

# GXC520S-NG

## Natural Gas CHP Unit

### Main configuration and features:

- Highly efficient gas engine
- AC synchronous alternator
- Gas safety train and gas protection device against leakage
- Exhaust and jacket water heat exchanger
- Heating water and jacket water circulation system
- Advanced engine control system, including: ignition system, detonation control system, speed control system, air/fuel ratio control system and cylinder temp. protection system
- Strict shop test for all CHP units
- Able to be used directly outdoors with durable and firm characteristics and design against rain and dust
- Industrial silencer with silencing ability of 12-20dB(A)
- Unattached switch cabinet and electric control cabinet
- Multi-functional control system with simple operation
- Data communication interfaces integrated into control system
- Internal lighting system
- Monitoring battery voltage and charging automatically
- Auto refilling oil system
- Bus interface for connecting to higher level control unit



### Power and efficiency @50Hz

Electric power -kW	520	Electric efficiency	38.8%
Heat power -kW	648	Heat efficiency	48.3%
Input power -kW	1341	Total efficiency	87.1%

### Structure and control cabinet

Structure	Soundproof canopy
Canopy painting	High-class powder coating
Electrical control cabinet	Integrated into canopy, IP54
Noise level @7m, dB(A)	< 60

### Dimension and weight

Dimension ( LxWxH ) , mm	5820x2180x2620
Weight, kg	8600

### Fuel and emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor ( Lambda )	1.63
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>	< 50mg/Nm <sup>3</sup>
Fuel consumption @100% load, m <sup>3</sup> /h	134
Supply gas pressure range, kPa	10~20

### Special statement :

- 1、 The technical data are 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、 Dimension and weight 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.

### CHP Unit performance data and manufacturing technology

Model	GXC520S-NG	Frequency recovery time(s)	≤3
Frequency ( Hz )	50	Steady-state frequency band	0.5%
Electric output power ( kW )	520	Recovery time response(s)	0.5
Heat output power ( kW )	648	Telephone interference factor(TIF)	≤50
Electric efficiency	38.8%	Telephone harmonious factor(THF)	≤2% , as per BS4999
Heat efficiency	48.3%	<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 paint, 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                             <ul style="list-style-type: none"> <li>● ISO9001:2008 quality system certification</li> </ul> </li> </ul>	
Total efficiency	87.1%		
Heating water temp. outlet(°C)	90~95		
Heating water temp. return(°C)	70~75		
Overload runtime at 1.1xSe(hour)	1		
Steady-state voltage deviation	±1%		
Transient-state voltage deviation	-15%~20%		
Voltage recovery time(s)	≤4		
Voltage unbalance	1%		
Steady-state frequency regulation	±0.5%		
Transient -state frequency regulation	±5%		

### Gas engine

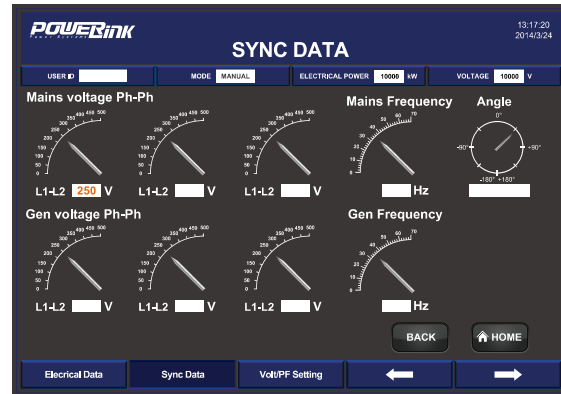
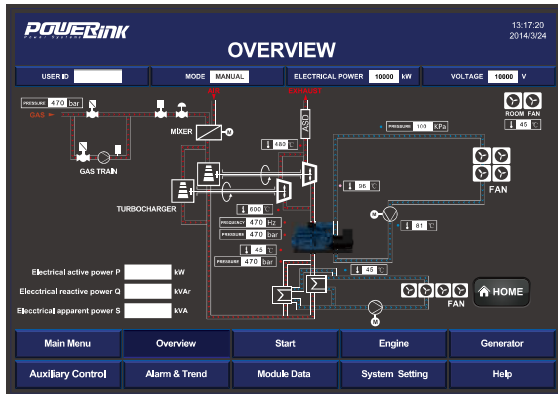
Brand	MAN	<b>Energy balance and gas flow</b>	
Model	GX28M-LE02	Mechanical power (kW)	550
NO. of cylinders	V12	Coolant heat (kW)	294
Bore x Stroke (mm)	132x157	Mixture heat HT(kW)	98
Displacement (L)	25. 8	Mixture heat LT(kW)	41
Cooling system	Water cooled	Exhaust heat up to 120°C (kW)	339
Rated speed (rpm)	1500	Energy input (kW)	1341
Excess air factor	1.63	Combustion air flow(kg/h)	3066
Intake system	Turbocharged, intercooled	Exhaust gas flow(kg/h)	2872
Oil consumption(kg/h)	0.175	Exhaust gas temperature(°C)	458
Combustion type	Lean burn	Gas consumption(m³/h) @ 100% load	134
Battery voltage(V)	24	75% load	103
Coolant type	Glycol mixture	50% load	71

### AC alternator

Brand	Leroy-Somer	Wiring connection	Star
Model	LSA49.1S4	Rotor insulation class	H
Rated output power @400V (kW)	528	Winding pitch	2/3
Power factor	0.8	A.V.R. model	R450
Rated current @400V (A)	953	Voltage fluctuation(no load to full load)	± 0.5%
Excitation system	PMG	Housing protection	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

Open control system is adopted with touch screen display , and various functions, including: engine protection and control, paralleling between gensets or gensets and mains, and CHP control functions,as wellas 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
- Mains data: U, I, Hz, kW, kVAr, 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 project
- Convenient remote monitor and service
- Simplified engine start/stop control
- Enhanced stability and safety

#### Standard protection functions

- Alternator protection**
- 2xReverse power
  - 2xOverload
  - 4xOvercurrent
  - 1xOvervoltage
  - 1xUndervoltage
  - 1xOver/underfrequency
  - 1xUnbalanced current
- Busbar/mains protection**
- 1xOvervoltage
  - 1xUndervoltage
  - 1xOver/under frequency
  - 1xPhase sequence
  - 1xROCOF alarm

#### Standard control functions

- Powercontrol**
- RPM control(synchronization)
  - Power control(grid connection)
  - Load share(island )
- Lubrication control**
- Auto refilling
  - Warning and monitoring
- Fan control**
- Ventilation for engine room
  - Radiator fan
  - Emergency radiator fan
- Engine protection**
- Various routine and customized protection functions
  - Monitoring
- Voltage control**
- Voltage tracking (synchronization)
  - Voltage control(island)
  - PF control(grid connection)
  - Reactive power share (island )
- Pump control**
- Cooling system
  - Emergency radiator
- Valve control**
- Cooling system
  - Heating system
  - Emergency radiator

### 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 Cylinder temp. protection system Lockable isolator switch Turbocharger & intercooler	AC alternator H class insulation IP23 protection AVR voltage regulator PMG	Steel monocoque base frame Engine bracket Vibration isolators Alternator base Soundproof canopy	Air circuitbreaker Paralleling control system 10-inch touch screen Communication interfaces Breaker cabinet Lighting system Mains float charger Paralleling protection
Gas supply system	Lubrication system	Standard voltage	Induction/ exhaust system
Gas safety train Gas leakage protection Air/fuel mixer Throttle valve	Oil filter Daily auxiliary oil tank Auto refilling oil system	380/220V 400/230V 415/240V	Air filter Exhaust silencer Exhaust bellows Ventilation fan
Heat exchange system	Service and documents		
Exhaust heat exchanger Jacket water circulation pump Jacket water heat exchanger Mixture circulation pump Mixture radiator Expansion tank Heating circulation pump Three-way constant temp. valves	Tools package Installation and operation manual Maintenance manual Software manual Parts manual	Engine operation and maintenance manual Gas quality specification Control system manual After service guide Standard package	

### Optional configuration

Engine	Alternator	Lubrication system
Heavy duty air filter Oil heater Emergency radiator Jacket water heater	Space heater Treatments against humidity and corrosion	Oil consumption gauge New and used oil tank
Electrical system	Exhaust system	Service and documents
RCD Grounding bar Lightning protection	Three-way catalytic converter Silencer with spark arrester	Service tools Maintenance and service parts
Voltage	Gas supply system	
200V      220V 230V/240V	Gas flow gauge	