Model: 315GFBE
Frequency: 50 Hz
Fuel Type: Natural Gas MI 75 +
Emissions NOx: 1000 mg/Nm^3
LT Water Inlet Temp: 40°C (104°F)
HT Water Outlet Temp: 95°C (203°F)

Generator set data sheet
315 kW continuous

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Measured Sound Performance Data Sheet:	TBD
Prototype Test Summary Data:	TBD
Remote Radiator Cooling Outline:	TBD

Fuel Consumption (ISO3046/1)	**100% Load**	**90% Load**	**75% Load**	**50% Load**
Fuel Consumption (LHV) ISO3046/1, kW (MMBTU/hr) [1,2,3,4,5]	875 (2.99)	795 (2.72)	676 (2.31)	487 (1.66)
Mechanical Efficiency ISO3046/1, percent [1,2,4,5]	37.4%	37.1%	36.5%	34.1%
Electrical Efficiency ISO3046/1, percent [1,2,3,4,5]	36.0%	35.7%	35.0%	32.4%

Engine	
Engine Manufacturer	Cummins
Engine Model	QSK19G
Configuration	In-line 6
Displacement, L (cu.in)	19 (1150)
Aspiration	Turbocharged (1)
Gross Engine Power Output, kWm (hp)	327 (438)
BMEP, bar (psi)	14.2 (206)
Bore, mm (in)	159 (6.26)
Stroke, mm (in)	159 (6.26)
Rated Speed, rpm	1500
Piston Speed, m/s (ft/min)	7.95 (1565)
Compression Ratio	11.0:1
Lube Oil Capacity, L (qt)	125 (130)
Overspeed Limit, rpm	1875
Regenerative Power, kW	N/A
Full Load Lubricating oil consumption, g/kWe-hr (g/hp-hr)	<0.5 (0.37)
Fuel System	
Gas supply pressure to engine inlet, bar (psi)	0.09 - 0.36 (1.3 - 5.2)
Minimum Methane Index	75
Engine Electrical System(s)	
Electric starter voltage, volts	24
Ignition timing, deg before top dead center	17 deg BTC
Minimum battery capacity @ 10 deg.C (50 deg.F) and above, CCA	600
Genset Dimensions	
Genset Length, m (ft) [6]	3.4 (11.15)
Genset Width, m (ft) [6]	1.15 (3.77)
Genset Height, m (ft) [6]	2.05 (6.7)
Genset Weight (wet), kg (lbs) [6]	4284 (9425)

Notes:

1.At ISO3046 reference conditions, altitude 1013 mbar (30in Hg), air inlet temperature 25°C (77°F)

2. Power output and efficiency include the affect of Cummins supplied coolant pumps.

3. At electrical output of 1.0 Power Factor

4. Based on pipeline natural gas with LHV of 33.44mJ/Nm^3 (905 BTU/ft^3)

5. Subtract 3°C ambient temperature cappability for each 100 mm (4 in) H_2O back pressure above the information shown on page 2.

6. Weights and dimensions represent a generator set with its standard features only. See outline drawing for other configurations.

Energy Data	100% Load	90% Load	75% Load	50% Load
Continuous Generator Electrical Output kWe [1,5,6,7]	315	284	236	158
Continuous Shaft Power, kWm (bhp) [1,5,6,7]	327 (438)	295 (395)	246 (330)	166 (223)
Total Heat Rejected in LT Circuit, kW (MMBTU/h) [2]	67 (0.23)	60 (0.2)	46 (0.16)	21 (0.07)
Total Heat Rejected in HT Circuit, kW (MMBTU/h) [2]	184 (0.63)	190 (0.65)	169 (0.58)	117 (0.4)
Unburnt, kW (MMBTU/h) [2]	18 (0.06)	16 (0.05)	14 (0.05)	11 (0.04)
Heat Radiated to Ambient, kW (MMBTU/h) [2]	57 (0.19)	53 (0.18)	45 (0.15)	34 (0.12)
Available Exhaust heat to 105C, kW (MMBTU/h) [2]	227 (0.77)	203 (0.69)	167 (0.57)	119 (0.41)
Intake Air Flow				
Intake Air Flow Mass, kg/s (lb/hr) [2]	0.5 (3960)	0.45 (3560)	0.37 (2930)	0.25 (1980)
Intake Air Flow Volume, m3/s @ 0°C (scfm) [2]	0.39 (870)	0.35 (780)	0.29 (650)	0.19 (420)
Maximum inlet restriction (after filter, limit for changing filters), below 35°C ambient temp, mm HG, (in H_2O)	28.6 (15.4)	22 (11.8)	14.7 (7.9)	5.9 (3.1)
Maximum inlet restriction (after filter, limit for changing filters), above 35°C ambient temp, mm HG, (in H_2O)	28.6 (15.4)	22 (11.8)	14.7 (7.9)	0 (3.1)
Exhaust Air Flow				
Exhaust Gas Flow Mass, kg/s (lb/hr) [2]	0.52 (4120)	0.47 (3720)	0.39 (3090)	0.26 (2060)
Exhaust Gas Flow Volume, m3/s (cfm) [2]	1.16 (2460)	1.04 (2200)	0.86 (1820)	0.58 (1230)
Exhaust Temperature After Turbine, °C (°F) [1]	513 (891)	510 (886)	508 (882)	513 (891)
Max Exhaust System Back Pressure, mmHG (in H_2O)	54 (29)	45 (24)	31 (17)	15 (8)
HT Cooling Circuit				
HT Circuit Engine Coolant Volume, l (gal)	34 (9)	34 (9)	34 (9)	34 (9)
HT Coolant Flow @ Max Ext Restriction, m^3/h (gal/min)	19 (84)	19 (84)	19 (84)	19 (84)
Maximum HT Engine Coolant Inlet Temp, °C (°F) [3]	88 (190)	88 (190)	88 (190)	93 (199)
HT Coolant Outlet Temp, °C (°F) [3]	95 (203)	95 (203)	95 (203)	95 (203)
Max Pressure Drop in External HT Circuit, bar (psig)	1.3 (19)	1.3 (19)	1.3 (19)	1.3 (19)
HT Circuit Maximum Pressure, bar (psig)	2.5 (36)	2.5 (36)	2.5 (36)	2.5 (36)
Static Head Pump Inlet, bar (psig)	0.28 (4)	0.28 (4)	0.28 (4)	0.28 (4)
LT Cooling Circuit				
LT Circuit Engine Coolant Volume, l (gal)	5 (1)	5 (1)	5 (1)	5 (1)
LT Coolant Flow @ Max Ext Restriction, m^3/h (gal/min)	4 (18)	4 (18)	4 (18)	4 (18)
Maximum LT Coolant Inlet Temp, °C (°F) [4]	40 (104)	40 (104)	40 (104)	40 (104)
LT Coolant Outlet Temperature °C (°F) [4]Reference Only	53 (127)	52 (126)	49 (120)	44 (111)
Max Pressure Drop in External LT Circuit, bar (psig)	0.7 (10)	0.7 (10)	0.7 (10)	0.7 (10)
LT Circuit Maximum Pressure, bar (psig)	2.5 (36)	2.5 (36)	2.5 (36)	2.5 (36)
Static Head Pump Inlet, bar (psig)	0.22 (3)	0.22 (3)	0.22 (3)	0.22 (3)

Notes:

1. At ISO3046 reference conditions, altitude 1013 mbar (30in Hg), air inlet temperature 25°C (77°F)
2. Production variation/tolerance ±5%
3. Outlet temperature controlled by thermostat. Inlet temperature for reference only.
4. Inlet temperature controlled by thermostat to 40 °C but is allowed to go to 55 °C but power output must be derated per Table B on page 3
5. Power output and efficiency include the affect of Cummins supplied coolant pumps.
6. At electrical output of 1.0 Power Factor
7. Based on pipeline natural gas with LHV of 33.44mJ/Nm ^{3} (905 BTU/ft^3)

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Table A Altitude and Ambient Temperature Derate Multiplication Factor [1.2.3]

Barometer		Altitude										
In Hg	mbar	Feet	Meters	Derate Multiplier for all operation modes								
20.7	701	9843	3000	0.74	0.74	0.74	0.74	0.74	0.74	0.72	0.70	0.68
21.4	723	9022	2750	0.77	0.77	0.77	0.77	0.77	0.77	0.75	0.73	0.71
22.1	747	8202	2500	0.80	0.80	0.80	0.80	0.80	0.80	0.78	0.76	0.74
22.8	771	7382	2250	0.83	0.83	0.83	0.83	0.83	0.83	0.81	0.79	0.77
23.5	795	6562	2000	0.86	0.86	0.86	0.86	0.86	0.86	0.84	0.82	0.80
24.3	820	5741	1750	0.89	0.89	0.89	0.89	0.89	0.89	0.87	0.85	0.83
25.0	846	4921	1500	0.91	0.91	0.91	0.91	0.91	0.91	0.89	0.87	0.85
25.8	872	4101	1250	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.87	0.88
26.6	899	3281	1000	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.93	0.91
27.4	926	2461	750	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.96	0.94
28.3	954	1640	500	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.96	0.94
29.1	983	820	250	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.96	0.94
29.5	995	492	150	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.96	0.94
30.0	1012	0	0	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.96	0.94
Air Filter Inlet			**°C**	**0**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**
Temperature			**°F**	**32**	**59**	**68**	**77**	**86**	**95**	**104**	**113**	**122**

Altitude and Temperature Derate

1. Determine Altitude vs Air Filter inlet temperature derate from Table A.
2. Determine Altitude vs LT inlet temperature derate from Table B.
3. Your site rating will be determined by the lowest multiplier from steps 1 and 2.

Table B Altitude and LT Cooling Temperature Derate Multiplication Factor [1.2.3]

Barometer		Altitude										
In Hg	mbar	Feet	Meters	Derate Multiplier for all operation modes								
20.7	701	9843	3000	0.74	0.74	0.74	0.74	0.74	0.74	0.69	0.64	0.59
21.4	723	9022	2750	0.77	0.77	0.77	0.77	0.77	0.77	0.72	0.67	0.62
22.1	747	8202	2500	0.80	0.80	0.80	0.80	0.80	0.80	0.75	0.70	0.65
22.8	771	7382	2250	0.83	0.83	0.83	0.83	0.83	0.83	0.78	0.73	0.68
23.5	795	6562	2000	0.86	0.86	0.86	0.86	0.86	0.86	0.81	0.76	0.71
24.3	820	5741	1750	0.89	0.89	0.89	0.89	0.89	0.89	0.84	0.79	0.74
25.0	846	4921	1500	0.91	0.91	0.91	0.91	0.91	0.91	0.86	0.81	0.76
25.8	872	4101	1250	0.94	0.94	0.94	0.94	0.94	0.94	0.89	0.84	0.79
26.6	899	3281	1000	0.97	0.97	0.97	0.97	0.97	0.97	0.92	0.87	0.82
27.4	926	2461	750	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85
28.3	954	1640	500	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85
29.1	983	820	250	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85
29.5	995	492	150	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85
30.0	1012	0	0	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85
LT Cooling Inlet			**°C**	**0**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**
Temperature			**°F**	**32**	**68**	**77**	**86**	**95**	**104**	**113**	**122**	**131**

Methane Number Capability

Load (Percent of Rated)			
100%	90%	75%	50%
75	75	75	75

Table D Altitude and AmbientHeat Rejection Factor adjustment for HT and LT Circuits

Barometer		Altitude										
In Hg	mbar	Feet	Meters	Multiplier for HT & LT Heat Rejection vs Alt & Temp.								
20.7	701	9843	3000	1.06	1.10	1.11	1.13	1.14	1.15	1.17	1.18	1.19
21.4	723	9022	2750	1.05	1.09	1.10	1.12	1.13	1.14	1.15	1.17	1.18
22.1	747	8202	2500	1.04	1.08	1.09	1.10	1.12	1.13	1.14	1.16	1.17
22.8	771	7382	2250	1.03	1.07	1.08	1.09	1.11	1.12	1.13	1.14	1.16
23.5	795	6562	2000	1.02	1.06	1.07	1.08	1.09	1.11	1.12	1.13	1.15
24.3	820	5741	1750	1.01	1.04	1.06	1.07	1.08	1.10	1.11	1.12	1.14
25.0	846	4921	1500	0.99	1.03	1.05	1.06	1.07	1.09	1.10	1.11	1.12
25.8	872	4101	1250	0.98	1.02	1.04	1.05	1.06	1.07	1.09	1.10	1.11
26.6	899	3281	1000	0.97	1.01	1.02	1.04	1.05	1.06	1.08	1.09	1.10
27.4	926	2461	750	0.96	1.00	1.01	1.03	1.04	1.05	1.07	1.08	1.09
28.3	954	1640	500	0.95	0.99	1.00	1.02	1.03	1.04	1.05	1.07	1.08
29.1	983	820	250	0.94	0.98	0.99	1.00	1.02	1.03	1.04	1.06	1.07
29.5	995	492	150	0.94	0.97	0.99	1.00	1.01	1.03	1.04	1.05	1.06
30.0	1012	0	0	0.93	0.97	0.98	0.99	1.01	1.02	1.03	1.05	1.06
Air Filter Inlet			**°C**	**0**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**
Temperature			**°F**	**32**	**59**	**68**	**77**	**86**	**95**	**104**	**113**	**122**

LT & HT Circuit Heat Rejection Calculation

1. Determine power output derate from Tables A & B.
2. Using the multipliere from #1 above as the percent load factor, determine the heat rejection

3. From table D find the HT and LT circuit multiplier
4. Multiply the result of step 2 by the result of step 3 to obtain the heat rejection at your altitude and temperature.

Notes:

1. Ambient temperature is the same as air filter inlet temperature and LT inlet temperature is 10°C above ambient or 40°C whichever is higher.
2. Table refers to the capability to run at continuous power level. For short periods of time the genset can run at 5°C higher temperature with reduced efficiency.
3. Subtract 3°C ambient temperature capability for each 100 mm (4 in) H_2O back pressure above the information sho

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Alternator Data

Voltage Range	Connection Configuration	Temp Rise Degrees C	Duty Cycle[4]	Single Phase	Max Surge kVA [5]	Alternator Data Sheet	Feature Code
380-440	Wye, 3 Phase	105	C	N/A	1443	306	B551-2

Base Load (Continuous) Power (COP) Definition

Applicable for supplying power continuously to a constant electrical load for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. Continuous Power (COP) in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514).

Emissions	100% Load	90% Load	75% Load	50% Load
NO_x Emissions wet, ppm [1]	359	375	383	393
NO_x Emissions mg/Nm^3 @ 5% O_2 , (g/hp-h) [1]	930 (2)	950 (2)	950 (2)	940 (2)
THC Emissions wet, ppm [2]	1114	1126	1207	1402
THC Exhaust Emissions, mg/Nm^3 @ 5% O_2, (g/hp-h) [2]	1030 (2.6)	1030 (2.6)	1090 (2.8)	1220 (3.3)
NMHC Emissions wet, ppm [2,3]	229	216	238	262
NMHC Exhaust Emissions, mg/Nm^3 @ 5% O_2, (g/hp-h) [2,3]	240 (0.5)	220 (0.5)	240 (0.5)	250 (0.6)
HCHO Emissions (wet), ppm [6]	73	73	77	86
HCHO Exhaust Emissions, mg/Nm^3 @ 5% O_2, (g/hp-h) [6]	142 (0.32)	140 (0.32)	150 (0.34)	160 (0.38)
CO Emissions (dry), ppm [2]	607	603	603	599
CO Emissions Rate, mg/Nm3 [2] @ 5% O_2, (g/hp-h)	960 (2.2)	940 (2.1)	920 (2.1)	880 (2.1)
CO2 Emisions (dry), percent [1]	7.0	7.0	7.2	7.5
O2 Emissions (dry), percent [2]	8.3	8.2	7.9	7.4
Particulates PM10, g/hp-h [2]	NA	NA	NA	NA

Notes

1. Production variation/tolerance ±5%
2. Tolerance +/- 15%.
3. NMHC emission are an estimate. Actual NMHC emsisions are a function of the non-methane hydrocarbons in the fuel.
4. Standby (S), Prime (P), Continuous (C) ratings.
5. Maximum rated starting kVA that results in minimum of 90% of rated sustained voltage during starting.
6. Tolerance +/- 35%.

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