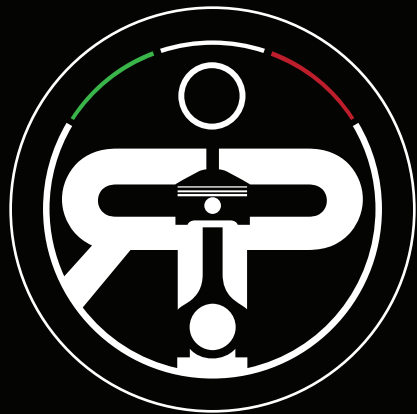


ITALIANRP

RODS AND PISTONS



PISTONS INSTALLATION SPECIFICATION SHEET

www.italianrp.it

TOP RING INSTALLATION

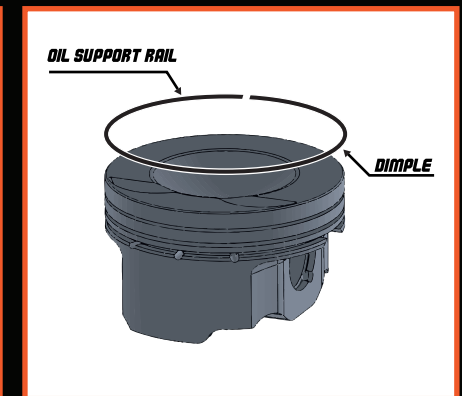
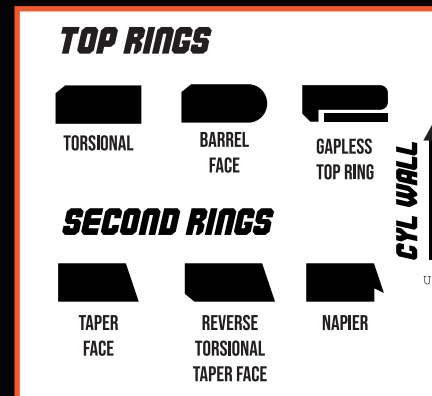
If the ring has a dot or laser marking then this side will face up. If there is no dot look for an inner bevel and install this facing up. If there is neither a bevel or any other marking the ring can be installed either way (non directional).

SECOND RING INSTALLATION

If the ring has a dot or laser marking this side will face up. If there is no dot look for an inner bevel and install this facing down. If you do not see either refer to the diagram below. It is very important not to install the 2nd ring upside down otherwise it will pump oil into the combustion chamber.

OIL RING INSTALLATION

Install the expander into the ring groove followed by the rails. The rails should be offset about 180°



TOTAL SEAL GAPLESS FIRST RING

It's really important that the two gapless rings need to have 0.50 - 0.70 gap

OIL SUPPORT RAIL INSTALLATION

In application where the pin bore protrudes into the oil ring groove a rail support needs to be used. Install the rail support at the bottom of the oil ring groove with the dimple in the pin bore facing down.

DISCLAIMER/WARRANTY

Due to the nature of the application, these parts are sold without any express warranty or any implied warranty of merchantability, or fitness for a particular purpose. ItalianRP shall not, under any circumstances, be liable for any special, incidental or consequential damages, including, but not limited to, damage, or loss of property or equipment, loss of profits or revenue, cost of purchased or replacement goods, or claims of customers of the purchase, which may arise and/or result from sale, installation or use of these parts. The sole obligation of ItalianRP shall be limited only to the products to be found defective, in either workmanship or material, after inspection performed by our company. This Limited Warranty applies only to the original purchaser of the product and only covers the replacement or repair of the product at our election.



RING RACCOMENDATIONS

Failure to check ring gap can result in severe engine failure. 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 technical questions please contact us at www.italianrp.com

RING GAP MEASURING PROCEDURES

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

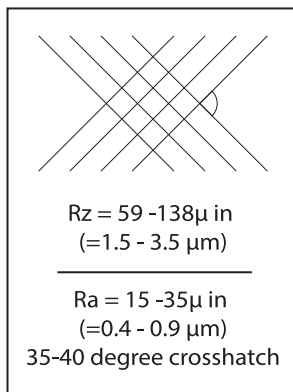
CYLINDER HONING RECOMMENDATIONS

A torque plate must be utilized for boring and honing.

GAS NITRED

To identify a gas nitrided top ring the entire ring will be a light gray. For maximum ring seal a torque plate must be used, unless the bolt holes are not part of the cylinder. Begin with a 525 (220 Grit) stone, done until there is 0.0254mm left from final bore. The bore must be round to .00508mm, checked 360 degrees from the bottom to the top of the bore. Then switch to a 625 (280 grit) stone, 50% load until .00508mm is left from final bore. Then use the 625 stone at 20% load to final bore size.

* In some cases second ring tolerance could be higher



RING END GAP CHART

APPLICATION	TOP RING	SECOND RING*	OIL RING
Street Hi performance	Bore x .0045 mm	0.1016 - 0.2032 mm Bigger than top ring	0.4 to 1.5 mm
Drag Racing Road Racing	Bore x .0050 mm	0.1016 - 0.2032 mm Bigger than top ring	0.4 to 1.5 mm
Nitrous Turbo Charged	Bore x 0.0055 mm	0.1016 - 0.2032 mm Bigger than top ring	0.4 to 1.5 mm

DUCTILE MOLY RINGS AND PVD

To identify a moly top ring look for 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 .0762mm, intermediate hone to within 0.0127mm 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. There 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 .0254mm left from final bore. The bore must be round to 0.00508mm, checked 360 degrees from the bottom to the top of the bore. Continue with a 525 (220 grit) stone , 50% load until 0.00508mm 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 need to be less than plus or minus 0.00508mm 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 you block bore. When you receive the block back from the machine shop it will appear clean, the block still needs to be cleaned. The 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.

DETERMINING RING GAP

To determining the ring end gap look for your application in the table on the left.

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 filling tool
 - 2) Ring gap should be filed in an inward direction and square to the sides
- Ring sets are manufactured to fit specific bores. For every 0.0254mm over the intended bore size, ring gap will increase by 0.0797mm