DOOSAN INFRACORE GENERATOR ENGINE

Ratings (kWm/PS)	Gross Engir	ne Output	Net Engine Output		
	Standby	Prime	Standby	Prime	
1500rpm(50Hz)	152/207	137/186	147/200	132/179	
1800rpm(60Hz)	187/254	168/228	179/243	160/218	

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.

<u>STANDBY POWER RATING</u> 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.

<u>PRIME POWER RATING</u> 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.

© GENERAL ENGINE DATA

○ Engine Model	DP086TA
○Engine Type	4-Cycle, In-line, 6-Cylinder Diesel, water cooled, Turbo charged
O Bore v stroke	111 x 139 mm
	8.071 liters
Compression ratio	
○ Rotation	Counter clockwise viewed from Flywheel
○ Firing order	1-5-3-6-2-4
○ Injection timing	19°±1° BTDC
○ Dry weight	790kg(with Fan)
	1,242 x 746 x 1,113 mm
○ Fly wheel housing	SAE NO.1M
○ Fly wheel	Clutch NO.14M
○Number of teeth on flywheel	102
Maximum Bending Moment at Rear Face to Block	1325 N • M
© EXHAUST SYSTEM	
Maximum Back Pressure	5.9 kPa
© AIR INDUCTION SYSTEM	
Maximum Intake Air Restriction	
. With Clean Filter Element	2.16 kPa
. With Dirty Filter Element	6.23 kPa
OMax. static pressure after Radiator	0.125 kPa



◎ COOLING SYSTEM

Water circulation by centrifugal pump on engine.				
• Cooling method	Fresh water forced circulation			
• Coolant capacity	Engine Only : Approx. 14 lit., With Radiator : Approx 44 lit.(standard			
• Coolant flow rate	166 liters / min			
○ Pressure Cap	Max. 49 kPa			
○ Water Temperature				
- Maximum for standby and Prime	103℃			
- Before start of full load	40.0 ℃			
○ Water pump				
○ Thermostat Type and Range	Wax – pellet type, Opening temp. 71°C, Full open temp. 85°C			
○ Cooling fan	Blower type, Plastic , 660 mm diameter, 7 blade			
○ Max. external coolant system restriction	Not Available			
© LUBRICATION SYSTEM				
Force-feed lubrication by gear pump, lubricating oil of	cooling in cooling water circuit of engine.			
◦ Lub. Method	Fully forced pressure feed type			
○ Oil pump	Gear type driven by crank-shaft gear			
• Oil filter	Full flow, cartridge type			
• Oil pan capacity	Max. 15.5 liters , Min. 12 liters			
• Lub oil pressure	Idle Speed : Min 100 kPa			
	Governed Speed : Min 250 kPa 120℃			
Angularity limit	Front down 15 deg , Front up 15 deg , Side to side 15 deg			
	Refer to Operation Manual			
© FUEL SYSTEM				
Bosch type in-line pump with integrated, electromagr				
 Injection pump 	WUXI WEIFU HIGH-TECH CO.,LTD			
° Governor	Electric type (all speed control)			
○ Speed drop	G3 Class (ISO 8528)			
○ Feed pump	Mechanical type in injection pump			
 Injection nozzle 	Multi hole type			
	21.0 MPa			
○ Fuel filter	Full flow, cartridge type with water drain valve			
O Maximum fuel inlet restriction	10 kPa			
○ Maximum fuel return restriction	60 kB2			
○ Fuel feed nump Canacity	175 liters / hr			
○ Used fuel	Diesel fuel oil			
© ELECTRICAL SYSTEM				
• Battery Charging Alternator	28.5V x 45A alternator			
• Voltage regulator	Built-in type IC regulator			
○ Starting motor	24V x 6.0 kW			
○ Battery Voltage	24V			
 Battery Capacity 	100 Ah (recommended)			
 Starting aid (Option) 	Block heater			



OVALVE SYSTEM

○ Туре	Overhead valve type			
 Number of valve 	Intake 1, exhaust 1 per cylinder			
 Valve lashes at cold 	Intake 0.3mm, Exhaust 0.3mm			
○ Valve timing				
	Opening Close			
Intake valve	16 deg. BTDC 36 deg. ABDC			
Exhaust valve	46 deg. BBDC 14 deg. ATDC			

O PERFORMANCE DATA	Prime Power		ver	Standby Power	
 Governed Engine speed 	rpm	1500	1800	1500	1800
○ Engine Idle Speed	rpm	800	800	800	800
○ Over speed limit	rpm	1650	1980	1650	1980
• Gross Engine Power Output	kW	137	168	152	187
	ps	186	228	207	254
• Break Mean effective pressure	Мра	1.36	1.39	1.51	1.55
○ Mean Piston Speed	m/s	6.95	8.34	6.95	8.34
• Friction Power	kW	18	24	18	24
	ps	24.47	32.63	24.47	32.63
 Specific fuel consumption 					
25% load	liters/hr	9.2	11.5	10.1	12.7
50% load	liters/hr	17.4	21.0	18.2	22.9
75% load	liters/hr	25.5	30.3	27.2	33.7
100% load	liters/hr	33.7	41.3	37.9	46.0
• Maximum Lube oil consumption	^r g/h	130.4	159.9	144.7	178.0
○ Fan Power	kW	5	8	5	8
○ Sound Pressure at 1m from the		f Cylinder Block			
(without Fan)	dB(A)	98.3	100.7	98.3	100.7

The all data and the specific fuel consumption are based on ISO 3046/1, Standard reference conditions are in accordance w 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 750~ 1000m and 30°C without power deration

For sustained operation above these conditions, derate by 3% per 304m , and 2% per 11 °C

Engine Data with Dry Type Exh	naust Manifo	<u>ld</u>			
 Intake Air Flow 	m3/min	13.49	20.19	14.33	21.28
○ Exhaust gas temp. after turbo.	°C	137	543	610	582
○ Exhaust Gas Flow	m3/min	-	40.9	33.9	44.6
 Heat Rejection to Exhaust 	kW	118.8	145.5	133.6	162.0
 Heat Rejection to Coolant 	kW	51.6	63.3	58.1	70.4
• Heat Rejetion to Intercooler	kW	-	-	-	-
 Radiated Heat to Ambient 	kW	12.0	14.8	13.5	16.4
 Cooling water circulation 	liters/min	130	150	130	150
○ Cooling fan air flow	m3/min	190	224	190	224







CONVERSION TABLE

in. = mm x 0.0394 PS = kW x 1.3596 psi = kg/cm2 x 14.2233 in3 = lit. x 61.02 hp = PS x 0.98635 lb = kg x 2.20462 kW = Kcal/sec x 0.239

$\label{eq:lb/ft} \begin{array}{l} \text{lb/ft} = \text{N.m x } 0.737 \\ \text{U.S. gal} = \text{lit. x } 0.264 \\ \text{kW} = 0.2388 \ \text{kcal/s} \\ \text{lb/PS.h} = \text{g/kW.h x } 0.00162 \\ \text{cfm} = \text{m}^3/\text{min x } 35.336 \\ \text{Mpa} = \text{Pa x } 1000 = \text{bar x } 10 \end{array}$

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* Speccifications are subject to change without prior notice

