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1. Basic conditions:

1.1 General requirements:

The conditions specified and equipment to be supplied for each specific system in accordance with the boundary conditions, the technical drawing, the wiring diagram, the interface list and the technical specification of the control system must be fulfilled and available respectively within the limits of supply/ interfaces. In addition, the regular and efficient completion of all maintenance work in accordance with the "Maintenance work TSA" is required. Failure to comply with these requirements may have an adverse effect on the characteristics of the product and on its reliability of operation and, in the end, result in the restriction or lapse of warranty claims.

1.2 Personnel and safety:

Work on the system may only be carried out by specialist personnel who have had relevant electrical and mechanical training and who have also been familiarised with the hazards posed by gas-carrying components. All applicable safety instructions must be observed. Such instructions include the GE Jenbacher "Safety Instructions" and all local statutory regulations. For work which may only be carried out when the system has been made safe, the system must be shut down as specified in TI 1100-0106 and measures taken to ensure that it cannot be started accidentally. The operator bears sole responsibility for the foregoing.

1.3 Failures:

In the event of irregularities which may, for example, be detected during daily inspection, immediate action must be taken to minimise damage. This applies particularly during the warranty period. When a failure results in the TSA automatically being switched off, the cause of the failure must be remedied before the TSA is started again (see "Checklist for Alarm Messages TSA"). It is forbidden simply to reset a failure and then restart the TSA, as resetting without remedying the cause poses a risk of damage. The operator bears responsibility for the foregoing.



1.4 Recording operational data:

All operational data must be recorded and all special events described. The plausibility of the data must be checked regularly. If deviations occur, the cause must be traced and remedied. If you cannot find the cause, the GE Jenbacher customer service department should be notified immediately.

It is in the operator's own interest to record operational data and all special events. Correctly filled-in operating data logs and inspection/maintenance logs (see "Maintenance work TSA ") are important documents, enabling analysis and support in case of failures. Moreover, these documents are also important when deciding on warranty claims.

1.5 Spare parts:

Only original GE Jenbacher spare parts (see "TSA spare parts list") should be used. Warranty claims in respect of defects and damage caused by the use of other spare parts will not be entertained. In order to avoid unscheduled downtimes it is strongly recommended that a stock of spare parts is held.

2. Information on installation and operation:

2.1 Installation site:

TSA systems are designed for installation in the open air. Where systems consist of a number of modules, a minimum distance of 1 m must be maintained between the modules and 4 m around and above them. This ensures that the systems are accessible for maintenance work, in particular changing the carbon (vehicular access required), and can be guaranteed a supply of cooling air. The ambient temperature for operation must lie between -15°C and +40°C. The system should only be installed on sites where the air required for cooling can be taken in at all times and no explosive gases are present.

2.2 System pipework:

The system pipework is designed to withstand pressure surges of 6 bar. It should be arranged in such a way that the flanges at GE Jenbacher's limits of supply are not subjected to mechanical force.

All pipes from their entry point in the TSA to the flare and the engine module must be insulated. The aim of this is both to prevent condensation and to prevent them from being touched as individual pipes from the vessel outlet can sometimes reach temperatures of up to 350°C.

A manual stop valve must be provided upstream of the TSA to ensure that the system can be made safe. The valve must be designed to ensure that no unauthorised person can actuate it, i.e. open it when in locked position.

2.3 Energy supply:

The energy supply must satisfy the following requirements:

Nominal mains voltage change: related to nominal voltage +/-5%.

Max. admissible transient mains voltage changes: +/- 10% of nominal voltage

The control cabinet for the TSA must be installed less than 50 m from the nearest module and inside a building. The detailed information in the "Technical Specification of the Control TSA" must be observed. The compressed-air supply must conform to DIN ISO 8573-1, Quality Class 2, (see "Description TSA").

2.4 Flare:

The operation of the TSA requires a flare which must comply with the laws and rules applicable to the installation site. A flame arrester must be installed vertically (pipe is horizontal) just before the flare. This flame arrester must be able to withstand a gas temperature of 250°C and of a type which can be removed for cleaning.



2.5 Condensate system:

The condensate leaving the TSA must be collected in accordance with local regulations. This requires a pipe system which, like the rest of the system pipework, is designed to withstand pressure surges of 6 bar and is insulated (see "Description TSA").

2.6 Gas intake requirements:

The following requirements must be observed at all times at the TSA gas intake:

- Gas intake temperature between 5°C and 40°C
- The relative gas humidity below 50% in all operating conditions
- Oxygen content of the gas below 3%
- Halogen content as total of CL + 2 x F < 100mg/Nm³
- Sulphur content S < 200mg/Nm³

The oxygen content must be measured continuously and the measuring signal transmitted to the TSA control unit. The measurement must take place sufficiently far upstream of the TSA. It is essential that you read the relevant information in the "Description TSA".

Please refer to Technical Instruction TI 1000-0300 concerning engine operation which specifies significantly lower limit values depending on the plant configuration (e.g. when catalytic converters are used).

2.7 Relevant TIs:

The revision applicable when the contract was signed is valid:

TI No. 1000-0300 Fuel gas quality
TI No. 1000-0310 Fuel gas sampling
TI No. 1100-0106 Switching off TSA

The "Description TSA" also contains important information and instructions.