VOLKSWAGEN
Industrial Engines

The TDI® 1.9 Industrial Engine
Drive for your ideas.

engine displayed with optional components
**The TDI® 1.9 Industrial Engine**

Very high power density, minimum running costs thanks to optimum use of fuel, very low emission levels, extremely compact dimensions – these are all TDI® hallmarks.

This in-line, 4-cylinder, water-cooled diesel engine owes its exceptionally high efficiency to Volkswagen’s innovative TDI® technology – the direct injection system also used in VW cars. The turbocharger and aftercooler deliver additionally compressed, cooler and therefore higher-energy air to the combustion chambers, further enhancing the engine’s performance. Exhaust gas recirculation combines with overall engine design to ensure low emissions, while reliability is guaranteed by a fully electronic engine management system. Thanks to valve timing by means of a single overhead camshaft, the TDI® Industrial Engine couldn’t be easier to maintain.

The performance capabilities of the TDI® 1.9 Industrial Engine are reflected in its specifications.

**Volkswagen Industrial Engines**

The advantages are crystal-clear: engine technology proven a million times over. All Volkswagen industrial engines are powered by the experience, innovative prowess and R&D strength of one of the world’s largest diesel engine manufacturers. Whether it’s reliability, quality, technical standards, cost efficiency or environmental sensitivity – the result is a keen cutting edge across the board. What else would you expect from the Volkswagens among industrial engines?
The TDI® 1.9 Industrial Engine in detail

### Technical Specifications

**Capacity**

- 1,896 cm³

**Bore/stroke**

- 79.5 mm / 95.5 mm

**Output (89/491/EWG)**

- 63 kW at 3,100 rpm

**Max. torque (89/491/EWG)**

- 215 Nm at 1,900 rpm

**Compression ratio**

- 19.5 : 1

**Charge pressure**

- (at Pₚₜₙₚₚ and standard conditions) 1.05 bar

**Weight (dry)**

- 150 kg

**Spec. fuel consumption (at greatest efficiency)**

- 207 g/kWh

**Crankcase**

- Cast iron

**Cylinder head**

- Aluminium alloy

**Crankshaft**

- Steel, die forged

### Injection System

- Direct injection with Bosch electronic VP37 distributor type pump
- Control unit: Bosch EDC 15 V+
- Injector: Dual spring system with 5 hole nozzle

### Engine Electrical Equipment

- Alternator: 12 V/90 A
- Starter: 12 V/1.8 kW
- Glow plugs: 12 V

### Fuel

- Diesel according to DIN EN 590, minimum cetane number > 49

### Lubrication System

- Pressure lubrication system, chain driven oil pump, full flow oil filter
- Oil cooler: Oil/water heat exchange
- Oil pressure (at 2,000 rpm and 80 °C / 176 °F): min. 2.0 bar
- Oil consumption: 0.05 – 0.1 l/h
- Oil filter: Vertical, with filter cartridge

### Cooling System

- Sealed cooling system (overpressure system with separate expansion tank and excess pressure valve)

### Permitted Engine Operating Data

- Max. permitted drive take-off from crankshaft
  - At belt pulley end: 50 Nm
  - Min. permitted cold start temperature: –24 °C / –11.2 °F
  - Max. permitted engine oil temp. (in sump): 130 °C / 266 °F
  - Max. permitted coolant temp. (outlet): 105 °C / 221 °F
  - Upper idling speed (engine not under load): 3,500 rpm
  - Lower idling speed: 900 rpm

### Installation Position

- Standard inclination (viewed from flywheel): 15° to right