

High Pressure Bone-Dry Hydrogen Compressor Upgraded to Special Polymer Alloy Materials



The Challenge

High pressure bone-dry hydrogen is an extremely challenging duty in which to achieve sealing component longevity. Standard filled PTFE grades did not provide adequate wear life in this demanding application, not reaching one year before service was required. The customer operates two identical 3 stage non-lube 3,190 psi (220 bar) hydrogen compressors.

The Solution

Because of the difficult characteristics of high pressure hydrogen applications, CPI, part of the Howden group, has over the years developed numerous CPI Special Polymer Alloy grades of material. After an engineering review of the customer's compressors, CPI proposed a solution across the 3 stages of wearing components that would provide the most reliable sealing solution possible. CPI selected a combination of CPI 315, CPI 184, CPI 192 and CPI 193 Special Polymer Alloy grades of material all having different properties to best handle the various temperature and pressure demands across the machines.

CPI's engineered solution provides the reliable performance the customer demanded in-line with their maintenance regime. The customer now operates a strict scheduled maintenance program to ensure maximum uptime of the compressors which now reach runtimes of over a year.

