

ICS 71.010

HG

**CHEMICAL INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Replacing HG/T 20680-1990

Code for process calculation in boiler house design

锅炉房设计工艺计算规定

(English Translation)

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Explanation of wording in this code

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1.0.1

In order to unify the calculation methods of industrial boiler plants and small and medium-sized power station boilers, and make the boiler plant design fully comply with the relevant national policies, this code specifies fundamental provisions on the items concerned, requirements, basic equations, methods and data that shall be based on in the process design of boiler plants.

1.0.2

This code is applicable to the process design calculation related to the boilers in industrial, civil and enterprise-owned boiler plants and small and medium-sized power plants (stations) with coal, oil, natural gas and coal gas as fuel, with the rated steam pressure of boiler not greater than 9.81MPa and the rated steam temperature not greater than 540°C. This code may serve as a reference for the expanded and reconstructed boiler plants and small and medium-sized power plants (stations).

1.0.3

This code is compiled according to national codes and standards, combined with the situation of industrial boilers and small and medium-sized power station boilers. In the process of implementation, if it is found to be inconsistent with the superior mandatory standards or new standards are promulgated, the superior standards and newly promulgated standards shall prevail.

2.1.1

Heat load calculation principle.

1 The heat load of boiler plant shall be determined according to the planned capacity of boiler plant and the scale of phased construction after investigation and implementation of short-term and long-term heat load.

2 The design heat load shall be determined according to the general situation of heat source, heat source distribution, heat supply and heating parameters within the heating

range, and shall meet the following requirements:

1) Industrial steam heat load: the current situation of each heat user and the nature of the planned heat load, steam consumption parameter and method, heat consumption method, recovered water situation and the monthly average steam consumption and hours of steam consumption in the last year shall be investigated and obtained, and the maximum, average and minimum hourly steam consumption in winter and summer shall be determined according to the hourly steam consumption of each heat user on typical days in different seasons. For main heat users, the heat load curve for typical days in different seasons and the annual continuous heat load curve shall be drawn.

2) Heating load: heating load is a seasonal heat load, and its change depends on the change of outdoor calculated temperature. The short-term and long-term heating user types within the heating scope shall be obtained, and the heating area and comprehensive heating indicator shall be calculated respectively. The hourly heat load and average heat load in heating period corresponding to each outdoor calculated temperature (from the initial heating temperature to the outdoor calculated heating temperature) are calculated according to the local meteorological data to draw the heating load curve in heating period.

When the heated building is equipped with ventilation and air conditioning heat load, the calculated heating load shall include the heat load for ventilation and air conditioning of the building to heat fresh air.

The selection of heating indicator shall meet the requirements of the current national standard Design code of district heating network.

Note: The initial heating temperature is generally the daily average outdoor temperature +5°C.

The daily average temperature over the years that is not ensured for an average of 5 days in a year shall be adopted as the calculated outdoor heating temperature.

3) Heat load of domestic hot water: hot water load is a year-round load with seasonal variation characteristics. The area of residential and public buildings, heating indicator of domestic hot water, etc. shall be obtained, and the average heat load and maximum heat load of domestic hot water shall be calculated.

4) Condensate recovery: there are many steam users in industrial enterprises, and the loss of steam and water is large. Therefore, condensate shall be recovered as much as possible to reduce the cost of water production. Industrial condensate recovery shall be determined after technical and economic comparison.

5) Prediction of heat load growth: in addition to obtaining and verifying the current heat load data, the expected heat load and the long-term planned heat load must be calculated according to the approved heat consumption of construction projects and the natural growth rate of industrial development, and the scale and final scale of boiler plant construction by stages may be determined accordingly.