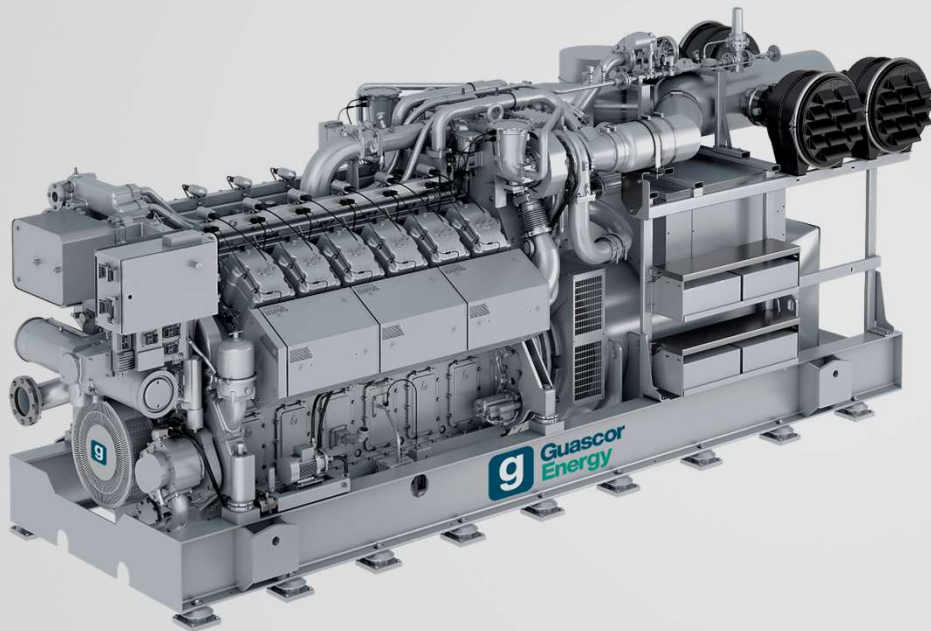


# EM 2MW-Class Gas Engines & Gensets

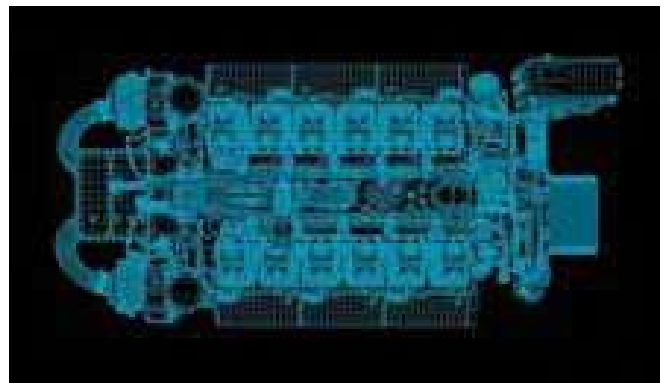
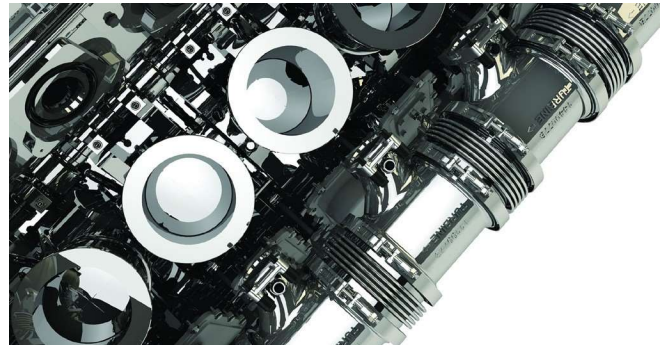
E-Series Engines



## The new best-in-class solution for more efficient power generation.

In the past, when it came to choosing a 2 MW-class engine, your options were limited. Now, there's a powerful new choice available that delivers the highest electrical efficiency in the smallest footprint: the new G-EM gas engines from Guascor Energy.

- Unique high-volume 12-cylinder design delivers highest displacement
- 90,000 hours until overhaul
- Innovative pre-combustion chambers provide efficient and stable combustion
- Spark-ignited lean-burn unit ensures low emissions
- Fast cycle times and implementation
- Smallest footprint in the competitive set
- Lowest emission version available 200 mg NOx



G-	86EM	100EM
RPM	1,500	1,200
CYLINDER ARRANGEMENT	100	75
DISPLACEMENT	86 liters	100 liters
BORE	195 mm	195 mm
STROKE	240 mm	280 mm
COMPRESSION RATIO	13.5:1	13.5:1

G-	86EM	100EM
BMEP*	19.2 bar	20.7 bar
MECHANICAL POWER	2,065 kWb	2,065 kWb
ELECTRICAL POWER	2,013 kW <sub>e</sub>	2,007 kW <sub>e</sub>
MECHANICAL EFFICIENCY	46.9%	46.7%
ELECTRICAL EFFICIENCY	45.7%	45.4%
GLOBAL EFFICIENCY	92,6%	92%

# The new best-in-class solution with the highest electrical efficiency.

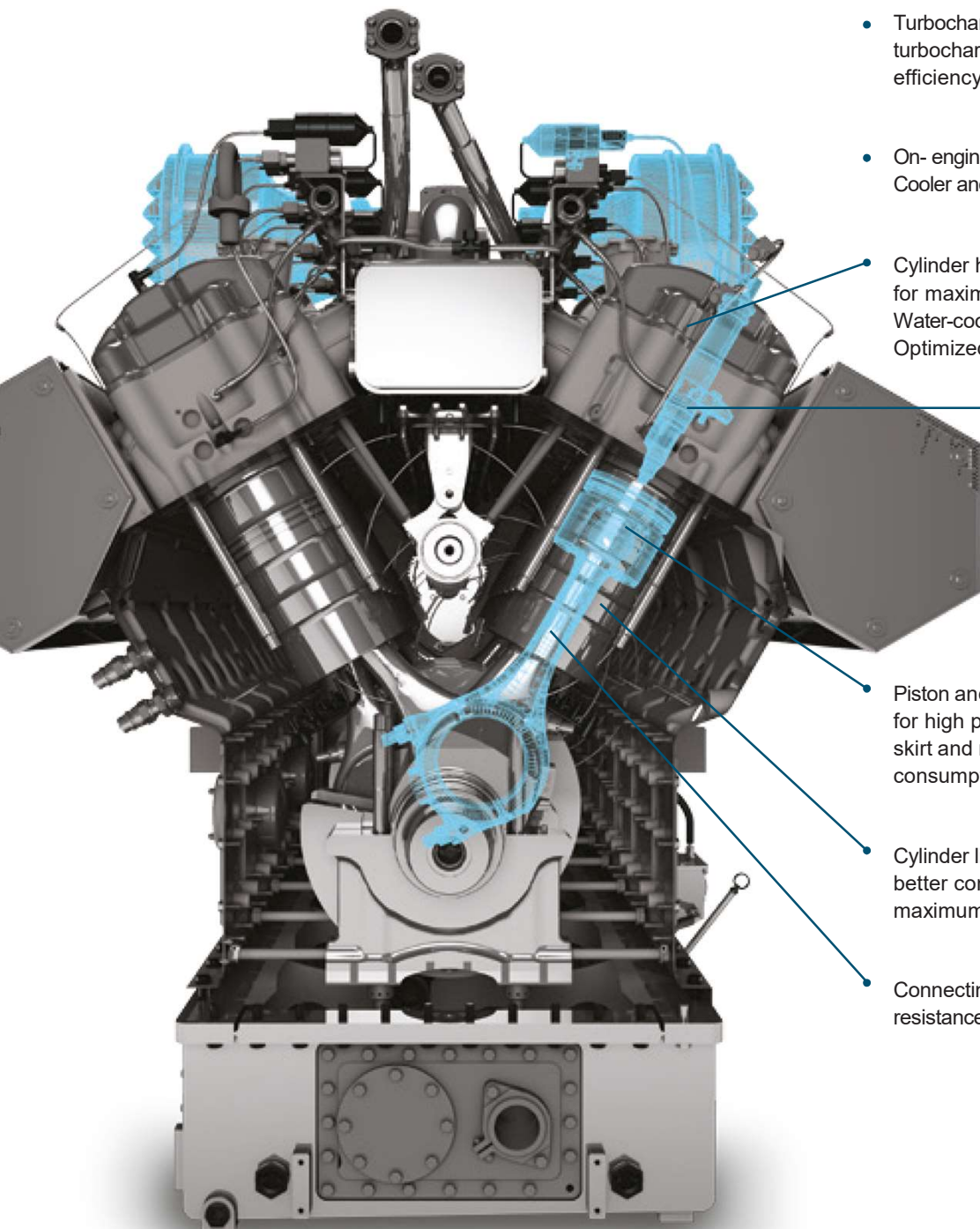
*Our new 2 MW-class G-EM gas engines represent a new competitive choice*

*with the highest electrical efficiency and displacement in its category. All this power*

*and efficiency is available in the smallest footprint with industry-leading cycle times.*

## Innovative design and combustion technology.

To learn more about the new G-EM Gas Engines from Guascor Energy, visit [guascor-energy.com](http://guascor-energy.com)



- Charge cooler—Two-stage charge cooler for increased engine performance.
- Turbochargers—High-efficiency turbochargers allow high engine efficiency. Water cooled for longer life.
- On- engine integrated and accessible Oil Cooler and Oil Pump
- Cylinder head—Minimum pressure losses for maximum volumetric efficiency. Water-cooled exhaust valve seats. Optimized cooling galleries.
- Pre-combustion chamber—Direct gas injection. Designed for best mixture distribution, allowing high engine efficiency with low emissions. Nickel-chromium superalloy material for high temperature resistance.
- Piston and rings pack—Forged steel piston for high peak combustion pressures, with skirt and rings design for best oil consumption control.
- Cylinder liner—Optimized cooled area for better combustion efficiency and maximum energy transfer to powertrain.
- Connecting rod—Low mass and high resistance for better dynamic behavior.



**Published by  
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	GROUP	GAS	PRODUCT INFORMATION	INDEX
	IC		IC-G-B-100-005	C
	POWER RATING			DATE 21/01/2020

<b>GENSET:</b>	<b>G-100EM</b>	<b>SPEED:</b>	<b>1200</b>
JACKET WATER TEMPERATURE (°F):	194	<b>FUEL TYPE:</b>	<b>NATURAL GAS</b>
INTERCOOLER WATER TEMP (°F)	104		

APPLICATION	<b>CONTINUOUS</b>	COMPRESSION RATIO:	<b>13,5:1</b>
COOLING SYSTEM:	<b>HIGH EFFICIENCY CIRCUIT + AUX. TWO STAGE IC / Oilcooler in main circuit</b>	REGULATION:	<b>Electronic</b>
EXHAUST MANIFOLD TYPE:	<b>DRY</b>	IGNITION TIMING:	<b>13°</b>
EMISSIONS:		MAX. BACK PRESSURE:	<b>18 "H2O (450 mmH2O)</b>
		AMBIENT CONDITIONS ISO 3046/1:	
	NOX g/bHP	1	Atmospheric pressure ("Hg/(Kpa))= <b>30 (100)</b>
	CO g/bHP	<1.5	Ambient temperature (°F)= <b>77 (25)</b>
	NMHC g/bHP	<0.5	Relative humidity (%)= <b>30</b>
	CH4 g/bHP	<1.8	
	CO2 lb/h	<b>1951</b>	

POWER RATING (4)			NOMINAL	PARTIAL LOADS		
LOAD		%	100%	80%	60%	40%
MECHANICAL POWER (3,4,5)	BHP (KWb)		2769 (2065)	2215 (1652)	1662 (1239)	1108 (826)
BMEP	psi (bar)		300 (20,7)	239 (16,5)	180 (12,4)	120 (8,3)
ELECTRICAL POWER (cosφ 1)	kWe		2007	1605	1199	791
ELECTRICAL POWER (cosφ 0,8)	kWe		1989	1591	1191	787
FUEL CONSUMPTION (1)	BTU/bHP-hr (KW)		5451 (4423)	5558 (3608)	5695 (2774)	6064 (1969)
MECHANICAL EFFICIENCY	%		46,7	45,8	44,7	42,0
ELECTRICAL EFFICIENCY (COSφ 1)	%		45,4	44,5	43,2	40,2
HEAT IN MAIN WATER CIRCUIT (1)	BTU/min (KW)		52660 (926)	38900 (684)	31110 (547)	22750 (400)
HEAT IN SECONDARY WATER CIRCUIT (1)	BTU/min (KW)		8758 (154)	7052 (124)	5459 (96)	3640 (64)
HEAT IN CHARGE COOLER (1)	BTU/min (KW)		8758 (154)	7052 (124)	5459 (96)	3640 (64)
HEAT IN OIL COOLER (1)	BTU/min (KW)		*** (***)	*** (***)	*** (***)	*** (***)
HEAT IN EXHAUST GASES (77 °F/25 °C) (1)	BTU/min (KW)		65570 (1153)	59090 (1039)	46690 (821)	36000 (633)
HEAT IN EXHAUST GASES (80°C) (1)	BTU/min (KW)		55820 (982)	51000 (897)	40620 (714)	31820 (559)
EXHAUST GAS TEMPERATURE (1)	°F (°C)		743 (395)	801 (427)	837 (447)	925 (496)
HEAT TO RADIATION (1)	BTU/min (KW)		7109 (125)	6199 (109)	4038 (71)	2616 (46)

CARBURETION SETTINGS (2)						
O2 TO EXHAUST(DRY)(ONLY A REFERENCE)	%		10,4	10,2	10	9,5

MASS FLOWS						
INTAKE AIR FLOW (1)	lb/h (Kg/h)		20770 (9420)	17230 (7820)	12970 (5880)	8950 (4060)
EXHAUST GAS FLOW (WET) (1)	lb/h (Kg/h)		21480 (9740)	17810 (8080)	13420 (6080)	9270 (4200)

**NOTES**

- ALL VALUES ASUME LHV OF THE GAS. 100% LOAD TOLERANCES:  
FUEL CONSUMPTION +5%,  
COOLING CIRCUIT AND EXHAUST GASES ± 8%, RADIATION ±25%  
EXHAUST TEMPERATURE ±20°C, MASS FLOWS ± 10% (ALSO FOR CO2 FLOW IN EXHAUST).
- THE ENGINE PERFORMANCE DATA, TIMING ADVANCE AND CARBURETION SETTINGS ARE VALID FOR A GAS OF METHANE NUMBER >80 THAT FULFILS THE REQUIREMENTS DEFINED IN IC-G-D-30-001e AND IC-G-D-30-002e
- POWER DOESN'T INCLUDE MECHANICAL PUMPS.
- POWERS ARE VALID FOR AMBIENT TEMP. =77°F (25°C) AND AN ALTITUDE OF =1640 ft (500 m). SEE OTHER CONDITIONS IN PI IC-G-B-00-029
- OVERLOAD NOT ALLOWED. IT IS NOT RECOMMENDED TO OPERATE BELOW 40% LOAD FOR EXTENDED PERIODS.
- THE SPECIFICATIONS AND MATERIALS ARE SUBJECT TO CHANGE WITHOUT NOTIFICATION
- AN ENGINE WITH INLET OR OUTPUT RESTRICTION OVER PUBLISHED LIMITS, OR WITH INADEQUATE MAINTENANCE OR INSTALLATION CAN MODIFY POWER RATING DATA.
- EMISSIONS ACCORDING TO D1 CYCLE IS 8178-4.
- ALTERNATOR VOLTAGE 480 V

13. GAS FLOW RANGE IN PRECHAMBER 0.4 ÷ 1% OF TOTAL GAS FLOW  
In case of catalyst definition it must be considered that for powers lower than 40%, higher exhaust temperatures can be given than those indicated.