

Eliminating Cooling from Packing Cases by Upgrading to CPI Polymer Alloy Packing Ring Materials



The Challenge

This customer wanted to remove the packing cooling due to multiple problems that affected his MTBF.

Solution Highlights

Upgrading to CPI polymer alloy packing rings eliminates the potential safety risk of gas leakage into the cooling system

Problems with re-cutting O-ring grooves during reconditioning are eliminated

Results in more reliable packing performance and life

Avoids condensation due to the water and gas temperature differential

Saves water – up to 15 l/min (4 Gal/min)



Packing case with cooling



Packing case without cooling



The Solution

CPI prepared a study for the following compressor conditions:
Ethylene, 252 bar (3,650 psi) discharge pressure, lubricated service.

CPI 192 material packing was selected for this application and the packing cooling system was removed.

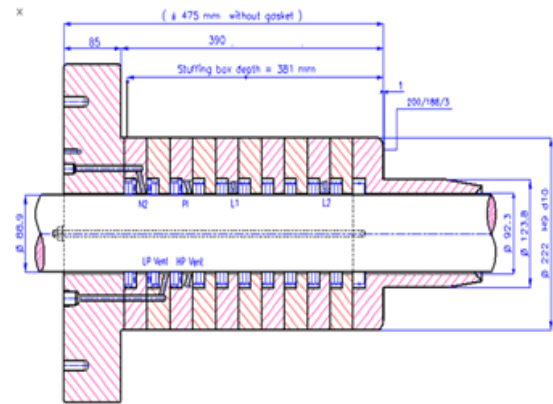
The MTBF increased by 49%. CPI removed the cooling system in 31 compressors after this upgrade in this plant.

The use of cooled packing cases can cause many problems in service and during reconditioning. Upgrading to CPI polymer alloy packing rings can let customers remove the packing cooling system from their reciprocating compressors.

In lubricated conditions, using CPI 192 material packing rings will eliminate the need for packing case cooling if the discharge pressure is under 150 bar (2175 psi).

In non-lubricated conditions, CPI can eliminate the packing case cooling if the discharge pressure is under 50 bar (725 psi) by using our range of polymer alloy materials such as CPI 184 material seal rings with CPI 192 material back-up rings.

Note that API 618 recommends much lower pressure criteria. CPI has non-cooled experience with its polymer alloy materials which have proven to be consistently reliable when compared to the conservative API 618 standard recommendations.



New non-cooled CPI packing case



Gas leaking out of the cooled cups

Non-cooled pressure limits
API recommendation vs CPI experience

