



# Emissions, the Environment & Operator Safety





Increasing legislation and proactive environmental initiatives are requiring sites to take serious measures to monitor, evaluate and reduce emissions from key areas within their plants. In Natural Gas compression for example, studies have shown the reciprocating compressor contributes over 45% to the overall plant emissions, with the packing case leakage responsible for ~50% of this.

To reduce or even eliminate emissions caused by the packing case, CPI can provide the following proven solutions and packing case upgrades.

### **CPI EMISSIONGUARD™ ES<sup>3</sup> Expandable Static Seal**

- Actuated seal creates reliable zero vent leakage when the compressor is stationary; seal retracts away from the piston rod when the compressor is running
- Full turnkey solution including actuation controls
- Simple addition to main pressure packing cases with a compact cartridge design



### **CPI EMISSIONGUARD™ TR<sup>2</sup> Packing Ring**

- Consistent leakage reductions of up to 50%
- Outer tangent to rod ring covers the end gaps of the inner step tangent ring, effectively removing all leak paths
- Simple retrofit into existing or new packing cases
- Reduces rod loading, resulting in reduced contact temperature and lifetime improvements



### **Additional Packing Case Upgrades**

- Side loaded packing with a buffer gas downstream of the vent to prevent process gas from leaking into the distance piece
- Upgraded case gaskets, including spiral wound designs, to eliminate leakage around the case
- Proper inspection and reconditioning to optimize ring sealing and to insure there is no external leakage between the cups





## Valve Cover Conversions

- Redesign of the valve covers to add O-rings to eliminate leakage
- Removal or redesign of the jackbolts to eliminate leak paths, improve tightening procedures, and provide better loading of the valve in the port
- Upgraded unloader designs to eliminate actuator shaft leakage

## EMISSIONGUARD™ Purge Panels

- Control and monitor the pressure of the buffer gas into the packing case assemblies
- Monitors vent line pressure and flow
- Automatically regulates inert buffer gas pressure
- Ensures positive buffer gas pressure in line with API618 to prevent process gas leakage into the distance piece



## Compressor Optimization Management

CPI's Compressor Optimization Management Program (COMP) enables the study of reciprocating compressors to assess performance upgrade opportunities. Tailored reports are produced, illustrating the potential financial, environmental and operator safety benefits of implementing CPI's product upgrades.

These upgrades include CPI's EMISSIONGUARD™ family of products.

Please enquire with your local CPI representative for dedicated payback illustrations for your specific compressor applications.



## Howden - Advancing a Sustainable Future

Howden, a Chart Industries Company, is a global leader in mission-critical air and gas handling products, services and solutions. We specialize in engineering for the future.

Our purpose, we enable our customers' vital processes which advance a more sustainable world, drives our business.

ESG is integrally linked to our vision of 'enabling our customers' vital processes which advance a more sustainable world and is clearly aligned with one of our core values, 'we do the right thing'.

In short, our ESG efforts are a fundamental characteristic of our brand as well as our purpose as an organization.

Visit <https://www.howden.com/en-gb/company/esg> - To learn more about Howden's commitment to ESG.



CPI, part of the Howden Group, is an industry-leading manufacturer of precision-engineered components for reciprocating compressors used in petrochemical, refining, natural gas, and offshore industries. The CPI product range includes packing, piston and rider rings and a complete line of compressor valves designed to provide each customer with maximum performance and reliability for their application. In addition, CPI offers the highest quality lubrication system technology for further compressor efficiency and protection.