

**Generator set data sheet**  
**995 kW continuous**



**Model:** C995 N5C  
**Frequency:** 50 Hz  
**Fuel type:** Natural gas MI 60 +  
**Emissions NOx:** 500 mg/Nm<sup>3</sup>  
**LT water inlet temp:** 40 °C (104 °F)  
**HT water outlet temp:** 90 °C (194 °F)

<b>Measured sound performance data sheet:</b>	MSP-1067
<b>Prototype test summary data:</b>	PTS-287
<b>Generator set outline drawing:</b>	A029E093 heavy duty air cleaner A029U550 standard air cleaner

<b>Fuel consumption (ISO3046/1)</b>	<b>100% load</b>	<b>90% load</b>	<b>75% load</b>	<b>50% load</b>
Fuel consumption (LHV) ISO3046/1, kW (MMBTU/hr) <sup>1,2,3,4,5,7</sup>	2450 (8.37)	2241 (7.65)	1933 (6.6)	N/A
Mechanical efficiency ISO3046/1, percent <sup>1,2,4,5,7</sup>	41.9%	41.3%	40.1%	N/A
Electrical efficiency ISO3046/1, percent <sup>1,2,3,4,5,7</sup>	40.6%	40.0%	38.6%	N/A

**Engine**

Engine manufacturer	Cummins
Engine model	QSK60G
Configuration	V16
Displacement, L (cu.in.)	60 (3671)
Aspiration	Turbocharged (1)
Gross engine power output, kWm (hp)	1027 (1377)
BMEP, bar (psi)	19.4 (281)
Bore, mm (in.)	159 (6.26)
Stroke, mm (in.)	190 (7.48)
Rated speed, rpm	1500
Piston speed, m/s (ft/min)	9.5 (1870)
Compression ratio	13 7:1
Lube oil capacity, L (qt)	380 (400)
Overspeed limit, rpm	1875
Regenerative power, kW	N/A
Full load lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.15 (0.12)

**Fuel system**

Gas supply pressure to engine inlet, bar (psi) <sup>8</sup>	0.2 (2.9)
Minimum methane index	60

### Engine electrical system(s)

Electric starter voltage, volts	24
Ignition timing, deg before top dead center	18
Minimum battery capacity @ 40 °C (104 °F), AH	720

### Genset dimensions

Genset length, m (ft) <sup>6</sup>	5.12 (16.8)
Genset width, m (ft) <sup>6</sup>	2.23 (7.30)
Genset height, m (ft) <sup>6</sup>	2.77 (9.08)
Genset weight (wet), kg (lbs) <sup>6</sup>	14440 (31770)

#### Notes:

1. At ISO3046 reference conditions, altitude 1013 mbar (30 in. Hg), air inlet temperature 25 °C (77 °F).
2. Power output and efficiency include the effect of Cummins supplied engine driven coolant pumps.
3. At electrical output of 1.0 power factor.
4. Based on pipeline natural gas with LHV of 33.44 MJ/Nm<sup>3</sup> (905 BTU/ft<sup>3</sup>).
5. Subtract 3 °C ambient temperature capability for each 100 mm (4 in.) H<sub>2</sub>O 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.
7. According to ISO3046/1 with fuel consumption tolerance of +5% -0%.
8. Minimum gas supply pressure dependant on LHV of fuel.

	100% load	90% load	75% load	50% load
<b>Energy data</b>				
Continuous generator electrical output kWe <sup>1,5,6,7</sup>	995	896	746	N/A
Continuous shaft power, kWm (bhp) <sup>1,5,6,7</sup>	1027 (1377)	925 (1240)	774 (1038)	N/A
Total heat rejected in LT circuit, kW (MMBTU/h) <sup>2</sup>	79 (0.27)	73 (0.25)	64 (0.22)	N/A
Total heat rejected in HT circuit, kW (MMBTU/h) <sup>2</sup>	483 (1.65)	436 (1.49)	366 (1.25)	N/A
Unburnt, kW (MMBTU/h) <sup>2</sup>	62 (0.21)	56 (0.19)	47 (0.16)	N/A
Heat radiated to ambient, kW (MMBTU/h) <sup>2</sup>	159 (0.54)	146 (0.5)	128 (0.44)	N/A
Available exhaust heat to 105 °C, kW (MMBTU/h) <sup>2</sup>	606 (2.07)	561 (1.91)	496 (1.69)	N/A
<b>Intake air flow</b>				
Intake air flow mass, kg/s (lb/hr) <sup>2</sup>	1.44 (11400)	1.3 (10300)	1.1 (8710)	N/A
Intake air flow volume, m <sup>3</sup> /s @ 0 °C (scfm) <sup>2</sup>	1.12 (2500)	1.01 (2260)	0.85 (1900)	N/A
Max inlet restriction (after filter, limit for changing filters), below 35 °C ambient temp, mm HG, (in H <sub>2</sub> O)	14.7 (7.9)	11.9 (6.4)	8.3 (4.4)	N/A
Max inlet restriction (after filter, limit for changing filters), above 35 °C ambient temp, mm HG, (in H <sub>2</sub> O)	9.5 (5.1)	7.7 (4.1)	5.4 (2.9)	N/A
<b>Exhaust air flow</b>				
Exhaust gas flow mass, kg/s (lb/hr) <sup>2</sup>	1.49 (11800)	1.35 (10690)	1.14 (9030)	N/A
Exhaust gas flow volume, m <sup>3</sup> /s (cfm) <sup>2</sup>	3.14 (6650)	2.89 (6120)	2.49 (5270)	N/A
Exhaust temp after turbine, °C (°F) <sup>1</sup>	472 (882)	482 (900)	497 (927)	N/A
Max exhaust system back pressure, mm HG (in H <sub>2</sub> O) <sup>8</sup>	20 (11)	16 (9)	11 (6)	N/A
<b>HT cooling circuit</b>				
HT circuit engine coolant volume, l (gal)	181 (48)	181 (48)	181 (48)	N/A
HT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)	70 (308)	70 (308)	70 (308)	N/A
Max HT engine coolant inlet temp, °C (°F) reference <sup>3</sup>	81 (178)	82 (180)	83 (181)	N/A
HT coolant outlet temp, °C (°F) <sup>3</sup>	90 (194)	90 (194)	90 (194)	N/A
Max pressure drop in external HT circuit, bar (psig)	1 (15)	1 (15)	1 (15)	N/A
HT circuit max pressure, bar (psig)	5 (73)	5 (73)	5 (73)	N/A
Static head pump inlet, bar (psig)	0.5-1.5 (7-20)	0.5-1.5 (7-20)	0.5-1.5 (7-20)	N/A
<b>LT cooling circuit</b>				
LT circuit engine coolant volume, l (gal)	34 (9)	34 (9)	34 (9)	N/A
LT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)	23 (101)	23 (101)	23 (101)	N/A
Max LT engine coolant inlet temp, thermostat controlled °C (°F) <sup>4</sup>	40 (104)	40 (104)	40 (104)	N/A
Max pressure drop in external LT circuit, bar (psig)	1 (15)	1 (15)	1 (15)	N/A
LT circuit max pressure, bar (psig)	5 (73)	5 (73)	5 (73)	N/A
Static head pump inlet, bar (psig)	0.5-1.5 (7-20)	0.5-1.5 (7-20)	0.5-1.5 (7-20)	N/A

**Notes:**

1. At ISO3046 reference conditions, altitude 1013 mbar (30 in. 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 50 °C and ignition timing is retarded resulting in efficiency loss of 0.4 - 0.6%.
5. Power output and efficiency include the effect of Cummins supplied engine driven LT coolant pump.
6. At electrical output of 1.0 power factor.
7. Based on pipeline natural gas with LHV of 33.44 mJ/Nm<sup>3</sup> (905 BTU/ft<sup>3</sup>).
8. Subtract 3 °C ambient temperature capability for each 100 mm (4 in.) H<sub>2</sub>O back pressure above the information shown on page 2.

**Altitude and temperature derate multiplication factor <sup>1.2.3</sup>**

Barometer		Altitude		Table A								
In Hg	mbar	Feet	Meters	Derate multiplier for all operation modes								
20.7	701	9843	3000	1.00	1.00	1.00	1.00	0.99	0.95	0.86	0.75	-
21.4	723	9022	2750	1.00	1.00	1.00	1.00	1.00	0.98	0.88	0.76	-
22.1	747	8202	2500	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.76	-
22.8	771	7382	2250	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.77	-
23.5	795	6562	2000	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.78	-
24.3	820	5741	1750	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.79	-
25.0	846	4921	1500	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.79	-
25.8	872	4101	1250	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.80	-
26.6	899	3281	1000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	-
27.4	926	2461	750	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	-
28.3	954	1640	500	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	-
29.1	983	820	250	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	-
29.5	995	492	150	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	-
30.0	1012	0	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	-
Air filter inlet temperature			°C	0	15	20	25	30	35	40	45	50
			°F	32	59	68	77	86	95	104	113	122

**Methane number vs LT temp - table C <sup>4</sup>**

Methane number	LT return temperature		
	40 °C	45 °C	50 °C
70	Green	Green	Green
65	Green	Green	Yellow
60	Green	Yellow	Yellow
55	Yellow	Yellow	Red
50	Yellow	Red	Red

**Methane number capability table B**

	Load (percent of rated)			
	100%	90%	75%	50%
100%	90%	75%	50%	
60	60	60	N/A	

**Table D altitude and ambient heat rejection factor adjustment for HT and LT circuits**

**LT & HT circuit heat rejection calculation procedure**

1. Determine derate multiplier vs. temp derate from table A.
2. Using the multiplier 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.

Barometer		Altitude		Multiplier for HT & LT heat rejection vs alt & temp.									
In Hg	mbar	Feet	Meters										
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 temperature				°C	0	15	20	25	30	35	40	45	50
				°F	32	59	68	77	86	95	104	113	122

**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<sub>2</sub>O back pressure above the information shown on page 3.
4. This generator set is capable of operating for short periods of time under with the LT temperature and/or the fuel methane number outside of the recommended limits with decreased performance. Operation in the green area will result in normal performance. Operation in the yellow area is recommended only for short periods of time and will result in reduced efficiency and shorter spark plug life. Operation in the red area is NOT recommended.

**Alternator data**

Voltage range	Connection configuration	Temp rise degrees C	Duty cycle <sup>4</sup>	Single phase factor	Maximum surge kVA	Alternator data sheet	Feature code
380-440	Wye, 3 Phase	80	C	N/A	3688	331	B703-2
400-415	Wye, 3 Phase	105	C	N/A	3375	330	B792-2
3300	Wye, 3 Phase	80	C	N/A	4922	323	B592-2
6300-6600	Wye, 3 Phase	80	C	N/A	5250	521	B593-2
10500-11000	Wye, 3 Phase	80	C	N/A	5196	521	B835-2
10000	Wye, 3 Phase	80	C	N/A	5145	521	B794-2

## 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.

Emissions	100% load	90% load	75% load	50% load
NO <sub>x</sub> emissions dry, ppm <sup>1</sup>	181	181	181	N/A
NO <sub>x</sub> emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h) <sup>1</sup>	500 (1)	500 (1)	500 (1)	N/A
THC emissions wet, ppm <sup>2</sup>	1418	1410	1399	N/A
THC emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h) <sup>2</sup>	1490 (3.1)	1460 (3.1)	1420 (3.1)	N/A
NMHC emissions wet, ppm <sup>2,3</sup>	213	212	210	N/A
NMHC exhaust emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h) <sup>2,3</sup>	220 (0.5)	220 (0.5)	210 (0.5)	N/A
CO emissions (dry), ppm <sup>2</sup>	497	500	504	N/A
CO emissions rate, mg/Nm <sup>3,2</sup> @ 5% O <sub>2</sub> (g/hp-h)	800 (1.6)	800 (1.7)	790 (1.7)	N/A
CO <sub>2</sub> emissions (dry), percent <sup>1</sup>	6.9	7.0	7.2	N/A
O <sub>2</sub> emissions (dry), percent <sup>2</sup>	8.6	8.4	8.2	N/A
Particulates PM10, g/hp-h <sup>2</sup>	<0.03	<0.03	<0.03	N/A

### Notes:

1. Production variation/tolerance ±5%.
2. Tolerance +/- 15%.
3. NMHC emission are an estimate. Actual NMHC emissions 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.

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**Generator set data sheet**  
**1160 kW Continuous**



**Model:** C1160 N5C  
**Frequency:** 50 Hz  
**Fuel type:** Natural gas MI 69 +  
**Emissions NOx:** 500 mg/Nm<sup>3</sup>  
**LT water inlet temp:** 50°C (122°F)  
**HT water outlet temp:** 90°C (194°F)

Measured sound performance data sheet:	MSP-1008
Prototype test summary data:	PTS-258
Remote radiator cooling outline:	0500-5090

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	2985 (10.19)	2718 (9.28)	2312 (7.9)	1662 (5.68)
Mechanical efficiency ISO3046/1	2,4,7	40.1%	39.6%	38.9%	36.5%
Electrical efficiency ISO3046/1	2,4,6,7	38.9%	38.4%	37.6%	34.9%

**Engine**

Engine manufacturer	Cummins
Engine model	QSK60G
Configuration	V16
Displacement, L (cu.in)	60.3 (3683)
Aspiration	Turbocharged (2)
Gross engine power output, kWm (hp)	1196 (1603)
BMEP, bar (psi)	16.1 (233)
Bore, mm (in)	159 (6.26)
Stroke, mm (in)	190 (7.48)
Rated speed, rpm	1500
Piston speed, m/s (ft/min)	9.5 (1870)
Compression ratio	11.4:1
Lube oil capacity, L (qt)	380 (401)
Overspeed limit, rpm	2070
Regenerative power, kW	N/A
Full load lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.15 (0.11)

**Fuel**

Gas supply pressure to engine inlet, bar (psi) <sup>7</sup>	0.20 (2.9)
Min methane index	69

### Starting system(s)

Electric starter voltage, volts	24
Min battery capacity @ 40°C (104°F), AH	450
Air starter pressure, barg (psig)	N/A
Air starter flow, Nm <sup>3</sup> /s (scfm)	N/A

### Genset dimensions (see Note 1)

Genset length, m (ft)	5.00 (16.39)
Genset width, m (ft)	2.33 (7.64)
Genset height, m (ft)	2.97 (9.75)
Genset weight (wet), kg (lbs)	13924 (30697)

### Energy data

	See Note	100% of rated load	90% of rated load	75% of rated load	50% of rated load
Continuous shaft power, kWm (bhp)	2,10	1196 (1603)	1076 (1443)	900 (1206)	607 (813)
Continuous generator electrical output, kWe @ 1.0 pf	10	1160	1044	870	580
Heat dissipated in lube oil cooler, kW (MMBTU/h)	5	171 (0.59)	161 (0.55)	146 (0.50)	126 (0.43)
Heat dissipated in block, kW (MMBTU/h)	5	374 (1.28)	350 (1.19)	311 (1.06)	253 (0.86)
Total heat rejected in LT circuit, kW (MMBTU/h)	5	100 (0.34)	93 (0.32)	83 (0.28)	66 (0.23)
Total heat rejected in HT circuit, kW (MMBTU/h)	5	698 (2.38)	632 (2.15)	531 (1.81)	396 (1.35)
Unburnt, kW (MMBTU/h)	13	69 (0.24)	64 (0.22)	53 (0.18)	39 (0.13)
Heat radiated to ambient, kW (MMBTU/h)	13	161 (0.55)	152 (0.52)	136 (0.46)	113 (0.39)
Available exhaust heat to 105C, kW (MMBTU/h)	5	755 (2.57)	698 (2.38)	605 (2.07)	440 (1.50)

### Intake air flow

Intake air flow mass, kg/s (lb/hr)	4	1.87 (14803)	1.69 (13389)	1.42 (11212)	0.98 (7786)
Intake air flow volume, m <sup>3</sup> /s @ 0°C (scfm)	4	1.45 (3228)	1.31 (2919)	1.09 (2445)	0.76 (1698)
Max air cleaner restriction, mmHG (in H <sub>2</sub> O)		19 (10.0)	19 (10.0)	19 (10.0)	19 (10.0)

### Exhaust air flow

Exhaust gas flow mass, kg/s (lb/hr)	4	1.94 (15329)	1.75 (13867)	1.47 (11618)	1.02 (8074)
Exhaust gas flow volume, m <sup>3</sup> /s (cfm)	4	4.07 (8615)	3.72 (7880)	3.17 (6718)	2.25 (4774)
Exhaust temperature after turbine, °C (°F)	6	469 (877)	478 (892)	491 (915)	508 (946)
Max exhaust system back pressure, mmHG (in H <sub>2</sub> O)	6,14	37.3 (20.0)	37.3 (20.0)	37.3 (20.0)	37.3 (20.0)
Min exhaust system back pressure, mmHG (in H <sub>2</sub> O)	6,14	N/A	N/A	N/A	N/A

### HT cooling circuit

HT circuit engine coolant volume, l (gal)		181 (48)	181 (48)	181 (48)	181 (48)
HT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		70 (310)	70 (310)	70 (310)	70 (310)
Max HT engine coolant inlet temp, °C (°F)	8	80 (176)	80 (176)	80 (176)	80 (176)
HT coolant outlet temp, °C (°F)	8	90 (194)	90 (194)	90 (194)	90 (194)
Max pressure drop in external HT circuit, bar (psig)		1.00 (15)	1.00 (15)	1.00 (15)	1.00 (15)
HT circuit max pressure, bar (psig)		4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Min static head, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	0.5 (7)



LT cooling circuit	See Note	100% of rated load	90% of rated load	75% of rated load	50% of rated load
LT circuit engine coolant volume, l (gal)		34 (9)	34 (9)	34 (9)	34 (9)
LT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		23 (100)	23 (100)	23 (100)	23 (100)
Max LT engine coolant inlet temp, °C (°F)	9	50 (122)	50 (122)	50 (122)	50 (122)
LT coolant outlet temp, °C (°F) reference only	9	54.0 (129)	54.0 (129)	54.0 (129)	54.0 (129)
Max pressure drop in external LT circuit, bar (psig)		1.00 (15)	1.00 (15)	1.00 (15)	1.00 (15)
LT circuit max pressure, bar (psig)		4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Min static head, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	0.5 (7)

## Emissions

NO <sub>x</sub> emissions wet, ppm	5	173	169	183	180
NO <sub>x</sub> emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	5	489 (1.06)	475 (1.04)	505 (1.13)	483 (1.15)
THC emissions wet, ppm	13	1201	1227	1215	1292
THC emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	13	1330 (2.91)	1352 (2.99)	1316 (2.97)	1371 (3.29)
CO emissions (dry), ppm	13	397	398	392	389
CO emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	13	676 (1.47)	671 (1.47)	650 (1.45)	633 (1.51)
O <sub>2</sub> emissions (dry), percent	13	9.4	9.3	9.1	8.8
Particulates PM10, g/hp-h	13	< 0.03	< 0.03	< 0.03	< 0.03

## 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	0.79	0.74	0.69	0.63	0.58	-	-	-	-	
21.4	723	9022	2750	0.83	0.78	0.73	0.68	0.63	0.52	-	-	-	
22.1	747	8202	2500	0.88	0.82	0.77	0.72	0.67	0.57	-	-	-	
22.8	771	7382	2250	0.92	0.87	0.82	0.77	0.71	0.61	0.51	-	-	
23.5	795	6562	2000	0.96	0.91	0.86	0.81	0.76	0.65	0.55	-	-	
24.3	820	5741	1750	1.00	0.96	0.90	0.85	0.80	0.70	0.59	-	-	
25.0	846	4921	1500	1.00	1.00	0.95	0.90	0.85	0.74	0.64	0.53	-	
25.8	872	4101	1250	1.00	1.00	0.99	0.94	0.89	0.79	0.68	0.58	-	
26.6	899	3281	1000	1.00	1.00	1.00	0.99	0.93	0.83	0.73	0.62	0.52	
27.4	926	2461	750	1.00	1.00	1.00	1.00	0.98	0.87	0.77	0.67	0.56	
28.3	954	1640	500	1.00	1.00	1.00	1.00	1.00	0.92	0.81	0.71	0.60	
29.1	983	820	250	1.00	1.00	1.00	1.00	1.00	0.96	0.86	0.75	0.65	
29.5	995	492	150	1.00	1.00	1.00	1.00	1.00	0.98	0.87	0.77	0.67	
30.0	1012	0	0	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.80	0.69	
				°C	20	25	30	35	40	45	50	55	60
				°F	68	77	86	95	104	113	122	131	140
				Air filter inlet temperature									

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

### Temperature & altitude derate

1. Determine derate multiplier vs. temperature and altitude in Table A or B depending upon your operating condition.
2. Assumes the LT return temperature is 10°C above the air filter inlet with a maximum LT temperature of 50°C.
3. If the LT temperature exceeds 50°C, consult factory for recommendations.
4. Altitude is based upon SAE standard ambient pressure vs. altitude. For low barometric conditions add 150 m (500 ft) to site altitude.

Barometer		Altitude		Table B *									
In Hg	mbar	Feet	Meters	Derate multiplier off grid (island or load share)									
20.7	701	9843	3000	0.63	0.56	-	-	-	-	-	-	-	-
21.4	723	9022	2750	0.69	0.61	0.53	-	-	-	-	-	-	-
22.1	747	8202	2500	0.74	0.66	0.59	0.51	-	-	-	-	-	-
22.8	771	7382	2250	0.79	0.71	0.64	0.56	-	-	-	-	-	-
23.5	795	6562	2000	0.84	0.76	0.69	0.61	0.54	-	-	-	-	-
24.3	820	5741	1750	0.89	0.82	0.74	0.66	0.59	-	-	-	-	-
25.0	846	4921	1500	0.94	0.87	0.79	0.72	0.64	0.53	-	-	-	-
25.8	872	4101	1250	1.00	0.92	0.84	0.77	0.69	0.58	-	-	-	-
26.6	899	3281	1000	1.00	0.97	0.89	0.82	0.74	0.63	0.52	-	-	-
27.4	926	2461	750	1.00	1.00	0.95	0.87	0.79	0.68	0.57	-	-	-
28.3	954	1640	500	1.00	1.00	1.00	0.92	0.85	0.73	0.62	0.51	-	-
29.1	983	820	250	1.00	1.00	1.00	0.97	0.90	0.78	0.67	0.56	-	-
29.5	995	492	150	1.00	1.00	1.00	0.99	0.92	0.81	0.69	0.58	-	-
30.0	1012	0	0	1.00	1.00	1.00	1.00	0.95	0.84	0.72	0.61	0.50	-
				°C	20	25	30	35	40	45	50	55	60
				°F	68	77	86	95	104	113	122	131	140
				Air filter inlet temperature									

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

#### Methane number capability

Load (percent of rated)			
100%	90%	75%	50%
69	61	52	46

#### 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

1. Determine derate multiplier vs. temperature derate per above.
2. Using the multiplier from #1 above as the percent load factor determine the heat rejection from the previous page.
3. From Table C 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.

## Alternator data

Voltage range	Connection configuration	Temp rise °C	Duty <sup>11</sup> cycle	Single phase factor	Maximum surge kVA <sup>12</sup>	Alternator data sheet	Feature code
380-440	Wye, 3 Phase	80	C	N/A	4563	333	B703-2
380-440	Wye, 3 Phase	105	C	N/A	4563	333	B551-2
400-415	Wye, 3 Phase	105	C	N/A	3960	332	D792-2
3300	Wye, 3 Phase	80	C	N/A	7926	324	B592-2
3300	Wye, 3 Phase	105	C	N/A	4922	323	B471-2
6300-6600	Wye, 3 Phase	80	C	N/A	5250	521	B593-2
10000	Wye, 3 Phase	80	C	N/A	5145	521	B794-2
10500-11000	Wye, 3 Phase	80	C	N/A	5196	521	B835-2

## 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.

Note:

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

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

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**Generator set data sheet**  
**1200 kW continuous**



**Model:** C1200 N5C  
**Frequency:** 50 Hz  
**Fuel type:** Natural gas MI 62 +  
**Emissions performance NOx:** 250 Mg/Nm<sup>3</sup>  
**LT water inlet temperature:** 40 °C (104 °F)  
**HT water outlet temperature:** 90 °C (194 °F)

<b>Measured sound performance data sheet:</b>	N/A
<b>Prototype test summary data:</b>	N/A
<b>Remote radiator cooling outline:</b>	A029U550 normal duty air filtration A029E093 heavy duty air filtration

<b>Fuel consumption (ISO3046/1)</b>	<b>See note</b>	<b>100% of rated load</b>	<b>90% of rated load</b>	<b>75% of rated load</b>	<b>50% of rated load</b>
Fuel consumption (LHV) ISO3046/1, kW (MMBTU/hr)	2,3,6,11	2947 (10.06)	2675 (9.14)	2313 (7.9)	-
Mechanical efficiency ISO3046/1, percent	2,3,6	41.9%	41.6%	40.2%	-
Electrical efficiency ISO3046/1, percent	2,3,6,11	40.7%	40.4%	38.9%	-

**Engine**

Engine manufacturer	Cummins
Engine model	QSK60G
Configuration	V16
Displacement, L (cu.in.)	60 (3671)
Aspiration	Turbocharged (1)
Gross engine power output, kWm (hp)	1236 (1657)
BMEP, bar (psi)	16.5 (239.25)
Bore, mm (in.)	159 (6.26)
Stroke, mm (in.)	190 (7.48)
Rated speed, rpm	1500
Piston speed, m/s (ft/min)	9.5 (1870)
Compression ratio	13.7:1
Lube oil capacity, L (qt)	380 (400)
Overspeed limit, rpm	1875
Full load lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.15 (0.11)

**Fuel**

Gas supply pressure to engine inlet, bar (psi) <sup>6</sup>	0.20 (2.9)
Minimum methane index	62

### Starting system(s)

Electric starter voltage, volts	24
Minimum battery capacity @ 40 °C (104 °F), AH	450
Air starter pressure, barg (psig)	N/A
Air starter flow Nm <sup>3</sup> /s (scfm)	N/A

### Genset dimensions (see note 1)

Genset length, m (ft)	5.12 (16.8)
Genset width, m (ft)	2.23 (7.30)
Genset height, m (ft)	2.77 (9.08)
Genset weight (wet), kg (lbs)	15450 (33,990)

	See note	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	9,11	1200	1080	900	-
Total heat rejected in LT circuit, kW (MMBTU/h)	4	98 (0.34)	86 (0.30)	70 (0.24)	-
Total heat rejected in HT circuit, kW (MMBTU/h)	4	605 (2.06)	543 (1.85)	495 (1.69)	-
Unburnt, kW (MMBTU/h)	12	92 (0.32)	84 (0.29)	61 (0.21)	-
Heat radiated to ambient, kW (MMBTU/h)	12	189 (0.64)	172 (0.59)	149 (0.51)	-
Available exhaust heat to 105 °C, kW (MMBTU/h)	4	737 (2.51)	686 (2.34)	561 (1.91)	-
<b>Intake air flow</b>					
Intake air flow mass, kg/s (lb/hr)	3	1.82 (14410)	1.65 (13070)	1.26 (9980)	-
Intake air flow volume, m <sup>3</sup> /s @ 0 °C (scfm)	3	1.41 (3150)	1.28 (2860)	0.97 (2170)	-
Max air cleaner restriction below 35 °C, mm HG (in H <sub>2</sub> O)		28 (15.0)	-	-	-
Max air cleaner restriction above 35 °C, mm HG (in H <sub>2</sub> O)		14 (7.3)	-	-	-
<b>Exhaust air flow</b>					
Exhaust gas flow mass, kg/s (lb/hr)	3	1.88 (14890)	1.71 (13540)	1.30 (10300)	-
Exhaust gas flow volume, m <sup>3</sup> /s (cfm)	3	3.85 (8150)	3.55 (7520)	2.80 (5930)	-
Exhaust temp after turbine, °C (°F)	2,11	450 (841)	459 (858)	486 (907)	-
Max exhaust system back pressure, mm HG (in H <sub>2</sub> O)	11,13	28.0 (15.0)	-	-	-
Min exhaust system back pressure, mm HG (in H <sub>2</sub> O)	11,13	-	-	-	-
<b>HT cooling circuit</b>					
HT circuit engine coolant volume, l (gal)		181 (48)	181 (48)	181 (48)	-
HT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		70 (310)	70 (310)	70 (310)	-
Max HT engine coolant inlet temp, °C (°F)	7	80 (176)	80 (177)	82 (180)	-
HT coolant outlet temp, °C (°F)	7	90 (194)	90 (194)	90 (194)	-
Max pressure drop in external HT circuit, bar (psig)		1.0 (15)	1.0 (15)	1.0 (15)	-
HT circuit max pressure, bar (psig)		5.0 (73)	5.0 (73)	5.0 (73)	-
Min static head - pump inlet, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	-
<b>LT cooling circuit</b>					
LT circuit engine coolant volume, l (gal)		34 (9)	34 (9)	34 (9)	-
LT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		23 (101)	23 (101)	23 (101)	-
Max LT engine coolant inlet temp, °C (°F)	8	40 (104)	40 (104)	40 (104)	-
LT coolant outlet temp, °C (°F) reference only	8	50 (122)	50 (122)	50 (122)	-
Max pressure drop in external LT circuit, bar (psig)		1.0 (15)	1.0 (15)	1.0 (15)	-
LT circuit max pressure, bar (psig)		5.0 (73)	5.0 (73)	5.0 (73)	-
Min static head - pump inlet, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	-

	See note	100% of rated load	90% of rated load	75% of rated load	50% of rated load
<b>Emissions</b>					
NO <sub>x</sub> emissions dry, ppm	14	87	86	92	-
NO <sub>x</sub> emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	14	200 (0.50)	200 (0.50)	200 (0.50)	-
THC emissions wet, ppm	12	1696	1707	1612	-
THC emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	12	1878 (4.00)	1876 (4.00)	1714 (4.00)	-
NMHC emissions wet, ppm	12	339	341	322	-
NMHC exhaust emissions, mg/Nm <sup>3</sup> (g/hp-h)	12	380 (0.8)	380 (0.8)	380 (0.8)	-
CO emissions (dry), ppm	12	529	508	469	-
CO emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	12	910 (1.90)	860 (1.80)	770 (1.70)	-
CO <sub>2</sub> emissions (dry), percent	12	6.5	6.6	6.8	-
O <sub>2</sub> emissions (dry), percent	12	9.3	9.2	8.8	-
Particulates PM10, g/hp-h	12	< 0.03	< 0.03	< 0.03	-

### Genset de-rating Altitude and temperature derate multiplication factor

Barometer		Altitude		Table A * Derate multiplier with grid parallel operation									
In Hg	mbar	Feet	Meters										
20.7	701	9843	3000	0.88	0.88	0.82	0.79	0.71	0.62	-	-	-	-
21.4	723	9022	2750	0.92	0.91	0.85	0.82	0.73	0.63	-	-	-	-
22.1	747	8202	2500	0.96	0.95	0.89	0.84	0.75	0.64	-	-	-	-
22.8	771	7382	2250	1.00	0.98	0.93	0.87	0.76	0.64	-	-	-	-
23.5	795	6562	2000	1.00	1.00	0.97	0.90	0.78	0.65	-	-	-	-
24.3	820	5741	1750	1.00	1.00	1.00	0.95	0.79	0.66	-	-	-	-
25.0	846	4921	1500	1.00	1.00	1.00	0.99	0.81	0.66	-	-	-	-
25.8	872	4101	1250	1.00	1.00	1.00	1.00	0.83	0.67	-	-	-	-
26.6	899	3281	1000	1.00	1.00	1.00	1.00	0.84	0.68	-	-	-	-
27.4	926	2461	750	1.00	1.00	1.00	1.00	0.86	0.68	-	-	-	-
28.3	954	1640	500	1.00	1.00	1.00	1.00	0.88	0.69	-	-	-	-
29.1	983	820	250	1.00	1.00	1.00	1.00	0.88	0.69	-	-	-	-
29.5	995	492	150	1.00	1.00	1.00	1.00	0.88	0.69	-	-	-	-
30.0	1012	0	0	1.00	1.00	1.00	1.00	0.88	0.69	-	-	-	-
				°C	20	25	30	35	40	45	50	55	60
				°F	68	77	86	95	104	113	122	131	140
				Air filter inlet temperature									

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

#### Temperature & altitude derate

1. Determine derate multiplier vs. temperature and altitude in Table A depending upon your operating condition.
2. Assumes the LT return temperature is 10°C above the air filter inlet with a maximum LT temperature of 50°C.
3. If the LT temperature exceeds 50°C, consult factory for recommendations.
4. Altitude is based upon SAE standard ambient pressure vs. altitude. For low barometric conditions add 150 m (500 ft) to site altitude.

**Heat rejection factor (altitude and ambient) for HT and LT circuits**

Barometer		Altitude		Table B Multiplier for HT & LT heat rejection vs alt & temp.									
In Hg	mbar	Feet	Meters										
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	
				°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**

1. Determine derate multiplier vs. temperature derate per Table A.
2. Using the multiplier from #1 in Table A as the percent load factor determine the heat rejection from the previous page.
3. From Table B 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.

**Methane number vs LT temp - table C<sup>4</sup>**

Methane number	LT return temperature		
	40 °C	45 °C	50 °C
72	Green	Green	Green
67	Green	Green	Yellow
62	Green	Yellow	Yellow
57	Yellow	Yellow	Red
52	Yellow	Red	Red

**Methane number capability**

Load (percent of rated)			
100%	90%	75%	50%
62	60	60	-

### Alternator data

Voltage range	Connection configuration	Temp rise degrees C	Duty <sup>10</sup> cycle	Single phase factor	Alternator data sheet	Feature code
380-440	Wye, 3 Phase	80	C	N/A	334	B703-2
3300	Wye, 3 Phase	80	C	N/A	518	B592-2
6300-6600	Wye, 3 Phase	80	C	N/A	521	B593-2
10000	Wye, 3 Phase	80	C	N/A	521	B794-2
10500-11000	Wye, 3 Phase	80	C	N/A	521	B835-2

### 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).

#### 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 (30 in. Hg), air inlet temperature 25 °C (77 °F).
- 3) According to ISO3046/I with fuel consumption tolerance of +5% -0%.
- 4) Production variation/tolerance ±10%.
- 5) With air intake at 25 °C (77 °F). Tolerance ± 10 °F.
- 6) Tested using pipeline natural gas with LHV of 33.44 mJ/Nm<sup>3</sup> (905 BTU/ft<sup>3</sup>).
- 7) Outlet temperature controlled by thermostat. Inlet temperature for reference only.
- 8) Inlet temperature controlled by thermostat. Outlet temperature for reference only.
- 9) With off engine coolant pumps.
- 10) Standby (S), Prime (P), Continuous (C).
- 11) At electrical output of 1.0 power factor.
- 12) Tolerance +/- 15%.
- 13) Exhaust system back pressure is at rated load and will decrease at lower loads.
- 14) Tolerance ±10% for 500 mg, ±14% for 350 mg & ±20% for 250 mg.

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**Generator Set Data Sheet**  
**1540 kW Continuous**



**Model:** C1540 N5CC  
**Frequency:** 50 Hz  
**Fuel Type:** Natural Gas MI 70 +  
**Emissions Performance NOx:** 500 Mg/Nm<sup>3</sup>  
**LT Water Inlet Temperature:** 45 °C (113 °F)  
**HT Water Outlet Temperature:** 90 °C (194 °F)

**Generator Set Outline Drawing:** A042T047

<b>Fuel Consumption (ISO3046/1)</b>	<b>See note</b>	<b>100% of rated load</b>	<b>90% of rated load</b>	<b>75% of rated load</b>	<b>50% of rated load</b>
Fuel consumption (LHV) ISO3046/1, kW (MMBTU/hr)	2,3,6,9	3513 (12)	3187 (10.88)	2710 (9.26)	1899 (6.49)
Mechanical efficiency ISO3046/1, percent	2,3,6	45.2%	44.8%	43.9%	41.8%
Electrical efficiency ISO3046/1, percent	2,9,11	43.8%	43.5%	42.6%	40.5%

**Engine**

Engine manufacturer	Cummins
Engine model	QSK60G
Configuration	V16
Displacement, L (cu.in.)	60 (3661)
Aspiration	Turbocharged (1)
Gross engine power output, kWm (hp)	1588 (2128)
BMEP, bar (psi)	21.2 (307.4)
Bore, mm (in.)	159 (6.26)
Stroke, mm (in.)	190 (7.48)
Rated speed, rpm	1500
Piston speed, m/s (ft/min)	9.5 (1870)
Compression ratio	13.7:1
Lube oil capacity, L (qt)	380 (400)
Overspeed limit, rpm	1875
Full load lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.15 (0.11)

**Fuel**

Gas supply pressure to engine inlet, bar (psi) <sup>6</sup>	0.20 (2.9)
Minimum methane index	70

### Starting System(s)

Electric starter voltage, volts	24
Minimum battery capacity @ 40 °C (104 °F), AH	720
Air starter pressure, barg (psig)	N/A
Air starter flow Nm <sup>3</sup> /s (scfm)	N/A

### Genset Dimensions (see note 1)

Genset length, m (ft)	5.12 (16.8)
Genset width, m (ft)	2.23 (7.32)
Genset height, m (ft)	2.84 (9.32)
Genset weight (wet), kg (lbs)	16,976 (37,956)

	See note	100% of rated load	90% of rated load	75% of rated load	50% of rated load
<b>Energy Data</b>					
Continuous generator electrical output kW @ 1.0 pf	2,6,11	1540	1386	1155	770
Total heat rejected in LT circuit, kW (MMBTU/h)	16	119 (0.41)	104 (0.35)	84 (0.29)	59 (0.20)
Total heat rejected in HT circuit, kW (MMBTU/h)	16	898 (3.06)	793 (2.71)	654 (2.23)	471 (1.61)
Unburnt, kW (MMBTU/h)	12	67 (0.23)	64 (0.22)	54 (0.19)	37 (0.13)
Heat radiated to ambient, kW (MMBTU/h)	16	230 (0.78)	208 (0.71)	176 (0.60)	122 (0.42)
Available exhaust heat to 105 °C, kW (MMBTU/h)	16	721 (2.46)	690 (2.35)	626 (2.14)	484 (1.65)
<b>Intake Air Flow</b>					
Intake air flow mass, kg/s (lb/hr)	16	2.14 (16950)	1.92 (15210)	1.60 (12670)	1.06 (8630)
Intake air flow volume, m <sup>3</sup> /s @ 0 °C (scfm)	16	1.65 (3690)	1.48 (3310)	1.24 (2770)	0.84 (1880)
Max air cleaner restriction below 35 °C, mm HG (in H <sub>2</sub> O)		11 (5.9)	-	-	-
Max air cleaner restriction above 35 °C, mm HG (in H <sub>2</sub> O)		11 (5.9)	-	-	-
<b>Exhaust Air Flow</b>					
Exhaust gas flow mass, kg/s (lb/hr)	16	2.22 (17580)	1.99 (15760)	1.66 (13150)	1.14 (9030)
Exhaust gas flow volume, m <sup>3</sup> /s (cfm)	16	4.06 (8600)	3.74 (7920)	3.22 (6820)	2.35 (4980)
Exhaust temp after turbine, °C (°F)	5	373 (20.0)	390 (734)	411 (772)	454 (848)
Max exhaust system back pressure, mm HG (in H <sub>2</sub> O)	13	37.3 (20.0)	-	-	-
Min exhaust system back pressure, mm HG (in H <sub>2</sub> O)	13	18.4 (10)	-	-	-
<b>HT Cooling Circuit</b>					
HT circuit engine coolant volume, l (gal)		181 (48)	181 (48)	181 (48)	181 (48)
HT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		70 (308)	70 (308)	70 (308)	70 (308)
Max HT engine coolant inlet temp, °C (°F)	7	78 (172)	79 (174)	81 (178)	83 (182)
HT coolant outlet temp, °C (°F)	7	90 (194)	90 (194)	90 (194)	90 (194)
Max pressure drop in external HT circuit, bar (psig)		1.0 (15)	1.0 (15)	1.0 (15)	1.0 (15)
HT circuit max pressure, bar (psig)		5.0 (73)	5.0 (73)	5.0 (73)	5.0 (73)
Min static head - pump inlet, 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)		34 (9)	34 (9)	34 (9)	34 (9)
LT coolant flow @ max ext restriction, m <sup>3</sup> /h (gal/min)		23 (100)	23 (100)	23 (100)	23 (100)
Max LT engine coolant inlet temp, °C (°F)	8	55 (131)	55 (131)	55 (131)	55 (131)
LT coolant outlet temp, °C (°F) reference only	8	45 (113)	45 (113)	45 (113)	45 (113)
Max pressure drop in external LT circuit, bar (psig)		1.0 (15)	1.0 (15)	1.0 (15)	1.0 (15)
LT circuit max pressure, bar (psig)		5.0 (73)	5.0 (73)	5.0 (73)	5.0 (73)
Min static head - pump inlet, bar (psig)		0.5 (7)	0.5 (7)	0.5 (7)	0.5 (7)

	See note	100% of rated load	90% of rated load	75% of rated load	50% of rated load
<b>Emissions</b>					
NO <sub>x</sub> emissions dry, ppm	14	168	168	176	180
NO <sub>x</sub> emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	14	500 (1.00)	500 (1.00)	500 (1.00)	500 (1.00)
THC emissions wet, ppm	12	1213	1303	1388	1424
THC emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	12	1349 (3.00)	1465 (3.00)	1537 (3.00)	1519 (3.00)
CH <sub>4</sub> emissions wet, ppm	12	841	1028	1092	1117
CH <sub>4</sub> emission, mg/Nm <sup>3</sup> (g/hp-h)	12	948 (2.0)	1176 (2.0)	1230 (2.0)	1213 (2.0)
NMHC emissions wet, ppm	12	372	275	296	308
NMHC exhaust emissions, mg/Nm <sup>3</sup> (g/hp-h)	12	420 (0.8)	311 (0.9)	330 (0.8)	329 (0.8)
VOC wet, ppm	12	229	263	282	294
VOC, mg/Nm <sup>3</sup> (g/hp-h)	12	256 (0.5)	298 (0.6)	314 (0.6)	315 (0.7)
Formaldehyde wet, ppm	12	81	82	82	84
Formaldehyde, mg/Nm <sup>3</sup> (g/hp-h)	12	169 (0.3)	175 (0.3)	174 (0.3)	171 (0.4)
CO emissions (dry), ppm	4	446	453	454	459
CO emissions, mg/Nm <sup>3</sup> @ 5% O <sub>2</sub> (g/hp-h)	4	757 (1.50)	777 (1.50)	768 (1.50)	746 (1.60)
CO <sub>2</sub> emissions (dry), percent	4	6.6	6.7	6.7	7.0
CO <sub>2</sub> emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	4	175549 (342)	179914 (345)	179235 (350)	178957 (377)
O <sub>2</sub> emissions (dry), percent	4	9.2	9.3	9.2	8.7
Particulates PM10, g/hp-h	4	< 0.04	< 0.04	< 0.04	< 0.04

### Genset De-rating Altitude and temperature derate multiplication factor

Barometer		Altitude		Table A * Derate multiplier with grid parallel operation									
In Hg	mbar	Feet	Meters										
20.7	701	9843	3000	0.74	0.75	0.73	0.69	0.64	-	-	-	-	-
21.4	723	9022	2750	0.77	0.77	0.75	0.71	0.67	0.62	-	-	-	-
22.1	747	8202	2500	0.80	0.80	0.78	0.74	0.69	0.65	-	-	-	-
22.8	771	7382	2250	0.83	0.83	0.80	0.76	0.71	0.67	-	-	-	-
23.5	795	6562	2000	0.86	0.86	0.83	0.79	0.74	0.69	-	-	-	-
24.3	820	5741	1750	0.89	0.89	0.86	0.81	0.76	0.72	-	-	-	-
25.0	846	4921	1500	0.92	0.92	0.89	0.84	0.79	0.74	-	-	-	-
25.8	872	4101	1250	0.95	0.95	0.92	0.87	0.82	0.77	-	-	-	-
26.6	899	3281	1000	0.98	0.98	0.95	0.90	0.84	0.79	0.74	-	-	-
27.4	926	2461	750	1.00	1.00	0.98	0.93	0.87	0.82	0.77	-	-	-
28.3	954	1640	500	1.00	1.00	1.00	0.96	0.90	0.84	0.79	-	-	-
29.1	983	820	250	1.00	1.00	1.00	0.99	0.93	0.87	0.82	-	-	-
29.5	995	492	150	1.00	1.00	1.00	1.00	0.94	0.88	0.83	-	-	-
30.0	1012	0	1.00	1.00	1.00	1.00	1.00	0.96	0.90	0.84	-	-	-
				°C	20	25	30	35	40	45	50	55	60
				°F	68	77	86	95	104	113	122	131	140
				Air filter inlet temperature									

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

### Temperature & Altitude Derate

1. Determine derate multiplier vs. temperature and altitude in Table A depending upon your operating condition.
2. Assumes the LT return temperature is 10°C above the air filter inlet with a maximum LT temperature of 50°C.
3. If the LT temperature exceeds 50°C, consult factory for recommendations.
4. Altitude is based upon SAE standard ambient pressure vs. altitude. For low barometric conditions add 150 m (500 ft) to site altitude.

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

Barometer		Altitude		Table B Multiplier for HT & LT heat rejection vs alt & temp.									
In Hg	mbar	Feet	Meters										
20.7	701	9843	3000	1.14	1.16	1.18	1.20	1.22	1.25	1.27	1.29	-	
21.4	723	9022	2750	1.12	1.14	1.17	1.19	1.21	1.23	1.25	1.27	-	
22.1	747	8202	2500	1.11	1.13	1.15	1.17	1.20	1.22	1.24	1.26	-	
22.8	771	7382	2250	1.10	1.12	1.14	1.16	1.18	1.20	1.23	1.25	-	
23.5	795	6562	2000	1.08	1.10	1.12	1.15	1.17	1.1	1.21	1.23	-	
24.3	820	5741	1750	1.07	1.09	1.11	1.13	1.15	1.18	1.20	1.22	-	
25.0	846	4921	1500	1.05	1.08	1.10	1.12	1.14	1.16	1.18	1.21	-	
25.8	872	4101	1250	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.19	-	
26.6	899	3281	1000	1.03	1.05	1.07	1.09	1.11	1.13	1.16	1.18	-	
27.4	926	2461	750	1.01	1.03	1.06	1.08	1.10	1.12	1.14	1.16	-	
28.3	954	1640	500	1.00	1.02	1.04	1.06	1.08	1.11	1.13	1.15	-	
29.1	983	820	250	0.98	1.01	1.03	1.05	1.07	1.09	1.11	1.14	-	
29.5	995	492	150	0.98	1.00	1.02	1.04	1.06	1.09	1.11	1.13	-	
30.0	1012	0	0	0.97	0.99	1.01	1.03	1.06	1.08	1.10	1.12	-	
				°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**

1. Determine derate multiplier vs. temperature derate per Table A.
2. Using the multiplier from #1 in Table A as the percent load factor determine the heat rejection from the previous page.
3. From Table B 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.

**Methane Number Capability**

Load (percent of rated)			
100%	90%	75%	50%
70	70	70	70

## Alternator Data

Voltage range	Connection configuration	Temp rise degrees C	Duty <sup>10</sup> cycle	Single phase factor	Alternator data sheet
380-440	Wye, 3 Phase	80/105	C	N/A	Note 17
400-415	Wye, 3 Phase	80/105	C	N/A	Note 17
3300	Wye, 3 Phase	80/105	C	N/A	Note 17
6600	Wye, 3 Phase	80/105	C	N/A	Note 17
10000	Wye, 3 Phase	80/105	C	N/A	Note 17
11000	Wye, 3 Phase	80/105	C	N/A	Note 17
13200	Wye, 3 Phase	80/105	C	N/A	Note 17

## 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).

### 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 (30 in. Hg), air inlet temperature 25 °C (77 °F).
- 3) According to ISO3046/I with fuel consumption tolerance of +5% -0%.
- 4) Production variation/tolerance ±10%.
- 5) With air intake at 25 °C (77 °F). Tolerance ± 10 °F.
- 6) Tested using pipeline natural gas with LHV of 33.44 mJ/Nm<sup>3</sup> (905 BTU/ft<sup>3</sup>).
- 7) Outlet temperature controlled by thermostat. Inlet temperature for reference only.
- 8) Inlet temperature controlled by thermostat. Outlet temperature for reference only.
- 9) With off engine coolant pumps.
- 10) Standby (S), Prime (P), Continuous (C).
- 11) At electrical output of 1.0 power factor.
- 12) Tolerance +/- 15%.
- 13) Exhaust system back pressure is at rated load and will decrease at lower loads.
- 14) Tolerance ±10% for 500 mg, ±14% for 350 mg & ±20% for 250 mg.
- 15) N/A = Not Applicable
- 16) Tolerance +/- 5%
- 17) Alternator model and data sheet information available on [www.powersuite.cummins.com](http://www.powersuite.cummins.com)

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## Generator Set Data Sheet

### 1600kW Continuous



<b>Model:</b>	<b>C1600 N5CD</b>
<b>Frequency:</b>	<b>50 Hz</b>
<b>Fuel Type:</b>	<b>Pipeline Natural Gas</b>
<b>Emissions NOx:</b>	<b>500 mg/Nm<sup>3</sup></b>
<b>LT water inlet temp:</b>	<b>50°C (122°F)</b>
<b>HT water outlet temp:</b>	<b>90°C (194°F)</b>
<b>Ambient temp capability:</b>	<b>≤ 40 °C (104 °F)</b>

Measured sound performance data sheet:	MSP-4005
Prototype test summary data:	
Remote radiator cooling outline:	

<b>Fuel Consumption (ISO3046/1)</b>	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)	2,3,5,7	3690 (12.6)	3362 (11.48)	2865 (9.78)	Below Minimum
Electrical Efficiency ISO3046/1, percent	2,5,7,8	43.4%	42.8%	41.9%	Tested
Thermal Efficiency ISO3046/1, percent	2,5,7,13	47.2%	47.6%	48.4%	Power

### Engine

Engine Manufacturer	Cummins
Engine Model	HSK78G
Configuration	V12
Displacement, L (cu.in)	78 (4778)
Aspiration	Turbocharged and Charge Air Aftercooled
Gross Engine Power Output, kWm (hp)	1649 (2211)
BMEP, bar (psi)	17.9 (259)
Bore, mm (in)	190 (7.48)
Stroke, mm (in)	230 (9.06)
Rated Speed, rpm	1500
Piston Speed, m/s (ft/min)	11.5 (2264)
Compression Ratio	13.0:1
Lube Oil Capacity, L (qt)	617 (652)
Full Load Lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.2 (0.15)

### Fuel

Gas supply pressure to FSOV inlet, bar (psi)	0.15 - 0.45 (2.2 - 6.5)
Minimum Methane Index	55

## Starting System(s)

Electric Starter Voltage, volts	24
Minimum Battery Capacity @ 40°C (104°F), AH	358

## Genset dimensions (see Note 1)

Genset Length, m (ft)	6.9 (22)
Genset Width, m (ft)	2.2 (7)
Genset Height, m (ft)	2.8 (9)
Genset Weight (wet), kg (lbs)	23166 (51072)

## Energy data

	See Notes	100% of Rated Load	90% of Rated Load	75% of Rated Load	50% of Rated Load
Heat Radiated to Ambient, kW (MMBTU/h)	11	214 (0.73)	193 (0.66)	163 (0.56)	113 (0.39)
Total Heat Rejected in HT Circuit, kW (MMBTU/h)	11	1180 (4.03)	1035 (3.53)	868 (2.96)	593 (2.02)
Available Exhaust heat to 120°C, kW (MMBTU/h)	11	897 (3.06)	853 (2.91)	763 (2.60)	599 (2.04)

## Exhaust air flow

Exhaust Gas Flow Mass, kg/s (lb/hr)	11	3.22 (25563)	2.89 (22936)	2.43 (19272)	1.66 (13148)
Exhaust Gas Flow Volume, m <sup>3</sup> /s (cfm)	11	6.05 (12810)	5.55 (11750)	4.81 (10180)	3.51 (7430)
Exhaust Temperature After Turbine, °C (°F)	4	390 (734)	405 (760)	426 (800)	474 (886)
Max Exhaust System Back Pressure, mmHG (in H <sub>2</sub> O)	10	36.8 (19.7)	36.8 (19.7)	36.8 (19.7)	36.8 (19.7)

## Cooling circuits

Max Pressure Drop in External HT Circuit, bar (psig)	12	1.3 (19)	1.3 (19)	1.3 (19)	1.3 (19)
Maximum LT Engine Coolant Inlet Temp, °C (°F)	6	50 (122)	50 (122)	50 (122)	50 (122)

## Emissions

NO <sub>x</sub> Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)		493 (0.94)	489 (0.94)	494 (0.97)	490 (1.01)
THC Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	9	1500 (2.87)	1549 (2.98)	1646 (3.22)	1817 (3.76)
CO Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	11	980 (1.65)	992 (1.68)	1008 (1.73)	1014 (1.83)

## 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).

1) Weights and set dimensions represent a generator set with its standard features, no FSOV installed, and HV P80T alternator. See outline drawing for other configurations.

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

3) According to ISO 3046/I with fuel consumption tolerance of +5%, -0%

4) With air intake at 25°C (77°F). Tolerance ± 10°C.

5) Tested using pipeline natural gas with LHV of 35.64MJ/Nm<sup>3</sup> (905BTU/scf).

6) Inlet temperature controlled by thermostat, outlet temperature for reference only. Data taken with 50% Glycol.

7) Without engine driven coolant pumps

8) At electrical output of 1.0 Power Factor, 97% Alternator Efficiency

9) Tolerance ±15%. Values shown are measured using fuel with less than 1% NMHC by volume. Values can vary significantly depending on NMHC found in the fuel.

10) Exhaust system back pressure is at rated load and will decrease at lower loads. Minimum restriction/back pressure is 0 mm H<sub>2</sub>O.

11) Tolerance +/- 10%

12) Pressure drop external to genset.

13) Exhaust gas cooled to 120 °C.

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## Generator Set Data Sheet

### 1800kW Continuous



<b>Model:</b>	<b>C1800 N5CD</b>
<b>Frequency:</b>	<b>50 Hz</b>
<b>Fuel Type:</b>	<b>Pipeline Natural Gas</b>
<b>Emissions NOx:</b>	<b>500 mg/Nm<sup>3</sup></b>
<b>LT water inlet temp:</b>	<b>50°C (122°F)</b>
<b>HT water outlet temp:</b>	<b>90°C (194°F)</b>
<b>Ambient temp capability:</b>	<b>≤ 40 °C (104 °F)</b>

Measured sound performance data sheet:	MSP-4005
Prototype test summary data:	
Remote radiator cooling outline:	

<b>Fuel Consumption (ISO3046/1)</b>	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)	2,3,5,7	4104 (14.02)	3735 (12.75)	3179 (10.86)	Below Minimum
Electrical Efficiency ISO3046/1, percent	2,5,7,8	43.9%	43.4%	42.5%	Tested
Thermal Efficiency ISO3046/1, percent	2,5,7,13	46.3%	46.7%	47.4%	Power

### Engine

Engine Manufacturer	Cummins
Engine Model	HSK78G
Configuration	V12
Displacement, L (cu.in)	78 (4778)
Aspiration	Turbocharged and Charge Air Aftercooled
Gross Engine Power Output, kWm (hp)	1856 (2487)
BMEP, bar (psi)	19.9 (289)
Bore, mm (in)	190 (7.48)
Stroke, mm (in)	230 (9.06)
Rated Speed, rpm	1500
Piston Speed, m/s (ft/min)	11.5 (2264)
Compression Ratio	13.0:1
Lube Oil Capacity, L (qt)	617 (652)
Full Load Lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.2 (0.15)

### Fuel

Gas supply pressure to FSOV inlet, bar (psi)	0.15 - 0.45 (2.2 - 6.5)
Minimum Methane Index	60



## Starting System(s)

Electric Starter Voltage, volts	24
Minimum Battery Capacity @ 40°C (104°F), AH	358

## Genset dimensions (see Note 1)

Genset Length, m (ft)	6.9 (22)
Genset Width, m (ft)	2.2 (7)
Genset Height, m (ft)	2.8 (9)
Genset Weight (wet), kg (lbs)	23166 (51072)

## Energy data

	See Notes	100% of Rated Load	90% of Rated Load	75% of Rated Load	50% of Rated Load
Heat Radiated to Ambient, kW (MMBTU/h)	11	214 (0.73)	193 (0.66)	163 (0.56)	113 (0.39)
Total Heat Rejected in HT Circuit, kW (MMBTU/h)	11	1180 (4.03)	1035 (3.53)	868 (2.96)	593 (2.02)
Available Exhaust heat to 120°C, kW (MMBTU/h)	11	897 (3.06)	853 (2.91)	763 (2.60)	599 (2.04)

## Exhaust air flow

Exhaust Gas Flow Mass, kg/s (lb/hr)	11	3.22 (25563)	2.89 (22936)	2.43 (19272)	1.66 (13148)
Exhaust Gas Flow Volume, m <sup>3</sup> /s (cfm)	11	6.05 (12810)	5.55 (11750)	4.81 (10180)	3.51 (7430)
Exhaust Temperature After Turbine, °C (°F)	4	390 (734)	405 (760)	426 (800)	474 (886)
Max Exhaust System Back Pressure, mmHG (in H <sub>2</sub> O)	10	36.8 (19.7)	36.8 (19.7)	36.8 (19.7)	36.8 (19.7)

## Cooling circuits

Max Pressure Drop in External HT Circuit, bar (psig)	12	1.3 (19)	1.3 (19)	1.3 (19)	1.3 (19)
Maximum LT Engine Coolant Inlet Temp, °C (°F)	6	50 (122)	50 (122)	50 (122)	50 (122)

## Emissions

NO <sub>x</sub> Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)		493 (0.94)	489 (0.94)	494 (0.97)	490 (1.01)
THC Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	9	1500 (2.87)	1549 (2.98)	1646 (3.22)	1817 (3.76)
CO Emissions, mg/Nm <sup>3</sup> @5% O <sub>2</sub> (g/hp-h)	11	980 (1.65)	992 (1.68)	1008 (1.73)	1014 (1.83)

## 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).

1) Weights and set dimensions represent a generator set with its standard features, no FSOV installed, and HV P80T alternator. See outline drawing for other configurations.

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

3) According to ISO 3046/I with fuel consumption tolerance of +5%, -0%

4) With air intake at 25°C (77°F). Tolerance ± 10°C.

5) Tested using pipeline natural gas with LHV of 35.64MJ/Nm<sup>3</sup> (905BTU/scf).

6) Inlet temperature controlled by thermostat, outlet temperature for reference only. Data taken with 50% Glycol.

7) Without engine driven coolant pumps

8) At electrical output of 1.0 Power Factor, 97% Alternator Efficiency

9) Tolerance ±15%. Values shown are measured using fuel with less than 1% NMHC by volume. Values can vary significantly depending on NMHC found in the fuel.

10) Exhaust system back pressure is at rated load and will decrease at lower loads. Minimum restriction/back pressure is 0 mm H<sub>2</sub>O.

11) Tolerance +/- 10%

12) Pressure drop external to genset.

13) Exhaust gas cooled to 120 °C.

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**Generator Set Data Sheet**  
**2000kW Continuous**



**Model:** C2000 N5CD  
**Frequency:** 50 Hz  
**Fuel Type:** Pipeline Natural Gas  
**Emissions NOx:** 500 mg/Nm<sup>3</sup>  
**LT water inlet temp:** 50°C (122°F)  
**HT water outlet temp:** 90°C (194°F)  
**Ambient temp capability:** ≤ 40 °C (104 °F)

Measured sound performance data sheet:	MSP-4005
Prototype test summary data:	
Remote radiator cooling outline:	

<b>Fuel Consumption (ISO3046/1)</b>	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)	2,3,5,7	4530 (15.47)	4106 (14.02)	3492 (11.93)	2458 (8.39)
Electrical Efficiency ISO3046/1, percent	2,5,7,8	44.2%	43.8%	43.0%	40.7%
Thermal Efficiency ISO3046/1, percent	2,5,7,13	45.9%	46.0%	46.7%	48.5%

**Engine**

Engine Manufacturer	Cummins
Engine Model	HSK78G
Configuration	V12
Displacement, L (cu.in)	78 (4778)
Aspiration	Turbocharged and Charge Air Aftercooled
Gross Engine Power Output, kWm (hp)	2062 (2764)
BMEP, bar (psi)	22 (319)
Bore, mm (in)	190 (7.48)
Stroke, mm (in)	230 (9.06)
Rated Speed, rpm	1500
Piston Speed, m/s (ft/min)	11.5 (2264)
Compression Ratio	13.0:1
Lube Oil Capacity, L (qt)	617 (652)
Full Load Lubricating oil consumption, g/kWe-hr (g/hp-hr)	0.2 (0.15)

**Fuel**

Gas supply pressure to FSOV inlet, bar (psi)	0.15 - 0.45 (2.2 - 6.5)
Minimum Methane Index	70

## Starting System(s)

Electric Starter Voltage, volts	24
Minimum Battery Capacity @ 40°C (104°F), AH	358

## Genset dimensions (see Note 1)

Genset Length, m (ft)	6.9 (22)
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