

12DWG-1390

DWG Series for Diesel Generator application

POWER RATING

Engine Speed	Type of Operation	Engine Gross Power	
		kW	PS
1500 rpm	Prime Power	1110	1510
	Standby Power	1221	1661
1800 rpm	Prime Power	1332	1812
	Standby Power	1466	1994

- The engine performance is as per ISO 3046. Type of operation is based on ISO 8528.
- Prime power is available for an unlimited number of hours per year in a variable load application.
- The permissible average power output over 24 hours of operation shall not exceed 80% of the prime power rating.

Engine Specifications

○ Engine Type	V-type, 4 strokes, water-cooled, Turbocharged air-to-air intercooled
○ Combustion type	Direct injection
○ Cylinder Type	Wet liner
○ No. of Cylinders	12
○ Bore x stroke	170 x 195 mm
○ Displacement	53.1 liter
○ Compression ratio	13.5 : 1
○ Firing order	1-12-5-8-3-10-6-7-2-11-4-9
○ Injection timing	14.5 °BTDC
○ Dry weight	Approx. 5100 kg
○ Dimension(LxWxH)	3096 x 1459 x 1820 mm
○ Rotation	Anti-clockwise (Face to the flywheel)
○ Fly wheel housing	SAE NO. 00
○ Fly wheel	SAE NO. 21
○ Ring Gear Tooth	218 EA

Fuel Consumption Data

Speed	(Liter/ Hour)			
	1500 rpm		1800 rpm	
Rating	Prime 1110 kW	Standby 1221 kW	Prime 1332 kW	Standby 1466 kW
100% Load	252	277	315	347
75% Load	191	210	239	263
50% Load	133	147	167	184
25% Load	80	88	100	110

Fuel System

○ Injection pump	Direct Injection type
○ Governor	Electronic type
○ Feed pump	Mechanical Type
○ Injection nozzle	Multi-hole type
○ Fuel filter	Full Flow, Cartridge Type
○ Used fuel	Diesel fuel oil

Mechanism

○ Type	Overhead valve
○ Number of valve	Intake 1, exhaust 1 per Cylinder
○ Valve lashes at cold	

Lubrication System

○ Lub. Oil Grade	AFI - CF-4 oil
○ Lub. Oil Pan Capacity	180 liter
○ Max. allowable Oil Temp	110 degree C.
○ Oil pressure, Warning	≤ 300 kPa
○ Oil pressure, Shut-down	≤ 200 kPa
○ Oil Consumption Rate	≤ 1.2 g/kWh

Cooling System

- Cooling method Fresh water forced type
- Water Pump Centrifugal, belt driven
- Water capacity 100 liter (engine only)
- Max. Water Temp 98 degree C.
- Thermostat Open 71°C / Full 90°C
- Cooling Fan Loss 64 kW @ 1800 rpm
46 kW @ 1500 rpm

Engineering Data

		1500 rpm		1800 rpm	
		Prime	S/B	Prime	S/B
○ Media Flow					
Combustion Air	m3/min	111	122	133	147
Exhaust Gas	m3/min	277	305	335	368
Cooling Fan	m3/min				
○ Heat Rejection					
to Exhaust	kW	889	977	1065	1173
to Coolant	kW	389	427	466	513
to Intercooler	kW	333	365	398	439
to radiation	kW	132	147	157	176

Intake & Exhaust System

- Max air restriction Clean 2 kPa / Dirty 5 kPa
- Exhaust back pressure Max 6 kPa

Electric System

- Charging generator 28 V × 55 A (1540 W)
- Voltage regulator Build-in type IC regulator
- Starting motor 24 V × 13 kW
- Battery Voltage 24 V
- Battery Capacity 4 ea x 200 AH

Conversion Table

in. = mm × 0.0394	lb/ft = N.m × 0.737
PS = kW × 1.3596	U.S. gal = lit. × 0.264
psi = kg/cm ² × 14.2233	kW = 0.2388 kcal/sec
in ³ = lit. × 61.02	lb/PS.h = g/kW.h × 0.00162
HP= PS × 0.98635	Cfm = m3/min × 35.336
lb = kg × 2.20462	

Engine Layout & Dimension

