Cat® 3412
Diesel Generator Sets

Image shown might not reflect actual configuration

Bore – mm (in)	137.2 (5.4)
Stroke – mm (in)	152.4 (6)
Displacement – L (in^3)	27.02 (1648.86)
Compression Ratio	13.0:1
Aspiration	TA
Fuel System	Pump and Lines
Governor Type	ADEM™ A5

Standby 50 Hz kVA (ekW)	Prime / Prime-DCP 50 Hz kVA (ekW)	Emission Strategy
750 (600)	680 (544)	Optimized for Low Fuel Consumption
800 (640)	725 (580)	
900 (720)	810 (648)	

Standard Features

Cat® Diesel Engine
- Designed and optimized for low fuel consumption
- Reliable performance proven in thousands of applications worldwide

Generator Set Package
- Accepts 100% block load in one step and meets NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators
- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System
- Cooling systems available to operate in ambient temperatures up to 49°C (120°F)
- Tested to ensure proper generator set cooling

EMCP 4 Control Panels
- User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty
- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing
- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

WORLDWIDE POWER PRODUCTS

5931 Brittmoore Rd.
Houston, TX 77041
www.wpowerproducts.com

1-713-434-2300
Fax 1-713-434-2394
sales@wpowerproducts.com

Optional Equipment

Engine

Air Cleaner
- ❑ Single element
- ❑ Dual element
- ❑ Heavy duty

Muffler
- ❑ Industrial grade (10 dB)
- ❑ Critical grade (35 dB)

Starting
- ❑ Standard batteries
- ❑ Oversized batteries
- ❑ Heavy duty electric starter(s)
- ❑ Dual electric starter(s)
- ❑ Jacket water heater

Alternator

Output voltage
- ❑ 380V
- ❑ 400V
- ❑ 415V

Temperature Rise (over 40°C ambient)
- ❑ 125 °C
- ❑ 105 °C
- ❑ 80 °C

Winding type
- ❑ Random wound

Excitation
- ❑ Internal excitation (IE)
- ❑ Permanent magnet (PM)

Attachments
- ❑ Anti-condensation heater
- ❑ Stator and bearing temperature monitoring and protection

Power Termination

Type
- ❑ Bus bar
- ❑ Circuit breaker
- ❑ 1600A ❑ 2500A
- ❑ UL ❑ IEC
- ❑ 3-pole ❑ 4-pole
- ❑ Manually operated
- ❑ Electrically operated

Trip Unit
- ❑ LSI

Factory Enclosure
- ❑ Weather protective
- ❑ Sound attenuated

Fuel Tank
- ❑ 317 gal (1200 L)

Control System

Controller
- ❑ EMCP 4.2B
- ❑ EMCP 4.3
- ❑ EMCP 4.4

Attachments
- ❑ Local annunciator module
- ❑ Remote annunciator module
- ❑ Expansion I/O module
- ❑ Remote monitoring software

Charging
- ❑ Battery charger – 5A

Vibration Isolators
- ❑ Spring

Cat Connect

Connectivity
- ❑ Ethernet
- ❑ Cellular
- ❑ Satellite

Extended Service Options

Terms
- ❑ 2 year (prime)
- ❑ 3 year
- ❑ 5 year
- ❑ 10 year

Coverage
- ❑ Silver
- ❑ Gold
- ❑ Platinum
- ❑ Platinum Plus

Ancillary Equipment
- ❑ Automatic transfer switch (ATS)
- ❑ Uninterruptible power supply (UPS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

Certifications
- ❑ EU Declaration of Conformity
- ❑ EU Declaration of Incorporation
- ❑ Eurasian Conformity (EAC)

Note: Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

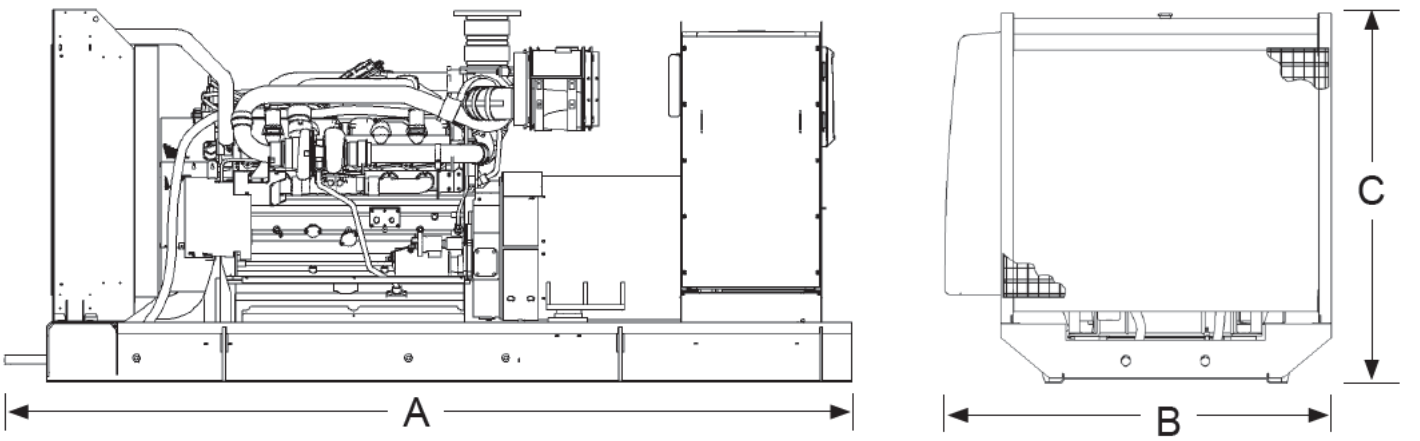
Package Performance

Performance	Standby		Prime / Prime-DCP		Standby		Prime / Prime-DCP	
Frequency	50 Hz		50 Hz		50 Hz		50 Hz	
Gen set power rating with fan	600 ekW		544 ekW		640 ekW		580 ekW	
Gen set power rating with fan @ 0.8 power factor	750 kVA		680 kVA		800 kVA		725 kVA	
Emissions	Low Fuel		Low Fuel		Low Fuel		Low Fuel	
Performance number	EM1168-01		EM1169-01		EM1166-01		EM1167-01	
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	158.9	(42.0)	144.9	(38.3)	169.1	(44.7)	153.7	(40.6)
75% load with fan – L/hr (gal/hr)	121.6	(32.1)	111.0	(29.3)	128.9	(34.1)	117.5	(31.0)
50% load with fan – L/hr (gal/hr)	85.3	(22.5)	78.3	(20.7)	90.0	(23.8)	82.5	(21.8)
25% load with fan – L/hr (gal/hr)	49.8	(13.2)	46.1	(12.2)	52.1	(13.8)	48.2	(12.7)
Cooling System								
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	815	(28781)	815	(28781)	815	(28781)	815	(28781)
Engine coolant capacity – L (gal)	58.6	(15.5)	58.6	(15.5)	58.6	(15.5)	58.6	(15.5)
Radiator coolant capacity – L (gal)	90.0	(23.8)	90.0	(23.8)	90.0	(23.8)	90.0	(23.8)
Total coolant capacity – L (gal)	148.8	(39.3)	148.8	(39.3)	148.8	(39.3)	148.8	(39.3)
Inlet Air								
Combustion air inlet flow rate – m^3/min (cfm)	45.6	(1610.2)	41.2	(1455.9)	48.1	(1698.5)	44.2	(1560.8)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	536.0	(996.8)	528.1	(982.5)	538.7	(1001.7)	534.0	(993.2)
Exhaust gas flow rate – m^3/min (cfm)	129.8	(4583.4)	116.1	(4099.2)	137.2	(4844.7)	125.4	(4428.1)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection								
Heat rejection to jacket water – kW (Btu/min)	359	(20416)	327	(18624)	381	(21667)	347	(19734)
Heat rejection to exhaust (total) – kW (Btu/min)	591	(33610)	528	(30027)	628	(35714)	571	(32473)
Heat rejection to aftercooler – kW (Btu/min)	72	(4100)	56	(3181)	83	(4703)	66	(3776)
Heat rejection to atmosphere from engine – kW (Btu/min)	96	(5459)	100	(5690)	105	(5971)	95	(5402)
Heat rejection from alternator – kW (Btu/min)	24	(1348)	21	(1189)	24	(1359)	22	(1234)
Emissions* (Nominal)								
NO_x mg/Nm^3 (g/hp-h)	2947.9	(6.16)	2901.8	(6.09)	2969.2	(6.21)	2932.1	(6.14)
CO mg/Nm^3 (g/hp-h)	170.2	(0.36)	176.9	(0.37)	181.6	(0.38)	171.7	(0.36)
HC mg/Nm^3 (g/hp-h)	109.5	(0.23)	86.8	(0.18)	120.1	(0.25)	102.6	(0.21)
PM mg/Nm^3 (g/hp-h)	45.1	(0.09)	44.6	(0.09)	45.1	(0.09)	45.0	(0.09)
Emissions* (Potential Site Variation)								
NO_x mg/Nm^3 (g/hp-h)	3566.9	(7.46)	3511.1	(7.37)	3592.7	(7.51)	3547.8	(7.43)
CO mg/Nm^3 (g/hp-h)	318.3	(0.67)	330.9	(0.69)	339.6	(0.71)	321.1	(0.67)
HC mg/Nm^3 (g/hp-h)	207.0	(0.43)	164.0	(0.34)	227.0	(0.48)	193.9	(0.41)
PM mg/Nm^3 (g/hp-h)	87.9	(0.18)	87.0	(0.87)	87.9	(0.18)	87.7	(0.18)

Package Performance

Performance	Standby		Prime / Prime-DCP	
Frequency	50 Hz		50 Hz	
Gen set power rating with fan	720 ekW		648 ekW	
Gen set power rating with fan @ 0.8 power factor	900 kVA		810 kVA	
Emissions	Low Fuel		Low Fuel	
Performance number	EM1164-00		EM1165-00	
Fuel Consumption				
100% load with fan – L/hr (gal/hr)	191.7	(50.6)	171.5	(45.3)
75% load with fan – L/hr (gal/hr)	143.8	(38.0)	130.2	(34.4)
50% load with fan – L/hr (gal/hr)	99.5	(26.3)	90.7	(23.9)
25% load with fan – L/hr (gal/hr)	57.0	(15.0)	52.4	(13.8)
Cooling System				
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	815	(28781)	815	(28781)
Engine coolant capacity – L (gal)	58.6	(15.5)	58.6	(15.5)
Radiator coolant capacity – L (gal)	90.0	(23.8)	90.0	(23.8)
Total coolant capacity – L (gal)	148.8	(39.3)	148.8	(39.3)
Inlet Air				
Combustion air inlet flow rate – m^3/min (cfm)	54.6	(1928.7)	48.8	(1721.4)
Exhaust System				
Exhaust stack gas temperature – °C (°F)	544.2	(1011.5)	539.4	(1002.9)
Exhaust gas flow rate – m^3/min (cfm)	156.4	(5521.9)	139.1	(4913.4)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)
Heat Rejection				
Heat rejection to jacket water – kW (Btu/min)	431	(24527)	385	(21921)
Heat rejection to exhaust (total) – kW (Btu/min)	701	(39846)	636	(36184)
Heat rejection to aftercooler – kW (Btu/min)	115	(6518)	85	(4860)
Heat rejection to atmosphere from engine – kW (Btu/min)	120	(6801)	108	(6122)
Heat rejection from alternator – kW (Btu/min)	28	(1575)	24	(1376)
Emissions* (Nominal)				
NO_x mg/Nm^3 (g/hp-h)	3167.8	(6.05)	2972.5	(6.22)
CO mg/Nm^3 (g/hp-h)	443.3	(0.97)	193.7	(0.41)
HC mg/Nm^3 (g/hp-h)	248.1	(0.57)	122.3	(0.26)
PM mg/Nm^3 (g/hp-h)	51.5	(0.13)	45.9	(0.10)
Emissions* (Potential Site Variation)				
NO_x mg/Nm^3 (g/hp-h)	3833.0	(7.33)	3596.7	(7.52)
CO mg/Nm^3 (g/hp-h)	828.9	(1.82)	362.2	(0.76)
HC mg/Nm^3 (g/hp-h)	468.9	(1.07)	231.1	(0.48)
PM mg/Nm^3 (g/hp-h)	100.5	(0.26)	89.5	(0.19)

Weights and Dimensions



Standby 50 Hz kVA (ekW)	Prime/Prime-DCP 50 Hz kVA (ekW)	Length "A" mm (in)	Width "B" mm (in)	Height "C" mm (in)	Dry Weight kg (lb)
750 (600)	680 (544)	4125 (162.4)	1989 (78.3)	1906 (75)	5711 (12,590)
800 (640)	725 (580)	4125 (162.4)	1989 (78.3)	1906 (75)	5711 (12,590)
900 (720)	810 (648)	4125 (162.4)	1989 (78.3)	1906 (75)	5910 (13,030)

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

Ratings Definitions

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 ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Prime Data Center Power (Prime-DCP)

Prime-DCP power output available with varying load for unlimited time. Average power output is not to exceed 100% of Prime-DCP rated ekW. Typical peak demand is 100% of the Prime-DCP rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Applicable Codes and Standards

AS 1359, CSA C22.2 No. 100-04, UL 142, UL 489, UL 869, UL 2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

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

Data Center Applications

- ISO 8528-1 Data Center Power (DCP) compliant per DCP application of Cat diesel generator set prime power rating.
- All ratings Tier III/Tier IV compliant per Uptime Institute requirements.
- All ratings ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.)

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