
International Standard



789/4

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Agricultural tractors — Test procedures — Part 4 : Measurement of exhaust smoke

Tracteurs agricoles — Méthodes d'essai — Partie 4 : Mesurage de la fumée d'échappement

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 789/4 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*.

This second edition cancels and replaces the first edition (ISO 789/4-1982), clause 6 of which has been revised, and clause B.3 of which has been deleted, following incorporation of draft Amendment ISO 789/4/DAM 1.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Agricultural tractors — Test procedures — Part 4 : Measurement of exhaust smoke

0 Introduction

This International Standard specifies test procedures for agricultural tractors. This part of ISO 789 deals with the measurement of exhaust smoke. Other parts will be as follows :

Part 1 : Power tests.

Part 2 : Hydraulic power and lifting capacity.

Part 3 : Turning and clearance diameters.

Part 5 : Partial power p.t.o — Non-mechanically transmitted power.

Part 6 : Centre of gravity.

Part 7 : Power and torque of drive wheels.

Part 8 : Engine air cleaner.

1 Scope and field of application

This part of ISO 789 specifies a method of measuring the smoke emitted by the engines of agricultural tractors operating at a steady speed.

2 References

ISO 789/1, *Agricultural tractors — Test procedures — Part 1 : Power tests.*

ISO 2288, *Agricultural tractors and machines — Engine test code (bench test) — Net power.*

3 Apparatus

The following apparatus is required.

3.1 Dynamometer.

3.2 Opacimeter, complying with the requirements of annex A, and installed and used as described in annex B.

4 Test conditions

4.1 Test laboratory

The temperature and atmospheric pressure in the test laboratory shall be such that the factor F , when determined from the following formula, is greater than 0,98 and less than 1,02 :

$$F = \left(\frac{750}{p} \right)^{0,65} \times \left(\frac{T}{298} \right)^{0,5}$$

where

p is the atmospheric pressure, in millimetres of mercury¹⁾, in the test laboratory;

T is the thermodynamic temperature, expressed in kelvins, in the test laboratory.

4.2 Engine or tractor

The engine or tractor shall be submitted in good mechanical condition. The engine shall have been run in.

The engine shall be tested with the equipment fitted, as specified in ISO 789/1.

The engine settings shall be those laid down by the manufacturer and specified in ISO 789/1.

The exhaust device shall not have any orifice through which the gases emitted by the engine could be diluted.

The engine shall be in the normal working condition laid down by the manufacturer. In particular, the cooling water and the oil shall each be at the normal temperature indicated by the manufacturer.

4.3 Fuel

If possible, a reference fuel shall be used (see specification in annex C). If a reference fuel is not used, the specifications of the fuel shall be given in the same manner as in annex C. The test report shall state the type of fuel used.

1) 1 mmHg = 133,322 Pa