

# GXC150-NG

## 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

Structure Type	Open type
Spraying Process	High quality powder coating
Electrical control cabinet	Integrated,IP54
Noise level @1m, dB(A)	92.2
@7m, dB(A)	86.9
@10m, dB(A)	84.2

#### Dimension and Weight

Dimension ( LxWxH ) , mm	4000x1200x1750
Weight, kg	2500

#### 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 @50Hz

Electric power -kW	150	Electric efficiency	37.7%
Thermal power-kW	203	Thermal efficiency	48.2%
Fuel Input -kW	421	Total efficiency	85.9%

#### Fuel and Emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor ( Lambda )	1.4
Fuel consumption @100% load, m <sup>3</sup> /h	44
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	4200*1250*2000mm
Noise Level@ 1m , dB(A)	76.14
@ 7m , dB(A)	68
@ 10m , dB(A)	64.1

- 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



# GXC150-NG

Natural Gas CHP Unit

## Standard Basic Module + Container (Optional)



### Dimension and Noise Level

Optional container (mm)	<input type="checkbox"/>	7000*2300*2500
(customized container modeling service available)	<input type="checkbox"/>	6058*2438*2591
	<input type="checkbox"/>	12192*2438*2896
Noise Level@ 1m , dB(A)		74
@ 7m , dB(A)		66
@ 10m , dB(A)		62

- 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



# GXC150-NG

## Natural Gas CHP Unit

### CHP Unit performance data and manufacturing technology

Model	GXC150-NG	Power and efficiency			
Frequency ( Hz )	50	Load	100%	75%	50%
Electric output power ( kW )	150	Electric power (kW)	150	113	75
Thermal output power ( kW )	203	Heat power (kW)	203	152	102
Electric efficiency	35.6%	Energy input (kW)	421	314	218
Thermal efficiency	48.2%	Electric efficiency	35.6%	36%	34.4%
Total efficiency	83.8%	Heat efficiency	48.2%	48.4%	46.8%
Heating water temp. outlet(°C)	90~95	Total efficiency	83.8%	84.4%	81.2%
Heating water temp. return(°C)	82~87	<b>Manufacturing technology</b> <ul style="list-style-type: none"> <li>● Special welded base frame, inner vibration isolators and design for whole lifting</li> <li>● With high-class coating, enduring brightness as well resistance against abrasion and defacing</li> <li>● Installation manual, operation and maintenance manual wiring program</li> </ul> <b>Standards and certificate</b> <ul style="list-style-type: none"> <li>● ISO3046 , ISO8528 , GB2820</li> <li>● BS5000PT99 , AS1359 , IEC34</li> <li>● ISO9001:2008 quality system certification</li> </ul>			
Hot water production @inlet 82°C/outlet 90°C[t/h]	20.6				
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

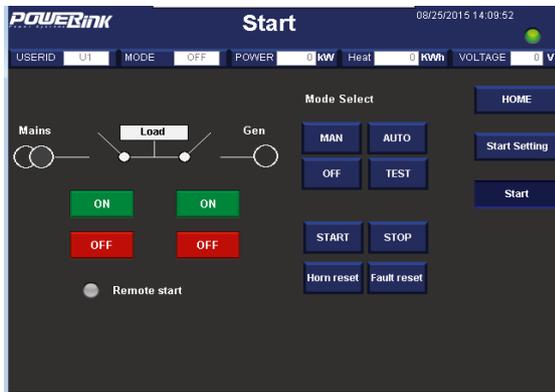
Brand	PowerLink	Energy balance and gas flow	
Model	GX10T-LE02C	Mechanical power (kW)	160
NO. of cylinders	6 in-line	Coolant heat (kW)	98
Bore x Stroke (mm)	126X130	Radiation heat max. (kW)	15
Displacement (L)	9.7	Exhaust heat up to 120°C (kW)	105
Cooling system	Water cooled	Fuel Input (kW)	421
Rated speed (rpm)	1500	Combustion air flow(kg/h)	796
Intake system	Turbocharged, intercooled	Exhaust gas flow(kg/h)	868
Lube Oil consumption(kg/h)	0.045	Exhaust gas temperature(°C)	482
Combustion type	Lean burn	Gas consumption(m³/h) @100% load	44
Battery voltage(V)	24	75% load	33
Coolant type	Glycol mixture	50% load	23

### AC alternator

Brand	PowerLink	Wiring connection	Star
Model	PL3F	Rotor insulation class	H
Rated output power @400V (kW)	160	Winding pitch	2/3
Power factor	0.8	A.V.R. model	MX341
Rated current @400V (A)	289	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, kVA<sub>r</sub>, PF, kWh, kVAh
- Grid data: U, I, Hz, kW, kVA<sub>r</sub>, 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> <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>	<b>Powercontrol</b> <ul style="list-style-type: none"> <li>- RPM control(synchronization)</li> <li>- Power control(grid connection)</li> <li>- Load share(island )</li> </ul>	<b>Voltage control</b> <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>Lubrication control</b> <ul style="list-style-type: none"> <li>- Auto refilling</li> <li>- Warning and monitoring</li> </ul>	<b>Pump control</b> <ul style="list-style-type: none"> <li>- Cooling system</li> <li>- Emergency radiator</li> </ul>
<b>Busbar/ Grid protection</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>	<b>Fan control</b> <ul style="list-style-type: none"> <li>- Ventilation for engine room</li> <li>- Radiator fan</li> <li>- Emergency radiator fan</li> </ul>	<b>Valve control</b> <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 circuit breaker 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 400/230V 415/240V 440/254V	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 Intercooler radiator	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
220V 230V240V	Three-way catalytic converter	Steam boiler LiBr refrigerator