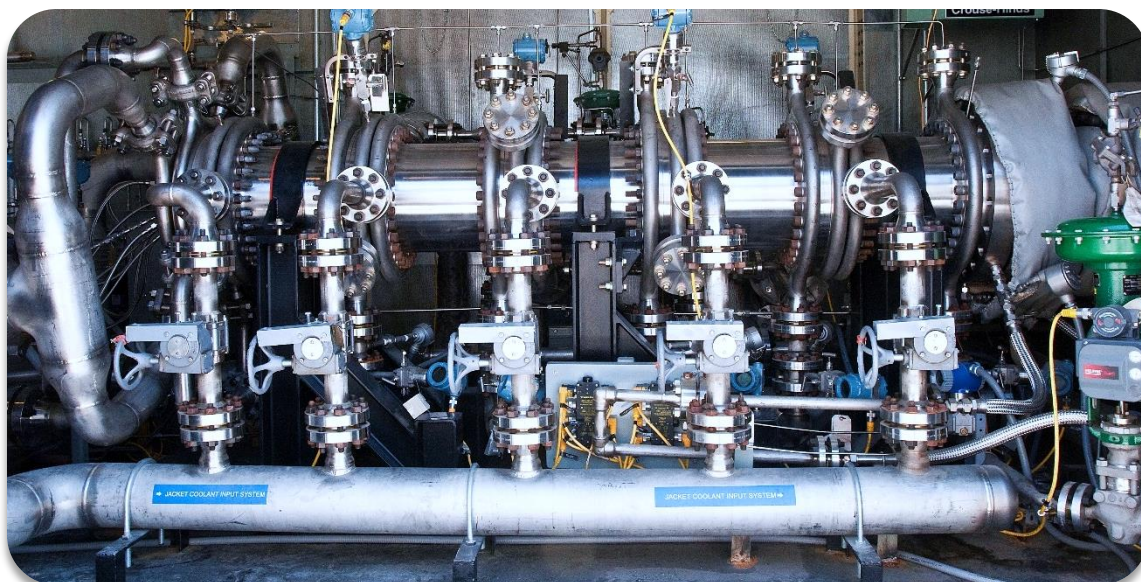


# Direct Steam Gas Generator: DSGG1200



## Product Description

The DSGG1200 is a pressurized gas generator that combusts gaseous fuel with oxygen and controls combustion temperature via water injection. It creates thermal energy for power, industrial, or chemical processes while enabling >99% carbon capture and is rated for 200 MW<sub>t</sub> when operating on pipeline quality natural gas fuel at design pressures. The combustion products are primarily steam and carbon dioxide (H<sub>2</sub>O and CO<sub>2</sub>) which enables simple carbon capture via gas liquid separation without the need for harsh chemicals such as amines.

## Applications

- Clean Firm Power
- Combined Heat and Power (CHP)
- Industrial Decarbonization
- Clean Steam Production
- Produced Water Treatment & Thermal Enhancement
- Enhanced Oil and Gas Recovery (EOR, EGR)

## Features

- Fully containerized or skid mounted solutions for minimal install time and cost
- Fully automated control system via Allen Bradley PLC, e.g. fuel demand, temperature control, load following, etc.
- Independent control over produced gas pressure and temperature
- Easy access maintenance system for full module or component replacement
- Unit can be completely overhauled in <24 hours
- Built to ASME BPVC Section VIII Division 2
- Increased safety via high-speed ignition detection (on the order of <500ms) and minimal stored volume; unit can be tripped, purged, and made safe for internal work in <15min.

## Materials of Construction

Typical materials of construction are SS316 for a wide array of applications and corrosion resistance. The burner is manufactured with Inco 600 for high pressure oxygen compatibility. Non-standard applications may require the use of nickel alloys, stabilized stainless such as SS321, copper, or copper alloys.

**Typical Dimensions:** L 40-45' x W 11' x H 11' (12-14m x 4m x 4m) in operational enclosure

## Nominal Operating Conditions

<b>Thermal Rating</b>	682 MM btu/hr (200 MWt) at maximum pressure
<b>Fuel Type</b>	Natural Gas. Other fuels available on request
<b>Fuel Heating Value</b>	Nominal: 20,260 btu/lb (47.1MJ/kg); Range: 3,500-51,590 btu/lb (8.14-120 MJ/kg)
<b>Fuel Flow Rate</b>	33,480 lb/hr (15,180 kg/hr)
<b>Oxidizer Type</b>	94.0-99.5 mol% oxygen; additional purity available on request
<b>Oxidizer Flow Rate</b>	128,160 lb/hr (58,130 kg/hr)
<b>Diluent Type</b>	Water
<b>Diluent Flow Rate</b>	667,800 lb/hr (302,910 kg/hr)
<b>Coolant Type</b>	Boiler quality water or ethylene glycol
<b>Coolant Flow Rate</b>	72,000 lb/hr (32,600 kg/hr)
<b>Drive Gas Output Flow Rate</b>	up to 500,000 lbs/hr (226,800 kg/hr)
<b>CO<sub>2</sub> Output Flow Rate</b>	Up to 18,500 mscfd (~1,000 tonnes per day) based on natural gas fuel
<b>Drive Gas Composition</b>	~94 mol% H <sub>2</sub> O, 6 mol% CO <sub>2</sub>
<b>Exit Temp.</b>	saturation up to 3,200 °F (1,760 °C)
<b>Supply Pressure</b>	up to 900 psi (60 bar); customizable up to 5,000 psi (345 bar). Does not include piping or valve losses
<b>Exit Pressure</b>	Up to 810 psi (55 bar); customizable up to 4,500 psi (310 bar)
<b>Operating Range</b>	35-100% fuel demand