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JAPANESE INDUSTRIAL STANDARD

**Testing methods for
boiler feed pumps**

JIS B 8303—1990

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Testing methods for
boiler feed pumps

B 8303-1990

1. Scope

This Japanese Industrial Standard specifies the methods of testing in the factory the centrifugal pumps (hereafter referred to as the "pumps") for boiler feed (including the high-temperature high-pressure pumps for atomic furnace feed and the like).

The extent of a pump shall, as a rule, be the portion partitioned by the sections of the pump suction flange and the sections of the discharge flange.

Remarks 1. The applicable Standards are listed below.

JIS B 2405-General Rules for Mechanical Seals

JIS B 8301-Testing Methods for Centrifugal Pumps.
Mixed Flow Pumps and Axial Flow Pumps

2. The units and numerical values given in { } in this Standard are based on the traditional units and are appended for informative reference.
3. The pump head and the head referred to in this Standard are indicated by the quotient of fluid energy per unit mass, that is, specific energy, divided by the acceleration value of free fall at a particular spot which is taken as 9.80 m/s^2 .

2. Test Items and Inspection Items

2.1 Test Items The tests shall be made on the items listed below. However, the tests of (2) shall be carried out as required.

- (1) Performance Tests The performance test shall be conducted on the following items.

Total head, discharge, rotational speed, shaft power and running conditions.

- (2) Continuous Running Test and Special Test

Reference Standard:

JIS B 8302-Measurement Methods of Pump Discharge

2.2 Inspection Items The inspection shall be made on the following items. However, the inspections of (2) shall be carried out as required.

- (1) Total head and discharge, shaft power, pump efficiency, running conditions, head-discharge curve, hydrostatic pressure resistance.
- (2) Maximum discharge pressure, service running range, suction conditions.

3. Test Conditions

3.1 Liquid Pumped in Test The liquid pumped in test shall be clean water at or near the specified temperature. However, clean water at 0°C to 40°C in temperature may be used by agreement between the parties concerned with delivery (hereafter referred to as the "agreement").

Remarks 1. The water temperature shall be measured at the inlet of the pump and shall be used for the conversion of the performance values.

When needed, the water temperature shall also be measured at the outlet of the pump.

2. When the test is conducted at a temperature not higher than the specified one, care should be exerted not to allow the electric motor to be overloaded through the locally uneven density of the test liquid.

3.2 Test Rotational Speed The test rotational speed shall conform to 3.2 of JIS B 8301.

3.3 Measuring Point Measurements shall be taken of at least five different discharge values ranging from the smallest to the largest possible discharge values, at least one of which shall be lower than the specified head.

4. Test Apparatus

The test apparatus shall be so regulated as to effect tests as closely conforming to the test condition specified by the purchaser as possible. However, in a case where the water temperature overly deviates from the specified value, the test shall be conducted by adjusting the net positive suction head to obtain a suction condition similar to the specification.

Remark: The method for computing the net positive suction head (hsv) shall be referred to Remark of 4. in JIS B 8301.

- (1) The arrangement of the test apparatus and the measuring device in the case of the tests using the specified temperature or those near it shall, as a rule, conform to the following Fig. 1, Fig. 2 or Fig. 3.