Technical data sheet
Gen70G Generator module

Version 8/23

frauscher motors

www.frauscher-motors.com

Description:

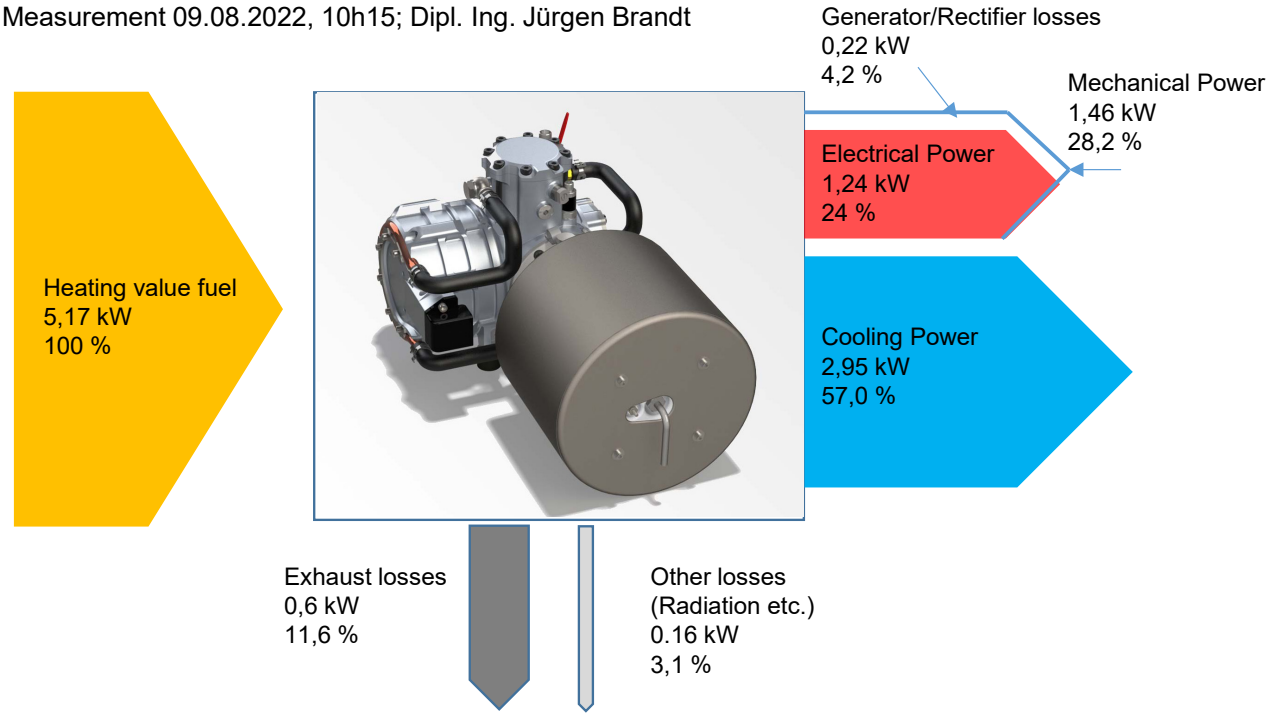
The Gen70G generator module is a ready-to-use Stirling unit for operation with natural gas or liquid gas. It consists of the following components:

> Stirling engine based on the alphagamma@ process with a displacement of 70 ccm
> Gaseous fuel burners, nozzle-mixing matrix burner
> Heat exchanger for air preheating from the exhaust gas energy
> 3-Phase generator for connection to a three-phase bridge rectifier
> Connection of 24 volt batteries for charging up to 43 ampere charging power
> Optional design for 48 volt batteries
> Connections for cooling water circuit, process gas filling and exhaust duct

The module is suitable for companies or institutions that want to apply an electrical control system tailored to their specific application. A control module for the following functions is under development:

> Burner – firing module
> Monitoring of cooling water circuit (flow rate, temperature)
> Engine - starting device
> Temperature control of the heater heat exchanger
> Burner capacity control
> Rectifier module for battery charging
> Battery charge control
> Switching output for two-point charging control

Energy balance when operated with natural gas:



Performance data in tabular form:

Description	Value	Unit	Comment
Aggregate			
Type designation/serial number			MobilGen Gen70 Nr. #101
Electrical efficiency	24	%	DC-power to LHV Gas
Sound pressurel level according MR 2006/427EG	59,5	dB(A)	In closed battery box
Mass Stirling engine	34	kg	Without external components
Engine			
Configuration			Stirling alphagamma®
Process gas			Helium
Hot end temperature	652	°C	
Mean process pressure	57	bar	
Stroke volume	70	cm^3	Expansion volume
Cylinder phase angle	90	degrees	
Rated mechanical power	1,46	kW	At the crankshaft
Rotational speed	1970	1/min	
Cooling power	2,95	kW	
Coolant temperature	30,6	°C	Range up to 50 °C
Coolant flow rate	0,39	m^3/h	0,3 – 0,5 m^3/h
Maintenance interval	>5000	h	
Generator			
System	3-phase		BL multipole generator
Electrical power	1,24	kW	At 27,45 Volt after rectifier
Burner			
System			Outlet-mixing gas burner
Max. thermal power	5,17	kW	LHV
Fuel			Natural gas, propane, CNG, LNG
Gaspressure	50	mbar	Propane
Air masss	17,4	kg/h	
Air flow pressure	30	mbar	
Exhaust gas temperature	217	°C	At 25°C ambient temperature
Emission value O_2	5,0 – 8,0	%	With propane
Emission value CO	1,8	g/kWh	With propane, O_2 = 5,3%
Emission value NOx	1,3	g/kWh	With propane, O_2 = 5,3%

Table 1: technical data and measurements, Masurement from 09.08.2022 10:15, Examiner: Dipl. Ing. Jürgen Brandt

Techn.Datasheet_Gen70G
18.08.2023 signed by Josef Frauscher