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

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**Technical regulations of construction and acceptance for low
temperature multiple effect distillation**

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(English Translation)

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Foreword

This standard is in accordance with GB/T 1.1-2009 "Guidelines for Standardization Part 1: Standard Structure and Compilation" Drafting of rules.

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 was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Power Plant Steam Turbine Standardization Technical Committee.

1 Scope

This standard specifies the civil and steel structure, main equipment, pipelines and auxiliary equipment, protection Technical requirements for construction and acceptance of corrosion, heat preservation and paint, test and acceptance.

This standard applies to the power industry using steam as the source of water vapor, with or without steam thermal compressor, single Construction and acceptance of low-temperature multi-effect distilled seawater desalination equipment with daily water output of 1,000 tons to 100,000 tons. Exceed the daily water production the range of low-temperature multi-effect seawater desalination devices 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) applies to this document.

GB 2894 Safety Signs and Guidelines for Their Use GB 50205 Code for Construction Quality Acceptance of Steel Structure Engineering GB 50727 Code for acceptance of construction quality of industrial equipment and pipeline anti-corrosion engineering DL/T 855 Electric power infrastructure maintenance and storage regulations for thermal power equipment DL/T 1280 Technical Regulations for Commissioning of Low Temperature Multi-effect Distillation Seawater Desalination Unit DL/T 1285 Low-temperature multi-effect distillation seawater desalination unit technical conditions DL/T 5072 Thermal power plant insulation paint design specification DL/T 5190.1 Technical Code for Construction and Acceptance of Electric Power Construction Part 1: Civil Engineering DL/T 5190.3 Technical Specification for Power Construction Construction Part 3: Steam Turbine Generator Set DL 5190.4 Technical Specification for Power Construction Construction Part 4: Thermal Instrument and Control Device DL/T 5190.5 Technical Specification for Power Construction

Construction Part 5: Piping and System DL/T 5190.6 Technical Specifications for Construction and Acceptance of Electric Power Construction Part 6: Water Treatment and Hydrogen Production Equipment JB/T 4709 Pressure Vessel Welding Regulations JB/T 47013.1~.5 Non-destructive testing of pressure equipment HG/T 20679 chemical equipment and pipeline external anti-corrosion design regulations NB/T 47014 welding procedure qualification for pressure equipment

3 Term

Low temperature multiple effect distillation (LT-MED) Multi-effect distillation seawater desalination technology in which the maximum evaporation temperature of raw seawater is generally lower than 70°C. Its characteristic is to combine a series of Horizontal tube falling film evaporator or vertical tube falling film evaporator are connected in series and divided into several effect groups, with a certain amount of steam input, Through multiple evaporations and condensations, a seawater desalination technology with distilled water that is multiple times the amount of heated steam is obtained.

Evaporater

The evaporator is a container that keeps seawater at the boiling point under vacuum to produce distilled water.

Condenser

Multi-effect distillation device is used to condense the last-effect secondary steam.

Falling film condenser A condenser in which cooling water flows through a gravity falling film outside the heat exchange tube and steam condenses in the heat exchange tube.

Make-up seawater

Sea water that enters the evaporator to produce fresh water.

Regenerator

A heat exchanger that extracts the secondary steam from the evaporator to preheat the material seawater.

Main equipment

The main heat exchange equipment of the low-temperature multi-effect distillation seawater desalination unit generally includes. evaporator, regenerator, condenser and steam Steam Thermal Compressor (TVC).

4.1 General rules

4.1.1

Before the installation of the device, the construction unit shall submit the quality control manual and inspection and test plan to the construction unit. The content shall include Including equipment technical documents, construction party approved standards, construction unit installation manual, specified inspection and test items.

4.1.2

The equipment and materials used in the construction of the device should have a product qualification certificate, and they can be used only after being qualified on site. Such as when it is necessary to modify the design or adopt substitute equipment and materials, it shall be approved by the original design and manufacturing unit, go through the approval procedures, and set Technical documents such as calculation change orders or substitute equipment and materials are attached to the acceptance form.

4.1.3

When equipment manufacturing defects are found, they should be dealt with in accordance with the contract. After treatment, they should be inspected again and installed after passing the inspection. Assume Inspection and defect handling should be recorded and visa.

4.1.4

Equipment safety signs shall be implemented in accordance with GB 2894. Safety signs should be made of materials resistant to salt spray corrosion.

4.1.5

After the installation of the device is completed, there should be construction inspection and test records, and should comply with the equipment technical documents and engineering design regulations.

4.1.6

The construction acceptance of thermal instruments, control devices and electrical equipment not listed in this standard shall be carried out in accordance with DL/T 5190.4.

4.1.7

When this standard is inconsistent with the technical requirements of equipment manufacturers, the higher technical requirements shall be implemented.

4.2 Inspection and storage requirements for equipment and materials

4.2.1

The storage of equipment and materials shall be implemented in accordance with DL/T 855.