



## INDUSTRIAL RANGE

## GENSET KW PERKINS / GRUPEL

### 1. MAIN FEATURES

|                                                                                   |                       |                                                                                   |                  |
|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|------------------|
|  | Three-phase           |  | Oil              |
|  | Perkins / 1104A-44TG1 |  | Grupel / 224GB73 |
|  | Grupel / G545         |  | 50 Hz            |
|  | 1500 r.p.m.           |  | 400 V            |
|  | 0.8                   |  | 100 A            |
| Standby Power(ESP)                                                                |                       | 72 kVA                                                                            | 58 kW            |
| Prime Power (PRP)                                                                 |                       | 66 kVA                                                                            | 53 kW            |
| Continuous Power(COP)                                                             |                       | -                                                                                 | -                |

#### SOUNDPROOF

|                              |              |                                                                                     |
|------------------------------|--------------|-------------------------------------------------------------------------------------|
| Length (L)                   | 2330 mm      |  |
| Height (H)                   | 1580 mm      |                                                                                     |
| Width (W)                    | 1015 mm      |                                                                                     |
| Weight                       | 1386 kg      |                                                                                     |
| Daily tank                   | 200 L        |                                                                                     |
| Acoustic pressure level @ 1m | 70 ± 3 dB(A) |                                                                                     |
| Acoustic pressure level @ 7m | 57 ± 3 dB(A) |                                                                                     |

### 2. ROOM INSTALLATION

| EXHAUST SYSTEM                    | 50 Hz |      |      |
|-----------------------------------|-------|------|------|
|                                   | COP   | PRP  | ESP  |
| Exhaust gas temperature (°C)      | -     | 515  | 550  |
| Exhaust gas flow (m³/min)         | -     | 10.5 | 11.4 |
| Evacuated heat (kW)               | -     | 41   | 47   |
| Maximum back pressure (kPa)       | 10    |      |      |
| Exhaust silencer attenuation (dB) | 18-25 |      |      |
| Output diameter (mm)              | 90    |      |      |

| VENTILATION SYSTEMS                  | 50 Hz |     |     |
|--------------------------------------|-------|-----|-----|
|                                      | COP   | PRP | ESP |
| Combustion air flow (m³/min)         | -     | 4   | 4.2 |
| Cooling airflow (m³/min)             | 89    |     |     |
| Maximum load losses (Pa)             | 125   |     |     |
| Alternator cooling air flow (m³/min) | 13.26 |     |     |

| RADIATION       | 50 Hz |     |     |
|-----------------|-------|-----|-----|
|                 | COP   | PRP | ESP |
| Engine (kW)     | -     | 10  | 11  |
| Alternator (kW) | 5.8   | 5.8 | 6.5 |



### 3. ENGINE SPECIFICATIONS

| GENERAL SPECIFICATIONS       |                                   | 50Hz |
|------------------------------|-----------------------------------|------|
| Model                        | 1104A-44TG1                       |      |
| 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 | 4 In-line                         |      |
| Displacement (L)             | 4.4                               |      |
| Cylinder bore (mm)           | 105                               |      |
| Cylinder stroke (mm)         | 127                               |      |
| Compression ratio            | 17,25:1                           |      |
| Regulation                   | Mechanical                        |      |
| Rotation speed (r.p.m.)      | 1500                              |      |
| Piston speed (m/s)           | 6.35                              |      |
| Gross power COP (kWm)        | -                                 |      |
| Gross power PRP (kWm)        | 59.6                              |      |
| Gross power ESP (kWm)        | 65.6                              |      |
| Fan Power (kWm)              | - / 1 / 1                         |      |
| Net Power COP (kWm)          | 0                                 |      |
| Net Power PRP (kWm)          | 58.4                              |      |
| Net Power ESP (kWm)          | 64.3                              |      |
| BMEP COP (kPa)               | -                                 |      |
| BMEP PRP (kPa)               | 1084                              |      |
| BMEP ESP (kPa)               | 1193                              |      |



| CONSUMPTION      |                             |  | 50 Hz |
|------------------|-----------------------------|--|-------|
| Fuel consumption | l/h                         |  | g/kWh |
| ESP              | 16.5                        |  | -     |
| PRP              | 14.8                        |  | -     |
| COP              | -                           |  | -     |
| 75%              | 11.2                        |  | -     |
| 50%              | 8                           |  | -     |
| Oil consumption  | < 0.15% of fuel consumption |  |       |

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

| CAPACITY (°C) |    |
|---------------|----|
| Coolant (L)   | 13 |
| Oil (L)       | 8  |

| STARTING SYSTEM |     |
|-----------------|-----|
| Voltage (V)     | 12  |
| Power (kW)      | 3   |
| Battery (Ah)    | 100 |

### 4. ALTERNATOR SPECIFICATIONS

| GENERAL SPECIFICATIONS        |                                           |
|-------------------------------|-------------------------------------------|
| Model                         | 224GB73                                   |
| 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 / PMG |
| AVR Model (standard/optional)                  | SX460 / MX341      |
| Voltage Regulation (standard/optional)         | ± 1 % / ± 0,5 %    |
| Icc (standard/optional)                        | - / 3In:10s        |

| PF (cos Ø) | Phase       | Voltage (V) | Power<br>PRP/ESP (kVA) | Efficiency<br>PRP/ESP (%) | Xd   | X'd  | X''d |
|------------|-------------|-------------|------------------------|---------------------------|------|------|------|
| 0.8        | Three-phase | 400         | 72.5 / 81.3            | 90 / 90                   | 2.07 | 0.16 | 0.11 |



## 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, kVAh, 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           |



## 6. CONTROL PANEL

| ENGINE                              | Grupel G545 | APPLICATIONS                                                                | Grupel G545                                |
|-------------------------------------|-------------|-----------------------------------------------------------------------------|--------------------------------------------|
| Engine speed                        | ●           | Automatic or manual starting                                                | ●                                          |
| Low oil pressure protection         | ●           | Remote start by NO 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-Main in synchronism and load sharing (1 generator and 1 main) [i] | ○                                          |
| Intensity of the engine battery [d] | ○           |                                                                             |                                            |
| Fuel Consumption [e]                | ●           |                                                                             |                                            |
| Low level of radiator water [f]     | ○           |                                                                             |                                            |
| Engine maintenance scheduled        | ●           |                                                                             |                                            |
| 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 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 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.*

### DISTRIBUTOR



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