

DOOSAN INFRACORE GENERATOR ENGINE

D18



| Ratings (kWm/HP) | Gross Engine Output | |
|----------------------|---------------------|-------|
| | Standby | Prime |
| 1500rpm(50Hz) | 26/35 | 23/30 |
| 1800rpm(60Hz) | 29/40 | 25/33 |

Ratings Definitions

The power ratings of Emergency Standby and Prime are in accordance with ISO 8528.

Fuel Stop power in accordance with ISO 3046.

Electric power (kWe) must be considered cooling fan loss, alternator efficiency, altitude derating and ambient temperature.

STANDBY POWER RATING is applicable for supplying emergency power for the duration of the utility power outage.

No overload capability is available for this rating. A standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating.

PRIME POWER RATING is available for an unlimited number of hours per year in variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 24 hours. The Total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour withing a 12 hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

© MECHANICAL SYSTEM

| | |
|---------------------------------|--|
| o Engine Model | D18 |
| o Engine Type | In-line 3 cycle Diesel, water cooled, Turbo-intercooler |
| o Combustion type | Direct injection |
| o Cylinder Type | Linerless |
| o Number of cylinders | 3 |
| o Bore x stroke | 90 x 94 mm |
| o Displacement | 1.794 lit. |
| o Compression ratio | 17.0 : 1 |
| o Firing order | 1-2-3 |
| o Dry weight | 198 kg (w/o starter, alternator, aftertreatment) |
| o Dimension(LxWxH) | 740.4 x 556.7 x 769.9 mm (with DOC) |
| o Rotation | Counter clockwise viewed from Flywheel |
| o Fly wheel housing | SAE NO.4M (SAE J617) |
| o Fly wheel | Clutch 10"(SAE J620) |
| o Number of teeth (Flywheel) | 104 |

© ENGINEERING DATA

| | |
|---------------------------------|--|
| o Water flow | Refer to below performance data |
| o Heat rejection | |
| - .to coolant | Refer to below performance data |
| - .to CAC | Refer to below performance data |
| o Air flow | Refer to below performance data |
| o Exhaust gas temp. | Refer to below performance data |
| o Max. permissible restrictions | |
| - .Intake system | 2.16 kPa clean filter 6.23 kPa dirty filter |
| - .Exhaust system | 5.4 kPa max. |

© FUEL SYSTEM

| | |
|--------------------|---------------------------|
| o Injection pump | DELPHI DFP 4.4 |
| o Governor | Controlled by ECU |
| o Speed drop | G2 Class (ISO 8528) |
| o Feed pump | N/A |
| o Injection nozzle | Multi hole type |
| o Fuel filter | Full flow, cartridge type |
| o Used fuel | EN590 |

© LUBRICATION SYSTEM

| | |
|--------------------|---|
| o Lub. Method | Fully forced pressure feed type |
| o Oil pump | Gear type driven by crankshaft |
| o Oil filter | Full flow, cartridge type |
| o Oil pan capacity | High level 6.31liters Low level 2.8 liters |
| o Angularity limit | 35 deg all around |
| o Lub. Oil | 10W/30 CJ-4 (Refer to Operation Manual) |
| o Maximum oil temp | 135°C at main oil gallery |
| o Lub oil pressure | Idle Speed : Min 100 kPa Min 250kPa(50Hz) / 300kPa(60Hz) |

© COOLING SYSTEM

| | |
|-----------------------------------|---|
| o Cooling method | Fresh water forced circulation |
| o Water capacity (engine only) | Approx. 3.3 lit |
| o Water pump | Centrifugal type driven by belt |
| o Thermostat | Wax – pellet type Opening temp. 82°C Full open temp. 97°C |
| o Cooling fan | - |
| o Water Temperature | 110°C (max.) |

◎ VALVE SYSTEM

| | |
|----------------------------|----------------------------------|
| o Type | Over head valve |
| o Number of valve | Intake 2, exhaust 2 per cylinder |
| o Valve lashes (@ cold) | Intake 0.4mm Exhaust 0.45mm |

◎ ELECTRICAL SYSTEM

| | |
|-------------------------------|------------------------------|
| o Battery Charging Alternator | 12V x 90A |
| o Voltage regulator | Built-in type IC regulator |
| o Starting motor | 12V x 2.7kW |
| o Battery Voltage | 12V |
| o Battery Capacity | 100 Ah, 950CCA (recommended) |
| o Starting Aid | Glow plug |

◎ PERFORMANCE DATA

| | Prime Power | | Standby Power | |
|--|-------------|------|---------------|------|
| o Governed Engine speed rpm | 1500 | 1800 | 1500 | 1800 |
| o Engine Idle Speed rpm | 800 | 800 | 800 | 800 |
| o Over speed limit rpm | 2200 | 2200 | 2200 | 2200 |
| o Gross Engine Power kW | 23.0 | 25.0 | 26.0 | 29.5 |
| | HP | 30.4 | 33.0 | 34.8 |
| o Break Mean effective Mpa | 0.75 | 0.68 | 1.16 | 1.10 |
| o Mean Piston Speed m/s | 4.7 | 5.64 | 4.7 | 5.64 |
| o Friction Power kW | | | | |
| | HP | | | |
| o Specific fuel consumption | | | | |
| 25% load liters/hr | 2.0 | 2.5 | 2.1 | 2.6 |
| 50% load liters/hr | 3.3 | 3.8 | 3.7 | 4.3 |
| 75% load liters/hr | 4.8 | 5.4 | 5.4 | 6.1 |
| 100% load liters/hr | 6.2 | 6.8 | 6.9 | 7.9 |
| o Maximum Lube oil consumption g/h | 5.6 | 5.6 | 5.6 | 5.6 |
| o Fan Power kW | - | - | - | - |
| o Sound Pressure at 1m from the each side of Cylinder Block (without Fan) dB(A) | 84.8 | 87.2 | 84.8 | 87.2 |

The all data and the specific fuel consumption are based on ISO 3046/1, Standard reference conditions are in accordance 298 K(25° Celsius) air temperature, 100kPa(1000mbar) air pressure, 60% relative humidity, 110m(361ft) altitude.

Operation At Elevated Temperature And Altitude: The engine may be operated at :

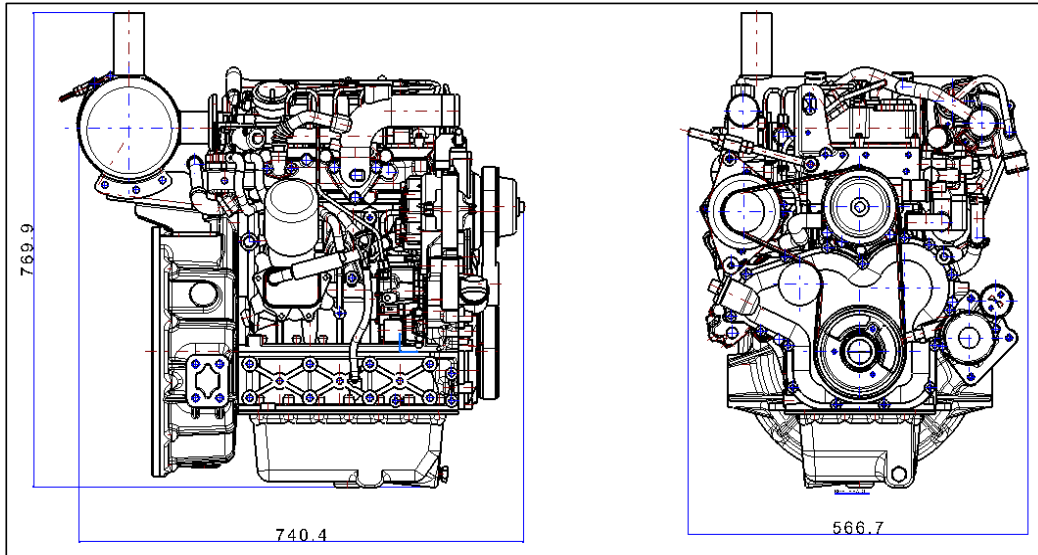
1800 rpm & 1500rpm up to 2000m without power deration, and derate by 2.5% per 100m above 2000m

Refer the PRD or check sheet for the temperature requirement

Engine Data with Dry Type Exhaust Manifold

| | | | | |
|--|------|------|------|------|
| o Intake Air Flow m ³ /min | 1.49 | 1.68 | 1.60 | 1.90 |
| o Exhaust gas temp. ε °C | 405 | 385 | 415 | 400 |
| o Exhaust Gas Flow m ³ /min | 1.81 | 2.02 | 1.91 | 2.25 |
| o Heat Rejection to Exhaust kW | 13.7 | 14.4 | 15.1 | 16.8 |
| o Heat Rejection to Cooling kW | 20.8 | 22.1 | 22.8 | 25.0 |
| o Heat Rejection to Intake kW | 2.2 | 2.6 | 2.4 | 3.1 |
| o Radiated Heat to Ambient kW | - | - | - | - |
| o Cooling water circulation liters/min | 62.5 | 76 | 62.5 | 76 |
| o Cooling fan air flow m ³ /min | N/A | N/A | N/A | N/A |

o Dimension(LxWxH) 740.4 x 556.7 x 769.9 mm (with DOC)



◆ CONVERSION TABLE

| | |
|----------------------------------|------------------------------------|
| in. = mm x 0.0394 | lb/ft = N.m x 0.737 |
| PS = kW x 1.3596 | U.S. gal = lit. x 0.264 |
| psi = kg/cm ² x 14.22 | kW = 0.2388 kcal/s |
| in ³ = lit. x 61.02 | lb/PS.h = g/kW.h x 0.00162 |
| hp = PS x 0.98635 | cfm = m ³ /min x 35.336 |
| lb = kg x 2.20462 | |

Revised : 30th, June, 2016

※ Specifications are subject to change without prior notice

