

# ZRP SUPERSPORT PISTON SERIES - 4032 (T6) INSTALLATION INSTRUCTIONS

## Warning! It's your responsibility

### GENERAL:

Inspect all of your pistons, pins, rings before installation or modification. Parts that are altered, scratched, or damaged are non-returnable.

### PISTON TO BORE CLEARANCE

ZRP pistons already have the recommended clearance built in. Skirt diameter is smaller than the recommended bore size (see sizing on box). Some applications: Nitrous, supercharged, turbo, cold water marine engines or filed cast iron block may need more than the recommended clearance (0.025 to 0.050).

ZRP pistons are measured 90 degrees from the pin axis at the widest point on the piston skirt. Clearances are set before coating and coatings are 0.012mm (0.00047") thick, should be deducted when measuring for piston to bore clearance.

Adding additional clearance then recommended may create extra engine noise (piston slap) upon start up and cold running. This can cause damage to the pistons and/or cylinder. Some piston noise is normal on engine start up and during cold running this will reduce when engine is at operating temperature. It is advisable to avoid high loads or high RPM during engine warm up.

### PISTON RING END GAP TABLE

APPLICATION	TOP RING	SECOND RING	OIL RING
Street / Hi Performance N/A	.0004" x Bore	.010" - .015" Bigger than top ring	Min. .015" Do not file expander
Drag Racing / Road Racing	.0005" x Bore	.010" - .015" Bigger than top ring	Min. .015" Do not file expander
Nitrous / Turbo Supercharged	.0006" x Bore	.010" - .015" Bigger than top ring	Min. .015" Do not file expander
Street / Hi Performance Turbo	.0045" x Bore	.010" - .015" Bigger than top ring	Min. .015" Do not file expander

*Ring end gap should be measured with the ring square in the bore on a fresh hone. Cylinder should be free of any taper.*

### DETERMINING RING GAP

All bore sizes must be converted to inches and the result of this equation to millimeters (mm) – Example: To find top ring end gap for a street N/A application with 86.00mm bore:  $86.0 \div 25.4 = 3.385"$  ( $3.385" \times 0.004"$ ) = 0.015" ( $0.015" \times 25.4$ ) = 0.38mm is the minimum clearance.

All rings are manufactured for a specific bore and clearance. You must always measure the ring gaps at your specific bore to check if correct and if they are all the same. If the ring gaps are tighter than the minimum, you will have to "adapt" the rings by filing them. To carry on with this procedure you need a special "ring filing tool". You must make sure, after the procedures, that the sides of each rings are kept squared.

Also, have in mind that for every 0.025mm over the intended bore size, ring gap will increase by 0.079mm.

### WRIST PIN OFFSET

Many ZRP piston have an offset wrist pin. These pistons need to be installed with the offset to the thrust side of the engine. On pistons with centered wrist pins, the smaller valve pocket(s) to the exhaust side of the engine except some five valve engines.

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## **PISTON TO VALVE CLEARANCE**

With the many cam profiles, gasket thicknesses, and deck clearances available it is important to make sure there is adequate clearance between the piston and the valve. ZRP recommends a minimum of 1.5mm (.060") Intake and 2.0mm (.080") Exhaust. Using Clay is the most common method.

## **PISTON TO HEAD CLEARANCE (Squish)**

ZRP recommends a minimum of 0.7-1.0mm (.027"-.040") for naturally aspirated engines and 1.0-1.5mm (.040"-.060") for Turbo, Supercharged, or Nitrous applications.

## **WRIST PIN CLIPS**

Most of ZRP pistons use a Round Wire type pin locks. Before installation check the lock groove for debris or burrs that will keep the lock from seating fully in the groove. Insert one end of the lock in the groove and spiral lock into groove. DO NOT COMPRESS LOCK TOGETHER TO GET INTO THE GROOVE, this will distort the lock and can cause lock failure.

*It is good practice to check over piston crown and valve pockets for and sharp edges. Sharp edges should be removed to avoid potential "Hot Spots" on the piston.*

## **CLEANING**

Pistons should be cleaned with warm soapy water and dried before installation. We recommend a thin coating of oil on the piston skirt and cylinder wall. Avoid using Synthetic oil during engine break-in as this may keep the rings from properly seating. Lubricate wrist pins with oil or assembly lube before installation.



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If you have any questions, please contact us between 9:00 a.m thru 4.30 p.m GMT+2 Monday thru Friday