

# Cat® C7.1

## DIESEL GENERATOR SETS



### Standby & Prime: 50 Hz & 60 Hz



Image shown might not reflect actual configuration

Engine Model	Cat® C7.1 In-line 6, 4-cycle Diesel
Bore / Stroke mm (in)	105.0 (4.1) / 135.0 (5.3)
Displacement L (in³)	7.0 (427.8)
Compression Ratio	18.2:1
Aspiration	Turbocharged
Fuel Injection System	Direct Injection
Governor	Mechanical - G2 Class* capable

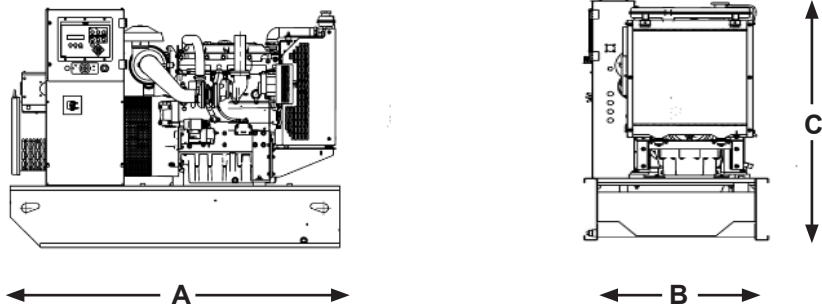
Model	Hz	Standby	Prime	Emission Strategy
DE169AE0	50	149.5 kVA 119.6 kW	135.0 kVA, 108.0 kW	Non Certified Emissions
	60	168.8 kVA 135.0 kW	150.0 kVA, 120.0 kW	

### PACKAGE PERFORMANCE

Technical Data	50 Hz		60 Hz	
	Standby	Prime	Standby	Prime
Engine Speed: RPM	1500		1800	
Gross Engine Power: kW (hp)	136.9 (184.0)	123.7 (166.0)	155.4 (208.0)	140.5 (188.0)
BMEP: kPa (psi)	1562.0 (226.5)	1411.0 (204.6)	1477.0 (214.2)	1336.0 (193.7)
Regenerative Power: kW	6.2		7.0	
Fuel System <sup>1</sup>				
110% load: l/hr (US gal/hr)	N/A	34.0 (9.0)	N/A	37.8 (10.0)
100% load: l/hr (US gal/hr)	34.0 (9.0)	30.3 (8.0)	37.8 (10.0)	33.1 (8.7)
75% load: l/hr (US gal/hr)	25.1 (6.6)	22.9 (6.0)	28.1 (7.4)	25.5 (6.7)
50% load: l/hr (US gal/hr)	17.7 (4.7)	16.4 (4.3)	21.1 (5.6)	19.8 (5.2)
Fuel Filter Type	Replaceable Element		Replaceable Element	
Recommended Fuel	Class A2 Diesel or BSEN590		Class A2 Diesel or BSEN590	
Air System				
Combustion Air Flow: m³/min (cfm)	8.1 (286)	7.6 (270)	11.5 (405)	11.0 (387)
Air Filter Type	Paper Element		Paper Element	
Max. Combustion Air intake restriction: kPa (in water)	5.0 (20.1)		5.0 (20.1)	
Radiator Cooling Air flow: m³/min (cfm)	264.0 (9323)		256.3 (9051)	
External Restriction to Cooling Air Flow: Pa (in water)	125 (0.5)		125 (0.5)	
Cooling System <sup>2</sup>				
Heat Rejected to Water & Lube Oil: kW (Btu/min)	82.0 (4663)	74.9 (4259)	92.0 (5232)	84.2 (4788)
Heat Radiated from Engine and Alternator: kW (Btu/min)	28.4 (1615)	23.3 (1325)	27.9 (1587)	24.1 (1371)
Cooling System Capacity: L (US gal)	21.0 (5.5)		21.0 (5.5)	
Water Pump Type	Centrifugal		Centrifugal	
Radiator Fan Load: kW (hp)	5.0 (6.7)		7.0 (9.4)	

Exhaust System		50 Hz		60 Hz					
		Standby	Prime	Standby	Prime				
Exhaust Gas Flow: m³/min (cfm)		22.7 (800)	20.8 (733)	29.1 (1026)	27.2 (959)				
Exhaust Gas Temperature: °C (°F)		561 (1042)	561 (1042)	526 (979)	526 (979)				
Silencer Type		Industrial		Industrial					
Silencer Model & Quantity:		EXSY1 (1)		EXSY1 (1)					
Pressure Drop Across Silencer System: kPa (in water)		0.45 (0.133)		0.72 (0.213)					
Silencer Noise Reduction Level: dB		10		10					
Max. Allowable Back Pressure: kPa (in water)		6.0 (1.8)		6.0 (1.8)					
Generator Technical Data									
Physical Data		Operating Data							
Frame Model	GTA 251AE27	Overspeed: RPM		2250					
No. of Bearings	1	Voltage Regulation: (steady state)		+/- 0.5%					
Wires	12	Wave Form NEMA = TIF:		50					
IP Rating & Insulation Class	IP21	Wave Form IEC = THF:		2.0%					
Winding Pitch-Code	2/3 - NA	Total Harmonic Content LL/LN:		5.0%					
Excitation	AUX COIL	Radio Interference:		Suppression is in line with European Standard EN61000-6					
AVR Model	A-OPT-04E	Radiant Heat: kW (Btu/min) 50 Hz / 60 Hz		13.1 (745) / 13.0 (739)					
Generator Performance Data³		50 Hz		60 Hz					
Voltage		380/220V		208/120V	220/127V				
Motor Starting Capability*: kVA		399		385	439				
Short Circuit Capacity: %		300		300	300				
Reactances: Per Unit									
X <sub>d</sub>		2.005		2.583	2.132				
X' <sub>d</sub>		0.125		0.144	0.126				
X'' <sub>d</sub>		0.081		0.093	0.082				
Capacities	50 Hz				60 Hz				
Voltages	Prime		Standby		Voltages	Prime		Standby	
	kVA	kW	kVA	kW		kVA	kW	kVA	kW
380/220V	135.0	108.0	149.5	119.6	220/127V	150.0	120.0	168.8	135.0
					208/120V	150.0	120.0	165.0	132.0

WEIGHTS & DIMENSIONS



Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
2450 (96.5)	1010 (39.8)	1544 (60.8)	1422 (3135)

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

APPLICABLE CODES AND STANDARDS:

AS1359, IEC60034-1, ISO3046, ISO8528, NEMA MG1-33, EAC,CE,UKCA.

**Note:** Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

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

**PRIME:** Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. 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

**RATINGS:** Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

DEFINITIONS AND CONDITIONS

<sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>2</sup> Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

<sup>3</sup> Generator temperature rise is based on a 40° C ambient per IEC60034-1.

\* Governing Class capability as per ISO8528-5 for 60 Hz application only.Consult your local Cat dealer for configuration and site specific transient performance classification.