

HG

CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HG/T 20655-2016

Replacing HG/T 20655-1998

**Technical code for design requirements of monitoring and
control of heat supply units and steam turbine units in chemical
plants**

化工企业供热装置及汽轮机组热工监测与控制设计条件技术规范

(English Translation)

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1.0.1

This standard is formulated to ensure that the monitoring and control objects determined by heat supply units and steam turbine unit in chemical plant meet the requirements of safe, reliable and long-term stable operation.

1.0.2

The application scope of this code is as follows:

- A single non-reheat steam boiler with rated evaporation capacity of 670t/h, steam pressure of 13.7 MPa (G) and steam temperature of 540 °C or below and its supporting auxiliary system;
- Coal-fired, oil-fired and gas-fired hot water boilers and their supporting auxiliary systems;
- Oil-fired and gas-fired organic heat carrier boilers and their supporting auxiliary systems;
- A single steam turbine with rated power of 100MW or below and its supporting auxiliary system.

1.0.3

The design of monitoring and control of heat supply unit and steam turbine unit in chemical plant shall also comply with those stipulated in the current relevant standards of the nation in addition to those in this standard.

2.0.1 heat supply unit

equipment for providing heat energy for the chemical plant, including steam boilers, hot water boilers, organic heat carrier boilers and auxiliary systems

2.0.2 monitoring

measurement and checking of various parameters in the production process, allowing operators to monitor the operation of the system in time and ensure that the system runs within the specified parameters

2.0.3 automatic adjustment

automatic maintenance system runs under the given parameters

2.0.4 interlock

to automatically make the process enter a safe state through mutual contact and response among equipment to ensure safety of the system when the system runs beyond the set safe operation range.

2.0.5 sequence control

according to the preset program, to make each execution object in the production process automatically operate in sequence with the relevant conditions met so as to ensure the normal operation of the production process.

3.1.1

Distributed Control System (DCS)/Fieldbus Control System (FCS) or Programmable Logic Controller (PLC) should be adopted as the control system. The control level of heat supply unit and steam turbine unit shall be consistent with or equivalent to the overall control level of the chemical plant.

3.2.1

Centralized control should be adopted for the following heat supply units and steam turbine units:

- 1 Single steam boiler with rated evaporation capacity greater than or equal to 10t/h.

2 Single hot water boiler with rated thermal power greater than or equal to 7MW.

3 Single organic heat carrier boiler with rated thermal power greater than 7MW.

4 Single steam turbine unit with rated power greater than 1MW.

3.2.2

The control room should be arranged in the heat supply unit area, or uniformly arranged in the central control room of the whole plant according to the situation of the chemical plant and its equipment arrangement.

3.2.3

Auxiliary systems shall be provided with local control rooms in combination with adjacent or similar systems based on the principle of reducing local control rooms, so as to realize local centralized control. The auxiliary systems with simple process flow and convenient local operation may also adopt a local control mode.

4.0.1

The following operating parameters shall be monitored for heat supply unit and steam turbine unit:

1 Safety operating parameters

2 Economic accounting parameters.

3 Environmental protection parameters.

4 Other parameters to be monitored.

4.0.2

Monitoring instruments can be divided into four categories according to their functions: indicating, recording, accumulation and alarming.

4.0.3

The setting of monitoring instruments should be simplified with the requirements for safety, cost-effectiveness and environmentally-friendly operation.