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

GB/T 8190.10-2010

**Reciprocating internal combustion engines -- Exhaust emission measurement -- Part 10:
Test cycles and test procedures for field measurement of exhaust gas smoke emissions
from compression ignition engines operating under transient conditions**

**往复式内燃机 排放测量 第10部分：压燃式发动机瞬态工况排气烟度的现场测量
用试验循环和测试规程**

(English Translation)

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Foreword

GB/T 8190 "Reciprocating internal combustion engines - Exhaust emission measurement" is divided into 11 parts.

- Part 1. gaseous and particulate emissions test bench measurements;
- Part 2. gas and particulate exhaust emissions at site;
- Part 3. Definitions and methods of measurement of exhaust gas smoke under steady conditions of;
- Part 4. steady-state test cycles for different engine applications;
- Part 5. Test fuels;
- Part 6. Report of measuring results and test;

--- Part 7. Engine family determination;

--- Part 8. Engine group determination;

--- Part 9. Test Bench compression ignition engines operating under transient conditions exhaust smoke was measured with test cycles and test procedures;

--- Part 10. Compression ignition engines under transient operating conditions smoke emission test cycles with field measurements and test procedures;

Non-road mobile machinery operating conditions and gas engine test bench measuring transient particulate emissions. --- Section 11.

This part of GB/T 8190 Part 10.

This part identical with ISO 8178-10:2002 "Reciprocating internal combustion engines - Exhaust emission measurement - Part 10. compression ignition engines operating under transient Status field measuring exhaust smoke test cycles and test procedures "(in English).

This section is equivalent translation ISO 8178-10:2002. For ease of use, this section made the following editorial changes.

--- "This International Standard" or "this part of ISO 8178" with the words "this section" or "GB/T 8190 to the present section";

"," --- With a decimal point instead of a comma as the decimal point, "";

--- Deleted international standards foreword;

--- Of ISO 8178-10:2002 and other international standards referenced in our country has been adopted as a standard in place by our standards, not Adopted as the standard of a direct use of international standards.

This section of the Appendix A, Appendix B and Appendix C are normative appendices, Appendix D is an informative annex.

This part is proposed by China Machinery Industry Federation.

This part of the internal combustion engine by the National Standardization Technical Committee (SAC/TC177) centralized.

Introduction

There are many different smoke measurement procedure in the world currently. Some smoke measurement procedure is designed for the bench test for certification or type certification; others are designed for field trials, for monitoring and maintenance testing. Smoke different measurement procedures exist to meet the various Kinds of regulatory agencies and industry requirements. Two typical method of measurement is used in smoke

filter type and method of Smoke Opacimeter law.

This section GB/T 8190 the greatest possible integration of the main technical characteristics of the existing smoke measurement procedures. GB/T 8190 this Part Division seeks to provide a compression-ignition engine under field conditions of the smoke emission testing methods. GB/T 8190 This section applies to the speed or load or transient operating conditions of the engine both change over time. It should be noted that the maintenance of the integrity of the naturally aspirated engine transient General conditions of exhaust smoke and exhaust smoke the same steady state conditions.

Only extinction smoke smoke meter can be used to measure the GB/T 8190 provisions of this Part, allowing full flow or partial flow extinction Smokemeter. This section GB/T 8190 takes into account both types of Smoke Opacimeter difference in response time, but does not consider the temperature due to the sampling area any differences arising.

Reciprocating internal combustion engines - Exhaust emission measurement Part 10.
compression ignition engines operating under transient conditions Field measurements of exhaust smoke and using the test cycle Test procedures

1 Scope

This section GB/T 8190 regulations in the field of health assessment compression-ignition engine exhaust smoke test cycles and test procedures.

This part is mainly used for been completed as GB/T 8190.9 regulations "certification" or "type approval" is carried out with the machine's engine smoke test.

GB/T 8190.9 provides that a test bed for different engine test cycles and measurement test procedures.

The GB/T 8190.4 provides a different test cycle to determine the characteristics of non-road engine gas and particulate emissions.

GB/T 8190.4 the test cycles for different engine operating characteristics of different types of design.

During transient smoke test should be used smoke meter according to the extinction principle work Measurement of smoke. This section provides test cycle and smoke Measurement and analysis methods of smoke. The detailed provisions adopted extinction principle Measurement of smoke, see ISO 11614. This section is intended to measure and the provisions of points Analysis of test cycles and measurement methods of smoke. Test procedures and measuring methods Part 5 - Chapter 11 applies to reciprocating internal combustion machine. One use of the engine but can use only one of the provisions of this section corresponding test cycle to be assessed. This part of the Annex A, Annex B and Appendix C, each containing a test cycles, respectively, for its engine uses listed in Appendix "Scope". In some cases, the appendix Smoke test cycle prescribed can also be

used GB/T 8190 Part 4 covered in engine and machinery.

2 Normative references

The following documents contain provisions which, through reference to GB/T 8190 to the present, constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

Steady-state test cycles for different engine applications. GB/T 8190.4-2010 Reciprocating internal combustion engines - Exhaust emission measurement - Part 4 (ISO 8178-4:2007, IDT) GB/T 8190.5 Reciprocating internal combustion engines - Exhaust emission measurement - Part 5. Test fuels (GB/T 8190.5-2005, ISO 8178-5:1997, IDT) GB/T 8190.6 Reciprocating internal combustion engines - Exhaust emission measurement - Part 6. Report of measuring results and test (GB/T 8190.6-2006, ISO 8178-6:2000, IDT) GB/T 8190.7 Reciprocating internal combustion engines - Exhaust emission measurement - Part 7. Engine family determination (GB/T 8190.7-2003, ISO 8178-7:1996, IDT) GB/T 8190.8 Reciprocating internal combustion engines - Exhaust emission measurement - Part 8. Engine group determination of the (GB/T 8190.8-2003, ISO 8178-8:1996, IDT) GB/T 8190.9-2010 Reciprocating internal combustion engines - Exhaust emission measurement - Part 9. compression ignition engines operating under transient conditions of exhaust smoke Test bench measuring test cycles and test procedures (ISO 8178-9:2000, IDT) ISO 11614:1999 Reciprocating compression ignition engine exhaust opacity measuring instruments and optical absorption coefficient of determination

3 Terms and Definitions

The following terms and definitions apply to this part of the GB/T 8190's.