



## H series engines & gensets

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A cost-efficient and compact solution for power generation and cogeneration processes, this series of Siemens gas engines represents a new design concept with advanced technology incorporated into the cylinder heads, valves, camshafts, and high efficiency turbochargers.

Electronically carbureted, the HM gas engine family has an output range that goes from 520 to 1350 kWb at 50

Hz and 60 Hz. This engine series may be fueled by natural gas, sewage and landfill gas. This engine provides high performance, low life-cycle cost, fuel flexibility and exceptional fuel blending capability for natural gas and biogas as required.

A high performance Miller cycle design, H series engines are turbocharged and feature single or double stage air cooling. Different auxiliary

cooling circuit temperatures are possible and an option for an oil cooler in the main circuit is also available.

With a dry exhaust manifold and reduced oil consumption, emissions control is also possible. The H Series engines are supplied as a stand-alone engine, genset or in a fully containerized unit and may also include integrated GCS-E engine and GCS-G genset control systems if required.

### Engine main characteristics

| Characteristics                          | Benefits                                      |
|--|---|
| One high efficient turbocharger          | Performance improvement                       |
| High swirl pistons with new design rings | Optimized combustion with low oil consumption |
| Full integrated engine control system    | Control and diagnosis improvement             |
| Fuel system                              | For natural gas and biogas                    |

### Technical data

| Engine model           | SGE 24HM   | SGE 42HM | SGE56HM |
|------------------------|--|----------|---------|
| N° of cylinders        | 8  | 12       | 16      |
| Cylinder Configuration | In line  | V        |         |
| Bore (mm)              | 152  | 160      |         |
| Stroke (mm)            | 165  | 175      |         |
| Total Displacement (L) | 23,95  | 42,22    | 56,3    |
| Speed (rpm)            | 1200* / 1500 / 1800  |          |         |
| Applicable gas type    | Natural gas, sewage and landfill gas                             |          |         |
| Scope of supply        | Bare engine, genset, genset + ancillaries and containerized unit |          |         |

\*1200 only available for 56HM

## General Dimensions L x W x H (mm)

|             | SGE 24HM            | SGE 42HM           | SGE56HM            |
|-------------|---------------------|--------------------|--------------------|
| Bare engine | 3223 x 2079 x 1590  | 3571 x 2155 x 2181 | 4041 x 2141 x 2217 |
| Genset      | 3952 x 2079 x 1738  | 4865 x 2155 x 2373 | 5545 x 2141 x 2319 |
| Container   | 12000 x 2438 x 2896 |                    |                    |

## Power Output and Efficiencies @500 mg/Nm<sup>3</sup> NO<sub>x</sub> <sup>(1,2,3,4)</sup>

| 1200 rpm - 60 Hz |          | Mech. Power (kWb) | Mech. Efficiency % | Electr. Power (kWe) | Electr. Efficiency % | Therm. Power (kWt) | Therm. Efficiency % | Total Efficiency % |
|------------------|----------|-------------------|--------------------|---------------------|----------------------|--------------------|---------------------|--------------------|
| Natural Gas      | SGE 56HM | 1040              | 43,7               | 1011                | 42,5                 | 1120               | 47,1                | 89,6               |
| Biogas           | SGE 56HM | 1040              | 43,4               | 1011                | 42,2                 | 1198               | 47,3                | 89,5               |

| 1500 rpm - 50 Hz |          | Mech. Power (kWb) | Mech. Efficiency % | Electr. Power (kWe) | Electr. Efficiency % | Therm. Power (kWt) | Therm. Efficiency % | Total Efficiency % |
|------------------|----------|-------------------|--------------------|---------------------|----------------------|--------------------|---------------------|--------------------|
| Natural Gas      | SGE 24HM | 520               | 44,3               | 500                 | 42,7                 | 564                | 48                  | 90,7               |
|                  | SGE 42HM | 1040              | 44,2               | 1011                | 43                   | 1090               | 46,4                | 89,4               |
|                  | SGE56HM  | 1350              | 44,5               | 1315                | 43,4                 | 1400               | 46,2                | 89,6               |
| Biogas           | SGE 24HM | 520               | 44,1               | 500                 | 42,5                 | 567                | 48,1                | 90,5               |
|                  | SGE 42HM | 1040              | 44                 | 1011                | 42,8                 | 1101               | 46,6                | 89,3               |
|                  | SGE 56HM | 1350              | 44,3               | 1315                | 43,1                 | 1412               | 46,3                | 89,4               |

| 1800 rpm - 60 Hz |          | Mech. Power (kWb) | Mech. Efficiency % | Electr. Power (kWe) | Electr. Efficiency % | Therm. Power (kWt) | Therm. Efficiency % | Total Efficiency % |
|------------------|----------|-------------------|--------------------|---------------------|----------------------|--------------------|---------------------|--------------------|
| Natural Gas      | SGE 24HM | 520               | 42,1               | 500                 | 40,5                 | 599                | 48,5                | 89                 |
|                  | SGE 42HM | 1040              | 42,5               | 1006                | 41,1                 | 1184               | 48,4                | 89,5               |
|                  | SGE 56HM | 1350              | 42,6               | 1307                | 41,3                 | 1534               | 48,4                | 89,7               |
| Biogas           | SGE 24HM | 520               | 41,8               | 500                 | 40,2                 | 604                | 48,6                | 88,8               |
|                  | SGE 42HM | 1040              | 42,4               | 1006                | 41,1                 | 1190               | 48,6                | 89,7               |
|                  | SGE 56HM | 1350              | 42,4               | 1307                | 41,1                 | 1547               | 48,6                | 89,7               |

1- Technical data according to ISO 3046/1 with a tolerance of ± 5%.

2- The values given in this data sheet are for information purposes only, not binding.

3- Natural gas NM80

4- Biogas (CH<sub>4</sub>: 67%, CO<sub>2</sub>: 33%)

For other gas qualities, please, contact us

## References

| Installation | Industrial Laundry, Spain |             |                        |                     |
|--------------|---------------------------|-------------|------------------------|---------------------|
| Engine model | Fuel type                 | Application | Electrical Power (kWe) | Thermal Power (kWt) |
| 1 x SGE 24HM | Nat. Gas                  | CHP - Steam | 500                    | 564                 |

This generator set is supplied as a containerized solution including the steam generator in the container.

The set provides the facility all the energy demanded by its processes (electricity, hot water and steam) which implies great savings in terms of energy costs for the customer.

| Installation | Sokolow, Meat industry, Poland |             |                        |                     |
|--------------|--------------------------------|-------------|------------------------|---------------------|
| Engine model | Fuel type                      | Application | Electrical Power (kWe) | Thermal Power (kWt) |
| 2 x SGE 42HM | Nat. Gas                       | CHP - Steam | 2000                   | 2180                |

The two SGE 42HM gensets provide electrical power and heat to feed the facility processes. By using cogeneration, the factory is able to reduce the energy supply costs and becomes more efficient and environmental friendly.

| Installation | VCF Group Farm, Thailand |             |                        |                     |
|--------------|--------------------------|-------------|------------------------|---------------------|
| Engine model | Fuel type                | Application | Electrical Power (kWe) | Thermal Power (kWt) |
| SGE 56HM     | Biogas                   | CHP         | 1200                   | 1412                |

The heat produced by the genset is used in a digestion process to produce the biogas. The excedent of the non-used electricity is sold to the grid which is a great advantage for the investors.