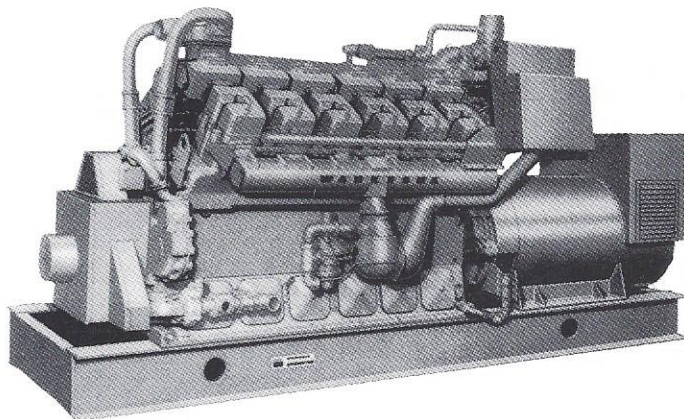


# Waukesha

## VHP5200GL GAS ENGINE<sup>®</sup> GENERATING SYSTEM 550 - 880 kW



Enginotor<sup>®</sup> shown with options.

**Turbocharged and Intercooled  
Lean Combustion Gas Fueled Enginotor<sup>®</sup>**

### SPECIFICATIONS

**ENGINE:** Waukesha 5108GL, Four Cycle, Overhead Valve  
Cylinders ..... V12  
Piston Displacement ..... 5108 cu. in. (84 L)  
Bore and Stroke ..... 8.5" x 7.5" (216 x 191 mm)  
Compression Ratio ..... 10.5:1  
Jacket Water System Capacity ..... 107 gal. (405 L)  
Fuel LHV ..... 900 Btu/ft<sup>3</sup> (33.5 J/cm<sup>3</sup>)  
Lube Oil Capacity ..... 73 gal. (276 L)  
Starting System ..... 24V Electric

### BASIC SPECIFICATIONS

**AIR CLEANER** – Dry type with rain shield and service indicator.

**BARRING DEVICE** – Manual.

**BEARINGS** – Heavy duty, replaceable, precision type.

**BREATHER** – Ejector type, extractor breather 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 stellite faced intake and two stellite faced inconel exhaust valves per cylinder. Stellite intake and exhaust valve seat inserts. Includes prechamber.

**CYLINDERS** – 8.5" (216 mm) bore x 7.5" (191 mm) stroke. Removable wet cylinder liners. Number of cylinders – Twelve.

**ENGINOTOR<sup>®</sup> BASE** – Engine, generator and radiator or heat exchanger 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 (standard engine mounted thermocouple with thermocouple relay – shipped loose), and overspeed (electronic speed switch – shipped loose). Use all of the above in conjunction with a DC control panel for unit shutdown, (reference WPS Engomatic<sup>®</sup> controls).

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

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

**FUEL SYSTEM** – Dual natural gas, 4" (102 mm) duplex updraft carburetor and Fisher 99 2" (51 mm) gas regulator. 24 VDC gas solenoid valve (shipped loose). 30 – 50 psi (2.0 – 3.4 bar) gas inlet pressure required. Prechamber fuel system and control logic.

**GENERATOR** – Waukesha, open, drip-proof, direct connected, fan cooled, 2/3 pitch, A.C. revolving field type, single bearing generator with brushless exciter and damper windings. TIF and Deviation Factor within NEMA MG-1.22. Voltage 480/277, 3 phase, 4 wire, Wye 60 Hz and 380/220, 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 0.8 Power Factor, are mounted on the engine flywheel housing and have multiple steel disc flexible coupling drive. All continuous power gensets have 10% overload capability.

**GOVERNOR** – Woodward Model EG3P 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<sup>®</sup> Ignition Module. Electronic digital ignition system.

**INSTRUMENT CONNECTIONS** – Engine mounted junction box includes ungrounded type K thermocouples for jacket water temperature, lube oil temperature, and exhaust temperatures. A single header block for lube oil pressure and intake manifold pressure is engine mounted. Instruments and panel are by others. Recommend optional Model 4000 remote engine instrument panel, especially for prime power installations.

**INTERCOOLER** – Air to water.

**JUNCTION BOXES** – Separate AC, DC and instrument/thermocouple, 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** – Two 24 VDC electric starting motors, crank termination switch. (Shipped loose.)

**TURBOCHARGER** – Dry type, wastegate controlled.

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

**WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT** – For oil cooler and intercooler. Pump is belt driven from crankshaft pulley. Includes thermostatic valve.

**WATER CIRCULATING SYSTEM, 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<sup>®</sup> 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 and filter are mounted. 24V DC power is required.



## PERFORMANCE DATA

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		50 Hz	60 Hz	50 Hz
kW Rating	800	600	660	880	725
Fuel Consumption x 1000 Btu/h (kW)	8264 (2422)	6004 (1760)	6782 (1988)	8856 (2596)	7330 (2148)
Jacket Water x 1000 Btu/h (kW)	2088 (612)	1592 (467)	1801 (528)	2155 (632)	1922 (563)
Intercooler x 1000 Btu/h (kW)	526 (154)	385 (113)	465 (136)	574 (168)	518 (152)
Lube Oil x 1000 Btu/h (kW)	422 (124)	296 (87)	316 (93)	436 (128)	326 (96)
Heat Radiated x 1000 Btu/h (kW)	452 (133)	369 (108)	411 (120)	472 (138)	425 (125)
Exhaust Heat** x 1000 Btu/h (kW)	2046 (600)	1315 (385)	1537 (450)	2216 (649)	1665 (488)
Exhaust Flow lb/h (kg/h)	12200 (5534)	8900 (4037)	10000 (4536)	13100 (5942)	10800 (4899)
Exhaust Temperature °F (°C)	672 (356)	596 (313)	615 (324)	686 (363)	620 (327)
Induction Air Flow scfm (m³/min)	2754 (78)	1998 (57)	2257 (64)	2950 (84)	2440 (69)
WATER CONNECTION COOLING Intercooler Water: 130° F (54° C)					
kW Rating	760	570	630	835	695
Fuel Consumption x 1000 Btu/h (kW)	7880 (2309)	5725 (1678)	6492 (1903)	8456 (2478)	7017 (2057)
Jacket Water x 1000 Btu/h (kW)	2075 (608)	1589 (466)	1788 (524)	2166 (635)	1902 (557)
Intercooler x 1000 Btu/h (kW)	399 (117)	294 (86)	360 (106)	437 (128)	401 (118)
Lube Oil x 1000 Btu/h (kW)	381 (112)	286 (84)	306 (90)	391 (115)	311 (91)
Heat Radiated x 1000 Btu/h (kW)	449 (132)	364 (107)	403 (118)	462 (135)	419 (123)
Exhaust Heat** x 1000 Btu/h (kW)	1983 (581)	1247 (365)	1485 (435)	2151 (630)	1613 (473)
Exhaust Flow lb/h (kg/h)	11700 (5307)	8500 (3856)	9600 (4355)	12500 (5670)	10400 (4717)
Exhaust Temperature °F (°C)	681 (361)	590 (310)	621 (327)	691 (366)	626 (330)
Induction Air Flow scfm (m³/min)	2625 (74)	1905 (54)	2161 (61)	2817 (80)	2336 (66)
RADIATOR COOLING - MOUNTED Intercooler Water: 130° F (54° C)					
kW Rating	730	550	605	810	670
Fuel Consumption x 1000 Btu/h (kW)	7783 (2281)	5680 (1665)	6430 (1885)	8412 (2465)	6932 (2032)
Jacket Water x 1000 Btu/h (kW)	2058 (603)	1580 (463)	1775 (520)	2159 (633)	1883 (552)
Intercooler x 1000 Btu/h (kW)	392 (115)	290 (85)	355 (104)	434 (127)	394 (115)
Lube Oil x 1000 Btu/h (kW)	379 (111)	285 (84)	305 (89)	390 (114)	310 (91)
Heat Radiated x 1000 Btu/h (kW)	444 (130)	362 (106)	400 (117)	463 (136)	415 (122)
Exhaust Heat** x 1000 Btu/h (kW)	1956 (573)	1236 (362)	1467 (430)	2139 (627)	1593 (467)
Exhaust Flow lb/h (kg/h)	11500 (5216)	8400 (3810)	9500 (4309)	12400 (5625)	10300 (4672)
Exhaust Temperature °F (°C)	679 (359)	590 (310)	620 (327)	690 (366)	625 (329)
Induction Air Flow scfm (m³/min)	2593 (73)	1890 (54)	2140 (61)	2802 (79)	2307 (65)
Radiator Air Flow scfm (m³/min)	80000 (2266)	67400 (1909)	74200 (2101)	80000 (2266)	67400 (1909)

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

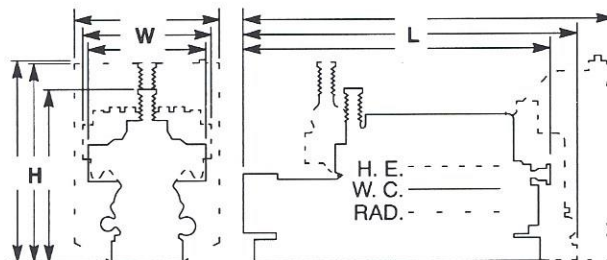
**\*Continuous Power Rating:** The highest electrical power output if the Enginotor® available for an unlimited number of hours per year, less maintenance. It is permissible to operate the Enginotor® with up to 10% overload for two hours in each 24 hour period.

**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 Enginotor® (no overload) 24 hours a day, for the duration of the primary power source outage.

**Rating Standard:** The Waukesha Enginotor® 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 Tcr (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)
H. E.	207 (5260)	85 (2160)	111 (2820)	35000 (15900)
W. C.	198 (5030)	84 (2130)	111 (2820)	32750 (14900)
RAD.	236 (5990)	114 (2900)	138 (3510)	38250 (17400)



## WAUKESHA SALES OFFICES WORLDWIDE

Calgary, AB    Glen Burnie, MD    Houston, TX    Roseville, CA    Singapore    South America Region    Middle East Region    The Netherlands    US Central Region

(403) 266-8666    (410) 760-5590    (713) 897-4600    (916) 784-1992    (65) 737-7955    (414) 896-4920    (414) 549-2933    (31) 596-652222    (414) 549-2935

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.

**WAUKESHA  
POWER SYSTEMS**



**WAUKESHA ENGINE DIVISION**  
 DRESSER INDUSTRIES, INC.  
 WAUKESHA, WISCONSIN 53188-4999

Bulletin 8017    1/96