HF-20NGD6 | 20 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

Unregulated

Prime Power Rating
20 kW, 25 kVA, 60 Hz

Spark-ignited generator set for natural gas and propane vapor. Ratings per ISO 8528-1.



Image used for illustration purposes only

CODES AND STANDARDS

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL6200, UL1236, UL489
- CSA C22.2
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99, 110
- NEC 700, 701, 702, 708
- NEMA ICS10, MG1, 250, ICS6, AB1
- ANSI C62.41
- IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

POWERING AHEAD

Haifeng Power provides superior quality by engineering and manufacturing core generator components, including alternators, enclosures, control systems and communications software.

Spark-ignited engines are engineered specifically for dry, hotter-burning gaseous fuels — delivering reliability, durability and long service life on natural gas and LP. Building our own packages means single-source responsibility across the supply chain.

Haifeng Power spark-ignited gensets give more options in commercial and industrial applications, plus extended run time from utility-supplied natural gas.

SPEC SHEET

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STANDARD FEATURES

ENGINE SYSTEM
- Oil Drain Extension
- Air Cleaner
- Level 1 Fan and Belt Guards (Open Set Only)
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Critical Exhaust Silencer (Open Set Only)

FUEL SYSTEM
- NPT Fuel Connection on Frame
- Primary and Secondary Fuel Shutoff

COOLING SYSTEM
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

ELECTRICAL SYSTEM
- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM
- Alternator Protection System
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearing
- Amortisseur Winding
- Full Load Capacity Alternator

GENERATOR SET
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Emergency Standby Rated Units)

ENCLOSURE (IF SELECTED)
- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Stamped Air-Intake Louvers
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- Textured Polyester Powder Coat Paint

CONTROL SYSTEM
DSE7320 Digital Control Panel

PROGRAM FUNCTIONS
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- All Phase Sensing Digital Voltage Regulator
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Single Point Ground

FULL SYSTEM STATUS DISPLAY
- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency

ALARMS AND WARNINGS
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Time and Date Stamped
- Snap Shots of Key Operation Parameters
- Alarms Spelled Out (No Alarm Codes)

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CONFIGURABLE OPTIONS

ENGINE SYSTEM
- Engine Block Heater
- Baseframe Cover / Rodent Guard
- Oil Heater
- Air Filter Restriction Indicator
- Radiator Stone Guard (Open Set Only)
- Level 1 Fan and Belt Guards (Enclosed Units Only)

FUEL SYSTEM
- NPT Flexible Fuel Line
- Natural Gas
- LPL / LPV

ELECTRICAL SYSTEM
- 10A UL Listed Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM
- Alternator Upsizing
- Anti-Condensation Heater
- Tropical Coating
- Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS
- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET
- Extended Factory Testing (3-Phase Only)
- 8 Position Load Center
- IBC Seismic Certification

ENCLOSURE
- Weather Protected Enclosure
- Level 1 Sound Attenuation
- Level 2 Sound Attenuation
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory)
- AC/DC Enclosure Lighting Kit
- Enclosure Heater (with Motorized Dampers Only)
- Door Open Alarm Switch

CONTROL SYSTEM
- NFPA 110 Compliant Level 1 21-Light Annunciator
- Remote Relay Assembly (8 or 16)
- Oil Temperature Indication and Alarm
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Mushroom-Type, Surface Mount)
- Remote E-Stop (Mushroom-Type, Flush Mount)
- Remote Communication - Modem
- 10A Engine Run Relay
- Ground Fault Annunciator
- 100 dB Alarm Horn
- 120 V GFCI and 240 V Outlets
- Damper Alarm Contacts
- Spare Inputs (x4) / Outputs (x4)

WARRANTY (STANDBY GENSETS ONLY)
- 2 Year Extended Limited Warranty
- 5 Year Extended Limited Warranty

ENGINEERED OPTIONS

ENGINE SYSTEM
- Coolant Heater Ball Valves
- Fluid Containment Pan

ALTERNATOR SYSTEM
- 3rd Breaker System

CONTROL SYSTEM
- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch

GENERATOR SET
- Special Testing
- Battery Box

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APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	**Cummins 4N**
Cylinder #	**4**
Type	**In-line**
Displacement - in³ (L)	**238 (3.9)**
Bore - in (mm)	**4.02 (102)**
Stroke - in (mm)	**4.72 (120)**
Compression Ratio	**10.5:1**
Intake Air Method	**Naturally Aspirated**
Number of Main Bearings	**5**
Connecting Rods	**Forged Steel**
Cylinder Head	**Cast Iron**
Ignition	**Electronic Spark**
Piston Type	**Aluminum Alloy**
Lifter Type	**Consult Factory**
Intake Valve Material	**Consult Factory**
Exhaust Valve Material	**Consult Factory**
Hardened Valve Seats	**Consult Factory**

Engine Governing

Governor	**Electronic**
Frequency Regulation (Steady State)	**±0.25%**

Lubrication System

Oil Pump Type	**Gear Driven**
Oil Filter Type	**Full-Flow Spin-On**
Crankcase Capacity - qt (L)	**11.6 (11)**

Cooling System

Cooling System Type	**Pressurized Closed**
Fan Type	**Pusher**
Fan Speed - RPM	**2,100**
Fan Diameter - in (mm)	**20 (508)**

Fuel System

Fuel Type	**Natural Gas / Propane Vapor (Dual Fuel)**
Carburetor	**Gas Mixer (Premix, Open Loop)**
Secondary Fuel Regulator	**Standard**
Fuel Shut Off Solenoid	**Standard**
Operating Fuel Pressure - in H2O (kPa)	**8 – 20 (2 – 5)**
Optional Operating Fuel Pressure - in H2O (kPa)	**Source ≥ 60 (15)**

Engine Electrical System

System Voltage	**24 VDC**
Battery Charger Alternator	**40 Amps**
Battery Size	**2 × 90 Ah**
Battery Voltage	**12 VDC**
Ground Polarity	**Negative**

ALTERNATOR SPECIFICATIONS

Standard Model	**Stamford S0L2-M**
Poles	**4**
Field Type	**Revolving**
Insulation Class - Rotor	**H**
Insulation Class - Stator	**H**
Total Harmonic Distortion	**<5%**
Telephone Interference Factor (TIF)	**<50**
Standard Excitation	**Brushless, Self-Excited**
Bearings	**Single Sealed**
Coupling	**Direct, Flexible Disc**
Prototype Short Circuit Test	**Yes**
Voltage Regulator Type	**Digital AVR**
Number of Sensed Phases	**All**
Regulation Accuracy (Steady State)	**±1.0%**

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OPERATING DATA

POWER RATINGS – NATURAL GAS / PROPANE VAPOR (PRIME)

Connection	Power (Prime)	Current
Single-Phase 120/240 VAC @1.0pf	20 kW / 20 kVA	104 A
Three-Phase 120/240 VAC high-leg @0.8pf	20 kW / 25 kVA	60 A
Three-Phase 208Y/120 VAC @0.8pf	20 kW / 25 kVA	69 A
Three-Phase 480Y/277 VAC @0.8pf	20 kW / 25 kVA	30 A
Three-Phase 600Y/347 VAC @0.8pf	20 kW / 25 kVA	24 A

MOTOR STARTING CAPABILITIES (SKVA VS. VOLTAGE DIP)

277/480 VAC 3Ø	sKVA @30%	208/240 VAC 3Ø	sKVA @30%
Stamford S0L2-M	61	Stamford S0L2-M	46

FUEL CONSUMPTION RATES

Percent Load	Natural Gas – scfh (m³/hr)	Propane Vapor – scfh (m³/hr)
25%	129 (3.6)	41 (1.2)
50%	199 (5.6)	64 (1.8)
75%	264 (7.5)	84 (2.4)
100%	332 (9.4)	106 (3.0)

Cooling (Prime)	
Air Flow Across Radiator (Open Set) - cfm (m³/min)	**3,511 (99.4)**
Coolant Flow - gpm (Lpm)	**34.9 (132)**
Coolant System Capacity - gal (L)	**2.6 (10)**
Maximum Operating Ambient Temperature - °F (°C)	**122 (50)**
Maximum Additional Radiator Backpressure - in H2O (kPa)	**0.5 (0.12)**

Combustion Air Requirements (Prime)	
Flow at Rated Power - cfm (m³/min)	**74 (2.1)**

Engine (Prime)	
Rated Engine Speed - RPM	**1,800**
Horsepower at Rated kW - hp	**40**
Piston Speed - ft/min (m/min)	**1417 (432)**
BMEP - psi (kPa)	**74 (513)**

Exhaust (Prime)	
Exhaust Flow (Rated Output) - cfm (m³/min)	**212 (6.0)**
Maximum Exhaust Backpressure - inHg (kPa)	**2.95 (10)**
Exhaust Temperature (Rated Output) - °F (°C)	**1112 (600)**

** Dual-fuel: natural gas (CNG) and propane vapor (LPG). On propane (LPG), prime output is derated to 80% (approx. 16 kW). Propane consumption figures are estimated. *1.5× maximum site-rated fuel consumption should be used for gas-supply design. Deration – operational characteristics consider maximum ambient conditions; derate factors may apply under atypical site conditions. All performance ratings in accordance with BS5514 and DIN6271 standards.*

SPEC SHEET