
**Road vehicles — Engine families for
certification of heavy-duty vehicles —
Exhaust emissions**

*Véhicules routiers — Familles de moteurs pour homologation des
véhicules lourds — Émissions de gaz d'échappement*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

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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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16185 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 5, *Engine tests*.

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Introduction

This International Standard aims to define the criteria making it possible to group engines of road vehicles in order to reduce the number of type approval tests.

This concept already exists in certain regulations (United Nations, United States of America, European Union). ISO 8178-7 deals with this subject within the broader framework of those engines designed originally for non-road applications.

ISO was requested within the framework of the United Nations¹⁾ to work on an International Standard that would adapt these concepts to heavy-duty road vehicles. This work is considered as a step towards a world-wide heavy-duty certification (WHDC) procedure.

In the case of regulations based on emission tests, the family concept as described in this International Standard makes it possible to minimize the number of these tests (some of them may be very long) by carrying them out only on a parent engine.

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1) UN/ECE/GRPE: United Nations/Economic Commission for Europe/Group of Rapporteurs on Pollution and Energy.

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Road vehicles — Engine families for certification of heavy-duty vehicles — Exhaust emissions

1 Scope

This International Standard is applicable to heavy-duty road vehicle engines subject to regulations as regards their exhaust emissions at the time of their certification. Mopeds, motorcycles, passenger cars and non-road vehicles are not within its scope.

This International Standard defines the criteria making it possible to group those engines of the same manufacturer having, by design, similar regulated exhaust emission characteristics (gaseous and particulate pollutants, as well as smoke) within a family or families.

It defines the parameters necessitating the carrying out of different groupings, leaving open to the manufacturer the latitude to carry out groupings of lower size.

This International Standard defines the procedure for selecting from within each engine family the parent engine, the specific characteristics of which will probably make it more difficult to produce a low level of exhaust emissions.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitutes provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document 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 8178-7:1996, *Reciprocating internal combustion engines — Exhaust emission measurements — Part 7: Engine family determination.*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1

engine family

manufacturer's grouping of engines which, through their design, have similar exhaust-emission characteristics (gaseous and particulate pollutants, smoke)

3.2

parent engine

engine selected from an engine family considered from its design to have comparatively high exhaust-emission characteristics, while being representative of that family

3.3

member of a family

any engine in an engine family that is not a parent engine