

WP10D200E201 G-Drive Engine Data Sheet

| Speed | Gross Engine Output | | |
|-------------|---------------------|------------|------------|
| | COP | PRP | ESP |
| rpm | kWm | kWm | kWm |
| 1800 | 155 | 182 | 200 |

Ratings Definitions

| | Continuous Power (COP) | Prime Power (PRP) | Standby Power (ESP) |
|-------------------------|------------------------|-----------------------------|---------------------|
| Mean engine load factor | 100% | ≤70% per 250 h | ≤80% per 24 h |
| Annual working time | Unlimited | Unlimited | ≤200 h |
| Time at full load | Unlimited | ≤500 h per year | ≤25 h per year |
| Overload capacity | No | 1 h per 12 h (10% overload) | No |

- 1) The power ratings are in accordance with ISO 3046.
- 2) Test conditions: 100 kPa, 25 °C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L.
- 3) The engine maybe operated at : up to 1000m and 30 °C without power deration. For sustained operation above these conditions, derate by 3% per 300m, and 2% per 11 °C.
- 4) Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan and optional equipment.

Engine basic data

| | | | |
|--|--------------------------|-------------------------------------|-----------------------------|
| Engine model | WP10D200E201 | Cylinder number | 6 |
| bore diameter /stroke mm | 126×130 | Displacement(L) | 9.726 |
| Fuel System | Mechanical Pump | Aspiration | Turbocharged and Itercooled |
| Compression Ratio | 17:1 | Emission Standard | Off-road stageII |
| Overall Dimension (Length×Width×Height) (mm) | 1505×843×1196 | Engine net weight (kg) | 875±50 |
| Injection timing (°CA) | 17±1 | | |
| Flywheel housing | SAE 1 | Flywheel | 11.5" / 14" |
| Max. Permissible Fixing Angle (°) | Longitudinal Inclination | Front /Rear | 10/10 |
| | Cross Inclination | Left/Right | 45/15 |
| Dynamic angle (°) | Longitudinal Inclination | Front/Rear | / |
| | Cross Inclination | Exhaust pipe side /Intake pipe side | / |

| | | | |
|-------------------------------------|-------------------------|-------------------------------|------|
| Permitted temperature ambient °C | -30~50 | Permitted altitude limit m | 4000 |
| Valve lashes at cold (mm) | Intake: 0.3 Exhaust 0.4 | | |

Performance Data

| | | | |
|-------------------------|-----------------|----------------------------|-------------------------|
| Idle Speed (rpm) | 650±50 | Over Speed limit (rpm) | 1890 |
| Mean Piston Speed (m/s) | 7.8 | BMEP (MPa) | 1.37 |
| Friction Power (kW) | / | Fan Power (kW) | 10.5 |
| Load factor | Power kW | Fuel consum. g/kW.h | Fuel consum. L/h |
| 10% | 18.3 | 394 | 8.58 |
| 25% | 45.4 | 252.2 | 13.63 |
| 50% | 91 | 212.9 | 23.06 |
| 75% | 136.5 | 201.7 | 32.78 |
| 85% | / | / | / |
| 100% | 182.3 | 196.4 | 42.62 |
| 110% | 200.4 | 196.5 | 46.88 |

Air intake system

| | | |
|---|--|------|
| Intake air temperature rise (°C) | Permitted difference between turbocharger inlet temperature and ambient temperature (this parameter impacts emission, LAT and altitude capability) | ≤15 |
| Intake air resistance (kPa) | Clean filter | ≤3.5 |
| | Dirty filter | ≤7 |
| Air filter mass flow (kg/h) | | 1327 |
| Air mass flow (kg/h) | Rated Power | 1106 |
| | Standby Power | 1173 |
| Clear efficiency of air filter (%) | | 99.5 |
| Recommended Min. diameter of intake pipe (mm) | | 100 |

Inter cooling system

| | | |
|--|---------------|------|
| Intercooler heat dissipating capacity (KJ/S) | Rated Power | 20.9 |
| | Standby Power | 25.4 |
| Intercooler efficiency (%) | Rated Power | / |
| | Standby Power | / |
| Max. intake temperature (°C) | | 55 |

| | |
|---|----|
| Max. difference between intake temperature and ambient temperature (°C) | 30 |
| Permitted max. intake pressure drop of intercooler (kPa) | 12 |
| Recommended intercooler radiator cooling area (m ²) | 23 |

Exhaust system

| | | |
|--|--------------------------------|------|
| Max. exhaust back pressure (kPa) | 6±0.5 | |
| Max. exhaust temperature (°C) | Before turbocharger | ≤700 |
| | After turbocharger | ≤600 |
| Recommended muffler mass flow/volume (kg/h) | 1370 | |
| Exhaust-gas mass flow (kg/h) | Rated Power | 1142 |
| | Standby Power | 1212 |
| Recommended Min. diameter of exhaust pipe (mm) | 100 | |
| Max. bending moment of turbocharged flange (N·m) | 10 (using elastic connections) | |

Lubrication system

| | | |
|---|-------------|---------|
| Volume of oil pan (L) | 24 | |
| Oil pressure in normal condition (kPa) | Idle speed | 100-250 |
| | Rated Power | 330-550 |
| Alarm for low & high oil pressure (kPa) | 80/1000 | |
| Temperature range in main oil passage at rated working condition (°C) | 85-105 | |
| max. oil temperature (°C) | 105 | |
| Max. oil pressure while engine starting (kPa) | 1000 | |
| Opening pressure of main oil passage pressure limiting valve (kPa) | 450-550 | |
| Max. Oil flow (L/min) | 118 | |
| Oil consumption | ≤0.2% | |

Noise and Emission

| | | |
|---------------------------|------------------|--------|
| Emission standard | Off-road stageII | |
| Exhaust smoke (FSN) | Rated Power | Rb≤2.0 |
| | Standby Power | Rb≤2.5 |
| Diesel engine noise dB(A) | ≤101.1 | |

Fuel system

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|-------------------------------|-------------------------------|
| Injection pump type | Mechanical Pump |
| Governor | Mechanical/ Electric governor |
| Steady speed governing factor | ≤5%/≤3% |

| | | |
|--|---------------|-------|
| Max supply fuel restriction at rated power conditon (kPa) | | 18 |
| Return restriction in pipe (kPa) | | 22 |
| Max. supply fuel temperature at rated power condition (°C) | | 50 |
| Max. flow of fuel suply (kg/h) | Rated Power | 35.8 |
| | Standby Power | 39.38 |
| Min. pressure of fuel pump (kPa) | | 35 |
| Min. Ventilation rate of fuel tank (L/h) | | 340 |
| Recommended diameter of inlet pipe (mm) | | 12 |
| Recommended diameter of return pipe (mm) | | 12 |

Electrical system

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|--|--------------------------|--------|
| Electrical system voltage (V) | | 24 |
| Motor power/ working voltage (kW/V) | | 5.4/24 |
| Battery charging Alternator/ working voltage (kW/V) | | 1.5/28 |
| Permitted max. electric resistance of motor control lines (Ω) | | 0.004 |
| Recommended Min. conductor cross-sectional area (mm ²) | | 50 |
| The lowest cold starting temperature (°C) | No aided starting device | -10 |
| | Aided starting device | -30 |

Cooling system

| | | |
|--|--|------|
| Water pump Transmission ratio | | 1.19 |
| Min. coolant temperature of engine working (°C) | | 40 |
| Min. water fill rate (L/min) | | 11 |
| Max. initial fill time (min) | | 5 |
| Recommended Min diameter of outside water pipe(mm) | | 45 |
| Min. pressure at water pump inlet at No or only a part of degassing Device (kPa) | | 0 |
| Min. pressure at water pump inlet at Complete degassing device (kPa) | | 50 |
| Max. deaeration time(min) | | 25 |
| Min. expansion tank volume (% total cooling system capacity) | | 0.15 |
| Min expansion space (% total cooling system capacity) | | 0.06 |
| Coolant capacity of engine (L) | | 22 |
| Coolant capacity of radiator (L) | | 31 |

| | |
|---|---------|
| High temperature of alarm (°C) | 98±2 |
| Thermostat opening temp./ full open temp. (°C) | 71±2/82 |
| Min. permitted pressure in cooling system (kPa) | 50 |
| Max. permitted external resistance (at rated speed) (kPa) | 50 |

Heat balance test data

| | | |
|---|---------------------------|-------------|
| Pressure of water in/ water out (kPa / kPa) | Rated Power | 5.3/21.7 |
| | Standby Power | 5.7/21.4 |
| Coolant mass flow (m ³ /h) | Rated Power | 17.1 |
| | Standby Power | 17 |
| Temperature of water in/ water out (°C/°C) | Rated Power | 77.2/73.4 |
| | Standby Power | 78.5/74.5 |
| Temperature of intake air : before/after intercooler (°C/°C) | Rated Power | 122.0/52.4 |
| | Standby Power | 131.1/51.5 |
| Pressure of intake air :before /after intercooler (kPa / kPa) | Rated Power | 99.5/98.2 |
| | Standby Power | 112.7/111.2 |
| Heat be taken away by Coolant (kJ/s) | Rated Power | 76.2 |
| | Standby Power | 79.4 |
| Heat be taken away by exhaust gas (kJ/s) | Rated Power | 20.9 |
| | Standby Power | 25.4 |
| Heat be taken away by intercooler (kJ/s) | Rated Power | 126.2 |
| | Standby Power | 138.3 |
| Gross Heat of Engine (kJ/s) | Rated Power/Standby Power | 414.3/454.9 |

Mounting system

| | | |
|--|--|-------|
| Inertia of complete engine (kg•m ²) | I _{xx} =44.9 / I _{xy} =-0.6 | |
| | I _{yy} =149.1 / I _{yz} =3.34 | |
| | I _{zz} =128.1 / I _{xz} =4.79 | |
| Inertia of flywheel (kg•m ²) | 0.95 | |
| Inertia of crankshaft (including crankshaft gear) (kg•m ²) | 0.35 | |
| Centroid position mm | X | 548.6 |
| | Y | -3 |
| | Z | 176.6 |
| Permitted static bending moment at flywheel housing flange face | 10800 | |

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