



Shown with optional equipment

**Features**

- Single source responsibility for the generator set and accessories.
- Prototype and production tested to insure one step load acceptance per NFPA 110.
- Two year limited warranty on generator sets and accessories.
- Unit conforms to CSA, NEMA, EGSA, ANSI and other standards.
- Heavy duty 4 cycle industrial engine for reliability and fuel efficiency.
- Brushless rotating field generator with class H insulation.
- Heavy duty steel base with integral vibration isolators.
- Electronic Isochronous Governor.
- Cooling system designed for ambients up to 50°C (122°F)
- EPA Tier 2 Certified Engine.

**Ratings Range**

|          |     |         |
|----------|-----|---------|
|          |     | 60Hz    |
| Standby: | kW  | 420-500 |
|          | kVA | 525-625 |
| Prime:   | kW  | 376-450 |
|          | kVA | 470-563 |

| Generator  | Voltage | PH | Hz | Standby Rating |      | Prime Rating |      |
|------------|---------|----|----|----------------|------|--------------|------|
|            |         |    |    | kW/kVA         | Amps | kW/kVA       | Amps |
| HCI544E311 | 277/480 | 3  | 60 | 500/625        | 752  | 450/563      | 677  |
|            | 139/240 | 3  | 60 | 500/625        | 1504 | 450/563      | 1354 |
|            | 254/440 | 3  | 60 | 500/625        | 820  | 450/563      | 739  |
|            | 127/220 | 3  | 60 | 500/625        | 1640 | 450/563      | 1478 |
|            | 240/416 | 3  | 60 | 500/625        | 867  | 450/563      | 781  |
|            | 120/208 | 3  | 60 | 500/625        | 1735 | 450/563      | 1563 |
|            | 120/240 | 3  | 60 | 500/625        | 1504 | 450/563      | 1354 |
|            | 219/380 | 3  | 60 | 500/625        | 950  | 450/563      | 855  |
|            | 120/240 | 1  | 60 | 273/273        | 1138 | 250/250      | 1042 |

**RATINGS:** All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor.  
**STANDBY RATINGS:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271.  
**PRIME POWER RATINGS:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. For limited running time and base load ratings consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.  
**GENERAL GUIDELINES FOR DERATION:** Altitude: Derate 0.5% per 100m (328 ft.) elevation above 1000m (3279 ft.)

# Perkins Diesel Engine

## Model 2506C-E15TAG3

### Basic technical data

|                       |  |
|-----------------------|--|
| Number of cylinders   | 6  |
| Cylinder arrangement  | Vertical in-line                         |
| Cycle                 | Four stroke                              |
| Induction system      | Turbocharged, air to air charge cooled   |
| Compression ratio     | 16:1                                     |
| Bore                  | 5.37 in. (137 mm)                        |
| Stroke                | 6.73 in. (171 mm)                        |
| Cubic capacity        | 815.2 cu in. (15.2 L)                    |
| Direction of rotation | Anti-clockwise when viewed from flywheel |
| Firing order          | 1,5,3,6,2,4                              |

### Cooling system

#### Radiator

|                             |  |
|-----------------------------|--|
| Face area                   | 1,922 in <sup>2</sup> (1.24 m <sup>2</sup> ) |
| Number of rows and material | 2, Aluminum                                  |
| Matrix density and material | 12.0, Aluminum fins per inch                 |
| Width of matrix             | 41.3 in. (1,048 mm)                          |
| Height of matrix            | 43.3 in. (1,100 mm)                          |
| Pressure cap setting        | 10.0 psi (69 kPa)                            |

#### Charge cooler

|                             |   |
|-----------------------------|---|
| Face area                   | 1,559 in <sup>2</sup> (1.006 m <sup>2</sup> ) |
| Number of rows and material | 1, Aluminum                                   |
| Matrix density and material | 12.5, Aluminum fins per inch                  |
| Width of matrix             | 36.0 in. (915 mm)                             |
| Height of matrix            | 43.3 in. (1,100 mm)                           |

#### Fan

|                  |                   |
|------------------|-------------------|
| diameter         | 36.5 in. (927 mm) |
| Drive ratio      | 0.92:1            |
| Number of blades | 9                 |
| Material         | Composite         |
| Type             | Pusher            |

#### Coolant

|   |   |
|---|---|
| Total system capacity                             | 13.6 gal (58.0 L)   |
| Coolant pump drive                                | Gear  |
| Maximum top tank temperature                      | 225° F (107° C)   |
| Temperature rise across engine (rating dependent) | 50° F (10 °C)   |
| Thermostat operation range                        | 190-208° F (88-98 °C)   |
| Recommended coolant:                              | 50% ethylene glycol with a corrosion inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water. |

| Designation  | Units                     | Prime      | Standby    |
|--|---------------------------|------------|------------|
|  |                           | 60 Hz      |            |
| Gross engine power   | hp (kWb)                  | 696 (519)  | 762 (568)  |
| Brake mean effective pressure                              | psi (kPa)                 | 335 (2307) | 366 (2524) |
| Engine coolant flow (against 4.4 psi (30 kPa) restriction) | gal/sec (L/sec)           | 1.64 (6.2) | 1.64 (6.2) |
| Combustion air flow (at rated speed)                       | cfm (m <sup>3</sup> /min) | 1377 (39)  | 1483 (42)  |
| Exhaust gas flow (max.)                                    | cfm (m <sup>3</sup> /min) | 3602 (102) | 3955 (112) |
| Exhaust gas temperature at turbo-charger outlet            | °F (°C)                   | 1022 (550) | 1022 (550) |
| Overall thermal efficiency (net)                           | %                         | 41.0       | 41.2       |

### Exhaust system

|                       |                    |
|-----------------------|--------------------|
| Maximum back pressure | 0.99 psi (6.8 kPa) |
| Exhaust outlet size   | 5.9 in. (150 mm)   |

### Fuel system

|                     |                      |
|---------------------|----------------------|
| Type of injection   | MEUI                 |
| Fuel injection pump | MEUI                 |
| Governor type       | electronic           |
| Injector Pressure   | 29,008 psi (200 MPa) |

### Fuel lift pump

|                               |                         |
|-------------------------------|-------------------------|
| Lift pump type                | gear driven             |
| Lift pump delivery @ 1800 rpm | 120.7 gal/hr (457 l/hr) |
| Lift pump delivery pressure   | 80 psi (550 kPa)        |
| Maximum suction head          | 3 m                     |
| Maximum static pressure head  | 4 m                     |
| Max. fuel inlet temperature   | 131°F (55° C)           |

### Fuel Consumption gal/hr (L/hr.)

| Power Rating |                 |                 |                |                |
|--------------|-----------------|-----------------|----------------|----------------|
| Speed        | Standby         | Prime           | 75%            | 50%            |
| 60Hz         | 34.9<br>(132.0) | 32.0<br>(121.0) | 25.4<br>(96.0) | 20.3<br>(77.0) |

### Lubrication system

|   |                 |
|---|-----------------|
| Lubricating oil capacity total system         | 15.9 gal (60 L) |
| Maximum sump capacity                         | 14.0 gal (53 L) |
| Minimum sump capacity                         | 11.9 gal (45 L) |
| Maximum engine operating angles               |                 |
| Front up, front down, right side or left side | 7°              |

### Lubricating oil pressure

|   |                          |
|---|--------------------------|
| Oil flow at 1800 rev/min                                | 0.90 gal/sec (3.4 L/sec) |
| At maximum no-load speed                                | 61 psi (420 kPa)         |
| Oil temperature (continuous operation)                  | 237° F (114° C)          |
| Oil consumption at full load as a % of fuel consumption | 0.1%                     |

### Electrical system

|                                   |                        |
|-----------------------------------|------------------------|
| Type                              | 24 volt negative earth |
| Alternator type                   | 22SI                   |
| Alternator voltage                | 24V                    |
| Alternator output                 | 70A                    |
| Starter motor type                | 42MT                   |
| Starter motor voltage             | 24V                    |
| Starter motor power               | 10 hp (7.5 kW)         |
| Number of teeth on flywheel       | 113                    |
| Number of teeth on starter pinion | 11                     |
| Minimum cranking speed            | 100 rev/min            |

### Induction system

#### Maximum air intake restriction

|                 |                    |
|-----------------|--------------------|
| Clean filter    | 0.54 psi (3.7 kPa) |
| dirty filter    | 0.90 psi (6.2 kPa) |
| Air filter type | paper element      |

# Generator Controller Options

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## Digital Control Panel

The DGC-2020 digital genset controller provides integrated engine-genset control, protection, and metering. Microprocessor based technology allows for exact measurement, setpoint adjustment, and timing functions. Front panel 3 position controls and indicators enable quick and simple operation. The panel is also equipped with a emergency stop push button and an Alarm Horn with silence button. A wide temperature-range liquid crystal display (LCD) with backlighting can be viewed under a wide range of ambient light and temperature conditions down to 104° F (40° C).

Features SAE J1939 Engine ECU communications, Multilingual capability, Remote RS-485 communications for Optional RDP-110 Remote Annunciator, Extremely rugged, fully encapsulated design with 4 programmable contact inputs and 10 contact outputs (2 A/c rated).

It also features Modbus Communications with RS-485, Battery Backup for Real Time Clock, UL recognized, CSA certified, CE approved, HALT (Highly Accelerated Life Tests) tested, IP 54 Front Panel rating with integrated gasket, and NFPA 110 Level 1 Compatible.



## Analog End Mount Controller

This Generator control panel has analog instruments to monitor AC voltage, AC frequency, and percent of load. The analog engine instruments monitor oil pressure, water temperature, battery voltage, fuel level, and run time/hour meter. Safety shutdowns provide red LED indication for overspeed, overcrank, low oil pressure, and high coolant temperature. Provide green LED indication of engine running. Control switch is provided for local and remote starting with 3 position run/off/remote switch.

There is also an engine mounted emergency by-pass key switch.

# AC Alternator Specifications

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## STANDARDS

**Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as B55000, VDE 0530, NEMA MG1-32, 1EC34, CSA C22.2-100, A51359.**

Other standards and certifications can be considered on request.

## VOLTAGE REGULATORS

### MX341 AVR

This sophisticated AVR is incorporated into the Stamford Permanent Magnet Generator (PMG) control system.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has in-built protection against sustained over-excitation, caused by internal or external faults. This de-excites the machine after a minimum of 5 seconds.

An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.

If three-phase sensing is required with the PMG system the MX321 AVR must be used.

We recommend three-phase sensing for applications with greatly unbalanced or highly non-linear loads.

### (Optional) MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three-phase rms sensing, for improved regulation and performance. Over voltage protection is built-in and short circuit current level adjustments is an optional facility.

## WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A frilly connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

## SHAFT

The generator rotor is dynamically balanced to better than B56861:Part 1 Grade 2.5 for minimum vibration in operation.

## INSULATION/IMPREGNATION

The insulation system is class H.

All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

## QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

# Standard Features and Optional Accessories

## Standard Features

- **Heavy duty steel base**
- **Vibration isolators**
- **Oil drain valve with extension**
- **Battery rack**
- **Battery cables**
- **Water jacket heater**
- **Owners manual**
- **Electronic Isochronous Governor**

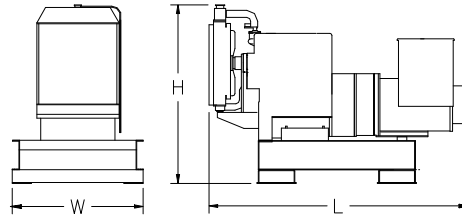
## Optional Accessories

- Critical Exhaust Silencer
- Flex Exhaust Connector
- End Mount Analog Control Panel
- DGC2020 Digital Control Panel
- Modem for DGC2020
- Enhanced Gen Protection for DGC2020
- Surface Mount Remote Annunciator Panel for DGC2020
- Flush Mount Remote Annunciator Panel for DGC2020
- Remote Mount Break Glass E-Stop Switch
- Line Circuit Breaker
- 3 phase sensing
- Generator strip heater
- Radiator duct flange for open unit
- Weather Enclosure with external muffler
- Weather Enclosure with internal muffler
- Sound Attenuated weather enclosure
- Oil Pan Heater
- Battery
- Battery Charger
- Battery Heaters
- Sub-Base Fuel Tank
- Flexible Fuel Lines

## WEIGHTS AND DIMENSIONS

OVERALL SIZE, L x W x H, in.: 148 in. x 66 in. x 75 in.  
WEIGHT (WET): 8,266 lbs.

Note: Dim and weights reflect standard open unit with no options



Note: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

## DISTRIBUTED BY:

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