



GEI 67510f
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GE Power Systems

Steam Turbine

Allowable Pressure and Temperature Variations

Reheat Units with Overpressure

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes the matter should be referred to the GE Company.

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I. INTRODUCTION

The following allowable pressure and temperature variations are intended to provide for unexpected irregularities during the operation of modern turbines, and it is expected that steps will be taken to minimize their occurrence, especially their simultaneous occurrence.

II. ALLOWABLE INITIAL PRESSURE VARIATIONS

The pressure at the turbine main steam valves shall be controlled so that it does not exceed 105% of rated pressure. During abnormal conditions the pressure may exceed rated pressure briefly by as much as 30% but the aggregate duration of such brief swings beyond 105% of rated pressure shall not exceed 12 hours per 12 month operating period. These brief swings are conditional upon the control valves being adjusted such that the resulting turbine flow does not exceed the steam flow obtained by operation at 105% of rated pressure with control valves wide open.

III. ALLOWABLE INITIAL TEMPERATURE VARIATIONS

The steam temperature at each steam lead to the turbine main steam valves shall average not more than rated temperature over any 12 month operating period. In maintaining this 12 month average, the temperature shall not exceed rated temperature by more than 15°F (8.3°C) except during abnormal conditions resulting in temperature not in excess of rated temperature by more than 25°F (13.9°C) for operating periods not more than 400 hours per 12 month operating period nor 50°F (27.8°C) above rated temperature for swings of 15 minutes duration or less, aggregating not more than 80 hours per 12 month operating period.

In maintaining the temperatures specified in the preceding paragraph, the steam temperature at the inlet to any turbine main steam valve must be within 25°F (13.9°C) of the steam temperature at the inlet of any other turbine main steam valve, except during abnormal conditions it is acceptable to operate with temperature differences not in excess of 75°F (41.7°C) for periods of 15 minutes duration or less, providing such occurrences are at least four hours apart.

IV. OPERATION

The pressure at the high-pressure turbine exhaust connection should not be greater than 25% above the exhaust pressure which exists when the high-pressure turbine is operating with control valves in the wide open position with 105% rated pressure and normal operating conditions. Suitable relief valves must be provided by the purchaser.

V. ALLOWABLE REHEAT TEMPERATURE VARIATIONS

The steam temperature at each turbine reheat admission shall average not more than rated reheat temperature over any 12 month operating period. In maintaining this 12 month average, the reheat temperature shall not exceed rated reheat temperature by more than 15°F (8.3°C) except during abnormal conditions resulting in temperatures not in excess of rated reheat temperatures by more than 25°F (13.9°C) for operating periods not more than 400 hours per 12 month operating period nor 50°F (27.8°C) above rated reheat temperature for swings of 15 minutes duration or less, aggregating not more than 80 hours per 12 month operating period.

In maintaining the temperature specified in the preceding paragraph, the steam temperature at the inlet to any turbine reheat steam valve must be within 25°F (13.9°C) of the steam temperature at the inlet of any other turbine reheat steam valve, except during abnormal conditions it is acceptable to operate with

temperature differences not in excess of 75°F (41.7°C) for periods of 15 minutes duration or less providing such occurrences are at least four hours apart.

VI. ALLOWABLE EXHAUST PRESSURE

Allowable exhaust pressure is described in instruction article titled, “Allowable Exhaust Pressure Operation.”



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