P222FE G-DRIVE

◎ POWER RATING

Engine Speed rev/min	Type of Operation	Engine Power	
		kWm	Ps
1800	Prime Power	659	896
	Standby Power	711	967
1500	Prime Power	569	774
	Standby Power	612	832

Note : -. The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271.

-. Ratings are based on ISO 8528.

→ **Prime power** available at variable load. The permissible average power out put (during 24h period) shall not exceed 70% of the prime power rating.

→ **Standby power** should be applied only to provide a basic support function to a building electrical supply in the event of a main power network failure. No overload is permitted.

-. This Rating fulfills EPA exhaust emission regulation Tier-2

◎ MECHANICAL SYSTEM

○ Engine Model	P222FE
○ Engine Type	V-type 4 cycle, water cooled Turbo charged & intercooled (air to air)
○ Combustion type	Direct injection
○ Cylinder Type	Replaceable wet liner
○ Number of cylinders	12
○ Bore x stroke	128(5.04) x 142(5.59) mm(in.)
○ Displacement	21.927 (1,338.0) lit.(in^3)
○ Compression ratio	14.2 : 1
○ Firing order	1-12-5-8-3-10-6-7-2-11-4-9
○ Injection timing	12° BTDC (60Hz) / 9° BTDC (50Hz)
○ Compression pressure	Above 28 kg/cm2(398 psi) at 200rpm
○ Dry weight	Approx. 1,650 kg (3,638 lb)
○ Dimension (LxWxH)	1,719 x 1,389 x 1,305 mm (67.7 x 54.7 x 50.4 in.)
○ Rotation	Counter clockwise viewed from Flywheel
○ Fly wheel housing	SAE NO.1
○ Fly wheel	Clutch NO.14

◎ FUEL CONSUMPTION

○ **Prime Power** (lit/hr)	1,500 rpm	1,800 rpm
25%	38.0	46.4
50%	73.5	85.5
75%	109.8	127.6
100%	148.5	175.1
○ **Standby Power** (lit/h	1,500 rpm	1,800 rpm
25%	40.6	49.2
50%	78.7	92.4
75%	118.8	137.8
100%	160.4	191.7

◎ FUEL SYSTEM

○ Injection pump	Bosch in-line "P" type
○ Governor	Electric type
○ Feed pump	Mechanical type
○ Injection nozzle	Multi hole type
○ Opening pressure	285 kg/cm^2 (4,054 psi)
○ Fuel filter	Full flow, cartridge type
○ Used fuel	Diesel fuel oil

◎ MECHANISM

○ Type	Over head valve
○ Number of valve	Intake 2, exhaust 2 per cylinder
○ Valve lashes at cold	Intake 0.4mm (0.0157 in.) Exhaust 0.5mm (0.0197 in.)

◎ VALVE TIMING

	Opening	Close
○ Intake valve	24 deg. BTDC	30 deg. ABDC
○ Exhaust valve	59 deg. BBDC	21 deg. ATDC

◎ LUBRICATION SYSTEM

○ Lub. Method	Fully forced pressure feed type
○ Oil pump	Gear type driven by crankshaft
○ Oil filter	Full flow, cartridge type
○ Oil pan capacity	High level 40 liters (10.6 gal.) Low level 33 liters (8.7 gal.)
○ Angularity limit	Front down 20 deg. Front up 20 deg. Side to side 15 deg.
○ Lub. Oil	Refer to Operation Manual

◎ COOLING SYSTEM

○ Cooling method	Fresh water forced circulation
○ Water capacity (engine only)	23 liters (6.07 gal.)
○ Pressure system	Max. 0.9 kg/cm^2 (12.8 psi)
○ Water pump	Centrifugal type driven by belt
○ Water pump Capacity	508 liters (134.2 GPM)/min at 1,800 rpm (engine only)
○ Thermostat	Wax – pellet type Opening temp. 71°C Full open temp. 85°C
○ Cooling fan	Blower type, plastic 915 mm diameter, 7 blade

◎ ELECTRICAL SYSTEM

○ Charging generator	24V x 45A alternator
○ Voltage regulator	Built-in type IC regulator
○ Starting motor	24V x 7.0kW
○ Battery Voltage	24V
○ Battery Capacity	200 AH (recommended)
○ Starting aid (Option)	Block heater

◎ ENGINEERING DATA

○ Water flow	433 liters/min @1,500 rpm
○ Heat rejection to coolant	59.6 kcal/sec @1,500 rpm
○ Heat rejection to CAC	24.2 kcal/sec @1,500 rpm
○ Air flow	41.1 m^3/min @1,500 rpm
○ Exhaust gas flow	111.3 m^3/min @1,500 rpm
○ Exhaust gas temp.	536 °C @1,500 rpm
○ Water flow	508 liters/min @1,800 rpm
○ Heat rejection to coolant	66.8 kcal/sec @1,800 rpm
○ Heat rejection to CAC	39.1 kcal/sec @1,800 rpm
○ Air flow	52.5 m^3/min @1,800 rpm
○ Exhaust gas flow	138.4 m^3/min @1,800 rpm
○ Exhaust gas temp.	561 °C @1,800 rpm
○ Max. permissible restrictions	
- .Intake system	220 mmH_2O initial 635 mmH_2O final
- .Exhaust system	600 mmH_2O max.

◆ 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/cm2 x 14.2233	kW = 0.2388 kcal/s
in3 = 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