

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
- 3-Way kat integrated in waste-gas heat exchanger (optional)
- 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
- relief valve in motor circuit and heater circuit
- filling valves, cleanout valves and exhaust valves
- plate heat exchanger
- pumps for motor 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 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).

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 RPM	°C	-	Lubricate consumption	g/kWh	0,6
ISO standard power (mech.)	1/min	1500	Filling capacity lubricant min./max.	l	22/30
Air ration (Lambda)	kW	250	Filling capacity cooling water	l	23
Arrangement of cylinders	λ	1	Operating pressure (max.)	bar	3
Number of Cylinders		V	Cooling water recirculated quantity	l/min	638
Bore		12	Cooling water temperature min.	°C	80
Stroke	mm	128	Cooling water temperature max.	°C	88
Swept volume	mm	142	Balance (inflow/exit, max.)	K	6
	l	21,93			
Direction of rotation (look on balance wheel)		left	Efficiencies		
body of balance wheel		SAE 1	Electrical	%	36,0
tooth rim with number of teeth	Z	160	Mechanical	%	37,5
			Thermal	%	55,5
compression ratio	ε	12,5 : 1	Total (el. + th.)	%	91,5
average effective pressure	bar	9,12			
average piston speed	m/s	7,1	Power number		0,65
Power data	Hz	50	Mass flows and volume flows		
Load	%	100	Combustion air mass flow	kg/h	825
Ignition timing	degree	14	Combustion air volume flow	m³/h	697
ISO standard power (mech.)	kW	250	Supply air volume flow	m³/h	7.746
Electrical Power	kW	240	Combustible mass flow	kg/h	52
Cooling water heat	kW	236	Combustible volume flow	m³/h	65
Waste gas heat up to 100 °C useable thermal power at 100 °C	kW	134	Waste gas mass flow, wet	kg/h	878
radiant heat of module (max.)	kW	47	Waste gas mass flow, dry	kg/h	765
nominal power	kW	667	Waste gas volume flow, wet	m³/h	698
Fuel consumption (mech.)	kWh/kWh	2,67	Waste gas volume flow, dry	m³/h	575
Fuel consumption (el.)	kWh/kWh	2,78			
temperatures and pressures			Heating water volume flow (max.)	m³/h	12
Waste gas temperatur	°C	570	Technical basic conditions		
exhaust back pressure	mbar	40	Power conditions acc. To DIN-ISO-3046		
Heating water return temperature (max)	°C	70	Norm cond itions: air pressure: 1000 mbar		
Heating water flow temperature (max)	°C	90	Air tempera ture: 25 °C or 295 K, rel. Humidity: 30%		
Pressure decrease heating circuit (max)	mbar	150	Gasquality accorcng "2G TA 04 Gas"		
maximum backpressure at the air intake	mbar	15	All data are related to full load engine running at denoted media temperatures and are subject to technical advancements.		
Emission value at 5% residual oxygen			Equipment as well as installation systems have to meet all technical instructions of 2G.		
NOx	mg/Nm³	< 250			
CO	mg/Nm³	< 300			

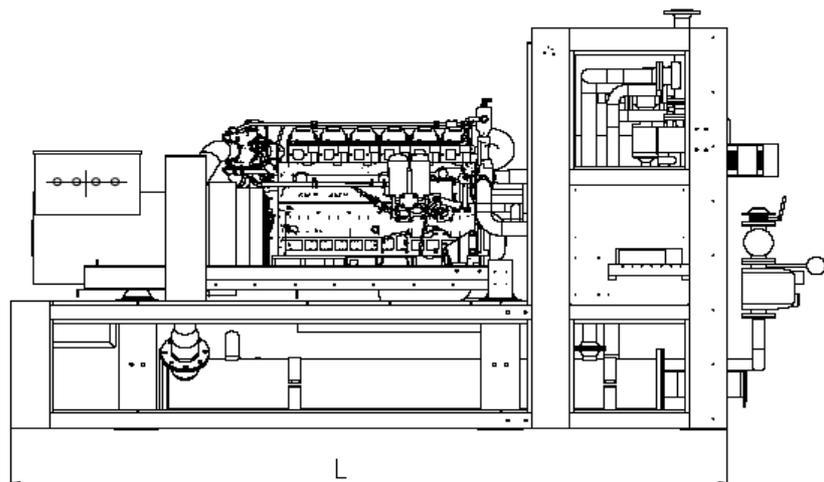
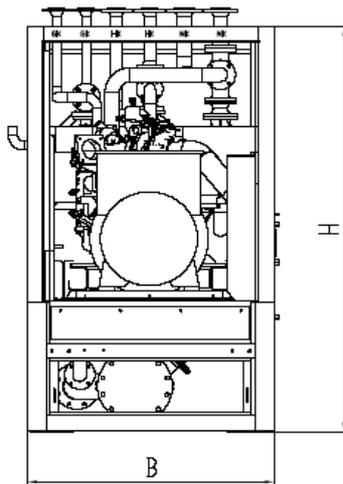
Generator data

Manufacturer		Leroy Somer
Type		LSA 47.2 S4
Power at Cos φ = 0,8	kVA	300
Voltage	V	400
Frequency	Hz	50
Rated speed	1/min	1500
Nominal current at Cos φ = 0,8	A	433
Cos φ		0,8 - 1
Efficiency (full load) at Cos φ = 1	%	96,10
Efficiency (full load) at Cos φ = 0,8	%	94,80
Reactance X"d	%	13,00
Reactance Xi = X2	%	15,00
Mass moment of inertia	kg m ²	2,80
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.		

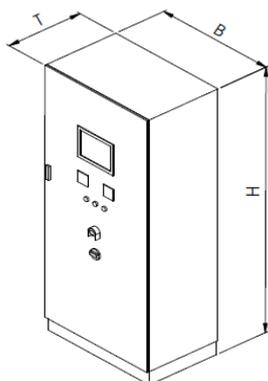
Main dimensions and weights

Module:		
Length (L):	mm	3.950
Height (H):	mm	2.208
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:

