistency. The 24 Series was specifically designed to provide the longest tool life of any condenser expander.

The expander being tested was an Elliott 24 Series 24230 for 3/4" outside diameter

carbon steel tubes. There were 1040 expansions. A custom stocking program was created that utilized a local reseller to provide the manufacturer with local inventory suited to their needs.

The Results

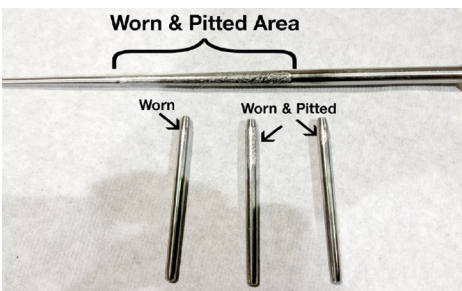
After 1040 expansions, the Elliott expander experienced no mandrel breakage and very minimal wear and could have been used for further expansions.



However, the Airetool mandrel broke after 345 expansions, requiring 35 minutes of work to extract the mandrel, and the rolls required replacement.



After another 89 expansions, the mandrel required replacement again. After the job, final inspection of the Airetool expander revealed that the mandrel and rolls were severely worn and would need to be replaced before the tool could roll any further.



After 1040 Expansions	Cages Consumed	Mandrels Consumed	Rolls Consumed
Elliott	0	0	0
Airetool	0	3	4

“Airetool’s tool usage was much higher than Elliott’s for the same number of expansions and Elliott’s 24 Series came much closer to the target ID with more consistent results.”
- Corporate Manufacturing Engineer

The Elliott tube expander completed the same number of expansions without consuming any spares or displaying any significant wear, greatly outperforming Airetool.

Elliott’s expander came much closer to the finished target ID of .0180 and achieved more consistent results. The manufacturer also experienced increased productivity and time savings. When a roll or mandrel appears to fail, the inspection process takes at least 15 minutes – provided none of the tubes were damaged. In the case of catastrophic tool failure, such as a mandrel breaking during expansion, the entire tool can become stuck, which required extraction that took 35 minutes – although this can take much longer and can also result in damage to the tube.

Cycle times were also shorter for the Elliott expanders. The Elliott tooling expanded tubes during the first step in an average of 8 seconds. The competitor’s tooling was slower, expanding tubes during the first step in an average of 9.5 seconds.

During the trial, the Corporate Manufacturing Engineer and his team achieved significant improvement in tool life, more consistent results, an increase in productivity and time savings. Between less tool replacements and faster cycle times, the manufacturer was able to save significant production time by using the 24 Series Expanders.

In addition, Elliott’s service quality was much greater than their current vendors. Elliott’s technical knowledge and ability to solve tube tool challenges was a great asset to the manufacturer. Elliott’s customer stocking program was designed to assist them in controlling their inventory. Due to these benefits Elliott was able to provide, this major US heat exchanger manufacturer has switched to Elliott for their expander needs.

