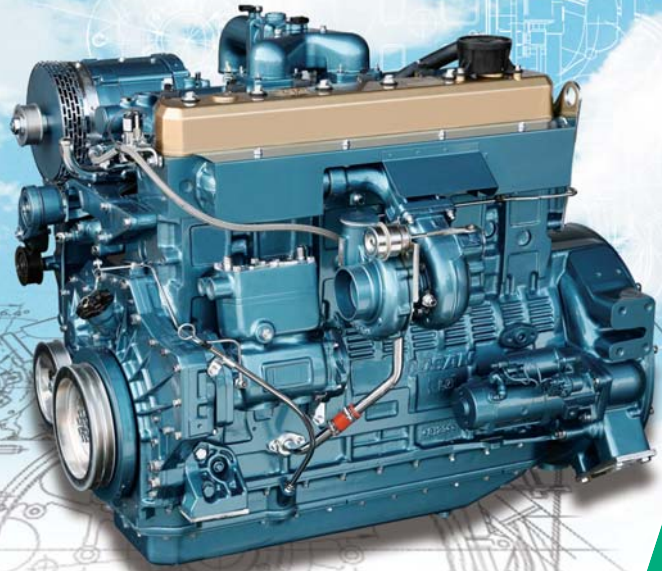


# GK12 CNG Engine



## \* Design Features

Doosan's dedicated CNG engine is an adaptive lean burn system. That leads to better fuel economy and lower NOx emission through precise Air/Fuel ratio control, well-tuned "phi-timing" and higher ignition energy.

**Air/Fuel Regulation:** The air-fuel ratio is controlled by a full authority electronic control system. This system controls fuel metering, boost pressure, throttle position and governing. The control system features closed-loop and adaptive lean fuel control with feedback provided by a universal exhaust gas oxygen sensor.

**Cylinder Head:** Improved thermal durability, lower wear rate of valve seat ring by adopting metal powder alloy

**Valves:** Wear resistant material featuring Stellite armored face

**Piston:** Reduction of compression ratio, controlled profile, open dish-type chamber

**Turbocharger:** Water cooled bearing housing and an electronically-controlled wastegate provide fast response and increased performance

**Lower oil consumption:** Controlled valve stem seal and inner surface of cylinder liner

## \* General Specification

### ENGINE

• Model	GK12
• Use	For automotive use
• Type	4 Cycle, turbocharged & intercooled

### PERFORMANCE

#### CNG ENGINE (US07)

• Max. Power	213kW(290ps) / 2,200rpm
• Max. Torque	904lb-ft (125kg.m) / 1,260rpm

\*Doosan is under development of "US10" engine with SCR.

### CYLINDER

• Number	6
• Arrangement	Vertical in-line
• Combustion type	Spark ignition
• Bore x stroke	123 x 155 mm (4.84 x 6.10 in.)
• Total piston displacement	11,051 cc (674.37 cu. in.)
• Compression ratio	10.5 : 1
• Valve mechanism	Overhead valve

### OUTLINE

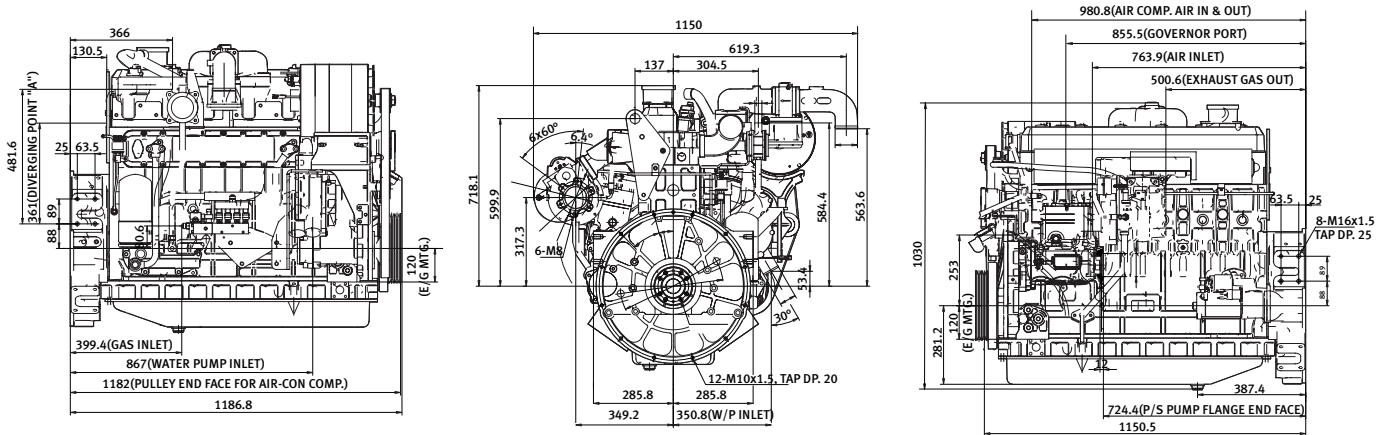
• Dimension (LxWxH)	1,187x1,150x1,030(mm) (46.7x45.3x40.6(in.))
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# Clean & Simple Solution, Doosan CNG Engine.



## \* Dimensions

Unit : mm(inch)



## \* General Specification

### FUEL SYSTEM

- System: Air-fuel mixer and throttle valve type
- Control: Air-fuel ratio feedback control
- Injector: PWM-type solenoid valve
- Mixer: Single point air-fuel mixer
- Mixer location: Between Intercooler and throttle valve

### IGNITION SYSTEM

- Ignition coil: Inductive coil pack (coil on plug)
- Spark plug: Double platinum electrode
- Ignition type: One coil per cylinder (no waste spark)
- Ignition timing: Controlled by ECM and ICM

### WEIGHT CONTROL SYSTEM

- Control: On-highway heavy duty CNG engine control
- Voltage: 24V
- Component: ECM, ICM, sensors, wire harness

### LUBRICATION SYSTEM

- Oil pump: Gear-type driven by crank shaft
- Oil filter: Full flow, paper element type
- Oil pan capacity: High level 19 liters (5.02 US gal.)  
Low level 15.5 liters (4.09 US gal.)
- Oil cooler: Water cooled, integral type
- Lub. oil (recommended): API service classification CD,  
SAE No. 15w40  
sulfated ash content less than 0.5%

### COOLING SYSTEM

- Cooling method: Freshwater forced circulation
- Fan speed to engine speed: Electric control
- Cooling water capacity (engine only): 19 Liters (5.02 US gal.)
- Pressurizing system (recommended): Max. 0.9 kg/cm<sup>2</sup> (12.8 psi)
- Water pump: Centrifugal-type driven by gear
- Capacity: 350 Liters (92.4 US gal.) / min  
At 2,200 rpm (engine)
- Thermostat: Wax-Pellet type

### ELECTRICAL SYSTEM

- Charging generator: 28V x 330A
- Voltage regulator: External regulator
- Starting motor: 24V x 6kW (reductor type)
- Battery voltage: 24V

### AIR COMPRESSOR

- Capacity: 365cc (22.27 cu.in.) / rev
- Air comp speed to engine speed: 1.029 : 1
- Cooling method: Water cooled

### POWER STEERING PUMP

- Type: VANE type
- Control pressure: 140 Bar (2,031 psi)
- Capacity: 19 Liters (5.02 US gal.) / min
- Pump speed to engine speed: 1.029 : 1
- Control pressure: 140 bar(2,031psi)



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