

# Machining Specifications

## Crankshaft\*\*

Crankshaft: Main Bearings

(Opel Factory) Standard 1, 2, 3, 4 & End Cap Bearing Diameter: 2.2829"-2.2835"

(Opel Factory) Undersize .010" (.25mm) 1, 2, 3, 4 Bearing Diameter: 2.2733" (+/- .0002")

(Opel Factory) Undersize .020" (.50mm) 1, 2, 3, 4 Bearing Diameter: 2.2635" (+/- .0002")

Main Bearing Bore Diameter: 2.4409-2.4415" (when align bored)

Crankshaft: Rod Bearing Journals

STD 2.046-2.0467"

Connecting Rod: Housing Bores:

STD 2.165"-2.166"

Rod Bearings:

(Opel Factory) Standard Rod Bearing Journals (all): .9858" (=/- .0015"),

(Opel Factory) Connecting Rod Width: .9789" (+/- .0010")

(Opel Factory) With Undersize .010" (.25mm): .9858" (+/- .0015");

(Opel Factory) Connecting Rod Width: .9789" (+/- .0010")

(Opel Factory) With Undersize .020" (.50mm): .9937" (+/- .0016"),

(Opel Factory) Connecting Rod Width: .9867" (+/- .0010")

Maximum Permissible Out-of-Roundness of Connecting Rod Bearing Journals: .0002"

Maximum Permissible Taper of Connecting Rod & Crankshaft Bearing Journals: .0004"

Maximum Permissible Radial Runout of Center Main Bearing Journals -  
when Supported in End Bearings: .0012"

Maximum Permissible Unparallelism of Connecting Rod Bearing Journals when Crankshaft—  
is Placed in V-Blocks so That Main Bearing Journals Next to Each Other are Supported: .0005"

Maximum Permissible Runout of Crankshaft to Flywheel Contact Area: .0008"

Crankshaft End Play: .0017" - .0061"

Main Bearing Clearance: .0009" - .0025"

Connecting Rod Bearing Clearance: .0006" - .0025"

Connecting Rod End Play on Bearing Journal: .0043" - .0095"

Connecting Rod Bearing Length: .7785" - .7992"

**Pistons\*\*** (*applies to original 1.9L pistons*)

Piston Clearance, Nominal (on skirt bottom): .0014"

Number 1 (top) Compression Ring Side Clearance in Piston Groove: .0024"-.0034"

Number 2 (middle) Compression Ring Side Clearance in Piston Groove: .0013"-.0024"

Oil Control Ring Side Clearance in Piston Groove: .0013" - .0024"

Piston Ring Gap: Number 1 (top) Ring .014" - .022"

Piston Ring Gap: Number 2 (middle) Ring .014" - .022"

Piston Ring Gap: Oil Control Ring .015" - .055"

Piston Pin in Connecting Rod: Press Fit

Piston Pin Offset: .031" to the Right

Engine Block, Cylinder Bore Limits for Standard Size Pistons:

OverSize 1 (OS .25mm, .010"): 3.659-3.660"

OverSize 2 (OS .50mm, .020"): : 3.661-3.663"

OverSize 3 (OS .75mm, .030"): : 3.664-3.668"

*NOTE: Oversized parts are marked as either metric or "ten thousandths"*

Cylinder Bore Limits for Oversize #2 Pistons, 3.679-3.681"

Maximum Permissible Cylinder Bore Out-of-Roundness: .0005"

Maximum Permissible Cylinder Bore Taper: .0005"

**\*\*Note:** Based on 1973 Opel Factory Service Manual, also includes some clarifying aftermarket information

For best results, use only as a general reference, and machine to dimensions of actual available parts.

