| Technical Datasheet | | GB1548B6 | | | | |
|---|---|---|---|---|---|---|
| 93800050014_V02_US | with engine | 16V4000L62 | | | | |
| **Fuel** | | | **Biogas** | | | |
| **Voltage / Frequency** | | | **480** | **V** | **60** | **Hz** |
| **Heating water temperatur (in/out)** | °F | | #WERT! | | | |
| **NOx emissions** [1] | g/bhp-hr | | **< 2** | | | |
| **Intercooler 2nd stage temperatur (in)** | °F | | **104** | | | |
| **Exhaust gas temperature** | °F | | **828** | | | |
| **Electrical power COP, parallel to grid acc. ISO 8528-1** | % | **100** | **75** | **50** | | |
| **Electrical power PRP, prime power acc. ISO 8528-5 G1** | % | | | | **100** | |
| **Energy balance** | | | | | | |
| Electrical power [2] [3] | kWe | 1548 | 1165 | 770 | - - | |
| Energy input [5] [7] | kBTU/hr | 12527 | 9744 | 6842 | - - | |
| Thermal output total [4] | kBTU/hr | 2975 | 2208 | 1559 | - - | |
| Thermal output engine (block, lube oil, 1st stage intercooler) [4] | kBTU/hr | 2975 | 2208 | 1559 | - - | |
| Thermal exhaust gas heat exchanger (180°C) [4] | kBTU/hr | - - | - - | - - | - - | |
| Thermal output 2nd stage intercooler [4] | kBTU/hr | 345 | 266 | 184 | - - | |
| Engine power ISO 3046-1 [3] | bhp | 2146 | 1609 | 1073 | - - | |
| Generator efficiency at power factor = 1 | % | 97.4 | 97.1 | 96.3 | - - | |
| Electrical efficiency [5] [6] | % | 42.2 | 40.8 | 38.4 | - - | |
| Total efficiency | % | 65.9 | 63.5 | 61.2 | - - | |
| CHP Coefficient | | 1.78 | 1.80 | 1.69 | - - | |
| Power consumption [15] | kW | | | | - - | |
| **Combustion air / Exhaust gas** | | | | | | |
| Combustion air volume flow [1] | ft³/min | 3526 | 2685 | 1834 | - - | |
| Combustion air mass flow | lb/hr | 17064 | 12992 | 8876 | - - | |
| Exhaust gas volume flow, wet [1] | ft³/min | 3866 | 2949 | 2019 | - - | |
| Exhaust gas volume flow, dry [1] | ft³/min | 3456 | 2630 | 1796 | - - | |
| Exhaust gas mass flow, wet | lb/hr | 18748 | 14301 | 9795 | - - | |
| Exhaust temperature after turbocharger | °F | 828 | 862 | 910 | - - | |
| **Reference Fuel** | | | | | | |
| Natural gas | BTU/ft³ | - - | | | | |
| Sewage gas | | CH4 60 Vol.% / CO2 40 Vol.% | | | | |
| Biogas | | CH4 55 Vol.% / CO2 45 Vol.% | | | | |
| Landfill gas | | - - | | | | |
| $CO_2$ / $CH_4$ volume ratio | | -- | | | | |
| Minimum methane number | MN | 120 | | | | |
| Range of heating value: design / operation range | BTU/ft³ | 483 - 628 / 435 - 676 | | | | |
| **Exhaust gas emissions** [6] | | | | | | |
| NOx, stated as $NO_2$ (dry) | g/bhp-hr | < 2 | | | | |
| CO (dry) | g/bhp-hr | < 5 | | | | |
| HCHO (dry) [7] | g/bhp-hr | | | | | |
| VOC (dry) | g/bhp-hr | < 1 | | | | |
| **Otto-gas engine, lean burn operation with turbocharging** | | | | | | |
| Number of cylinders / configuration | | 16 V | | | | |
| Engine typ | | 16V4000L62 | | | | |
| Engine speed | rpm | 1500 | | | | |
| Bore | in | 6.69 | | | | |
| Stroke | in | 8.27 | | | | |
| Displacement | in³ | 4652 | | | | |
| Mean piston speed | ft/sec | 34.4 | | | | |
| Compression ratio | | 13,9 | | | | |
| BMEP at nominal engine speed $min^{-1}$ | psi | 243.66 | | | | |
| Lube oil consumption [8] | gal/hr | 0.15 | | | | |
| Max. exhaust back pressure after genset / module | in $H_2O$ | 24.11 | | | | |
| **Generator** | | | | | | |
| Rating power (F) | kVA | 2362 | | | | |
| Max. allowable p.f. inductive (overexcited) / capacitive (underexcited) [16] | | 0,8 / 1,0 | | | | |
| Voltage tolerance / frequency tolerance | % | ± 5 / ± 5 | | | | |
| Max. ambient temperature | °F | 104 | | | | |
| Max. installation altitude | ft | 3281 | | | | |
| **Engine cooling water system** | | | | | | |
| Coolant temperature (in/out) | °F | 172 / 194 | | | | |
| Coolant flow rate [9] | gal/min | 277.38 | @ | 2.90 | psi delta p | |
| CVs value (Block, lubeoil and 1st stage) [10] | | 42.5 | | | | |
| Max. operation pressure (coolant before engine) | psi | 87.0 | | | | |
| **Exhaust gas heat exchanger (EGHE)** | | | | | | |
| Exhaust gas temperature (out) | °F | | | | | |
| Coolant temperature (in/out) | °F | | | | | |
| Coolant volumetric flow [9] | gal/min | | @ | | psi delta p | |
| CVs value [10] | | | | | | |
| Max. operation pressure (coolant water) | psi | | | | | |

| Technical Datasheet | | GB1548B6 | | | | | |
|---|---|---|---|---|---|---|---|
| 93800050014_V02_US | with engine | 16V4000L62 | | | | | |
| **Oilcooler, external** | | | | | | | |
| Coolant temperature (in/out) | | °F | | | | | |
| Coolant volumetric flow [9] | | gal/min | | | @ | | psi delta p |
| CV-Value [10] | | | | | | | |
| Max. operation pressure | | psi | | | | | |
| **Intercooler 2nd stage, external** | | | | | | | |
| Coolant temperature (in/out) | | °F | 104 / 109 | | | | |
| Coolant volumetric flow [9] | | gal/min | 127.68 | | @ | 5.80 | psi delta p |
| CVs value [10] | | | 45.9 | | | | |
| Max. operation pressure in front of intercooler | | psi | 232 | | | | |
| **Plate heat exchanger** | | | | | | | |
| Coolant temperature (in/out) | | °F | | | | | |
| Heating water temperatur (in/out) | | °F | | | | | |
| Heating water volumetric flow [9] | | gal/min | | | @ | | psi delta p |
| CVs value [10] | | | | | | | |
| Max. operation pressure (heating water) | | psi | | | | | |
| **Space ventilation** | | | | | | | |
| Genset ventilation heat [11] | | kBTU/hr | 447.0 | | | | |
| Combustion air temperature: (min./design/max.) | | °F | 50 / 77 / 86 | | | | |
| Min. engine room temperature [12] | | °F | 59 | | | | |
| Max. temperature difference ventilation air (in/out) | | °F | 36 | | | | |
| Min. ventilation air flow in (combustion+ventilation) [13] | | ft³/min | 14403 | | | | |
| **Gearbox** | | | | | | | |
| Gear ratio | | | 1 : 1,2 | | | | |
| Thermal output gearbox (watercooled) | | kBTU/hr | 34.12 | | | | |
| Efficiency | | | 99.35 | 99.24 | 99.02 | | |
| **Filling quantities** | | | | | | | |
| Lube oil for engine | | gal | 66 | | | | |
| Coolant for engine | | gal | 71.3 | | | | |
| Coolant for intercooler | | gal | 5.81 | | | | |
| Heating water for plate heat exchanger | | gal | | | | | |
| **Engine sound level [14] (1 meter distance, free field)** | | | | | | | |
| Frequency | | Hz | **63** | **125** | **250** | **500** | |
| Sound pressure level | | dB | 73.6 | 80.6 | 81.8 | 85.8 | |
| Frequency | | Hz | **1000** | **2000** | **4000** | **8000** | |
| Sound pressure level | | dB | 83.5 | 81.4 | 82.8 | 85.6 | |
| Sum of pressure levels | | Lin dB | 99.3 | | | | |
| | | dB A | 98.0 | | | | |
| Sound power level | | dB A | 117.4 | | | | |
| **Undampened exhaust noise (1 meter distance to outlet within 90°, free field)** | | | | | | | |
| Frequency | | Hz | **63** | **125** | **250** | **500** | |
| Sound pressure level | | dB | 107.2 | 110.5 | 103.6 | 96.9 | |
| Frequency | | Hz | **1000** | **2000** | **4000** | **8000** | |
| Sound pressure level | | dB | 92.5 | 91.3 | 87.9 | 67.9 | |
| Sum of pressure levels | | Lin dB | 121.1 | | | | |
| | | dB A | 106.5 | | | | |
| Sound power level | | dB A | 118.7 | | | | |
| **Dimensions** | | | | | | | |
| Length | | in | 257.9 | | | | |
| Width | | in | 78.7 | | | | |
| Height | | in | 102.4 | | | | |
| Gross weight / dry weight | | lb | 38581 / 37390 | | | | |
| **Power derating** | | | | | | | |
| Altitude | | | | | | | |
| Combustion air temperature | | | | | | | |
| Intercooler 2nd stage temperature (in) | | | | | | | |
| Methane number | | | | | | | |
| **Boundary conditions and consumables** | | | | | | | |
| | | | DK-BS-0002 | | | | |

1) Normal ft3 at p = 14.696 psi und T = 32 °F
2) Generator gross power at nominal voltage, power factor = 1 and nominal frequency
3) At standard reference conditions (ISO 3046-1); atmospheric pressure: 14.5 psi; air temperature: 77 °F; rel. air humidity 30 %
4) Thermal output at layout temperature; tolerance +/- 8 %
5) According to ISO 3046 (+ 5 % tolerance), using reference fuel used at nominal voltage, power factor = 1 and nominal frequency
6) Deviations from the layout parameters respectivitely the reference fuel can have influence to the obtained efficiency and exhaust emissions
7) Emission values during system parallel operation - where required with Oxcat
8) Reference value at nominal load (without amount of oil exchange)
9) Stated values for pure water, adaption for other cooling fluid composition necessary
10) The CVs value declares the volumetric flow in gal/min at a pressure drop of 1 psi
11) Only generator- and surface losses
12) Frost-free conditions must be guaranteed
13) Amount of ventilation air must be adapted to the gas safety concept
14) All sound pressure levels at nominal load COP
15) Power consumption of all electrical consumer, which are mounted at the module / aggregate
16) Max. allowable cos phi at nominal power (view of producer)

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