MAXIMUM
Torque, Power & Efficiency

MINIMUM
Engine Size

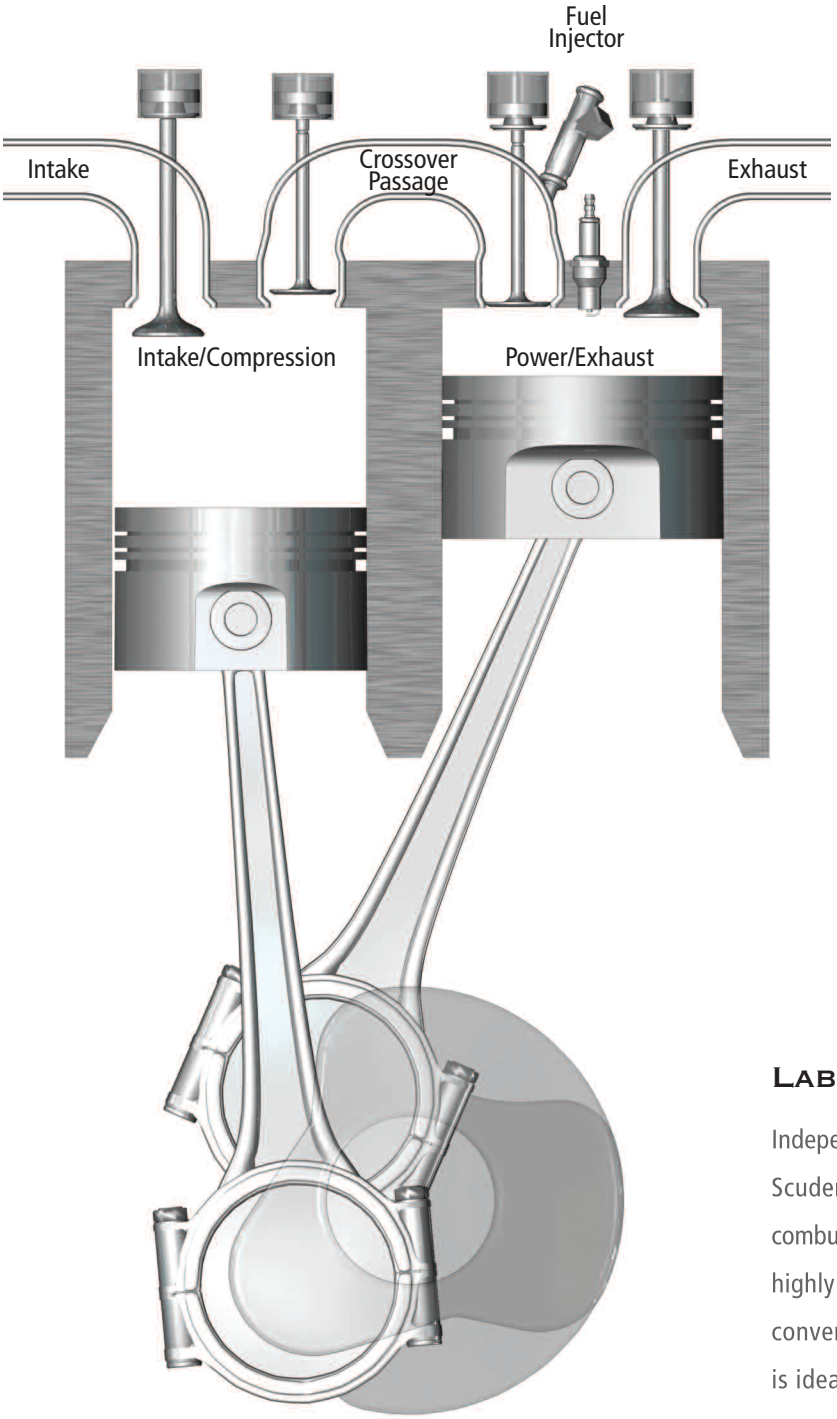
A Split-Cycle Design
Enabling the Most Powerful & Efficient
Internal Combustion Engine Possible

SCUDERI™
ENGINE

The Scuderi Engine

A Revolutionary Split-Cycle Design

Our split-cycle engine design divides the four strokes of the combustion cycle between two cylinders—one intake/compression cylinder and one power/exhaust cylinder—that are interconnected by a Crossover Passage™.



Key Features

- Scuderi-Cycle combustion process—fires after top dead center
- One combustion cycle per crankshaft revolution
- Heat release optimally phased with peak power location
- Fully variable intake and exhaust valves
- Outwardly opening Crossover Passage valves
- High geometric compression and expansion ratios

Laboratory Results

Independent laboratory results confirm that the Scuderi Engine has unusually fast and robust combustion; has a diesel like, flat torque curve; is highly knock resistant; produces less NOx than conventional internal combustion engines and is ideally suited for air hybridization.

The Scuderi Air-Hybrid System

Batteries Not Included

Unlike electric hybrids that use recovered kinetic energy to charge high-voltage batteries, our Air-Hybrid system uses kinetic energy to charge an air storage tank.

Modes of Operation

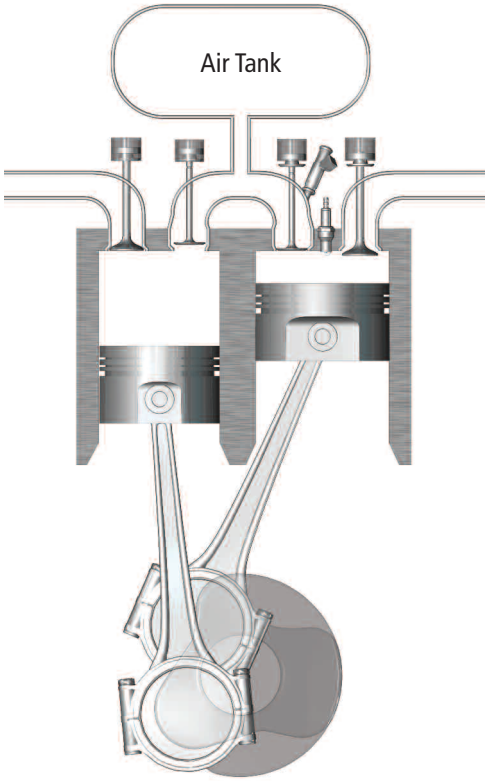
Normal Engine Firing Mode (EF)
The compression and power cylinders are enabled and high-pressure air from the compression cylinder is used for firing —without airflow to or from the air storage tank.

Air Compressor Mode (AC)
The power cylinder is disabled and the compression cylinder recharges the air storage tank during downhill operation, braking and deceleration—air flows to the air storage tank without fuel injection or firing.

Air Expander & Firing Mode (AEF)
The compression cylinder is disabled and high-pressure air for firing is released from the air storage tank—without airflow to or from the compression cylinder.

Firing & Charging Mode (FC)
The compression and power cylinders are enabled and the air storage tank is recharged while the power cylinder is firing—air flows to the air storage tank and the power cylinder.

Air Expander Mode (AE)
The compression cylinder is disabled and high-pressure air is released from the air storage tank to power the engine—without fuel injection or firing.



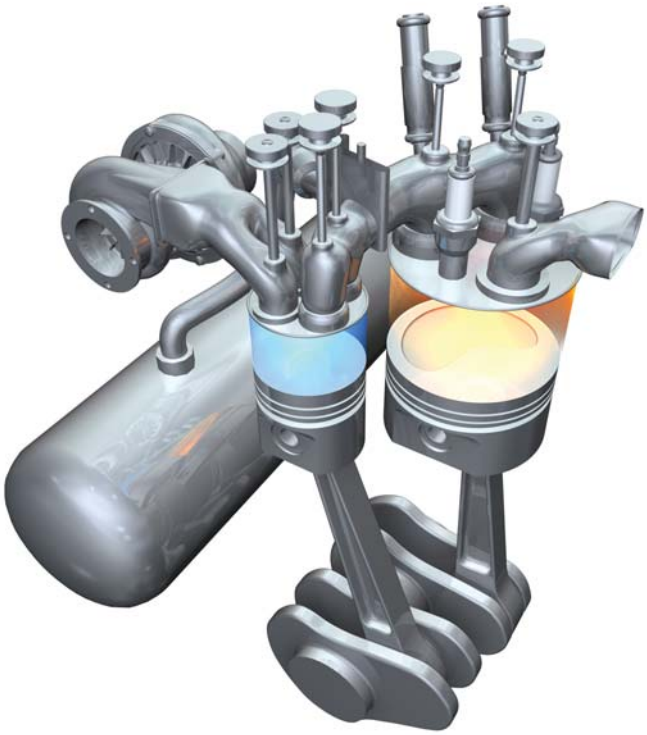
Key Benefits

- Low cost and light weight—only requires an air storage tank and controls
- High power density
- Efficiently converts kinetic energy to high-pressure compressed air energy
- High speed charge and discharge of stored energy

Scuderi & Miller - A Perfect Match

Unprecedented Efficiency, Unparalleled Performance

The Scuderi Engine gains a massive advantage from turbocharging, Miller-like valve control strategies and extended expansion that is simply not possible with conventional engine designs.



Our engine's innovative design drastically

INCREASES POWER

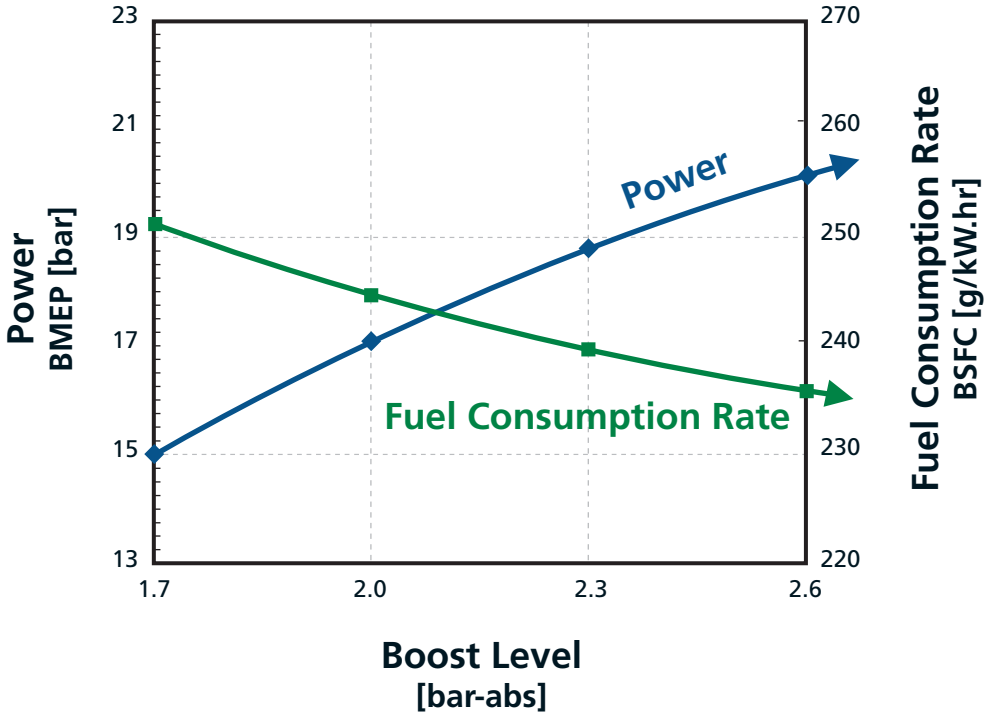
and

DECREASES ENGINE SIZE

while at the same time

REDUCES FUEL CONSUMPTION RATE

Scuderi Engine Performance



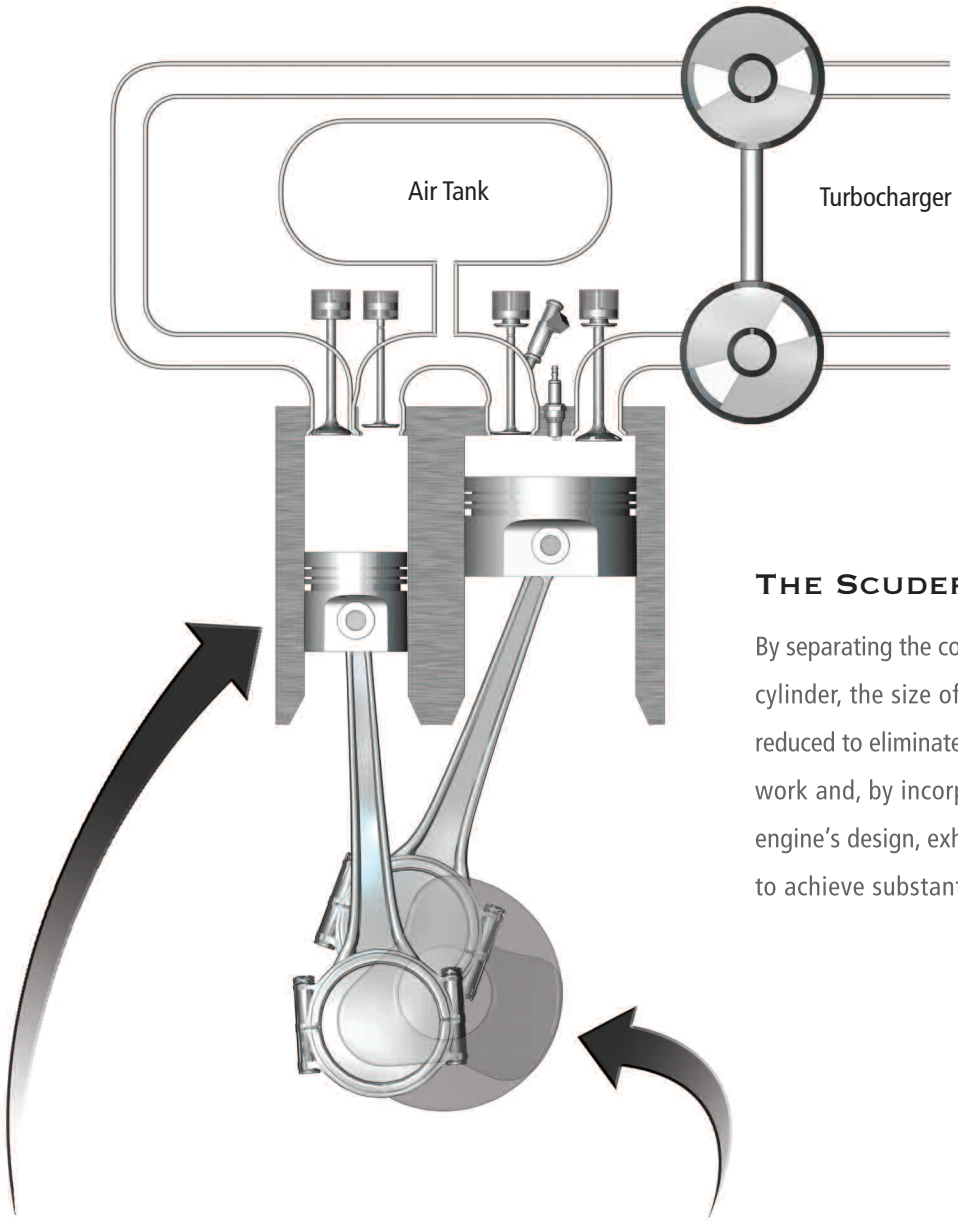
The Scuderi Engine

A New Era for the Internal Combustion Engine

Consistent with conventional four-stroke engine designs, the combustion cycle of the Scuderi Engine has two high-pressure strokes—compression and power. The power stroke is positive work, or energy that is produced by the expanding gases to create mechanical work. The compression stroke is negative work, or energy that the engine consumes to create mechanical work.

Increased Output

The useful work produced by the engine, the engine's output, is the difference between the positive work produced by the power stroke and the negative work consumed during the cycle.



The Scuderi Difference

By separating the compression cylinder from the power cylinder, the size of the compression cylinder can be reduced to eliminate some of the negative compression work and, by incorporating a turbocharger into the engine's design, exhaust gas-energy can be recovered to achieve substantial reductions in negative work.

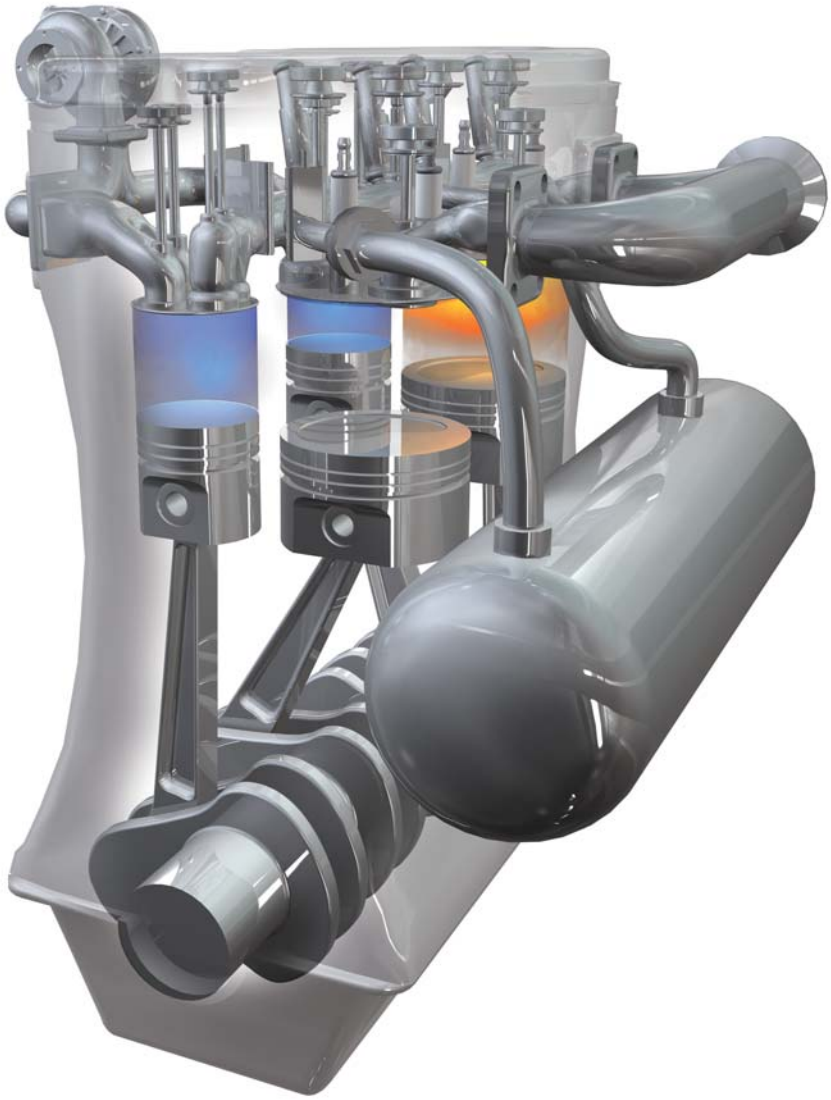
Less Work Here = More Work Here

The

Most Significant Advancement

in Internal Combustion Engines

in Over 130 Years.



Dramatic Reduction

In Fuel Consumption & CO_2 Emissions

Lowers NOx by

Up to 80%

Delivers The Same Power & Torque

As a Diesel Engine

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