

Model: C2200 N5C  
Frequency: 50 Hz  
Fuel Type: Natural Gas MI 73 +  
Emissions Performance NOx: 500 mg/Nm<sup>3</sup> (1.0 g/hp-h)  
LT Water Inlet Temperature: 40°C (104°F)  
HT Water Outlet Temp: 92°C (198°F)

Generator set data sheet  
2000 kW continuous

Our energy working for you.™



Measured Sound Performance Data Sheet:	N/A
Prototype Test Summary Data:	N/A
Remote Radiator Cooling Outline:	N/A

Fuel Consumption (ISO3046/1)	See Note	100% of Rated Load	90% of Rated Load	75% of Rated Load	50% of Rated Load
Fuel Consumption (LHV) ISO3046/1, kW (MMBTU/hr)	2,4,6,7	5117 (17.48)	4658 (15.91)	3943 (13.47)	2866 (9.79)
Mechanical Efficiency ISO3046/1, percent	2,4,7	44.2%	43.7%	43.0%	39.5%
Electrical Efficiency ISO3046/1, percent	2,4,6,7	43.0%	42.5%	41.8%	38.4%

### Engine

Engine Manufacturer	Cummins
Engine Model	QSV91G
Configuration	V18
Displacement, L (cu.in)	91.6 (5591)
Aspiration	Turbocharged (1)
BMEP, bar (psi)	19.9 (265)
Bore, mm (in)	180 (7.09)
Stroke, mm (in)	200 (7.87)
Rated Speed, rpm	1500
Piston Speed, m/s (ft/min)	10 (1968)
Compression Ratio	13.0:1
Lube Oil Capacity, L (qt)	550 (581)
Overspeed Limit, rpm	1800
Regenerative Power, kW	N/A
Full Load Lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.4 (0.3)

### Fuel

Gas supply pressure to engine inlet, bar (psi) <sup>7</sup>	0.2 (2.9)
Minimum Methane Index	73

### Starting System(s)

Electric starter voltage, volts	24
Minimum battery capacity @ 40 deg.C (104 deg.F), AH	780
Air Starter Pressure, barg (psig)	10.0 (145)
Air Starter Flow Nm <sup>3</sup> /s (scfm)	0.37 (780)

### Genset Dimensions (see note 1)

Genset Length, m (ft)	6.07 (19.9)
Genset Width, m (ft)	2.16 (7.1)
Genset Height, m (ft)	2.79 (9.1)
Genset Weight (wet), kg (lbs)	20477 (45,144)

	See Notes	100% of Rated Load	90% of Rated Load	75% of Rated Load	50% of Rated Load
<b>Energy Data</b>					
Continuous Generator Electrical Output kWe @ 1.0 pf	6,10	2200	1980	1650	1100
Heat Dissipated in Lube Oil Cooler, kW (MMBTU/h)	3,5	270 (0.92)	236 (0.80)	204 (0.70)	186 (0.64)
Heat Dissipated in Block, kW (MMBTU/h)	3,5	525 (1.79)	479 (1.63)	447 (1.52)	334 (1.14)
Total Heat Rejected in LT Circuit, kW (MMBTU/h)	3,5	229 (0.78)	196 (0.67)	170 (0.58)	127 (0.43)
Total Heat Rejected in HT Circuit, kW (MMBTU/h)	3,5	1107 (3.78)	977 (3.33)	861 (2.94)	565 (1.93)
Unburnt, kW (MMBTU/h)	3,13	103 (0.35)	101 (0.34)	89 (0.30)	72 (0.25)
Heat Radiated to Ambient, kW (MMBTU/h)	13	329 (1.12)	297 (1.02)	249 (0.85)	180 (0.61)
Available Exhaust heat to 105C, kW (MMBTU/h)	3,5	1267 (4.32)	1187 (4.05)	1021 (3.48)	859 (2.93)
<b>Intake Air Flow</b>					
Intake Air Flow Mass, kg/s (lb/hr)	3,4	3.21 (25441)	2.95 (23332)	2.44 (19353)	1.82 (14415)
Intake Air Flow Volume, m <sup>3</sup> /s @ 0°C (scfm)	3,4	2.48 (5547)	2.28 (5087)	1.89 (4220)	1.41 (3143)
Maximum Air Cleaner Restriction, mmHG (in H <sub>2</sub> O)		18.39 (9.8)	18.39 (9.8)	18.39 (9.8)	18
<b>Exhaust Air Flow</b>					
Exhaust Gas Flow Mass, kg/s (lb/hr)	3,4	3.33 (26361)	3.05 (24172)	2.53 (20054)	1.89 (14935)
Exhaust Gas Flow Volume, m <sup>3</sup> /s (cfm)	3,4	6.82 (14450)	6.32 (13391)	5.34 (11307)	4.23 (8957)
Exhaust Temperature After Turbine, °C (°F)	2,6	451 (844)	459 (858)	472 (881)	519 (966)
Max Exhaust System Back Pressure, mmHG (in H <sub>2</sub> O)	6,14	36.77 (19.7)			
Min Exhaust System Back Pressure, mmHG (in H <sub>2</sub> O)	6,14	18.38 (9.8)			
<b>HT Cooling Circuit</b>					
HT Circuit Engine Coolant Volume, l (gal)		498 (132)	498 (132)	498 (132)	498 (132)
HT Coolant Flow @ Max Ext Restriction, m <sup>3</sup> /h (gal/min)		70 (308)	70 (308)	70 (308)	70 (308)
Maximum HT Engine Coolant Inlet Temp, °C (°F)	8	75 (167)	75 (167)	75 (167)	75 (167)
HT Coolant Outlet Temp, °C (°F)	8	92 (198)	92 (198)	92 (198)	92 (198)
Max Pressure Drop in External HT Circuit, bar (psig)		1.5 (22)	1.5 (22)	1.5 (22)	1.5 (22)
HT Circuit Maximum Pressure, bar (psig)		6.0 (87)	6.0 (87)	6.0 (87)	6.0 (87)
Minimum Static Head, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	0.5 (7)
<b>LT Cooling Circuit</b>					
LT Circuit Engine Coolant Volume, l (gal)		59 (16)	59 (16)	59 (16)	59 (16)
LT Coolant Flow @ Max Ext Restriction, m <sup>3</sup> /h (gal/min)		50 (220)	50 (220)	50 (220)	50 (220)
Maximum LT Engine Coolant Inlet Temp, °C (°F)	9	40 (104)	40 (104)	40 (104)	40 (104)
LT Coolant Outlet Temp, °C (°F) Reference Only	9	42.9 (109)	42.6 (109)	42.3 (108)	41.5 (107)
Max Pressure Drop in External LT Circuit, bar (psig)		1.5 (22)	1.5 (22)	1.5 (22)	1.5 (22)
LT Circuit Maximum Pressure, bar (psig)		6.0 (87)	6.0 (87)	6.0 (87)	6.0 (87)
Minimum Static Head, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	0.5 (7)
<b>Emissions</b>					
NO <sub>x</sub> Emissions wet, ppm	15	168	169	171	177
NO <sub>x</sub> Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	15	500 (1.0)	500 (1.0)	500 (1.0)	500 (1.0)
THC Emissions wet, ppm	13	1263	1341	1435	1557
THC Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	13	1367	1440	1525	1599
CH <sub>4</sub> Emissions wet, ppm	13	1036	1100	1176	1277
CH <sub>4</sub> Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	13	1140 2.25	1201 2.42	1272 2.62	1334 3.16
NMHC Emissions wet, ppm	13	227	241	258	280
NMHC Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	13	246	259	275	288
CO Emissions (dry), ppm	3	642	648	648	663
CO Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	3	1092 (2.16)	1093 (2.20)	1081 (2.22)	1063 (2.52)
O <sub>2</sub> Emissions (dry), percent	3	9.2	9.1	9.0	8.5

## Genset De-rating

### Altitude and Temperature Derate Multiplication Factor

Barometer		Altitude		Table A *																							
In Hg	mbar	Feet	Meters	Derate Multiplier with Grid Parallel Operation																							
20.7	701	9843	3000																								
21.4	723	9022	2750																								
22.1	747	8202	2500	0.75	0.75	0.75	0.75																				
22.8	771	7382	2250	0.80	0.80	0.80	0.80	0.75																			
23.5	795	6562	2000	0.85	0.85	0.85	0.85	0.80	0.75																		
24.3	820	5741	1750	0.90	0.90	0.90	0.90	0.85	0.80	0.75																	
25.0	846	4921	1500	0.95	0.95	0.95	0.95	0.90	0.85	0.80	0.75																
25.8	872	4101	1250	1.00	1.00	1.00	1.00	0.95	0.90	0.85	0.80																
26.6	899	3281	1000	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.85	0.75															
27.4	926	2461	750	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.90	0.80															
28.3	954	1640	500	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.85	0.75														
29.1	983	820	250	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.80	0.75													
30.0	1012	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.85	0.80												
			°C	0	5	10	15	20	25	30	35	40	45	50	55												
			°F	32	41	50	59	68	77	86	95	104	113	122	131												
			Air Filter Inlet Temperature																								

\* Based on SAE standard ambient pressure vs. altitude. Assumes LT return temperature is 10C above air filter inlet.

### Altitude & Temperature Derate

- Determine derate multiplier vs. temperature and altitude in Table A or B depending upon your operating condition.
- Assumes the LT return temperature is 10 deg C above the air filter inlet with a maximum LT temperature of 40 deg C.
- If the LT temperature exceeds 40 deg C, consult factory for recommendations.
- Altitude is based upon SAE standard ambient pressure vs. altitude. For low barometric conditions add 150m (500 ft) to site altitude.

### Heat Rejection Factor (altitude and ambient) for HT and LT Circuits

Barometer		Altitude		Table C																						
In Hg	mbar	Feet	Meters	Multiplier for HT & LT Heat Rejection vs Alt & Temp.																						
20.7	701	9843	3000	1.11	1.13	1.14	1.15	1.17	1.18	1.19	1.20	1.22														
21.4	723	9022	2750	1.10	1.12	1.13	1.14	1.15	1.17	1.18	1.19	1.21														
22.1	747	8202	2500	1.09	1.10	1.12	1.13	1.14	1.16	1.17	1.18	1.20														
22.8	771	7382	2250	1.08	1.09	1.11	1.12	1.13	1.14	1.16	1.17	1.18														
23.5	795	6562	2000	1.07	1.08	1.09	1.11	1.12	1.13	1.15	1.16	1.17														
24.3	820	5741	1750	1.06	1.07	1.08	1.10	1.11	1.12	1.14	1.15	1.16														
25.0	846	4921	1500	1.05	1.06	1.07	1.09	1.10	1.11	1.12	1.14	1.15														
25.8	872	4101	1250	1.04	1.05	1.06	1.07	1.09	1.10	1.11	1.13	1.14														
26.6	899	3281	1000	1.02	1.04	1.05	1.06	1.08	1.09	1.10	1.12	1.13														
27.4	926	2461	750	1.01	1.03	1.04	1.05	1.07	1.08	1.09	1.10	1.12														
28.3	954	1640	500	1.00	1.02	1.03	1.04	1.05	1.07	1.08	1.09	1.11														
29.1	983	820	250	0.99	1.00	1.02	1.03	1.04	1.06	1.07	1.08	1.10														
29.5	995	492	150	0.99	1.00	1.01	1.03	1.04	1.05	1.06	1.08	1.09														
30.0	1012	0	0	0.98	0.99	1.01	1.02	1.03	1.05	1.06	1.07	1.08														
			°C	20	25	30	35	40	45	50	55	60														
			°F	68	77	86	95	104	113	122	131	140														
			Air Filter Inlet Temperature																							

### LT & HT Circuit Heat Rejection Calculation

- Determine derate multiplier vs. temperature derate per above.
- Using the multiplier from #1 above as the percent load factor determine the Heat rejection from the previous page.
- From Table C find the HT and LT circuit multiplier.
- Multiply the result of step 2 by the result of step 3 to obtain the heat rejection at your altitude and temperature.

### Methane Number Capability

Load (Percent of Rated)			
100%	90%	75%	50%
73	66	55	40

## Alternator Data

Voltage Range	Connection Configuration	Temp Rise Degrees C	Duty <sup>11</sup> Cycle	Single Phase Factor	Maximum Surge kVA <sup>12</sup>	Alternator Data Sheet	Feature Code
400	Wye, 3 Phase	105	C	N/A	7354	517	
415	Wye, 3 Phase	105	C	N/A	7354	517	
3300	Wye, 3 Phase	105	C	N/A	7040	520	
6000	Wye, 3 Phase	105	C	N/A	6900	523	
6300	Wye, 3 Phase	105	C	N/A	6932	523	
6600	Wye, 3 Phase	105	C	N/A	6932	523	
10000	Wye, 3 Phase	105	C	N/A	6627	523	
11000	Wye, 3 Phase	105	C	N/A	6784	523	
380	Wye, 3 Phase	125	C	N/A	7354	517	
400	Wye, 3 Phase	125	C	N/A	7354	517	
415	Wye, 3 Phase	125	C	N/A	7354	517	
440	Wye, 3 Phase	125	C	N/A	7354	517	
3300	Wye, 3 Phase	125	C	N/A	7040	520	
6000	Wye, 3 Phase	125	C	N/A	6900	523	
10000	Wye, 3 Phase	125	C	N/A	6627	523	
10500	Wye, 3 Phase	125	C	N/A	6784	523	
11000	Wye, 3 Phase	125	C	N/A	6784	523	

## Continuous Rating Definition

Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models.

## Notes

- 1) Weights and set dimensions represent a generator set with its standard features only. See outline drawing for other configurations.
- 2) At ISO3046 reference conditions, altitude 1013 mbar (30in Hg), air inlet temperature 25°C (77°F)
- 3) Production variation/tolerance ± 10%.
- 4) According to ISO 3046/I with fuel consumption tolerance of +5% -0%.
- 5) Production variation/tolerance ±5%.
- 6) At electrical output of 1.0 Power Factor.
- 7) Tested using pipeline natural gas with LHV of 33.44mJ/Nm<sup>3</sup> (905BTU/ft<sup>3</sup>)
- 8) Outlet temperature controlled by thermostat. Inlet temperature for reference only.
- 9) Inlet temperature controlled by thermostat, outlet temperature for reference only.
- 10) With engine driven coolant pump.
- 11) Standby (S), Prime (P), Continuous (C)
- 12) Maximum rated starting kVA that results in minimum of 90% of rated sustained voltage during starting.
- 13) Tolerance +/- 15%
- 14) Exhaust system back pressure is a rated load and will decrease at lower loads.
- 15) Tolerance +/- 20%