[redacted]

From: [redacted] Contractor)
Sent: Wednesday, July 19, 2023 1:57 PM
To: [redacted]
Cc: [redacted]
Subject: VCM 10 MW Generation
Attachments: Spirit 12MW General Arrangement.pdf; spirit 12 Technical Description- for attach.pdf; PICT0041.JPG

[redacted],

Here are some data sheets for a nominal 12 MW generator that is rated 10.5 MW at 95F. This unit uses a GE turbine. The exhaust stack is not shown but would sit on the ground next to the unit and would slightly increase the footprint shown. I've attached a photo of such a stack used for one of my past projects (the turbine is inside the building).

A budget price of $8 million (installed) excluding switchgear was suggested.

Why are you looking at a 10 MW backup generation solution? Is the project considering an all-electric driven compressor design? Is this something I should be considering as well? Thus far, we were told only allow for two 2150 hp EDCs.

Regards,

[redacted].
[redacted]
Gas Engineering, Southern California Gas Company
555 W Fifth Street, Los Angeles, CA 90013-1011
[redacted]

JCK Engineers, Inc.
[redacted]@jckeng.com

[redacted]

From: [redacted] (Contractor)
Sent: Friday, July 21, 2023 5:03 PM
To: [redacted]
Cc:
Subject: RE: VCM 10 MW Generation
Attachments: Appendix 9.5 - Mechanical design book (SOM6807644).pdf; Appendix 9.4 LT5-1 IPG Technical Description (SOM5082894).pdf

[redacted],

Here is an alternate 5 MW turbine generation solution. Although I like the Solar Turbines unit, their portable unit makes numerous mechanical trade-offs for it to fit into a package that can be mobile. The packaging for the unit described on the attached sheet is meant for stationary installations and would be much more user friendly for maintenance over its lifetime. You may want to see how this packaging would fit the site. The exhaust stack is not shown, so you'd need to increase the length by 15 feet or so.

Regards,

[redacted]
Gas Engineering, Southern California Gas Company
555 W Fifth Street, Los Angeles, CA 90013-1011
[redacted]

JCK Engineers, Inc.
[redacted]@jckeng.com

From: [redacted]
Sent: Wednesday, July 19, 2023 1:57 PM
To: [redacted]@socalgas.com>
Cc: [redacted]@socalgas.com>
Subject: VCM 10 MW Generation

[redacted],

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[redacted]

Gas Engineering, Southern California Gas Company
555 W Fifth Street, Los Angeles, CA 90013-1011
[redacted]

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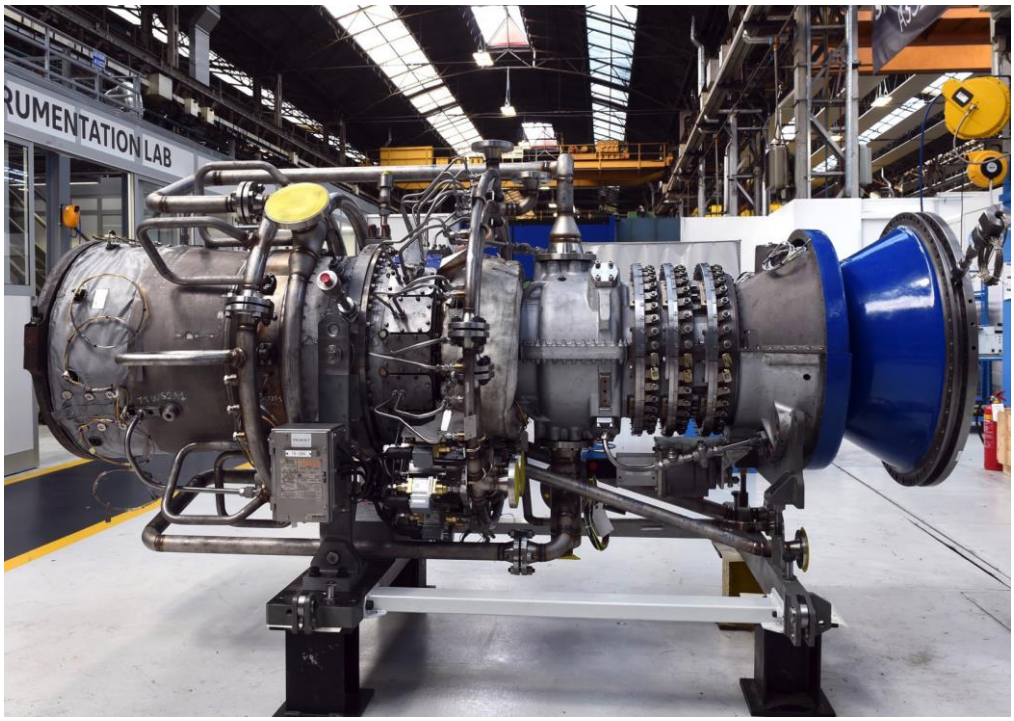
[redacted]@jckeng.com

Spirit 5

Technical Description



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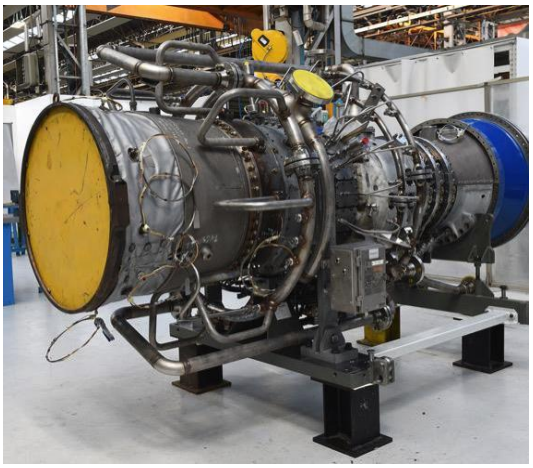
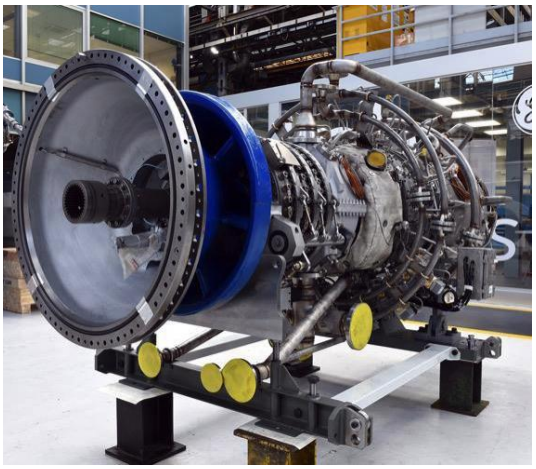




Overview

NovaLT™5-1 is a high-efficiency gas turbine designed for power generation applications requiring maximum reliability and availability.

NovaLT™5-1 has been developed leveraging the best Baker Hughes, a GE company (BAKER HUGHES), technology to respond to the demands of a gas turbine in the 5 MW range with high efficiency, reliability, availability, and low environmental impact.

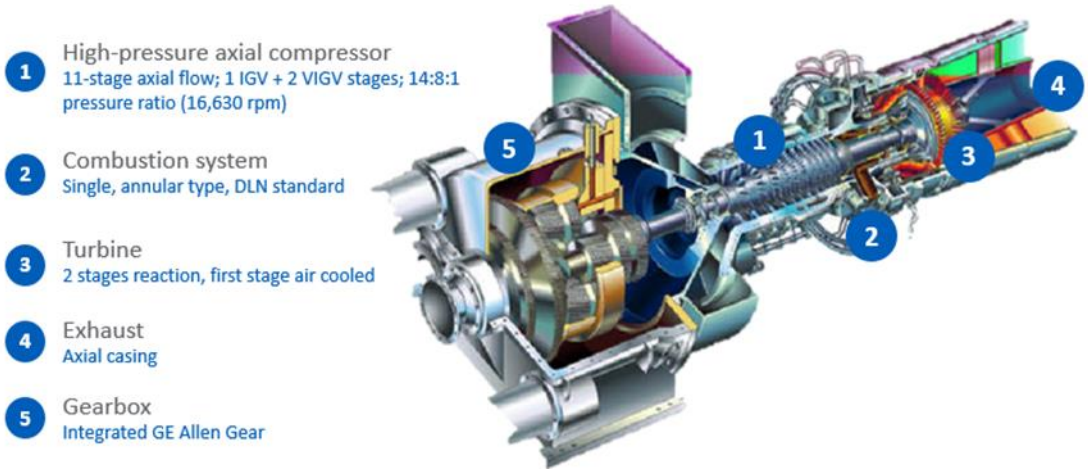
NovaLT™5-1 is an improved version of the previous GE5, built on the latest technology, with a new compact package and systems design features, that are driven by commonality with the new more efficient NovaLT™ gas turbine family.

The NovaLT™5-1 design consists of a high-pressure axial compressor with three variable geometry, providing flow control., a combustion section and a two-stage air-cooled turbine. It features an axial exhaust allowing waste recovery systems' easier installation.

NovaLT™5-1 is fueled with natural gas. The Dry Low NOx (DLN) technology system is featured by 18 fuel burners; premixed and pilot fuel lines have been implemented for each burner.

To optimize emissions at partial load, staging valves have been implemented in the system.

Low NOx emissions in the operating range of 50% to 100% load and ambient temperature from -20ºC to 40ºC .



Spirit 5 package is compactly designed, with an emphasis on standardization, optimization of factory assembly, and the elimination of costly field assembly methodologies, making Spirit 5 ideal for operations with challenging footprint and height restrictions.

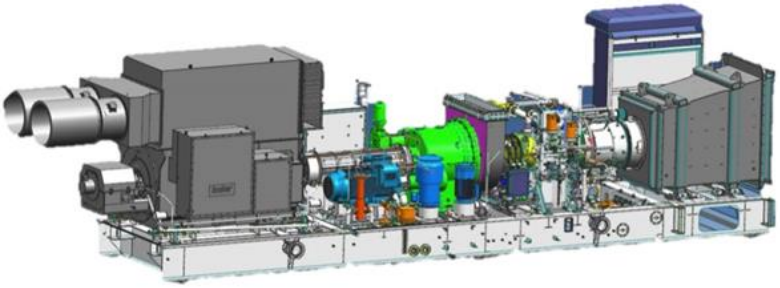
It consists of a main single-lift skid on which the gas turbine, generator, gearbox, and all the main auxiliary systems are installed, including an on-skid remote I/O panel, an integrated lube oil system, fuel gas, and low voltage starting systems. Supported by the main skid, is a second module with filtering and ventilation systems, with no impact on the footprint.

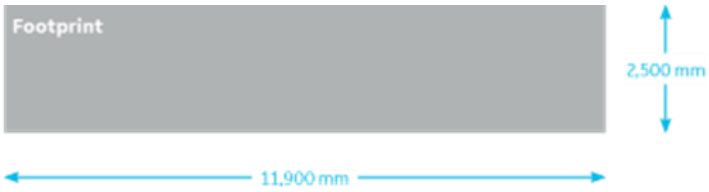
Spirit™5 package is designed with an emphasis on the requirement for a fast installation. The two main modules are shipped pre-assembled to the site (for outdoor applications). The top module is supported directly by the lower package, resting on the corner pillars of the enclosure.

With integrated on-board control panel and on-skid systems, the gas turbine arrives at the site already flushed and loop checked at the production facilities, reducing installation time.

Weight list summary (tons)	
Main skid	57
Upper deck module (base configuration*)	9
Engine module	4.07
Generator rotor	5.05

** Static Filter House, Simplex OME, 2x50% oil/air lube oil cooler*





Air filtration system

Gas turbines manufactured by BAKER HUGHES are required to operate successfully in rural areas and heavy industrial zones, in polar regions and the tropics, in deserts, and in coastal or offshore installations. In order to adapt machines to a variety of environments while realizing their full potential in performance and reliability, it is necessary to effectively treat the air entering the gas turbine. Environmental conditions play a major role in the selection and design of the air filtration system and its subsequent performance.

The main driving environmental factors are:

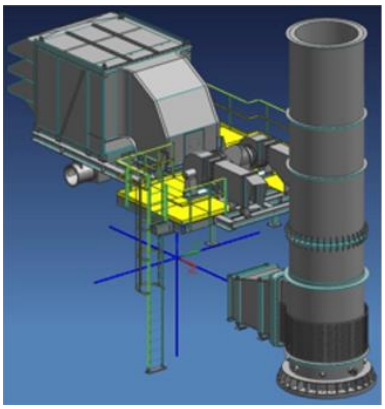
- Water/moisture concentration in atmosphere
- Dust level
- Particulate type
- Particulate size concentration
- Temperature range for selection of anti-icing system
- Amount of snowfall
- Salt concentration in atmosphere

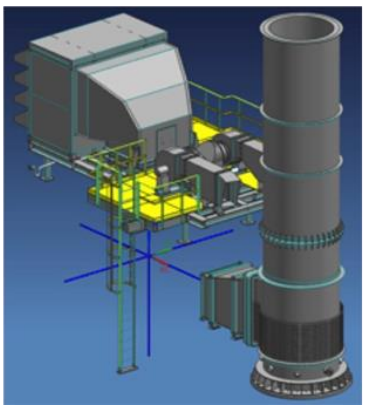
It is of main importance to select the right filtration technology for each installation site.

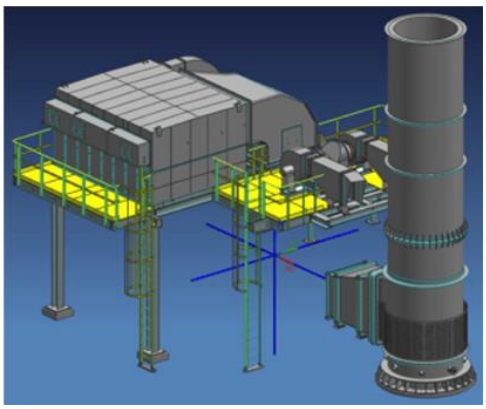
Spirit 5 air filtration system types

Four types of air filtration systems are available as standard options to cope with several environmental conditions:

- GDX, a self-cleaning air filtration system, with horizontally hanging filter cartridges
- TTD, a self-cleaning air filtration system, with vertically hanging filter cartridges
- Combined inertial/self-cleaning air filtration system
- Two- or three-stage static air filtration system





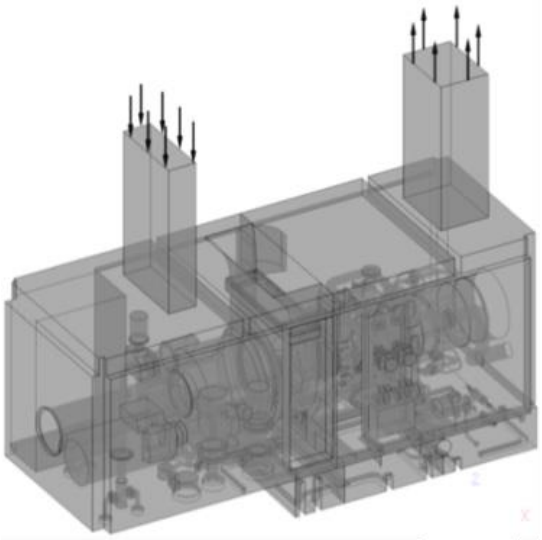


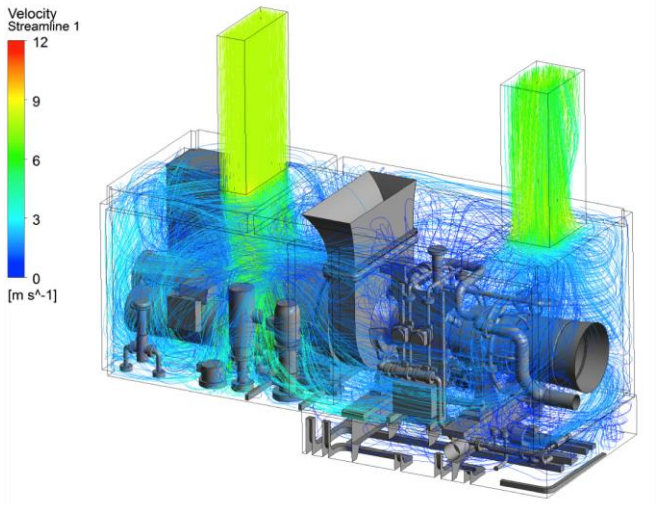
Ventilation system

During all gas turbine working conditions (startup, normal run and shutdown), the ventilation system provides a continuous source of cool air which serves the following main purposes:

- Remove heat from the enclosure
- Dilute possible hazardous gas leaks (In accordance to IEC 60079-10-1) to the point where the leak is no longer hazardous, by adhering to ISO 21789 requirements
- Maintain the expected and appropriate temperature field, to allow the correct working and certification conditions for all the equipment placed inside the enclosure
- Allow appropriate working condition of the gas detection system

Spirit 5 comes with a negative pressure ventilation system (enclosure de-pressurized below the ambient) and single ventilation fan.





Component	Sub-component	Base option	Alternative 1	Alternative 2
Duct	Material	Painted carbon steel	Aisi 304L	Aisi 316L
Expansion joint	Material	EPDM	-	-
	Clamping bars	Aisi 304L	Aisi 316L	-

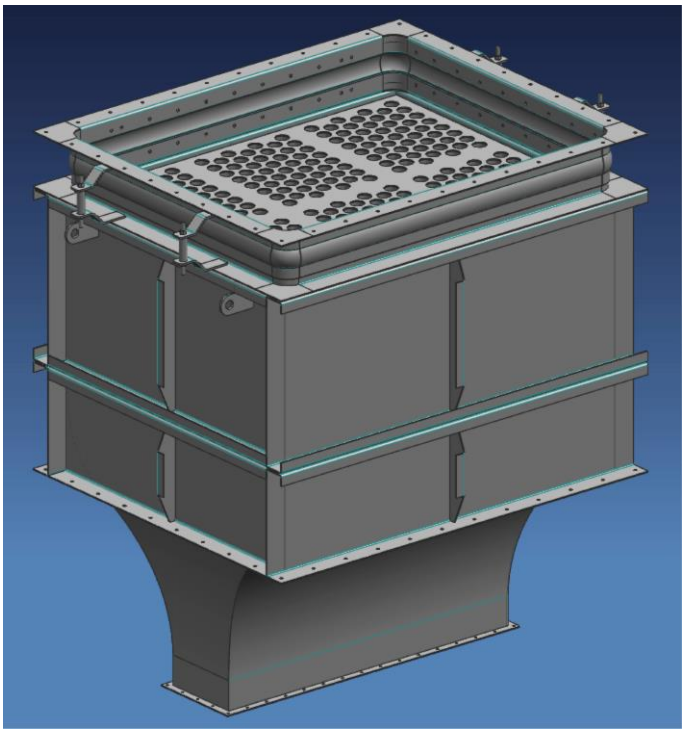
Inlet system

The primary function of the inlet duct system is to direct airflow from the inlet filter house to the inlet plenum and then to the axial compressor bellmouth with uniform flow and minimum pressure drop.

The secondary function of the inlet duct system is to attenuate the noise emanating from the compressor bellmouth during gas turbine operation.

The inlet duct system consists of the following main components:

- Expansion joint
- Silencer duct
- Transition piece to the GT inlet plenum
- Plenum side expansion joint (in the GT package scope of work)



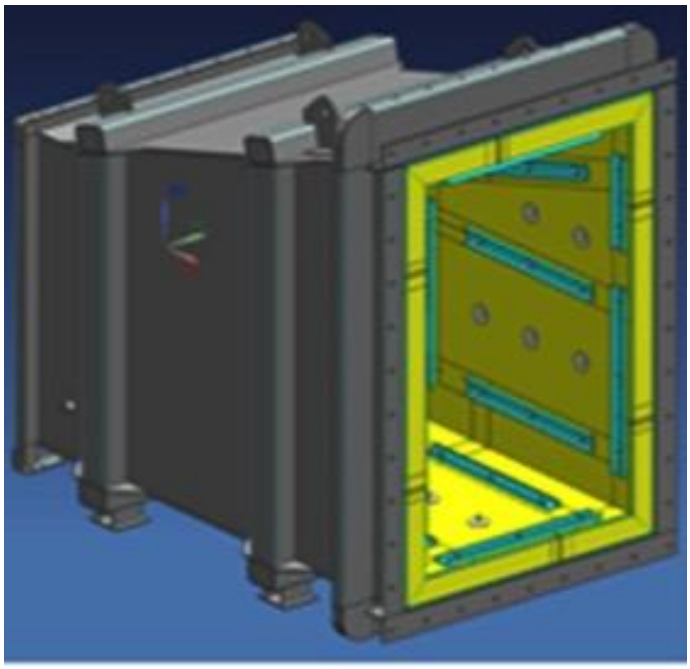
Component	Sub-component	Base option	Alternative 1	Alternative 2	Alternative 3
Expansion joint	Flexible belt	EPDM	-	-	-
	Clamping bars	Aisi 304L	Aisi 316L	-	-
Duct sections	Sheeting	Painted carbon steel	Aisi 304L	Aisi 316L	-
Silencer	Casing	Painted carbon steel	Aisi 304L	Aisi 316L	-
	Panels/tubes	ABS	BDG carbon steel	Aisi 304L	Aisi 316L

Exhaust system

Spirit 5 features an axial discharge. The exhaust system includes exhaust transition.

It can include expansion joint and exhaust stack as an option.

The general function of an exhaust system is to direct the exhaust flow from the discharge of the gas turbine diffuser to the atmosphere with the minimal practical pressure drop, while performing a variety of functions, including, but not limited to, noise reduction, thermal insulation of the flow from external surfaces, heat transfer for boilers and waste heat recovery systems, anti-icing systems, and sampling of emission compounds, as well as unburned hydrocarbons that provide valuable feedback, which may be used in the package control systems, to adjust and enhance the combustion process to achieve optimal performance.

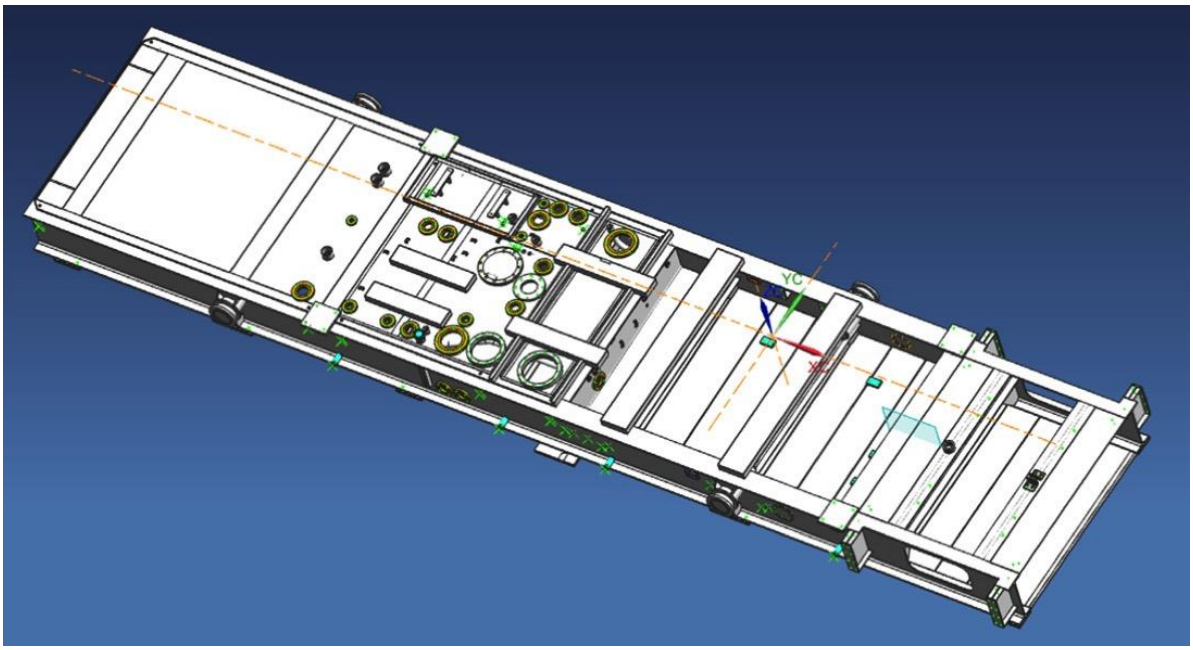


Component	Sub-component	Base option	Alternative 1	Alternative 2
Expansion joint	Casing	Painted carbon steel	Aisi 304L	Aisi 316L
	Insulation lagging	Aisi 409	Aisi 304L	Aisi 316L
Transition duct	Casing	Painted carbon steel	Aisi 304L	Aisi 316L
	Insulation lagging	Aisi 409	Aisi 304L	Aisi 316L

Baseplate

Baseplates are a structural member assembly made of rolled steel and plates which supports the machines and other associated equipment, with the required stiffness and allowed deformation. The baseplate is designed to withstand static loads (operation, lifting, wind, etc.), emergency loads (blast loads, machine failures, etc.), and dynamic loads with acceptable stress and deformation values.

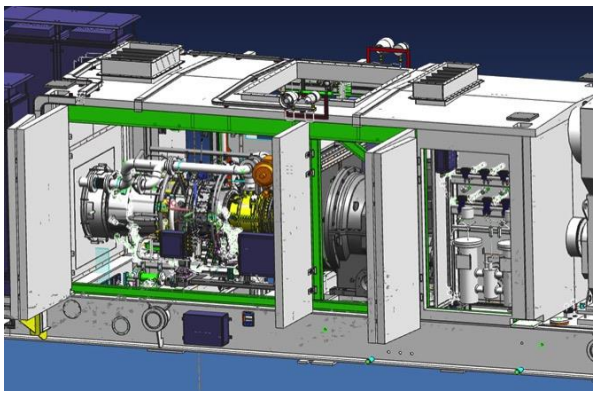
Spirit 5 features a single - lift baseplate with integrated lube oil tank. It is 11.9 m long, 2.5 m wide (2.85 m including lifting lugs) and 0.6 m high.



Baseplate data sheet	
Overall dimensions	11,900 x 2,500 x 600 mm (LxWxH)
Main beam	IPE 600
Material	S355 J2 G3

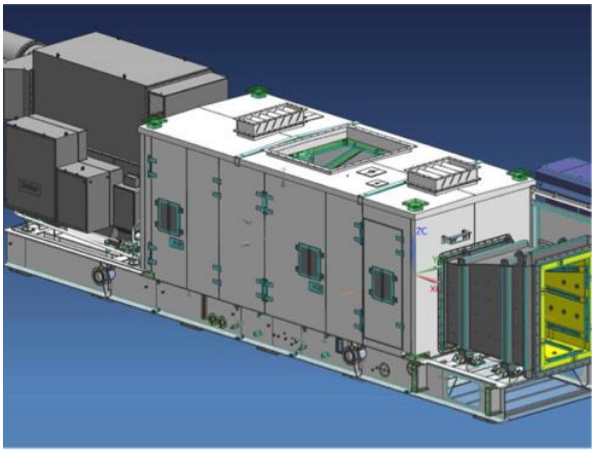
Enclosure

The enclosure is a completely self-sustained, weatherproof, insulated, and sound-attenuated system that provides protection for the gas turbine and its auxiliaries. The enclosure is mounted on the main skid and supported by the baseplate. The enclosure sides include removable panels and/or doors to allow access to major components for inspection and maintenance and to permit removal of components by forklift or overhead crane.



The engine area is furnished with hinged doors to facilitate engine removal from the left side of the package.

The enclosure includes the following components:



- Structural frame for panels, instrumentation, and electrical equipment supports in painted carbon steel
- Panels for acoustic insulation in painted carbon steel
- Fail-safe type dampers in Stainless Steel 316L material. The dampers are equipped with an opening device actuated by compressed air for aerosol and water mist firefighting systems or carbon dioxide for a CO_2 firefighting system
- Internal anti-panic device
- Door hinges and handles in Stainless Steel 316

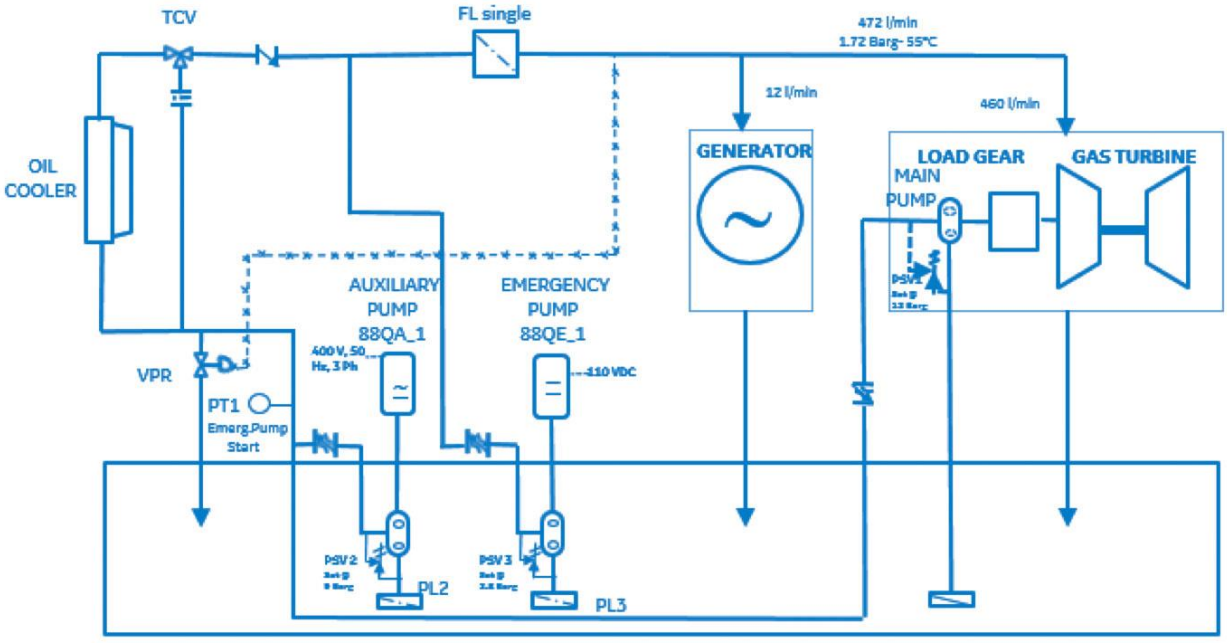
Lube oil system

The lube oil system provides continuous, reliable and adequate filtered oil flow at proper temperature and pressure to the gas turbine, generator, and gearbox, for lubrication and heat removal. All operating conditions shall be covered: startup, normal operation, normal and emergency shutdown, and cool down. The system is equipped with devices that allow protection of the equipment against low lubricating oil pressure, high lubricating oil temperature, and low lubricating oil level.

Spirit 5 package utilizes ISO VG32 mineral lube oil.

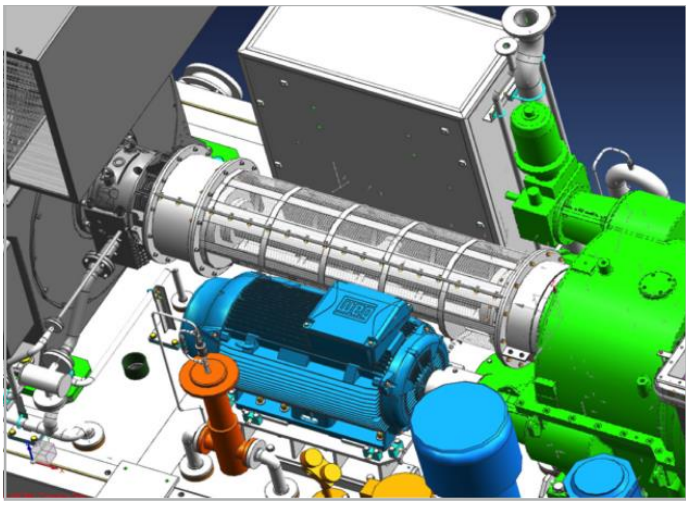
Main components of the lube oil system are:

- Lube oil tank (painted carbon steel integrated in the baseplate)
- Lube oil piping (Aisi 304/304L)
- Lube oil pumps:
  — AC auxiliary pump (cast iron housing) – 15 kW motor (50Hz) / 13.2 kW (60Hz)
  — DC emergency pump (cast iron housing) – 3.9 kW motor(110VDC) / 4.6 kW (125VDC)
- Mechanical main pump
- Lube oil filter (simplex, duplex option)
- Lube oil heater inside oil tank
- Regulating valves (TCV, VPR)
- Oil cooler (on base oil/air cooler 2 X 50% / 4x 25%, off base option for Tamb ≥50°C)
- OME - oil mist eliminator (simplex, duplex option)



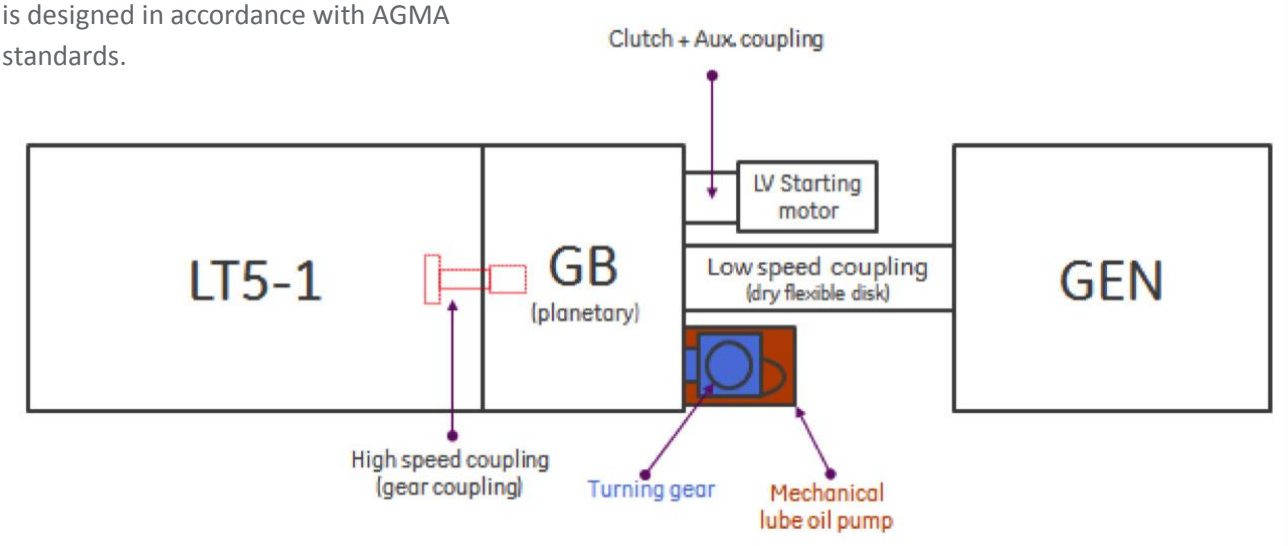
Starting system

The main function of the starting system is to accelerate the gas turbine up to self-sustaining speed at which stage the energy available in the combustion chamber is at least equal to the sum of the energy required by compression and mechanical losses in the gas turbine. The starting system is also required to drive the axial compressor to purge the gas turbine and exhaust duct of any volatile gases prior to initiating the ignition cycle. Other purposes includes turning during shutdown to facilitate cooling.



The Spirit 5 starting system is a low voltage motor, 90 KW, with VFD. It is equipped with a completely automatic “clutch” coupled to the gearbox. The clutch releases automatically when the gas turbine reaches the number of revolutions necessary to be self-sustained.

The reduction gearbox is a coaxial epicyclical, high efficiency gearbox coupled to the gas turbine on the high-speed side and to the generator on the low-speed side. The gearbox is designed in accordance with AGMA standards.

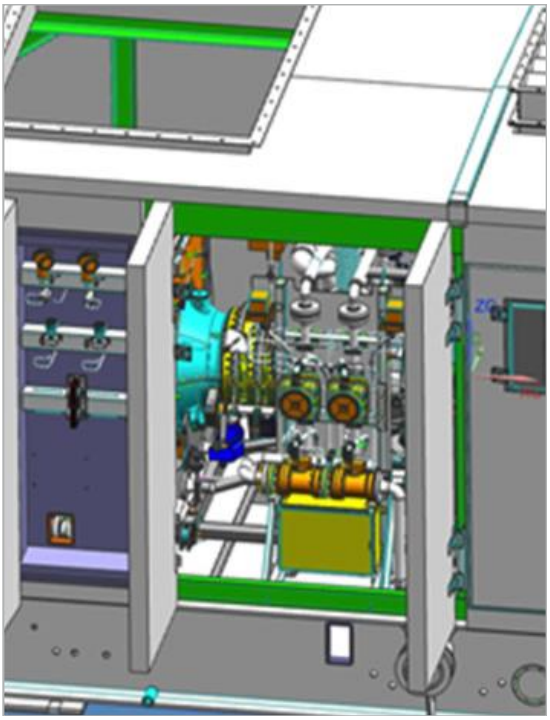


Fuel system

Natural gas is the most commonly used fuel for gas turbines due to its good combustion properties and low emissions. The Spirit 5 combustion system consists of a DLN annular combustor with 18 fuel nozzles.

Main components of the fuel gas system:

- No. 2 fuel gas shut-off valves
- No. 2 fuel gas metering valves one for Pilot circuit and one for Premix circuit
- Fuel gas piping (carbon steel)



Fuel gas pressure range is 24-32 barG, depending on fuel gas composition.

Fuel gas temperature range is as follows:

- Min: 28°C; the hydrocarbons (including glycol) dew point temperature at maximum supply pressure
- Max: 80°C

The fuel gas system is also equipped with a warm-up line which is used prior to the startup of the unit to vent the fuel gas when the temperature is below 28°C above the fuel gas dew point. The warm-up valve is supplied loose and installed outside the package.

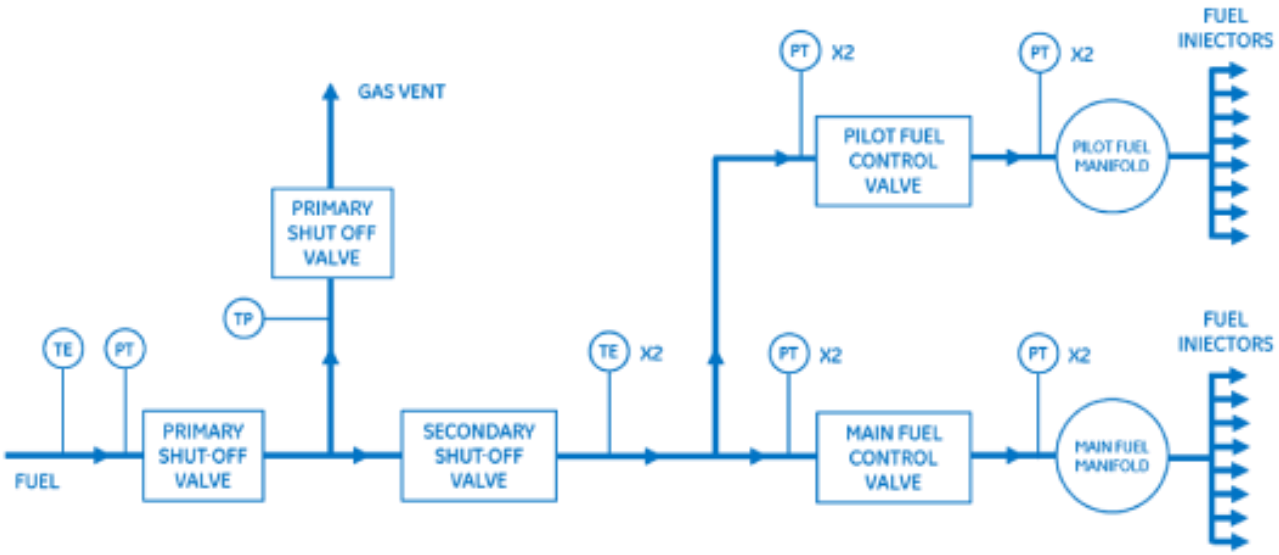
A last chance Y strainer is included in the CAI scope and is installed just outside the package. It's function is to filter any debris or other minor components which could damage the fuel nozzles and valves.

Fuel gas quality must be according to GEI41040.

The Spirit 5 fuel gas skid is installed on the baseplate and is accessible for maintenance.

Fuel system schematic

The following illustration represents the Spirit 5 fuel system schematic.



Legend

PT: Pressure transmitter

TE: Temperature element

Control system

Spirit 5 is equipped with a remote I/O panel installed on the main skid and a unit control panel (UCP),off skid, suitable for the control and protection of the turbo-generator unit and auxiliaries.

The control system includes the following primary equipment:

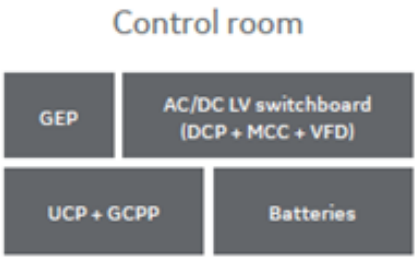
- Turbine control panel Speed-tronics Mark™ VIe/VIeS suitable to manage:
  — All gas turbine control, protection and safety logic, including auxiliaries
  — Integrated generator control (Include back sync)
  — Fire and gas system

General description

The unit control system controls and monitors the gas turbine, gearbox and electric generator equipment. The system architecture is based on Mark™ VIe/S hardware and software platform. The overarching design principle of the package control system is the split architecture in which most of the gas turbine'sprimary signal acquisition and processing equipment is housed on the turbine skid remote I/O panel.

The critical I/Os including the SIL loops for the whole package are based on the 4-20 mA/ HART protocol with Ethernet cable between the remote I/O panels and the control panel. The vibration and fire and gas system are integrated into the Mark™ VIe/S system.

GCPP	Generator control protection panel (including protection relè)
GEP	Generator excitation panel (including AVR)
AVR	Automatic voltage regulator
DCP	Direct current panel
UCP	Unit control panel, including CPU, I/O power, GCPP (G650)
MCC	Motor control center
RIO	Remote IO, including I/O package, YVIB, MKVIs



Remote I/O panel

The remote I/O panel is installed on the turbo-generator skid outside the gas turbine in a safe area.

Special remote I/O panel sliding system, including a heat shield panel, is included to separate the remote I/O from the exhaust duct (see rendering below). The remote I/O is retracted for shipping reasons.

The remote I/O panel contains Mark™ VIe and Mark™ VIeS cards to manage the turbo-generator skid I/Os.

The remote I/O panel is pre-wired on the turbo-generator skid before shipping which is the key to simplify the engineering, installation and commissioning.

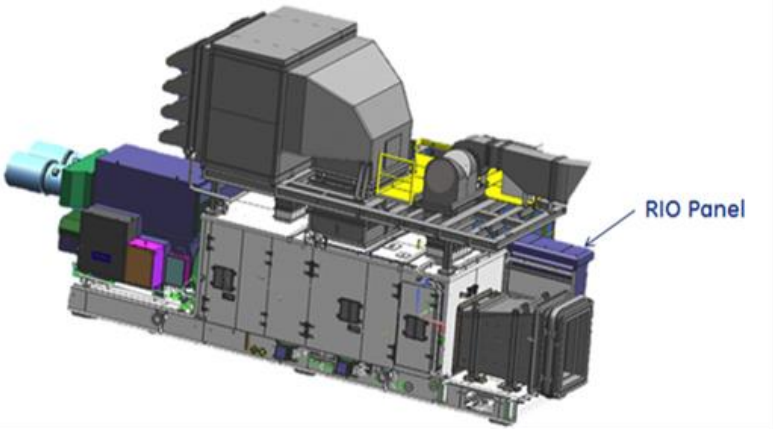
These panels are designed for operation and maintenance in safe areas. Cable entry is from the bottom through the MCT Roxtec (or equivalent).

Unit Control Panel (UCP)

The unit control panel is installed in the customer's control room in a safe area.

The panel contains Mark™ VIe and Mark™ VIeS cards to manage:

- Interface with MCC, DCP, GEP, MVS
- Generator synchronization, control and protection system
- Operator Interface (HMI)
- Communication with customer DCS (using Communication gateway - option)
- OSM system

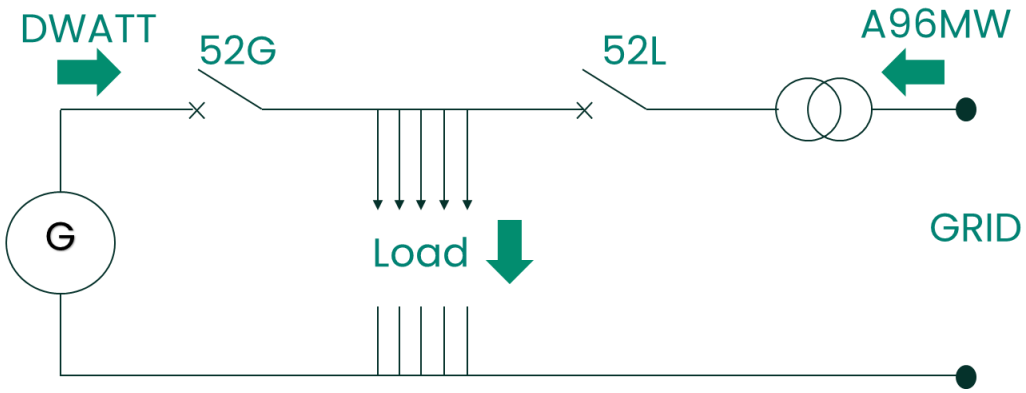


Forward and Backward Synchronization

Automatic Synchronizing Systems is included on UCP. It can perform the functions required to synchronize a generator and resynchronize it to the grid. It gets voltage reference upstream and downstream the two breakers and provides control signals to the governor and excitation system to match frequency, phase and voltage to the system, and finally close the breaker.

Power Import Control

Power Import Control functionality is part of control function available. The scope of the Power Import Control algorithm is to minimize the amount of Power consumed from the Grid, keeping at the same time grid Imported Power to a positive value (No Power Export desired).



The algorithm can manage #1 Analog Signal 4-20mA from field to acquire Grid Imported Power A96MW

HMI
1. has possibility to select «Power Import» Mode from Load Control Selector
2. has analog field to select the desired Power Import Setpoint from the GRID
3. has Indication of Generator Produced Power, Grid consumed power and Total Island Load

On Site Monitoring (OSM)

The OSM (On Site Monitor) is a server supplied by Baker Hughes that is able to gather diagnostic data from different data sources at site for subsequent transmission to a central location (iCenter).

The OSM acquires diagnostic data from the available data sources (e.g. Mark VIe, BN3500, etc.) with acquisition frequency of at least one sample/sec. Data are stored on local Historian database for a at least 90 days. The data transfer takes place through Proficy Historian. Data@ 1/sec (compressed) is moved to iCenter in a real time or batch files way

The OSM is a READ-ONLY device which cannot modify any control logic. The OSM shall be connected on one side towards Internet through Customer Network, on the other side to data sources

The OSM is provided, configured, maintained and managed by Baker Hughes.

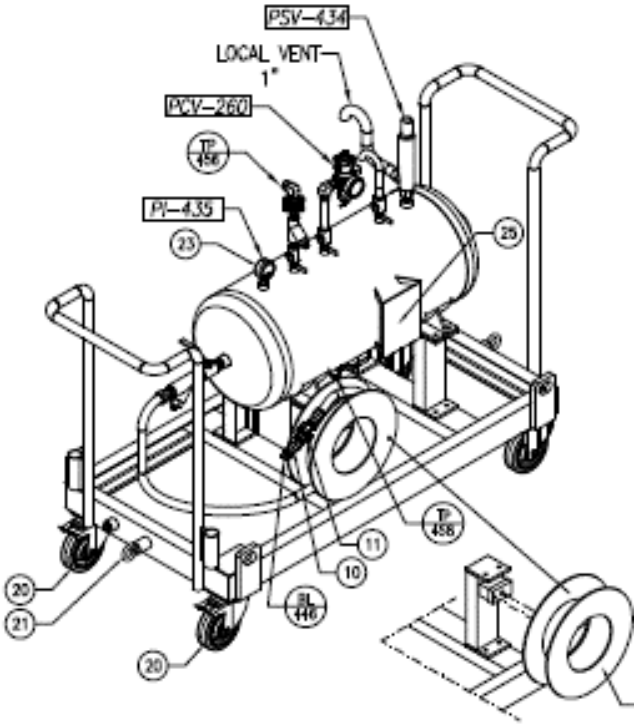
In addition to its potential use during commissioning and warranty period, it enables provision of a tailored Remote Monitoring & Diagnostic (RM&D) service that can be activated upon Customer request without further hardware modifications to Unit Control Panel.

Water washing system

Production is limited by gas turbine power capacity. Contaminants, ingested in the compressor and deposited in the flow path can lower power output and gas turbine efficiency. To limit the effects of the contaminants, the gas turbine axial compressor needs periodic cleaning by way of off-line compressor water washing. (On-line water washing is also an option.)

For a better efficiency of cleaning, periodical off-line washings are recommended.

An off-line washing trolley is provided. Washing manifolds are installed on the gas turbine.



Firefighting system

The fire fighting system functions as the machine's equipment protection by discharging the extinguishing agent to create an inert atmosphere in the environment where the fire is detected and extinguishing the fire. It also prevents re-ignition until the temperature of the metallic surfaces decrease below the ignition temperature of the combustible materials.

Spirit 5 is equipped with a standard aerosol firefighting system. CO_2 and water mist systems are options.

Aerosol system

Condensed aerosol fire suppression is a particle-based form of fire extinction similar to gaseous fire suppression or dry chemical fire extinction. The aerosol employs a fire extinguishing agent consisting of very fine solid particles and gaseous matter to extinguish fires. The condensed aerosol microparticles and effluent gases are generated by the exothermic reaction; until discharged from the device, the particles remain in vapor state. They are cooled and "condensed" within the device and discharged as solid particles.

Spirit 5 is equipped with two aerosol generators installed on enclosure roof to protect the gas turbine package. The aerosol devices are self-contained and function as both a storage container and as a nozzle that propels the gas, therefore no distribution network is required to transport or distribute the fire-extinguishing agent from a remote storage location.

For each compartment, the aerosol release occurs with a single discharge.

Aerosol generators are designed to protect all the compartments simultaneously.

All the generators are released at the same time by electrical actuation of fire control panel.

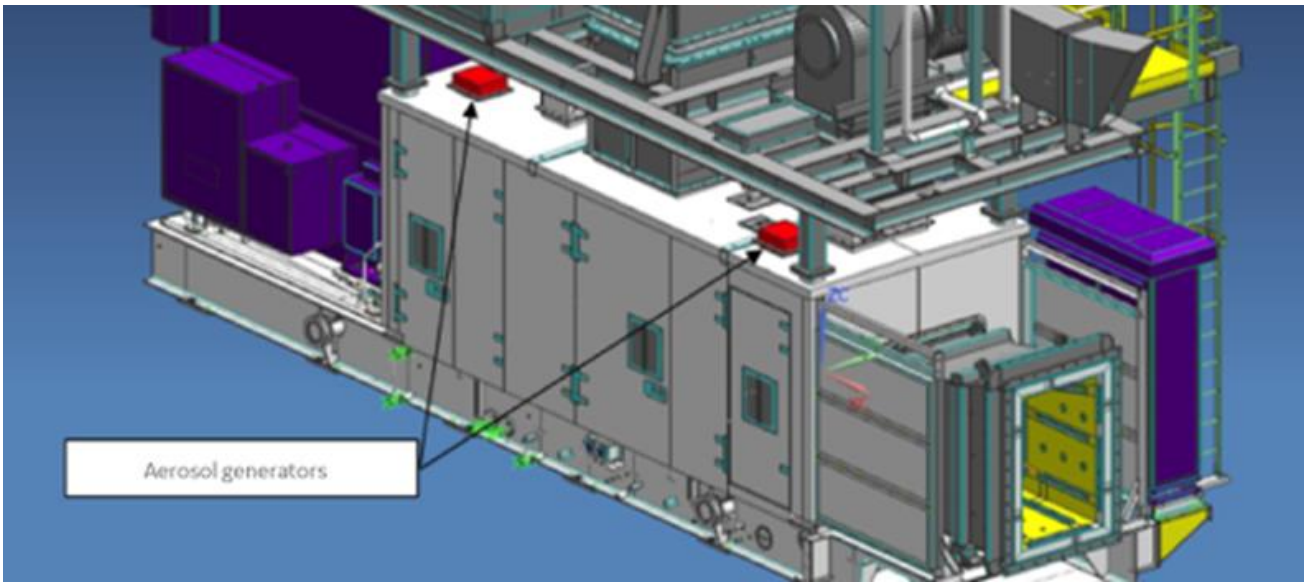
The system can be actuated automatically by the Mark™ VIeS and manually with manual actuator close to the enclosure accesses.

Before aerosol discharge, there is a time delay of 30 seconds to insure safe evacuation of personnel (NFPA 2010requirement).

Automatic aerosol discharge can be inhibited by an inhibit switch close to the enclosure access (NFPA 2010 requirement).

Duration of possible re-ignition of combustibles is 20 minutes (GT cool down time).

Ventilation openings are equipped with air tight dampers.



Noise

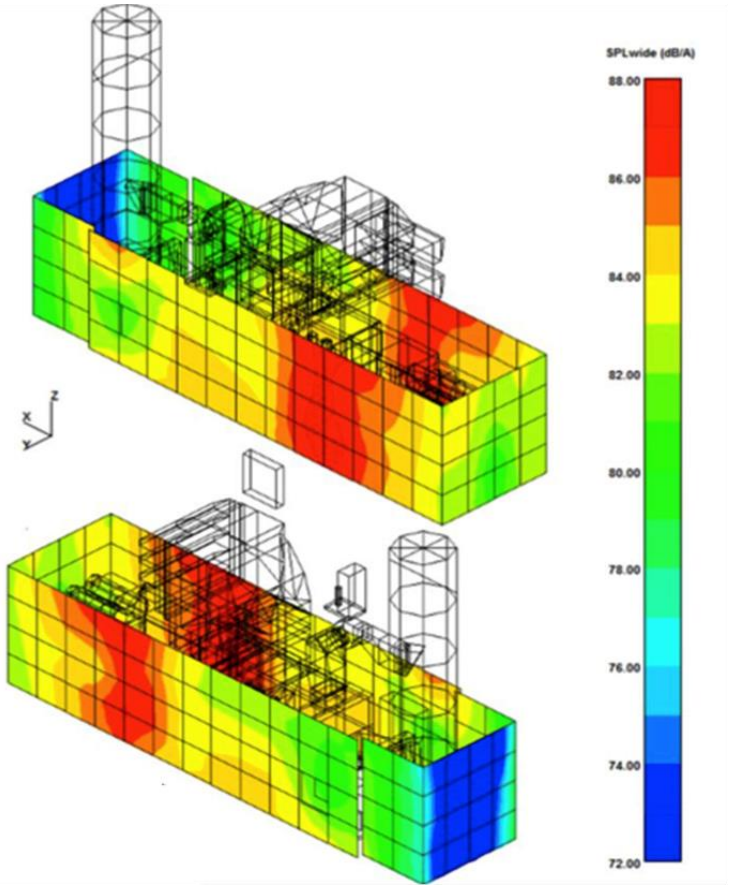
Spirit 5 package is designed in order to meet the following acoustic requirement:

- Logarithmic average sound pressure level at 1.0 m from baseplate perimeter, at 1.5 m elevation from the walkways level around the whole train less than 85 dBA; the average value is evaluated according to ISO 9614-2 “Determination of sound power levels of noise sources using sound intensity—Part 2: Measurement by scanning”

The accuracy degree shall be defined after noise test.

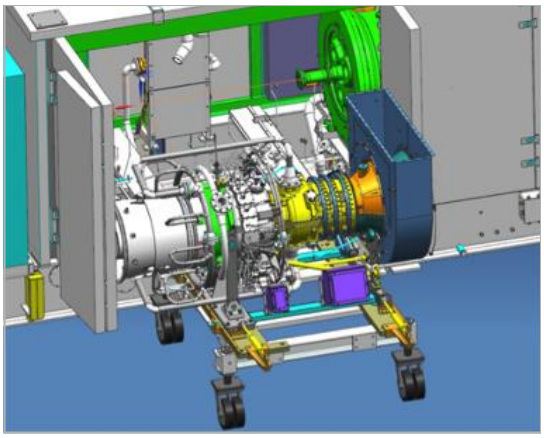
The average 85 dBA @ 1 m sound pressure level is not guaranteed during pulse jet filters cleaning operations (if installed).

The average 85 dBA @ 1 m sound pressure level is guaranteed in free-field condition over reflecting plan and with only one GT train in operation.



Service and maintenance

Spirit 5 maintenance intervals are shown in the following table:



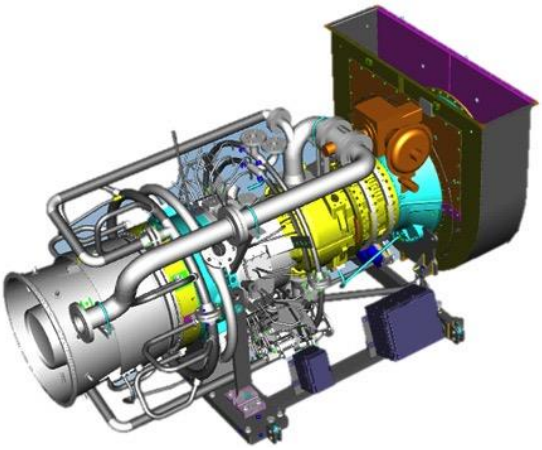
Engine swap and overhaul	
Hot gas path (hr)	**Major inspection (hr)**
24,000	48,000

No intermediate boroscopic inspections are required.

Engine inspection and overhaul is performed in a workshop. The engine module has been designed to be easily and quickly removed from the package. All the engine electrical connections are wired to two junction boxes installed on the engine support structure and equipped with fast connectors.

The preferred side for engine extraction is on the left, but right extraction is available upon request.

The enclosure doors open completely allowing the engine to slide out on trolley rails which then can be lifted to move the engine to a workshop.



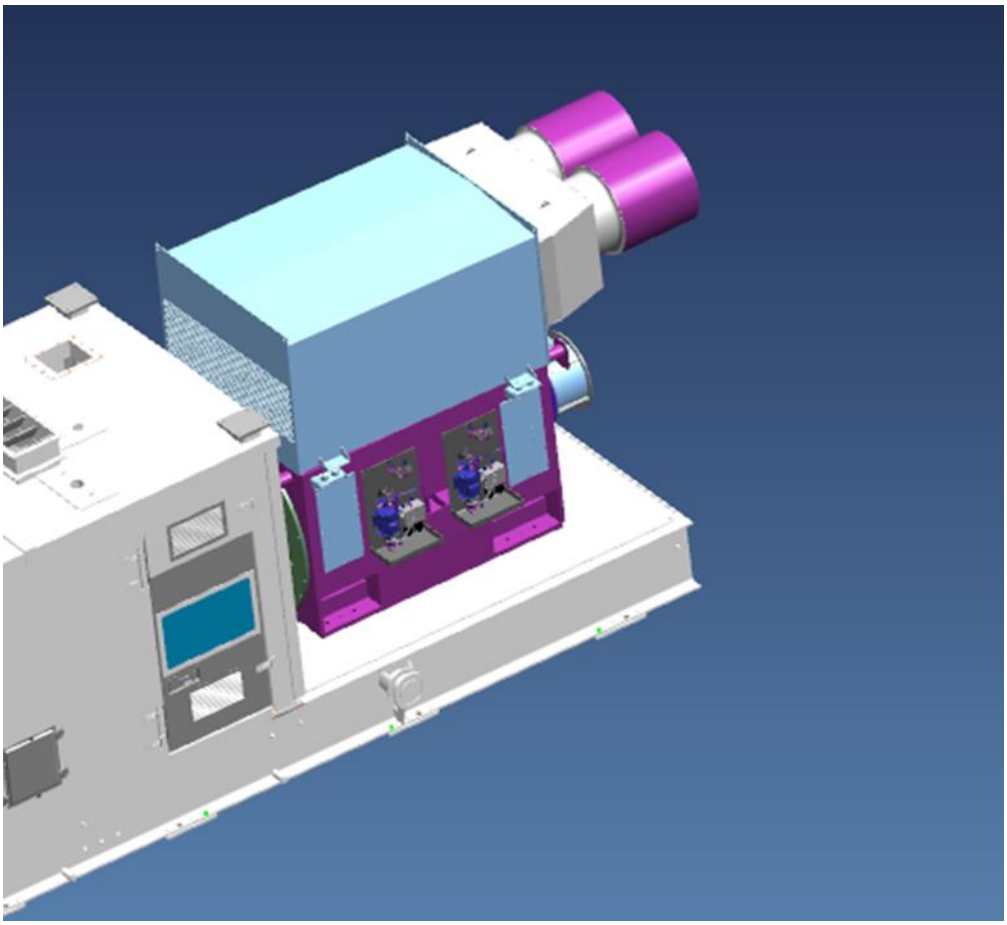
Weight and dimensions*		
Item	**Weight (kg)**	**Dimensions (m)**
Engine	4,070	3(L) x 1.5(W) x 1.5(H)

* *Including support structure, inlet plenum, and piping*

Driven equipment

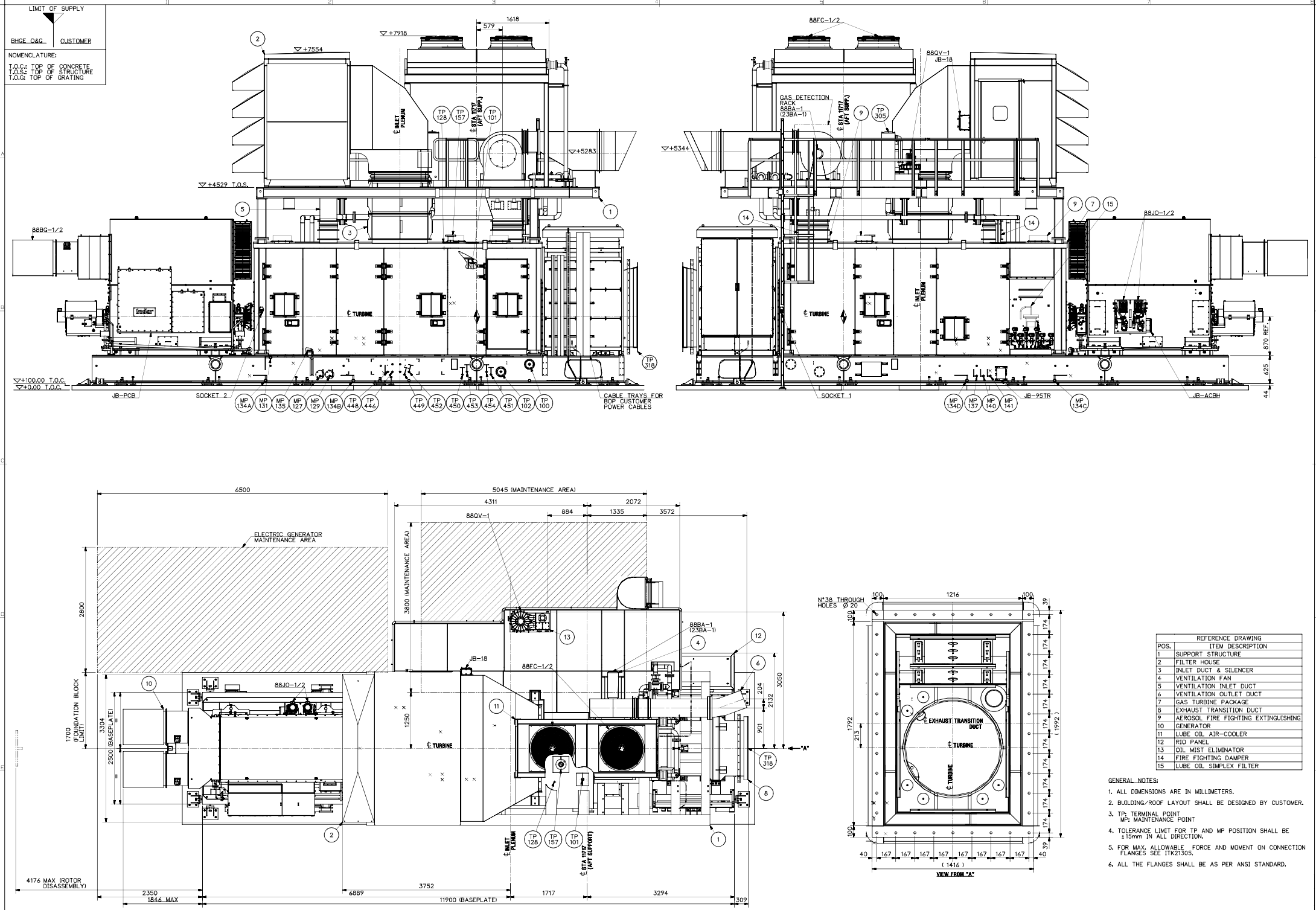
The electrical generator designed for Spirit 5 is a 4 Pole Synchronous generator manufactured by Leroy Somer.

It is designed for SAFE area installation and it is available for 50Hz (11kV, 6.6kV) and 60 Hz(13.8kV, 4.16kV) applications, air cooled.



https://cai3.com/

Combustion Associates, Inc.
555 Monica Circle
Corona, California 92879
U.S.A.



POS.	REFERENCE DRAWING ITEM DESCRIPTION
1	SUPPORT STRUCTURE
2	FILTER HOUSE
3	INLET DUCT & SILENCER
4	VENTILATION FAN
5	VENTILATION INLET DUCT
6	VENTILATION OUTLET DUCT
7	GAS TURBINE PACKAGE
8	EXHAUST TRANSITION DUCT
9	AEROSOL FIRE FIGHTING EXTINGUISHING
10	GENERATOR
11	LUBE OIL AIR-COOLER
12	RIO PANEL
13	OIL MIST ELIMINATOR
14	FIRE FIGHTING DAMPER
15	LUBE OIL SIMPLEX FILTER

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. BUILDING/ROOF LAYOUT SHALL BE DESIGNED BY CUSTOMER.
3. TP: TERMINAL POINT
   MP: MAINTENANCE POINT
4. TOLERANCE LIMIT FOR TP AND MP POSITION SHALL BE ±15mm IN ALL DIRECTION.
5. FOR MAX. ALLOWABLE FORCE AND MOMENT ON CONNECTION FLANGES SEE ITK21305.
6. ALL THE FLANGES SHALL BE AS PER ANSI STANDARD.

Pos.	Description	NPS	P&ID	X (mm) *	Y (mm) *	Z (mm) *
MP127	MINERAL LUBE OIL PIPING FROM COOLER DRAIN	3/4"-NPT-F	SOM6771112	-3505	-1345	-1328
MP129	MINERAL LUBE OIL PIPING TO COOLER DRAIN	3/4"-NPT-F	SOM6771112	-3290	-1345	-1328
MP131	MINERAL LUBE OIL TANK FILLING (ON LINE)	1 1/2"-NPT-F	SOM6771112	-4612	-1431	-909
MP134A	MINERAL LUBE OIL TANK DRAIN	1 1/2"-NPT-F	SOM6771112	-4720	-1431	-1431
MP134B	MINERAL LUBE OIL TANK DRAIN	1 1/2"-NPT-F	SOM6771112	-2758	-1431	-1431
MP134C	MINERAL LUBE OIL TANK DRAIN	1 1/2"-NPT-F	SOM6771112	-4720	1431	-1431
MP134D	MINERAL LUBE OIL TANK DRAIN	1 1/2"-NPT-F	SOM6771112	-2758	1431	-1431
MP135	MINERAL LUBE OIL TANK FILLING	3"-NPT-M	SOM6771112	-3740	-760	-985
MP137	LOW POINT LUBE OIL DRAIN	3/4"-NPT-F	SOM6771112	-2977	1287	-1326
MP140	LOW POINT LUBE OIL HEADER DRAIN	3/4"-NPT-F	SOM6771112	-3129	1287	-1326
MP141	LOW POINT LUBE OIL HEADER DRAIN	3/4"-NPT-F	SOM6771112	-3281	1287	-1326
TP100	TURBINE BASE FUEL GAS INLET	2"-300#-RF	SOM6771112	+1180	-1030	-1045
TP101	FUEL GAS VENT TO SAFE LOCATION	2"-150#-RF	SOM6771112	-98	-694	+1215
TP102	WARM-UP LINE VENT	1 1/2"-300#-RF	SOM6771112	542	-1030	-1232
TP128	FUEL GAS SEALS VENT TO SAFE LOCATION	3/4"-NPT-F	SOM6771112	-728	-752	+1655
TP157	BEARING #2 AIR VENT TO SAFE LOCATION	4"-150#-RF	SOM6771112	-585	-359	+1825
TP305	MINERAL OIL SEPARATOR VENT	4"-150#-RF	SOM6771112	-1000	+2915	+4133
TP318	EXHAUST TRANSITION DUCT FLANGE	-	SOM6771112	+3603	0	+213
TP446	OFFLINE WASHING WATER INLET	3/4"-NPT-F	SOM6771112	-1885	-1166	-1234
TP448	INLET PLENUM DRAIN	1/2"-NPT-F	SOM6771112	-1985	-1306	-1234
TP449	DRAIN COMPRESSOR CASE 4th STAGE	1/2"-NPT-F	SOM6771112	-1615	-1306	-1295
TP450	COMPRESSOR DISCHARGE CASING DRAIN	1/2"-NPT-F	SOM6771112	-320	-1306	-1295
TP451	HP TURBINE CASING DRAIN	1/2"-NPT-F	SOM6771112	320	-1306	-1295
TP452	DRAIN COMPRESSOR CASE 7th STAGE	1/2"-NPT-F	SOM6771112	-1515	-1306	-1234
TP453	INTERMEDIATE TURBINE CASING DRAIN	1/2"-NPT-F	SOM6771112	-220	-1306	-1234
TP454	AIR PIPING LOW POINT DRAIN	1/2"-NPT-F	SOM6771112	+220	-1306	-1234

* TP/MP COORDINATES ARE REFERRED TO STA 11717 DATUM POINT

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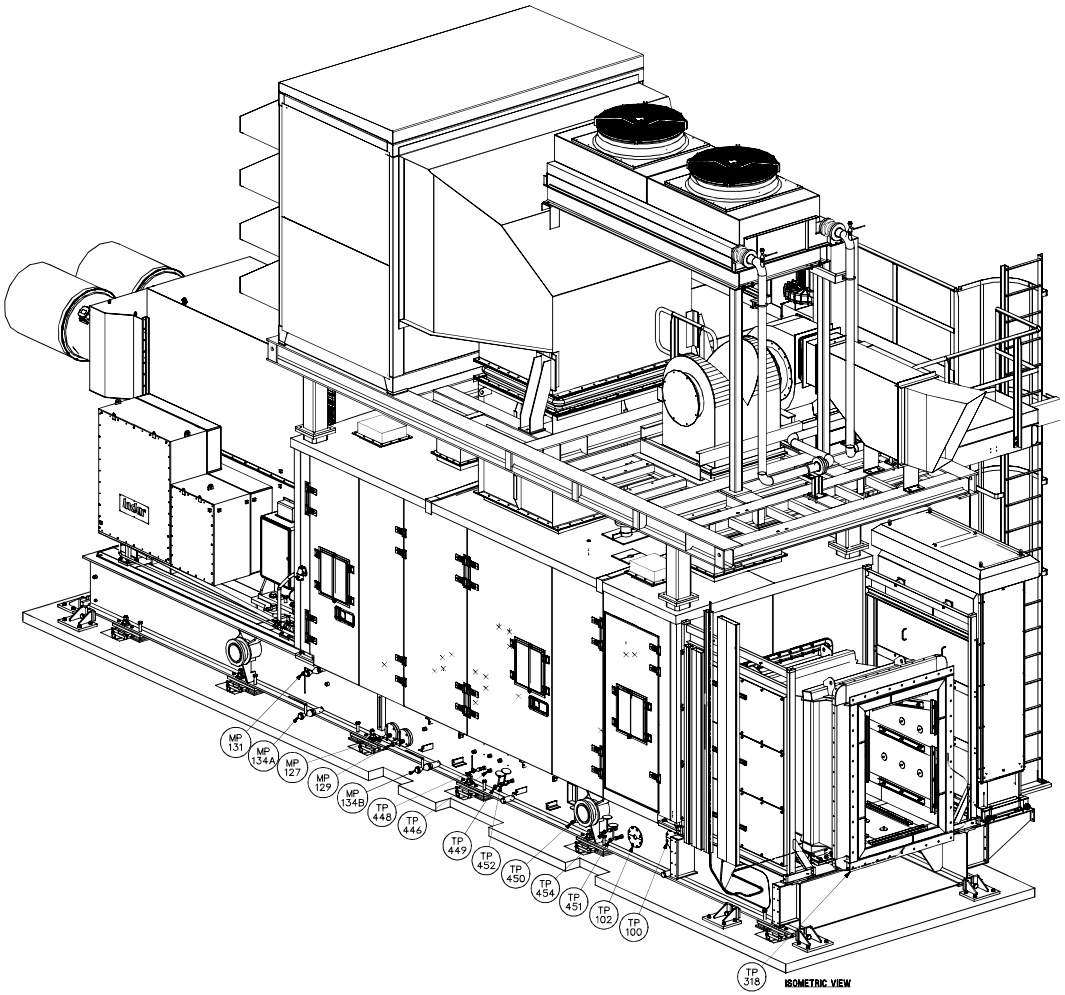
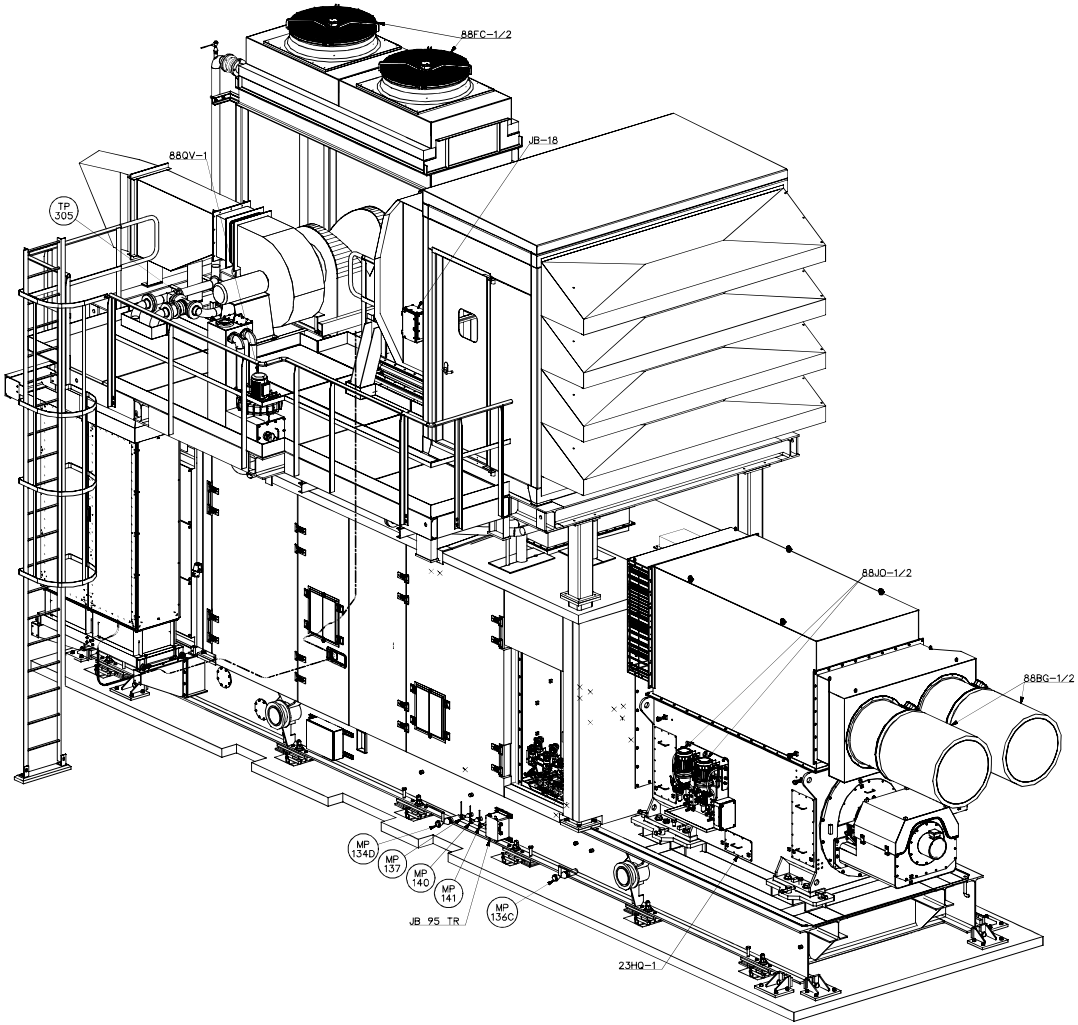
  MP: MAINTENANCE POINT.
- TOLERANCE LIMIT FOR TP & MP POSITION SHALL BE ±15 mm IN ALL DIRECTION.
- FOR MAXIMUM ALLOWABLE FORCES & MOMENTS ON CONNECTION FLANGES SEE ITK21305.
- ALL THE FLANGES SHALL BE AS PER ANSI STANDARD.



ISOMETRIC VIEW



ISOMETRIC VIEW (ROTATED 90°)