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

DL/T 608-2019

**Guide of operation for 300MW??600MW grade steam turbine
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work Part 1: Standard Structure and Compilation".

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard replaces DL/T 608-1996 "Operation Guidelines for 200MW Steam Turbine" and DL/T 609-1996 "Operation Guidelines for 300MW Steam Turbine".

The main differences in technical content from DL/T 608-1996 and DL/T 609-1996 are.

- Increase the scope of use;
- Updated normative reference documents;
- Revised the division of steam turbine start-up methods and the required conditions;
- Updated steam turbine steam, water and oil quality control standards;
- Added the conditions and treatment for the emergency shutdown of the steam turbine which destroys the vacuum and the emergency shutdown without destroying the vacuum.
- Cancel the forced cooling after the steam turbine stops;
- Revised the test items and requirements of steam turbines, and clarified the test items before start-up after A, B, C, and D level overhaul.
- The operation of main auxiliary machinery of steam turbines such as condensate pump, low-pressure heater, cooling tower, air cooling island, and lubricating oil pump has been added.
- Revised the prevention and treatment of steam turbine accidents.

This standard was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Steam Turbine Guidelines Technical Committee of the Electric Power Industry.

Drafting organizations of this standard. Tianjin Datang International Panshan Power Generation Co., Ltd., Guangdong Datang International Chaozhou Power Generation Co., Ltd.

1 Scope

This standard specifies the principled technologies for the startup, operation, shutdown, testing, accident prevention and handling of 300MW~600MW steam turbines Requirements and methods of operation.

This standard applies to 300MW class subcritical, supercritical and 600MW class subcritical, supercritical and ultra-supercritical thermal power steam turbines, 125MW class, 200MW-class thermal power steam turbines can be implemented by reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) is applicable to this standard.

GB/T 5578 Specification for steam turbines for stationary power generation GB/T 7596 Quality Guidelines for Turbine Oil in Power Plant Operation GB/T 11120 Turbine Oil GB/T 11348.2 Mechanical vibration measures and evaluates machine vibration on rotating shafts GB/T 12145 Water and Vapor Quality of Thermal Power Generating Sets and Steam Power Equipment DL/T 571 Operation and maintenance guidelines for phosphate ester fire-resistant oil used in power plants DL/T 705 Quality guidelines for sealing oil for hydrogen-cooled generators in operation DL/T 711 Steam Turbine Regulation and Control System Test Guide DL/T 834 Guidelines for Preventing Water Ingress and Cold Steam for Steam Turbines in Thermal Power Plants DL/T 863 Steam Turbine Start-up Commissioning Guidelines DL/T 956 Guidelines for anti-corrosion of thermal equipment for shutdown (standby) in thermal power plants DL/T 1052 Energy-saving technical supervision guidelines DL/T 1270 Unit load rejection test guidelines for thermal power generation construction projects

3 General

In accordance with the relevant provisions of this standard, combined with the relevant technical documents issued by the manufacturer, when compiling the on-site operating

procedures, if the manufacturer has specified, it shall be implemented in accordance with the manufacturer's provisions; if the manufacturer does not specify it, it shall be in accordance with this standard (including relevant provisions of the cited documents of this standard) the regulations are implemented.

4.1 Startup method division

4.1.1

Divided according to the cylinder steam intake mode at startup.

a) High pressure cylinder starts when starting, the main steam directly enters the high-pressure cylinder of the steam turbine for impulse rotation, and the medium-pressure main steam valve and the regulating valve are fully opened, and it does not participate in the speed regulation of the steam turbine.

b) Combined start of high and medium pressure cylinders when starting, the steam enters the high and medium pressure cylinder at the same time for impulse rotation, the middle main door is fully opened and the middle adjustment door participates in the adjustment.

The pressure of the hot steam is within the normal range.

c) Start of medium pressure cylinder when starting, the steam does not pass through the high-pressure cylinder, and the reheated steam directly enters the middle-pressure cylinder of the steam turbine for flushing, and the high-pressure cylinder is usually controlled by a ventilation valve.

When the temperature rises to a certain value or the grid is connected to a certain load, it will switch to the high-pressure cylinder for steam intake.

4.1.2

Divide according to the surface temperature of the steam turbine cylinder or rotor before starting. The temperature division should be carried out according to the manufacturer's regulations.

DL/T 863 implementation, generally divided into.

a) Cold start. the metal temperature is lower than 40% of the metal temperature at full load or the metal temperature is lower than 150°C~180°C;

b) Warm start. 40%~80% of the metal temperature when the metal temperature is at full load or the metal temperature is lower than 180°C~350°C;

c) Hot start. if the metal temperature is higher than 80% of the metal temperature at full load or the metal temperature is higher than 350°C, it is divided into hot start (350°C~450°C) and extremely hot start (over 450°C).