

## BASIC SPECIFICATIONS

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

**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 intake and exhaust valve seat inserts.

**CYLINDERS** – VHP3600 Series, 9.375" (238 mm) bore x 8.5" (216 mm) stroke. Removable wet cylinder liners. Number of cylinders – Six.

**ENGINE 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 one thermocouple relay – shipped loose), and overspeed (electronic speed switch – shipped loose). Also includes engine detonation sensing, alarm and shutdown, as standard. (See separate description of Detonation Sensing Module.) One on/off pushbutton is supplied. Use all of the above 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 rear. Flexible stainless steel exhaust connection; 8" (203 mm) long with 6" (152 mm) outlet flange.

**FUEL SYSTEM** – One natural gas carburetor and Fisher gas regulator model 99. 24 volt 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, single bearing generator with 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-1.32. 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 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 2301D or similar, (not included). See Code 6020D.

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

**INSTRUMENT CONNECTIONS** – Type K thermocouples for jacket water temperature, lube oil temperature and intake manifold temperature wired to a common junction box. A single header block for lube oil pressure and intake manifold pressure is engine mounted. Recommend optional Model 4000 remote engine instrument panel, especially for continuous 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 prelude pump with motor starter (other voltages can be specified).

**Note:** External control logic required to start/ stop prelude 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. Naturally aspirated engines supplied with high compression ratio pistons.

**STARTING EQUIPMENT** – Two 24V DC 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 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.

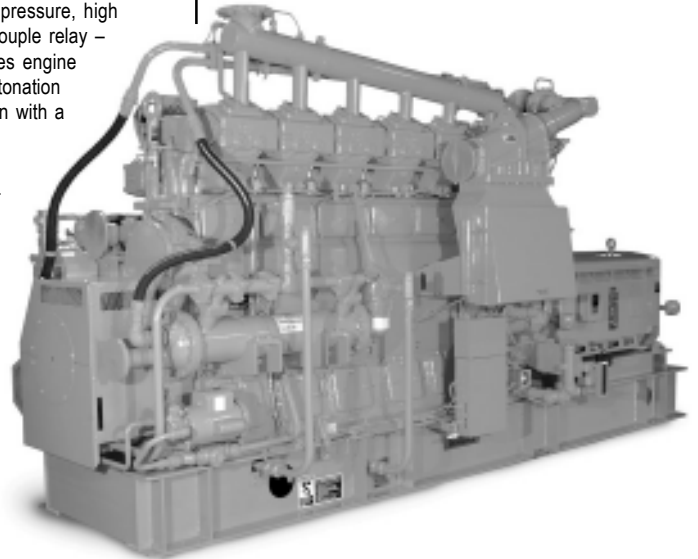
**WAUKESHA CUSTOM ENGINE CONTROL DETONATION SENSING MODULE (DSM)** – Includes individual cylinder sensors, Detonation Sensing Module, and filter, all factory mounted. Device is compatible with Waukesha CEC Ignition Module only. 24V DC power is required. The DSM meets Canadian Standards Association Class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

**Waukesha**  
**ENGINEATOR**  
WPS

# VHP3600GSI

## Gas Enginator® Generating System

375 - 675 kW



**Model VHP3600GSI**  
Turbocharged and Intercooled  
Gas Fueled Enginator

## SPECIFICATIONS

<b>Waukesha Engine</b> F3521GSI, Four Cycle, Overhead Valve	<b>Jacket Water Capacity</b> 48.5 gal. (184 L)
<b>Cylinders</b> Inline 6	<b>Starting System</b> 24 V Electric
<b>Piston Displacement</b> 3520 cu. in. (58 L)	<b>Fuel LHV</b> 900 Btu/ft <sup>3</sup> (33.5 J/cm <sup>3</sup> )
<b>Bore &amp; Stroke</b> 9.375" x 8.5" (238 x 216 mm)	<b>Lube Oil Capacity</b> 66 gal. (250 L)
<b>Compression Ratio</b> 8:1	

## PERFORMANCE DATA: VHP3600GSI GAS ENGINEATOR 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
<b>kW RATING</b>	<b>550</b>	<b>410</b>	<b>450</b>	<b>675</b>	<b>560</b>
Fuel Consumption x 1000 Btu/h (kW)	6185 (1813)	4467 (1309)	4969 (1456)	7382 (2164)	5993 (1756)
Jacket Water x 1000 Btu/h (kW)	1787 (524)	1310 (384)	1472 (431)	2085 (611)	1732 (508)
Intercooler x 1000 Btu/h (kW)	190 (56)	84 (25)	112 (33)	298 (87)	183 (54)
Lube Oil x 1000 Btu/h (kW)	178 (52)	147 (43)	157 (46)	195 (57)	173 (51)
Heat Radiated x 1000 Btu/h (kW)	437 (128)	408 (120)	400 (117)	422 (124)	388 (114)
Exhaust Heat** x 1000 Btu/h (kW)	1716 (503)	1119 (328)	1293 (379)	2079 (609)	1606 (471)
Exhaust Flow lb/h (kg/h)	5297 (2403)	3823 (1734)	4251 (1928)	6399 (2903)	5193 (2356)
Exhaust Temperature °F (°C)	1174 (634)	1069 (576)	1098 (592)	1187 (642)	1131 (611)
Induction Air Flow scfm (m³/min)	1163 (33)	839 (24)	933 (26)	1406 (40)	1141 (32)

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
<b>kW RATING</b>	<b>525</b>	<b>390</b>	<b>435</b>	<b>650</b>	<b>535</b>
Fuel Consumption x 1000 Btu/h (kW)	5878 (1723)	4213 (1235)	4751 (1392)	7059 (2069)	5681 (1665)
Jacket Water x 1000 Btu/h (kW)	1771 (519)	1276 (374)	1558 (457)	2087 (612)	1705 (500)
Intercooler x 1000 Btu/h (kW)	118 (35)	46 (13)	61 (18)	193 (57)	109 (32)
Lube Oil x 1000 Btu/h (kW)	176 (52)	144 (42)	155 (45)	207 (61)	170 (50)
Heat Radiated x 1000 Btu/h (kW)	439 (129)	370 (109)	291 (85)	438 (128)	398 (117)
Exhaust Heat** x 1000 Btu/h (kW)	1583 (464)	1046 (307)	1202 (352)	1916 (562)	1474 (432)
Exhaust Flow lb/h (kg/h)	5032 (2283)	3606 (1636)	4068 (1845)	6116 (2774)	4921 (2232)
Exhaust Temperature °F (°C)	1137 (614)	1043 (562)	1060 (576)	1156 (624)	1107 (597)
Induction Air Flow scfm (m³/min)	1104 (31)	792 (22)	893 (25)	1343 (38)	1081 (31)

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
<b>kW RATING</b>	<b>500</b>	<b>375</b>	<b>410</b>	<b>625</b>	<b>515</b>
Fuel Consumption x 1000 Btu/h (kW)	5777 (1693)	4181 (1225)	4646 (1362)	6992 (2049)	5655 (1657)
Jacket Water x 1000 Btu/h (kW)	1744 (511)	1268 (372)	1428 (419)	2069 (606)	1698 (498)
Intercooler x 1000 Btu/h (kW)	113 (33)	45 (13)	57 (17)	201 (59)	107 (31)
Lube Oil x 1000 Btu/h (kW)	175 (51)	143 (42)	153 (45)	192 (56)	170 (50)
Heat Radiated x 1000 Btu/h (kW)	433 (127)	371 (109)	385 (113)	438 (128)	393 (115)
Exhaust Heat** x 1000 Btu/h (kW)	1555 (456)	1036 (304)	1173 (344)	1896 (556)	1466 (430)
Exhaust Flow lb/h (kg/h)	4941 (2241)	3577 (1623)	3973 (1802)	6054 (2746)	4897 (2221)
Exhaust Temperature °F (°C)	1135 (613)	1041 (561)	1063 (573)	1155 (624)	1106 (597)
Induction Air Flow scfm (m³/min)	1084 (31)	785 (22)	872 (25)	1330 (38)	1076 (30)
Radiator Air Flow scfm (m³/min)	57000 (1614)	43000 (1218)	49000 (1388)	64000 (1812)	52000 (1473)

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

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

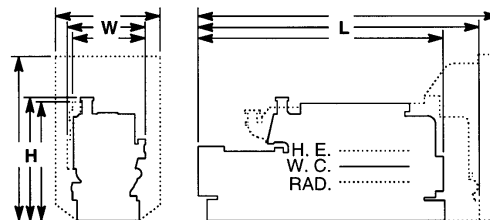
**Standby Power Rating:** This rating applies to those systems used as a secondary source of electrical power. This rating is the electrical power output of the Engineator (no overload) 24 hours a day, for the duration of the primary power source outage.

**Rating Standard:** The Waukesha Engineator power rating descriptions are in accordance to ISO 8528, DIN6271 and BS5514. It is also valid for ISO 3046/1-1995 with an engine mechanical efficiency of 90% and Tera (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	205 (5180)	68 (1730)	106 (2690)	24750 (11225)
Water Cooler	188 (4780)	66 (1680)	106 (2690)	23750 (10775)
Radiator	217 (5510)	85 (2160)	124 (3150)	27500 (12475)



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 8004 0802

### 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.