

# **SIEMENS Gas Turbine SGT 800**

## **Scope of Supply & Additional Notes**

### **SGT – 800 Gas Turbine Generator Set, 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: 2021 ~ 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: 2021, 2022

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 6,600 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 3 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<sub>2</sub> 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 – row 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

Operator 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 and approval drawings 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 Programme

Material Record Book (MRB) – quality assurance and as built records – English language

**Subjects to prior sale – errors and omissions excepted**