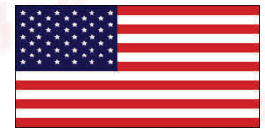




Generator Joe®



Made in the USA!



Shown with optional equipment

Defender 2 Series Model: 80 DF2 & DF2-3

Ratings Natural Gas

Single and/or Three Phase Available

		60 Hz	50 Hz
Standby:	kW	80.0	67.7
	kVA	100.0	83.3
Prime:	kW	72.0	60.9
	kVA	86.0	73.0

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.
- EPA Emissions Certified
- UL 2200 Available

Voltage L-N / L-L	Phase	Hertz	Natural Gas 130° Rise Standby Rating		LP Gas 130° Rise Standby Rating	
			kW / kVA	Amps	kW / kVA	Amps
277/480	3	60	80/100	120	N/A	N/A
139/240	3	60	80/100	241	N/A	N/A
127/220	3	60	80/100	262	N/A	N/A
240/416	3	60	80/100	139	N/A	N/A
120/208	3	60	80/100	278	N/A	N/A
120/240	3	60	80/100	241	N/A	N/A
220/380	3	60	80/100	142	N/A	N/A
120/240	1	60	66/66	275	N/A	N/A
120/240	1	60	80/80	333	N/A	N/A



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.) Temperature: Derate 1.0% per 10°C (18°F) temperature above 40°C (104°F).

Engine Application Data

Basic Technical Data		Lubrication System	
Manufacturer	General Motors	Type	Full Pressure
Model	Vortec 5.7 L	Oil pan capacity	5.0 qt (4.7 L)
Number of cylinders	8	Oil pan capacity with filter	6.5 qt (6.2 L)
Cylinder arrangement	Vertical in-line	Oil filter: qty and type	1, Cartridge
Cycle	4	Electrical System	
Induction system	Turbocharged	Ignition system	Individual Coil, Near Plug Ignition
Compression ratio	9.1:1	Battery charging alternator:	
Bore	4.00 in (101.6 mm)	Ground	negative
Stroke	3.48 in (88.4 mm)	Volts	12
Cubic capacity	350 cu in (5.7 L)	Ampere rating	70
Piston speed	1044 ft/min (318 m/min)	Starter motor rated voltage	12
Main bearings: qty and type	5, M400 Copper Lead	Battery, recommended cold cranking amps (CCA):	
Governor type	Electronic	Qty rating for -18 °C (0 °F)	(1) 630
Rated rpm	1800	Battery voltage	12
Max power at rated rpm	133 hp (99 kW)	Operation Requirements	
Engine power at Standby rating	133 hp (99 kW)	Radiator-cooled cooling air, m ³ /min (scfm) ‡	5500 scfm (156 m ³ /min)
Frequency regulation, -load to full-load	no Isochronous	Combustion air	237 cfm (6.8 m ³ /min)
Frequency regulation, steady state	± 0.5%	Heat rejected to ambient air: Engine	2700 Btu/min (47 kW)
Frequency	Fixed	Alternator	825 Btu/min (14.5 kW)
Air cleaner type	Dry	Fuel System	
Exhaust System		Fuel Type	Natural Gas
Exhaust manifold type	Dry	Fuel Consumption	
Exhaust flow at rated kW	670 cfm (18.9 m ³ /min)	<u>Natural Gas</u>	
Exhaust temperature at rated kW	1200 °F (649 °C)	100% Load	1185 cfh (33.6 m ³ /hr)
Maximum allowable back pressure	3.0 in (10.2 kPa)	75% Load	981 cfh (27.8 m ³ /hr)
Exhaust outlet size at engine hookup	N/A	50% Load	777 cfh (22.0 m ³ /hr)
Cooling System		25% Load	573 cfh (16.2 m ³ /hr)
Ambient temperature	122 °F (50 °C)		
Engine jacket water capacity	1.8 gal (6.8 L)		
Radiator system capacity, including engine	6.0 gal (22.5 L)		
Engine jacket water flow	38 gpm (144 Lpm)		
Heat rejected to cooling water at rated kW	3540 Btu/min (62 kW)		
Max restriction of cooling air, intake and discharge side of radiator	0.5 H ₂ O (0.125 kPa)		



GeneratorJoe®



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.

There is also an engine mounted emergency by-pass key switch with mechanical oil pressure and coolant temperature gauge.



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

STANDARDS

Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as 55000, 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

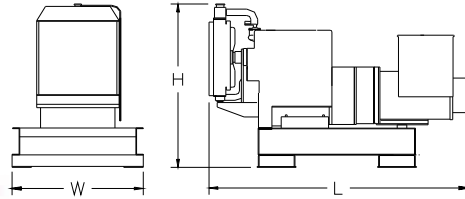
- Heavy duty steel base
- Vibration isolators
- Oil drain valve with extension
- Battery rack
- Battery cables
- Water jacket heater
- Owners manual
- Electronic Isochronous Governor

Optional Accessories

- Critical Exhaust Silencer
- Flex Exhaust Connector
- Top Mount Analog Control Panel
- 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
- Flexible Fuel Lines
- Fuel Switching, Manual & Automatic
- Flexible Fuel Lines
- Customize to Your Specifications

Weights and Dimensions

Overall Size, L x W x H, in.: 84 in. x 46 in. x 49 in.
Weight (Wet): 1,790 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.



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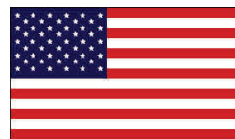
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A small business owned by service a connected disabled veteran.

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



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Model: 80 DF2 & DF2-3

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