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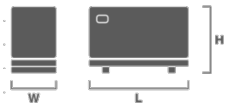
# HEAVY RANGE — GENSET 1500 KVA PERKINS / GRUPEL

## 1. MAIN FEATURES

| | | | |
|---|---|---|---|
| T | Three-phase | | Oil |
| | Perkins / 4012-46TWG3A | | Grupel / 404GB1375 |
| | Grupel / G545 | Hz | 50 Hz |
| | 1500 r.p.m. | V | 400 V |
| cos φ | 0.8 | | 2000 A |

| | | |
|---|---|---|
| Standby Power(ESP) | 1505 kVA | 1204 kW |
| Prime Power (PRP) | 1369 kVA | 1095 kW |
| Continuous Power(COP) | - | - |

| SOUNDPROOF | |
|---|---|
| Length (L) | 6158 mm |
| Height (H) | 2591 mm |
| Width (W) | 2438 mm |
| Weight | 12535 kg |
| Daily tank | 1000 L |
| Acoustic pressure level @ 1m | 91 ± 2 dB(A) |
| Acoustic pressure level @ 7m | 83 ± 2 dB(A) |




## 2. ROOM INSTALLATION

| EXHAUST SYSTEM | 50 Hz | | |
|---|---|---|---|
| | COP | PRP | ESP |
| Exhaust gas temperature (°C) | - | 479 | 479 |
| Exhaust gas flow (m³/min) | - | 245 | 245 |
| Evacuated heat (kW) | - | 989 | 1138 |
| Maximum back pressure (kPa) | | 5 | |
| Exhaust silencer attenuation (dB) | | 18-25 | |
| Output diameter (mm) | | - | |

| VENTILATION SYSTEMS | 50 Hz | | |
|---|---|---|---|
| | COP | PRP | ESP |
| Combustion air flow (m³/min) | - | 108 | 115 |
| Cooling airflow (m³/min) | | 1680 | |
| Maximum load losses (Pa) | | 120 | |
| Alternator cooling air flow (m³/min) | | 94.92 | |

| RADIATION | 50 Hz | | |
|---|---|---|---|
| | COP | PRP | ESP |
| Engine (kW) | - | 88 | 96 |
| Alternator (kW) | 51.7 | 51.7 | 56.89 |



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## 3. ENGINE SPECIFICATIONS

| GENERAL SPECIFICATIONS | 50Hz |
|---|---|
| Model | 4012-46TWG3A |
| Emissions (UE/USEPA) | Not applicable / Not applicable |
| Performance grade | G2 |
| Operating method | 4 stroke |
| Fuel type | Oil |
| Refrigeration system | Closed water circuit / antifreeze |
| Aspiration system | Turbocharged |
| Injection system | Direct |
| No. and Cylinder arrangement | 12 in V |
| Displacement (L) | 45.842 |
| Cylinder bore (mm) | 160 |
| Cylinder stroke (mm) | 190 |
| Compression ratio | 13:1 |
| Regulation | Electronic |
| Rotation speed (r.p.m.) | 1500 |
| Piston speed (m/s) | 9.5 |
| Gross power COP (kWm) | - |
| Gross power PRP (kWm) | 1207 |
| Gross power ESP (kWm) | 1321 |
| Fan Power (kWm) | - / 58 / 58 |
| Net Power COP (kWm) | - |
| Net Power PRP (kWm) | 1149 |
| Net Power ESP (kWm) | 1263 |
| BMEP COP (kPa) | - |
| BMEP PRP (kPa) | 2106 |
| BMEP ESP (kPa) | 2305 |

| CONSUMPTION | 50 Hz | |
|---|---|---|
| Fuel consumption | l/h | g/kWh |
| ESP | 318 | 217 |
| PRP | 283 | 212 |
| COP | - | - |
| 75% | 213 | 213 |
| 50% | 151 | 226 |
| Oil consumption | < 0.3% of fuel consumption | |

| REFERENCE CONDITIONS | |
|---|---|
| Temperature (°C) | 25 |
| Atmospheric pressure (kPa) | 100 |

| CAPACITY (°C) | |
|---|---|
| Coolant (L) | 201 |
| Oil (L) | 177 |

| STARTING SYSTEM | |
|---|---|
| Voltage (V) | 48 |
| Power (kW) | 16.4 |
| Battery (Ah) | 220 |

## 4. ALTERNATOR SPECIFICATIONS

| GENERAL SPECIFICATIONS | |
|---|---|
| Model | 404GB1375 |
| Phases No. | Three-phase |
| Protection | IP23 |
| Insulation | H |
| Temperature rise | H |
| R.F.I. telephone interference | THF < 2% |
| R.F.I. Suppression | BS EN 61000-6-2 /6-4,VDE 0875G, VDE 0875N |
| Coupling | Flexible disks |
| Support | Single bearing |

| | |
|---|---|
| Wave form distortion with no load | < 1,5% |
| Wave form distortion with balanced linear load | < 5% |
| Winding Leads | 6 |
| Excitation (standard/optional) | PMG / - |
| AVR Model (standard/optional) | MX341B /- |
| Voltage Regulation (standard/optional) | ± 0,5 % / - |
| Icc (standard/optional) | 3In:10s / - |

| | | | Power | Efficiency | | | |
|---|---|---|---|---|---|---|---|
| PF (cos Ø) | Phase | Voltage (V) | PRP/ESP (kVA) | PRP/ESP (%) | Xd | X'd | X"d |
| 0.8 | Three-phase | 400 | 1375 / 1513 | 95.3 / 95.3 | 2.45 | 0.18 | 0.13 |



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## 5. CONTROL PANEL

| GENSET | Grupel G545 |
|---|---|
| Voltage (F-F / F-N) | ● / ● |
| Current intensity | ● |
| Frequency | ● |
| RMS Values | ● |
| Generator phase sequence | ● |
| Generator earth current [a] | ○ |
| No. of registers events | 400 |
| Real time clock | ● |
| PIN Protection | ● |
| kWh, kVAr, kVAh, kVArh, cos Ø | ● |
| Synchroscope [i] | ○ |
| Nº of available outputs [b] | 4 |
| Indication of alarms on LCD | ● |
| Engine run hours | ● |
| Total no. of LED indicators | 15 |
| No. of LED alarms | 4 |
| Sound signalling alarms | - |
| Scheduler | ● |
| Fuel level | ● |

| ELECTRICAL NETWORK | Grupel G545 |
|---|---|
| Voltage (F-F / F-N) | ● / ● |
| Current [a] | ○ |
| Frequency | ● |
| kVA,kW, cos Ø [a] | ○ |
| Inversion control between main-group | ● |

| PROTECTIONS AND ALARMS | Grupel G545 |
|---|---|
| High / low battery voltage | A |
| Failure in battery charge alternator | A |
| Failure to stop | A/S |
| Failure to start | A/S |
| Low fuel level | A/S |
| Overload | A/S |
| Earth leakage | A/S |
| Asymmetry between phases | A/S |
| Maintenance | A/S |
| High / Low generator frequency | A/S |
| Engine overspeed | A/S |
| Engine underspeed | A/S |
| Generator overvoltage | A/S |
| Generator undervoltage | A/S |
| ECU Alert (if applicable) | A/S |
| Low oil pressure | A/S |
| Low level of radiator water [f] | A/S |
| Engine high temperature | A/S |
| Fuel leakage/ theft | A |



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## 6. CONTROL PANEL

| ENGINE | Grupel G545 |
|---|---|
| Engine speed | ● |
| Low oil pressure protection | ● |
| Oil pressure reading [c] | ○ |
| High temperature engine protection | ● |
| Engine temperature reading [c] | ○ |
| Engine battery voltage | ● |
| Intensity of the engine battery [d] | ○ |
| Fuel Consumption [e] | ● |
| Low level of radiator water [f] | ○ |
| Engine maintenance scheduled | ● |

| COMMUNICATION | Grupel G545 |
|---|---|
| USB female type B (max. 6m) | ● |
| USB female type A [g] | ○ |
| RS232 port (max. 15m) | - |
| RS485 port (max. 1,2Km) | ● |
| Ethernet port RJ45 [g] | ○ |
| GSM + location via MLAT [h] | ○ |
| ModBus RTU protocol | ● |
| ModBus TCP protocol [g] | ○ |
| SNMP protocol [g] | ○ |
| CAN port (max. 40m) | ● |
| MSC port (max. 240m) [i] | ○ |
| PLC functionality | ● |

| APPLICATIONS | Grupel G545 |
|---|---|
| Automatic or manual starting | ● |
| Remote start by NO dry contact | ● |
| Automatic by mains failure | ● |
| Alternating with timesharing | ● |
| Multi-generators synchronization and load sharing (max. 48 generators) [i] | ○ |
| Generator-Main in synchronism and load sharing (1 generator and 1 main) [i] | ○ |

| OPTIONAL EXPANSIONS | Grupel G545 |
|---|---|
| G-08 (8 dig. inputs) | ○ |
| G-06 (8 relay outputs) | ○ |
| G-GSM (GSM and/or GPS by MLAT) | ○ |
| G-ETH (ethernet module) | ○ |
| G-ETH (ethernet module according SNMP protocol) | ○ |
| G545 (mirror controller, maximum distance 1km) | ○ |
| G175 (convert QTC into QTA) | ○ |
| G545 (convert QTC into QTA) | ○ |

| STANDARDS | |
|---|---|
| Working temperature | -30 ≤°C ≤ 70 |
| Protection index (when assembled with sealing gasket) | IP65 - Quando montado com junta de vedação |
| Degree of humidity (during 48hr) | 93%, 40°C durante 48h |

| Legenda | |
|---|---|
| ● | Available |
| ○ | Optional |
| - | Not available |
| A | Warning Alarm |
| S | Stop alarm |
| [a] | Need additional CT |
| [b] | No. of outputs available for standard configuration. The outputs do not include relays and additional terminal connections. |
| [c] | If the information is not provided by the engine-ECU, you need an additional sensor |
| [d] | Needs additional ammeter |
| [e] | If information provided by the engine ECU |
| [f] | Required additional sensor |
| [g] | Requires G-ETH |
| [h] | Requires G-GSM |
| [i] | Requires G-Sync |

Dimensions and guiding weights. Environmental reference conditions: 100kPa, 25 °C, 30% relative humidity and fuel temperature below 40 °C. Power ratings according to ISO 8528-1:2018.

Emergency power (ESP): Maximum power available to supply variable loads for a maximum period of 200h/year. The average load factor in 24h of operation must not exceed 70% of the ESP regime. It does not allow overload.

Prime power (PRP): Maximum power available to supply variable loads for an unlimited number of hours. The average load factor in 24 hours of operation must not exceed 70% of the PRP rating. Allows an overload of 10% for a maximum period of 1 hour every 12 hours of operation. Overloading may not exceed 25 hours/year.

Continuous power (COP): Maximum power available to supply constant loads for an unlimited number of hours per year, between the maintenance intervals and environmental conditions advertised by the manufacturer.

*These specifications are subject to change without notice.*

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