

Decoking with Bespoke Pigs



A CASE STUDY

Controlled by our experienced team of operators, Cokebusters patented scraper pigs have been shown to cut through coke with a unique combination of speed and efficiency, saving our clients time and money.

The original aim was to overcome the known concerns about scraper pigs, which have become familiar to refiners all around the world. Despite rapid growth in popularity of pig decoking, misgivings remain about tube u-bend damage and the questionable ability of soft core pigs to fully remove hard coke without skidding over resistant patches.

Our scraper pigs are neither solid bodied, nor soft core. This sets the technology apart from scraper pigs currently in use and achieves an optimum combination of strength, durability and flexibility.

In order to ensure the exact blend, pigs are of a complex laminated construction, with each pig being produced through eight separate casting processes.

Background

Cokeusters was contacted by a client who had identified a coke build-up of up to 25mm in 6" tubes of its crude charge heater. The heater contained a vertical radiant section and a separate horizontal convection section which had a combination of 6" & 8" tubes with plug headers in the radiant section. These plug headers have a reduction in throat dimension of 3/4" in the 8" and 1 1/4" in the 6" version.

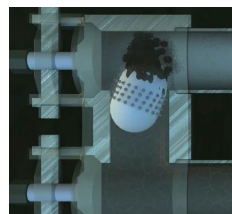
All previous quotes from different decoking companies requested that the client cut out the plug headers and replace them with return bends before they attempt a mechanical decoke, as their line size decoking pigs would not be able to navigate through the reduced throat section of the plug headers.

When the client contacted Cokebusters we offered to manufacture custom pigs that would compress sufficiently to navigate the plug headers, but still be hard enough to remove the coke deposits. Thus, eliminating the requirement

to cut the tubes and replace the plug headers with return bends, saving the client time and expense.

Cokebusters patented scraper pigs are manufactured at our UK Technology Centre. This guarantees consistent quality control and provides valuable opportunity to cast pigs to suit particular client requirements, as in this case.

Single-bodied pigs can navigate plug headers without modification



Decoking Results

When decoking operations were completed, the refinery carried out radiography on the heater. The results from the radiography showed the coke build up was removed from all but 2 of the radiant tubes. In these 2 - 6" tubes they identified small patches of residual coke up to 2mm.

The subsequent flow test carried out on the heater indicated a 22% improvement.

Conclusion

As a result of Cokebusters ability to design and manufacture bespoke pigs in-house to suit client specific requirements, we are able to effectively clean a wider variety of furnaces without modification, reducing costly downtime and additional mechanical works.

