

NATURAL GAS FIRED CHP EM 12NG

SPECIFICATION DATASHEET

Operation:	Mains parallel Asynchronous
Fuel:	Natural gas, lpg
Electrical power modulation:	6 KWe - 12 KWe
Thermal output:	28 kW
Flow temperature max:	85 ° C
Return temperature max:	65 ° C
Exhaust temperature:	85 ° C
Exhaust gas flow:	95 m ³ /hr
Exhaust emission at:	CO <150 mg/Nm ³
5 vol% residual oxygen:	NOx <125 mg/Nm ³
Efficiency:	93%
Primary energy savings:	22%
Current ratio:	0.43
Voltage:	400 V
Current:	18 A continuous
Power Factor:	cos phi 0.98
Sound Power Level:	55 dBA (at 1 metre)
Fuel Consumption:	42.7 kW
CHPQA rating:	144



Engine

Model:	Ford DSG 416
Type:	4 cylinder Inline, water cooled 4-stroke, spark ignition
Mechanical Performance:	14 kW

Alternator

Voltage:	400 V
Frequency:	50 Hz
Rated speed:	1550 rpm
Rated Current:	30 Amps

Overall Dimensions & Connections

Length	1450	mm
Width	750	mm
Height	1200	mm
Weight	700	kg
Heating flow	R ¾	inch
Heating return	R ¾	inch
Exhaust port	R 1 ½	inch
Gas connection	R ½	inch



Environmentally friendly, independent, reliable energy

PRIME MOVER UNIT

CONSTRUCTION

- Rigid base frame made of powder coated square section steel tube and profiled steel sections.
- Independent engine and alternator assemblies close coupled with Cush Drive, mounted on four bonded rubber mountings
- Complete hydraulic separation of engine coolant system from building heating system via stainless steel plate heat exchanger
- All electrical components are prewired to central connection point
- All connection ports on the back of the unit.
- Frame is further isolated by four anti vibration mounting feet, for the best prevention of structure borne sound transmission.

CASING

- Highly effective sound absorbing enclosure constructed from:
 - 1.5mm powder coated steel plate
 - 3mm sound deadening material
 - 60mm Rockwall thermal insulation
 - Perforated galvanized steel inner skin
- Hinged, gas spring assisted Lid for easy routine access
- Removable side panels allow swift access to all components.

HYDRAULIC SYSTEM REQUIREMENTS

- System Kit does not include:
 - Customer circuit water pump.
 - Customer circuit expansion vessel
 - Customer circuit pressure relief valve
 - Customer circuit drain and isolation valves

EXHAUST SYSTEM

- Water-cooled exhaust manifold, maintenance-free stainless steel heat exchangers and exhaust silencing in unit enclosure
- 3-way catalytic converter with lambda control ($\lambda = 1.0$).

GAS

- Gas control from DVGW tested assemblies consisting
 - Gas block with integrated multi-gas filter,
 - Pressure regulator;
 - Gas-air mixer with throttle.

CONTROL

- Electronic Speed Control
 - Speed sensor and actuator for precise frequency and power control.

HEATING

- Constant flow temperature Output

STATUS DISPLAYED

- Instantaneous active power (kW)
- Engine flow temperature
- Engine return temperature
- System flow temperature
- System return temperature
- Thermal Store top temperature
- Thermal Store bottom temperature (return temperature)
- Alternator power output
- Current time and date
- Error messages and operating status
- Gas consumption and kWh (t)

MOTOR / GENERATOR PROTECTION

- Overload monitoring
- Reverse power monitoring
- Inlet temperature monitoring
- Flow temperature control
- Oil pressure
- Motor temperature monitoring
- Exhaust temperature monitoring
- Gas Monitoring
- Leakage monitoring
- Generator Temperature Monitoring

METERING

- Electric meters (kWh)
- Hour meter
- Start counter

RECORDING

- Logbook history
- Fault memory

CONTROL

- Main switch with Emergency Stop Function
- Easy access keypad on control panel
- Full remote access and control via modem or broadband
- Fault notification via email
- Interface to BMS via Ethernet UDP, Mod-bus RTU, RK5 I2, 3964R
- Ability to control back up boilers

CONTROL OUTPUTS

- Pulsed output for Circulation pump (e.g. Grundfos UPS)
- Gas valve signal
- External fault signal

CONTROL INPUTS

- External run request
- Boiler room emergency switch signal
- External power requirement

NETWORK PROTECTION FUNCTIONS

- G59 Relay, monitoring voltage, frequency and rate of change of frequency (RoCoF)

PROTECTION

- Short-circuit protection 25A fuse
- G59 Electrical Protection Relay
- Performance Monitoring of CHP system
- Current monitoring of CHP and Electrical Network

SWITCHING TO THE GRID

- Unit has independent starter motor
- Black Start and Island Mode options available

According to our business policy and the continuing development of our products, we reserve the right to change specifications and features without notice.

CONTROL CABINET

CONSTRUCTION

- Wall mounted, made of sheet steel 1.5 mm,
- Colour: grey RAL 7035
- Dimensions: h: 800 mm, w: 800 mm, d: 210 mm.
- Weight 47 kg
- Connected cable 6.5m in length.
- Cable entry from below.

BR06 CONTROL PANEL

- Programmable PIC control system
- 7.5" LCD display
- Panel mounted keyboard access

FEATURES

- Automatic start/stop
- Full system monitoring
- Fault monitoring and fault indication in plain text
- Automatic Power control and modulation
- Lambda control
- Timer function to optimise the operating hours



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