INTERNATIONAL STANDARD

ISO 18580

First edition
2015-11-15

Motorcycles — Verification of total running resistance force during mode running on a chassis dynamometer

Motocycles — Vérification de la force totale de résistance à l'avancement durant les essais sur un banc dynamométrique en mode roulage

Reference number
ISO 18580:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Terms and definitions **1**
3 Symbols **2**
4 Verification **3**
4.1 Principle 3
4.2 Calculation 3
5 Procedure **5**
5.1 Tools 5
5.1.1 Data logger 5
5.1.2 Verification software 6
5.2 Preparation 6
5.2.1 Check of chassis dynamometer 6
5.2.2 Calibration of data logger 6
5.3 Data collection 6
5.3.1 Selection of test cycle 6
5.3.2 Data logging 6
5.4 Data processing 6
5.5 Evaluation of chassis dynamometer 6
5.6 Report 6
Annex A (informative) **Example of verification calculation** **7**
Annex B (normative) **Motorcycle description** **11**
Annex C (normative) **Chassis dynamometer and instruments description** **13**
Annex D (normative) **Verification test result** **15**
Bibliography **16**

© ISO 2015 – All rights reserved

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 38, *Motorcycles and mopeds*.

© ISO 2015 – All rights reserved

Introduction

The ordinary chassis dynamometer has the mechanical inertia system where the running resistance is set on the chassis dynamometer in accordance with ISO 11486 and the verification of force generated by the inertia mass is not necessary because the equivalent inertia mass is mechanically set by a flywheel. A chassis dynamometer using the electric inertia function is not equipped with such a mechanical flywheel equivalent to inertia mass system and the inertia force is electrically set in the same way of the running resistance force control. The inertia force is generated by the acceleration and/or deceleration, therefore, it is necessary to check the performance of electric inertia function during the mode running test and this International Standard specifies the method to verify the chassis dynamometer operated normally. The verification method specified in this International Standard can be applicable not only for the total running resistance check during the exhaust gas and/or fuel consumption mode test but also the system installation and the periodical performance check. The accurate verification can be achieved when this method is applied to the ordinary mechanical inertia system chassis dynamometer.

© ISO 2015 – All rights reserved

Motorcycles — Verification of total running resistance force during mode running on a chassis dynamometer

1 Scope

This International Standard specifies the verification method of total running resistance force when the exhaust gas emissions and/or fuel consumption of motorcycles are measured during mode running on a chassis dynamometer. The performance of chassis dynamometer is verified by comparing the measured total running resistance force (measured by a chassis dynamometer absorption force) and the target total running resistance force (calculated from velocity, acceleration and/or deceleration). This International Standard is applicable when the running resistance force of a chassis dynamometer is set in accordance with ISO 11486.

2 Terms and definitions

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

2.1
equivalent inertia mass of motorcycle
m_i
mass obtained by adding the rotating mass of the front wheel to the total mass of the motorcycle, rider and instruments

2.2
mechanical equivalent inertia mass of chassis dynamometer
m_b
equivalent inertia mass of mechanical rotating parts of chassis dynamometer, e.g. roller and shaft and/or fly wheel

2.3
chassis dynamometer absorption force
F_{dy}
tangential force acted on the roller surface which is calculated from a roller shaft or motor cradling torque and roller radius

Note 1 to entry: The chassis dynamometer absorption force is the running resistance force for a chassis dynamometer equipped with a mechanical flywheel equivalent inertia mass system and is sum of running resistance force and inertia force generated by motorcycles for a chassis dynamometer using the electric inertia function.

2.4
total friction loss of a chassis dynamometer
F_f
friction and aerodynamic loss of rotating parts of chassis dynamometer, e.g. bearings and roller(s)

2.5
running resistance force
rolling resistance and aerodynamic loss of motorcycle on flat surface

2.6
inertia force
force generated by inertia mass of motorcycle or chassis dynamometer during acceleration and/or deceleration

© ISO 2015 – All rights reserved