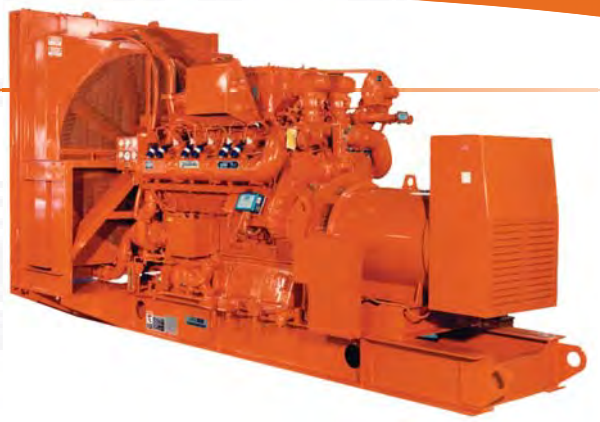
DRESSER Waukesha

VGF36GSID

VGF® Series Gas Enginator® Generating System
450 - 620 kWe

Specifications



Dresser Waukesha Engine: L36GSID
Cylinders: V12
Piston Displacement: 2193 cu. in. (36 L)
Bore & Stroke: 5.98" x 6.5" (152 x 165 mm)
Compression Ratio: 8.6:1
Jacket Water System Capacity: 44 gal. (166 L)
Starting System: 24V DC electric
Lube Oil Capacity: 86 gal. (326 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 steel wide flange base, suitable for solid, or spring isolator mounting on a proper foundation. Base is equipped with lifting eyes and provision for jacking.

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 shipped loose expansion tank 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 manifolds. Single vertical flexible stainless steel exhaust connection with ANSI 10" 125# outlet flange.

FUEL SYSTEM – Two natural gas carburetors, one DUNGS 5080 gas regulator (shipped loose), one 3" NPT flexible connection (shipped loose), and one 2" NPT Magnatrol gas solenoid valve (shipped loose). Fuel pressure – 5 PSIG minimum and 8 PSIG 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, 6 or 12 wire Wye, 60 Hz, and 400/230, 3 phase, 6 or 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 pick-up (mounted). Requires a separate electric governor control, Woodward Model 2301D (not included). See Code 6020D.

IGNITION – Waukesha Custom Engine Control electronic ignition system with coils, cables, hall effect pickup and spark plugs. Non–shielded. 24V 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, replaceable spin on oil filters and industrial base type oil pan. Engine mounted shell and tube oil cooler, thermostatic valve for oil temperature control, and prelube pump. Engine mounted 230 VAC, single phase 50/60 Hz, or 208 VAC, single phase 60Hz, electric driven prelube pump with motor starter. Continuous prelube not available.

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).

TURBOCHARGERS – 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: VGF36GSID 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	560	475	620	515
	BSFC btu/bhp-hr (kJ/kW-hr)	7260 (10267)	7119 (10069)	7290 (10310)	7165 (10131)
	Fuel Consumption Btu/hr x 1000 (kW)	5808 (1702)	4770 (1398)	6415 (1880)	5266 (1543)
Heat Balance	Heat to Jacket Water Btu/hr x 1000 (kW)	1844 (540)	1533 (449)	1960 (574)	1625 (447)
Heat Balance	Heat to Lube Oil Btu/hr x 1000 (kW)	293 (86)	239 (70)	302 (88)	247 (72)
Heat Balance	Heat to Intercooler Btu/hr x 1000 (kW)	123 (36)	84 (25)	146 (43)	101 (30)
Heat Balance	Heat to Radiation Btu/hr x 1000 (kW)	165 (48)	152 (45)	143 (42)	134 (39)
Heat Balance	Total Exhaust Heat Btu/hr x 1000 (kW)	1564 (458)	1235 (362)	1730 (507)	1365 (400)
Intake/ Exhaust System	Induction Air Flow scfm (Nm^3/hr)	1160 (1783)	953 (1464)	1180 (1818)	965 (1491)
Intake/ Exhaust System	Exhaust Flow lb/hr (kg/hr)	5162 (2341)	4240 (1923)	5515 (2502)	4525 (2052)
Intake/ Exhaust System	Exhaust Temperature °F (°C)	1116 (602)	1068 (576)	1114 (601)	1074 (579)

Radiator Cooling - Mounted Intercooler Water: 130°F (54°C)					
	kW Rating	530	450	600	480
	BSFC btu/bhp-hr (kJ/kW-hr)	7260 (10267)	7119 (10069)	7290 (10310)	7165 (10131)
	Fuel Consumption Btu/hr x 1000 (kW)	5808 (1702)	4770 (1398)	6415 (1880)	5266 (1543)
Heat Balance	Heat to Jacket Water Btu/hr x 1000 (kW)	1844 (540)	1533 (449)	1960 (574)	1625 (447)
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Intake/ Exhaust System	Exhaust Temperature °F (°C)	1116 (602)	1068 (576)	1114 (601)	1074 (579)
Intake/ Exhaust System	Radiator Air Flow scfm (m^3/min)	69679 (1973)	59114 (1674)	55341 (1567)	59114 (1674)
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%.

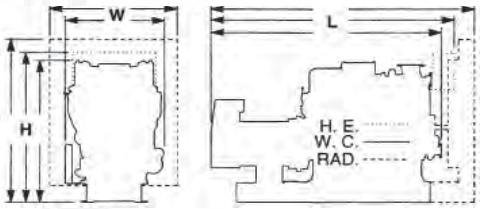
Heat rejection based on cooling exhaust temperature to 77°F (25°C).

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	180 (4580)	68 (1720)	96 (2440)	19600 (8900)
Water Cooler	152 (3860)	68 (1720)	96 (2440)	18000 (8170)
Radiator	196 (4980)	105 (2670)	124 (3150)	23580 (10700)



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