

BiogenSys



TECHNICAL SPECIFICATIONS

E 4 – 50 KW MOBILE POWER UNIT

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Technical specifications

E4 50 kW Mobile Power Unit

Operating mode: Downdraft fixed-bed gasifier
Type: 1 x E4 System

Equipment performance

Nominal power output: 50 kW_{el}
Nominal heat output: 120 kW_{th}
Total efficiency: 86%
Electrical efficiency: 25%
Thermal efficiency: 61%
Temperature of heat output: 90°C / 60°C
Electrical Output: 400 V / 50 Hz
Operating hours: 8000 h/a

Emissions

Sound: 60 dB(A)
Ash remaining approx: 0.3 - 0.4 kg/h

Feedstock and utilities

Feedstock: EN-A1 6mm wood pellet
Feedstock Consumption: ca. 44 - 46 kg/h
Power: 3 Phase, 80 Amps
Cooling water: Antifreeze MITAN Alpine c11 (50 Vol-% recommended)
Motor oil: Fuchs Titan Ganymet Ultra
Filter: Jetfilter with engine exhaust

Producer gas

Gas Composition (Wood Gas): CO 23% / CO₂ 9% / H₂ 19% / CH₄ 1.8%
Average calorific value: >5200 kJ/m³
Temperature of syngas at reformer exit: 700°C to 800°C
Temperature of syngas after quenching: 80°C to 100°C
Temperature of syngas/air mixture: 40°C to 60°C

Miscellaneous

Control Unit: Fully automated operation
Time of commissioning: 2 - 72 hrs
Authorization requirement: Depends on region

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Engine

Type:	Origin, 8.2L
Construction type:	V 8
Process:	Gasoline engine
Cubic capacity:	8.2 liter
Rated rpm:	1500 rpm at 50 Hz / 1780 at 60 Hz
Cooling:	Recirculating water
Sound pressure level:	60 dB(A)
Exhaust gas temperature:	120°C
Oilfilling:	10.5 liter

Generator

Type:	Synchronous generator
Type of operation:	Mains parallel operation
Nominal power:	50 kW, 55 KVA
Cos Phi:	1.0 (100%)
Nominal voltage:	400 V
Frequency:	50 Hz
Pole number:	4
Operating mode:	S1
Protection class:	IP23
Monitoring:	ComAp

Connection

Electr. input:	400 V, 50 Hz (three-phase rotary current)
Electr. output:	400 V, 50 Hz (three-phase rotary current)
Electr. fuse protection:	Generator 100 A Switchboard 80 Ah
Cable dimensioning:	Generator: 35 mm ² Switchboard: 35 mm ² (<30 m cable length) 50 mm ² (<200 m cable length)
Thermal return line:	1 1/4" inlet with inner thread
Thermal supply line:	1 1/4" inlet with inner thread
Exhaust Gas line:	3" flange
Control system:	Schneider

Service and Operation

Ash Removal:	Automatic extraction and filling of 2m3 ISO Big bag.
Oil Exchange:	Every 1,500 hrs

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E4 SYSTEM without enclosure

Dimensions: 2.3 m x 2.0 m x 2.3 m

E4 SYSTEM with enclosure (Plug & Play Solution)

Enclosure Type: 20 ft HC Container
Required space: 15 m²
Dimensions: 6.058 m x 2.438 m x 2.896 m
Weight: approx. 6 tons

Required conditions at installation site

In order to guarantee a smooth commission of the system onsite, the customer provides the following site installations:

- Foundation with sufficient access to all system components
- Sufficient housing / roofing only
(required for E4 System without enclosure)
- Sufficient air supply with appropriate circulation rate
(required for E4 System without enclosure)
- Three phase connection with 400 V, 125 A, 50 Hz
- Broadband connection for data delivery
- DHCP setup with static IP-address for the system (such as 192.168.1.200)
 - Please provide the following information:
 - Router (brand, type, model etc.)
 - ADSL external or router integrated
 - Internet/Lan Infrastructure on site
 - IP address range or Gateway of the Router
- Water connection
 - 90°C flow and max. 70°C return-flow
 - Pipe DIN32 or bigger
 - Flow rate > 5000 l/h
- External pellet storage with a connection box for a vacuum pellet feed system.
We recommend a capacity of at least 30t.

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E4 50 kW Mobile Power Unit Connections on Container

