



# Gas

Speed	1,200/1,500/1,800 rpm
Generator frequency	50/60 Hz
Applicable gas types <sup>2)</sup>	Natural gas, biogas, landfill gas, sewage gas, flare gas, other special gases
Minimum methane number <sup>1)</sup>	75

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Minimum methane number <sup>1)</sup>	75

Engine Parameters	English Units	Metric Units	SFGLD 180			SFGLD 240		
			1,200	1,500	1,800	1,200	1,500	1,800
Speed	rpm		1,200	1,500	1,800	1,200	1,500	1,800
Engine power <sup>2)</sup>	bhp	kWb	338 (252)	422 (315)	469 (350)	449 (335)	562 (419)	607 (453)
Cylinder arrangement			In Line 6			In Line 8		
Mean effective pressure	psi	bar	203 (14.0)	203 (14.0)	188 (13.0)	203 (14.0)	203 (14.0)	183 (12.6)
Bore	inch	mm	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)
Stroke	inch	mm	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)
Displacement	cu.in	Litres	1,095 (18.0)	1,095 (18.0)	1,095 (18.0)	1,460 (24.0)	1,460 (24.0)	1,460 (24.0)
Mean piston speed	in/s	m/s	260 (6.6)	325 (8.3)	390 (9.9)	260 (6.6)	325 (8.3)	390 (9.9)
Compression ratio			11.6:1			11.6:1		
Combustion air mass flow <sup>2)</sup>	lbs/hr	kg/h	2,813 (1,276)	3,486 (1,581)	3,869 (1,755)	3,497 (1,586)	4,581 (2,078)	4,581 (2,078)
Packaged ventilation air flow <sup>3)</sup>	scfm	m <sup>3</sup> /h	10,383 (17,640)	12,978 (22,050)	14,420 (24,500)	13,802 (23,450)	17,263 (29,330)	18,664 (31,710)
Engine coolant capacity <sup>4)</sup>	gal.	Litres	13 (50)	13 (50)	13 (50)	16 (60)	16 (60)	16 (60)
Lube oil capacity <sup>4)</sup>	gal.	Litres	19 (70)	19 (70)	19 (70)	25 (95)	25 (95)	25 (95)
Lube oil consumption <sup>5)</sup>	lbs/bhp.hr	g/kWh	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)
<b>Energy Balance</b>								
Generator efficiency <sup>6)</sup>	%	%	96.1	96.4	96.1	96.2	96.6	96.2
Electrical power <sup>6) 7)</sup>	kWe	kW	242	304	336	322	405	436
Jacket (HT) water heat	Btu x 1,000/hr	kW	495.1 (145)	652.2 (191)	689.7 (202)	764.8 (224)	904.8 (265)	1,089.2 (319)
Oil (HT) cooler water heat	Btu x 1,000/hr	kW	116.1 (34)	116.1 (34)	126.3 (37)	140.0 (41)	157.1 (46)	181.0 (53)
Intercooler (LT) water heat	Btu x 1,000/hr	kW	129.7 (38)	136.6 (40)	215.1 (63)	153.6 (45)	204.9 (60)	235.6 (69)
Exhaust heat – cooled to 120 °C	Btu x 1,000/hr	kW	331.2 (97)	450.7 (132)	566.8 (166)	495.1 (145)	604.4 (177)	710.2 (208)
Engine radiation heat	Btu x 1,000/hr	kW	37.6 (11)	54.6 (16)	54.6 (16)	51.2 (15)	71.7 (21)	71.7 (21)
Generator radiation heat	Btu x 1,000/hr	kW	33.6 (10)	38.7 (11)	46.6 (14)	43.5 (13)	48.6 (14)	58.8 (17)
Fuel consumption	Btu x 1,000/hr	kW	2,106.7 (617)	2,656.4 (778)	3,035.4 (889)	2,919.3 (855)	3,595.4 (1,053)	4,059.7 (1,189)
Mechanical efficiency	%		40.8	40.5	39.4	39.2	39.8	38.1
Electrical efficiency	%		39.2	39.0	37.8	37.7	38.4	36.7
Thermal efficiency	%		45.4	46.7	48.5	48.4	47.7	50.1
Total efficiency	%		84.6	85.7	86.3	86.1	86.1	86.8
<b>System Parameters</b>								
Jacket (HT) water temperature max.	°F	°C	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)
Jacket (HT) water flow rate min.	gpm	L/hr	88 (20)	110 (25)	132 (30)	110 (25)	132 (30)	176 (40)
Intercooler stages			Single			Single		
Intercooler (LT) coolant temperature max.	°F	°C	131 (55)	131 (55)	131 (55)	131 (55)	131 (55)	131 (55)
Intercooler (LT) coolant flow rate min.	gpm	L/hr	66/132 (15/30)	66/132 (15/30)	88/132 (20/30)	66/132 (15/30)	88/132 (20/30)	110/132 (25/30)
Exhaust manifold type			Wet			Wet		
Exhaust temperature	°F	°C	662 (350)	702 (372)	761 (405)	743 (395)	709 (376)	788 (420)
Exhaust mass flow wet	lbs/hr	kg/h	2,912 (1,321)	3,611 (1,638)	4,012 (1,820)	3,635 (1,649)	4,751 (2,155)	4,775 (2,166)
Exhaust back-pressure max.	psi	mbar	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)
Maximum pressure loss in front of air cleaner	psi	mbar	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)
Fuel pressure range	psi	mbar	0.73 – 3.48 (50 – 240)			0.73 – 3.48 (50 – 240)		
Starter battery 2x12 V, capacity required	Ampere-hour		280			280		
<b>Emissions</b>								
NOx	g/bhp.hr		< 2	< 1.1	< 2	< 2	< 1.1	< 2
CO	g/bhp.hr		< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
THC (in C1 base)	g/bhp.hr		< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
NMHC (in C1 base)	g/bhp.hr		< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

Engine Parameters	English Units	Metric Units	SFGLD 360			SFGLD 480		
			1,200	1,500	1,800	1,200	1,500	1,800
Speed	rpm		1,200	1,500	1,800	1,200	1,500	1,800
Engine power <sup>2)</sup>	bhp	kWb	675 (503)	845 (630)	939 (700)	898 (670)	1,124 (838)	1,215 (906)
Cylinder arrangement			V12			V16		
Mean effective pressure	psi	bar	203 (14.0)	203 (14.0)	188 (13.0)	203 (14.0)	203 (14.0)	183 (12.6)
Bore	inch	mm	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)	5.98 (152)
Stroke	inch	mm	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)	6.50 (165)
Displacement	cu.in	Litres	2,191 (35.9)	2,191 (35.9)	2,191 (35.9)	2,921 (47.9)	2,921 (47.9)	2,921 (47.9)
Mean piston speed	in/s	m/s	260 (6.6)	325 (8.3)	390 (9.9)	260 (6.6)	325 (8.3)	390 (9.9)
Compression ratio			11.6:1			11.6:1		
Combustion air mass flow <sup>2)</sup>	lbs/hr	kg/h	5,340 (2,422)	7,035 (3,191)	7,670 (3,479)	7,260 (3,293)	9,178 (4,163)	9,515 (4,316)
Packaged ventilation air flow <sup>3)</sup>	scfm	m <sup>3</sup> /h	20,724 (35,210)	25,956 (44,100)	28,840 (49,000)	27,604 (46,900)	34,526 (58,660)	37,328 (63,420)
Engine coolant capacity <sup>4)</sup>	gal.	Litres	48 (180)	48 (180)	48 (180)	53 (200)	53 (200)	53 (200)
Lube oil capacity <sup>4)</sup>	gal.	Litres	40 (150)	40 (150)	40 (150)	52 (195)	52 (195)	52 (195)
Lube oil consumption <sup>5)</sup>	lbs/bhp.hr	g/kWh	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)	0.00058 (0.35)
<b>Energy Balance</b>								
Generator efficiency <sup>6)</sup>	%	%	96.7	96.7	96.6	96.8	97	96.5
Electrical power <sup>6) 7)</sup>	kWe	kW	486	609	676	649	813	874
Jacket (HT) water heat	Btu x 1,000/hr	kW	1,256.5 (368)	1,533.1 (449)	1,683.3 (493)	1,772.1 (519)	2,062.3 (604)	2,455.0 (719)
Oil (HT) cooler water heat	Btu x 1,000/hr	kW	221.9 (65)	239.0 (70)	269.7 (79)	259.5 (76)	300.5 (88)	303.9 (89)
Intercooler (LT) water heat	Btu x 1,000/hr	kW	88.8 (26)	99.0 (29)	129.7 (38)	112.7 (33)	160.5 (47)	167.3 (49)
Exhaust heat – cooled to 120 °C	Btu x 1,000/hr	kW	641.9 (188)	901.4 (264)	1,109.7 (325)	1,017.5 (298)	1,215.5 (356)	1,570.6 (460)
Engine radiation heat	Btu x 1,000/hr	kW	58.0 (17)	92.2 (27)	99.0 (29)	68.3 (20)	112.7 (33)	99.0 (29)
Generator radiation heat	Btu x 1,000/hr	kW	56.7 (17)	71.0 (21)	81.3 (24)	73.2 (21)	85.8 (25)	108.3 (32)
Fuel consumption	Btu x 1,000/hr	kW	4,244.1 (1,243)	5,360.6 (1,570)	6,057.2 (1,774)	5,872.8 (1,720)	7,160.0 (2,097)	8,153.6 (2,388)
Mechanical efficiency	%		40.5	40.1	39.5	39.0	40.0	37.9
Electrical efficiency	%		39.1	38.8	38.1	37.7	38.8	36.6
Thermal efficiency	%		46.8	47.3	48.3	49.4	48.0	51.4
Total efficiency	%		86.0	86.1	86.4	87.1	86.8	88.0
<b>System Parameters</b>								
Jacket (HT) water temperature max.	°F	°C	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)	194 (90)
Jacket (HT) water flow rate min.	gpm	L/hr	176 (40)	220 (50)	264 (60)	220 (50)	264 (60)	352 (80)
Intercooler stages			Double			Double		
Intercooler (LT) coolant temperature max.	°F	°C	131 (55)	131 (55)	131 (55)	131 (55)	131 (55)	131 (55)
Intercooler (LT) coolant flow rate min.	gpm	L/hr	66/132 (15/30)	101/132 (23/30)	110/132 (25/30)	79/132 (18/30)	101/132 (23/30)	110/132 (25/30)
Exhaust manifold type			Wet			Wet		
Exhaust temperature	°F	°C	667 (353)	698 (370)	756 (402)	739 (393)	712 (378)	824 (440)
Exhaust mass flow wet	lbs/hr	kg/h	5,542 (2,514)	7,291 (3,307)	7,956 (3,609)	7,538 (3,419)	9,517 (4,317)	9,899 (4,490)
Exhaust backpressure max.	psi	mbar	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)	0.65 (45)
Maximum pressure loss in front of air cleaner	psi	mbar	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)	0.073 (5)
Fuel pressure range	psi	mbar	0.73 – 3.48 (50 – 240)			0.73 – 3.48 (50 – 240)		
Starter battery 2x12 V, capacity required	Ampere-hour		280			280		
<b>Emissions</b>								
NOx	g/bhp.hr		< 2	< 1.1	< 2	< 2	< 1.1	< 2
CO	g/bhp.hr		< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
THC (in C1 base)	g/bhp.hr		< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
NMHC (in C1 base)	g/bhp.hr		< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

Engine Parameters	English Units	Metric Units	SFGLD560		SFGM 560	
			1,200	1,500	1,500	1,800
Speed	rpm		1,200	1,500	1,500	1,800
Engine power <sup>2)</sup>	bhp	kWb	1,057 (788)	1,321 (985)	1,415 (1,055)	1,475 (1,100)
Cylinder arrangement			V16		V16	
Mean effective pressure	psi	bar	203 (14.0)	203 (14.0)	217 (15.0)	189 (13.0)
Bore	inch	mm	6.30 (160)	6.30 (160)	6.30 (160)	6.30 (160)
Stroke	inch	mm	6.89 (175)	6.89 (175)	6.89 (175)	6.89 (175)
Displacement	cu.in	Litres	3,436 (56.3)	3,436 (56.3)	3,436 (56.3)	3,436 (56.3)
Mean piston speed	in/s	m/s	276 (7.0)	344 (8.8)	344 (8.8)	413 (10.5)
Compression ratio			11.6 : 1		12.3 : 1	
Combustion air mass flow <sup>2)</sup>	lbs/hr	kg/h	8,274 (3,753)	10,816 (4,906)	10,986 (4,983)	11,021 (4,999)
Packaged ventilation air flow <sup>3)</sup>	scfm	m <sup>3</sup> /h	32,466 (55,160)	40,582 (68,950)	43,467 (73,850)	45,321 (77,000)
Engine coolant capacity <sup>4)</sup>	gal.	Litres	53 (200)	53 (200)	53 (200)	53 (200)
Lube oil capacity <sup>4)</sup>	gal.	Litres	61 (232)	61 (232)	61 (232)	61 (232)
Lube oil consumption <sup>5)</sup>	lbs/bhp.hr	g/kWh	0.00033 (0.20)	0.00033 (0.20)	0.00033 (0.20)	0.00033 (0.20)
<b>Energy Balance</b>						
Generator efficiency <sup>6)</sup>	%	%	96.7	97.2	97.2	96.8
Electrical power <sup>6) 7)</sup>	kWe	kW	762	957	1025	1065
Jacket (HT) water heat	Btu x 1,000/hr	kW	1,946.2 (570)	2,420.8 (709)	1,789.2 (524)	2,014.5 (590)
Oil (HT) cooler water heat	Btu x 1,000/hr	kW	293.6 (86)	341.4 (100)	392.7 (115)	341.4 (100)
Intercooler (LT) water heat	Btu x 1,000/hr	kW	133.2 (39)	170.7 (50)	218.5 (64)	239.0 (70)
Exhaust heat – cooled to 120 °C	Btu x 1,000/hr	kW	1,038.0 (304)	1,444.3 (423)	2,123.8 (622)	2,338.9 (685)
Engine radiation heat	Btu x 1,000/hr					