



Compact CHP ready for connection, mainly consisting of

- serially manufactured Industrial-Gas-Otto-engine
- air-cooled synchronous generator
- waste-gas heat exchanger integrated in primary cooling circuit
- Oxikat integrated in waste-gas heat exchanger
- oil reservoir with automatic oil feeding
- control cabinet with programmable controller and operating unit
- gas train

Integrated heat exchanger basket, mainly consisting of

- expansion tank in motor circuit and mixture circuit
- relief valve in motor circuit, mixture circuit and heater circuit
- filling valves, cleanout valves and exhaust valves
- plate heat exchanger
- pumps for motor circuit, mixture circuit and heater circuit
- 3-way mixing valve for return temperature increase

Water and gas connections are executed with compensators. All water-side connections are directed upwards above the heat exchanger basket.

Motor and generator are connected through a pluggable elastic metal-plastics coupler to compensate radial offset, axial offset or angular offset. It is mounted on a framework vibration-cushionedly.

Furthermore the framework is uncoupled through oscillation decoupling elements.

The control cabinet is executed as a separate unit. All regulation and control functions as well as control elements are part of the control cabinet. Assisted by a menu-navigated touch-screen performance data and state data could be readed and adjusted easily.

The drive of the CHP is caused by a water-cooled, supercharged Otto-Gas-Engine. It is a stationary engine designed for permanent operation. A microprocessor-controlled ignition ensures an optimal adaption of the ignition point and the ignition energy to the gas quality (methane number).

Besides an exceedingly high electrical efficiency, a double-staged mixture cooling, including a low temperature circuit and a high temperature circuit, leads to an ideal usage of thermal power from the mixture heat.

The oil level control is carried out by a sight glass with oil level deficit indication, which is connected with the oilpan.

Engine data		Hz	50	Engine utilities	
Mixture cooling to	°C		50	Lubricate consumption	g/kWh 0,7
RPM	1/min		1500	Filling capacity lubricant min./max.	l 30/70
ISO standard power (mech.)	kW		260		0
Air ration (Lambda)	λ		1,6	Filling capacity cooling water	l 16
Arrangement of cylinders			row	Operating pressure (max.)	bar 3
Number of Cylinders			8	Cooling water recirculated quantity	l/min 398
Bore	mm		128	Cooling water temperature min.	°C 80
Stroke	mm		142	Cooling water temperature max.	°C 88
Swept volume	l		14,62	Balance (inflow/exit, max.)	K 6
Direction of rotation (look on balance wheel)			left	Mixture inflow temperature after damper max.	°C 50
body of balance wheel			SAE 1	Mixture cooling water, inflow temperature	°C 45
tooth rim with number of teeth	Z		160	low temperature circuit (max.)	
compression ratio	ε		12,0 : 1	Mixture cooling water recirculated quantity	l/min 102
average effective pressure	bar		14,5	low temperature circuit (max.)	
average piston speed	m/s		7,1	Mixture cooling water inflow temperature	°C 85
				high temperature circuit (max.)	
				Mixture cooling water recirculated quantity	l/min 138
				high temperature circuit (max.)	
Power data		Hz	50	Efficiencies	
Load	%		100	Electrical	% 37,5
Ignition timing	degree		16	Mechanical	% 39,0
ISO standard power (mech.)	kW		260	Thermal	% 46,8
Electrical Power	kW		250	Total (el. + th.)	% 84,3
Cooling water heat	kW		148		
Mixture heat (high temperature circuit)	kW		25	Power number	0,80
Mixture heat (low temperature circuit)	kW		21		
Waste gas heat up to 120 °C	kW		139		
useable thermal power at 120 °C	kW		312	Mass flows and volume flows	
radiant heat of module (max.)	kW		42	Combustion air mass flow	kg/h 1.325
nominal power	kW		667	Combustion air volume flow	m³/h 1.119
Fuel consumption (mech.)	kWh/kWh		2,57	Supply air volume flow	m³/h 7.415
Fuel consumption (el.)	kWh/kWh		2,67		
temperatures and pressures				Combustible mass flow	kg/h 52
Waste gas temperatur after turbine	°C		439	Combustible volume flow	m³/h 65
exhaust back pressure	mbar		40	Waste gas mass flow, wet	kg/h 1.377
				Waste gas mass flow, dry	kg/h 1.291
Heating water return temperature (max)	°C		70	Waste gas volume flow, wet	m³/h 1.085
Heating water flow temperature (max)	°C		90	Waste gas v olume flow, dry	m³/h 862
Pressure decrease heating circuit (max)	mbar		150		
				Heating water volume flow (max.)	m³/h 18
maximum backpressure at the air intake	mbar		15		
Emission value at 5% residual oxygen				Technical basic conditions	
NOx	mg/Nm³		< 500	Power conditions acc. To DIN-ISO-3046	
CO	mg/Nm³		< 300	Norm conditions: air pressure: 1000 mbar	
				Air temperature: 25 °C or 295 K, rel. Hu midity: 30%	
				Gasquality accorcng "2G TA 04 Gas"	
				All data are related to full load engine running at denoted media temperatures and are subject to technical advancements.	
				Equipment as well as installation systems have to meet all technical instructions of 2G.	

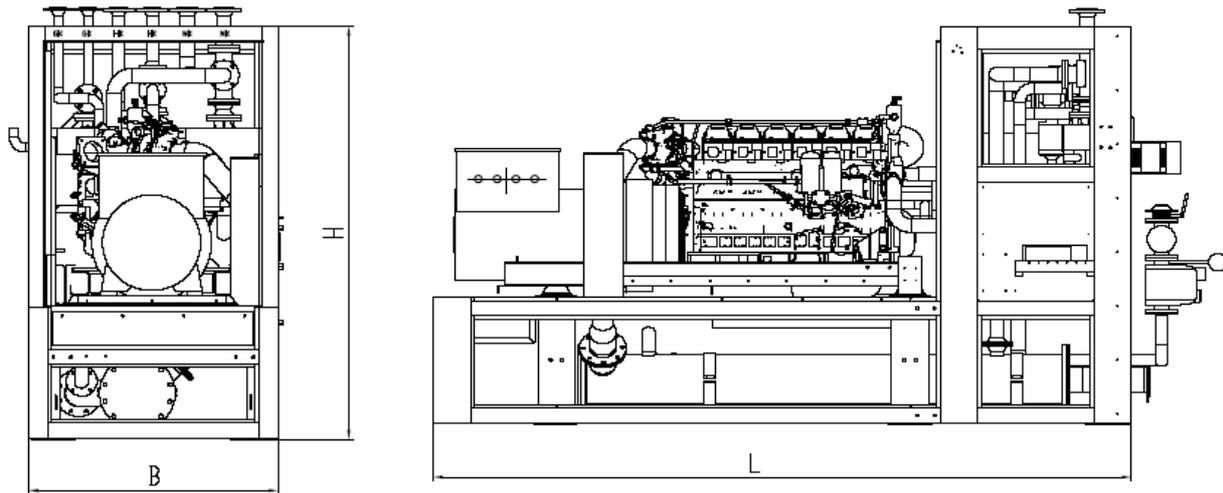
Generator data

Manufacturer		Leroy Somer
Type		LSA 47.2 S4
Power at Cos φ = 0,8	kVA	313
Voltage	V	400
Frequency	Hz	50
Rated speed	1/min	1500
Nominal current at Cos φ = 0,8	A	451
Cos φ		0,8 - 1
Efficiency (full load) at Cos φ = 1	%	96,10
Efficiency (full load) at Cos φ = 0,8	%	94,70
Reactance X"d	%	13,00
Reactance Xi = X2	%	15,00
Mass moment of inertia	kg m ²	6,70
Stator circuit		star
Ambient air temperature	°C	40
Protection class		IP 23
Cos φ has to be between 0,8 and 1,0 within the complete range of capacity.		

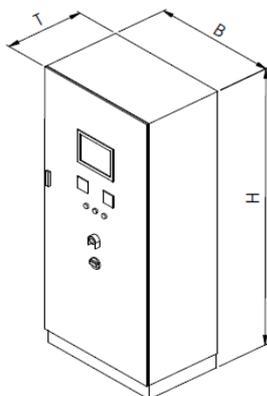
Main dimensions and weights

Module:			
Length (L):	mm	3.520	
Height (H):	mm	2.320	
Width (B):	mm	1.500	
Weight (approx.):	kg	4.850	
Control cabinet			
Height (H)	mm	2.000	
Width (B)	mm	800	
Depth (T)	mm	600	
Weight (approx.):	kg	200	
Power switch cabinet			
Height (H)	mm	2.000	
Width (B)	mm	600	
Depth (T)	mm	500	
Weight (approx.):	kg	200	

Modul:



Control cabinet:



Power cabinet:

