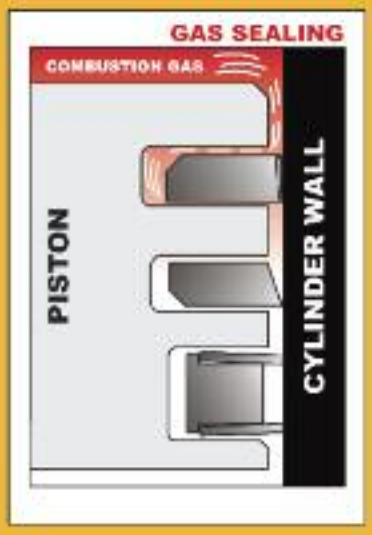
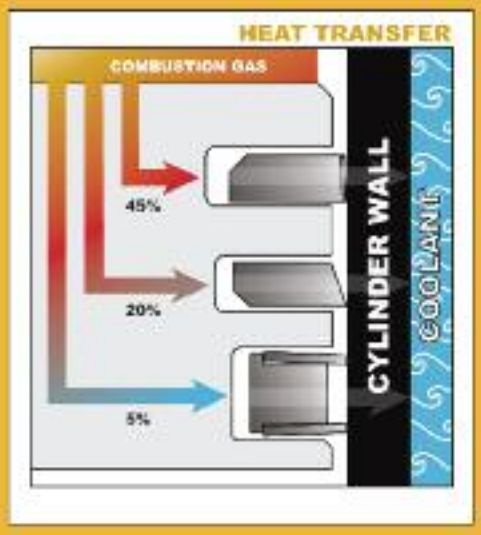
PISTON RING FUNCTIONS

Piston rings function in sets of three rings, starting with the top compression ring, followed by the 2nd groove ring and the oil control ring. Their function is to seal off combustion gases, aid in the heat transfer to the cylinder wall, and both lubricate and scrape down oil from the cylinder wall. The top ring serves to seal off the majority of the combustion gases while the bottom ring provides most of the oil control. The 2nd ring helps with both functions, playing a finishing role in the combustion sealing as well as the downward oil scraping.

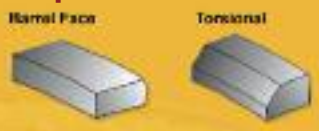




TOP COMPRESSION RING

Function
Top compression rings trap combustion gases and increase the combustion pressure and efficiency. They also play a major role in the heat transfer process between the piston and cylinder wall.

Shapes



Materials
Shell Mold Cast Iron
Ductile High-tensile Premium Cast Iron
Silicon Manganese Alloy Steel

Coatings
Plasma Molybdenum “Moly”
Chrome Plated

2ND GROOVE RING

Function
Second compression rings scrape oil and prevent it from reaching the combustion chamber. They also provide a second seal for trapping combustion gases and aid in heat transfer.

Materials
Shell Mold Cast Iron

Coatings
Phosphate

Shapes

OIL RINGS

Function
Oil rings distribute and regulate oil within the cylinder wall and help scrape it back into the crankcase. This is necessary to keep the cylinder wall lubricated with the cooler replacement oil, thereby aiding the heat transfer and lowering the friction between the piston and the cylinder.

Materials
1070 Segmental Steel Rails with 201 and 301 Stainless Steel Expander
Cast Iron (used for non-racing applications, primarily diesel)

Coatings
Chrome Plated Rails

Shapes