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**Reciprocating Internal Combustion Engines—
Measurement Method for Structure-Borne Noise**
往复式内燃机 结构噪声测量方法

(English Translation)

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Reciprocating Internal Combustion Engines —Measurement Method for Structure-Borne Noise

1 SCOPE

This document specifies the measurement method for structure-borne noise of reciprocating internal combustion engines.

This document is applicable to the reciprocating internal combustion (hereinafter referred to as “engine”, unless otherwise specified) defined in GB/T 21404.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

- GB/T 1859.1 Reciprocating internal combustion engines—Measurement of sound power level using sound pressure—Part 1: Engineering method
- GB/T 1859.3 Reciprocating internal combustion engines—Measurement of sound power level using sound pressure—Part 3: Precision methods for hemi-anechoic rooms
- GB/T 6072.1 Reciprocating internal combustion engines - Performance - Part 1: Declarations of power, fuel and lubricating oil consumptions, and test methods - Additional requirements for engines for general use
- GB/T 6072.3 Reciprocating internal combustion engines - Performance - Part 3: Test measurements
- GB/T 13824 Mechanical vibration of rotating and reciprocating machinery—Requirements for instruments for measuring vibration severity
- GB/T 14777 Geometrical orientation and directions of movements

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 6072.1, GB/T 13824, and GB/T 14777, as well as the following apply.

3.1 structure-borne noise

vibration transmitted through solid structures in the frequency range of audible sound

Note: For the purpose of this document, the structure-borne noise refers to the vibration transmitted at the engine feet.

3.2 contact area

area of engine supports in contact with the surrounding structure, in particular with the isolator (e.g., rubber)

3.3 translational velocity level, L_v

Ten times the logarithm to the base 10 of the ratio of the square of the velocity (v) to the square of a reference value (v_0)

Note 1: The translational velocity level can be calculated according to Formula (1):

$$L_v = 10 \lg \left(\frac{v^2}{v_0^2} \right) \dots\dots\dots (1)$$

Where,

v is the velocity, in m/s, along the direction of a specific axis at the measuring position;



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