SIEMENS Gas Turbine SGT 800

Scope of Supply & Additional Notes

SGT – 800 Gas Turbine Generator Set, 45,3 MW, with integral Local Equipment Room:

Unit(s) to be supplied are unused, with zero running hours, never installed.

Gas Turbine Package:
Original year of assembly: 2022-2023
SGT 800 Gas Turbine Core Engine
Original assembly location: Europe
Never installed

AC Generator:
Original assembly location: SIEMENS Electrical Machines
Original year of assembly: 2022-23
Package and core engine serial numbers will be confirmed upon placement of order
The units` supporting documentation is available for review at any time with prior notice

Scope of Supply:
Driven unit
AC Generator
11 kV
3 phase
50 / 60 Hz
4 pole
0.8 power factor
Cylindrical pole brushless type
Filter ventilated
Class F insulation with class F total temperature rise
Generator bearing temperature instrumentation
Lubricating oil piping from gas turbine to driven unit

Gas Turbine Engine
SGT 800 Gas turbine engine – ISO Rating 45,3 MWe – two-stage uncooled variable free power turbine offers nominal shaft speed up-to 7,700 rpm
Gas generator
Air inlet casing
Compressor rotor
Compressor stator wit variable Guide Vanes (VGV)
Centre casing
Combustion system – Dry Low Emissions (DLE) for dual fuels
Compressor turbine rotor
Compressor turbine stator
Power turbine
Hot gas interdict
Power Turbine rotor
Power turbine stator
Output shaft drive
Exhaust outlet casing
Engine arranged for hot end drive
Engine bearing temperature and vibration instrumentation

Underbase
Underbase – fabricated carbon steel construction, arranged for - multi point mounting
Mounting assemblies for the gas turbine core, auxiliary gearbox, auxiliaries, and main gearbox
Driven unit – separate underbase
Integral lubrication oil tank – carbon steel

Quantity: currently several units SGT 800 generator
packages available Ready for shipment depending on site –
specific requirements Gas and Liquid fuel system included
DLE combustion system

Start System
Hydraulic motor and pump – AC electric motor driven

Gears, Couplings and Guards
Gearbox seismic vibration instrumentation
Auxiliary gearbox incorporating drives to start system and lubricating oil pump
Drive coupling – high speed – flexible element dry type – turbine to gearbox
Drive coupling – low speed – flexible element dry type – gearbox to AC generator
Coupling guard – high speed – (carbon steel) – turbine to gearbox
Coupling guard – low speed – (carbon steel) – gearbox to driven unit

Lubricating Oil System
Integral mineral oil lubricating system serving the gas turbine, gearbox and driven unit
Lubricating oil pump main – gas turbine gearbox driven
Lubricating oil pump auxiliary – AC motor driven
Lubricating oil pump emergency – DC motor driven
Lubricating oil system filter
Duplex filter arrangement
Continuous flow transfer valves
Conforms to API 614
Filter body – carbon steel
Differential pressure indicator
Temperature and Smart type pressure & level transmitters – aluminum bodies
Lubricating oil tank immersion heater
Lubricating oil system breather
Lubricating oil breather oil mist eliminator
Lubricating oil breather ducting – austenitic stainless steel
Lubricating oil system cooler
Airblast simplex lubricating oil cooler – package roof mounted
Cooler fan – single (100% duty)
Suitable for a non - hazardous area
Lubricating oil cooler piping supply and return – austenitic stainless steel

Gas Fuel System
Pilot fuel flow control system with actuator and integrated pressure transmitters
Main fuel flow control system with actuator and integrated pressure transmitters
Rapid acting gas shut – off – valves (2-off)
Temperature transmitter – aluminum body
Gas fuel block and vent valve assembly – off package

Acoustic Enclosure
Acoustic enclosure – painted carbon steel, fitted over gas turbine, gearbox and auxiliaries
Doors for personal access and maintenance
85 dB(A)
Integral lifting beam for maintenance
Integral lightning
Acoustic system transmitters – Siemens standard smart type – aluminum
Excluded – ground level enclosure access platforms and steps

Acoustic Enclosure Ventilation System
Ventilation air inlet filter pad type
Enclosure ventilation inlet and outlet dampers – air operated
Ventilation fan – single – AC electric driven – Zone 2
Ventilation air system – negative pressure
Ventilation air silencer
Ventilation air inlet and outlet ducting
Integral support for turbine enclosure ventilation system

Gas Detection System
Gas detection equipment comprising
2 – I.R. point gas detectors (vent outlet)

Fire Protection System
Fire protection system comprising
3 – I.R. multi spectrum flame detectors
2 – Heat detectors
Single sounder / beacon (end of package)
1 – Beacon (inside package)
Status indicator (end of package)
1 – MAC (Manual Alarm Contact)

Fire Extinguishing
Fire shot CO_2 fire protection system – in accordance with NFPA 12
Cylinders housed in a weatherproof cabinet
Extinguisher system distribution pipework and nozzles
Piping from cabinet to package

Combustion Air Inlet System
Combustion air filter – simple static element – painted carbon steel
Combustion air filter – weather hood
Combustion air filter – mist eliminator
Combustion air filter – EPA filter stage
Combustion air silencer – painted carbon steel
Combustion air inlet ducting – painted carbon steel
Integral support for combustion air inlet system
Maintenance access platform and ladder – combustion air filter

Combustion Exhaust System
Exhaust diffuser – ferritic stainless steel – horizontal orientation
Exhaust silencer – ferritic stainless steel hot section – coated carbon steel outer casing
Exhaust stack – ferritic stainless steel – floor standing vertical orientation – 15 m height
(As per SIEMENS Energy standard design)
Thermal insulation and aluminum cladding – personnel protection only

Package Electrical Systems

Integral Local Electrical Room (LER)
- Designed to provide environmental protection for the SGT-800 package control panels and its operators.

Fully equipped with lighting, power and environmental controls consisting of:
- 400 V AC – Package motors and heaters supply
- 230V 50Hz distribution board
- Internal and external lighting
- Industrial 230 V 50 Hz outlet

Air conditioning/heat pump unit capable of maintaining control room at 20°C in all ambient conditions

A baseplate designed to support the control panel shelter and internal tread plates which will attach to the end of the SGT-800 package driver unit baseplate to allow for a single point lift of the driver package

A single control panel cubicle with support frame

The combined control panel will consist of a battery charger, unit control panel for turbine and generator control and monitoring and motor control center

Batteries – VRLA type, sized to ensure a safe run-down of the turbine and driven unit in an emergency case

Package Auxiliaries

Turbine compressor – mobile cleaning system – 316 stainless steel tank – on and off-line wash

Drain tanks on package

Auxiliary module pressure & level transmitters – Smart type – aluminum bodies

Instrument tagging – arrow tags – SIEMENS standard P&ID references

Package finish according to SIEMENS onshore standard

Control System

Package Control System Hardware

Control system mounted within integral LER

Unit Control System section – simplex, incorporating a SIEMENS SIMATIC PLC platform

Control and monitoring of the package systems

Standard start-stop and load control functions – on-package control panel

HMI PC panel mounted

Operators display language – English

Machinery vibration monitoring

Ethernet TCP/IP communications data link to DCS

Generator Control Panel section containing

Automatic voltage regulator

Synchronizing facility – automatic & manual with check synchronizer

Generator metering equipment and electrical protection

SIEMENS Turbomachinery Applications – Remote Monitoring System – STA-RMSTM

STA-RMS allows improved support for engine operators

Required operation during warranty period and thereafter with Long Term Programs (LTP) service contracts

SIEMENS common Remote Service Platform secure communication through Virtual Private Network (VPN) via customer's internet service

STA-RMS primary functions:
- Automatic transfer of engine operation data to Remote Diagnostic Center allowing:
- Routine monitoring
- Predictive trending
- Anomaly detection
- Improved downtime prediction and scheduling
- Access to historic data
- Fleet and unit performance reports

Remote access to the Human Machine interface allowing:
- Direct operation of the Human Machine Interface by SIEMENS' support personnel
- Software updates during fault rectification helpdesk call
- Faster troubleshooting and support

Testing Gas Turbine
Gas turbine core engine test – SE standard – the core has already been tested. Test data available

Driven Unit Test
Manufacturer's works acceptance test data of AC Generator. Pre-tested.

Installation and Maintenance Equipment
Roll-off equipment – Gas turbine power turbine
Roll-off trolley – Gas Turbine core engine removal
Maintenance equipment
Power turbine barring gear
Core lifting equipment
Semi-gantry crane
Auxiliary gearbox support
Installation tool kit comprising of a cabinet containing common hand tools
Holding down fixings – GT and driven unit package
Holding down fixings – off-package equipment
Selection of paints for site repairs

Drawings and Documentation
Standard set of certified information an approval drawing in English language
Existing drawings are to be reviewed and issued with relevant modifications or a project specific cover
- Operator manual – English language – CD only
- Maintenance manual – English language – CD only
- Driven unit manual – English language – CD only

Packing and Delivery

Packing
Packing and preservation to suit destination and transport method

Delivery terms
Delivered FCA Europe in accordance with ICC INCOTERMS 2020 edition

Spares
Commissioning equipment and tools
Commissioning spares

Quality Assurance
Contract QA Programmed
Material Record Book (MRB) – quality assurance and as built records – English language