

Title:

LATEST EXPERIENCE OF LARGE CAPACITY SUPERCRITICAL PRESSURE BOILER AND TURBINE PLANT IN CHINA AND JAPAN

Abstract:

Variable pressure supercritical units have been applied in Japanese power utilities since 1980s as a middle load operation unit. Now, it has become one of the most popular configurations of power utilities in Japan. By adopting high pressure/temperature steam condition, the unit efficiency has been improved and by adopting variable pressure operation, the unit efficiency in partial load is increased and turbine thermal stress due to the cyclic operation is reduced to achieve longer turbine life.

In Asian countries except Japan, supercritical units were not popular and not installed until 1990. Because of recent changes in the scenario large capacity supercritical units have been installed in some utilities in China, Korea, Taiwan and Thailand from the viewpoint of its high efficiency and low emission features.

In this paper, the features of our latest supercritical units and the state of the art of boiler and turbine are discussed including the topics of 3 x 600MW Huayang Electric CP-1 Boiler and Turbine (24.6MPa x 538/566°C) in China, 1 x 1,000MW Chugoku Electric Power Company Misumi No.1 Boiler and Turbine (24.6MPa x 600/600°C) in Japan and 1 x 1,050MW Electric Power Development Company Tachibanawan No.2 Turbine (25.0MPa x 600/610°C) in Japan.