

BASIC SPECIFICATIONS

AIR CLEANERS – Dry type with rain shield and service indicators.

BARRING DEVICE – Manual.

BEARINGS – Heavy duty, replaceable, precision type.

BREATHER – Closed system.

CONNECTING RODS – Forged steel, rifle drilled.

COOLING SYSTEM – Choice of mounted radiator with pusher fan, core guard and duct adaptor, heat exchanger with surge tank, or connection for remote radiator cooling.

CRANKCASE – Integral crankcase and cylinder frame.

CRANKSHAFT – Counterweighted, forged steel, hardened journals, dynamically balanced, with sealed viscous vibration damper.

CYLINDER HEADS – Interchangeable valve-in-head type. Two hard faced intake and two hard faced inconel exhaust valves per cylinder. Hard faced intake and exhaust valve seat inserts.

CYLINDERS – 9.375" (238 mm) bore x 8.5" (216 mm) stroke. Removable wet cylinder liners, chrome plated on outer diameter. Number of cylinders - Sixteen.

ENGINE BASE – Engine and generator are mounted and aligned on a welded steel, wide flange base, designed for solid mounting on an inertia block, with standard through-base holes for lifting.

ENGINE PROTECTION SHUTDOWN CONTACTS – For high water temperature, low oil pressure, high intake manifold temperature and overspeed (electronic speed switch – shipped loose). Also includes engine detonation sensing, alarm and shutdown, as standard (see separate description of Detonation Sensing Module). Use in conjunction with a DC control panel for unit shutdown (reference WPS Engomatic® controls).

Note: DC shutdown control panel is not supplied as standard.

EXHAUST SYSTEM – Water cooled exhaust manifold with single vertical exhaust at center. Flexible stainless steel exhaust connection 8" (203 mm) long with 14" (356 mm) flange.

FUEL SYSTEM – Dual natural gas carburetors and Fisher gas regulators (Model 99). 24V DC gas solenoid valve (shipped loose). 20-25 PSI (1.4-1.7 bar) gas pressure recommended. Single fuel connection point.

GENERATOR – Open, dripproof, direct connected, fan cooled, 2/3 pitch, A.C. revolving field type, two bearing generator with flexible coupling, brushless exciter, short circuit sustain (PMI, AREP or PMG type maintains 270% of rated generator current for up to 10 seconds on 105° C temperature rise generators; maintains 250% of current on 130° C rise generators) and damper windings. TIF and Deviation Factor within NEMA MG-1.22. Voltage 480/277, 3 phase, 4 wire, Wye 60 Hz and 400/230, 3 phase, 4 wire, Wye 50 Hz. Other voltages are available, consult factory. Insulation material NEMA Class F. Temperature rise within NEMA (105° C) for continuous power duty, within NEMA (130° C) for standby duty. All generators are rated at 0.8 Power Factor. All continuous power gensets have 10% overload capability.

GOVERNOR – Woodward Model EG10P electric actuator (mounted) and magnetic pickup (mounted). Requires a separate electric governor control, Woodward Model 2301A or similar, (not included).

IGNITION – Waukesha Custom Engine Control™ Ignition Module. Electronic digital ignition system.

INSTRUMENT PANEL – Engine mounted, includes water temperature, oil temperature, oil pressure, intake manifold temperature and intake manifold pressure-vacuum gauge. All temperature sensors have thermowells. Two engine mounted run-stop push buttons are supplied. Recommend optional Model 4000 free standing panel for continuous power installations.

INTERCOOLER – Air to water.

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

LUBRICATION – Full pressure, positive displacement pump. Full flow oil filter (shipped loose) and flexible connections (shipped loose). 50 or 60 Hz, 230 volt AC, single phase electric motor driven intermittent prelube pump with motor starter (other voltages can be specified).

Note: External control logic required to start/stop prelube pump.

OIL COOLER – Shell and tube type (mounted).

OIL PAN – Cast alloy iron base type with removable doors.

PAINT – Oilfield Orange.

PISTONS – Aluminum with floating pin. Oil cooled.

STARTING EQUIPMENT – One air starter with strainer and lubricator. Includes 24 VDC solenoid valve for remote start provision and crank termination switch (shipped loose).

TURBOCHARGERS – Wet type, wastegate controlled.

VOLTAGE REGULATOR – SCR static automatic type providing 1% regulation from no load to full load. Single phase sensing and automatic subsynchronous speed protection. Includes voltage adjustment rheostat (shipped loose).

WATER CIRCULATING SYSTEM

Auxiliary Circuit – For oil cooler and intercooler. Pump is belt driven from crankshaft pulley.

Engine Jacket – Belt driven water pump, 175 – 180° F (79 – 82° C) thermostatic temperature regulation full flow bypass. Single ANSI flange connections for inlet and outlet on water connect units.

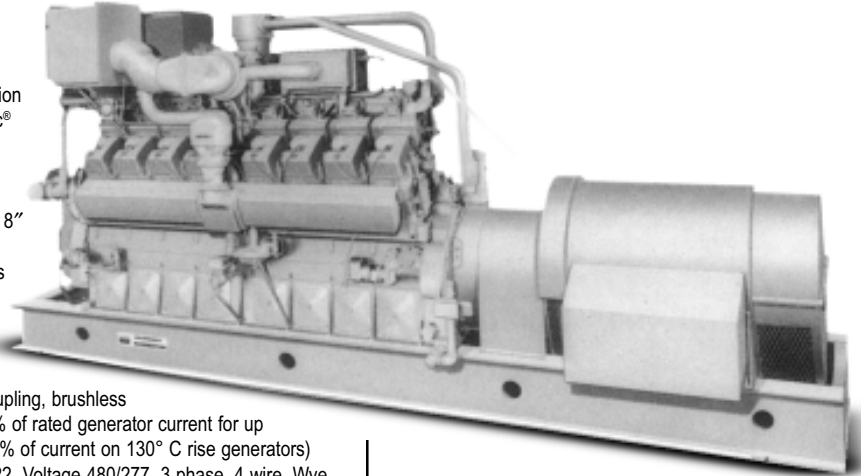
WAUKESHA CUSTOM ENGINE CONTROL DETONATION SENSING MODULE (DSM™) – Includes individual cylinder sensors, Detonation Sensing Module, and filter. Device is compatible with Waukesha CEC Ignition Module only. Sensors are mounted and wired to DSM filter. Detonation Sensing Module is shipped loose. 24V DC power is required. The DSM meets Canadian Standards Association Class 1, Division 2, Group D hazardous location requirements.



VHP9500GSI

Gas Engine Generating System

1000 - 1825 kW



Engine shown with options.

Model VHP9500GSI
Turbocharged and Intercooled
Gas Fueled Engine

SPECIFICATIONS

Waukesha Engine P9390GSI, Four Cycle, Overhead Valve	Jacket Water Capacity 148 gal. (560 L)
Cylinders V 16	Starting System 150 psi air
Piston Displacement 9388 cu. in. (154 L)	Fuel LHV 900 Btu/ft ³ (33.5 J/cm ³)
Bore & Stroke 9.375" x 8.5" (238 x 216 mm)	Lube Oil Capacity 155 gal. (587 L)
Compression Ratio 8:1	



PERFORMANCE DATA: VHP9500GSI GAS ENGINATOR GENERATING SYSTEM

HEAT EXCHANGER COOLING Intercooler Water: 85°F (29°C)	CONTINUOUS POWER*			STANDBY POWER	
	1200 rpm	900 rpm	1000 rpm	1200 rpm	1000 rpm
	60 Hz	60 Hz	50 Hz	60 Hz	50 Hz
kW RATING	1475	1100	1225	1825	1520
Fuel Consumption x 1000 Btu/h (kW)	16824 (4931)	12258 (3593)	13761 (4033)	20039 (5873)	16365 (4796)
Jacket Water x 1000 Btu/h (kW)	5715 (1675)	4137 (1212)	4602 (1349)	6528 (1913)	5246 (1538)
Intercooler x 1000 Btu/h (kW)	337 (99)	164 (48)	204 (60)	485 (142)	291 (85)
Lube Oil x 1000 Btu/h (kW)	516 (151)	380 (111)	421 (123)	556 (163)	460 (135)
Heat Radiated x 1000 Btu/h (kW)	534 (157)	600 (176)	690 (202)	430 (126)	397 (116)
Exhaust Heat** x 1000 Btu/h (kW)	4689 (1374)	3224 (945)	3664 (1074)	5813 (1704)	4785 (1402)
Exhaust Flow lb/h (kg/h)	14364 (6516)	10367 (4702)	11505 (5219)	17163 (7785)	14542 (6596)
Exhaust Temperature °F (°C)	1120 (604)	1053 (567)	1075 (579)	1156 (624)	1113 (601)
Induction Air Flow scfm (m³/min)	3150 (89)	2272 (64)	2520 (71)	3765 (107)	3197 (91)

WATER CONNECTION COOLING Intercooler Water: 130°F (54°C)	CONTINUOUS POWER*			STANDBY POWER	
	1200 rpm	900 rpm	1000 rpm	1200 rpm	1000 rpm
	60 Hz	60 Hz	50 Hz	60 Hz	50 Hz
kW RATING	1400	1050	1175	1750	1450
Fuel Consumption x 1000 Btu/h (kW)	16140 (4730)	11805 (3460)	13322 (3904)	19349 (5671)	15748 (4615)
Jacket Water x 1000 Btu/h (kW)	5542 (1624)	4023 (1179)	4493 (1317)	6354 (1862)	5093 (1493)
Intercooler x 1000 Btu/h (kW)	311 (91)	151 (44)	190 (56)	451 (132)	270 (79)
Lube Oil x 1000 Btu/h (kW)	507 (149)	372 (109)	415 (122)	548 (161)	451 (132)
Heat Radiated x 1000 Btu/h (kW)	551 (162)	595 (175)	691 (202)	451 (132)	533 (156)
Exhaust Heat** x 1000 Btu/h (kW)	4452 (1305)	3081 (903)	3524 (1033)	5574 (1634)	4454 (1305)
Exhaust Flow lb/h (kg/h)	13744 (6234)	9978 (4526)	11133 (5050)	16595 (7527)	13638 (6186)
Exhaust Temperature °F (°C)	1113 (601)	1047 (564)	1070 (577)	1148 (620)	1102 (594)
Induction Air Flow scfm (m³/min)	3014 (85)	2187 (62)	2438 (69)	3641 (103)	2994 (85)

RADIATOR COOLING - MOUNTED Intercooler Water: 130°F (54°C)	CONTINUOUS POWER*			STANDBY POWER	
	1200 rpm	900 rpm	1000 rpm	1200 rpm	1000 rpm
	60 Hz	60 Hz	50 Hz	60 Hz	50 Hz
kW RATING	1350	1000	1100	1691	1390
Fuel Consumption x 1000 Btu/h (kW)	16216 (4753)	11741 (3441)	13125 (3847)	19291 (5654)	15697 (4601)
Jacket Water x 1000 Btu/h (kW)	5550 (1627)	4006 (1174)	4445 (1303)	6339 (1858)	5081 (1489)
Intercooler x 1000 Btu/h (kW)	312 (91)	150 (44)	186 (55)	448 (131)	268 (79)
Lube Oil x 1000 Btu/h (kW)	508 (149)	371 (109)	412 (121)	547 (160)	450 (132)
Heat Radiated x 1000 Btu/h (kW)	586 (172)	588 (172)	674 (198)	443 (130)	536 (157)
Exhaust Heat** x 1000 Btu/h (kW)	4463 (1308)	3061 (897)	3464 (1015)	5554 (1628)	4429 (1298)
Exhaust Flow lb/h (kg/h)	13774 (6248)	9925 (4502)	10972 (4977)	16545 (7505)	13570 (6155)
Exhaust Temperature °F (°C)	1113 (601)	1046 (563)	1068 (576)	1147 (619)	1102 (594)
Induction Air Flow scfm (m³/min)	3020 (86)	2175 (62)	2403 (68)	3630 (103)	2978 (84)
Radiator Air Flow scfm (m³/min)	0 (0)	128800 (3648)	144700 (4098)	0 (0)	0 (0)

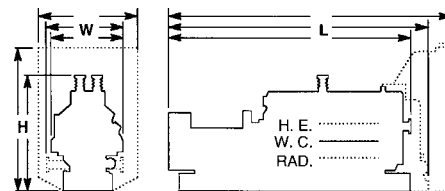
Typical heat balance data is shown. Consult factory for guaranteed data.

***Continuous Power Rating:** The highest electrical power output of the Enginator available for an unlimited number of hours per year, less maintenance. It is permissible 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 the primary power source outage.

Rating Standard: The Waukesha Enginator power rating descriptions are in accordance to ISO 8528, DIN6271 and BS5514. It is also valid for ISO 3046/1-1986 with an engine mechanical efficiency of 90% and auxiliary water temperature Tora (clause 10.0) is limited to ±10° F (5° C).

****Heat rejection** based on cooling exhaust gas to 85° F (29° C).



Cooling

Equipment	L in (mm)	W in (mm)	H in (mm)	Avg. Wt. lb (kg)
Heat Exchanger	290 (7370)	92 (2340)	130 (3300)	48250 (21040)
Water Cooler	265 (6730)	87 (2210)	130 (3300)	46750 (21200)
Radiator	Consult Factory	Consult Factory	—	—



Waukesha

WAUKESHA POWER SYSTEMS

WAUKESHA ENGINE
DRESSER, INC.
1000 West St. Paul Avenue
Waukesha, WI 53188-4999
Phone: (262) 547-3311 Fax: (262) 549-2795
waukeshaengine.dresser.com
Bulletin 8012 0401

WAUKESHA ENGINE

DRESSER INDUSTRIAL PRODUCTS, B.V.
Farmsumerweg 43, Postbus 330
9900 AH Appingedam, The Netherlands
Phone: (31) 596-652222 Fax: (31) 596-628111

Consult your local Waukesha Distributor for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.