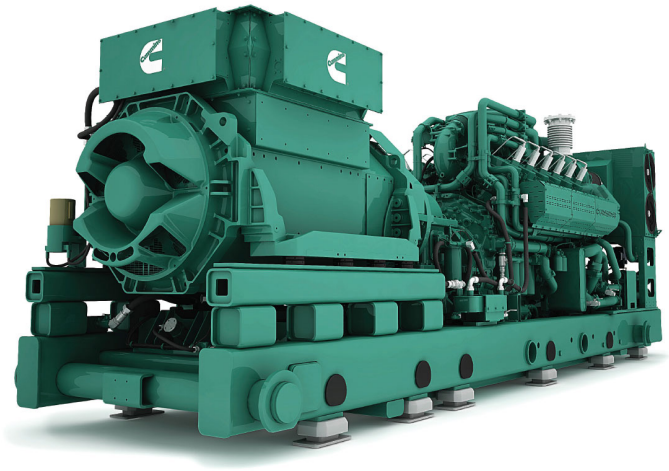
Specification sheet

Natural gas generator set HSK78G series engine

1600 kW - 2000 kW



Description

Cummins® lean burn gas generator sets are fully integrated power generation systems utilizing state of the art technology that results in optimum performance and efficient use of fuel for prime and continuous duty, CHP and peaking applications.

Features

Cummins® robust engine – Robust 4 - cycle lean burn gas combustion engine utilizing full authority electronic engine management and monitoring.

Exhaust emissions – Lean burn technology provides exhaust emissions levels as low as 250 mg/Nm^3 (0.5 g/hp-hr) NO_x.

Fuel Flexibility - Ability to run on natural gas as well as alternative gaseous fuels with lower BTU properties and varying Methane Numbers (MN).

Permanent magnet generator (PMG) – Offers enhanced motor starting and fault clearing short circuit capability.

Alternator – Several alternator sizes offer selectable voltage and temperature rise with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuit capability, class F or H insulation (see Alternator Data Sheet for details), bearing and stator RTDs and anti-condensation heater. Mechanically strengthened for use on utility paralleling with unreliable grid.

Control system – The Cummins HSK78G generator set control is standard equipment and provides grid code compliant total genset system integration including full paralleling capability in grid or load share mode, precise frequency and voltage regulation, alarm and status message display, overcurrent protection, output metering, auto- shutdown at fault detection and a user interface panel installed onto the genset. Optional remote operator panels are also available.

Cooling system – The generator set is equipped with the capability of interfacing with a remote radiator or heat exchanger.

Warranty and service – Backed by a comprehensive warranty and worldwide distributor network that can provide all levels of service from replacements parts to performance guarantee programs.

50 Hz			60 Hz		
Model	**kW**	**Configuration**	**Model**	**kW**	**Configuration**
C1600 N5CD	1600	4 pole direct drive	C1600 N6CD	1600	4 pole alternator through gearbox
C1800 N5CD	1800	4 pole direct drive	C1800 N6CD	1800	4 pole alternator through gearbox
C2000 N5CD	2000	4 pole direct drive	C2000 N6CD	2000	4 pole alternator through gearbox

* Genset is capable of operating between 0.8 lagging and 1.0 power factor unless specified otherwise. All fuel consumption and heat balance data is at 1.0 power factor.

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Generator set specifications

Governor regulation class	ISO 8528 Part 5 G2
Voltage regulation, no load to full load	±1.0%
Random voltage variation	±1.0%
Frequency regulation	Isochronous
Random frequency variation	±1.0%
Radio frequency emissions compliance	EN61000-6-2; EN61000-6-4; FCC Part 15; ICES-002; AS/NZS 2557
Single step load pickup	Generator set configuration dependent – consult factory for details

Engine specifications

Design	4 cycle, V-block, turbocharged low temperature aftercooled
Bore	190 mm (7.48 in)
Stroke	230 mm (9.06 in)
Displacement	78 liters (4778 in3)
Cylinder block	Cast iron, V12
Battery charging alternator	24 volt 40 amp
Starting voltage	24 volt negative ground
Fuel system	Lean burn
Ignition system	Individual coil on plug
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Full flow and bypass filters
Breather	Breather filter

Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Two bearing
Insulation system	Class F or H see ADS (Alternator Data Sheet) for details
Standard temperature rise	105 ℃ (221 ℉) Continuous @ 40 ℃ (104 ℉) ambient
Exciter type	PMG (Permanent Magnet Generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3

Available voltages

60 Hz Three phase line–neutral/line-line				50 Hz Three phase line–neutral/line-line			
• 220/380	• 240/416	• 254/440	• 277/480	• 220/380	• 230/400	• 240/415	• 254/440
• 347/600	• 2400/4160	• 7200/12470	• 7620/13200	• 400/690	• 1905/3300	• 3810/6600	• 36406300
• 7970/13800				• 3810/6600	• 5775/10000	• 6060/10500	• 6350/11000
				• 7620/13200			

Note: Some voltages may not be available on all models. Consult factory for availability.

Generator set options and accessories

Engine
- NO_x 250 mg/Nm^3 (0.5 g/hp-hr)
- NO_x 500 mg/Nm^3 (1.2 g/hp-hr)
- Natural gas fuel methane index as low as 40 for some models
- Low BTU Gas

Alternator
- 80 ℃ (176 ℉) rise alternator
- 105 ℃ (221 ℉) rise alternator

Generator set
- CE Certification
- Grid code compliant

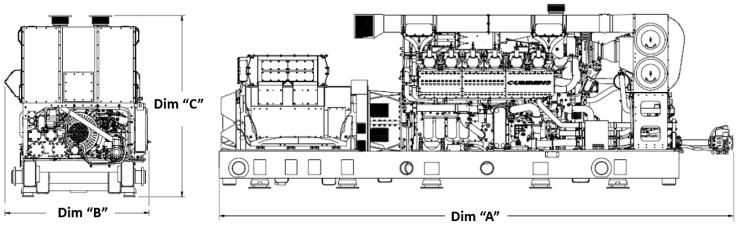
Control Panel
- Generator set mounted 15-inch touch screen
- Optional remote mount 15-inch touch screen with generator set mounted DU-2 display

Accessories
- Exhaust silencers
- Gas train
- Radiators
- Bladder expansion tank
- Heat exchanger
- Exhaust heat recovery

Note: Some options may not be available on all models - consult factory for availability.

Base load (continuous) power (COP) 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 ISO 8528, ISO 3046, AS2789, DIN 6271, and BS 5514).



This outline drawing is to provide representative configuration details for Model series only.

See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Dimensions and weights*

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Weight wet kg (lbs)
C1600 N5CD	6900 (272)	2200 (87)	2800 (110)	23100 (5100)
C1800 N5CD	6900 (272)	2200 (87)	2800 (110)	23100 (51000)
C2000 N5CD	6900 (272)	2200 (87)	2800 (110)	23100 (51000)
C1600 N6CD	8300 (327)	2200 (87)	2800 (110)	28000 (61700)
C1800 N6CD	8700 (327)	2200 (87)	2800 (110)	28000 (61700)
C2000 N6CD	8700 (327)	2200 (87)	2800 (110)	28000 (61700)

* Weights and dimensions represent a set with standard features. See outline drawings for weights and dimensions of other configurations.

Codes and standards

ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	PTS	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design.
CE	This generator set complies with all relevant essential requirements; health and safety or environmental, laid down in the applicable directive(s)	GL Renewables Certification	Generator set configurations compliant with European Grid Codes were validated in coordination with GL. Certified product available where required.

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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