



EXPLANATION FOR VALVEWORKS USA AFTERMARKET SERVICES DEPARTMENT EXCLUSIVE USE OF INCONEL® 625 CORROSION RESISTANT ALLOY (CRA) MATERIAL FOR VALVE BODY INLAY & REPAIR

SCOPE

The scope of this document is to explain and justify the exclusive use of Inconel® 625 for weld-repair and inlay to Valveworks USA OEM gate valve bodies.

BACKGROUND

During the course of the LIFECYCLE MANAGEMENT (LCM) process of a rental fleet of gate valves, companies have turned to investigating and attempting to use either a similar weld repair material to the base metal (typically, AISI 4130) to build up washed areas (i.e. seat pockets, bonnet seal grooves, and ring joint grooves). Stainless steels are also used in some cases (i.e. 316SS) as the weld repair material.

BASIS OF JUSTIFICATION

Since the inception of Valveworks USA's Aftermarket Services Division, in which all welding operations for the product lines are categorized under from a business and operations standpoint, many resources have been spent on determining the optimal welding environment (engineering, processes, materials, equipment, testing, training, etc...). This extensive research, development, and testing of many different types of weld repair materials (carbon, stainless, and CRAs) has led us to the fact that the most efficient and reliable material based on our specific weld repair process is Inconel® 625 (CRA). The slightly higher cost of the weld material is offset by the lower percentage of valve bodies that have to be reworked, the reliability of the 625 material, and the standardization in the manufacturing / production processes related to setup, deposition rates and calculations, etc....

ADVANTAGES OF INCONEL® 625 VS. OTHER MATERIALS

Once the asset is repaired using Inconel® 625, the percentage of time that valve body has to be repaired for a second time is relatively low, per our statistics and data obtained thus far. After the initial repair, subsequent repairs benefit from the pre-existing 625 due to the fact that 625 weld repair material on pre-existing 625 does not create additional heat affected zones (HAZs) thus not requiring post-weld heat treat (PWHT), thus prolonging base material life. The reliability of the CRA vs. the carbon or stainless materials is much higher, therefore creating a stronger rental fleet. Valveworks USA has engineered the weld repair process using industry-leading engineering standards, state-of-the-art welding equipment, and world-class Welding Procedure Specifications (WPS).

CONCLUSION

Valveworks USA's WPS, equipment, and processes have been audited and qualified by some of the most reputable gate valve OEMs in the world. Our processes are consistent, reliable, and take your company and reputation into consideration when working with you and the Lifecycle Management of your fleet of assets. The Inconel® 625 CRA weld repair material is the most viable option taking all factors into consideration.