

Guide to Calculating Effective Compression Ratio
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- Locate the following engine specifications:
 - Bore
 - Stroke
 - Connecting rod length (center-to-center)
 - Lobe centers of camshaft
 - Intake duration of camshaft
- Determine piston displacement based on bore diameter and stroke length
- Measure combustion chamber volume
- Determine clearance volume (combustion chamber, deck clearance, gasket thickness, and piston top)
- Locate the intake valve closing point in degrees ABDC
- Determine the rod-to-stroke ratio by dividing rod length by stroke length
- Use chart to determine the percent of cylinder volume at IVC
- Multiply this percentage by the total piston displacement to get volume at IVC
- Use this volume at IVC in the formula for effective compression ratio

$$EFC = \frac{PD @ IVC + CV}{CV}$$

Effective Compression Ratio limits (assuming 100% VE and pump gas):

For cast iron heads about 7.0:1

For Aluminum heads about 8.0:1

**Since most engines do not achieve 100% VE, these limits can be higher*

