12DWG-1870

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DWG Series for Diesel Generator application

POWER RATING

Engine Speed	Type of Operation	Engine Gross Power	
		kW	PS
1500 rpm	Prime Power	**1498**	2037
	Standby Power	**1665**	2264
1800 rpm	Prime Power	**1665**	2264
	Standby Power	**1832**	2492

- 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 × stroke	170 ×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 (without fan)
○ Dimension(LxWxH)	3096 × 1459 × 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

(Liter/ Hour)

Speed	1500 rpm		1800 rpm	
Rating	Prime	Standby	Prime	Standby
	1498 kW	1665 kW	1665 kW	1832 kW
100% Load	339	377	392	431
75% Load	257	285	297	327
50% Load	180	200	208	228
25% Load	108	120	125	137

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 flow	Centrifugal, 38.4 m^3/hr
○ Water capacity	100 liter (engine only)
○ C.water Temperature	Max.90 °C /98 °C shut-down
○ Thermostat	Open 71°C / Full 90°C
○ Radiator Fan flow	2,544 m^3/min
○ Cooling fan loss	66 kW@ 1665 kW
In separate radiator	72 kW@ 1832 kW

Engineering Data

		1500 rpm		1800 rpm	
○ **Media Flow**		Prime	S/B	Prime	S/B
Combustion Air	m3/min	149.8	166.1	166.5	182.8
Exhaust Gas	m3/min	374.5	416.2	415.3	457.1
Exhaust Gas T	°C	530		570	
○ **Heat**					
to Exhaust	kW	1198	1331	1332	1465
to Coolant	kW	524	582	583	641
to Intercooler	kW	449	499	500	549
Clean 2 kPa /	kW	164	183	184	202

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/cm2 × 14.2233	kW = 0.2388 kcal/sec
in^3 = lit. × 61.02	lb/PS.h = g/kW.h × 0.00162
HP= PS x 0.98635	Cfm = m3/min x 35.336
lb = kg x 2.20462	

Engine Layout & Dimension