



## Zenith

## Specification & Application Data



Photo may depict optional equipment.

### Description

HIPOWER® rental generators are an efficient, reliable and versatile source of mobile electrical power. They are designed to operate in the most extreme working conditions. All HIPOWER® Gaseous Rental Generators have a unique combination of innovative design and the use of high quality materials that provide the user with the most dependable power that you can rely on for non-stop power with easy to operate controls.

The generator set is powered by a radiator-cooled, industrial Zenith gaseous engine, which meets current Environmental Protection Agency (EPA) non-road exhaust emission regulations, driving a single bearing, four-pole, three-phase alternator, with IP23 protection. The Prime Power kVA rating for generator set is given with a 125 degree C alternator winding temperature rise.

### HIPOWER® Features and Benefits

**Zenith Engine:** Long-life, heavy-duty, 4-cycle, gaseous engine from a world renown manufacturer for economy of operation and maximum reliability and durability. Capable of full rated load acceptance in one step.

**Cooling:** Radiator with belt driven pusher fan.

**Filtration:** Heavy-duty replaceable element air-cleaner.

**Alternator:** Single bearing, rotating field, self-excited, self-ventilated, 12-wire re-connectable, 60Hz brushless alternator with permanent magnetic generator (PMG) for reduced service and maintenance requirements, with Class H insulation. Automatic voltage regulator (AVR) providing close voltage regulation. Has a high skVA starting capability for electric motor loads.

**Arrangement:** Engine and alternator units are closed coupled together and with mobile style anti-vibration isolators, mounted between the assembly and a heavy-duty steel base. The sturdy base frame has openings allowing for winching, slinging and forklift pockets for ease of handling.

### 60Hz Prime Power Ratings kW & kVA

Voltage VAC	Phase	PF	LPG		NG	
			kW	kVA	kW	kVA
120/240	1	1	66	66	66	66
120/208	3	0.8	78	97.5	73	91.3
120/240 Delta	3	0.8	N.A	N.A	N.A	N.A
277/480	3	0.8	78	97.5	73	91.3
347/600	3	0.8	78	97.5	73	91.3

**Rating Definitions:** (N.A. = Not available for model designated)

Prime - All Rental Sets are Prime Rated - Prime rating is applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. (Max. load factor = 80%) A 10% overload capacity is available for 1 out of every 12 hours.

### HIPOWER® Features and Benefits

**Enclosure:** Fully sound attenuated enclosure, fabricated in 11-gauge steel, powder coated with finish that exceeds 1000-hr salt spray test, curved edges, minimum outside fasteners.

Ample layer of durable sound insulating material placed all around the inside of the container, doors and ducting with metal retainer frames. Can be cleaned by high-pressure water and is oil and fire resistant.

Vertical air discharge for quiet operation.

Wide steel lockable access doors with rubber seals, for easy entrance of all maintenance personnel and any necessary service by technicians, with stainless steel hinges, hardware and fasteners resistant to corrosion.

**Exhaust:** Effective low noise, steel residential-type exhaust silencer and catalytic converter with rain cap.

**Controls:** Digital control panel to operate all manual and automatic start and stop features. Many programmable automatic functions for local and remote controls with LED lights, tamper proof engine hour recorder with analog meters: voltmeter & switch, three (3) ammeters, Hz meter, fuel gauge and battery charger.

### HIPOWER® Rental Options

**Voltage Selector Switch:** Three-position, manual voltage selector switch. Lockable in three positions for switching set between 120/240V single phase and 120/208 and 277/480V 3-phase. - NOT AVAILABLE AT 600V CONNECTION.

**Power Distribution:** Consult HIPOWER® regarding the comprehensive range of power distribution accessories available.

**Oil Field heavy duty Rental Skid:** Heavy duty sub base.

(See page 3 for additional options)



### Application & Specification Data

#### Gaseous Generator Set Specification:

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	plus or minus 1%
Frequency regulation	Ischronous
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications
skVA at 480 volts with 30% voltage dip	290
Main Line Circuit breaker – amps capacity	250 (208V) - 150A (480V) - 90A (600V)

#### ENGINE

Manufacturer	Zenith Power Product
Model	NA 665
EPA certified	Yes
Crankshaft speed	1,800rpm
Type	LPG/NG fueled, 4-stroke
Ignition	Spark Plug
Aspiration	Natural
Number of Cylinders	6
Cylinder arrangement	vee
Displacement CID (liters)	396 (6.5)
Bore and Stroke ins (mm)	4.13 x 4.88 (105 x 124)
Nominal power	LPG 122 hp NG 111 hp
Cooling	Liquid
Governor	Electronic
Starting motor & alternator	24 volt
Compression ratio	11.1:1
Air cleaner type	Dry, replaceable cartridge
Exhaust gas flow at full output cu. ft./min (cu. m/min.)	2276 (64.4)
Exhaust temperature at full load - dry exhaust °F ( °C)	1261 (683)
Maximum permitted back pressure - in. HG (kPa)	40 (9.95)

#### Cooling System:

Radiator- cooled cooling air flow - cu. ft./min. (cu. m/min.)	13500 (382.2)
Alternator cooling flow - cu. ft./min. (cu. m/min.)	700 (19.6)
Combustion air - cu. ft./min. (cu. m/min.)	148 (3.9)
Total cooling air flow (engine + alternator + combustion)	14348 (405.7)
Radiator system capacity, including engine - gallons (L)	6 (22)

#### Lubrication system:

Oil pan capacity - quarts (L)	18 (17)
Oil pan capacity with filter - quarts (L)	20.5 (19.5)
Oil filter - quantity and type	1, Replaceable Spin-On
Recommended lubricating oil grade - above 0 ° F (below 0 ° F)	SAE 10W-40 (synthetic blend)
Oil consumption at full load	Less than 0.78qt/24hr
Oil pressure – psi (bars)	80 (552.0)

#### Engine Electrical System:

Starting motor voltage	24 volt
Battery - AH	2, size BC I# 24F
Maximum battery charge alternator output - amps	70
Cold Cranking Amps - minimum	850

# HIPOWER Sound Attenuated Enclosure:

Model - AT3Z

Noise level - dBA at 23 feet (7 meters)	73
Dimensions - inches	122" x 48" x 71.5"
Dry weight – lbs.	2,910

## Fuel System: (\*Measured at gen-set fuel inlet, downstream of any dry fuel or filter accessories.)

Fuel type	LPG or Natural Gas, vapor withdrawl
Fuel supply line - inlet	1-1/4" NPTF
*Natural gas and LPG fuel supply pressure - in. column H <sub>2</sub> O (kPa)	7" - 11" (1.74 - 2.74)

## Prime Rating Fuel consumption:

LPG - cu. ft./hour (kg/hour) at 100% standby rating	420 (20)
Natural Gas - cu. ft./hour (kg/hour) at 100% standby rating	600 (20.0)

## Alternator Specification:

Manufacturer	Marathon	
Alternator model, winding & AVR model	127/208; 277/480 volts	362CSL1604
	600 volts	362PSL1635
Voltages	3-phase 120/208, 277/480, 347/600	
Alternator Type	4-pole, rotating field	
Excitation System	Brushless with PMG & AVR PM300	
Power factor	0.8	
Number of leads	12	
Stator Pitch	2/3	
Insulation	Class H	
Windings – Temperature Rise	125° C	
Enclosure (IEC-34-S)	IP 21	
Bearing	Single, sealed	
Coupling	Flexible disc	
Amortisseur windings	Full	
Voltage regulation – no load to full load with MX341 AVR	plus or minus 1%	
TIF	< 50	
Line harmonics	5% maximum	

## Standard Accessories: (see back-page for control panel details)

● Radiator with pusher fan	● All rotating components (i.e. fan) protected with metal guards
● Dry air cleaner	● All hot components (i.e. exhaust) protected with metal guards
● Heavy-duty engine start batteries in rack with cables	● Ground connection prepared for ground spike (not supplied)
● Emergency stop switch	● Main line ABB UL listed circuit breaker for overload protection
● Control Panel DSE7310 (See over for details)	● Operation and installation literature
● Two dry contacts for auto-start	● CSA certified
● Steel base for mounting on firm surface such as concrete	● Engine Block heater

## Optional Accessories:

<input type="checkbox"/> Rotary voltage selector switch (not available with 600V connection)	<input type="checkbox"/> Interior lights
<input type="checkbox"/> Alternator anti-condensation heaters	<input type="checkbox"/> Shore power receptacle
<input type="checkbox"/> Winterization kit for low ambient temperature	<input type="checkbox"/> Oil fiels heavy duty rental skid
<input type="checkbox"/> Electric actuator and louvers for air intake and exhaust	<input type="checkbox"/> Control panel heater
<input type="checkbox"/> Snow hoods for air intake and exhaust	<input type="checkbox"/> DOT certified towing trailer

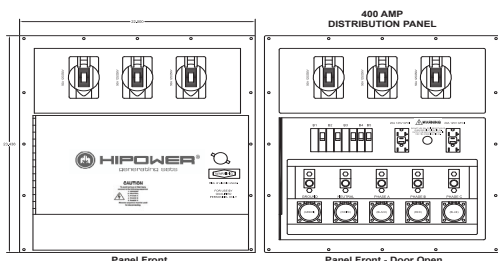
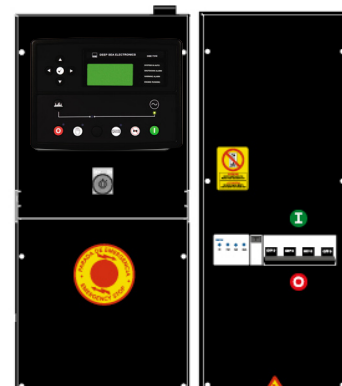
- **Distribution power panel** \*See image RH back-page  
NEMA 3R/IP67 0.09" aluminum panel, black powder coated, weather proof rated; individual Square-D QOU branch breakers; 2 x 20A 125V NEMA 5-20 GFCI duplex receptacles; 3 x 50A 125/250V CS6369 twist-lock receptacles & Lexan covers; 50A California style twist lock (1Φ only); 1 set 400A single pin Camlocks rated 400A with snap covers; color coded Camlocks 3Φ - 5W black, red, blue, white & green; pad lockable 1/4 turn door access with cable trap; auxiliary bus bars with mechanical lugs; 1 single barrel lug per phase; mechanical lugs up to 250MCM cable

**HIPOWER® DSE 7310 Control Panel:** The DSE model 7310 digital control panel is back-lit with icon LCD text display, and is PC configurable. It works with the engine electronic governor with PLC functionality, protected front panel editing, and includes: manual, automatic and remote (input) start, PC configurable six inputs and four outputs, configurable timers and alarms, generator voltage and Hz display, battery voltage display, engine speed display, multiple engine parameters are monitored simultaneously, comprehensive shutdown or warning on fault condition, engine preheat, LED and LCD alarm indication, tamper-proof hour counter provides accurate information for monitoring and maintenance periods. The module monitors: engine speed, frequency, voltage and engine run hours and also displays the warning and shutdown status

**Engine alarms included:** High coolant temperature, low oil pressure, low coolant level, unexpected shutdown, low fuel level, stop failure, low battery voltage, battery charging alternator failure, over-speed, under-speed, start failure and emergency stop.

**Alternator alarms included:** Overload, unbalanced voltage, over voltage, under voltage, over frequency, under frequency, short circuit, reverse power, and incorrect phase sequence.

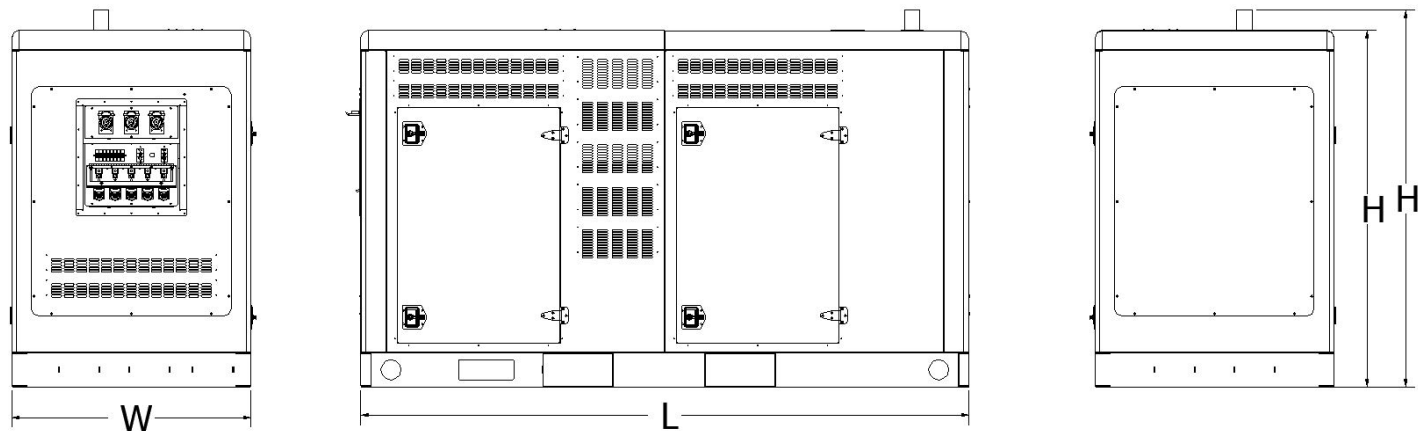
**Instrumentation and gauges included:** 3 ammeters, frequency meter, voltmeter plus selector, hour meter, fuel gauge, battery charger gauge, oil pressure gauge, water temperature gauge, siren and emergency stop button.



Pictures of Control Panel RH and Distribution Panel LH may include optional equipment and/or accessories

Model HRNG 95 T6

key dimensions and sound levels



Generator Data (L, W & H dimensions in inches)						
Configuration	L = Length	W = Width	H = Height	H' = Height	Net Weight lbs	dBa
Enclosed	122"	48"	71.5"	76"	2910	73
Enclosed (with oil field heavy duty skid)	130"	56"	76.5"	81"	3215	73

\* All measurements are approximate and for estimation purposes only. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

Codes and Standards Compliances used where applicable



- NFPA 99
- NFPA 110
- ISO 8528-5
- ISO 1708A.5
- ISO 3046
- BS5514
- SAE J1349
- DIN6271
- IEE C62.41 TESTING
- NEMA ICS 1

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