



Technical Datasheet		GR350B6			
93800020097_V02_US	with engine	B3042Z7			
Fuel		Biogas			
Voltage / Frequency		480 V		60 Hz	
Heating water temperatur (in / out)		°F 158 / 185			
NOx emissions ¹⁾		g/bhp-hr < 2			
Intercooler 2nd stage temperatur (in)		°F --			
Exhaust gas temperature after heat exchanger		°F 971.6			
Electrical power COP, parallel to grid acc. ISO 8528-1		%	100	75	50
Electrical power PRP, prime power acc. ISO 8528-5 G1		%			100
Energy balance					
Electrical power ^{2) 3)}		kWe	350	262	173
Energy input ^{5) 7)}		kBTU/hr	3245	2535	1853
Thermal output total ⁴⁾		kBTU/hr	816	672	553
Thermal output engine (block, lube oil, 1st stage intercooler) ⁴⁾		kBTU/hr	816	672	553
Thermal exhaust gas heat exchanger (180°C) ⁴⁾		kBTU/hr			
Thermal output 2nd stage intercooler ⁴⁾		kBTU/hr			
Engine power ISO 3046-1 ³⁾		bhp	491	369	245
Generator efficiency at power factor = 1		%	95.7	95.4	94.4
Electrical efficiency ^{5) 6)}		%	36.8	35.3	31.8
Total efficiency		%	62.0	61.8	61.6
CHP Coefficient			1.47	1.33	1.07
Power consumption ¹⁵⁾		kW	4.5	4.5	4.5
Combustion air / Exhaust gas					
Combustion air volume flow ¹⁾		ft ³ /min	868	665	468
Combustion air mass flow		lb/hr	4200	3219	2264
Exhaust gas volume flow, wet ¹⁾		ft ³ /min	972	747	528
Exhaust gas volume flow, dry ¹⁾		ft ³ /min	852	653	459
Exhaust gas mass flow, wet		lb/hr	4702	4310	3649
Exhaust temperature after turbocharger		°F	972	981	997
Reference Fuel					
Natural gas		BTU/ft ³	--		
Sewage gas		CH4 60 Vol. %; CO2 40 Vol. %			
Biogas		CH4 55 Vol. %; CO2 45 Vol. %			
Landfill gas		CH4 50 Vol. %; CO2 30 Vol. %; Rest N2			
CO ₂ / CH ₄ volume ratio		<= 1			
Minimum methane number		MN	120		
Range of heating value: design / operation range		BTU/ft ³	483 - 628 / 483 - 676		
Exhaust gas emissions ⁶⁾					
NOx, stated as NO ₂ (dry)		g/bhp-hr	< 2		
CO (dry)		g/bhp-hr	< 5		
HCHO (dry) ⁷⁾		g/bhp-hr			
VOC (dry)		g/bhp-hr	< 0.7		
Otto-gas engine, lean burn operation with turbocharging					
Number of cylinders / configuration		12 V			
Engine typ		B3042Z7			
Engine speed		rpm	1800		
Bore		in	5.12		
Stroke		in	5.59		
Displacement		in ³	1380		
Mean piston speed		ft/sec	27.9		
Compression ratio		13,5			
BMEP at nominal engine speed min ⁻¹		psi	156.64		
Lube oil consumption ⁸⁾		gal/hr	0.03		
Max. exhaust back pressure after genset / module		in H ₂ O	20.09		
Generator					
Rating power (F)		kVA	518		
Max. allowable p.f. inductive (overexcited) / capacitive (underexcited) ¹⁶⁾		0.8 / 1.0			
Voltage tolerance / frequency tolerance		%	± 5 / ± 5		
Max. ambient temperature		°F	104		
Max. installation altitude		ft	3281		
Engine cooling water system					
Coolant temperature (in/out)		°F	180 / 190		
Coolant flow rate ⁹⁾		gal/min	@	psi delta p	
CVs value (Block, lubeoil and 1st stage) ¹⁰⁾					
Max. operation pressure (coolant past engine)		psi			
Exhaust gas heat exchanger (EGHE)					
Exhaust gas temperature (out)		°F	32		
Coolant temperature (in/out)		°F			
Coolant volumetric flow ⁹⁾		gal/min	@	psi delta p	
CVs value ¹⁰⁾					
Max. operation pressure (coolant water)		psi			

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Oilcooler, external					
Coolant temperature (in/out)	°F				
Coolant volumetric flow ⁹⁾	gal/min		@		psi delta p
CV-Value ¹⁰⁾					
Max. operation pressure	psi				
Intercooler 2nd stage, external					
Coolant temperature (in/out)	°F				
Coolant volumetric flow ⁹⁾	gal/min		@		psi delta p
CVs value ¹⁰⁾					
Max. operation pressure in front of intercooler	psi				
Plate heat exchanger					
Coolant temperature (in/out)	°F	190 / 180			
Heating water temperatur (in/out)	°F	160 / 185			
Heating water volumetric flow ⁹⁾	gal/min	66.0	@	1.45	psi delta p
CVs value ¹⁰⁾				47.4	
Max. operation pressure (heating water)	psi				232
Space ventilation					
Genset ventilation heat ¹¹⁾	kBTU/hr	116.0			
Combustion air temperature: (min./design/max.)	°F			50 / 77 / 113	
Min. engine room temperature ¹²⁾	°F			41	
Max. temperature difference ventilation air (in/out)	°F			36	
Min. ventilation air flow in (combustion+ventilation) ¹³⁾	ft³/min			3531	
Gearbox					
Gear ratio					
Thermal output gearbox (watercooled)	kBTU/hr				
Efficiency					
Filling quantities					
Lube oil for engine	gal			9	
Coolant for engine	gal			63.4	
Coolant for intercooler	gal			1.32	
Heating water for plate heat exchanger	gal			2.9	
Engine sound level ¹⁴⁾ (1 meter distance, free field)					
Frequency	Hz	63	125	250	500
Sound pressure level	dB	81.1	86.9	93.9	87.2
Frequency	Hz	1000	2000	4000	8000
Sound pressure level	dB	85.0	80.5	78.2	77.0
Sum of pressure levels	Lin dB	96.1			
	dB A	90.7			
Sound power level	dB A	110.0			
Undampened exhaust noise (1 meter distance to outlet within 90°, free field)					
Frequency	Hz	63	125	250	500
Sound pressure level	dB	84.3	81.8	64.4	60.9
Frequency	Hz	1000	2000	4000	8000
Sound pressure level	dB	64.1	61.9	49.0	36.7
Sum of pressure levels	Lin dB	86.3			
	dB A	69.0			
Sound power level	dB A	80.5			
Dimensions					
Length	in			155.1	
Width	in			66.5	
Height	in			83.9	
Gross weight / dry weight	lb			12346 / 11684	
Power derating					
Altitude				1.2 % / 328 ft > 328 ft NN	
Combustion air temperature				0.6 % / 1 °F > 86 °F	
Intercooler 2nd stage temperature (in)				--	
Methane number				0.8 % / MN < 120	
Boundary conditions and consumables					
DK-BS-0001					
<p>1) Normal ft3 at p = 14.696 psi und T = 32 °F</p> <p>2) Generator gross power at nominal voltage, power factor = 1 and nominal frequency</p> <p>3) At standard reference conditions (ISO 3046-1); atmospheric pressure: 14.5 psi; air temperature: 77 °F; rel. air humidity 30 %</p> <p>4) Thermal output at layout temperature; tolerance +/- 8 %</p> <p>5) According to ISO 3046 (+ 5 % tolerance), using reference fuel used at nominal voltage, power factor = 1 and nominal frequency</p> <p>6) Deviations from the layout parameters respectively the reference fuel can have influence to the obtained efficiency and exhaust emissions</p> <p>7) Emission values during system parallel operation - where required with Oxcat</p> <p>8) Reference value at nominal load (without amount of oil exchange)</p> <p>9) Stated values for pure water, adaption for other cooling fluid composition necessary</p> <p>10) The CVs value declares the volumetric flow in gal/min at a pressure drop of 1 psi</p> <p>11) Only generator- and surface losses</p> <p>12) Frost-free conditions must be guaranteed</p> <p>13) Amount of ventilation air must be adapted to the gas safety concept</p> <p>14) All sound pressure levels at nominal load COP</p> <p>15) Power consumption of all electrical consumer, which are mounted at the module / aggregate</p> <p>16) Max. allowable cos phi at nominal power (view of producer)</p>					

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