

Imperial

Basic Technical Data

| | | | | |
|-------------------------------------|-----------|-----------|-----------|---------------------|
| Nominal electrical output | 375 | kW | | |
| Maximum heat output ¹⁾ | 1,672,000 | BTU/h | | |
| Load | 60 | 75 | 100 | % |
| Maximum heat power | 1,157,000 | 1,300,000 | 1,672,000 | BTU/h |
| Fuel input | 2,133,000 | 2,518,000 | 3,262,000 | BTU/h |
| Heat rate | 9,461 | 8,953 | 8,699 | 3TU/kW _e |
| Electrical efficiency | 36.0 | 38.1 | 39.2 | % |
| Heat efficiency | 54.2 | 51.6 | 51.3 | % |
| Total efficiency (fuel utilization) | 88.5 | 89.7 | 90.5 | % |
| Gas consumption | 2,337 | 2,758 | 3,574 | cfh |

The Basic Technical Data are applicable for the standard conditions pursuant to the "Technical instruction" document.

The minimum permanent electrical output must not drop below 60 % of the nominal output.

Gas consumption is expressed under the the invoicing conditions (59°F, 14.648 psi, Low Heat Value 912.18 BTU/CF)

Tolerances of other parameters are mentioned in "Technical Instructions-Validity of Technical Data" document.

1) Maximum heat output is a sum of heat outputs of secondary circuit with exhaust gas cooled to 248°F and aftercooler circuit

Observance of Emission Limits

| | | | | |
|--|-----|-----|-----|---------|
| Emissions | CO | NOx | VOC | |
| At 5% of O ₂ in exhaust gas | 1.5 | 1.1 | 0.7 | g/HP-hr |

Generator

| | | | |
|---------------------------------|-------------|----|--|
| Type | LSA 47.2 M7 | | |
| Producer | LEROY SOMER | | |
| Cos φ | 1.0 | | |
| Efficiency in the working point | 96.2 | % | |
| Voltage | 480 | V | |
| Frequency | 60 | Hz | |

Metric

Basic Technical Data

| | | | | |
|-------------------------------------|------|------|-------|-------------------|
| Nominal electrical output | 375 | kW | | |
| Maximum heat output ¹⁾ | 490 | kW | | |
| Load | 60 | 75 | 100 | % |
| Maximum heat power | 339 | 381 | 490 | kW |
| Fuel input | 625 | 738 | 956 | kW |
| Electrical efficiency | 36,0 | 38,1 | 39,2 | % |
| Heat efficiency | 54,2 | 51,6 | 51,3 | % |
| Total efficiency (fuel utilization) | 88,5 | 89,7 | 90,5 | % |
| Gas consumption | 66,2 | 78,1 | 101,2 | m ³ /h |

The Basic Technical Data are applicable for the standard conditions pursuant to the "Technical instructions" document.

The minimum permanent electrical output must not drop below 60 % of the nominal output.

Gas consumption is expressed under the invoicing conditions (15°C, 101.325 kPa)

Gas consumption tolerance, or fuel input tolerance, at 100% load is +5%.

Tolerances of other parameters are mentioned in "Technical Instructions-Validity of Technical Data" document.

1) Maximum heat output is a sum of heat outputs of secondary circuit with exhaust gas cooled to 120°C and aftercooler circuit

Engine

| | | | |
|--------------------------|--------------|-------------------|--|
| Type | E 3268 LE212 | | |
| Producer | MAN | | |
| Number of cylinders | 8 | | |
| Arrangement of cylinders | V | | |
| Bore × stroke | 132/157 | mm | |
| Displacement | 17190 | cm ³ | |
| Compression ratio | 12 : 1 | | |
| Speed | 1800 | min ⁻¹ | |
| Oil consumption. | 0.21 | g/kWh | |
| Max. engine power | 390 | kW | |

E3268 LE212; NG;26.6.2017



Thermal System

Secondary circuit

| | | |
|---|-----------|-------|
| Heat carrier | water | |
| Total system heat recovery | 1,559,000 | BTU/h |
| Nominal water temperature, input / output | 158/194 | °F |
| Return water temperature, min / max | 104/158 | °F |
| Nominal flow rate | 80.8 | gpm |
| Max. working pressure | 87 | psi |
| Water volume in CHP unit circuit | 7.9 | gal |
| Pressure loss at the nominal flow rate | 4.4 | psi |
| Nominal temperature drop | 68 | °F |

Utilization of exhaust gas output for other purposes

| | | |
|---|---------|-------|
| Heat output of exhaust gases (cooling to 248°F) | 758,000 | BTU/h |
| Exhaust gas temperature | 1,946 | °F |

Primary circuit

| | | |
|----------------------------------|-----------|-------|
| Total system heat recovery | 1,559,000 | BTU/h |
| Max. working pressure | 36.3 | psi |
| Water volume in CHP unit circuit | 68.7 | gal |

Aftercooler circuit

| | | |
|---|-------------------------|-------|
| Heat carrier | water + ethylene glycol | |
| Ethylene glycol's concentration | 35 | % |
| Total system heat recovery | 78,479 | BTU/h |
| max coolant temperature at the input | 107 | °F |
| nominal flow rate | 39.6 | gpm |
| pressure reserve at the nominal flow rate | 10.2 | psi |
| max. working pressure | 36.3 | psi |
| water volume in CHP unit circuit | 915 | cui |

Fuel, Gas Inlet

| | | |
|--|-----------|--------|
| Low heat value | 912.18 | BTU/CF |
| Min. methane number | 80 | |
| Gas pressure | 0.3 – 1.4 | psi |
| Max. pressure change under varying consumption | 10 | % |
| Max. gas temperature | 95 | °F |

Thermal System

Secondary circuit

| | | |
|---|-------|-----------------|
| Heat carrier | water | |
| Total system heat recovery | 457 | kW |
| Nominal water temperature, input / output | 70/90 | °C |
| Nominal temperature drop | 20 | °C |
| Return water temperature, min / max | 40/70 | °C |
| Nominal flow rate | 5,4 | kg/s |
| Max. working pressure | 600 | kPa |
| Water volume in CHP unit circuit | 30 | dm ³ |
| Pressure loss at the nominal flow rate | 30 | kPa |

Utilization of exhaust gas output for other purposes

| | | |
|---|-----|----|
| Heat output of exhaust gases (cooling to 120°C) | 222 | kW |
| Exhaust gas temperature | 456 | °C |

Primary circuit

| | | |
|----------------------------------|-----|-----------------|
| Total system heat recovery | 457 | kW |
| Max. working pressure | 250 | kPa |
| Water volume in CHP unit circuit | 280 | dm ³ |

Aftercooler circuit

| | | |
|---|-------------------------|-----------------|
| Heat carrier | water + ethylene glycol | |
| Ethylene glycol's concentration | 35 | % |
| Total system heat recovery | 23 | kW |
| max coolant temperature at the input | 42 | °C |
| nominal flow rate | 2,5 | kg/s |
| pressure reserve at the nominal flow rate | 70 | kPa |
| max. working pressure | 250 | kPa |
| water volume in CHP unit circuit | 15 | dm ³ |

Fuel, Gas Inlet

| | | |
|--|--------|-------------------|
| Low heat value | 34 | MJ/m ³ |
| Min. methane number | 80 | |
| Gas pressure | 2 ÷ 10 | kPa |
| Max. pressure change under varying consumption | 10 | % |
| Max. gas temperature | 35 | °C |



Combustion and Ventilation Air

| | | |
|---|--------|-------|
| Unused heat removed by the ventilation air | 51,000 | BTU/h |
| Aspirated air temperature, min / max | 50/95 | °F |
| Amount of combustion air | 894 | CFM |
| Max. amount of ventilation air at the outlet flange | 2,830 | CFM |
| Max. air temperature at the outlet flange | 50 | °C |
| Max. counter-pressure at the ventilation air offtake flange | 30 | Pa |

Exhaust Gas and Condensate Outlet

| | | |
|--|---------|-----|
| Amount of exhaust gases | 927.6 | CFM |
| Exhaust gas temperature, nominal / max | 248/302 | °F |
| Max. back-pressure of exhaust gases downstream the CHP unit flange | 0.29 | psi |
| Pressure loss of the freely delivered silencer | 0.15 | psi |
| Permissible pressure loss of the interconnecting exhaust piping | 0.15 | psi |
| Speed of exhaust gases at the outlet (DN 200) | 20.1 | m/s |

Oil

| | | |
|---|------|-----|
| Amount of lubrication oil in the engine | 25.1 | gal |
| Replenishment oil tank volume | 34.3 | gal |

Unit Dimensions and Weights*

| | | |
|---------------------------------------|--------|----|
| Length total | 200.8 | in |
| Width | 82.7 | in |
| Height | 106.3 | in |
| Service weight of the entire CHP unit | 16,977 | lb |

* approximate values

Combustion and Ventilation Air

| | | |
|---|-------|--------------------|
| Unused heat removed by the ventilation air | 15 | kW |
| Aspirated air temperature, min / max | 10/35 | °C |
| Amount of combustion air | 1519 | Nm ³ /h |
| Max. amount of ventilation air at the outlet flange | 4809 | m ³ /h |
| Max. air temperature at the outlet flange | 50 | °C |
| Max. counter-pressure at the ventilation air offtake flange | 30 | Pa |

Exhaust Gas and Condensate Outlet

| | | |
|--|---------|--------------------|
| Amount of exhaust gases | 1576 | Nm ³ /h |
| Exhaust gas temperature, nominal / max | 120/150 | °C |
| Max. back-pressure of exhaust gases downstream the CHP unit flange | 20 | mbar |
| Pressure loss of the freely delivered silencer | 10 | mbar |
| Permissible pressure loss of the interconnecting exhaust piping | 10 | mbar |
| Speed of exhaust gases at the outlet (DN 200) | 20,1 | m/s |

Oil

| | | |
|---|-----|-----------------|
| Amount of lubrication oil in the engine | 95 | dm ³ |
| Replenishment oil tank volume | 130 | dm ³ |

Unit Dimensions and Weights*

| | | |
|---------------------------------------|------|----|
| Length total | 5100 | mm |
| Width | 2100 | mm |
| Height | 2700 | mm |
| Service weight of the entire CHP unit | 7700 | kg |

* approximate values



Noise Parameters

| | | |
|---|----|-------|
| CHP unit at 1m | 77 | dB(A) |
| Ventilation outlet of sound enclosure at 1m | 87 | dB(A) |
| exhaust gas outlet at 1m from the silencer flange ¹⁾ | 65 | dB(A) |

1) The noise parameter can be reduced by optimizing the exhaust silencer to the required acoustic pressure level or by applying the exhaust silencer beyond the standard range designed for 60 dB(A) at 1 m.

Electrical Parameters

| | | |
|--|----------|----|
| Nominal voltage | 480 | V |
| Nominal frequency | 60 | Hz |
| Power factor ¹⁾ | 0,8 | |
| Nominal current at cos φ=0.8 | 564 | A |
| Protection of switchboard's power part closed/open | IP 31/00 | |
| Protection of switchboard's control part closed/open | IP 31/00 | |

1) Power factor adjustable from 0,8C ÷ 1 ÷ 0,8L (range from 0.8C ÷ 1 must be verified according to the various types of generators).

L = inductive load - overexcited

C = capacitive load - underexcited

Operation of the generator with a power factor of less than 0.95 causes a power limitation sets the following table:

| | | | |
|------------------|-----|------|-----|
| power factor [-] | 1 | 0,95 | 0,8 |
| output [% Pnom] | 100 | 100 | 98 |



Color Version

base frame, engine and generator

RAL 5015 (blue)

Caution

Manufacturer reserves the right to alter this document and the linked source materials.

