

# GXC250-6NG

## Natural Gas CHP Unit

## Standard Basic Module

- Highly efficient gas engine
- Highly reliable AC synchronous alternator
- Gas train
- Exhaust/water heat exchanger
- Water/water heat exchanger
- Heating circulation system
- Advanced engine control system, including: ignition system, detonation control system, speed control system, air/fuel ratio control system
- Industrial silencer
- Control cabinet and switch cabinet
- Multi-functional control system with simple operation
- Data communication interfaces integrated into control system
- Battery charger
- Automatic oil refilling system
- Island mode or connecting to the grid mode



## Structure and Control Cabinet

## Dimension and Weight

Dimension (LxWxH) , mm	4300x1300x2000
Weight, kg	4600

### Special statement :

1. The technical data is based on natural gas with a lower calorific value of 34.2MJ/Nm<sup>3</sup>. The technical data indicated is based on standard conditions according to ISO8528/1, ISO3046/1 and BS5514/1.

2. The technical data is measured in standard conditions:

- Absolute atmospheric pressure: 100kPa
- Ambient temperature: 25°C
- Relative air humidity: 30%

3. Rating adaptation at ambient conditions acc to DIN ISO 3046/1. The tolerance for the specific fuel consumption is + 5 % at rated output.

4. Technical data above are just for standard product ,and may be subject to change. As this document is used only for presale reference, take the specification supplied by PowerLink before ordering as final.

## Power and Efficiency @60Hz

Electric power -kW	250	Electric efficiency	37.0%
Thermal power-kW	320	Thermal efficiency	45.9%
Fuel Input -kW	691	Total efficiency	82.9%

## Fuel and Emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor (Lambda)	1.36
Fuel consumption @100% load, m <sup>3</sup> /h	67.6
Supply gas pressure range (gage pressure), kPa	10~20
<b>Emission</b>	
NOx, mg/Nm <sup>3</sup>	<500mg/Nm <sup>3</sup>
CO, mg/Nm <sup>3</sup>	<650mg/Nm <sup>3</sup>
HCHO (formaldehyde) , mg/Nm <sup>3</sup>	<60mg/Nm <sup>3</sup>
NMHC, mg/Nm <sup>3</sup>	<150mg/Nm <sup>3</sup>

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## Standard Basic Module + Soundproof (Optional)



### Dimension and Noise Level

Canopy Size	4570*1410*2440mm
Noise Level@ 1m, dB(A)	78.3
@ 7m, dB(A)	71.8
@ 10m, dB(A)	67.7

- Modular designed and manufactured for plug and play  Environmental friendly low emission
- Small indoor space required for installation  Low noise does not affect the surrounding environment



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## Standard Basic Module + Container (Optional)



### Dimension and Noise Level

Optional container (mm) (customized container modeling service available)	<input type="checkbox"/> 7000*2300*2500 <input type="checkbox"/> 6058*2438*2591 <input type="checkbox"/> 12192*2438*2896
Noise Level@ 1m, dB(A)	76
@ 7m, dB(A)	69
@ 10m, dB(A)	65

- Outdoor application enabled, weatherproof and dustproof, corrosion preventive □ Environmental friendly low emission
- Modular designed and manufactured for plug and play □ Low noise does not affect the surrounding environment



# GXC250-6NG

Natural Gas CHP Unit

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## CHP Unit performance data and manufacturing technology

Model	GXC250-6NG	Power and efficiency			
Frequency (Hz)	60	Load	100%	75%	50%
Electric output power (kW)	250	Electric power (kW)	250	187.5	125
Thermal output power (kW)	310	Heat power (kW)	310	232.5	155
Electric efficiency	37.0%	Electric efficiency	37.0%	36.6%	36.3%
Thermal efficiency	45.9%	Heat efficiency	45.9%	45.6%	45.4%
Total efficiency	82.9%	Total efficiency	82.9%	82.2%	81.7%
Heating water temp. outlet(°C)	90~95				
Heating water temp. return(°C)	82~87				
Hot water production @inlet 82°C/outlet 90°C[t/h]	31.6				
Voltage recovery time(s)	≤4				
Steady-state frequency regulation	±0.5%				
Transient-state frequency regulation	±5%				
Steady-state frequency band	0.5%				
Recovery time response(s)	0.5				
Frequency recovery time(s)	≤3				
Telephone interference factor(TIF)	≤50				
Telephone harmonious factor(THF)	≤2%, as per BS4999				

## Gas engine

Brand	PowerLink	Energy balance and gas flow	
Model	GX13K-LE02C	Mechanical power (kW)	265
NO. of cylinders	6 in-line	Coolant heat (kW)	135
Bore x Stroke (mm)	129x165	Radiation heat max. (kW)	24
Displacement (L)	14.6	Exhaust heat up to 120°C (kW)	185
Cooling system	Water cooled	Fuel Input (kW)	691
Rated speed (rpm)	1800	Combustion air flow(kg/h)	1258
Intake system	Turbocharged, intercooled	Exhaust gas flow(kg/h)	1339
Lube Oil consumption(kg/h)	0.075	Exhaust gas temperature(°C)	550
Combustion type	Lean burn	Gas consumption(m³/h) @100% load	67.6
Battery voltage(V)	24	75% load	50.7
Coolant type	Glycol mixture	50% load	33.8

## AC alternator

Brand	PowerLink	Wiring connection	Star
Model	PL4LS	Rotor insulation class	H
Rated output power @480V (kW)	280	Winding pitch	2/3
Power factor	0.8	A.V.R. model	MX341
Rated current @480V (A)	505	Voltage fluctuation(no load to full load)	± 0.5%
Excitation system	PMG	Drip proof	IP23
THF (BS EN60034- 1)	<2%	Excitation method	Brushless
TIF (NEMA MG 1-22)	<50	Rated ambient temperature(°C)	40
Winding material	100% copper	Rated stator temperature rise(°C)	125

### PCC-300 control system

Programmable control system is adopted with touch screen display , and various functions, including: engine protection and control, CHP parallel and grid connection, and CHP control functions, as well as communication functions, etc.



#### Main functions

- Engine monitor: coolant, lubrication, exhaust, battery
- Supply gas circuit monitor: pressure, temperature and CH4 content
- Auto paralleling and load share
- Voltage and PF control
- Alternator data: U, I, Hz, kW, kVA, kVAr, PF, kWh, kVAh
- Griddata: U, I, Hz, kW, kVA, PF
- Modbus communication protocol based on RS232 and RS485 interfaces
- SMS message
- Internet connection and USB 2.0 interface
- 10-inch touch screen
- Internet monitor, auto orientation and cloud communication
- 1000 history events log

#### Advantages

- Accordant with consumer requirement
- Complete control solution
- Convenient remote monitor and service
- Simplified engine start/stop control
- Enhanced stability and safety

Standard protection functions	Standard control functions	
<b>Alternator protection</b>	<b>Powercontrol</b>	<b>Voltage control</b>
<ul style="list-style-type: none"> <li>- 2xReverse power</li> <li>- 2xOverload</li> <li>- 4xOvercurrent</li> <li>- 1xOvervoltage</li> <li>- 1xUndervoltage</li> <li>- 1xOver/underfrequency</li> <li>1xUnbalanced current</li> </ul>	<ul style="list-style-type: none"> <li>- RPM control(synchronization)</li> <li>- Power control(grid connection)</li> <li>- Load share(island )</li> </ul>	<ul style="list-style-type: none"> <li>- Voltage tracking (synchronization)</li> <li>- Voltage control(island)</li> <li>- PF control(grid connection)</li> <li>- Reactive power share (island)</li> </ul>
<b>Busbar/ Gridprotection</b>	<b>Lubrication control</b>	<b>Pump control</b>
<ul style="list-style-type: none"> <li>- 1xOvervoltage</li> <li>- 1xUndervoltage</li> <li>- 1xOver/under frequency</li> <li>- 1xPhase sequence</li> <li>- 1xROCOF alarm</li> </ul>	<ul style="list-style-type: none"> <li>- Auto refilling</li> <li>- Warning and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>- Cooling system</li> <li>- Emergency radiator</li> </ul>
	<b>Fan control</b>	<b>Valve control</b>
	<ul style="list-style-type: none"> <li>- Ventilation for engine room</li> <li>- Radiator fan</li> <li>- Emergency radiator fan</li> </ul>	<ul style="list-style-type: none"> <li>- Cooling system</li> <li>- Heating system</li> <li>- Emergency radiator</li> </ul>
	<b>Engine protection</b>	
	<ul style="list-style-type: none"> <li>- Various routine and customized protection functions</li> <li>- Monitoring</li> </ul>	

### Standard configuration

Engine	Alternator	Canopy and base	Electrical cabinet
Gas engine Ignition system Lambda controller Speed control system Electrical start motor Battery system Detonation control system Lockable isolator switch Turbocharger & intercooler Jacket water heater	PMG AC alternator H class insulation IP23 protection AVR voltage regulator	Steel monocoque base frame Engine bracket Vibration isolators Alternator base	Air circuitbreaker PCC300 control system 10.4-inch touch screen Communication interfaces Breaker cabinet Mains floating charger Paralleling protection
Gas supply system	Lubrication system	Standard voltage	Intake/ exhaust system
Gas safety train Air/fuel mixer Throttle valve	Oil filter Daily auxiliary oil tank Auto refilling oil system New and waste oil tank (Only applicable to container)	380/220V 416/240V 440/254V 480/277V	Air filter Exhaust silencer Exhaust bellows Gas leakage protection(Only applicable to canopy and container)
Heat exchange system	Service and documents		
Exhaust/water heat exchanger Jacket water circulation pump Water/water heat exchanger Mixture circulation pump Expansion tank Heating circulation pump Three-way valves Intercoolerradiator	Tools package Installation and operation manual Maintenance manual Software manual Parts manual	Engine operation and maintenance manual Gas quality declaration Control system manual After service guide	

### Optional configuration

Engine/Alternator	Electrical system	Gas supply system
Jacket water radiator Space heater Treatments against humidity and corrosion	RCD ATS control cabinet Thermal power gauge Electric power gauge	Gas flow gauge Emergency pressure relief torch Water separator Gas compressor Gas purification device
Voltage	Exhaust system	Exhaust gas using
208V 220V 230V 240V	Three-way catalytic converter	Steam boiler LiBr refrigerator