

et050 EG_SG MAM (W)
Natural gas CHP
Technical data sheet



Basic Data				
Power, electrical ⁽⁵⁾	50			kW
Total thermal output ⁽²⁾	89			kW
Mains	400			V
frequency	50			Hz
Power control range in mains parallel operation	50-100			%
Markings / Certificates / Tests	CE / VDE-AR-N 4105			
Performance data				
Load	100	75	50	%
Energy consumption ⁽¹⁾	145,0	126,0	93,0	kW
Gas consumption / Hi = 10.00 kWh/Nm³ ⁽¹⁾⁽⁶⁾	14,5	12,6	9,3	Nm³/h
Power, electrical ⁽¹⁾	50,0	37,5	25,0	kW
Power, thermal total ⁽¹⁾⁽²⁾	89,0	73,0	55,0	kW
Power, thermal engine ⁽¹⁾⁽²⁾	55,0	50,0	40,0	kW
Power, thermal exhaust gas <150°C ⁽¹⁾⁽²⁾	34,0	23,0	15,0	kW
Efficiency, electrical ⁽¹⁾	34,48	29,76	26,88	%
Efficiency, thermal ⁽¹⁾⁽²⁾	61,38	57,94	59,14	%
Efficiency, total ⁽¹⁾⁽²⁾	95,86	87,70	86,02	%
Power to heat ratio ⁽¹⁾⁽²⁾	0,56	0,51	0,45	
Max. own consumption, electrical ⁽¹²⁾	1,5			kW
Gas engine				
Manufacturer	Mamotec			
Type	MAG 49.4 S			
Design / number of cylinders	row / 4			
Displacement	4,91			l
Combustion method	1			λ
Rated speed, min ⁻¹	1500			rpm
Engine oil sump capacity, maximum	11,5			l
Generator				
Manufacturer	Leroy Somer			
Type	LSAH 44.3 M6			
Version	synchronous / water-cooled			
Generator nominal voltage (± 10 %)	400			V
Active power (P)	50			kW
cos phi	1,00	0,95	0,90	φ
Apparent power (S)	50,0	52,6	55,6	kVA
Generator rated current	72,3	76,1	80,3	A
Short-circuit current Ik "3	1,03			kA
Insulation / heating	H / F			
Bearing	2 bearings			

Fuel supply		
Gas type	natural gas	
Gas control line	According to DIN	
Gas connection	DN 25 (1")	
Gas flow pressure (input gas control line)	20 - 100	mbar
Fuel mass flow at 100% load ⁽¹⁾	17,8	kg/h
Fuel mass flow rate at 100% load ^{(1) (6)}	14,5	Nm³/h
Minimum methane number	> 80	
Air supply		
Combustion air mass flow rate	185	kg/h
Combustion air flow rate (25°C, 1013 mbar)	156	m³/h
Air flow rate for cooling, supply air	1.750	m³/h
Air flow rate for cooling, exhaust air	1.594	m³/h
Supply air temperature	25	°C
Exhaust gas		
Connection	DN 80	
Exhaust gas temperature at motor outlet ⁽³⁾	633	°C
Exhaust gas temperature at outlet Exhaust gas heat exch	120	°C
Max. permissible back pressure	50	mbar
Exhaust gas mass flow, dry ⁽⁶⁾	129	Nm³/h
Mass flow, humid	195	kg/h
Hydraulic integration		
Flow/return connections	DN 40 (1 1/2")	
Standard flow temperature	90	°C
Standard return temperature	70	°C
Standard flow rate	3,7	m³/h
Standard heating operating pressure	6,0	bar
Dimensions / Weight Standard module		
Dimension unit (LxWxH)	2.750x1.050x1.450	mm
Weight of unit (filled)	2.100	kg
Dimension switch cabinet (LxWxH)	1.200x500x2.000	mm
Weight of switch cabinet	160	kg
Recommended concrete strength	C20/25	
Payload, qk	3,5	kN/m²
Sound		
Aggregate (without/with sound hood) in 1 m ^{(9) (10)}	98 / 65	dB(A)
Exhaust chimney (with standard silencer) in 10 m ^{(9) (10)}	73	dB(A)
Emission values		
without catalytic converter ^{(4) (6)}		
NOx	≤ 6500	mg/Nm³
CO	≤ 5000	mg/Nm³
HCHO	≤ 150	mg/Nm³
with catalyst ^{(4) (6) (11)}		
NOx	≤ 500	mg/Nm³
CO	≤ 300	mg/Nm³
HCHO	≤ 20	mg/Nm³
Protection class		
Protection class unit	IP 23	
Protection class control cabinet	IP 54	

Available options (selection)	
Sound enclosure	✓
Standard container / Special container	✓
Lube oil tank system	✓
Lube oil extension (circulating tank)	✓
Island / mains replacement operation	✓
Gas cleaning, activated carbon filter	✓
Gas compressor	✓
Exhaust silencer	✓
Emergency cooler	✓
Gas warning system	✓
Anti-knock control	✓
Condensing heat exchanger	✓
VPN router LAN / mobile radio	✓
Gas meter (calibrated)	✓
Heat meter (calibrated)	✓
Neutralisation system	✓
Data interfaces	
Ethernet IP	✓
Modbus TCP	✓
Modbus RTU	✓
Profinet IO	✓
Profibus DP	✓
Installation, assembly, commissioning	✓

Standard reference conditions according to DIN ISO 3046-1:

Air pressure 1,013 mbar

Air temperature 25 °C

Relative humidity 30

Performance reduction:

For site conditions with regard to geodetic installation altitude >300m and/or intake air temperatures >25°C the power reduction must be determined in accordance with the "Technical Regulations - Chapter on Power Reductions" of enertec Kraftwerke GmbH. be determined.

⁽¹⁾ Performance conditions according to DIN ISO 3046-1

Tolerance for the specific fuel consumption is + 5% at nominal load operation, efficiency data apply to an engine in new condition. The decrease in efficiency over the running time is not defined as a value, but can be reduced by observing the maintenance instructions.

⁽²⁾ Tolerance on the available heat output is ± 8% at nominal load operation.

⁽³⁾ Tolerance on the flue gas temperature is ± 8%.

⁽⁴⁾ Based on 5% residual oxygen content in the flue gas

⁽⁵⁾ Available nominal active power at the generator terminals at Cos ϕ 1.0

⁽⁶⁾ Volume specification based on standard condition - temperature 0°C and air pressure 1013 mbar

⁽⁷⁾ Total sound power level at full engine load according to DIN EN ISO 3746

⁽⁸⁾ Mean sound pressure level at a distance of 1 m under free field conditions according to DIN 45635

⁽⁹⁾ Standard deviation according to DIN EN ISO 3746 (comparison 4 dB)

⁽¹⁰⁾ Total sound power level at full engine load according to DIN 45635-11

⁽¹¹⁾ With corresponding configuration of catalytic converter

⁽¹²⁾ Power requirements for cooling water pump, fan, battery charger, control transformer

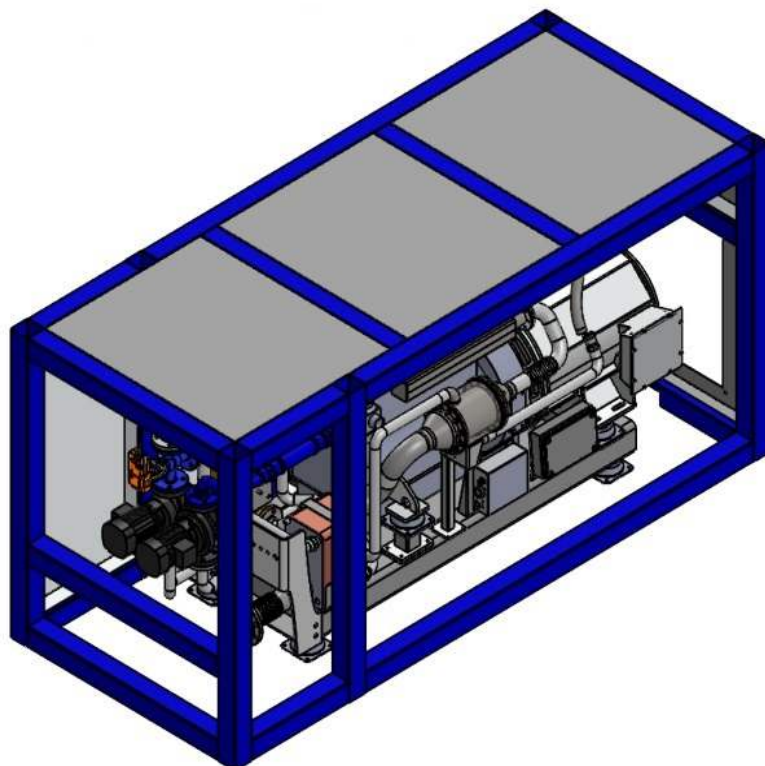
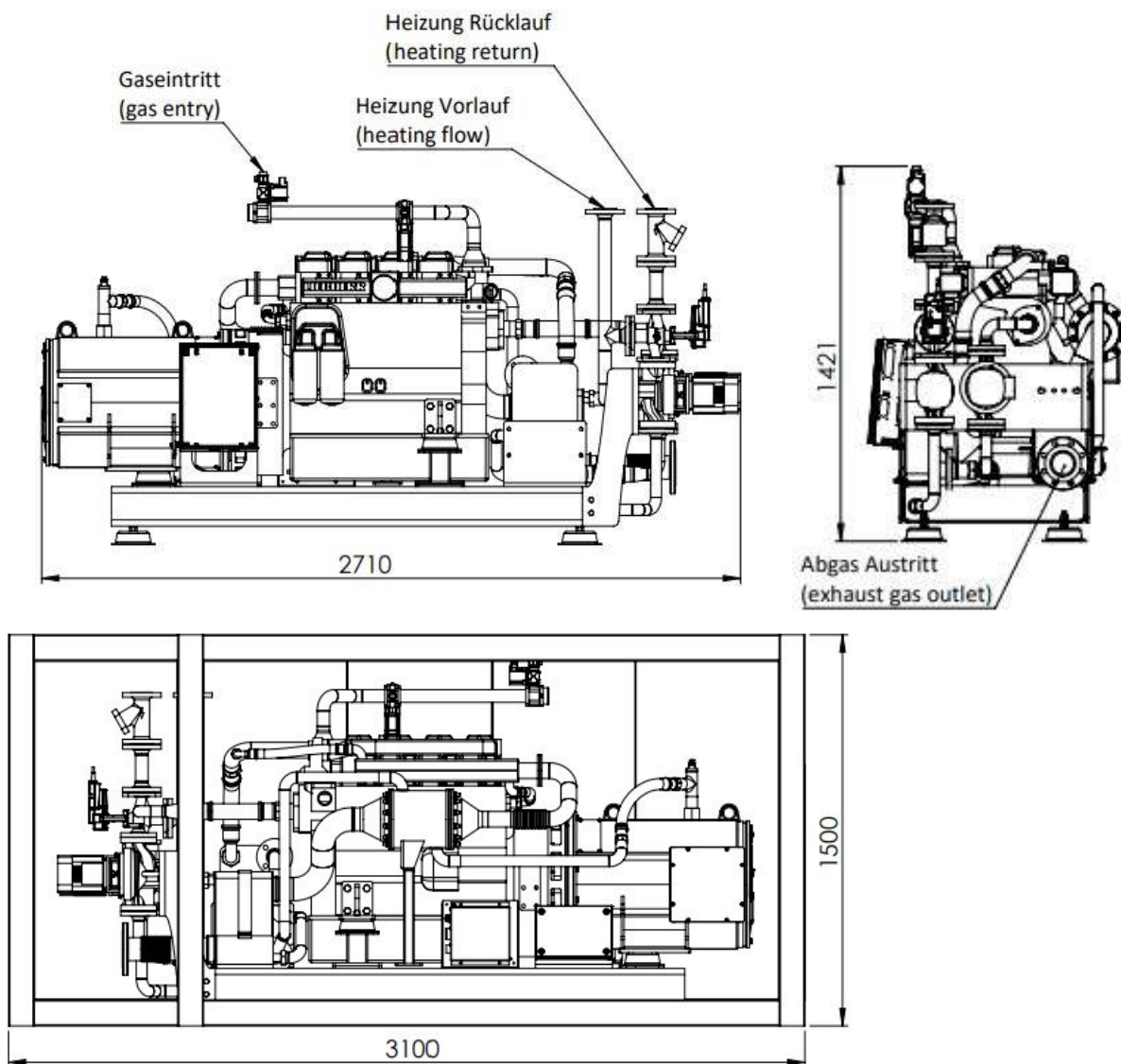


Illustration exemplary.

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