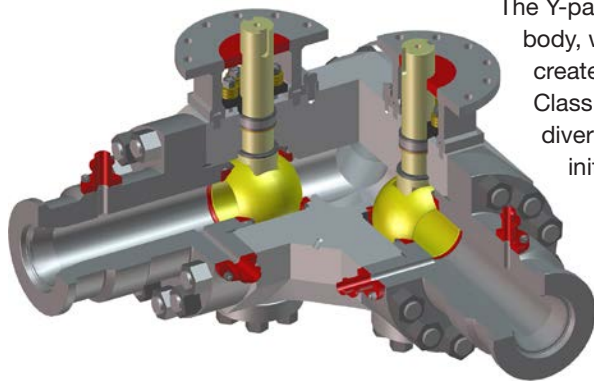


MOGAS recently shipped the largest of a series of the newly designed, patent-pending Y-valves. This order is destined for a heavy oil refinery in North America, and will further solidify MOGAS' status as a provider of custom-engineered solutions for specific applications.

Why a Y-pattern design?

The Y-pattern design consists of two balls, stems and seats housed in one body, with options to automate using one or two actuators. MOGAS created this design primarily to minimize the space required for an ANSI Class 2500 high-pressure letdown module, while maintaining the ability to divert, isolate or combine the flow in a single valve body. This design was initially conceived to reduce the dead spaces where asphaltines (coking process media) can accumulate and solidify, causing increased valve torque and line plugging. Once this design was completed it was apparent there were many other applications for a similar configuration.



When a heavy-oil plant required high pressure letdown in a compact modular unit, MS&C designed (and patterned) this Y-pattern ball valve.

MOGAS VP Engineering, Jonquil Hill said: "It would take two valves almost the same size to accomplish what this one valve will do." But, developing this new Y-design was not as simple as putting

the parts of two valves in one valve body. This design had to consider that both blocking functions are required to operate independently of each other. One side might be open and hot (>700F), while the other side can be closed and at ambient temperature. Exhaustive finite element analysis was done to prove the efficacy of the design.

The compact design is part of a MOGAS Y-valve family destined to modular process units that were conceived and developed by MOGAS Systems & Consulting (MS&C). Its modular design provides for a 'push button' (automated) switching to the redundant (backup) control valve, enabling maintenance to repair the primary valve on-line, so it is ready to return to service when needed. All repairs can be accomplished safely with no interruption of the process unit. The module includes the functions of switching, flushing, purging, depressurizing, programmed control and hot standby of the redundant valve. The single modular unit can then be lifted into place ready for 'plug and play'. Overall, a 40% space savings in the footprint can be realized. This includes halving the distance between pipeline centers minimizing the area for coke to accumulate, and eliminating two or more clamp connections, which pose potential leak paths.



1. Forging press



2. Ultrasonic testing of rough machined material



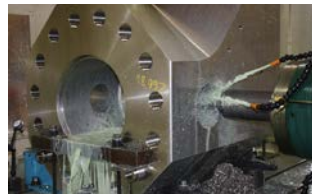
3. Rough machined material awaits final machining



4. Machining of end connection



5. Machining of Y-valve body



6. Machining stem bore in Y-valve



7. Inprocess inspection



8. Assembly of mounting flange to Y-valve body



9. Pressure leak testing



10. Final assembly including actuation



11. Crated



12. Shipped

The production process

The original order called for a 52-week delivery of seven Y-valves ranging from 2-inch, 600 Class to 14-inch, 2500 Class. Production started with the forging and rough machining of 81 tons of raw materials at one of our top tier, turn-key suppliers. Ultrasonic inspections were made at the plant by MOGAS prior to shipment. All other work was performed in Houston: machining, assembly, actuation, adaptation, inspection, testing and customer witnessing.

A heavy order

This order probably included MOGAS' heaviest valve to date. While the 14-inch Y-valve weighed over 32,500 pounds (14.5 tons), the combined weight of this valve, actuator and custom-made skid on which to ship the valve was more than 38,500 pounds (17.2 tons). As the 14-inch Y-valve makes its way to the customer, its sister valve—the last of the order—is ready for final assembly. All other Y-valves in this series have previously been shipped.

For more information on the patent-pending Y-valve, contact your MOGAS authorized representative, or call MOGAS Systems & Consulting at +1 281.449.0291.

About MOGAS Industries

MOGAS Industries is the leading global severe service ball valve manufacturer, providing isolation and control valve solutions and engineering services for critical applications in power, mining, oil & gas, refining, chemical/petrochemical and specialty industries.

For more information, visit www.mogas.com.