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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 37485-2019

Minimum allowable values of energy efficiency and energy efficiency grades for submersible mixers of wastewater

污水处理用潜水推流式搅拌机能效限定值及能效等级

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Foreword

GB 37485-2019 was issued on 4 April 2019 by the State Administration for Market Regulation and the Standardization Administration of the People's Republic of China, and has been in force since 1 May 2020.

The standard was drafted in accordance with the rules given in GB/T 1.1-2009, and was proposed by and is under the jurisdiction of the Standardization Administration of China. The principal drafting organisations include the China National Institute of Standardization, MCC Huatian Nanjing Engineering and Technology Corporation, MCC Huatian Engineering and Technology Corporation, the National Quality Supervision and Inspection Centre for Environmental Protection Equipment (Zhejiang) and several manufacturers of environmental protection equipment.

The document is a compulsory national standard: the absence of the /T in the designation marks it as mandatory rather than recommended.

1 Scope

China's compulsory energy efficiency standard for the submersible mixers used in wastewater treatment. These machines are the least visible large electrical load a treatment plant carries: propellers mounted below the surface of an aeration or anoxic tank, running continuously to keep the sludge in suspension so that the biology works. Because they never stop, a small difference in efficiency compounds into a large share of a plant's electricity bill, and because they are submerged and out of sight there is little pressure on a manufacturer to improve them. The standard makes the comparison enforceable by fixing a single figure of merit - the specific power, meaning the input power needed per cubic metre of water to reach a flow velocity of at least 0.3 metres per second - and grading machines into three classes on it, grade 1 being the best. It specifies the terms and definitions, the energy efficiency grades, the technical requirements and the test methods for submersible

mixers used in wastewater treatment, and applies to high-speed, medium-speed and low-speed submersible mixers driven by a submersible motor. Being a GB without the /T suffix, it is mandatory.

This standard specifies the terms and definitions, the energy efficiency grades, the technical requirements and the test methods for submersible mixers used in wastewater treatment.

This standard applies to high-speed, medium-speed and low-speed submersible mixers driven by a submersible motor.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document, including all amendments, applies.

GB 18613 Minimum allowable values of energy efficiency and energy efficiency grades for small and medium three-phase asynchronous motors.

GB/T 33566 Submersible mixers.

3 Terms and definitions

The terms and definitions given in GB/T 33566 and the following apply to this document.

3.1 specific power for submersible mixer - under the specified test conditions, the input power acting on each cubic metre of the body of water when a flow velocity of not less than 0.3 m/s is achieved.

3.2 minimum allowable values of energy efficiency for submersible mixer - under the specified test conditions, the maximum specific power allowed for a submersible mixer.

4 Energy efficiency grades

4.1 The energy efficiency of submersible mixers is divided into three grades, given in Table 1, of which grade 1 is the highest. The specific power of a submersible mixer of each grade shall be not higher than the value specified in Table 1. The table sets a separate limit for each of the three speed classes - low-speed, medium-speed and high-speed - so that a slow mixer moving a large volume is not judged against a fast one.

4.2 The specific power of a submersible mixer is calculated by formula (1).