

---

---

**Agricultural tractors — Test  
procedures —**

**Part 9:  
Power tests for drawbar**

*Tracteurs agricoles — Méthodes d'essai —*

*Partie 9: Essais de puissance à la barre d'attelage*



This document is a preview generated by EMS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

|                                                                                     | Page      |
|-------------------------------------------------------------------------------------|-----------|
| Foreword.....                                                                       | iv        |
| <b>1 Scope.....</b>                                                                 | <b>1</b>  |
| <b>2 Normative references.....</b>                                                  | <b>1</b>  |
| <b>3 Terms and definitions.....</b>                                                 | <b>1</b>  |
| <b>4 Measurement units and tolerances.....</b>                                      | <b>1</b>  |
| <b>5 General requirements.....</b>                                                  | <b>2</b>  |
| 5.1 Selection.....                                                                  | 2         |
| 5.2 Running-in and preliminary adjustments.....                                     | 2         |
| 5.3 Manufacturer's instructions.....                                                | 2         |
| 5.4 Repairs.....                                                                    | 2         |
| 5.5 Preliminary information.....                                                    | 2         |
| 5.6 Fuels and lubricants.....                                                       | 2         |
| 5.6.1 Selection.....                                                                | 2         |
| 5.6.2 Measuring consumption.....                                                    | 2         |
| 5.6.3 Tractors equipped with diesel particulate filters.....                        | 3         |
| 5.7 Auxiliary equipment.....                                                        | 3         |
| 5.8 Ambient conditions.....                                                         | 3         |
| 5.9 Tractor conditions.....                                                         | 3         |
| 5.9.1 Tyres.....                                                                    | 3         |
| 5.9.2 Ballast.....                                                                  | 3         |
| 5.10 Slip.....                                                                      | 4         |
| 5.11 Testing rules.....                                                             | 4         |
| 5.12 Required measurements.....                                                     | 5         |
| 5.13 Warm-up.....                                                                   | 5         |
| <b>6 Test procedure.....</b>                                                        | <b>6</b>  |
| 6.1 Maximum power.....                                                              | 6         |
| 6.1.1 General.....                                                                  | 6         |
| 6.1.2 Geared transmissions.....                                                     | 6         |
| 6.1.3 Continuously variable transmissions.....                                      | 6         |
| 6.2 Fuel consumption.....                                                           | 6         |
| 6.2.1 General.....                                                                  | 6         |
| 6.2.2 Nominal speed of 7,5 km/h.....                                                | 6         |
| 6.2.3 Nominal speed between 7 and 10 km/h.....                                      | 7         |
| 6.2.4 Continuously variable transmissions.....                                      | 7         |
| 6.2.5 Alternative tractor configuration.....                                        | 7         |
| 6.3 Tractors without PTO capable of transmitting full engine power.....             | 7         |
| 6.3.1 General.....                                                                  | 7         |
| 6.3.2 Varying drawbar pull and speed at full load.....                              | 8         |
| 6.3.3 Continuous one hour test at maximum power.....                                | 8         |
| 6.4 Statement of power rating.....                                                  | 8         |
| <b>7 Test report.....</b>                                                           | <b>8</b>  |
| <b>Annex A (normative) Drawbar tests — Measurement of tyre tread and track.....</b> | <b>10</b> |
| <b>Bibliography.....</b>                                                            | <b>11</b> |

## 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](http://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](http://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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 2, *Common tests*.

This second edition cancels and replaces the first edition (789-9:1990), which has been technically revised for the technical harmonization with OECD Code 2: February 2017. It also incorporates the Amendment ISO 789-9:1990/Amd.1:1993.

A list of all the parts in the ISO 789 series can be found on the ISO website.

# Agricultural tractors — Test procedures —

## Part 9: Power tests for drawbar

### 1 Scope

This document specifies test procedures for determining the power available at the drawbar on agricultural tractors of the wheeled, track-laying or semi-track-laying type.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 789-13:2018, *Agricultural tractors — Test procedures — Part 13: Vocabulary and specimen test report*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 789-13 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 4 Measurement units and tolerances

The following units and tolerances apply to the maximum value measured:

- rotational frequency, in revolutions per minute (r/min):  $\pm 0,5 \%$ ;
- time, in seconds (s):  $\pm 0,2 \text{ s}$ ;
- distance, in metres or millimetres (m or mm):  $\pm 0,5 \%$ ;
- force, in newtons (N):  $\pm 1 \%$ ;
- mass, in kilograms (kg):  $\pm 0,5 \%$ ;
- fuel consumption, in kilograms per kilowatt hour (kg/kWh):  $\pm 1 \%$ ;
- atmospheric pressure, in kilopascals (kPa):  $\pm 0,2 \text{ kPa}$ ;
- tyre pressure (gauge), in kilopascals (kPa):  $\pm 5 \%$ ;
- temperature of fuels, etc., in degrees Celsius:  $\pm 2 \text{ }^{\circ}\text{C}$ ;
- wet and dry bulb thermometer temperature, in degrees Celsius:  $\pm 0,5 \text{ }^{\circ}\text{C}$ .