Well Control Valves H2S

According to API Specification 7-1, paragraph 5.7.4, supplemental requirements for H2S trim: any valve internals exposed to the service environment must be in compliance with NACE MR0175/ISO 15156 Standard Materials Recommendations Metals for Sulfide Stress Cracking and Stress Corrosion Cracking Resistance in Sour Oilfield Environments.

1. **17-4PH (UNSS17400):** precipitation-hardening stainless steel in HH 1150 condition has been successfully used for mildly sour environments. According to NACE MR0175, 17-4PH is acceptable for valve components other than the body and bonnet, provided that the partial pressure of H2S does not exceed 0.5 psi. Given that the valves are only “H2S trim,” they should not be used in severely sour conditions and that restriction is immaterial in the HH1150 condition.

2. **Tough Met AT110 (UNS C72900):** a copper-nickel-tin alloy designed for use in applications demanding wear resistance, high-bearing performance, and resistance to saltwater corrosion. NACE MR0175 indicates that copper alloys may be used without restriction in sour service conditions.

3. **Alloy X-750:** a precipitation-hardened, nickel-chromium alloy specifically approved for springs by NACE MR0175 at hardness values up to 50HRC. It is a good alternative to 17-7H for retaining rings.

The EZ-Flow Cartridge™ has patent protected technology.