Southwest Research Institute® (SwRI®) has designed and manufactured two advanced single-cylinder engines for use in combustion research and development. These engines offer several unique features and are designed for low-cost operation through the use of many commercial off-the-shelf replaceable components. They are designed to accommodate either multi-cylinder or single-cylinder heads through a custom cylinder barrel and head support shelf.

Patent-pending features include mechanisms to adjust compression ratio and crankshaft offset without having to disassemble the entire engine. Optical access, dynamic cam phasing, secondary balancers, and floating liner devices can be added.

These platforms are available for contract research projects at SwRI and can also be purchased for use in a client’s laboratory in either base or customized engine configurations.

**Specifications for light- and medium-duty applications**
- Standard bore range 65–110 mm
- Standard stroke range 65–120 mm
- Engine speed up to 7,000 rpm
- Maximum cylinder pressure 200 bar at 110 mm bore
- Cylinder offset range –5 mm to +20 mm

**Specifications for heavy-duty applications**
- Standard bore range 110–145 mm
- Standard stroke range 110–185 mm
- Maximum speed 2,500 rpm
- Peak cylinder pressure 300 bar at 145 mm bore
- Optional cylinder offset capability 0–25 mm

**Specifications common to both research engines**
- Spark ignition or compression ignition
- Multi-fuel capability
- Single-piece crankcase
- Primary balancer shafts in crankcase with bolt-on counterweights
- Standard main bearings
- Bearing housing design to allow easy bearing and crankshaft removal
- Hydraulic camshaft phasers
- Belt-driven lube pump
- External circuits for coolant, lubrication, induction air boost, etc.
- Easily customizable
We welcome your inquiries.
For more information, please contact:

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