

### HTP Thermocouple with Maximum Security Option

It is extremely unlikely that an HTP thermocouple can ever leak process gases into the environment. The element well is the primary seal and there is a second separate ceramic seal between the process and the ambient environment. It is possible to burn out the HTP chamber seals under certain well failure conditions. One example is where the reactor is kept in service for days or weeks after an element well failure occurs. This situation can allow a very small amount of leakage through the purge air pathway in the outward direction. Some environmental authorities require that even this small chance of a minor leak be eliminated. The maximum-security option accomplishes this by building in a blocking fireproof ball valve with a biting lip. Closing the valve shears off the thermocouple, together with its ceramic support, and blocking the flush gas pathway. It also blocks the flush gas inlet and outlet connections, the conduit connections, and the upper body chamber, eliminating the possibility of a leak into the environment. The valve has a handle lock requiring the use of two hands to intentionally close the valve.

