

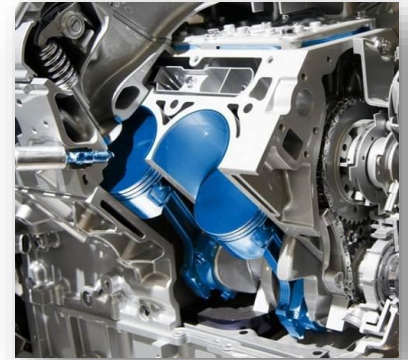
Customers: Strong Market Share and Relationships with All Major OEM Vehicle Makers, in All Markets.

Global Locations: 100+ Facilities in 21 Countries

Research: 14 Globally-Networked Technology Centers Located on 3 Continents.

Key Industries: Automotive, Aerospace, Commercial, Energy, Industrial, Marine, Power Generation, Railway, Small Engines

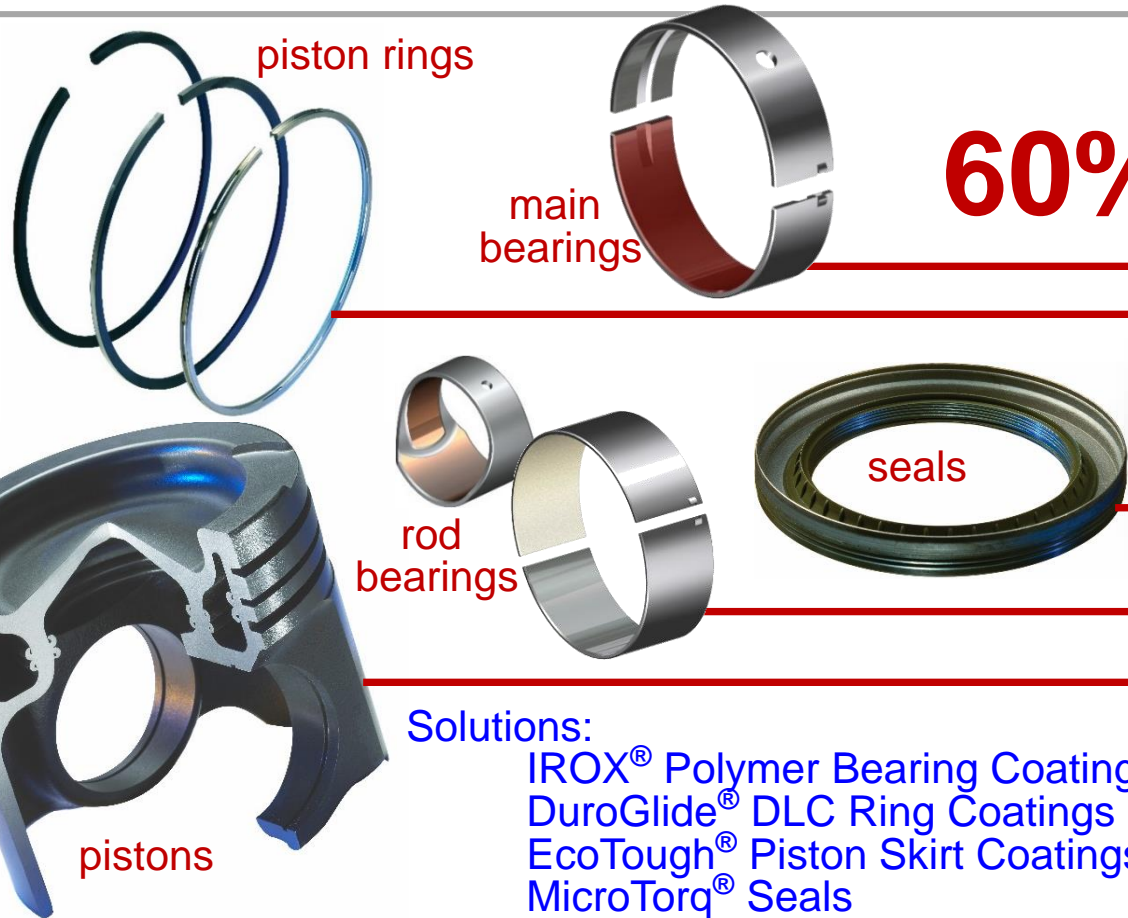
Main Products: Pistons, Piston Rings, Cylinder Liners, Valves, Valve Seats and Guides, Bearings, Spark Plugs, Sealing and Gaskets, System Protection Components, and Controlled Power Technologies.



Industry-Leading Powertrain Technology to Improve Fuel Economy, Reduce Emissions and Enhance Durability

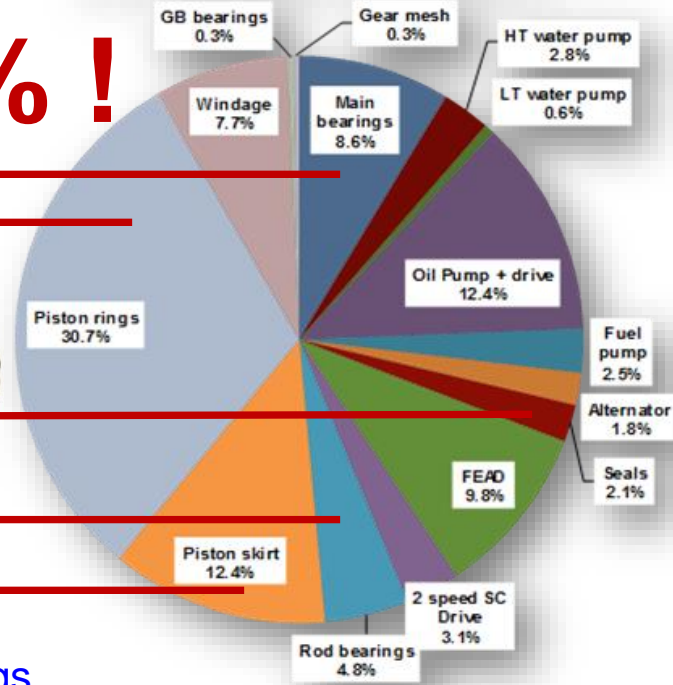


Friction Reduction



60% !

LA4 Cycle Averaged Friction Breakdown



Solutions:

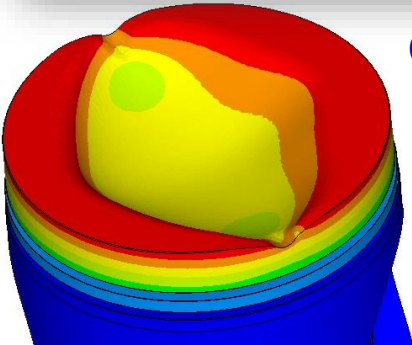
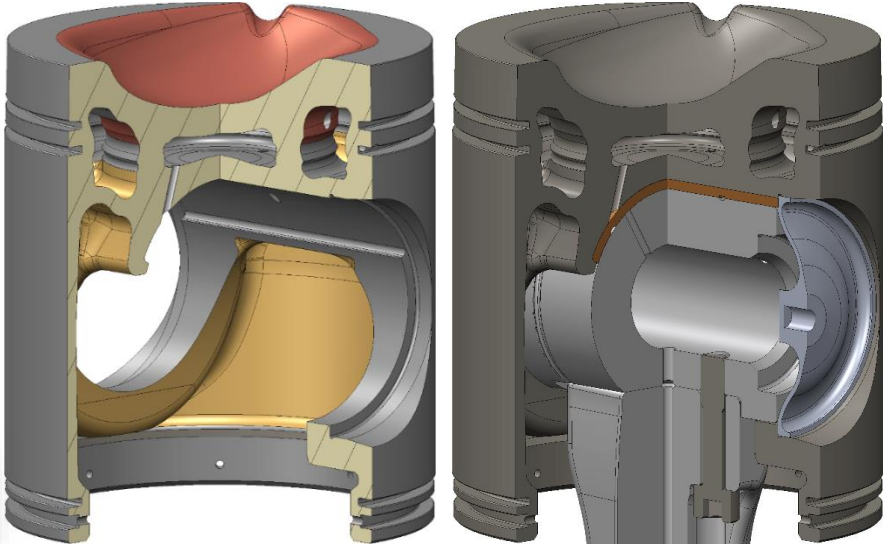
- IROX[®] Polymer Bearing Coatings
- DuroGlide[®] DLC Ring Coatings
- EcoTough[®] Piston Skirt Coatings
- MicroTorq[®] Seals

ICEF2018-9610; Initial Results On A New Light-Duty 2.7l Opposed-Piston Gasoline Compression Ignition Multi-Cylinder Engine

Opposed Piston Challenges

Temperature!

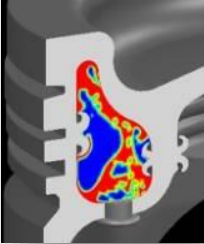
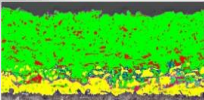
and Manufacturability!



Ceramic Coatings

High Temp Steels

Novel Cooling



Solved by a combination of:
Precision Machining,
HIW - Hybrid Induction Welding,
As-Forged Surfaces,
As-Cast Surfaces.