

DB33-G-DRIVE

◎ POWER RATING

Engine Speed rev/min	Type of Operation	Engine Power	
		kWm	Ps
1800	Prime Power	32	43
	Standby Power	35	47
1500	Prime Power	26	35
	Standby Power	29	39



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** available in the event of a main power network failure. No overload is permitted.

◎ MECHANICAL SYSTEM

○ Engine Model	DB33
○ Engine Type	In-line 4 cycle, water cooled Naturally aspirated
○ Combustion type	Direct injection
○ Cylinder Type	Replaceable dry liner
○ Number of cylinders	4
○ Bore x stroke	102(4.02) x 100(3.94) mm(in.)
○ Displacement	3.268(199.43) lit.(in ³)
○ Compression ratio	17.5 : 1
○ Firing order	1-3-4-2
○ Injection timing	10° BTDC
○ Compression pressure	Above 28 kg/cm ² (398 psi) at 200rpm
○ Dry weight	Approx. 310 kg (683 lb)
○ Dimension (LxWxH)	870 x 705 x 749 mm (34.3 x 27.8 x 29.5 in.)
○ Rotation	Counter clockwise viewed from Flywheel
○ Fly wheel housing	SAE NO.3
○ Fly wheel	Clutch NO.11 1/2

◎ MECHANISM

○ Type	Over head valve
○ Number of valve	Intake 1, exhaust 1 per cylinder
○ Valve lashes at cold	Intake 0.40mm (0.0157 in.) Exhaust 0.40mm (0.0157 in.)

◎ VALVE TIMING

	Opening	Close
○ Intake valve	28 deg. BTDC	62 deg. ABDC
○ Exhaust valve	70 deg. BBDC	28 deg. ATDC

◎ FUEL CONSUMPTION

○ Prime Power (lit/hr)	1,500 rpm	1,800 rpm
25%	2.6	3.3
50%	3.9	4.8
75%	5.2	6.6
100%	6.9	8.4
○ Standby Power (lit/h)	1,500 rpm	1,800 rpm
25%	2.7	3.4
50%	4.2	5.3
75%	5.8	7.2
100%	7.8	9.2

◎ FUEL SYSTEM

○ Injection pump	Zexel in-line "A" type
○ Governor	RSV type (all speed control)
○ Feed pump	Mechanical type
○ Injection nozzle	Multi hole type
○ Opening pressure	220 kg/cm ² (3,129 psi)
○ Fuel filter	Full flow, cartridge type
○ Used fuel	Diesel fuel oil

◎ 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 7.5 liters (1.98 gal.) Low level 6.5 liters (1.72 gal.)
○ Angularity limit	Front down 25 deg. Front up 25 deg. Side to side 30 deg.
○ Lub. Oil	Refer to Operation Manual

◎ **COOLING SYSTEM**

- Cooling method Fresh water forced circulation
- Water capacity 8.5 liters (2.24 gal.)
(engine only)
- Pressure system Max. 0.9 kg/cm² (12.8 psi)
- Water pump Centrifugal type driven by belt
- Water pump Capacity 65 liters (17.2 gal.)/min
at 1,800 rpm (engine)
- Thermostat Wax – pellet type
Opening temp. 82°C
Full open temp. 95°C
- Cooling fan Blower type, steel
455 mm diameter, 6 blade

◎ **ELECTRICAL SYSTEM**

- Charging generator 24V x 45A alternator (12V × 61A)
- Voltage regulator Built-in type IC regulator
- Starting motor 24V x 4.5kW (12V x 2.5kW)
- Battery Voltage 24V (12V)
- Battery Capacity 100 AH (recommended)
- Starting aid (Option) Block heater

◎ **ENGINEERING DATA**

- Water flow 50 liters/min @1,500 rpm
65 liters/min @1,800 rpm
- Heat rejection to coolant 6.5 kcal/sec @1,800 rpm
- Air flow 2.7 m³/min @1,800 rpm
- Exhaust gas flow 7.0 m³/min @1,800 rpm
- Exhaust gas temp. 450 °C @1,800 rpm
- Max. permissible restrictions
 - .Intake system 220 mmH₂O initial
635 mmH₂O final
 - .Exhaust system 1,000 mmH₂O 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/cm ² x 14.2233	kW = 0.2388 kcal/s
in ³ = 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	

