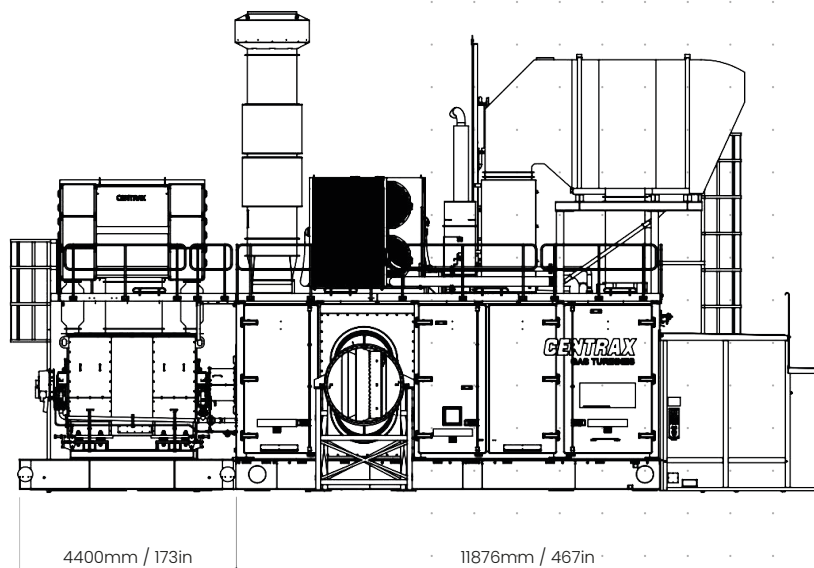
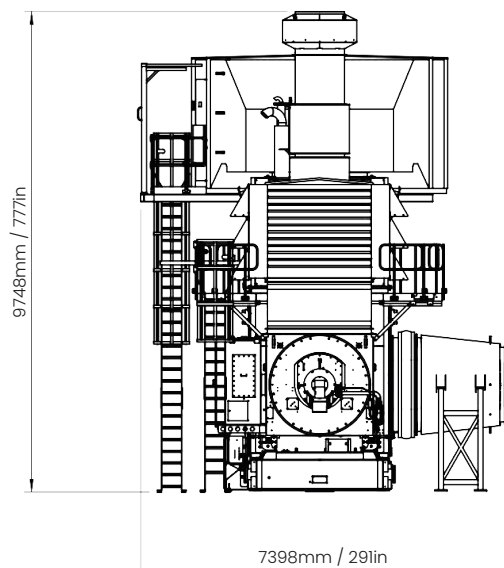


CX300-2S 8.5MW

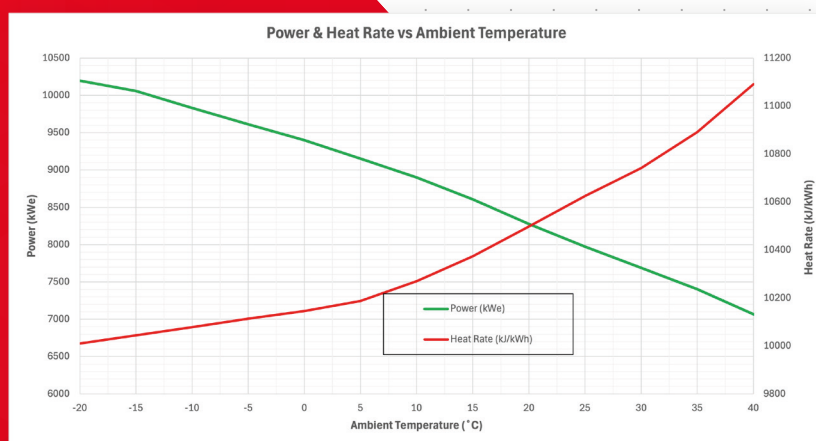
Gas Turbine Generator Set

CENTRAX
GAS TURBINES



Approx total weight = 117000 KG / 257941 lbs

Power Output	8606 kWe
Heat Rate	10374 kJ/kWh 9833 BTU/kWh
Exhaust Flow	30.1 kg/s 66.4 lb/s
Exhaust Temperature	498°C 928°F
Exhaust Thermal Energy	24800 kWth
Electrical efficiency at generator terminals	35%



ISO rating is based on the following characteristics:

Ambient Temperature 15°C (59°F), Altitude (Sea level) 0m (0ft), Ambient Pressure 1013 mbar (29.91 inHg), Relative Humidity 60%, Natural Gas fuel (LHV) 47889 kJ/kg (20589 BTU/lb)

* Inlet losses, exhaust losses & package auxiliary losses are excluded

Capable of a high number of starts per year, easily accepts instantaneous increases/decreases in power output, fast start capabilities, cold and hot start.

Centrax Gas Turbines Ltd

Shaldon Road, Newton Abbot, Devon, TQ12 4SQ, England

Registered in England No. 00592720. VAT No. GB 141 5342 02.

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LRQA
CERTIFIED

ISO 9001 · ISO 14001
ISO 45001

General specifications – Siemens SGT-300-2S 8.6MWe

Gas Turbine

- Industrial twin shaft design
- 10 Stage axial compressor with variable guide vanes on stages 1 to 5
- Pressure ratio 13.7:1, blow-off valves to prevent compressor surge
- Combustion module
 - 6 reverse flow combustion chambers (cans)
 - Standard ignition system, high-energy ignition unit and 6 ignitors
 - Gas and Liquid fuel Dry Low Emissions (DLE) *
- 2 stage compressor turbine, 2 stage power turbine
- Power take-off through exhaust end (hot end drive)
- Tilting pad journal & thrust bearings

Gearbox

- Epicyclic speed reduction gearbox
- Reduce power turbine speed down to 1500rpm (50Hz) or 1800rpm (60Hz)

Generator

- 4 poles, 3 phase synchronous
- Wide range of voltages available for both 50Hz and 60Hz machines
- Open ventilation (IEC 60034-6:1991 classification IC0A1)
- CACA (Closed Air, Cooling Air) *
- CACW (Closed Air, Cooling Water)*
- Inlet and outlet air temperature monitoring
- Bearing temperature and vibration monitoring
- Stator winding temperature monitoring

Baseplate

- Two baseplates for driver (turbine & gearbox) and driven (generator) equipment
- Carbon steel structural sections and plate to BS EN 10025 S275
- Designed to support the machinery drive train, acoustic enclosure, and all auxiliary systems
- Designed to give low vibration level and turning moment, reduced foundation loads and cost
- Transmits all package loads to the foundation via anchor bolts
- 5500ltr integral oil tank is incorporated within the turbine baseplate
- Each baseplate designed for single point lift

Acoustic enclosure

- Indoor/Outdoor acoustic enclosure covering turbine and gearbox
- Integral engine and auxiliary maintenance beams
- Interior lighting
- Gas detection system, fire protection and CO2 suppression system in accordance with EN54 and EN12094

Integrated lube oil system

- Gearbox driven main lube oil pump
- AC driven auxiliary pump
- DC driven emergency pump
- Integrated DC battery system to provide emergency oil supply on loss of AC power
- Oil module regulates pressure and temperature
- Duplex oil filter
- External oil to air heat exchanger with safe area axial fans
- Water to oil cooler heat exchanger*
- Lube oil tank heaters
- Oil tank ventilation system with oil mist coalescer to reduce emissions
- Stainless steel piping
- First fill of oil included

Fuel system

- Natural gas
- Liquid fuel *
- Dual fuel (Natural gas / liquid) *
- Low BTU gas *
- Natural gas / Hydrogen mix *

Start system

- Electro-hydraulic start system, 110kW 3 phase AC motor

Turbine wash system

- Motoring (cold) wash, mobile wash tank

Turbine intake system

- Heated Vane Separator (HVS) anti-icing system
- 2 stage filtration system, 1st Stage M5. (ISO 16890 ePM10 60%), 2nd Stage E11 (ISO 29461-1 T12)
- 3 stage filtration system *
- Inlet chiller coils *
- Intake attenuation
- Support steelwork to EN1090-1&2 *

Acoustic enclosure ventilation system

- Heated vane separator (HVS) anti-icing system, single stage filtration system M5 (ISO 16890 ePM10 60%)
- Air outlet extractor fan
- Air inlet and outlet shut-off damper for CO2 retention
- Intake and outlet attenuation
- Support steelwork to EN1090-1&2 *

Turbine exhaust system

- Radial exhaust exit (Left/Right/Vertical)
- Thermal expansion compensator
- Thermal / Acoustic shroud
- Primary exhaust attenuator *

Package control

- On-skid control suite
- Control panel shelter *

Turbine control

- Rockwell Allen Bradley "Guardlogix" PLC, Rockwell Point I/O, Safety Point I/O and Flex I/O modules
- Dual Redundant ethernet ring (DLR) communication
- Hardwired interlocks to balance of plant (HRSG, gas compressor etc)
- Safety systems: Rockwell Allen Bradley "GuardLogix" Safety Integrity Level (SIL) PLC, hardwired emergency stop safety chain to SIL 2. Independent SIL overspeed protection module
- 19" touch screen human machine interface, system graphics, alarm display and historical logging
- Data communication link available for remote control & monitoring
- Vibration monitoring using Rockwell Dynamix 1444 series

Generator control and protection

- Electronic Automatic Voltage Regulator (AVR) with protection functions,
 - ANSI 58 – Rotating diode failure,
 - ANSI 60 – Voltage imbalance
- Digital integrated protection relay comprising: ANSI 21 – Under impedance,
 - ANSI 24 – Over excitation
 - ANSI 27 – Three-phase undervoltage,
 - ANSI 32R – Reverse power,
 - ANSI 40 – Loss of excitation,
 - ANSI 46 – Negative phase sequence,
 - ANSI 50/51 – Overcurrent,
 - ANSI 50BF – Breaker failure, *
 - ANSI 51N – Stator earth (ground) fault,
 - ANSI 59 – Three-phase overvoltage,
 - ANSI 59N – Neutral voltage displacement
 - ANSI 67N – Directional earth (ground) fault, *
 - ANSI 78 – Pole Slip
 - ANSI 81O – Over frequency,
 - ANSI 81U – Underfrequency,
 - ANSI 87G/T – Differential fault
- Additional generator protection by PLC, ANSI 38 – Generator bearing thermal protection, ANSI 49S – Stator thermal protection

Synchronising equipment

- ANSI 15 – automatic synchroniser
- ANSI 25 – check synchroniser
- Automatic or manual forward and back synchronising, MV circuit breaker control

Motor control centre

- Skid mounted 400V, 50Hz or 480/575V, 60Hz, 3ph MCC, allowing a single point of connection for the customer

Documentation

- Drawings
- Quality manual
- Test reports

Testing

- Factory testing of turbine
- Full fired package test

* Optional equipment

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