Supercritical Gasoline Injection-Ignition: TSci™

**ENGINE TEST DATA**: Bore X Stroke = 75 x 88.3mm CR17.5:1

**BENEFITS OF TSci™**
- Indicated thermal efficiency > 45%
- Low NOx and smoke emissions
- Control of Ignition delay using fuel temp
- Fuel pressure: <300bar
- Compatible with current technologies:
  - VGT turbocharger
  - EGR cooler and valve
  - VVT: variable valve timing
  - Non-SCR aftertreatment

**COMBUSTION CONTROL**
- Combustion is controlled directly with start of injection timing and is robust over wide range
- Supercritical state enables enhanced premixing
- Fuel temperature can be used to control level of fuel premix
- Able to control ignition delay and combustion duration using fuel temperature and pressure

**LOAD RANGE**
- Stable idle performance at 750rpm
- Maximum load capability greater than 16bar IMEP

**NOX AND SMOKE EMISSIONS**

**EMISSION CONTROL**
- EGR and Boost applied for NOx reduction and fuel consumption reduction
- Fuel pressure optimized for low smoke
- Fuel temperature optimized for further improvement in ISFC and smoke
- Premix optimized for ISFC and emissions