



Metallic and Non-Metallic Wear Products





Exceptional reliability and performance

High Performance Wear Products

CPI, part of the Howden group, designs and manufactures a complete line of high-performance packing and wiper rings, along with piston and rider rings, to meet a wide range of reciprocating compressor applications and demands. With designs dating back to 1899, CPI packing rings provide excellent sealing integrity and compensation for wear, rod movement and temperature change. CPI oil wiper rings provide reliable, positive containment of oil within the crankcase. Our piston and rider rings are engineered to provide excellent sealing capabilities and piston support.

To meet the needs of today's compressor operations, we offer our packing and wiper rings and piston and rider rings in both metallic and non-metallic materials and in an array of designs to handle both common and more problematic applications.

Non-Metallic

To meet the varied sealing and piston support requirements of reciprocating compressors, CPI manufactures an extensive line of non-metallic materials for compressor piston and rider rings and packing and wiper rings in a variety of styles to suit specific requirements.

CPI's long history of supplying PTFE based compounds and special polymer alloys has steadily advanced the service life and reliability of both fully lubricated and non-lubricated compressor applications.

Metallic

CPI offers a variety of packing, piston, rider and oil wiper rings in a range of metallic materials to meet the operational requirements of different compressor types and applications.

These highly engineered materials, including cast iron, bronze, and high-lead bronze, equal or surpass the performance and durability of both aftermarket and OEM metallic materials in lubricated compressor applications.

Rider Rings

Type 310: Uncut

- Designed with an interference to fit in the rider ring groove.
- Must be used wherever the rider ring passes over valve ports or into a counter bore on the end of the cylinder.
- Must be stretched to fit onto the groove or over the end of the piston.



Type 312: Angle Cut

- Used when the rider ring does not pass over a valve port or cylinder counter bore.
- Can be opened by hand to be slid over the piston.
- Optional face and/or side relief grooves prevent pressurizing and are recommended on all split (cut) rings.



Type 318: Angle Cut, Pressure Relieved

- This design incorporates both face and side relief grooves.
- In lubricated service, the grooves and the angled cut distribute the lubricant in a uniform film around the cylinder.
- Preferred design for most applications.





Piston Rings

Type 301: Straight Cut

- For applications that permit slight controlled leakage and minimal ring rotation.
- Preferred design for aluminum pistons.



Type 302: Angle Cut

- Provides minimal leakage path.
- Preferred design for most applications.



Type 332: Two Segment

- Required for installation of some of the rigid CPI polymer alloy materials.
- Angle cut ring with both cuts lying in the same plane to eliminate tendency of angle cut rings to rotate.
- Wear on piston rings having small wall-to-diameter ratio can generally be more uniformly distributed when the ring is of segmental design.



Type 334: Pressure Balanced

- Series of radial holes drilled into an OD groove for pressure balancing.
- Preferred ring style for some applications with high pressure differentials.



Type 322: TWIN RING™

- L-shaped ring and a rectangular filler ring for maximum and constant sealing performance.
- Provides optimum sealing efficiency in one direction and eliminates gap leakage without the need for an expander.
- Can sometimes be used to replace two to three conventional piston rings.
- For effective sealing in double acting service, at least one TWIN RING™ should face in each direction.



Packing Rings

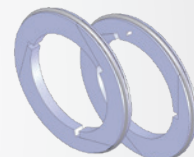
Type 211: Radial Tangent Pair

- Consists of radial and tangent ring.
- Standard where positive sealing in one direction is required.
- Three tangentially-cut segments are the primary sealing element.
- The radial ring is pinned to the tangent ring to seal the gaps of the latter which are provided for wear compensation.
- The joints of the radial ring permit pressure build up on the OD of the rings during the compression stroke and its relief during the suction stroke.
- This is the preferred design wherever space is available.
- The radial ring must always face the maximum pressure.



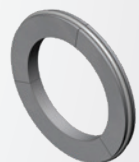
Type 212: Double Tangent Pair

- Designed for bidirectional sealing.
- The tangent rings are pinned together so that the gaps of one are sealed by the segments of the other.



Type 252: Back-Up Ring

- Ring with clearance on the ID and gas tight joints installed behind seal rings to prevent extrusion of the tangent rings.



Type 205/252: Tangent-to-the-Rod with Back-Up Ring

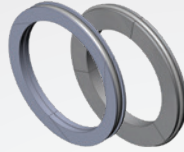
- Used in applications where the ring groove width is less than 9/16" (14mm) and not sufficient to accommodate a three-ring assembly.
- Assembly consists of a polymer tangent-to-the-rod ring and a back-up ring.
- Not recommended for use where rod is plunged through the packing case due to potential damage to the inner tips of the rings.



Packing Rings (continued)

Type 206/252: Tangent-to-the-Rod with Back-up Ring

- Similar to 205/252 except there is no tangent ring pressure relief groove.
- Needs no gap for wear compensation.
- Used in bidirectional sealing.



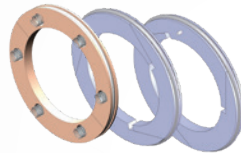
Type 225: Sandwich Rings

- One polymer based tangent ring between radial and back-up metallic based rings.
- Recommended when pressure and temperature conditions increase to the point that a polymer radial ring would tend to extrude into the gaps in the tangent ring or into the clearance between the packing cups and the rod on the cylinder end of the packing case.



Type 253/212: Spring-Loaded Pressure Plate with Double-Tangent Pair

- Used whenever there is insufficient pressure differential to maintain the packing rings in sealing contact with the packing case.
- Commonly used as purge and vent seals.



Type 250: Pressure Breaker

- Three segment ring that fits tight to the rod with a small gap between the segment ends.
- Installed in the ring groove closest to the cylinder to avoid sudden pressure changes that could damage the seal rings. Throttles the flow of gas into the packing case and back into the cylinder.



Type 256: Pressure Breaker

- Three segment ring with zero gaps and clearance between the ring ID and the rod.
- Serves same functions as Type 250 ring.
- Includes additional pressure relief grooves on the ring face.



Oil Wiper Rings

Type 243: Tangent Cut

- Tangentially cut, allowing no direct path of leakage along the rod.
- Dual scraping edges are separated for maximum stability on the rod. Drainage slots are provided on one face for draining oil.
- Annular area between the edges is vented for drainage and to prevent a build-up of oil from lifting the ring off the rod.



Type 244: Radial Cut

- Radial cut style with gaps between the segments.
- Similar to Type 243 in that it has double wiping edges and drainage slots on one face.
- Normally used in multiple ring assemblies with adjacent rings pinned together to prevent a direct leakage path along the rod through the radial gaps.



Type 248: Radial Cut

- Radial cut design similar to the Type 244 except with added holes for the ID groove drainage.
- Manufactured from CPI 315 polymer material to conform to the rod and prevent rod wear.



Type 288: Radial Cut – Liard Style

- Provides extremely effective oil wiping and excellent service life in applications where oil control is a problem.
- Uses sharper scraper edges on the ID for more effective oil wiping.
- Has larger ID and OD slots for more effective oil drainage.



CPI, part of the Howden group, prides itself on its unique approach to developing new compressor valve concepts and non-metallic materials used in the production of valves, piston rings, rider rings, packing and oil wipers. Our application expertise has transformed the performance and reliability of reciprocating compressors in a wide range of applications around the world.