Case Study

Heater Inspection of Plug Headers: Flexibility, Engineering, and Data

Introduction

One of Intero Integrity Services key customers requested Intero internally inspect heater tubes with plug headers. Intero developed a custom plan to accommodate a complete cleaning and inspection program for heaters with regular 180˚ bends combined with plug headers. Through application engineering, Intero modified its current intelligent inspection tools to successfully complete the project.

Furnace Characteristics

- Visbreaker
- 4 passes
- Aprox 560 mtr per pass
- 9 plugheaders per pass

Results

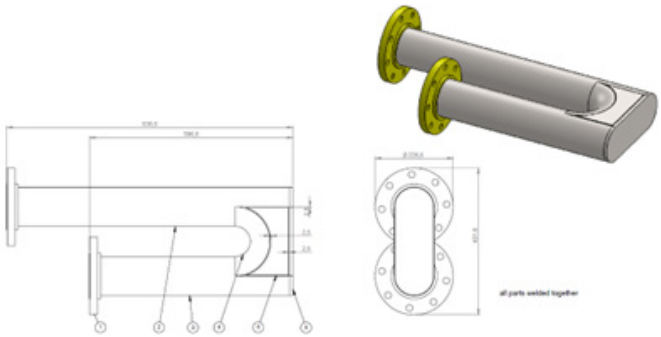
- Inspection executed with success
- Inspection results reported in color detailed corrosion profile maps
- Local thinning detected in tubes

The Challenge

Most operators and service providers can easily clean and inspect standard heaters with a single diameter tubes and u-bends. More specialized configurations such as plug headers, boxes, horseshoes, and reducers require more detailed evaluation and planning.

While common, most companies find the cleaning process for plug header heaters far from easy. The process requires skilled and experienced personnel. Intero's continuous endeavor to find smarter solutions over the decades has resulted in multiple options for efficient cleaning of furnaces. At Intero, we not only have the expertise but also the tools and technology to clean and inspect any piggable heater, no matter the design.

For example, prior to carrying out this inspection at our client's refinery, Intero built a test loop at our research and development facility in Tricht, The Netherlands. Our customer was not able to provide the original plug header, so we designed a replica version with identical internal dimensions. We then performed test inspections to prove passage through the plug header bend with the modified Intero inspection tool.

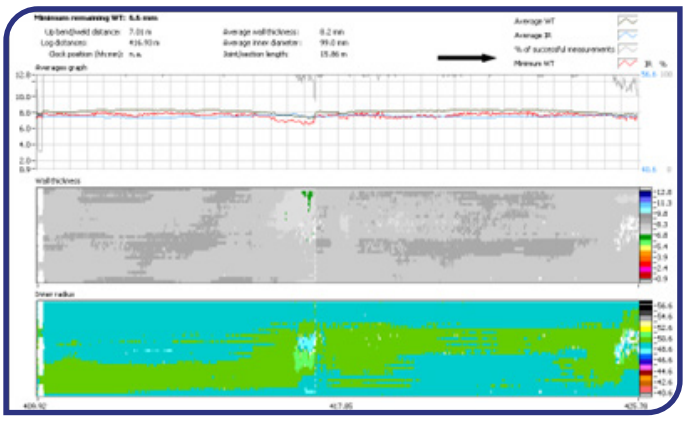


After testing multiple setups, modifications, and unit variables; we developed a successful method for the on-site furnace cleaning and inspection of our client's plug header heateres.

With state-of-the-art equipment, well-designed procedures, as well as experienced operators, Intero provided a flawless solution to a complex case.

During the "live" inspection of the heater at the client's premises, Intero executed the test scans in less than an hour per pass, with no problems. Our client was extremely pleased, as other contractors failed on multiple previous attempts.

Below is an image of data output from the inspection:



Advantages

- Access to engineering group with decades of heater inspection experience.
- Tools designed for flexibility and ability to modify for special applications.
- Reduced risk and increased confidence from testing offsite, and proving the concept.
- Customized solution for specific heaters and clients.

sales@intero-integrity.com
www.intero-integrity.com