



## Custom Chamber Enables API 17D Testing for Large-Scale BOP Valves

A leading oil and gas company came to CSZ with a new requirement for testing their sub-sea drilling and production systems; particularly their Blow-Out Preventer (BOP) valves. This new and considerably more stringent testing requirement was prompted by the highly publicized 2010 Gulf of Mexico oil spill. Seeking a way to test their deep well valves and seals, to temperatures reaching +260C (+500F), the oil and gas company came to CSZ for a meaningfully unique solution. The enormous size and mass of these valves not only required significant thermal management, but also required special consideration for the handling and safety aspects of the new testing requirements for the API-17D specification was a challenge.

This all stainless steel chamber was designed with a reinforced floor to accommodate the customer support rack. It was also equipped with a full bi-parting, horizontal-sliding door that featured a “clam-shell” style interface port. This unique design provided an excellent solution for our customer.

The chamber utilized a modified version of our patented Tundra II refrigeration system. The modified version was de-rated to -42.8C (-45F); instead of its standard -F54C (-65.2F) range—due to the customer’s requirement for us to utilize an out-door remote air-cooled condenser. Using R404A refrigerant (in lieu of the standard Tundra refrigerant R410A), the performance capacity increased providing rapid temperature change rates and increased live load capabilities throughout the primary operating range of -42.8C (-45F) to +260C (+500F). This extended temperature range allowed the customer to thermally stress their deep-well valves and seals to meet API-17D standards.

