

**IP-1650 - PERKINS - 4012-46TAG2A**

**1.500 R.P.M. | 50 Hz**

## TECHNICAL SPECIFICATIONS

Model:

**IP-1650**

Stand-by automatic gen set.



Image for guidance purposes.

| ENGINE     | MAKE                  | MODEL        |
|------------|-----------------------|--------------|
|            | PERKINS               | 4012-46TAG2A |
| ALTERNATOR | MODEL                 |              |
|            | MECC-ALTE ECO 46-1S/4 |              |

(400 / 230 V)

CONTINUOUS POWER:  
(PRP "Prime Power" norma ISO 8528-1) **1500 kVA**

STAND-BY POWER:  
(LTP "Limited Time Power" norma ISO 8528-1) **1650 kVA**

### Amperes in the different voltages:

| VOLTAGE | HZ | PHASE | COS Ø | PRP KVA/KW      | LTP KVA/KW      | AMPERAGE |
|---------|----|-------|-------|-----------------|-----------------|----------|
| 415/240 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 2298,21  |
| 400/230 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 2384,39  |
| 380/220 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 2509,89  |
| 240/139 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 3973,99  |
| 230/133 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 4146,77  |
| 220/127 | 50 | 3     | 0,8   | 1.500,0/1.200,0 | 1.650,0/1.320,0 | 4335,26  |

**ELECTRO EXIM SRL**

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## ENGINE CHARACTERISTICS

| MAKE    | MODEL        |
|---------|--------------|
| PERKINS | 4012-46TAG2A |

### GENERAL DATA

|                          |               |
|--------------------------|---------------|
| Power PRP (kWm)          | 1267.00       |
| Power LTP (kWm)          | 1395.00       |
| No. cylinders            | 12            |
| Cylinder capacity (L)    | 45.80         |
| Diameter per stroke (mm) | 160 x 190     |
| Compression ratio        | 13.00         |
| Cooling system           | LIQUID        |
| Injection                | DIRECT        |
| Suction                  | TURBO-INTERC. |
| Series regulator         | ELECTRONIC    |
| Fly wheel coupling       | 00-18"        |

### Lubrication system

|                               |        |
|-------------------------------|--------|
| Oil capacity (L)              | 177.00 |
| Oil consumption (%)           | 0.50   |
| Min. alarm oil pressure (bar) | -      |

### Ventilation system

|                                   |         |
|-----------------------------------|---------|
| Air cooling flow (m3/h)           | 116640  |
| Combustion air flow (m3/h)        | 7680.00 |
| Max. back pressure for fan (mbar) | -       |

### Exhaust system

|                              |       |
|------------------------------|-------|
| Exhaust gas flow (m3/h)      | 19200 |
| Exhaust back pressure (mbar) | 50    |
| Temp. exhaust gases (°C)     | 455   |

### Electrical system

|                      |      |
|----------------------|------|
| VDC (V)              | 24   |
| Battery (Ah)         | -    |
| Engine start-up (kW) | 16,4 |

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## ALTERNATOR CHARACTERISTICS

### MODEL

MECC-ALTE ECO 46-1S/4 (400 / 230 V)

### GENERAL DATA

|                       |         |
|-----------------------|---------|
| Power PRP (kVA)       | 1500.00 |
| Power LTP (kVA)       | 1650.00 |
| Efficiency Alt. 3/4 % | 96.40   |
| Efficiency Alt. 4/4 % | 96.20   |
| No. Poles             | 4       |
| Voltage regulator     | DER-1   |
| No. wires             | 12      |
| Insulation            | H       |
| Xd (%)                | 365.00  |
| X'd (%)               | 24.90   |
| X                     | 12.20   |
| Degree of protection  | IP21    |

## GENERATOR SET CONSUMPTION

| % POWER USED | LITRES/HOUR |
|--------------|-------------|
| 50%          | 162.00      |
| 75%          | 237.00      |
| 100%         | 301.00      |

## DIMENSIONS, CAPACITIES, APPROXIMATE WEIGHT AND NOISE

| LENGTH               | DIMENSIONS (MM) |             |
|----------------------|-----------------|-------------|
|                      | WIDTH           | HEIGHT      |
| 12161                | 2432            | 2614        |
| FUEL TANK (LITRES)   |                 | WEIGHT (KG) |
| 1000.00              |                 | -           |
| NOISE LEVEL (dB (A)) |                 |             |

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## INMESOL GENERATOR SET

### GENERAL DESCRIPTION

The "INMESOL" generator set is an electrical energy generating machine which is used in places where there **is no mains supply** or when there is a MAINS failure.

The mobile elements, distribution belt, fan, etc., and those parts which reach high temperatures during operation, exhaust manifold, etc, include their corresponding protections, in compliance with the requirements of the Machinery Directive **2006/42**.

### REGULATIONS

The machine holds the "CE" marking, and the corresponding Declaration of Conformity is issued with each of them, in which it specifies that the machine complies with **R.D 842/2002 Low Voltage Regulations and with the European Directives:**

- 2006/42 on Safety in Machinery.
- 2006/95/CE on Electrical Safety.
- 2004/108/CE on Electromagnetic Compatibility.
- 2005/88/CE on NOISE EMISSIONS by equipment for outdoor use (for SOUNDPROOF GENERATOR SETS).

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## **HR** **HEAVY RANGE / SCOPE OF SUPPLY**



|                                                                                                                                                                                                                                                                                          |   |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| Engine/alternator monobloc directly connected and installed via silent blocks on a frame made from high tensile electro welded steel profiles that are treated with degreasing liquids and aplicated with a phosphate coat and epoxi paint. Outdoor and anticorrosive special treatment. | ✓ | ✓ |
| Canopy of steel sheet sound proofed with fireproof rockwool, and treated with degreasing liquids and aplicated with a phosphate coat and epoxi paint. Outdoor and anticorrosive special treatment.                                                                                       | • | ✓ |
| Engine with mechanical engine driven pusher fan.                                                                                                                                                                                                                                         | ✓ | ✓ |
| Residencial silencer with -35 db(A) noise reduction with exhaust tube and protection cap.                                                                                                                                                                                                | • | ✓ |
| Residential silencer with -15 db(A) noise reduction and exhoust outlet pipe.                                                                                                                                                                                                             | ✓ | • |
| Integrated lifting hook for single point lifting with crane.                                                                                                                                                                                                                             | • | ✓ |
| Integrated lifting hooks to be carried and moved.                                                                                                                                                                                                                                        | ✓ | • |
| Radiator water filling register cover                                                                                                                                                                                                                                                    | • | ✓ |
| Easy cleaning register and radiator replacement.                                                                                                                                                                                                                                         | • | ✓ |
| Metal fuel tank.                                                                                                                                                                                                                                                                         | ✓ | ✓ |
| Drain and cleaning lid on fuel tank.                                                                                                                                                                                                                                                     | ✓ | ✓ |
| 3 Valves fuel tank outside connection kit.                                                                                                                                                                                                                                               | ✓ | ✓ |
| Quick socket fuel tank.                                                                                                                                                                                                                                                                  | ✓ | ✓ |
| Security protection in warm parts                                                                                                                                                                                                                                                        | ✓ | ✓ |
| Oil extraction system placed in sump                                                                                                                                                                                                                                                     | ✓ | ✓ |
| External emergency stop push button.                                                                                                                                                                                                                                                     | ✓ | ✓ |
| Starting battery with security bornes and battery switch off.                                                                                                                                                                                                                            | ✓ | ✓ |
| Ground alternator with battery charger.                                                                                                                                                                                                                                                  | ✓ | ✓ |
| Autoexcited and autoregulated alternator.                                                                                                                                                                                                                                                | ✓ | ✓ |
| Control panel to read electric measures, power, oil level,... /                                                                                                                                                                                                                          | ✓ | ✓ |
| Electrical digital control panel manual/automatic.                                                                                                                                                                                                                                       | ✓ | ✓ |
| Circuit breaker, IV poles (automatic version).                                                                                                                                                                                                                                           | ✓ | ✓ |
| Ground terminal.                                                                                                                                                                                                                                                                         | ✓ | ✓ |
| Kit sockets (optional)                                                                                                                                                                                                                                                                   | ✓ | ✓ |
| Inside auxiliary light (optional).                                                                                                                                                                                                                                                       | • | ✓ |
| Standard electronic speed governor on engines.                                                                                                                                                                                                                                           | ✓ | ✓ |
| No drip security bucket.                                                                                                                                                                                                                                                                 | ✓ | ✓ |

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## DSE 7320 AUTOMATIC CONTROL PANEL

### DSE 7320 AUTOMATIC CONTROL PANEL

PROTECTION, DISTRIBUTION AND AUTOMATIC CONTROL panel which starts the generator set when it detects a mains failure and stops it when the mains is restored with the control unit DSE 7320.



Image for guidance purposes.

It has the following:

- 1** EMERGENCY STOP PUSHBUTTON
- 2** PROTECTIONS:
  - Magnetothermal switch (preheating resist.) 2P (16 A)
  - Protection fuses for control module
- 3** BATTERY CHARGER

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## DSE 7320 AUTOMATIC CONTROL PANEL

- 4 DSE 7320 CONTROL and PROTECTION CENTRE.** It has a digital LCD screen, which provides easy reading of the information regarding the ENGINE, ALTERNATOR, MAINS and CHARGING.

### READINGS that can be made:

#### ENGINE:

- Coolant temperature
- Fuel level
- Operating hours
- Oil pressure
- Battery voltage
- Number of start-ups
- Turning speed (rpm)
- Battery alternator voltage.

#### ALTERNATOR AND CHARGE:

- Voltages between phases and between phases and neutral.
- Reactive Power (kVAr)
- Intensities
- Apparent Power (kVA)
- Frequency
- Cos phi
- Active Power (kW)
- Active energy meter (kW-h)

#### MAINS:

- Frequency
- Voltages between phases and (L1-L2, L2-L3, L1-L3).
- Phase rotation order
- Earth current
- Voltages between phases and neutral (L1-N, L2-N, L3-N).

### CONTROL of the set:

- STARTS and STOPS the set AUTOMATICALLY when mains failure is detected and when it is restored, respectively.
- It can also operate MANUALLY

### Protection of the engine and alternator, with the ALARMS activated:

#### ENGINE:

- Low oil pressure
- Failure of the alternator to charge batteries
- High coolant temperature
- Low fuel level
- Low and High battery Voltage.

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## DSE 7320 AUTOMATIC CONTROL PANEL

### ALTERNATOR:

- Low and High Voltage
- Low and High Frequency
- Overload due to Intensity (A)
- Short-circuit
- Negative Phase Sequence.
- Power Overload (KW-kVA)
- Load control:
  - 1.Connection and disconnection of artificial loads.
  - 2.Disconnection of non-essential loads

### MAINS:

- Low and High Voltage
- Low and High Frequency

### OTHER CHARACTERISTICS:

- The real-time clock provides an exact record of events.
- Extensive number of configurable inputs and outputs.
- Configurable alarms and timers.
- USB connectivity
- Fully configurable via software and PC.
- Modbus RTU
- Possibility of SMS text messages
- Communications Ethernet, RS 232 and RS 485
- Programmer Clock with multiple maintenance events which can be configured for the optimal operation of the engine. Weekly and/or monthly programming of up to 16 starts and stops per week.
- ALTERNATIVE CONFIGURATIONS, which open up the working possibilities

## 5 DISTRIBUTION:

- Direct output of the magnetothermal switch.

## 6 OPTIONAL:

- 4-Pole Switchboard installed next to the Automatic Panel
- 4-Pole Switchboard in metal cabinet independent from the Automatic Panel

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## DSE 7320 AUTOMATIC CONTROL PANEL

The following table shows the different amperages of the magnetothermal switches and the switchboards according to the set's power - Three-phase generators (single phase by request):

| CONT. POW   |                 | MAGNETOTHERMAL PROTECTION IV POLES (A) | SWITCHBOARD IV POLES (A) |
|-------------|-----------------|----------------------------------------|--------------------------|
| SET'S POWER | 250 - 275 kVA   | 400                                    | 400                      |
|             | 300 - 430 kVA   | 630                                    | 630                      |
|             | 450 - 500 kVA   | 800                                    | 800                      |
|             | 570 - 650 kVA   | 1000                                   | 1250                     |
|             | 780 - 800 kVA   | 1250                                   | 1250                     |
|             | 915 - 1100 kVA  | 1600                                   | 1650                     |
|             | 1150 - 1300 kVA | 2000                                   | 2000                     |
|             | 1400 - 1750 kVA | 2500                                   | 2500                     |
|             | 1800 - 2100 kVA | 3200                                   | 3200                     |



| NOMENCLATURA                   |
|--------------------------------|
| 1.- GRUPO ELECTROGENO          |
| 2.- HUECO ENTRADA DEL AIRE     |
| 3.- TUNEL EXPULSION DEL AIRE   |
| 4.- BANDEJA PASCABLES          |
| 5.- PUERTA DE ACCESO           |
| 6.- BASE HORMIGON ARMADO H-175 |
| 7.- TUBO DE ESCAPE             |

EL Ø DE LA TUBERÍA DE EXTENSIÓN DEL ESCAPE PUEDE SER EL MISMO QUE EL DEL SIENCAJOR HASTA 5 m. PARA DISTANCIAS MAYORES DE 5 m, DEBE AUMENTARSE EL Ø DE LA TUBERÍA 10 mm POR CADA 10 m MÁS DE DISTANCIA ENTRE EL GRUPO ELECTROGENO Y LA SALIDA EXTERIOR

|                                                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
|-------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|  |                     | <p>Los datos expresados en el presente certificado de conformidad son válidos para el producto y/o servicio especificado en el certificado de conformidad, siempre y cuando el fabricante o proveedor del producto o servicio mantenga las condiciones de fabricación o prestación de servicios en las condiciones de control de calidad que se expresan en el presente certificado de conformidad.</p> |                              |
| PROYECTO:                                                                           | GRUPO INSONORIZADO  |                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
| MODIFICADO:                                                                         | A/AQUILAR           | 02-Ene-2015                                                                                                                                                                                                                                                                                                                                                                                             | MATERIAL                     |
| DEBILUADO:                                                                          | J.J.SEBAR           | 27-Feb-2006                                                                                                                                                                                                                                                                                                                                                                                             | TOLENCIA GENERAL             |
| CONPROBADO:                                                                         | J.J.SOLANO          | 04-Oct-2012                                                                                                                                                                                                                                                                                                                                                                                             | UDS.                         |
| DEMONSTRACION:                                                                      | EXPEDIENTE:         |                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
| ORDEN:                                                                              | GRUPO INSONORIZADO  |                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
| ESCALA:                                                                             | DIMENSIONES DE SALA |                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
|                                                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                         | Nº MOD.<br>Nº PLANO<br>MARCA |