



# HIPOWER®

your partner for power

## GASEOUS Generator Set

## Model: HNG 160 T6

### PSI HD Gaseous Series

### Specification & Application Data



Drawing depicts a typical model but may not include some optional accessories.

### Overview of the HIPOWER® PSI-HD series of Gaseous Fueled Generator Sets:

HIPOWER® Industrial generators are factory-built in facilities that utilize the latest technology in sheet metal fabrication, mechanical and electrical component assembly, production and testing.

Each model is the result of computer aided design and modeling backed up by exhaustive prototype-testing. Our development technology results in a unique range of innovative designs for highly reliable generator sets backed-up by a limited warranty covering all components.

### Standard Configuration of Industrial Sets:

- **PSI-HD Engine:** Long-life, heavy-duty, 4-cycle, EPA certified, spark-ignited, gaseous engine from a world renowned manufacturer for maximum reliability and durability. Set capable of full load acceptance in one step. All sets are prototype built and torsionally tested.
- **Cooling:** Radiator with belt driven pusher fan.
- **Filtration:** Heavy duty replaceable element air-cleaner
- **Alternator:** Single bearing, 4-pole, rotating field, self-excited, self-ventilated, 60Hz brushless, Class H insulation. AVR for close voltage regulation. Winding temperature rise of 130°C at standby rating.

### Standard Features of Industrial Sets:

- HIPOWER® is a single source for all the generator system
- Generators are produced in a facility dedicated to generator set manufacture
- The generator set can accept rated load in one step
- 2 years or 1000 hours limited warranty given as standard. Extended warranties offered as options to the standard
- Base set meets NFPA 110, Level 1, when accessorized with the required equipment and installed per NFPA standards
- Test certificates available for the fully factory tested industrial generator sets

### 60Hz Standby Power Ratings kW & kVA

Voltage VAC	Phase	PF	LPG		NG	
			kW	kVA	kW	kVA
120/240	1	1.0	N.A.	N.A.	N.A.	N.A.
120/208	3	0.8	104	130	158	197
120/240 Delta	3	0.8	104	130	158	197
277/480	3	0.8	105	131	159	199
347/600**	3	0.8	105	131	159	199

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

Standby - All Industrial Sets are Standby Rated, applicable for a varying emergency load for the duration of a utility power outage with no overload capability. Alternator winding temperature rise is 150°C. (125°C prime rated)

Prime - 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.

\*\* 600 Volt configuration not available as UL2200 certified generator set.

- **Certification:** Generator set meets ISO 8528-5.
- **Arrangement:** Open skid with engine and alternator units closed coupled together and with resilient 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
- **Auto Start Control Panel:** Digital auto-start microprocessor based control panel with remote start capability.
- **Starting System:** 24 volt starter motor, battery cables, battery and belt driven charging alternator.

- HIPOWER® generator sets are designed to fit a full range of options for complying with many diverse applications
- Full range of safety features to ensure full protection of the generator system. (See back-page for details).
- MasterTrak Remote Monitoring - An asset management tool that communicates directly with the engine and any other critical equipment data points. Providing a means to monitor faults and alerts in real-time, proactively resolving engine and equipment problems and reducing costly unexpected failures.



### 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	650
Main Line Circuit breaker – amps capacity	600A (208V-240V) - 400A (480V) 250A (600V)

#### ENGINE

Manufacturer	PSI Heavy Duty
Model	8.1 LT
EPA certified	Yes
Crankshaft speed	1,800 rpm
Type	LPG/NG fueled, 4-stroke
Ignition	Spark Plug
Aspiration	Turbo Charge Air Cooled
Number of Cylinders	6
Cylinder arrangement	In-line
Displacement CID (liters)	492 (8.1)
Bore and Stroke ins (mm)	4.37 X 5.47 (111 x 139)
Nominal power	LPG 164 hp NG 239 hp
Cooling	Liquid
Governor	Electronic
Starting motor & alternator	24 volt
Compression ratio	10.5:1
Air cleaner type	Dry, replaceable cartridge
Exhaust gas flow at full output lb/hr (kg/hr)	1481 (672)
Exhaust temperature at full load - dry exhaust °F ( °C)	1350 (732)
Maximum permitted back pressure - in. HG (kPa)	3.0 (10.2)

#### Cooling System:

Radiator- cooled cooling air flow - cu. ft./min. (cu. m/min.)	12500 (354)
Alternator cooling flow - cu. ft./min. (cu. m/min.)	1307 (37)
Combustion air - cu. ft./min. (cu. m/min.)	1129 (31.9)
Total cooling air flow (engine + alternator + combustion)	14936 (423)
Radiator system capacity, including engine - gallons (L)	22.5 (102.7)

#### Lubrication system:

Oil pan capacity - quarts (L)	25.0 (24.0)
Oil pan capacity with filter - quarts (L)	28.75 (28.0)
Oil filter - quantity and type	1, Replaceable Spin-On
Recommended lubricating oil grade - above 0 ° F (below 0 ° F)	SAE 15W-40 Low Ash (.25 - 5% by wt)
Oil consumption at full load	N.A.
Oil pressure – psi (bars)	70.0 (4.8)

#### Engine Electrical System:

Starting motor voltage	24 volt
Battery - AH	150
Maximum battery charge alternator output - amps	45
Cold Cranking Amps - minimum	900

## Fuel System:

Fuel type	LPG or Natural Gas, vapor withdrawal
Fuel supply line - inlet	min. 1-1/4" NPT
Natural gas and LPG fuel supply pressure - in. H <sub>2</sub> O (kPa)	7 to 11 ins. (1.7 - 2.7)

## Fuel Consumption:

LPG - cu. ft./hour (kg/hour) at 100% standby rating	517 (28)
Natural Gas - cu. ft./hour (kg/hour) at 100% standby rating	1539(35)
LPG - cu. ft./hour (cu. m/hour) at 75% standby rating	N.A
Natural Gas - cu. ft./hour (cu. m/hour) at 75% standby rating	N.A
LPG - cu. ft./hour (cu. m/hour) at 50% standby rating	N.A
Natural Gas - cu. ft./hour (cu. m/hour) at 50% standby rating	N.A

## Alternator Specification:

Alternator make	Stamford	
Alternator model, winding & AVR model	127/208; 277/480 volts	UCI 274 H - N.G.
	600 volts	UCI 274 F - N.G.
Voltages	120/208; 277/480; 347/600	
Alternator Type	Four pole, rotating field	
Excitation System	Brushless. self-exciting	
Power factor	0.8	
Number of leads	12 leads, reconnectable	
Stator Pitch	2/3	
Insulation	Class H	
Windings – Temperature Rise	150° C	
Enclosure (IEC-34-S)	IP23	
Bearing	Single, sealed	
Coupling	Flexible disc	
Amortisseur windings	Full	
Voltage regulation – no load to full load - solid state	1%	
TIF	<50	
Line harmonics	5% maximum	

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

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

## Available Options:

<input type="checkbox"/> Level 1 Carbon steel 11 gauge housing, with full weather protection and above average sound attenuation.		
<input type="checkbox"/> Residential silencer (for open skid only)	<input type="checkbox"/> Radiator for dirty environments	
<input type="checkbox"/> Natural Gas or Propane	<input type="checkbox"/> Critical grade silencer (supplied loose) for Open Sets	
<input type="checkbox"/> Battery Charger - float type, with ammeter	<input type="checkbox"/> Hospital grade silencer in lieu of critical, on Level 2 models	
<input type="checkbox"/> Engine block heater	<input type="checkbox"/> Control panel heater	
<input type="checkbox"/> PMG alternator for single & 3-phase models	<input type="checkbox"/> Battery blanket	
<input type="checkbox"/> Remote annunciator	<input type="checkbox"/> Oil field heavy duty rental skid	
<b>Auto Transfer Switch (ATS) Options:</b>	<input type="checkbox"/> Open transition ATS	<input type="checkbox"/> Closed transition ATS
	<input type="checkbox"/> Delayed transition ATS	<input type="checkbox"/> Service entrance ATS

**HIPOWER DSE 7310 Control Panel:** HIPOWER's auto-start control panel DSE 7310 is supplied by Deep Sea Electronics with a manual or auto start selection switch with push button reset. Displays with indication of: phase to neutral voltage, voltage between phases, current (amps) per phase, frequency, power factor, kW and kVA outputs, fuel level, engine speed, hours run, battery voltage and battery charge voltage.

**Engine and generator alarms for:** battery charge failure, emergency stop activated, over-speed, under-speed, low oil pressure, high coolant temperature, low coolant level, low fuel level, overload, unbalanced voltage, over and under voltage, over frequency, short circuit, inverse power and incorrect phase sequence. All protections are programmable to: Warning alarm without engine shutdown or alarm with engine shutdown, with or without cooling period. Warning alarms for: low fuel level, battery voltage failure and battery charging alternator failure



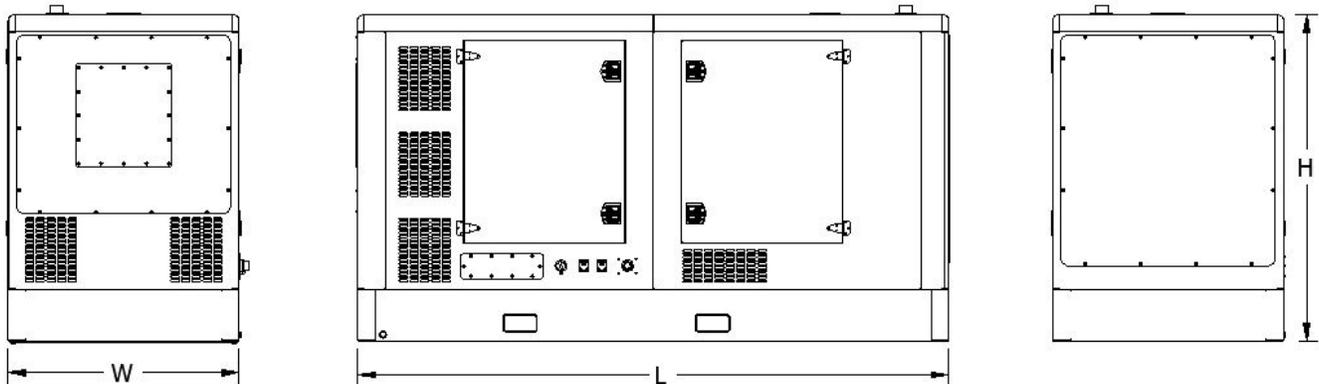
**Alternator alarms included:** Overload, unbalanced voltage, over voltage, under voltage, over frequency, under frequency, short circuit, reverse power, and incorrect phase sequence.



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

Model HNG 160 T6

key dimensions and sound levels



Generator Data (L, W & H dimensions in inches)					
Configuration	L = Length	W = Width	H = Height	Net Weight lbs	dBA
Open	138.5"	56"	70"	5720	TBA
Enclosed	138.5"	56"	76.5"	6135	69

\* 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
- NEMA ICS 1
- DIN6271
- SAE J1349
- BS5514
- IEE C62.41 TESTING

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