

RING INSTALLATION

Most Powroll piston rings are purposely oversized to enable re-ringing of cylinders which have worn within certain acceptable limits. Because of this, ring ends must usually be filed down before installation.

FAILURE TO FILE RINGS TO APPROPRIATE END GAP WILL CAUSE ENGINE DAMAGE.

Excess gap is not critical

Insufficient gap can be ruinous!

Ring Diameter Inches	Ring Diameter Millimeters	Min. End Gap
1.731" to 1.968"	44mm to 50mm	.004"
1.969" to 2.675"	50.25mm to 68mm	.007"
2.676" to 3.120"	68.10mm to 79.25mm	.010"
3.121" to 4.000"	79.35mm to 102mm	.013"

Ring
Dia.

In. mm

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ALWAYS INSTALL RINGS WITH MARKINGS FACING UP.

TOP RING – COMPRESSION RING

May either be square or grooved like the scraper design below. Chromed face always installs in the top ring land. Engraved "top", "N", or other markings, or paint mark denote top of ring.

CENTER RING – SCRAPER RING

Usually has either an inside groove (installs up), or an outside groove (installs down). If no grooves or markings, install either side up. Face may be chrome.

OIL RING

May be a *one piece*, or *three piece design*. One Piece: Unless marked, install with either side up.

Three Piece: Install corrugated spacer first, then lower rail, then upper rail. Locate gaps approximately 1" apart. (Note: there is no "top" to any of the three oil rings). *Ends of corrugated center rail must butt together, not overlap.*

BASIC RE-RINGING PROCEDURES

- When re-ringing, follow this procedure for testing piston-to-cylinder wall clearance: First, bathe piston and cylinder in diesel or stove oil (lubricates as it cleans) and leave wet. Nest, place a long-type feeler gauge in the cylinder (NOTE: If thickness of gauge required to complete this test is .002" or more greater than original clearance specifications, boring to an oversize is advised). Insert piston, without rings, so the gauge contact is made on the thrust side (at right angles to the piston pin holes). The correct amount of force required to move the piston, measured by a spring scale should be 5 to 6 lbs.
- Inspect cylinder wall for wear. Boring to an oversize generally is advisable whenever there's a ridge of .001" or more.
- Don't re-use pistons which have seized. Such overheating invariably causes partial collapse of the piston skirt. This allows slight rocking of the piston within the cylinder, with resultant poor ring seal.
- Remove any carbon and inspect piston ring lands for wear. If it is possible to insert a .005" feeler gauge between the top ring land and the upper surface of the ring, the piston should be replaced. Also check for possible piston pin wear.
- Before installation, be certain you have the correct ring set. Ring width must be the same as the piston ring groove. Ring thickness must not be greater than piston ring groove depth. Misfitted rings can cause severe engine damage.
- Lightly hone cylinder to remove glaze (with 320 to 360 grit). Thoroughly clean everything in solvent, then with hot, soapy water – then immediately wipe dry and oil to prevent rust.
- Check the end gap of each ring by positioning it squarely in the lower, unwork portion of the cylinder (push in place with the piston). This clearance must not be less than the minimums specified above.
- Be sure ring gaps are spaced equally around the piston. Gaps falling one above the other can result in a compression leak.

IF YOU HAVE ANY QUESTIONS, GIVE US A CALL!

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