ACL TECH TALK

ACL RACE SERIES

Race series Piston applications

The ACL Race series components are designed for increased performance within the Chevrolet, Ford and Holden range. The Race series pistons are not intended to displace forged pistons in out and out racing engines, but are very suitable for medium and high performance street and mild race applications. ACL's performance range pistons have a higher compression ratio than standard, and are not intended to be used with superchargers or turbochargers.

Race series Piston design

The Race Series pistons are not forged but rather an advanced eutectic aluminium alloy designed for strength, hardness and durability. The high 13% silicon alloy gives excellent wear and scuff resistance with low thermal expansion. Due to the nature of their design they are approximately 30 percent stronger than the original piston, and can handle up to 100 horsepower per litre. A "hyper-eutectic" piston version was originally trialed by ACL, but no durability gains or advantages were encountered. All Race series pistons exhibit a pressure balancing groove between the top and second compression ring to reduce pressure build up which can lead to high rpm ring flutter and loss of horsepower.

Race Series Piston Rings

All ACL Race series piston kits feature narrow, low friction Race series piston rings. The molybdenum inlaid, spheroidal graphite iron top ring exhibits high strength for the most demanding applications with excellent resistance to wear and scuffing. Some Race series piston kits include a file back top ring, which are denoted by H after their part number, and these sets allow the competent engine builder to set their own top ring gaps. The second rings are cast iron reverse torsional twist taper face scraper type, unique to ACL. These are pre gapped, as these rings have far less influence on blow-by and should in any case be a little larger than the top ring gap. The oil rings are ACL Duraflex® design, which in most cases are lower in load to reduce friction.

Race Series Piston Pins

ACL Race series pistons are fitted with high strength alloy steel tapered bore pins. A weight saving up to 20 grams compared with standard pins. Note: Race series pistons are generally 35-90 grams lighter than standard piston applications. This weight saving of the pins and pistons will require the V8 crankshafts to be balanced taking in account the new weights.

Race Series Bearings

ACL Race Series copper lead bearing materials are similar to our F780 series, but are further complimented with increased wall eccentricity and bearing crush. These high performance tri-metal bearings also feature a reduced babbitt overlay to enhance fatigue performance. These measures combined with ACL's proven design, manufacturing and quality capability have resulted in the ACL Performance bearing range. Larry Perkins/Perkins Race Team uses these same off the shelf bearings in his 700+ Horse power race cars.

Race Series Gaskets

ACL Race Series gaskets are an excellent choice for high performance street engines and mild race applications. These head gaskets feature stainless steel bore binders pressed on high grade and density composition material, which allows for higher compression and stress loading capabilities.