

16DWV-1090

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DWV Series for Diesel Generator application

POWER RATING

| Engine Speed | Type of Operation | Engine Gross Power | |
|--------------|-------------------|--------------------|------|
| | | kW | PS |
| 1500 rpm | Prime Power | 875 | 1190 |
| | Standby Power | 960 | 1306 |
| 1800 rpm | Prime Power | 960 | 1306 |
| | Standby Power | 1020 | 1387 |

- 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 | 16 |
| ○ Bore x stroke | 128 x142 mm |
| ○ Displacement | 29.24 liter |
| ○ Compression ratio | 14.6 : 1 |
| ○ Firing order | 1-15-6-12-8-5-16-7- -11-4-9-2-14-10-3-13 |
| ○ Injection timing | 16 °BTDC |
| ○ Dry weight | Approx. 2100 kg |
| ○ Dimension(LxWxH) | 1950 x 1389 x 1288 mm |
| ○ Rotation | Anti-clockwise (Face to the flywheel) |
| ○ Fly wheel housing | SAE NO. 0 |
| ○ Fly wheel | SAE NO. 18 |
| ○ Ring Gear Tooth | 160 EA |

Fuel Consumption Data

| Speed | (Liter/ Hour) | | | |
|-----------|-----------------|---------|----------|---------|
| | 1500 rpm | | 1800 rpm | |
| Rating | Prime | Standby | Prime | Standby |
| | 875 kW | 960 kW | 960 kW | 1020 kW |
| 100% Load | 219.2 | 240.3 | 249.6 | 260.6 |
| 75% Load | 156.6 | 171.8 | 175.5 | 186.1 |
| 50% Load | 114.8 | 126.0 | 128.5 | 136.5 |
| 25% Load | 73.1 | 80.2 | 81.8 | 86.9 |

Fuel System

| | |
|----------------------|----------------------------------|
| ○ Injection pump | Direct Injection type |
| ○ Governor | Electronic type |
| ○ Feed pump | Mechanical Type |
| ○ Injection nozzle | Multi-hole type |
| ○ Injection pressure | 27 MPa (270 kg/cm ²) |
| ○ 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 | Intake. 0.3 mm Exhaust 0.4 mm |

Lubrication System

| | |
|---------------------------|--|
| ○ Lub. Oil Grade | AFI - CF-4 oil |
| ○ Lub. Oil Pan Capacity | Min 60, Max 78 liter |
| ○ Max. allowable Oil Temp | 120 degree C. |
| ○ Oil pressure | Min. 300 kPa (3.0 kg/cm ²) Max. 650 kPa (6.5 kg/cm ²) |
| ○ Oil Consumption Rate | ≤ 1.2 g/kWh |

Cooling System

- Cooling method Fresh water forced type
- Water Pump Centrifugal, belt driven
- Water capacity 26 liter (engine only)
- Max. Water Temp 99 degree C.
- Thermostat Open 71°C / Full 83°C
- Water Pump flow 650 liter/min
- Cooling Fan Blade 8, Dia 1450 mm

Intake & Exhaust System

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

Electric System

- Charging generator 28 V × 45 A (1260 W)
- Voltage regulator Build-in type
- Starting motor 24 V × 11 kW
- Battery Voltage 24 V
- Battery Capacity 200 Ah

Engineering Data

| | | 1500 rpm | | 1800 rpm | |
|------------------|--------|----------|-------|----------|-------|
| ○ Media Flow | | Prime | S/B | Prime | S/B |
| Combustion Air | m3/min | 69.5 | 76.1 | 77.5 | 83.1 |
| Exhaust Gas | m3/min | 181.2 | 197.2 | 201.4 | 215.9 |
| Cooling Fan | m3/min | | | | |
| ○ Heat Rejection | | | | | |
| to Exhaust | kW | 701 | 768 | 767 | 815 |
| to Coolant | kW | 263 | 287 | 289 | 306 |
| to Intercooler | kW | 201 | 221 | 220 | 231 |
| to radiation | kW | 79 | 86 | 87 | 92 |

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

