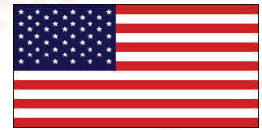




# GeneratorJoe®



Made in the USA!



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.
- Five 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.
- EPA Emissions Certified
- UL 2200 Available

## Centurion "Defender 2" Series

### Model: 150 DF2-3

#### Ratings Natural Gas

Single and/or Three Phase Available

|          |     | 60 Hz | 50 Hz |
|----------|-----|-------|-------|
| Standby: | kW  | 150.0 | 125.0 |
|          | kVA | 187.5 | 156.7 |
| Prime:   | kW  | 135.0 | 112.5 |
|          | kVA | 168.7 | 140.0 |

#### Natural Gas

130°C Rise

#### Standby Rating

| Voltage | Ph | Hz | kW/kVA    | Amps |
|---------|----|----|-----------|------|
| 120/208 | 3  | 60 | 150/187.5 | 520  |
| 127/220 | 3  | 60 | 150/187.5 | 492  |
| 120/240 | 3  | 60 | 150/187.5 | 451  |
| 120/240 | 1  | 60 | 100/100   | 417  |
| 139/240 | 3  | 60 | 150/187.5 | 451  |
| 220/380 | 3  | 60 | 145/181.3 | 275  |
| 277/480 | 3  | 60 | 150/187.5 | 226  |
| 347/600 | 3  | 60 | 150/187.5 | 180  |
| 110/190 | 3  | 50 | 125/156   | 474  |
| 115/200 | 3  | 50 | 125/156   | 450  |
| 120/208 | 3  | 50 | 125/156   | 433  |
| 110/220 | 1  | 50 | 90/90     | 409  |
| 110/220 | 3  | 50 | 125/156   | 409  |
| 220/380 | 3  | 50 | 125/156   | 237  |
| 230/400 | 3  | 50 | 125/156   | 225  |
| 240/416 | 3  | 50 | 125/156   | 217  |



**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 100 m (328 ft.) elevation above 1000 m (3279 ft.) Temperature: Derate 1.0% per 10°C (18°F) temperature above 40°C (104°F).

# Engine Application Data

## Engine

| Engine Specifications                      | 60 Hz                                                            | 50 Hz      |
|--------------------------------------------|------------------------------------------------------------------|------------|
| Manufacturer                               | General Motors                                                   |            |
| Engine: model, type                        | Industrial Powertrain,<br>Vortec 8.1 L, 4-Cycle,<br>Turbocharged |            |
| Cylinder arrangement                       | V-8                                                              |            |
| Displacement, L (cu. in.)                  | 8.1 (496)                                                        |            |
| Bore and stroke, mm (in.)                  | 108 x 111 (4.25 x 4.37)                                          |            |
| Compression ratio                          | 9.1:1                                                            |            |
| Piston speed, m/min. (ft./min.)            | 399 (1311)                                                       | 332 (1092) |
| Main bearings: quantity, type              | Alum. Lead Silicon Alloy                                         |            |
| Rated rpm                                  | 1800                                                             | 1500       |
| Max. power at rated rpm, kW (HP)           | 146 (195)                                                        | 118 (158)  |
| Cylinder head material                     | Cast Iron                                                        |            |
| Piston type and material                   | Strutless Flat Top,<br>Hypereutectic Cast Alum.                  |            |
| Crankshaft material                        | Cast Nodular Undercut<br>Rolled Fillet                           |            |
| Valve (exhaust) material                   | Int.-A193 Exh. Inconel                                           |            |
| Governor type                              | Electronic                                                       |            |
| Frequency regulation, no-load to full-load | Isochronous                                                      |            |
| Frequency regulation, steady state         | ±0.5%                                                            |            |
| Frequency                                  | Fixed                                                            |            |
| Air cleaner type, all models               | Dry                                                              |            |

## Exhaust

| Exhaust System                                        | 60 Hz                                         | 50 Hz      |
|-------------------------------------------------------|-----------------------------------------------|------------|
| Exhaust manifold type                                 | Dry                                           |            |
| Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)  | 26.1 (920)                                    | 18.7 (660) |
| Exhaust temperature at rated kW, dry exhaust, °C (°F) | 649 (1200)                                    |            |
| Maximum allowable back pressure, kPa (in. Hg)         | 10.2 (3.0)                                    |            |
| Exhaust outlet size at engine hookup, mm (in.)        | Flanged Outlet at Catalyst<br>see ADV drawing |            |

## Lubrication

| Lubricating System                    | 60 Hz         | 50 Hz |
|---------------------------------------|---------------|-------|
| Type                                  | Full Pressure |       |
| Oil pan capacity, L (qt.)             | 8.0 (8.5)     |       |
| Oil pan capacity with filter, L (qt.) | 8.5 (9.0)     |       |
| Oil filter: quantity, type            | 1, Cartridge  |       |

## Cooling

| Radiator System                                                                                    | 60 Hz       | 50 Hz     |
|----------------------------------------------------------------------------------------------------|-------------|-----------|
| Ambient temperature, °C (°F) *                                                                     | 50 (122)    |           |
| Engine jacket water capacity, L (gal.)                                                             | 10.0 (2.6)  |           |
| Radiator system capacity, including engine, L (gal.)                                               | 24.2 (6.4)  |           |
| Engine jacket water flow, Lpm (gpm)                                                                | 125 (33)    | 102 (27)  |
| Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)                             | 110 (6260)  | 72 (4100) |
| Heat rejected to engine oil at rated kW, kW (Btu/min.)                                             | 1.4 (81)    | 1.2 (68)  |
| Water pump type                                                                                    | Centrifugal |           |
| Fan diameter, including blades, mm (in.)                                                           | 599 (23.6)  |           |
| Fan, kWm (HP)                                                                                      | 10.4 (14.0) | 6.0 (8.1) |
| Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O) | 0.125 (0.5) |           |

\* Weather housing with roof-mounted silencer and enclosure with enclosed silencer reduce ambient temperature capability by 10 °C (18 °F).

## Operation Requirements

| Air Requirements                                          | 60 Hz       | 50 Hz       |
|-----------------------------------------------------------|-------------|-------------|
| Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡ | 306 (10800) | 232 (8200)  |
| Combustion air, m <sup>3</sup> /min. (cfm)                | 8.8 (312)   | 6.2 (220)   |
| Heat rejected to ambient air: Engine, kW (Btu/min.)       | 72.0 (4100) | 44.1 (2510) |
| Alternator, kW (Btu/min.)                                 | 13.7 (780)  | 9.8 (560)   |

‡ Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

## Engine Electrical

| Engine Electrical System                       | 60 Hz                                 | 50 Hz |
|------------------------------------------------|---------------------------------------|-------|
| Ignition system                                | Individual Coil<br>Near Plug Ignition |       |
| Battery charging alternator:                   |                                       |       |
| Ground (negative/positive)                     | Negative                              |       |
| Volts (DC)                                     | 12                                    |       |
| Ampere rating                                  | 70                                    |       |
| Starter motor rated voltage (DC)               | 12                                    |       |
| Battery, recommended cold cranking amps (CCA): |                                       |       |
| Qty., rating for -18 °C (0 °F)                 | One, 630                              |       |
| Battery voltage (DC)                           | 12                                    |       |

## Fuel

| Fuel System                                                                                                                                                    | 60 Hz                                | 50 Hz |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------|
| Fuel type                                                                                                                                                      | LP Gas, Natural Gas, or<br>Dual Fuel |       |
| Fuel supply line inlet                                                                                                                                         | 1.5 NPTF                             |       |
| Natural gas/LPG fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories, kPa (in. H <sub>2</sub> O) | 1.74-2.74 (7-11)                     |       |

| Fuel Composition Limits *                                           | Nat. Gas   | LP Gas      |
|---------------------------------------------------------------------|------------|-------------|
| Methane, % by volume                                                | 90 min.    | —           |
| Ethane, % by volume                                                 | 4.0 max.   | —           |
| Propane, % by volume                                                | 1.0 max.   | 85 min.     |
| Propene, % by volume                                                | 0.1 max.   | 5.0 max.    |
| C <sub>4</sub> and higher, % by volume                              | 0.3 max.   | 2.5 max.    |
| Sulfur, ppm mass                                                    | 25 max.    |             |
| Lower heating value, kJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min. | 26.6 (890) | 67.5 (2260) |

\* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

| Fuel Consumption                                  | 60 Hz           | 50 Hz       |
|---------------------------------------------------|-----------------|-------------|
| Natural Gas, m <sup>3</sup> /hr. (cfh) at % load‡ | Standby Ratings |             |
| 100%                                              | 46.8 (1651)     | 39.6 (1400) |
| 75%                                               | 38.9 (1372)     | 31.3 (1105) |
| 50%                                               | 27.9 (984)      | 22.8 (806)  |
| 25%                                               | 18.4 (650)      | 15.1 (535)  |
| 0%                                                | 10.4 (369)      | 8.8 (310)   |

| LP Gas, m <sup>3</sup> /hr. (cfh) at % load | Standby Ratings |
|---------------------------------------------|-----------------|
| 100%                                        | 16.5 (582)      |
| 75%                                         | 13.3 (469)      |
| 50%                                         | 10.0 (354)      |
| 25%                                         | 6.4 (226)       |
| 0%                                          | 3.7 (130)       |

‡ Fuel consumption is based on 1015 Btu/standard cu. ft. natural gas.

LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.





# Generator Controller Options



## Digital Control Panel

The DGC-2020 digital GenSet controller provides integrated engine-GenSet control, protection, and metering. Microprocessor based technology allows for exact measurement, set point 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 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 ADC 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 Top Mount Controller

This Generator control panel has analog instruments to monitor AC voltage, AC frequency, percent of load 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.

# AC Alternator Specifications

## 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

### MX341AVR

With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

### (Optional) AS440 AVR

With this self-excited system the main stator provides power via the AVR to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling.

The AS440 will support a range of electronic accessories, including a droop Current Transformer (CT) to permit parallel operation with other AC generators.

## 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.



# GeneratorJoe®



# 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**

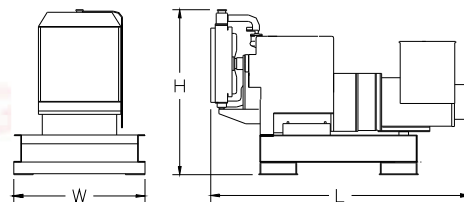
## Optional Accessories

- ☐ Critical Exhaust Silencer
- ☐ Flex Exhaust Connector
- ☐ Top Mount Analog Control Panel
- ☐ End Mount Analog Control Panel
- ☐ DGC2020 Digital Control Panel
- ☐ DynaGen 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
- ☐ Radiator duct flange for open unit
- ☐ Weather Enclosure with internal muffler
- ☐ Sound Attenuated weather enclosure
- ☐ Oil Pan Heater
- ☐ Battery
- ☐ Battery Charger
- ☐ Battery Heaters
- ☐ Fuel Switching, Manual & Automatic
- ☐ Flexible Fuel Lines
- ☐ Customize to Your Specifications

## Weights and Dimensions

Overall Size, L x W x H, in.: 96 in. x 46 in. x 60 in.  
Weight (Wet): 2,500 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.



# GeneratorJoe®

## GeneratorJoe®

4723 Muirfield Court  
Santa Rosa, CA 95405

Phone: 707 542-2224

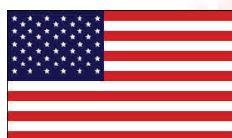
Fax: 707 542-2227

Email: [sales@generatorjoe.net](mailto:sales@generatorjoe.net)

Web: [www.generatorjoe.net](http://www.generatorjoe.net)

A small business owned by service a connected disabled veteran.

Case 1U5V7 - TIN/EIN #943026355 - Duns #054590203



**Made in the USA!**



**Model: 150 DF2-3**

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