

**BUILT FOR IT.** 

**CAT**<sup>®</sup> **G3500** 

Series Gas Generator Sets



# SIVARTER SIV

### **COMMERCIAL AND INDUSTRIAL FACILITIES**

Facilities such as manufacturing plants, resorts, shopping centers, office or residential buildings, universities, data centers and hospitals reduce operating costs and carbon footprint simultaneously.

### **ELECTRIC UTILITIES**

Caterpillar has led innovation to deliver stationary and containerized gas power plants to electric utilities and district energy facilities around the world for both continuous grid support and peak electricity demand.

# **MINES**

Mining operators increase mine safety and reduce carbon emissions with coal gas, while many other mining operations are realizing the benefits of onsite gas power generation to support greenfield site development.

### AGRICULTURE AND FOOD / BEVERAGE PROCESSING

Biogas, a useful byproduct of the anaerobic digestion of organic waste, is created by food processors, ethanol and biodiesel manufacturers, and farms around the world as a renewable fuel resource for Cat powered electricity generation.

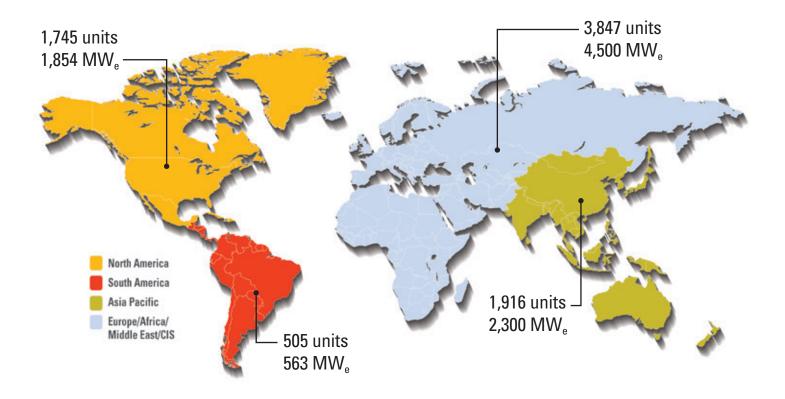
### LANDFILLS AND WASTEWATER TREATMENT PLANTS

Landfill and sewage gases are generated by communities around the world as part of sanitary process infrastructure. Instead of destroying or flaring the methane gas produced, communities make beneficial use of this fuel as part of a sustainable energy program.

# **GREENHOUSES**

In greenhouses, Cat gas generator sets simultaneously deliver electricity for lighting or sale to the local grid, hot water for facility heating and carbon dioxide as an organic fertilizer for increased crop production.

# Installed capacity of 9,217 MW<sub>e</sub> with 8,013 generator sets worldwide



### MEETING YOUR NEEDS HAS SHAPED OUR HISTORY

At Caterpillar, we understand what it takes to deliver a successful gas power generation system, and it starts with a core machine that is designed for efficiency and reliability. Since the 1920s, Caterpillar has been designing and building engines for power production. Although the technology has changed over the years, the philosophy hasn't: to deliver the most reliable power generation at the lowest possible cost of ownership and operation. Today, Caterpillar not only manufactures power generation equipment, but we also provide customized project financing via Cat Financial.

# THE COMPLETE SOLUTION

Caterpillar is your complete gas solutions partner. From mechanical systems such as gas fuel train and heat recovery systems, to exhaust aftertreatment that complies with the world's most stringent emission requirements, Caterpillar Gas Solutions engineering works with your local Cat dealer to deliver a complete scope of supply. Caterpillar also provides electrical systems such as master controls and paralleling switchgear, electrical distribution switchgear and uninterruptible power supply (UPS) that can meet either UL or IEC requirements.

### PRODUCT SUPPORT WORLDWIDE

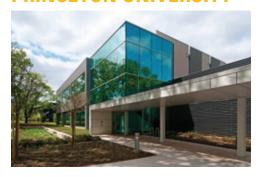
Your gas power system is supported by our factory trained global network of Cat dealers. Therefore, you can rest assured that your equipment will be ordered, delivered, installed and commissioned in consultation with a local expert. You'll also have the confidence that Caterpillar will be there to keep you up and running. Cat dealers have over 1,600 dealer branch stores operating in 200 countries to provide the most extensive post-sales support including oil and fuel monitoring services, preventive maintenance and comprehensive Customer Support Agreements.

# **LOWER LIFE CYCLE COST**

With longer maintenance intervals, higher fuel efficiency and competitive repair options, Caterpillar delivers the lowest total owning and operating costs. When you design your facility within Caterpillar's Application and Installation Guidelines, you can expect generator set availability up to 99 percent of planned operating hours annually. It all adds up to a strong return on your investment, year after year.

# **HIGHLY EFFICIENT PERFORMANCE**

# **PRINCETON UNIVERSITY**



# PRINCETON, NEW JERSEY, USA

In 2011, Caterpillar delivered a G3520E 60 Hz gas generator set rated for 2,000 kW<sub>e</sub> designed for waste heat recovery for the University's new High-Performance Computing Resource Center. The project helps support campus-wide energy efficiency goals.

# HBG-**HEIZWERKBETRIEBSGESELLSCHAFT**



# **REUTLINGEN, GERMANY**

This district power and heating plant had been operating Cat G3520C generator sets at total system efficiency near 100 percent based on condensing heat exchangers and industrial heat pumps. When a new plant was commissioned in 2012 with a next generation G3516H, the plant manager declared it "the easiest genset startup we've seen."

# **BINATOM ELECTRIC PRODUCTION**



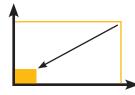
# **KUTHAYA REGION, TURKEY**

This independent power producer in northern Turkey demonstrated the plug-and-play design of Caterpillar's latest G3516H gas generator



# **HIGHLY EFFICIENT**

The E & H Series takes electrical efficiency to the next level, up to 44.7 percent (1.0PF, ISO). Improved performance is delivered via a combination of new piston ring liner packs, optimized turbochargers, updated controls, crankcase recirculation system and low-loss steel generator construction.



# CUSTOM ENGINEERED TO CUSTOMER SPECS

Whether your goals are achieving the lowest fuel consumption, lowest emissions, high load response, or just surviving challenging high ambient conditions, the E & H Series offers tailored turbochargers, air systems and controls that are matched to your performance requirements.



# **LOWEST MAINTENANCE COSTS**

The E & H Series consumes U.S. \$14,000 less oil per year than competitive engines, achieving a mid-life oil consumption below 182 mg/kW<sub>m</sub>-h (0.0003 lb/bhp-h). Major planned overhauls up to 80,000 hours ensure the lowest possible long-term owning and operating costs.



# **RESPONSIVE AND DURABLE**



# **JINCHENG COAL MINING GROUP LTD.**

# **JINCHENG, SHANXI, CHINA**

The largest coal-mine-methane fueled power plant in the world employs 60 Cat G3520C generator sets to divert harmful coal gas from entering the atmosphere while generating cost-effective electricity for over a half million Chinese homes.

# **BIFFA POPLARS LANDFILL**

# **CANNOCK, UNITED KINGDOM**

A power expansion of 4 MW was made possible with two landfill powered G3520C generators sets in custom outdoor enclosures. Engine heat is recovered for leachate treatment and the entire system can be operated remotely.



# **WENTWORTH RESOURCES**

# MNAZI BAY & MTWARA, TANZANIA

Local natural gas resources fuel nine G3520C generator sets to provide the area's first reliable utility power source, resulting in economic prosperity never before experienced by the local community.



# HARDENED AGAINST CONTAMINANTS

Since 2005, the C Series has become the industry leader for operation on landfill gas, agricultural biogas and sewage gas fuels. Specially treated aftercooler cores, cylinder heads and rear gear train bearings are hardened against corrosive biogas elements. Elevated jacket water temperatures and crankcase ventilation discourage harmful acidic condensation.



# **BEST-IN-CLASS LOAD RESPONSE**

The island mode version of the C Series generator sets provides the best option in the industry for efficient operation disconnected from the utility grid thanks to a specialized controls architecture. When block loads are applied up to 25 percent of nameplate rating, the generator set recovers to nominal frequency and voltage within 10 seconds (ISO8528-5 Class G1).



# **SPECIAL PROJECT CAPABILITY**

Caterpillar is investing in research and development programs on the C Series platform that allow for operation on specialty fuels such as syngas, blast furnace gas, coke oven gas and ultra-low methane coal gas.

# BALANCED AND ADAPTABLE BOGORODSKOE INDUSTRIES LLC BOGORODSKOE, RUSSIA



With only four months to transport and construct a complete heat and power facility to support the city of Bogorodskoe, Caterpillar and local dealer Amur Machinery commissioned three G3516B generator sets in arctic grade enclosures with a heat recovery system that delivers 90 percent system efficiency.



# MONROE COUNTY COMMUNITY COLLEGE MILFORD, MASSACHUSETTS, USA

Monroe County saves \$1 million per year in energy costs by implementing four Cat G3516B in a trigeneration scheme that produces 5.4 MW of electricity along with hot water and summer cooling for the Monroe County Community College.



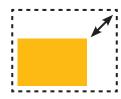
# FINNING RENTAL POWER EDMONTON, ALBERTA, CANADA

Finning Rental Power is the largest provider of Cat gas rental power services in North America. Their fleet includes over 20 Cat XQ1250G power modules using G3516B generator sets that deliver temporary power to industrial, commercial and petroleum projects across Western Canada.



# A TECHNOLOGY FIRST

The G3500B Series was the first Cat gas generator set to introduce several technologies: fully electronic control, automated air fuel ratio adjustment, pre-chamber spark plugs, transient richening with turbo bypass and individual cylinder detonation control.



# **ADAPTABLE**

With standard natural gas configurations designed to handle Cat methane numbers down to 60 MN, the B Series is particularly adept at handling pipeline fuels that experience seasonal variability. Recent updates allow for high efficiency operation on lower MN fuels such as propane.



# A FIRST IN MOBILITY

The G3516B generator set was the first lean burn gas generator set in the world to be offered as a fully mobile, containerized power plant. The X01250G rental module was introduced in 2004, and updated in 2010 to include updated generator set and utility paralleling controls, improved fuel train and lower exhaust emissions.





# HANGZHOU MUNICIPAL SOLID WASTE TREATMENT COMPANY LTD.

# HANGZHOU, ZHEJIANG, CHINA

To power the first major landfill-gas-to-energy project in China, the local authorities selected two G3516A landfill gas generator sets. After 10 years and 80,000 hours of successful operation without a major overhaul, in 2011 Caterpillar was again selected to provide two more G3516A generator sets for an expansion site.



# **ENERDYNE POWER SYSTEMS**

ALCOA, TENNESSEE, USA
To maximize the 1 MW of renewable energy allowed for

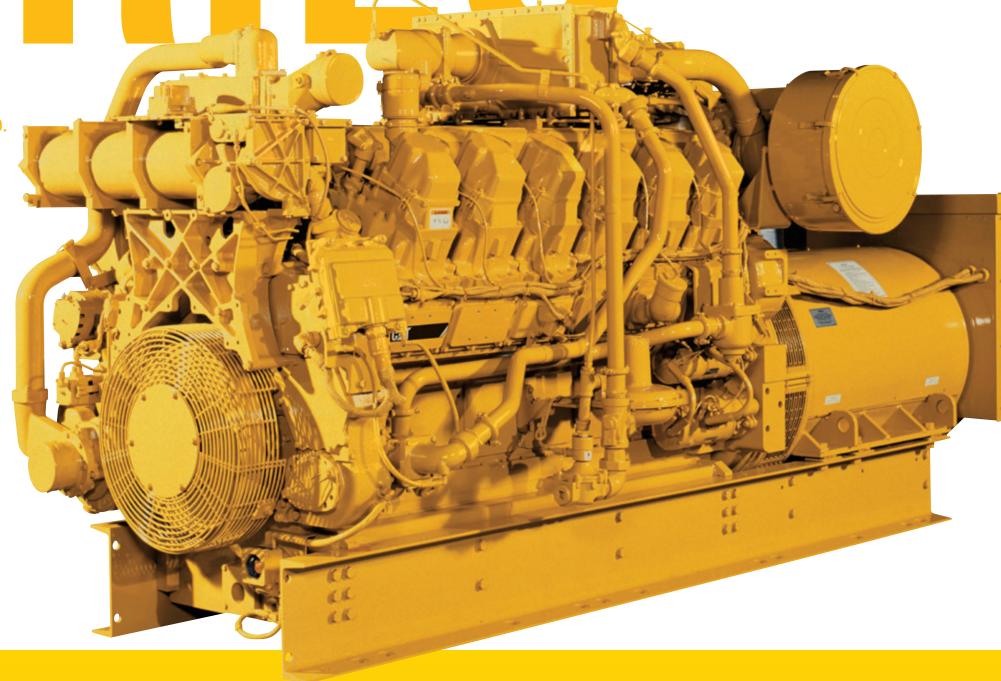
In maximize the 1 MW of renewable energy allowed for export to the local grid, in 2011 Caterpillar delivered a unique G3516A gas generator set in a custom outdoor enclosure, with a custom gear train, and low  $NO_x$  setting that allowed the customer to operate at maximum power for maximum profit.



# ENGINE DEVELOPMENTS LTD., APPIN COAL MINE

# **NEW SOUTH WALES, AUSTRALIA**

In 1995, 94 G3516A coal gas generator sets were commissioned to provide a first-of-a-kind in sustainable energy: electricity from underground coal gas. In 2012, after many engines reached 100,000 operating hours without a major overhaul, power plant owner-operator EDL extended their power contract for four more years.



AN INDUSTRY
WORKHORSE FOR
OVER 25 YEARS



# **ULTIMATE RELIABILITY**

With over 10,000 gas engine generators sold over the past 25 years, the G3500A Series is a proven performer in hundreds of different applications. With unparalleled uptime and ease of maintenance, consultants around the world continue to specify the A Series for its reliability.



# THERMAL EFFICIENCY

No other gas generator set on the market can deliver the same diversity of heat for combined heat and power applications.

The A Series can utilize up to a 127°C (260°F) jacket water circuit to deliver 15 psi (1 bar) steam while also providing 145 psi (10 bar) steam via exhaust heat recovery.



# **FUEL FLEXIBILITY**

Whether your fuel is coal gas, landfill gas, propane, LNG, agricultural biogas, or associated gas, the A Series has a configuration specifically designed to handle a variety of fuels and applications. This flexibility also extends to extreme ambient conditions and altitudes without derate or risk of detonation.

### **50HZ PRODUCT PERFORMANCE: LOW ENERGY FUEL PHYSICAL DATA** UNITS G3516A G3516A+ G3520C G3520C **Bore / Stroke** 170 / 190 6.7 / 7.5 170 / 190 6.7 / 7.5 170 / 190 6.7 / 7.5 170 / 190 6.7 / 7.5 mm Displacement $in^3$ 69.0 4210 69.0 4210 86.0 5266 86.0 5266 1500 1500 1500 1500 Speed rpm Length 1) 4906 6316 mm 4906 193 193 6316 249 249 85 72 72 Width 1) 85 2155 1828 1828 mm 2155 Height 1) 2051 81 2072 82 2254 89 2254 89 mm in Dry weight genset kg lb 17,824 39,303 17,778 39,200 17,826 39,306 17,826 39,306 **PERFORMANCE** UNITS **G3516A** G3516A+ G3520C G3520C Emission setting (NO<sub>x</sub>)\* $mg/m_n^3$ g/bhp-h 500 1 500 1 500 500 Electrical power<sup>2)</sup> $kW_{el}$ 1041 1105 1984 1991 180 274 18.9 274 Mean effective pressure bar 12.4 13.2 191 18.9 psi $kW_{th}$ 88,475 118,004 154,521 Thermal output 3) Btu/m 1,556 1,245 70,803 2,075 2,717 Electrical efficiency 2) % 32.1% 36.8% 39.1% 40.1% Thermal efficiency 3) % 41.5% 41.4% 47.0% 46.3% **Total efficiency** % 80.5% 79.1% 78.3% 86.4% Cat Ref. # 516GE87 / DM0761-03 DTO / S02-35-03 520GE37 / DM8647-04 520GE2M / EM0117-04

60HZ PRODUCT PERFOR	MANCE: L	OW ENER	RGY FUEL								
PHYSICAL DATA	UNITS		G3!	i16A	G35	16A+	G35	20C	G3520C		
Bore / Stroke	mm in		170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	
Displacement	I	in³	69.0	4210	69.0	4210	86.0	5266	86.0	5266	
Speed	rţ	om	12	200	12	200	12	00	1500		
Length <sup>1)</sup>	mm	in	4320	170	4913	193	6322	249	7557	298	
Width 1)	mm	in	2284	90	1736	68	1803	71	2170	85	
Height 1)	mm	in	1940	76	1940	76	2465	97	3212	126	
Dry weight genset	kg	lb	12,549	27,670	12,549	27,670	17,339	38,232	22,425	49,447	
PERFORMANCE	UN	IITS	G3!	516A	G35	16A+	G3520C		G35	<b>20C</b>	
Emission setting $(NO_x)^*$	mg/m <sub>n</sub> <sup>3</sup>	g/bhp-h	787	2	500	1	439	1	500	1	
Electrical power 2)	k\	N <sub>el</sub>	8	24	10	115	16	22	19	963	
Mean effective pressure	bar	psi	12.4	180	15.2	221	19.4	281	18.9	274	
Thermal output 3)	kW <sub>th</sub>	Btu/m	1,266	71,985	1,145	65,125	1,315	86,839	5,192	295,262	
Electrical efficiency 2)	(	%	31.0%		36	1%	39.	7%	38.7%		
Thermal efficiency 3)	(	%	47	.6%	39	9%	38.	1%	41.4%		
Total efficiency	(	%	78	.6%	76	0%	77.	8%	80.1%		
Cat Ref. #			516GE71 /	DM5480-00	DTO / WG1	2-3500-9(02)	520GE38/E	M5859-06	DTO/Contact ASC		

Low energy fuels (landfill gas, sewage gas, digester gas, coal mine methane) assumed to meet published engine-in contaminant limits with minimum heating value (LHV) = 18.0 MJ/m $_a$ <sup>3</sup> (457 Btu/scf). Natual gas fuels assumed to be mostly methane with a lower heating value (LHV) =  $35.6 \text{ MJ/m}_n^3$  (905 Btu/scf). Specifications for special gases are available.

STANDBY								
PHYSICAL DATA	UN	IITS	G35	16C	G3512			
Bore / Stroke	mm	in	170/215	6.7 / 7.5	170/190	6.7 / 7.5		
Displacement	I	in³	690.0	4,210	52	3,173		
Speed	rį	om	1,8	800	1,800			
Length <sup>1)</sup>	mm	in	5,553	219	5,224	205.7		
Width 1)	mm	in	1,828	72	2,286	90		
Height <sup>1)</sup>	mm	in	2,340	92	2,525	99.4		
Dry weight genset	kg	lb	14,161	31,226	12,500	27,500		
PERFORMANCE	UN	IITS	G35	16C	G3512			
Emission setting $(NO_x)^*$	mg/m <sub>n</sub> <sup>3</sup>	g/bhp-h	449	1	EPA C	ertified		
Electrical power	k۱	$N_{ m el}$	15	00	7!	50		
Mean effective pressure	bar	psi	15.7	227	10.6	154		
Thermal output 3)	$kW_{th}$	Btu/m	2,005	114,023	1,025	58,290		
Electrical efficiency	(	%	36.	1%	33.	4%		
Thermal efficiency 3)	(	%	48.	3%	49.9%			
Total efficiency	(	%	84.	4%	83.3%			

DTO / EM0752-02

EM1508

STANDBY								
PHYSICAL DATA	UN	IITS	G3!	512	G3412C			
Bore / Stroke	mm	in	170/190	6.7 / 7.5	137/152	5.4 / 6.0		
Displacement	I	in³	52	3,173	27	1,649		
Speed	rį	om	1,8	800	1,8	800		
Length 1)	mm	in	5,224	205.7	4,140.2	163		
Width 1)	mm	in	2,286	90	2,057.4	81		
Height <sup>1)</sup>	mm	in	2,525	99.4	2,616.2	103		
Dry weight genset	kg	lb	12,500	27,500	6,412.8	14,140		
			_		_			
PERFORMANCE	UN	IITS	G3!	512	G34	12C		
Emission setting $(NO_x)^*$	mg/m <sub>n</sub> <sup>3</sup>	g/bhp-h	EPA Ce	ertified	851	2		
Electrical power	k۱	$N_{ m el}$	1,0	000	50	00		
Mean effective pressure	bar	psi	14	204	13.9	201		
Thermal output 3)	$kW_{th}$	Btu/m	1,246	70,877	605	58,011		
Electrical efficiency	(	%	35.	1%	32.	4%		
Thermal efficiency 3)	(	%	49.	0%	43.	5%		
Total efficiency	(	%	84.	1%	75.	9%		
Cat Ref. #			EM1	506	EMO	)746		

All standby ratings information above are at 1.0 power factor

Cat Ref. #

<sup>1)</sup> Transport dimensions of genset only. Accessory components must be taken into account separately.
2) Series (A, B, C-60Hz, C-50Hz-low energy fuel) include losses for engine-mounted JW & AC pumps.

In accordance with ISO 3046/1 using standard low voltage (medium voltage for > 2000kW) generator at PF=1.0. Assumes methane number of MN80 for natural gas, MN 130 for low energy fuel.

<sup>3)</sup> In accordance with nominal tolerances. Calculated as exhaust gas heat cooled (to 120°C) plus engine jacket water circuit heat.

\* NO<sub>x</sub> emissions as NO<sub>2</sub> dry exhaust gas @ 5% O<sub>2</sub> with 54°C (130°F) SCAC inlet temperature [48°C (118°F) for H Series]. <500 mg/m<sub>n</sub><sup>3</sup> (1.0g/bhp-h) NO<sub>x</sub> performance available via engine setting for lean burn engines or via 3-way catalyst for rich burn engines. Ultra-low NO<sub>x</sub> options available via SCR catalyst.

Data is representative and non-binding. Contact your Cat dealer for generator set, site and fuel-specific performance.

50HZ PRODUCT PE	50HZ PRODUCT PERFORMANCE: NATURAL GAS																					
PHYSICAL DATA	UN	NITS	G35	16A	G35	G3512E		G3512E		G3512H		G3516C		G3516E		G3520C		G3520E		G3516H		20H
Bore / Stroke	mm	in	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 215	6.7 / 8.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 215	6.7 / 8.5	170 / 215	6.7 / 8.5
Displacement	I	in³	69.0	4210	52.0	3158	52.0	3158	59	3574	69.0	4210	69.0	4210	86.0	5266	86.0	5248	78.0	4765	97.5	5956
Speed	r	pm	15	00	1500		1500		1500		1500		1500		1500		1500		1500		1500	
Length 1)	mm	in	4909	193	4625	182	4594	181	5536	218	5553	219	5523	217	6259	246	6893	271	5979	235	6411	252
Width 1)	mm	in	2197	86	1828	72	1647	65	1952	77	1828	72	1828	72	1828	72	2001	79	1921	76	2218	87
Height <sup>1)</sup>	mm	in	2015	79	2255	89	2255	89	2308	91	2340	92	2340	92	2254	89	2727	107	2307	91	2413	95
Dry weight genset	kg	lb	12,384	27,306	11,347	25,021	12,460	27,475	14,100	31,085	14,161	31,226	13,366	29,472	17,826	39,306	17,826	39,306	16,397	36,156	22,300	49,163
PERFORMANCE	UN	NITS	G35	16A	G3512E		G3512E		G3512H		G3516C		G3516E		<b>G</b> 3	520C	G3!	520E	G35	G3520H		20H
Emission setting (NO <sub>x</sub> )*	mg/m <sub>n</sub> ³	g/bhp-h	834	2	500	1	500	1	500	1	500	1	500	1	500	1	500	1	500	1	500	1
Electrical power 2)	k	$W_{el}$	98	33	10	16	12	<u>!</u> 11	15	1515 1603			1603		1991		2022		2027		2519	
Mean effective pressure	bar	psi	11.7	170	16.2	235	19.2	279	21	309	19.2	279	19.2	278	19.2	278	19.5	283	21.3	309	21.0	305
Thermal output 3)	kW <sub>th</sub>	Btu/m	1,392	79,169	1,053	59,883	1,226	69,722	1,464	83,262	1,828	103,957	1,634	92,924	2,256	128,297	2,169	123,349	1,902	108,165	2,358	134,098
Electrical efficiency 2)		%	34.8	8%	41.4	4%	42.	42.2%		90%	40.	0%	41.	6%	40	.1%	41.5%		44.	7%	45.3	3%
Thermal efficiency 3)		%	48.3	3%	44.	7%	44.	2%	42.1	10%	46.	5%	44.4%		46.3%		45.3%		41.8%		41.0%	
Total efficiency		%	83.	1%	86.	1%	86.	4%	87.0	00%			86.	0%	86.4%		86.8%		86.5%		86.3%	
Cat Ref. #			516GE88 / I	DM5158-02	512GE17 / [	OM8801-06	512GE18 /	DM8811-07	512GE40 /	EM1180-02	516GE24 /	DM8678-05	516GE48 / I	DM5790-04	520GE87/88	/ EM0114-04	520GE62 ,	/ DM89211	516G1H / E	EM0500-02	520GE1Q / I	EM0900-00

Cat Ref. #			516GE88 /	JIVI5158-02	512GE17 /	DM8801-06	512GE18 / DM8811-07 512GE40 / EM1180-02		516GE24 / DM8678-05		516GE48 / DM5790-04		520GE87/88 / EM0114-04		520GE62 / DM89211			
60HZ PRODUCT PE	KFUKN	IANCE:	NAIUK	AL GA	5													
PHYSICAL DATA	UN	IITS	G35	G3516A		16A	G3516B		G3520C		G3516C		G35	16H	G3520C		G3520H	
Bore / Stroke	mm	in	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 190	6.7 / 7.5	170 / 215	6.7 / 8.5	170 / 190	6.7 / 7.5	170 / 215	6.7 / 8.5
Displacement	l	in³	78.0	4210	69.0	4210	69.0	4210	86.0	5266	69.0	4210	78.0	4765	86.0	5270	97.5	5956
Speed	rı	om	12	00	12	:00	18	800	12	:00	18	00	1500		1800		15	500
Length 1)	mm	in	3280	129	4913	193	4203	165	6312	249	5518	217	7395	291	6367	251	7668	302
Width 1)	mm	in	1712	67	1736	68	2155	85	1830	72	1830	72	2139	84	1997	79	2173	86
Height 1)	mm	in	1860	73	1940	76	2419	95	2340	92	2340	92	2402	95	2340	92	2473	97
Dry weight genset	kg	lb	12,549	27,670	12,549	27,670	12,618	27,823	17,339	38,232	13,748	30,315	18,315	40,384	17,215	37,959	24,800	54,675
PERFORMANCE	UN	IITS	G35	16 <b>A</b>	G35	16A	G3516B		G3520C		G3516C		G35	16H	G35	20C	G35	520H
Emission setting (NO <sub>x</sub> )*	mg/m <sub>n</sub> ³	g/bhp-h	9791	24	844	2	407	1	500	1	443	1	500	1	446	1	500	1
Electrical power 2)	k۱	W <sub>el</sub>	7!	55	7	79	13	300	16	26	16	75	20	05	20	82	25	500
Mean effective pressure	bar	psi	11.7	170	11.7	170	13.0	189	19.4	282	16.6	241	21.3	309	16.6	241	21.0	305
Thermal output 3)	kW <sub>th</sub>	Btu/m	1,146	65,178	1,087	61,819	1,830	104,071	1,765	100,374	2,139	121,643	1,037	58,973	2,662	151,386	2,358	134,098
Electrical efficiency 2)	(	%	33.	9%	35.	0%	35.	6%	40.	3%	37.	7%	44.	4%	38.	2%	45.	.0%
Thermal efficiency 3)	(	%	51.	7%	48.	8%	50.	2%	45.	2%	48.4%		41.7%		49.4%		41.0%	
Total efficiency	(	%	85.	6%	83.	8%	85.	8%	85.5% 86.1%		86.1%		87.6%		86.0%			
Cat Ref. #			516GE67/[	M5663-02	516GE68 /	DM0739-00	516GE86 /	DM5645-03	520GE34 /	DM5855-04	516GE75 /	DM5784-04	516GE1S / EM0508-00		520GE10 / EM0080-03		520GE1Y / EM0912-01	

Low energy fuels (landfill gas, sewage gas, digester gas, coal mine methane) assumed to meet published engine-in contaminant limits with minimum heating value (LHV) = 18.0 MJ/m<sub>n</sub><sup>3</sup> (457 Btu/scf). Natual gas fuels assumed to be mostly methane with a lower heating value (LHV) = 35.6 MJ/m<sub>n</sub><sup>3</sup> (905 Btu/scf). Specifications for special gases are available.

Data is representative and non-binding. Contact your Cat dealer for generator set, site and fuel-specific performance.

Notes
1) Transport dimensions of genset only. Accessory components must be taken into account separately.
2) Series (A, B, C-60Hz, C-50Hz-low energy fuel) include losses for engine-mounted JW & AC mechanical coolant pumps. Series (C-50Hz-Natural Gas, E & H) exicude engine-mounted JW & AC pumps. In accordance with ISO 3046/1 using standard low voltage (medium voltage for > 2000kW) generator at PF=1.0. Assumes methane number of MN80 for natural gas, MN 130 for low energy fuel.
3) In accordance with nominal tolerances. Calculated as exhaust gas heat cooled (to 120°C) plus engine jacket water circuit heat.
4 NO, emissions as NO, dry exhaust gas @5% 0, with 54°C (130°F) SCAC inlet temperature [48°C (118°F) for H Series]. <500 mg/m<sub>n</sub><sup>3</sup> (1.0g/bhp-h) NO, performance available via engine setting for lean burn engines or via 3-way catalyst for rich burn engines. Ultra-low NO, options available via SCR catalyst.



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For more information and to contact your local Cat dealer, visit catgaspower.com



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