



# GILLETTE GENERATORS

## LIQUID COOLED DIESEL ENGINE GENERATOR SET

60 HZ MODEL  
**T4D-4000**

Model	HZ	STANDBY	PRIME
		130°C RISE	105°C RISE
<b>T4D-4000-60 HERTZ</b>	60	400	400



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



**UL1446, UL508, UL142, UL498**



**NFPA 110, 99, 70, 37**

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



**NEC 700, 701, 702, 708**



**NEMA ICS10, MG1, ICS6, AB1**



**ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05**

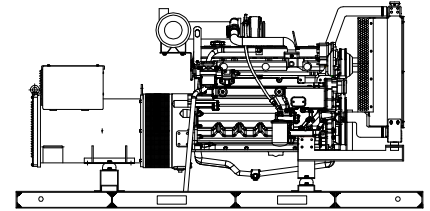


**ASCE 7-05 & 7-10**

All generator sets meet 180 MPH rating.

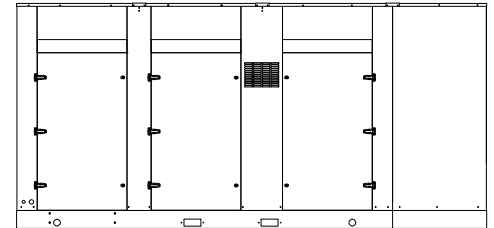


**EPA 40CFR Part 60, 89, 1039, 1048, 1054, 1065, 1068**



“OPEN” GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, uninhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



“LEVEL 2” HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

### GENERATOR RATINGS

GENERATOR MODEL	VOLTAGE		PH	HZ	130°C RISE STANDBY RATING		105°C RISE PRIME RATING	
	L-N	L-L			KW/KVA	AMP	KW/KVA	AMP
<b>T4D-4000-3-2</b>	120	208	3	60	400/500	1390	400/500	1390
<b>T4D-4000-3-3</b>	120	240	3	60	400/500	1200	400/500	1200
<b>T4D-4000-3-4</b>	277	480	3	60	400/500	600	400/500	600
<b>T4D-4000-3-5</b>	127	220	3	60	400/500	1314	400/500	1314
<b>T4D-4000-3-16</b>	346	600	3	60	400/500	481	400/500	481

RATINGS: All single phase gen-sets are dedicated 4 lead windings, rated at unity (1.0) power factor. All three phase gen-sets are 12 lead windings, rated at .8 power factor. 130° C “STANDBY RATINGS” are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based 130°C (standby) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

# APPLICATION & ENGINEERING DATA FOR MODEL T4D-4000-60 HZ

## GENERATOR SPECIFICATIONS

Manufacturer..... Stamford Generators  
Model & Type..... HCI 534D-311, 4 Pole, 12 Lead, Three Phase  
..... HCI534C-311, 4 Pole, 12 Lead, 480V, Three Phase  
..... HCI534C-17, 4 Pole, 12 Lead, 600V, Three Phase  
Exciter..... Brushless, shunt excited  
Voltage Regulator..... Solid State, HZ/Volts  
Voltage Regulation..... ½%, No load to full load  
Frequency..... 60 HZ  
Frequency Regulation..... ± ½% (1/2 cycle, no load to full load)  
Unbalanced Load Capability..... 100% of standby amps  
One Step Load Acceptance..... 100% of nameplate rating  
Total Stator and Load Insulation..... Class H, 180°C  
Temperature Rise..... 105°C R/R, prime rating @ 40°C amb.  
3 Ø Motor Starting @ 30% Voltage Dip (208-240V)..... 980 kVA  
3 Ø Motor Starting @ 30% Voltage Dip (480V-600V) 1280 kVA  
Bearing..... 1, Pre-lubed and sealed  
Coupling..... Direct flexible disc.  
Total Harmonic Distortion..... Max 3½% (MIL-STD705B)  
Telephone Interference Factor..... Max 50 (NEMA MG1-22)  
Deviation Factor..... Max 5% (MIL-STD 405B)  
Alternator..... Self ventilating and drip-proof  
Ltd. Warranty Period..... 24 Months from start-up date or  
..... 1000 hours use, first to occur.

## GENERATOR FEATURES

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with **Basler DGC-2020** controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, under-frequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.

## ENGINE SPECIFICATIONS AND APPLICATIONS DATA

### ENGINE

Manufacturer..... VOLVO-PENTA  
Model and Type..... TAD1672VE, 4 cycle, liquid Cooled  
Aspiration..... Turbo After Cooler, Air to Air  
Charged Air Cooled System..... Air to Air  
Cylinder Arrangement..... 6 Cylinders, In-Line  
Displacement Cu. In. (Liters)..... 984 (16.1)  
Bore & Stroke in (Cm)..... 5.67 x 6.50 (14.4 x 16.5)  
Compression Ratio..... 17.0:1  
Main Bearings..... Tin Overlay with Babbit Backing  
Cylinder Head..... Cast Iron with overhead Cam  
Pistons..... Aluminum Alloy with Graphite Coating  
Crankshaft..... Induction Hardened, Heat Treated Forged  
Valves..... Heat Treated and Hardened Exhaust Valve  
Governor..... Electronic, EMS 2.2  
Frequency Regulation..... ± 1/4%  
Air Cleaner..... Dry, Replaceable Cartridge  
Engine Speed..... 1800 rpm  
Max Power, bhp (kwm) Standby..... 700 (515)  
BMEP: psi (MPa) Standby..... 309 (2.13)  
Ltd. Warranty Period..... 2 Year or 1000 hrs, first to occur

### FUEL SYSTEM

Type..... Diesel Fuel Oil (ASTM No. 2-D)  
Combustion System..... Direct Injection  
Fuel Injection Pump..... Electronic, Delphi E3  
24 VDC Coolant heaters..... Optional Equipment  
Fuel Filter..... Yes with Water Separator

### FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY	PRIME
100% LOAD	32.0 (121.0)	32.0 (121.0)
75% LOAD	25.6 (96.9)	25.6 (96.9)
50% LOAD	20.8 (78.7)	20.8 (78.7)

### OIL SYSTEM

Type..... Full Pressure  
Oil Pan Capacity qt. (L)..... 50.7 (48)  
Oil Pan Cap. W/ filter qt. (L)..... 44.3 (42)  
Oil Filter..... 3, Replaceable Cartridge type

### ELECTRICAL SYSTEM

Ignition System..... Electronic  
Eng. Alternator/Starter: 24 VDC, negative ground, 110 amp/hr.  
Recommended battery to -18°C (0° F): ....(2) 12 VDC, BCI# 31,  
Max. Dimensions: 14"lg x 6 3/4" wi x 10" hi, with standard  
round posts. Min output 1000 CCA. Battery tray (max. dim. at  
15"lg x 7"wi). This model has (2) battery trays, (2) hold down  
straps, (2) sets of battery cables, and (1) battery charger.  
Installation of (2) 12VDC starting batteries connected in series  
for 24VDC output is required, with possible higher AMP/HR  
rating, as described above, if the normal environment  
temperature averages -13° F (-25°C) or cooler.

### CERTIFICATIONS

All engines are EPA emissions certified. All non-emergency  
stationary diesel engines are Tier IV Final compliant.

# APPLICATION & ENGINEERING DATA FOR MODEL T4D-4000-60 HZ

## COOLING SYSTEM

Type of System ..... Air to Air, Charged Air Cooler  
 Coolant Pump .....Pre-lubricated, self-sealing  
 Cooling Fan Type .....Pusher  
 Fan Diameter inches (cm).....35.1 (89)  
 Fan drive ratio..... 1.04:1  
 Ambient Capacity of Radiator °F (°C)..... 131 (55)  
 Engine Jacket Coolant Capacity gal. (L).....8.70 (33)  
 Radiator Coolant Capacity gal. (L) ..... 16.0 (60)  
 Water Pump Capacity gpm (L/min)..... 122 (462)  
 Heat Reject Coolant: Btu/min .....12,113  
 Air to Air Heat Reject, BTU/min. ....6,028  
 Heat Radiated to Ambient, BTU/min .....3,415  
 Low Radiator Coolant Level Shutdown.....Standard  
 Note: Coolant temp. shut-down switch setting at 228°F (109°C) with 50/50 (water/antifreeze) mix.

## COOLING AIR REQUIREMENTS

Combustion Air cfm (m<sup>3</sup>/min) ..... 1,324 (37.5)  
 Max Air Intake Restrictions:  
     Clean Air Cleaner, KPA (psi) ..... 5 (1.5)  
 Radiator Cooling Air, SCFM (m<sup>3</sup>/min).....18,180 (514)

## EXHAUST SYSTEM

Exhaust Outlet Size.....8"  
 Max. Back Pressure in KPA (in. H2O).....4 (16)  
 Exhaust Flow, at rated KW, CFM (m<sup>3</sup>/min)..... 3,461 (98)  
 Exhaust Temp, (Stack) °F (°C) .....932 (500)

## SOUND LEVELS MEASURED IN dB(A)

	Open Set	Level 2 Encl.
Level 2, SCR/Residential Silencer .....	98	83

Note: Open sets (no enclosure) have installed selective catalytic reduction/residential silencer system. Level 2 enclosure has installed selective catalytic reduction/residential silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

## DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft. (305m) above 3000 ft. (914m) from sea level

## DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (5.6°C) above 104°F (40°C)

## DIMENSIONS AND WEIGHTS

	Open Set	Level 2 Enclosure
Length in (cm).....	152 (368)	200 (508)
Width in (cm).....	72 (183)	72 (183)
Height in (cm).....	107 (272)	94 (239)
3 Ø Net Weight lbs (kg).....	9625 (4366)	12125 (5500)
3 Ø Ship Weight lbs (kg) .....	10025 (4547)	12525 (5681)

# BASLER DGC-2020 DIGITAL MICROPROCESSOR CONTROLLER

### Basler DGC-2020



The “2020” controller is a highly advanced integrated gen-set control system for single gen-set applications. This controller includes a backlit LCD display which continuously displays the status of the engine and generator at all times.

Basler “DGC-2020” includes: Generator metering (including three phase) • Engine – Generator protections including IEEE-[27] under voltage, [32] power, [40] loss of excitation, [59] over voltage, [81] over and under frequency, Exercise timer • SAE J1939 engine ECU communications • Expansion capabilities for both inputs and outputs with expansion • Remote communications through RS-485 to Basler’s RDP110 remote Display panel • (16) programmable contact inputs • (15) programmable contact outputs- (3) for up to 30AmpDC and (12) for up to 2 Amp DC • Illuminated Text Display • Front panel menu scroll buttons • Front panel operation mode buttons for STOP, RUN and AUTO • Alarm Silence and Lamp Test buttons

This controller includes expansion features including, RS485 (using MODBUS), direct USB connection with PC, expansion optioned using BESTCOMSPPlus for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional RDP-110 remote display panel module. This featured device will allow Four programmable LEDs (2) alarms and (2) pre-alarms • (17) alarms and pre-alarms displayed from Basler controller • audible alarm horn • lamp test and alarm silence buttons • RD100 local power supply inputs of either 12vdc or 24vdc • connects through Basler controller through RS-485 communications protocol • conduit box included for (2) mounting configurations- either surface mount or semi-flush mounting.

# STANDARD FEATURES FOR MODEL T4D-4000-60 HZ

## STANDARD FEATURES

### CONTROL PANEL:

- Basler DGC-2020 digital microprocessor with logic allows programming in the field. Controller has:
- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
  - Low oil pressure
  - High engine temp
  - Low Radiator Level
  - Three auxiliary alarms
  - Battery fail alarm
  - Engine fail to start
  - Engine over speed
  - Engine under speed
  - Over & under voltage

Also included is tamper-proof engine hour meter

### ENGINE:

- Fuel filter
- Full flow Oil filter
- Air filter
- Fuel pump
- Oil pump
- Solenoid type starter motor
- Hi-temp radiator
- Jacket water pump
- Thermostat
- Pusher fan and guard
- Exhaust manifold
- Electronic Governor
- 24 VDC battery charging alternator
- Flexible fuel and exhaust connectors
- Vibration isolators
- Open coolant recovery system with 50/50 water to anti-freeze mixture
- flexible oil & radiator hose
- Shut-down sensors for low oil pressure, high coolant temp., low coolant level, high ambient temp.

### AC GENERATOR SYSTEM:

- AC generator
- Shunt excited
- Brushless design
- Circuit Breaker installed and wired to gen-set
- Direct connection to engine with flex disc
- Class H, 180°C insulation
- Self ventilated
- Drip proof construction
- UL Certified

### VOLTAGE REGULATOR:

- 1% Voltage regulation
- EMI filter
- Under-speed protection
- Over-excitation protection
- total encapsulation

### DC ELECTRICAL SYSTEM:

- Battery trays
- Battery cables
- Battery hold down straps
- 3-stage battery charger with float, absorption, & bulk automatic charge stages

### WEATHER / SOUNDPROOF ALUMINUM HOUSING:

Corrosion Resistant Protection consisting of:

- (9) Heated and Agitated Wash Stages
- Zinc Phosphate Etching-Coating Stage
- Final Baked on Enamel Powder Coat
- 18/8 Stainless Steel Hardware

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact Gillette for certified drawings. DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

