



# Biogas Generator Set

## ENERGIN® M12 GEN B400

### Datasheet, 250 mg NO<sub>x</sub>

The ENERGIN® GEN generator set produces electricity either parallel with the public network or with an isolated load. As an option, automatic emergency operation and/or island-parallel operation with other generators is possible.

The unit is supplied as a compact, fully functional unit, with or without a sound attenuating enclosure. The engine, generator, and the control and power panel are mounted, ready for operation on the vibration-decoupled base frame. A lubrication oil system, which allows operation of up to 2000 hours without manual lube oil refilling, is integrated on the unit.

The electrical control system provides protection and control functions for automatic or manual operation. A 12" touch panel informs about operating conditions and allows the operation and parameterization of the system. Various interfaces are available for communication with other power generators and an overhead control system. An Ethernet interface allows connection to the Internet for remote monitoring and remote maintenance.

The entire system is certified according to the BDEW medium voltage directive (Grid code).

#### TECHNICAL DATA

Manufacturer	R Schmitt Enertec	
ENERGIN® Type	M12 GEN B400	
Electrical power <sup>1</sup>	kW	400
Gas consumption <sup>2</sup> (LHV)	kW	981
Self consumption <sup>3</sup>	kW	9,1

#### DESIGN

Fuel type	Biogas	
Lower heating value LHV	kWh/Nm <sup>3</sup>	5,0
Gas flow pressure <sup>4</sup>	kPa	3,5 - 5,0
Inlet air temperature	°C	20
Exhaust temperature	°C	489

#### EXHAUST EMISSIONS<sup>5</sup> WITHOUT CATALYST

NO <sub>x</sub>	mg/Nm <sup>3</sup>	250
CO	mg/Nm <sup>3</sup>	1500
Formaldehyde	mg/Nm <sup>3</sup>	100

#### ENGINE

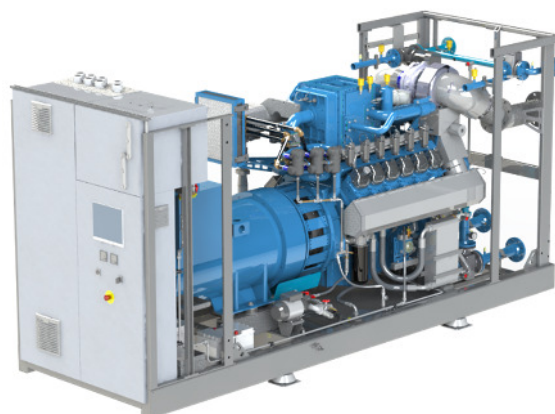
Manufacturer	R Schmitt Enertec	
ENERGIN® Type	M12-BTID41	
Working principle	4-stroke	
Cylinder configuration	12 in V / 90°	
Valves per cylinder	4	
Aspiration	turbocharged	
Mixture cooling	internal	
Displacement	ltr	22,6

#### LUBE OIL

Lube oil volume	ltr	205
Make up tank volume	ltr	170
Consumption	ltr/OH	0,13

#### ALTERNATOR

Manufacturer	Leroy Somer	
Type	LSA 47.2 M8	
Voltage	V / Hz	400 / 50
Speed	1/min	1.500
Efficiency	%	96,2



#### PERFORMANCE<sup>6</sup>

Load		100 %	75 %	50 %
Electrical power	kW	400	300	200
Fuel consumption	kW	981	752	538
Gas flow at LHV	Nm <sup>3</sup> /h	197	151	108
Electrical efficiency	%	40,8	39,9	37,2
Exhaust gas flow <sup>7</sup>	m <sup>3</sup> /h	4.134	3.154	2.242
Air requirement	m <sup>3</sup> /h	9.762	7.762	6.104
Exhaust air <sup>8</sup>	m <sup>3</sup> /h	8.176	6.593	5.300

#### DIMENSIONS AND WEIGHTS WITH SOUND ENCLOSURE

Length	mm	4.380
Height	mm	2.030
Height with 90° elbow	mm	3.190
Width	mm	1.440
Dry weight	kg	4.810
Operational weight	kg	5.180

#### CONNECTIONS

Exhaust	DN / PN	150 / 10
Fuel gas	DN / PN	65 / 16
Cooling water HT	DN / PN	65 / 16

<sup>1</sup> +0 % tolerance on electrical power output

<sup>2</sup> +5 % tolerance on fuel consumption

<sup>3</sup> average self consumption with emergency cooling

<sup>4</sup> maximum variation of 10 % for set value

<sup>5</sup> Exhaust emissions related to 5 % oxygen in dry exhaust

<sup>6</sup> at standard conditions according to ISO 3046-1; cos φ = 1

<sup>7</sup> wet exhaust gas at 489 °C

<sup>8</sup> ΔT = 15 K



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