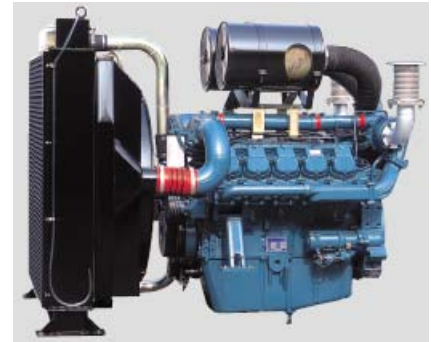


## ◎ POWER RATING

| Engine Speed<br>rev/min | Type of Operation | Engine Power |     |
|-------------------------|-------------------|--------------|-----|
|                         |                   | kWm          | Ps  |
| 1800                    | Prime Power       | 497          | 676 |
|                         | Standby Power     | 540          | 734 |
| 1500                    | Prime Power       | 443          | 602 |
|                         | Standby Power     | 496          | 674 |



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

-. Ratings are based on ISO 8528. (If you need more information, contact the sales organization.)

→ **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 70% of the prime power rating.

→ **Standby power** is available in the event of a utility power outage or under test conditions for up to 200h of operation per year.

The permissible average power output over 24 hours of operation shall not exceed 70% of the standby power rating.

No overload is permitted.

## ◎ MECHANICAL SYSTEM

|                        |  |
|------------------------|--|
| ○ Engine Model         | P180LE   |
| ○ Engine Type          | V-type 4 cycle, water cooled<br>Turbo charged & intercooled (air to air) |
| ○ Combustion type      | Direct injection   |
| ○ Cylinder Type        | Replaceable wet liner  |
| ○ Number of cylinders  | 10   |
| ○ Bore x stroke        | 128(5.04) x 142(5.59) mm(in.)  |
| ○ Displacement         | 18.273(1,115.02) lit.(in3)   |
| ○ Compression ratio    | 15 : 1   |
| ○ Firing order         | 1-6-5-10-2-7-3-8-4-9   |
| ○ Injection timing     | 16° BTDC   |
| ○ Compression pressure | Above 28 kg/cm <sup>2</sup> (398 psi) at 200rpm                          |
| ○ Dry weight           | Approx. 1,175 kg (2,590 lb)  |
| ○ Dimension<br>(LxWxH) | 1,557 x 1,389 x 1,248 mm<br>(61.3 x 54.7 x 49.1 in.)                     |
| ○ Rotation             | Counter clockwise viewed from Flywheel                                   |
| ○ Fly wheel housing    | SAE NO.1   |
| ○ Fly wheel            | Clutch NO.14   |

## ◎ MECHANISM

|                        |   |
|------------------------|---|
| ○ Type                 | Over head valve   |
| ○ Number of valve      | Intake 1, exhaust 1 per cylinder                          |
| ○ Valve lashes at cold | Intake 0.25mm (0.0098 in.)<br>Exhaust 0.35mm (0.0138 in.) |

## ◎ VALVE TIMING

|                 | Opening      | Close        |
|-----------------|--------------|--------------|
| ○ Intake valve  | 24 deg. BTDC | 36 deg. ABDC |
| ○ Exhaust valve | 63 deg. BBDC | 27 deg. ATDC |

## ◎ FUEL CONSUMPTION

| ○ Prime Power (lit/hr)   | 1,500 rpm | 1,800 rpm |
|--------------------------|-----------|-----------|
| 25%                      | 29.6      | 34.9      |
| 50%                      | 54.8      | 63.3      |
| 75%                      | 81.3      | 93.4      |
| 100%                     | 111.6     | 128.2     |
| ○ Standby Power (lit/hr) | 1,500 rpm | 1,800 rpm |
| 25%                      | 33.1      | 38.0      |
| 50%                      | 62.0      | 69.8      |
| 75%                      | 93.5      | 104.8     |
| 100%                     | 128.7     | 144.6     |

## ◎ 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 <sup>2</sup> (4,054 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 35 liters ( 9.2 gal.)<br>Low level 28 liters ( 7.4 gal.) |
| ○ Angularity limit | Front down 24 deg.<br>Front up 20 deg.<br>Side to side 15 deg.      |
| ○ Lub. Oil         | Refer to Operation Manual   |

## ◎ COOLING SYSTEM

- Cooling method      Fresh water forced circulation
- Water capacity      21 liters ( 5.54 gal.)  
(engine only)
- Pressure system     Max. 0.5 kg/cm<sup>2</sup> ( 7.11 psi)
- Water pump          Centrifugal type driven by belt
- Water pump Capacity 410 liters ( 108.2 gal.)/min  
at 1,800 rpm (engine)
- 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            342 liters/min @1,500 rpm
- Heat rejection to coolant 43.8 kcal/sec @1,500 rpm
- Heat rejection to CAC    19.5 kcal/sec @1,500 rpm
- Air flow                31.6 m<sup>3</sup>/min @1,500 rpm
- Exhaust gas flow        97.9 m<sup>3</sup>/min @1,500 rpm
- Exhaust gas temp.       580 °C @1,500 rpm

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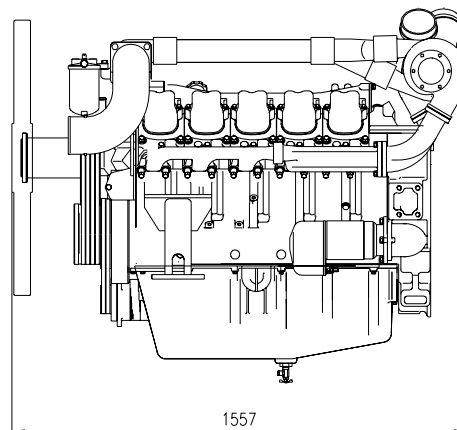
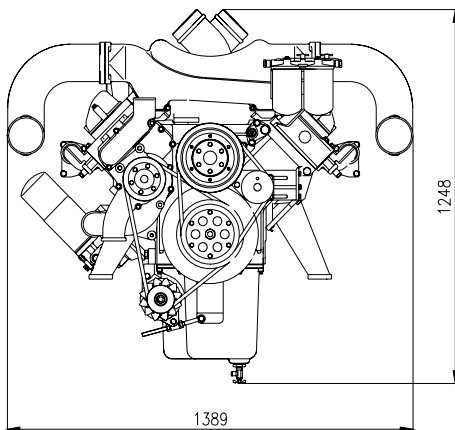
- Water flow            410 liters/min @1,800 rpm
- Heat rejection to coolant 50.2 kcal/sec @1,800 rpm
- Heat rejection to CAC    23.3 kcal/sec @1,800 rpm
- Air flow                38.9 m<sup>3</sup>/min @1,800 rpm
- Exhaust gas flow        114.1 m<sup>3</sup>/min @1,800 rpm
- Exhaust gas temp.       606 °C @1,800 rpm

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- Max. permissible restrictions
  - Intake system            220 mmH<sub>2</sub>O initial  
635 mmH<sub>2</sub>O final
  - Exhaust system          600 mmH<sub>2</sub>O max.
- Max. permissible altitude    1500 m

## ◆ 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 <sup>2</sup> x 14.2233 | kW = 0.2388 kcal/s                 |
| in <sup>3</sup> = lit. x 61.02     | lb/PS.h = g/kW.h x 0.00162         |
| hp = PS x 0.98635                  | cfm = m <sup>3</sup> /min x 35.336 |
| lb = kg x 2.20462                  |                                    |



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※ Specifications are subject to change without prior notice