



Free Floating Piston™ Case History of Revamp of Existing Compressors

by:

Lau G.M. Koop
Technology Department
Thomassen Compression Systems
Rheden
The Netherlands
tcs@thomassen.com

4th Conference of the EFRC
June 9th / 10th, 2005, Antwerp

Abstract:

Reciprocating compressors for refinery and oil- and gas services are expected, in the API 618 Standard, to operate for 24000 hours without maintenance. This expected uninterrupted running time will only seldom be met, and most of the time only by compressors provided with cylinder lubrication. A few major wearing parts are responsible for the stops that decrease the availability, namely the valves, stuffing boxes and piston/rider ring assembly. Cylinder and stuffing box lubrication generally improves the life time of the piston/rider rings and the stuffing box, however lubricating oil has an adverse effect on the life of the valves. Sometimes the process permits no oil contamination, the lubricating oil is used only once and is relatively expensive, environmental requirements make the removal of drain oil expensive. Lubricators require maintenance and must be regularly filled. All reasons to aim for non lubricated cylinders.

This paper describes the retrofit of reciprocating compressors at two BP refineries with free-floating pistons in an attempt to eliminate the ring wear and so extend maintenance intervals to a minimum of three years.