



Premium Engine Solutions
BECAUSE DOWNTIME IS NOT AN OPTION.

THERMAL ARCHING COMPENSATION (TAC) PISTON RING GROOVES Sealed Power® Piston Technology

Engine builders are looking for ways to provide customers a cleaner-burning, longer-lasting engine. Sealed Power pistons with Thermal Arching Compensation (TAC) reduce oil consumption, blow-by and emissions, and extend engine life.

Utilizing predictive engineering and Finite Element Analysis, our engineers accurately anticipate engine operation conditions and create solutions such as Thermal Arching Compensation (TAC) to overcome performance issues.



TAC RING GROOVE TECHNOLOGY PRIMARY CHARACTERISTICS

Ring Groove “Uptilt”

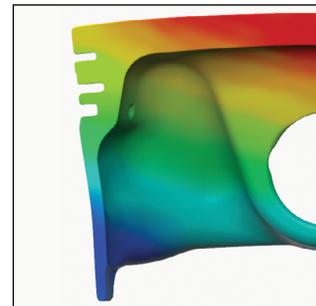
Keeping a ring groove perfectly perpendicular to the cylinder wall is the key to peak efficiency. Thermal expansion at operating temperatures will cause changes in ring groove geometry (also known as thermal arching), resulting in ring tilt. When this occurs, rings are no longer square with the cylinder wall and will not seal as designed.

To overcome this, Sealed Power piston ring grooves are engineered with a slight uptilt – invisible to the naked eye – to accommodate the thermal arching that occurs at operating temperatures. It keeps the rings square with the wall for a superior seal which, in turn, delivers more power and reduces oil consumption – better than non-TAC grooves found in many other aftermarket pistons.

Ring Groove Wave

Sealed Power’s CNC groove machining process produces a superior ring groove with no more than a 15-micron undulation of the sealing surface. This assures that the ring will sit in the groove firmly and correctly, maximizing ring seal.

TYPICAL PISTON (NON-TAC) DESIGN



Piston without TAC ring groove geometry at operating temp (thermal arching exaggerated)

SEALED POWER TAC GROOVE UPTILT



Piston with TAC ring groove geometry (cold engine)



Piston with TAC ring groove geometry (at operating temp)

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