



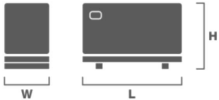
SMART RANGE

GENSET 20 kVA GRUPEL / GRUPEL

1. MAIN FEATURES

|                       |                   |           |                  |
|-----------------------|-------------------|-----------|------------------|
| <b>T</b>              | Three-phase       |           | Diesel           |
|                       | Grupel / 4GA22D50 |           | Grupel / 164GB18 |
|                       | Grupel / G545     | <b>Hz</b> | 50 Hz            |
|                       | 1500 r.p.m.       | <b>V</b>  | 400 V            |
| <b>cos φ</b>          | 0.8               |           | 32 A             |
| Standby Power(ESP)    |                   | 20 kVA    | 16 kW            |
| Prime Power (PRP)     |                   | 18 kVA    | 14 kW            |
| Continuous Power(COP) |                   | -         | -                |

| SOUNDPROOF                   |              |
|------------------------------|--------------|
| Length (L)                   | 1970 mm      |
| Height (H)                   | 1120 mm      |
| Width (W)                    | 825 mm       |
| Weight                       | 705 kg       |
| Fuel tank daily capacity     | 55 L         |
| Acoustic pressure level @ 1m | 79 ± 2 dB(A) |
| Acoustic pressure level @ 7m | 71 ± 2 dB(A) |



2. ROOM INSTALLATION

| EXHAUST SYSTEM                    | 50 Hz |     |          |
|-----------------------------------|-------|-----|----------|
|                                   | COP   | PRP | ESP      |
| Exhaust gas temperature (°C)      | -     | 550 | 550      |
| Exhaust gas flow (m³/min)         | -     | 3.5 | 3.8      |
| Evacuated heat (kW)               | -     | -   | 4.0<br>8 |
| Maximum back pressure (kPa)       | 5     |     |          |
| Exhaust silencer attenuation (dB) | 18-25 |     |          |
| Output diameter (mm)              | 65    |     |          |

| VENTILATION SYSTEMS                  | 50 Hz |     |     |
|--------------------------------------|-------|-----|-----|
|                                      | COP   | PRP | ESP |
| Combustion air flow (m³/min)         | -     | 1.7 | 1.9 |
| Cooling airflow (m³/min)             | 53    |     |     |
| Maximum load losses (Pa)             | -     |     |     |
| Alternator cooling air flow (m³/min) | 4.32  |     |     |

| RADIATION       | 50 Hz    |          |          |
|-----------------|----------|----------|----------|
|                 | COP      | PRP      | ESP      |
| Engine (kW)     | -        | -        | -        |
| Alternator (kW) | 2.5<br>8 | 2.5<br>8 | 2.8<br>6 |



### 3. ENGINE SPECIFICATIONS

| GENERAL SPECIFICATIONS       |                                   | 50Hz |
|------------------------------|-----------------------------------|------|
| Model                        | 4GA22D50                          |      |
| Emissions (UE/USEPA)         | Not applicable / Not applicable   |      |
| Performance grade            | G3*, ISO 8528:5 2018              |      |
| Operating method             | 4 stroke                          |      |
| Fuel type                    | Diesel                            |      |
| Refrigeration system         | Closed water circuit / antifreeze |      |
| Aspiration system            | Natural                           |      |
| Injection system             | Direct                            |      |
| No. and Cylinder arrangement | 4 In-line                         |      |
| Displacement (L)             | 2.156                             |      |
| Cylinder bore (mm)           | 85                                |      |
| Cylinder stroke (mm)         | 95                                |      |
| Compression ratio            | 18:1                              |      |
| Regulation                   | Electronic                        |      |
| Rotation speed (r.p.m.)      | 1500                              |      |
| Piston speed (m/s)           | 4.8                               |      |
| Gross power COP (kWm)        | -                                 |      |
| Gross power PRP (kWm)        | 18.5                              |      |
| Gross power ESP (kWm)        | 20.25                             |      |
| Fan Power (kWm)              | - / 1 / 1                         |      |
| Net Power COP (kWm)          | -                                 |      |
| Net Power PRP (kWm)          | 17.5                              |      |
| Net Power ESP (kWm)          | 19.25                             |      |
| BMEP COP (kPa)               | -                                 |      |
| BMEP PRP (kPa)               | 686                               |      |
| BMEP ESP (kPa)               | 751                               |      |



| CONSUMPTION      |                            | 50 Hz |
|------------------|----------------------------|-------|
| Fuel consumption | l/h                        | g/kWh |
| ESP              | 5.8                        | 240   |
| PRP              | 5.3                        | 240   |
| COP              | -                          | -     |
| 75%              | 3.9                        | 235   |
| 50%              | 2.8                        | 255   |
| Oil consumption  | < 0.1% of fuel consumption |       |

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

| CAPACITY (°C) |      |
|---------------|------|
| Coolant (L)   | 10.6 |
| Oil (L)       | 6.5  |

| STARTING SYSTEM |    |
|-----------------|----|
| Voltage (V)     | 12 |
| Power (kW)      | 3  |
| Battery (Ah)    | 62 |

### 4. ALTERNATOR SPECIFICATIONS

| GENERAL SPECIFICATIONS        |                                             |
|-------------------------------|---------------------------------------------|
| Model                         | 164GB18                                     |
| 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                                  | 12               |
| Excitation (standard/optional)                 | Autoexcitado / - |
| AVR Model (standard/optional)                  | SX460 / -        |
| Voltage Regulation (standard/optional)         | ± 1 % / -        |
| Icc (standard/optional)                        | - / -            |

| PF (cos Ø) | Phase       | Voltage (V) | Power PRP/ESP (kVA) | Efficiency PRP/ESP (%) | Xd    | X'd   | X''d  |
|------------|-------------|-------------|---------------------|------------------------|-------|-------|-------|
| 0.8        | Three-phase | 400         | 18 / 20             | 82.1 / 82.1            | 1.711 | 0.174 | 0.109 |





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 registered 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   | ●           |
| Hours of engine operation     | ●           |
| Total no. of LED indicators   | 15          |
| No. of LED alarms             | 4           |
| Sound signalling alarms       | -           |
| Schedule                      | ●           |
| Fuel level                    | ●           |

| ELECTRICAL GRID                      | 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           |



## 6. CONTROL PANEL

| ENGINE                              | Grupel G545 | APPLICATIONS                                                                  | Grupel G545   |
|-------------------------------------|-------------|-------------------------------------------------------------------------------|---------------|
| Engine speed                        | ●           | Automatic or manual start-up                                                  | ●             |
| Low oil pressure protection         | ●           | Remote start by dry contact                                                   | ●             |
| Oil pressure reading [c]            | ○           | Automatic by mains failure                                                    | ●             |
| High temperature engine protection  | ●           | Alternating with timesharing                                                  | ●             |
| Engine temperature reading [c]      | ○           | Multi-generators synchronization and load sharing (max. 48 generators) [i]    | ○             |
| Engine battery voltage              | ●           | Generator-Mains in synchronism and load sharing (1 generator and 1 mains) [i] | ○             |
| Intensity of the engine battery [d] | ○           |                                                                               |               |
| Fuel Consumption [e]                | ●           |                                                                               |               |
| Low level of radiator water [f]     | ○           |                                                                               |               |
| Scheduled engine maintenance        | ●           |                                                                               |               |
| COMMUNICATION                       | Grupel G545 | OPTIONAL EXPANSIONS                                                           | Grupel G545   |
| USB female type B (max. 6m)         | ●           | G-08 (8 dig. inputs)                                                          | ○             |
| USB female type A [g]               | ○           | G-06 (8 relay outputs)                                                        | ○             |
| RS232 port (max. 15m)               | -           | G-GSM (GSM and/or GPS by MLAT)                                                | ○             |
| RS485 port (max. 1,2Km)             | ●           | G-ETH (ethernet module)                                                       | ○             |
| Ethernet port RJ45 [g]              | ○           | G-ETH (ethernet module according to SNMP protocol)                            | ○             |
| GSM + location via MLAT [h]         | ○           | G545 (mirror controller, maximum distance 1km)                                | ○             |
| ModBus RTU protocol                 | ●           | G175 (convert QTC into QTA)                                                   | ○             |
| ModBus TCP protocol [g]             | ○           | G545 (convert QTC into QTA)                                                   | ○             |
| SNMP protocol [g]                   | ○           |                                                                               |               |
| CAN port (max. 40m)                 | ●           |                                                                               |               |
| MSC port (max. 240m) [i]            | ○           |                                                                               |               |
| PLC functionality                   | ●           |                                                                               |               |
|                                     |             | STANDARDS                                                                     |               |
|                                     |             | Working temperature                                                           | -30 ≤ °C ≤ 70 |
|                                     |             | Protection degree (front panel)                                               | IP65          |
|                                     |             | Degree of humidity (during 48hr)                                              | 93%, 40°C     |

### 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 weights guidelines. 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.*

### DISTRIBUTOR



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