

Cat® DG450 (Compact)

Gas Generator Sets



Image shown may not reflect actual configuration.

Engine Model	21.9L V12 TCAC Rich Burn Gas
No. of Cylinders	12
Bore x Stroke	128 mm x 142 mm (5.04 in x 5.6 in)
Displacement	21.9 Liter (1336.4 in³)
Compression Ratio	10.2:1
Aspiration	Turbocharged, Air Cooled
Fuel / Ignition System	Electronic Regulator / Spark Ignition
Governor	Electronic – G2 Class* capable

Model	Emergency Standby, ekW		Demand Response / Limited Time Power, ekW		Prime, ekW		Emissions Strategy
	450	350	425	350	400	350	
DG450 (3-Phase)	450	350	425	350	400	350	U.S. EPA Certified for Stationary Non-Emergency

PACKAGE PERFORMANCE

Performance	Emergency Standby		Demand Response / Limited Time Power		Prime	
	Natural Gas	Propane	Natural Gas	Propane	Natural Gas	Propane
Frequency, Hz	60 Hz					
Engine power rating, kW (hp)	510 (684)	420 (563)	485 (650)	420 (563)	460 (617)	420 (563)
Performance Number	EM6744	–	–	–	–	–
Fuel System / Fuel Consumption²						
Minimum fuel supply pressure, psi (in. water)	2 (55.4)					
Maximum fuel supply pressure, psi (in. water)	15 (415.6)					
100% load with fan, kg/hr (CFH)	110.5 (5309)	47593 (3309.6)	99 (4723)	47593 (3309.6)	94 (4483)	47593 (3309.6)
75% load with fan, kg/hr (CFH)	86.7 (4165)	36105 (2511)	78 (3716)	36105 (2511)	74 (3542)	36105 (2511)
50% load with fan, kg/hr (CFH)	64.1 (3078)	36105 (2511)	57 (2741)	25867 (1799)	55 (2628)	25867 (1799)
Cooling System						
Radiator air flow, m³/min (CFM)	1004 (35400)					
Radiator air flow restriction (system), kPa (in. water)	0.35 (1.4)					
Engine coolant capacity, L (gal)	53 (14)					
Radiator coolant capacity, L (gal)	76 (20)					
Total coolant capacity, L (gal)	129 (34)					
Inlet Air						
Combustion air inlet flow rate, kg/hr	1747	1488	1650	1488	1553	1488
Maximum allowable intake air restriction, kPa (in. water)	1.2 (5) – Clean Filter , 3.7 (15) – Dirty Filter 13.0 (740)					
Exhaust System						
Max. exhaust gas temperature (catalyst out), °C (°F)	576 (1069)					
Max. exhaust gas flow rate, kg/hr	1862					
Exhaust system back pressure max allowable, kPa (in. water)	10.15 (40.8)					
Heat Rejection						
Heat rejection to jacket water, kW	594	506	565	506	536	506
Heat rejection to after cooler, kW	74	63	70.4	63	66.7	63
Heat rejection to atmosphere from engine, kW	31	26.4	29.5	56.4	28	26.4
Heat rejection to exhaust, kW	240	204	228	204	216.5	204
Lube System						
Engine oil capacity, L (gal)	40.5 (10.7)					
Engine oil makeup tank capacity, L (gal)	56.8 (15)					
Total oil capacity, L (gal)	97.3 (25.7)					
Max engine oil temperature, °C (°F)	120 (248)					
Emissions (East Texas Capable)						
Meets EPA Stationary Emergency and Non-Emergency Limits (g/bhp-hr)	NOx: 2.0, CO: 4.0, VOC: 1		NOx: 1.0, CO: 2.0, VOC: 0.7		NOx: 1.0, CO: 2.0, VOC: 0.7	

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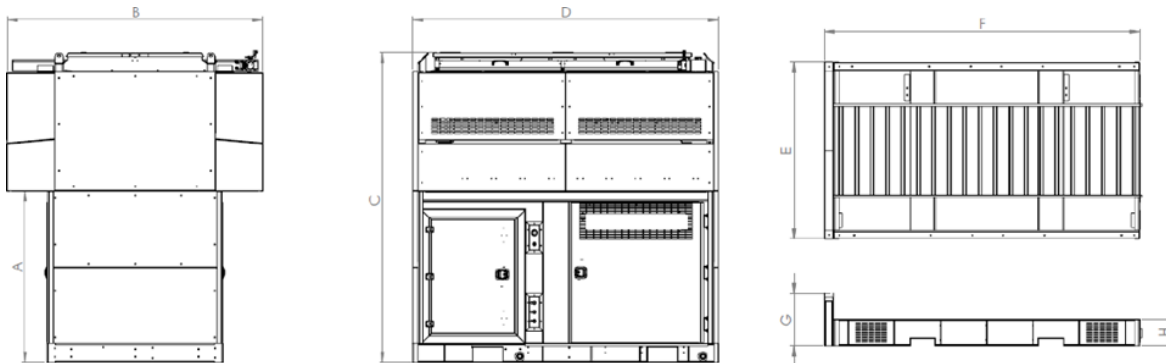


ALTERNATOR DATA

DG450	
Alternator	60 Hz, 3-Phase, 0.8 pf, 2/3 Pitch, Class H Insulation
Voltage	480 V
Temperature rise, °C	125 / 40
Motor starting capability @ 30% Voltage Dip, skVA	2340
Frame size	(IEC) 315
Excitation	PMG
Rated Current (Natural Gas / Propane), Amps	
Emergency Standby	677 / 527
Demand Response & Limited Time Power	639 / 527
Prime	601 / 527

Motor starting capability is based on the assumption of 0.6 pf.
 Temperature rise is based on the rating type and the respective site conditions.

WEIGHTS & DIMENSIONS



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dim "D" mm (in)	Dry Weight kg (lb)	Wet Weight kg (lb)
1680 (66)	2510 (99)	3050 (120)	3020 (119)	6664 (14694)	6866 (15140)

Dim "E" mm (in)	Dim "F" mm (in)	Dim "G" mm (in)	Dim "H" mm (in)	Base Weight kg (lb)
1750 (69)	3120 (123)	510 (20)	280 (11)	422 (930)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

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WEIGHTS & DIMENSIONS

CSA C22.2 No 100-04, UL142, UL489, UL869, cUL/UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IEC60034-1, ISO 3046, ISO 8528, NEMA MG 1-33.

EMERGENCY STANDBY POWER (ESP): Output available with varying loads for the duration of the interruption of the normal power source. Average power output is 70% of the ESP rated kW. Typical operation is 50 hours per year with a maximum expected usage of 200 hours per year.

DEMAND RESPONSE POWER: Output available with varying load for the duration of the interruption of normal source power. Average power output is 70% of the standby rated kW. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

PRIME POWER (PRP): Output available with varying load for an unlimited time. Average power output is 70% of the prime rated kW. Typical peak demand is 100% of prime rated kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year

LIMITED TIME POWER (LTP): A Prime-rated generator set under Limited Time Power guidelines can run for a maximum of 500 hours per year with an average load factor of up to 100%.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO 3046 standard conditions.

DEFINITIONS AND CONDITIONS

¹ Electrical Power Output & Fuel Consumption Tested at a Power Factor of 0.8. Operational characteristics consider maximum ambient conditions 43°C (110°F). Derate factors may apply under typical site conditions. Refer performance data.

² a. Tested per ISO 3046/1 at an elevation of 2953 ft (900 m) and ambient temperature of 77°F (25°C).

b. FUEL SPECIFICATION: Gas properties for fuel consumption data:
Natural Gas: Density = 0.735 kg/m³, LHV = 905 BTU/SCF (35.64 MJ/m³)
Propane: Density = 1.845 kg/m³, HHV = 2538 BTU/SFC (95 MJ/kg)

* Governing Class capability as per ISO-8528-5. Consult your local Cat dealer for configuration and site specific transient performance classification.

Propane performance data is preliminary. Subjected to change without notice.

LET'S DO THE WORK.™

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