

# GAS GENERATOR SET PRODUCT RATINGS SUMMARY

## 60Hz GAS GENERATOR SET RATINGS

### Biogas, Landfill Gas, Sewage Gas <sup>1)</sup>

Model	rpm	Emission Level (No <sub>x</sub> ) <sup>2)</sup>		Aftercooler Temperature		Electric Power <sup>3)</sup> @ 1.0 pf kW <sub>e</sub>	Efficiency <sup>4)</sup>		
		mg/Nm <sup>3</sup>	g/bhp-hr	°C	°F		Electrical Efficiency	Thermal Efficiency	Total Efficiency
							%	%	%
G3306	1800	6055	17.3	-	-	76	26.7	62.4	89.1
G3406	1800	7613	21.0	-	-	137	27.7	61.1	88.8
G3412	1800	7051	16.4	-	-	194	26.5	62.9	89.4
CG132-8	1800	500	1.0	40	104	400	41.6	43.2	84.8
G3508	1200	859	2.0	54	130	408	32.2	45.8	78.0
CG132-12	1800	500	1.0	40	104	600	41.4	43.7	85.1
G3512	1200	759	2.0	54	130	615	29.6	48.1	77.7
CG132-16	1800	500	1.0	40	104	800	41.7	43.3	85.0
G3516	1200	787	2.0	54	130	824	31.0	47.6	78.6
G3516A+	1200	500	1.0	54	130	1015	36.1	39.9	76.0
CG170-12	1500	500	1.0	50	122	1200	41.8	43.8	85.6
CG170-16	1500	500	1.0	50	122	1560	41.4	43.9	85.3
G3520C	1200	439	1.0	54	130	1622	39.7	38.1	77.8
G3520C	1500	500	1.0	54	130	1963	39.1	41.4	80.5
CG170-20	1500	500	1.0	50	122	2000	42.6	43.3	85.9
CG260-16	900	500	1.0	40	104	3510	43.1	39.1	82.2

### Natural Gas <sup>1)</sup>

Model	rpm	Emission Level (No <sub>x</sub> ) <sup>2)</sup>		Aftercooler Temperature		Electric Power <sup>3)</sup> @ 1.0 pf kW <sub>e</sub>	Efficiency <sup>4)</sup>		
		mg/Nm <sup>3</sup>	g/bhp-hr	°C	°F		Electrical Efficiency	Thermal Efficiency	Total Efficiency
							%	%	%
G3306	1800	6785	16.0	-	-	104	31.7	59.6	91.3
G3306	1800	7317	18.8	54	130	143	31.5	64.0	95.5
G3406	1800	9176	21.6	-	-	155	30.1	57.3	87.4
G3406	1800	8269	19.7	54	130	217	33.5	52.9	86.4
G3412	1800	8566	22.1	-	-	253	30.3	60.9	91.2
CG132-8	1800	500	1.0	40	104	400	41.4	46.0	87.4
G3412	1800	10624	25.7	54	130	403	33.4	54.3	87.7
G3412C	1800	800	1.9	54	130	453	35.3	47.1	82.4
CG132-12	1800	500	1.0	40	104	600	41.3	46.5	87.8
G3516	1200	9791	24.0	54	130	755	33.0	49.1	82.1
G3516	1200	844	2.0	54	130	779	35.0	48.8	83.7
CG132-16	1800	500	1.0	40	104	800	41.6	46.1	87.7
CG170-12 (K)	1500	500	1.0	40	104	1125	40.7	45.6	86.3
CG170-12	1500	500	1.0	40	104	1200	43.4	43.2	86.6
G3516B	1800	407	1.0	54	130	1300	35.6	50.2	85.8
CG170-16 (K)	1500	500	1.0	40	104	1500	40.6	45.7	86.3
CG170-16	1500	500	1.0	40	104	1560	43.1	43.6	86.7
G3520C	1200	500	1.0	54	130	1626	40.3	45.2	85.5
G3516C	1800	443	1.0	54	130	1675	37.7	48.4	86.1
CG170-20	1500	500	1.0	38	100	2000	43.4	43.2	86.6
G3516H	1500	500	1.0	48	119	2005	44.7	41.8	86.5
G3520C	1800	446	1.0	54	130	2082	38.2	49.4	87.6
G3520H	1500	500	1.0	48	119	2500	45.4	41.0	86.4
CG260-12	900	500	1.0	40	104	3000	43.9	42.2	86.1
CG260-16	900	500	1.0	40	104	4000	43.8	42.4	86.2

# GAS GENERATOR SET PRODUCT RATINGS SUMMARY

## 50Hz GAS GENERATOR SET RATINGS

Biogas <sup>1)</sup>									
Model	rpm	Emission Level (No <sub>x</sub> ) <sup>2)</sup>		Aftercooler Temperature		Electric Power <sup>3)</sup> @ 1.0 pf	Efficiency <sup>4)</sup>		
		mg/Nm <sup>3</sup>	g/bhp-hr	°C	°F		Electrical Efficiency	Thermal Efficiency	Total Efficiency
						%	%	%	
G3306	1500	6055	16.9	-	-	68	27.9	61.5	89.4
G3406	1500	7613	21.0	-	-	107	28.8	60.7	89.5
G3412	1500	7051	19.9	-	-	174	27.4	62.0	89.4
CG132-8	1500	500	1.0	40	104	400	42.8	42.1	84.9
CG132-12	1500	500	1.0	40	104	600	42.7	42.3	85.0
CG132-16	1500	500	1.0	40	104	800	42.8	42.3	85.1
G3516A	1500	500	1.0	54	130	1041	32.1	47.0	79.1
G3516A+	1500	500	1.0	54	130	1105	36.8	41.5	78.3
CG170-12	1500	500	1.0	50	122	1200	42.0	43.8	85.8
CG170-16	1500	500	1.0	50	122	1560	41.7	43.9	85.6
G3520C	1500	500	1.0	54	130	1984	39.4	41.4	80.5
CG170-20	1500	500	1.0	50	122	2000	42.9	43.3	86.2
CG260-16	1000	500	1.0	40	104	3770	42.8	39.5	82.3

Natural Gas <sup>1)</sup>									
Model	rpm	Emission Level (No <sub>x</sub> ) <sup>2)</sup>		Aftercooler Temperature		Electric Power <sup>3)</sup> @ 1.0 pf	Efficiency <sup>4)</sup>		
		mg/Nm <sup>3</sup>	g/bhp-hr	°C	°F		Electrical Efficiency	Thermal Efficiency	Total Efficiency
						%	%	%	
G3306	1500	10607	26.2	-	-	86	31.9	57.5	89.5
G3306	1500	10193	25.6	54	130	115	31.0	55.8	86.7
G3406	1500	11293	27.5	-	-	126	31.9	57.5	89.4
G3406	1500	9986	25.0	54	130	166	32.2	50.2	82.4
G3412C	1500	846	2.0	54	130	374	33.7	50.4	84.1
CG132-8	1500	500	1.0	40	104	400	42.3	45.2	87.5
CG132-12	1500	500	1.0	40	104	600	42.0	45.8	87.8
CG132-16	1500	500	1.0	40	104	800	42.3	45.2	87.5
G3516	1500	834	2.0	54	130	983	34.8	48.3	83.0
G3512E	1500	500	1.0	54	130	1016	41.4	44.7	86.7
G3516B	1500	500	1.0	54	130	1068	37.1	47.8	84.9
CG170-12 (K)	1500	500	1.0	40	104	1125	40.9	45.6	86.5
CG170-12	1500	500	1.0	40	104	1200	43.6	43.3	86.9
G3512E	1500	500	1.0	54	130	1211	42.2	44.2	86.4
CG170-16 (K)	1500	500	1.0	40	104	1500	40.9	45.7	86.6
CG170-16	1500	500	1.0	40	104	1560	43.2	43.8	87.0
G3516E	1500	500	1.0	54	130	1603	41.6	44.4	86.0
G3516C	1500	500	1.0	54	130	1603	40.0	46.5	86.5
G3520C	1500	500	1.0	54	130	1991	40.1	46.3	86.4
CG170-20	1500	500	1.0	40	104	2000	43.7	43.2	86.9
G3516H	1500	500	1.0	48	118	2027	44.7	41.8	86.5
G3520E	1500	500	1.0	54	130	2022	41.5	45.3	86.8
G3520H	1500	500	1.0	48	119	2519	45.4	40.9	86.3
CG260-12	1000	500	1.0	40	104	3333	43.9	42.6	86.5
CG260-16	1000	500	1.0	40	104	4300	44.1	42.7	86.8

<sup>1)</sup> Bio Gases at LHV = 18.0-23.3MJ/Nm<sup>3</sup> (457 to 593 Btu/cu.ft); MN=130-134. Natural Gas at 34.56 MJ/Nm<sup>3</sup> (905Btu/cu.ft); MN = 80 (70 for 50Hz CG series).

<sup>2)</sup> Emissions are based on the engine operating at steady state conditions and adjusted to the specified NO<sub>x</sub> level at 100% load.

Values are engine out without exhaust aftertreatment and subject to nominal tolerance based on fuel, site and operating conditions.

<sup>3)</sup> Power output based on ISO3046/1 conditions.

<sup>4)</sup> Electrical efficiency based on 1.0 pf, ISO 3046/1. Thermal efficiency based on nominal tolerance (+/- 8% for CG line, +/- 10% for AvaG3300/3400/3500 line).

Thermal efficiency includes heat rejection from jacket water circuit and exhaust gas at LHV to 120°C (CG series using BioGas: 150°C for CG 132/170, 180°C for CG 260).