

ICS 53.100
CCS P 97



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

GB/T 16936-2007

**Earth moving machinery -- Engine test code -- Net power
(English Translation)**

Issued on: November 1, 2007

Implemented on: January 1, 2008

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	7
4 Accuracy of measuring equipment and instruments	10
5 Tests	10
6 Correction factors	14
8 Test report	19
9 Declaration and verification of engine performance	32

1 Scope

This standard specifies a method for testing internal combustion engines intended for propulsion of earth-moving machinery as defined in GB/T 8498.

This standard applies to evaluate the performance of earth-moving machinery's engine. It is used to introduce, at full load condition, the engine's characteristic curve of power, fuel consumption rate versus the rotation speed. These engines may be the natural aspirated or pressure-charged, either using a mechanical pressure-charger or turbocharger.

This standard concerns internal combustion engines used in earth-moving machinery and included in one of the following categories.

- reciprocating internal combustion engines (spark-ignition or compression-ignition) but excluding free piston engines;
- rotary piston engines.

NOTE: This standard provides engine power correction factors in conformity with ISO 1585.1992.

2 Normative references

The articles contained in the following documents have become part of this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this

Standard. For the undated documents so quoted, the latest editions shall be applicable to this standard.

GB/T 1883.1 Reciprocating internal combustion engines - Vocabulary - Part 1.

Terms for engine design and operation (GB/T 1883.1-2005, ISO 2710-1.2000, IDT)

GB/T 1883.2 Reciprocating internal combustion engines - Vocabulary - Part 2.

Terms for engine maintenance (GB/T 1883.2-2005, ISO 2710-2.1999, IDT)

GB/T 1884 Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometer method (GB/T 1884-2000, eqv ISO 3675.1998)

GB/T 6809.1 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 1. Structure and external covers (GB/T 6809.1-2003, ISO 7967-1.1987, IDT)

GB/T 6809.2 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 3. Valves, camshaft drive and actuating mechanisms (GB/T 6809.2-2006, ISO 7967-3.1987, IDT)

GB/T 6809.3 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 3. Main running gear (GB/T 6809.3-2006, ISO 7967-2-1987/Amd.1.

1999, IDT)

GB/T 6809.4 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 4. Pressure charging and air/exhaust gas ducting systems (GB/T 6809.4-2007, ISO 7967-4.2005 IDT)

GB/T 6809.5 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 5. Cooling systems (GB/T 6809.5-1999, idt ISO 7967-5.1992)

GB/T 6809.8 Reciprocating internal combustion engines - Vocabulary of components and systems - Part 8. Starting systems (GB/T 6809.8-2000, idt ISO 7967-8.1994)

GB/T 8498 Earth-moving machinery - Basic types - Vocabulary (GB/T 8498-1999, eqv ISO 6165.1997)

ISO 1585.1992 Road vehicles - Engine test code - Net power

ISO 3104.1994 Petroleum products; Transparent and opaque liquids;

Determination of kinematic viscosity and calculation of dynamic viscosity

ISO 5163.2005 Motor and aviation-type fuels - Determination of knock characteristics - Motor method

ISO 5164.2005 Motor fuels - Determination of knock characteristics - Research method

ISO 5165.1998 Diesel fuels - Determination of ignition quality - Cetane method

ISO 7876-1.1990 Fuel injection equipment - Vocabulary - Part 1. Fuel injection pumps

ISO 11614.1999 Reciprocating internal combustion compression-ignition engines -

Apparatus for measurement of the opacity and for determination of the light absorption

coefficient of exhaust gas

ASTM D 240-87 Standard test method for heat of combustion of liquid hydrocarbon fuels by bomb calorimeter

ASTM D 3338-88 Standard test method for estimation of heat of combustion of aviation fuels

3 Terms and definitions

For the purpose of this standard, the following terms and definitions AND those established in GB/T 1883.1, GB/T 1883.2, GB/T 6809.1, GB/T 6809.2, GB/T 6809.3, GB/T 6809.4, GB/T 6809.5, GB/T 6809.8 and ISO 7876-1 shall apply.

3.1 net power

power obtained on a test bed at the end of the crankshaft or its equivalent at the corresponding engine speed with the equipment and auxiliaries listed in Table 1.

NOTE: If the power measurement can only be carried out with a mounted gear-box, the losses in the gear-box should be added to the measured power to give the engine power.

3.2 standard production equipment

any equipment provided by the manufacturer for a particular engine application.