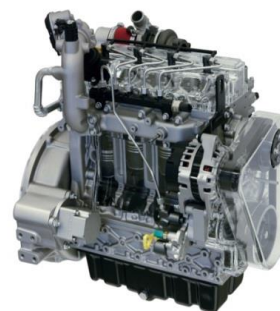


# DOOSAN INFRACORE GENERATOR ENGINE

## D24



Ratings ( kWm/HP)	Gross Engine Output	
	Standby	Prime
1500rpm(50Hz)	42/56	38/51
1800rpm(60Hz)	50/68	44/59

### 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	D24
o Engine Type	In-line 4 cycle Diesel, water cooled, Turbo-intercooler
o Combustion type	Direct injection
o Cylinder Type	Linerless
o Number of cylinders	4
o Bore x stroke	90 x 94 mm
o Displacement	2.392 lit.
o Compression ratio	17.0 : 1
o Firing order	1-3-4-2
o Dry weight	233 kg (w/o starter, alternator, aftertreatment)
o Dimension(LxWxH)	840.4 x 553.8 x 774.7 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	8.2 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 8.6 liters Low level 4.5 liters
o Angularity limit	35 deg all around
o Lub. Oil	10W30 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	Approx. 4 lit (engine only)
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		38.0	44.0	42.0	50.5
	HP	50.9	58.9	57.0	67.8
o Break Mean effective Mpa		1.27	1.23	1.40	1.41
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	2.9	3.6	3.1	3.8
50% load	liters/hr	5.0	6.1	5.5	6.7
75% load	liters/hr	7.3	8.5	8.1	9.7
100% load	liters/hr	9.7	11.2	10.7	12.9
o Maximum Lube oil consumption g/h		7	7	7	7
o Fan Power kW		-	-	-	-
o Sound Pressure at 1m from the each side of Cylinder Block (without Fan) dB(A)		87.5	87.8	87.5	87.8

The all data and the specific fuel consumption are based on ISO 3046/1, Standard reference conditions are in accordance with 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 :

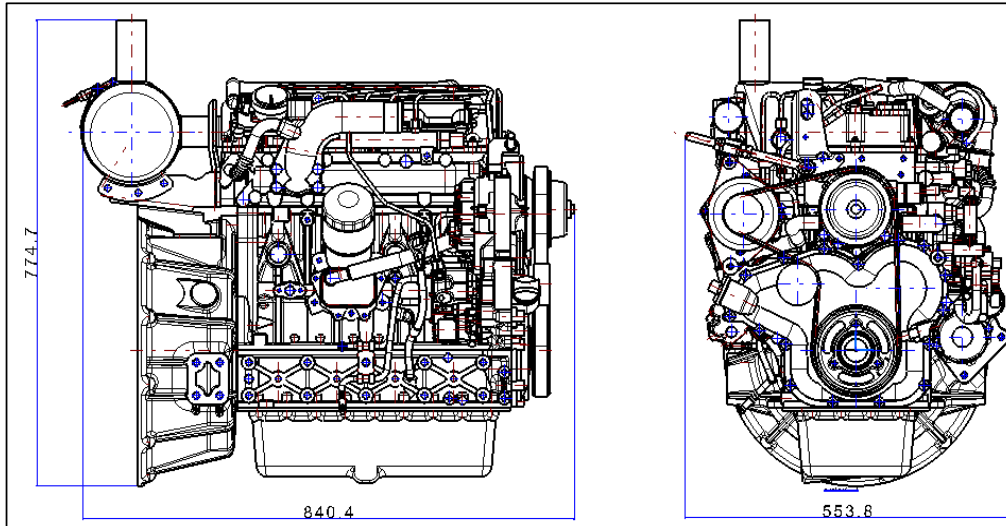
1800 rpm & 1500rpm up to 2000m without power deration, and derate by 2.5% per 100m above 2000m

Refer the PRD or check sheet for the temperature requirement

#### Engine Data with Dry Type Exhaust Manifold

o Intake Air Flow m <sup>3</sup> /min		2.21	2.76	2.35	2.94
o Exhaust gas temp. ε °C		440	420	428	437
o Exhaust Gas Flow m <sup>3</sup> /min		2.45	3.01	2.58	3.17
o Heat Rejection to Exhaust kW		21.4	24.8	24.0	27.8
o Heat Rejection to Cooling Water kW		28.4	31.9	30.7	34.4
o Heat Rejection to Intake Air kW		4.0	5.8	4.8	6.4
o Radiated Heat to Ambient kW		-	-	-	-
o Cooling water circulation: liters/min		60	72	60	72
o Cooling fan air flow m <sup>3</sup> /min		N/A	N/A	N/A	N/A

o Dimension(LxWxH) 840.4 x 553.8 x 774.7 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 <sup>2</sup> x 14.22:	kW = 0.2388 kcal/s
in <sup>3</sup> = lit. x 61.02	lb/PS.h = g/kW.h x 0.00162
hp = PS x 0.98635	cfm = m <sup>3</sup> /min x 35.336
lb = kg x 2.20462	

Revised : 30th, June, 2016

※ Specifications are subject to change without prior notice

