

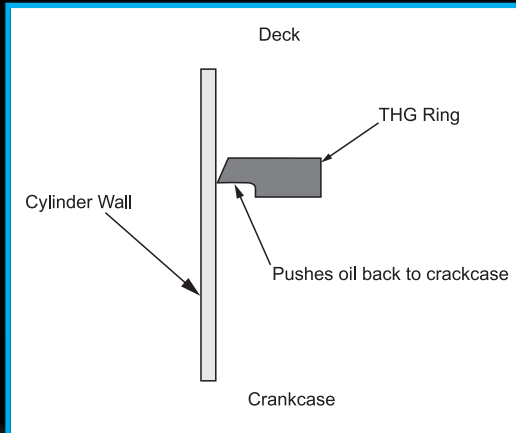
CPN RINGS

TOP RING

The top ring is a steel compression ring that has been gas nitrided so that it is compatible with Nikasil and cast iron bores. This scuff resistant gas nitrided ring allows it to operate at maximum efficiency without blemishing up the bore. The nitriding ensures extended life and protection under extreme conditions.

SECOND RING

The second ring is a cast iron with a taper underhook groove face. The THG ring acts as a wiper and pushes the oil back away from combustion. This type of ring allows you to run a lower tension oil ring.



OIL RING

The oil ring is made up of two gas nitride rails with a low-tension expander. Because of the miniflex vent design, there is less friction on the cylinder wall, which increases the performance and efficiency of the engine.

These ring sets are high strength and low tension, resulting in maximum sealing with minimum drag.



DISCLAIMER/WARRANTY

Due to the nature of high performance applications, CP Pistons/Pankl products are sold without any warranty of merchantability or fitness or purpose, expressly understood and agreed between CP Pistons/Pankl and purchasers that as part of the bargain between CP Pistons/Pankl and purchasers, consideration of doing business with each other, all purchasers take, select and purchase said products and services from CP Pistons/Pankl "as is" and "with faults" and CP Pistons/Pankl shall provide purchaser with a full and complete opportunity to examine parts, inventory or services when purchasing from CP Pistons/Pankl. CP Pistons/Pankl shall not under any circumstances, be liable for any special, incidental, or consequential damages, including, but not limited to, damages or loss of other property of equipment, loss of profits or revenue, cost of purchased or replacement goods, or claims of customers of the purchaser which may arise and/or result from sales, installation or use of these parts.



INSTALLATION SPECIFICATION SHEET



CP PISTON RING RECOMMENDATIONS

Failure to check ring gap can result in severe engine failure. The following end gap recommendations are general guidelines. The best ring gap for any particular engine and application varies. Increased clearance is generally needed for forced induction, nitrous, filled blocks, endurance racing and other extreme applications. The final end gap suitable for the engine is the full responsibility of the engine builder. If you have any questions, please call 949-567-9000 for technical support.

RING GAP MEASURING PROCEDURES

1. A torque plate should be installed on engine (if applicable) and torqued to same specifications as machine shop.
2. Piston ring should be below and square to the deck.
3. Measure ring end gap with a feeler gauge.

Ring End Gap Chart			
APPLICATION	TOP RING	SECOND RING	OIL RING
Street / Hi Performance	Bore x .0045"	.004" - .008" Bigger than top ring	Min..015" Do not file
Drag Racing Road Racing	Bore x .005"	.004" - .008" Bigger than top ring	Min..015" Do not file
Nitrous/Turbo Supercharged	Bore x .0055"	.004" - .008" Bigger than top ring	Min..015" Do not file

CP PISTONS CYLINDER HONING RECOMMENDATIONS

A torque plate must be utilized for boring and honing

GAS NITRIDED, CPN, CPN2 AND R8GNHD PISTON RINGS

To identify a gas nitrided top ring the entire ring will be a light gray. These instructions must be followed for maximum ring seal. A torque plate must be used unless the bolt holes are not part of the cylinder. The first stone is a 525 (220 grit) stone, done until there is .001" left from final bore. The bore must be round to .0002", checked 360 degrees from the bottom to the top of the bore. Then switch to a 625 (280 grit) stone, 50% load until .0002" is left from final bore. Then use the 625 stone at 20% load to final bore size.



Rz = 59 – 138 μ in [=1.5 – 3.5 μm]
Ra = 15 – 35 μ in [=0.4 -0.9 μm]
35-40 degree - crosshatch

Determining Ring Gap

To determine the ring end gap look for your application in the proceeding table. ALL BORES MUST BE CONVERTED TO INCHES. Example: Bore size is 81mm – to find top ring end gap for a street application:

$$81\text{mm}/25.4 = 3.189\text{ inches}$$

$$(3.189" \times .005) = .016"$$

.016" is the minimum allowable clearance.

NOTE

If the ring gap is less than the minimum specified for your bore size, it will be necessary to file fit the rings to achieve proper end gap.

Ring Filing Procedures

1. Ring gap should be filed using a ring filing tool.
2. Ring gap should be filed in an inward direction and square to the sides.

Important: Ring sets are manufactured to fit specific bores. For every .001" over the intended bore size, ring gap will increase by .00314"

DUCTILE MOLY RINGS

To identify a moly top ring look for a silver-grey plated finish with black phosphated top and bottom surfaces. If there is a dot on the flat side of the ring, make sure it faces up. Rough hone cylinders to within .003, intermediate hone to within .0005 with 220 grit and final hone with a 400 grit and a 10 to 12 RA finish with a 20° to 22° crosshatch.

CHROME RINGS

To identify a chrome top ring the face will have chrome plating, the top and bottom of the ring will be a reddish-brown. Chrome on any of the rings is not advisable with nikasil bores. These instructions must be followed for maximum ring seal. A torque plate must be used unless the bolt holes are not part of the cylinder. The first stone is a 525 (220 grit) stone, honed until there is .001" left from final bore. The bore must be round to .0002", checked 360 degrees from the bottom to the top of the bore. Continue with a 525 (220 grit) stone, 50% load until .0002" is left from final bore. Then use the 525 stone at 20% load to final bore size.

ALL RINGS

The honing must be done slow to minimize heat build-up. No hand honing. Final bore needs to be less than plus or minus .0002" out of round, checked 360 degrees around the bore from the bottom to the top of the cylinder. This should be checked with a dial bore gauge. The expertise of your machine shop is critical to the proper finish on your block bore. When you receive the block back from the machine shop it will appear clean, the block still needs to be cleaned. There could be material trapped in the honing grooves of the block that are not visible. Failure to clean the block could lead to premature ring wear and blow-by.