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

GB/T 44255-2024

**Earth-moving machinery - Energy consumption of battery
electric hydraulic excavators - Test methods**

土方机械 纯电动液压挖掘机能量消耗量 试验方法

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1 Scope

China's national test methods for the energy consumption of battery electric hydraulic excavators. Electrifying an excavator is more attractive than electrifying a truck and harder to evaluate. More attractive because an excavator works in one place, often indoors or in a tunnel where exhaust is a serious problem, spends much of its time at partial load where a diesel is at its worst, and can recover energy every time the boom comes down or the house stops swinging. Harder to evaluate because there is no equivalent of a drive cycle: consumption depends entirely on what the machine is doing, and digging clay, loading trucks and breaking rock are different duties. So the methods have to define representative work cycles and measure over them, and they have to state the result in a form comparable with a diesel machine's, which is what a buyer needs when the two have completely different cost structures.

This document specifies the test conditions for the energy consumption of pure electric hydraulic excavators, describes the test method for the energy consumption, and Methods for evaluating the endurance, operating efficiency, and energy efficiency of electric hydraulic excavators. This document applies to aircraft that use an onboard power battery (maximum operating voltage is Class B voltage) as the sole power source during operation. The test of pure electric hydraulic excavators with a mass not exceeding 50,000 kg shall be carried out in accordance with the same regulations as those for pure electric hydraulic excavators with a mass exceeding 50,000 kg.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 6572 Terminology and commercial specifications for earth-moving machinery hydraulic excavators

GB/T 21153 Units and measurement accuracy of dimensions, performance and parameters of earth-moving machinery

GB/T 36695 Earth-moving machinery - Hydraulic excavator - Test method for fuel consumption

GB/T 44254 Terminology for electric earth-moving machinery

3 Terms and definitions

The terms and definitions defined in GB/T 6572 and GB/T 44254 and the following apply to this document.

3.1 Endurance. all electric working time The pure electric hydraulic excavator is tested under the specified conditions and methods with the power battery fully charged. The maximum Working hours.

Note. The unit is hour (h).

4 Test conditions

4.1 Experimental environment The test environment should meet the following conditions.

--Ambient temperature. 5°C~35°C; --Relative humidity. less than 95%; --Wind speed. not more than 5 m/s.

4.2 Test site The test traffic area should be flat and the operation area should meet the test project requirements specified in 6.1. Soil for excavation and loading operation test Density. 1 500 kg/m³~1 800 kg/m³.