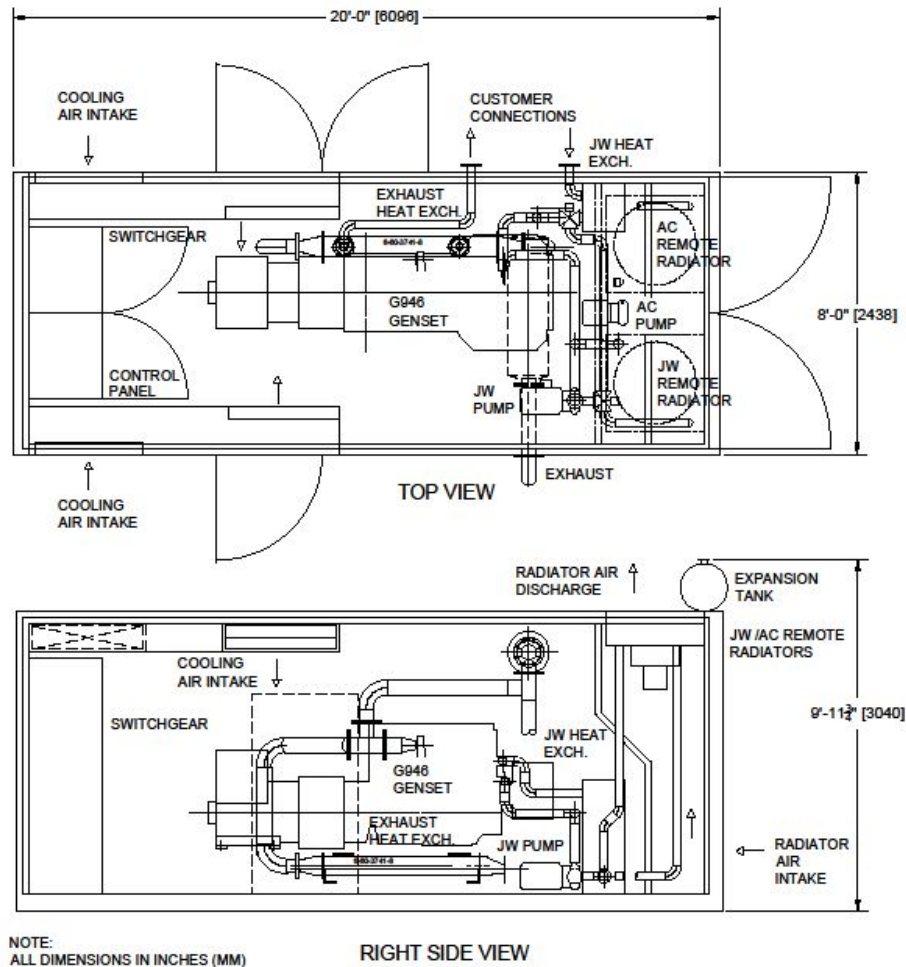


CogenLine Model LS-270-CHP - 271 kW Generator



General Information

- Turnkey cogeneration system fully packaged inside a 20ft sound attenuated and thermally insulated container
- Highly efficient genset based on a Liebherr G946 gas engine and a Stamford HCI534F generator
- Simultaneous production of 271 kW prime electrical power and 287 kW thermal power as hot water at 90°C improves fuel efficiency from 37% to over 80%
- Automatic operation control and switchgear included.
- Silent operation with an average of 75 dBA at 7m using a critical grade muffler and custom acoustic designed air inlet and discharge ducting
- Extended service life based on indoor installation of equipment and waterproof protection
- Engine low emissions of NOX, CO and HC make the package very environmental friendly

Standard Features

- Engine and generator are directly coupled and mounted on a rugged steel skid. All components are designed for continuous usage, and suitable for prime or intermittent service
- Equipment mounting provides easy accessibility and service. Removable enclosure walls allow for equipment overhaul or replacement when required
- Spark plug ignition (non self-igniting) provides knock resistance operation even with alternating gas compositions
- Rating is based on operation on ambient temperatures from -40°C to +30°C and an altitude up to 1000 meters (3300 ft). When conditions exceed these values please consult manufacturer for recommendations and derating information
- One-year limited warranty for all systems and components

Engine

Manufacturer	Liebherr
Model	G946
Displacement (L)	11.9 L
Configuration	6 cylinders inline
Bore and Stroke (mm)	130 x 150
Rated Speed	1800 rpm
Compression Ratio	13 : 1
Engine Weight (Dry)	1250 kg
Flywheel Housing	SAE 1
Fuel type	Natural gas
Fuel Requirements -100% Load	56 kg/hr
- 80% load	46 kg/hr
- 60% load	36 kg/hr

(Actual fuel consumption varies with site conditions and fuel energy content)

Fuel Connection	2" NPT
Motor Oil Capacity (min/ max)	32/ 40 L
Cooling water Capacity	20 L
Max. Pressure of Cooling Water	36 psi
Engine Combustion Air Flow	1550 kg/hr (772 cfm)
Intake Air Max. Temperature	35°C
Engine exhaust flow at rated kWe	1606 kg/hr (1899 cfm)
Engine exhaust temperature at rated kWe	434°C
Engine maximum allowable back pressure	20 inw (50 mbar)
Critical grade muffler installed inside for extended service time	
Remote backup radiator for jacket water system	
Remote radiator for continuous cooling of the intercooler low temperature system	

Engine Standard Features:

- coordinated turbocharger
- two-stage stainless steel intercooler
- throttle actuator
- ignition system specially developed for Liebherr
- gas mixer
- engine control unit
- knock control
- sensors and wiring harness as required

Heat Recovery

- Available waste heat recovered in two steps, from exhaust gas and engine jacket water, as hot water at 90°C:
 - 287 kWt @ 100% load
 - 244 kWt @ 80% load
 - 195 kWt @ 60% load
- Estimated overall efficiency 81%
- Exhaust gas shell and tube heat exchanger
- Jacket water plate and frame heat exchanger
- Jacket water remote radiator for backup cooling
- Three-way solenoid thermostatic valves for automatic transition from heat recovery to backup cooling
- Three-way solenoid exhaust diverter valve for automatic transition from exhaust heat recovery to gas evacuation
- Flanged connections on container walls for customer piping

Generator

Manufacturer	Newage Stamford
Model	HCI434E
Construction	Four pole, brushless Single Bearing
60 Hz Voltages and Ratings (3 phase)	
• 272 kWe / 340 kVA - 240/480V @ 0.8 PF	
• 271 kWe / 338 kVA - 600V @ 0.8 PF	
Voltage Regulator (standard)	MX341 AVR +/- 1.0%
Three-phase full-wave bridge rectifier	
Winding Leads	12
Temperature Rise	105C rise Prime (40C ambient) 125C rise Intermittent (40C)
Telephone Interference	THF < 2%
Winding Pitch	Two thirds
Control System	Self excited
Weight	1024 kg
Cooling Air Flow	1700 cfm

Enclosure

- Modified 20' ISO high cube container
- Sheet metal construction 20' (L) x 8' (W) x 9'-6" (H)
- Estimated overall weight 25,000 lbs (11,000 kg)
- 2" Roxul insulation covered with perf. metal in walls and roof
- Two double doors and two single doors for convenient access
- Custom acoustic designed air inlet and discharge ducting for reduced noise operation estimated at 75 dBA at 7m