EUR24_XX - Redundant VSD Systems for Critical Compressors - Implementation - Case Study

Author(s): Axel Rauber (ABB Switzerland Ltd.), Shane Harvey (Elliott Group), Federico Bertoldi (ABB Switzerland Ltd.)

Abstract:

Traditional high-power compressor applications have relied on steam or gas turbines as primary drivers. In response to the growing emphasis on clean energy initiatives, the industry is shifting towards electric motors as an alternative to turbine drivers.

When speed control and therefore variable speed drives (VSD) are required, their reliability become a concern. As the risk of unplanned process interruptions is to be mitigated, hot redundancy concepts were developed.

This case study focuses on the application of such a VSD redundancy concept for the High Pressure and Refrigeration Compressor services within the propane dehydrogenation (PDH) process. The selection of VSD technology was driven by specific process requirements, including the need for minimal switch-over time.

This paper details the journey towards a successful handover to production, highlighting the considerations, challenges, and outcomes of implementing redundant VSD systems in lieu of mechanical drivers for large critical compressor applications.