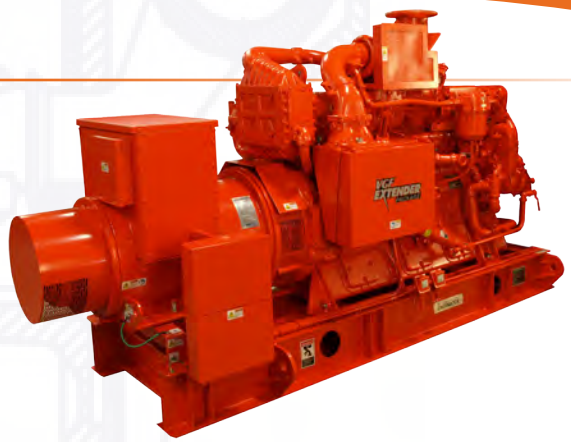
DRESSER Waukesha

VGF18GSID

VGF® Series Gas Enginator® Generating System
220 - 310 kWe

Specifications



Dresser Waukesha Engine: F18GSID
Cylinders: Inline 6
Piston Displacement: 1096 cu. in. (18 L)
Bore & Stroke: 5.98" x 6.5" (152 x 165 mm)
Compression Ratio: 8.6:1
Jacket Water System Capacity: 16 gal. (60 L)
Starting System: 24V DC electric
Lube Oil Capacity: 44 gal. (166 L)

Standard Equipment

AIR CLEANER – Two stage, dry panel type with rain shield and service indicator. Engine mounted.

BARRING DEVICE – Manual.

BASE – Engine, generator and radiator or heat exchanger are mounted and aligned on a welded structural steel base, suitable for solid, or spring isolator mounting on a proper foundation. Base is equipped with lifting eyes.

BREATHER – Closed system.

CONNECTING RODS – Drop forged alloy steel, angle split, serrated joint, oil jet piston pin lubrication.

COOLING SYSTEM – Choice of mounted radiator with pusher fan, core guard and duct adaptor, heat exchanger with expansion tank (shipped loose) or flanged connections for remote radiator cooling.

CRANKCASE – Alloy cast iron, fully ribbed, integral with cylinder frame.

CRANKSHAFT – Drop forged alloy steel with thru hardened journals, dynamically balanced and fully counterweighted. Viscous vibration dampener.

CYLINDER HEADS – Individual, interchangeable valve–in–head type with deep section alloy casting. Two hard–faced intake and two hard–faced exhaust valves per cylinder. Replaceable intake and exhaust valve seats. Mechanical valve lifters with pivoted roller followers.

CYLINDERS – Removable wet type liners of centrifugally cast alloy iron.

ENGINE PROTECTION SHUTDOWN CONTACTS – High water temperature, low oil pressure, and overspeed.

EXHAUST – Water–cooled, cast iron exhaust manifold. Single vertical flexible stainless steel exhaust connection with ANSI 125# 8" flange.

FUEL SYSTEM – One natural gas carburetor, one Maxitrol RV91 gas regulator (shipped loose), one 2" NPT flexible connection (shipped loose), and one 3" NPT Magnatrol gas solenoid valve (shipped loose). Fuel pressure - 10" H2O minimum and 20" H2O maximum.

GENERATOR – Open, drip–proof, direct connected, synchronous, fan cooled, AC revolving field type, 2/3 pitch, single bearing generator with PMG brushless exciter for 300% short circuit sustain for 10 seconds (250% for 50 Hz) and motor starting. TIF and Deviation Factor within NEMA MG–1.32. Voltage: 480/277, 3 phase, 12 wire Wye, 60 Hz, and 400/230, 3 phase, 12 wire Wye, 50 Hz. Temperature rise within NEMA 105° C for continuous duty, within NEMA 130° C for standby duty. Voltage regulation is ± 0.5%. All generators are rated at 0.8 power factor, are mounted on the engine flywheel housing, and have multiple steel disc flexible coupling drive.

GOVERNOR – Woodward model EG3P electric actuator (mounted) and magnetic pickup (mounted). NOTE: Requires separate electric governor control Woodward model 2301D or similar (not included). See Code 6020D or 6022.

IGNITION – Waukesha Custom Engine Control electronic ignition system with coils, cables, hall effect pickup and spark plugs. Non–shielded. 24 V DC power required. Includes emergency stop/service engine protection switch for local override of remote controls.

INTERCOOLER – Air–to–water.

INSTRUMENT PANEL – Engine mounted, includes water temperature, oil temperature, oil pressure, intake manifold temperature and intake manifold pressure gauges.

JUNCTION BOXES – Separate AC & DC junction boxes for engine wiring and external connections.

LUBRICATION SYSTEM – Gear type pump, full flow spin–on filters and industrial base type oil pan. Engine mounted plate type oil cooler.

PAINT – Oilfield Orange.

PISTONS – Aluminum alloy, three ring, with patented high turbulence combustion bowl. Oil jet cooled with full floating piston pin. 8.6:1 compression ratio.

STARTING SYSTEM – 24V DC starting motor. Crank termination switch, (shipped loose).

TURBOCHARGER – Dry–type with wastegate.

VOLTAGE REGULATOR – Automatic type (shipped loose).

WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT – Gear driven pump for intercooler and oil cooler. Inlet temperature of 130° F (54° C) for all models.

WATER CIRCULATING SYSTEM, JACKET WATER CIRCUIT – 180° – 190° F (82° – 88° C) thermostatic temperature regulation. Gear–driven pump.

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PERFORMANCE DATA: VGF18GSID Gas Enginator® Generating System

Heat Exchanger/Water Connection Cooling Intercooler Water: 130°F (54°C)		Continuous Power		Standby Power	
		1800 rpm 60 Hz	1500 rpm 50 Hz	1800 rpm 60 Hz	1500 rpm 50 Hz
	kW Rating	280	230	310	255
	BSFC btu/bhp-hr (kJ/kW-hr)	7392 (10460)	7225 (10213)	7270 (10288)	7115 (10061)
	Fuel Consumption Btu/hr x 1000 (kW)	2957 (867)	2420 (709)	3199 (938)	2597 (761)
Heat Balance	Heat to Jacket Water Btu/hr x 1000 (kW)	901 (264)	748 (219)	958 (281)	793 (232)
Heat Balance	Heat to Lube Oil Btu/hr x 1000 (kW)	166 (49)	125 (37)	171 (50)	130 (38)
Heat Balance	Heat to Intercooler Btu/hr x 1000 (kW)	64 (19)	43 (13)	75 (22)	51 (15)
Heat Balance	Heat to Radiation Btu/hr x 1000 (kW)	112 (33)	104 (31)	107 (31)	99 (29)
Heat Balance	Total Exhaust Heat Btu/hr x 1000 (kW)	805 (236)	637 (187)	881 (258)	692 (203)
Intake/ Exhaust System	Induction Air Flow scfm (Nm^3/hr)	590 (907)	483 (743)	600 (924)	490 (754)
Intake/ Exhaust System	Exhaust Flow lb/hr (kg/h)	2627 (1192)	2151 (976)	2805 (1272)	2290 (1037)
Intake/ Exhaust System	Exhaust Temperature °F (°C)	1116 (602)	1076 (580)	1118 (603)	1078 (581)
Radiator Cooling - Mounted Intercooler Water: 130°F (54°C)					
	kW Rating	265	220	300	240
	BSFC btu/bhp-hr (kJ/kW-hr)	7392 (10460)	7225 (10213)	7270 (10288)	7115 (10061)
	Fuel Consumption Btu/hr x 1000 (kW)	2957 (867)	2420 (709)	3199 (938)	2597 (761)
Heat Balance	Heat to Jacket Water Btu/hr x 1000 (kW)	901 (264)	748 (219)	958 (281)	793 (232)
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Intake/ Exhaust System	Radiator Air Flow scfm (m^3/min)	41250 (1168)	36000 (1019)	41250 (1168)	36000 (1019)
Emissions	NOx g/bhp-hr (mg/nm^3 @ 5% O_2)	16.00 (5926)	16.00 (5926)	16.00 (5926)	16.00 (5926)
Emissions	CO g/bhp-hr (mg/nm^3 @ 5% O_2)	8.00 (2963)	8.00 (2963)	8.00 (2963)	8.00 (2963)
Emissions	THC g/bhp-hr (mg/nm^3 @ 5% O_2)	1.50 (556)	1.50 (556)	1.50 (556)	1.50 (556)
Emissions	NMHC g/bhp-hr (mg/nm^3 @ 5% O_2)	0.25 (93)	0.25 (93)	0.25 (93)	0.25 (93)

Typical heat data is shown, however no guarantee is expressed or implied. Consult your Dresser Waukesha Application Engineering Department for system application assistance.

All natural gas engine ratings are based on a fuel of 900 Btu/ft^3 (35.3 MJ/nm^3) SLHV, with a 91 WKI®. For conditions or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.

Data based on standard conditions of 77°F (25°C) ambient temperature, 29.53 inches Hg (100kPa) barometric pressure, 30% relative humidity (0.3 inches HG / 1 kPa water vapor pressure).

Fuel consumption based on ISO3046/1-1995 with a tolerance of +5% for commercial quality natural gas having a 900 BTU/ft^3 (35.3 MJ/nm^3) SLHV.

Heat data based on fuel consumption +2%.

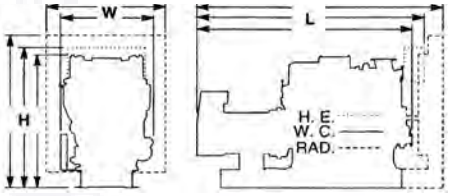
Heat rejection based on cooling exhaust temperature to 77°F (25°C).

Rating Standard: The Waukesha Enginator ratings are based on ISO 3046/1-1995 with an engine mechanical efficiency of 90% and auxiliary water temperature Tcra as specified limited to ±10°F (±5°C). Ratings also valid for ISO 8528 and DIN 6271, BS 5514 standard atmospheric conditions.

Continuous Power Rating: The highest electrical power output of the Enginator available for an unlimited number of hours per year, less maintenance. It is permissable to operate the Enginator with up to 10% overload for two hours in each 24 hour period.

Standby Power Rating: This rating applies to those systems used as a secondary source of electrical power. This rating is the electrical power output of the Enginator (no overload) 24 hours a day, for the duration of a power source outage.

Cooling Equipment	L in (mm)	W in (mm)	H in (mm)	Avg. Wt. lb (kg)
Heat Exchanger	145 (3690)	54 (1370)	79 (2000)	9400 (4270)
Water Cooler	122 (3350)	54 (1370)	79 (2000)	8900 (4040)
Radiator	167 (4470)	78 (1980)	99 (2520)	11800 (5360



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