

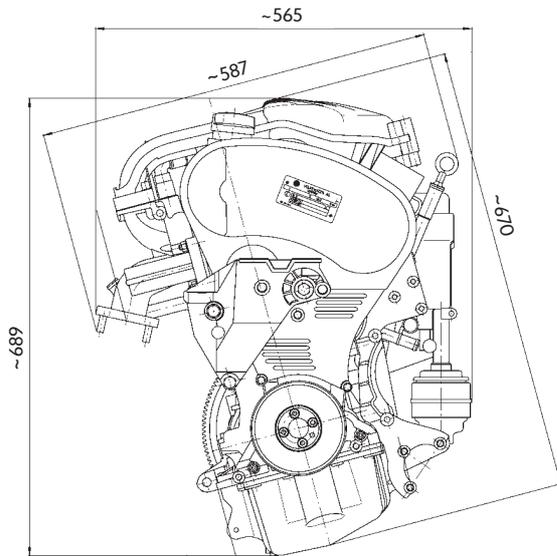
VOLKSWAGEN  
Industrial Engines

## The SDI® 1.9 Industrial Engine

Drive for your ideas.



engine displayed with  
optional components



## 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?



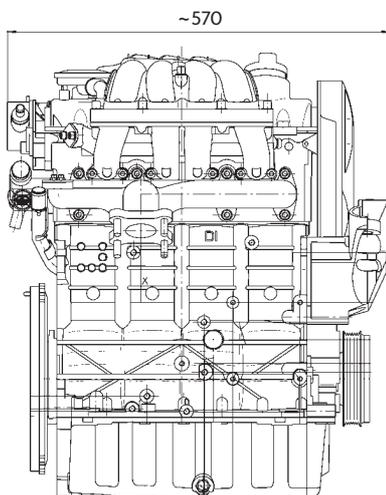
engine displayed with optional components

## The SDI® 1.9 Industrial Engine

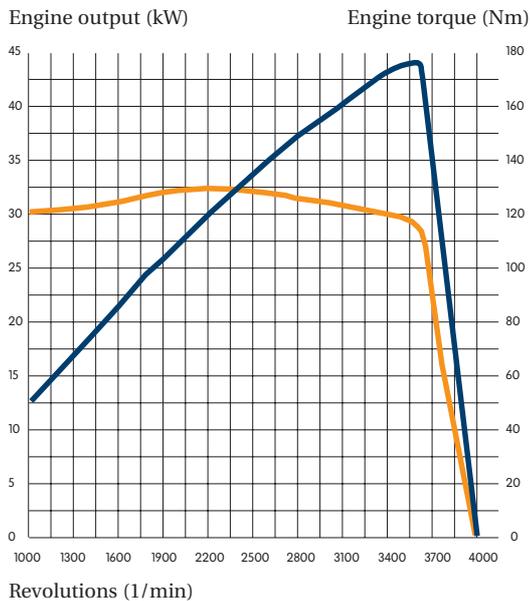
Volkswagen's tried-and-trusted SDI® technology – implemented with huge success in VW cars – gives the SDI® 1.9 Industrial Engine distinct and definite advantages.

Thanks to optimum use of fuel, this in-line, 4-cylinder, water-cooled diesel engine guarantees exceptionally low fuel consumption and running costs matched by very high power density. Fully electronic, state-of-the-art fuel injection ensures low emission levels. What's more, the SDI® packs it all into extremely compact dimensions. Valve timing by means of a single overhead camshaft makes for sure, simple maintenance.

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



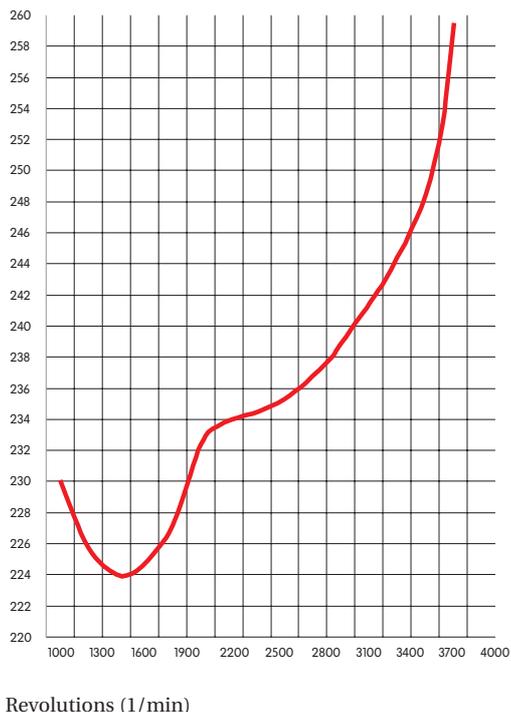
## The SDI® 1.9 Industrial Engine in detail



— Engine torque according to 97/68/EG

— Engine output according to 97/68/EG

Specific fuel consumption (g/kWh)



Revolutions (1/min)

— Specific fuel consumption

Capacity	1,896 cm <sup>3</sup>
Bore / stroke	79.5 mm / 95.5 mm
Output (89/491/EWG)	44 kW at 3,600 rpm
Max. torque (89/491/EWG)	130 Nm at 2,200 rpm
Compression ratio	19.5 : 1
Weight (dry)	150 kg
Spec. fuel consumption (at greatest efficiency)	224g/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)	4,000 rpm
Lower idling speed	900 rpm

### Installation position

Standard inclination (viewed from flywheel)	15° to right
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