

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 | °C | - | Lubricate consumption | g/kWh | 0,6 |
| RPM | 1/min | 1500 | Filling capacity lubricant min./max. | l | 22/30 |
| ISO standard power (mech.) | kW | 250 | | | |
| Air ration (Lambda) | λ | 1 | Filling capacity cooling water | l | 23 |
| Arrangement of cylinders | | V | Operating pressure (max.) | bar | 3 |
| Number of Cylinders | | 12 | Cooling water recirculated quantity | l/min | 638 |
| Bore | mm | 128 | Cooling water temperature min. | °C | 80 |
| Stroke | mm | 142 | Cooling water temperature max. | °C | 88 |
| Swept volume | l | 21,93 | Balance (inflow/exit, max.) | K | 6 |
| 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 | | | |
| Cooling water heat | kW | 236 | Combustible mass flow | kg/h | 52 |
| Waste gas heat up to 100 °C useable thermal power at 100 °C | kW | 134 | Combustible volume flow | m³/h | 65 |
| radiant heat of module (max.) | kW | 47 | Waste gas mass flow, wet | kg/h | 878 |
| nominal power | kW | 667 | Waste gas mass flow, dry | kg/h | 765 |
| Fuel consumption (mech.) | kWh/kWh | 2,67 | Waste gas volume flow, wet | m³/h | 698 |
| Fuel consumption (el.) | kWh/kWh | 2,78 | Waste gas volume flow, dry | m³/h | 575 |
| 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 | | | |

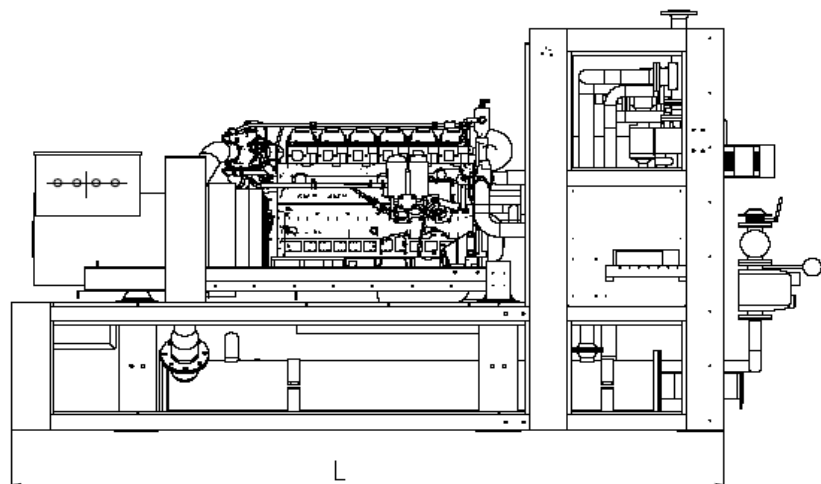
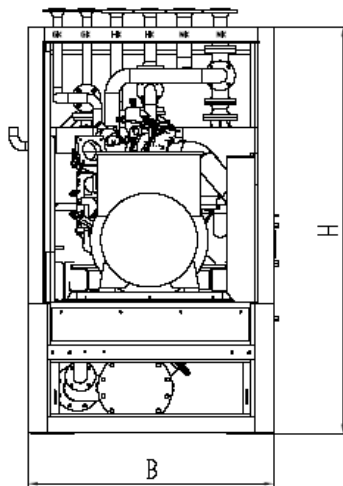
Generator data

| | | |
|--|-------------------|-------------|
| 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. | | |

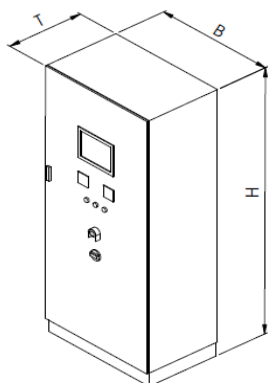
Main dimensions and weights

| | | | |
|-----------------------------|----|-------|--|
| 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:

