

Reciprocating internal combustion engines — Exhaust emission measurement —

Part 6: Report of measuring results and test

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National foreword

This British Standard is the UK implementation of ISO 8178-6:2000. It supersedes BS EN ISO 8178-6:2001 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee MCE/14, RIC engines, to Subcommittee MCE/14/-/3, Emissions.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Amendments/corrigenda issued since publication

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Reciprocating internal combustion engines — Exhaust emission measurement —

Part 6: Report of measuring results and test

*Moteurs alternatifs à combustion interne — Mesurage des émissions de
gaz d'échappement —*

Partie 6: Rapport de mesure et d'essai



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 8178 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8178-6 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*, Subcommittee SC 8, *Exhaust gas emission measurement*.

ISO 8178 consists of the following parts, under the general title *Reciprocating internal combustion engines — Exhaust emission measurement*:

- *Part 1: Test-bed measurement of gaseous and particulate exhaust emissions*
- *Part 2: Measurement of gaseous and particulate exhaust emissions at site*
- *Part 3: Definitions and methods of measurement of exhaust gas smoke under steady-state conditions*
- *Part 4: 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 cycles and test procedures for test bed measurement of exhaust gas smoke emissions from compression ignition engines operating under transient conditions*
- *Part 10: Test cycles and test procedures for field measurement of exhaust gas smoke emissions from compression ignition engines operating under transitory conditions*

Annex A forms a normative part of this part of ISO 8178.

Introduction

Results of an emissions test shall be presented clearly and should include all information pertinent to the derivation of the emission test results. An accuracy or uncertainty analysis relevant to the test system used and engine being evaluated should be made by the laboratory. A record shall be made of the measurement equipment being used, the ambient conditions, the engine performance and the fuel used. Recommendations for the data to be recorded are given regardless to the type of fuel being used.

The data format recommended in this part of ISO 8178 is intended to be used by individuals measuring emissions using ISO 8178-1, ISO 8178-2, ISO 8178-9 or ISO 8178-10, but is not intended to contradict or replace existing data formats which may be required by some regulatory bodies.

As expressed in ISO 8178-1 and ISO 8178-2, the emission results shall be stated in either "g/kWh" (preferred) or in "g/m³". It should be noted that some regulators require the results to be expressed in unique measurement units; this should be determined prior to testing.

Reciprocating internal combustion engines — Exhaust emission measurement —

Part 6: Report of measuring results and test

1 Scope

This part of ISO 8178 specifies as a standard data format for reporting the measurement results of exhaust emissions from RIC engines for mobile, transportable and stationary use, excluding engines for motor vehicles primarily designed for road use. This part of ISO 8178 may be applied to engines used e.g. earth-moving machines, generating sets and for other applications. This part of ISO 8178 applies to measurement in the laboratory and at site.

For engines used in machinery covered by additional requirements, (e.g. occupational health and safety regulations, dust regulations for powerplants) additional test conditions and special evaluation methods may apply.

NOTE Since the standard report format defined in this part of ISO 8178 is intended to be applicable to all types of internal combustion engine, in certain cases some items are not necessary for specific engines and/or tests, especially when measuring at site. On the other hand, some additional items might be necessary according to test purposes. Deletion and addition of items to be reported should be based on agreement between the parties involved.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8178. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8178 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8178-1:1996, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 1: Test bed measurement of gaseous and particulate exhaust emissions.*

ISO 8178-2:1996, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 2: Measurement of gaseous and particulate exhaust emissions at site.*

ISO 8178-3:1994, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 3: Definitions and methods of measurement of exhaust gas smoke under steady-state conditions.*

ISO 8178-4:1996, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 4: Test cycles for different engine applications.*

ISO 8178-5:1997, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 5: Test fuels.*

ISO 8178-7:1996, *Reciprocating internal combustion engines — Exhaust emission measurement — Part 7: Engine family determination.*