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Tractors and machinery for agriculture and forestry — Basic types — Vocabulary

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Contents

Page

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Foreword

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The committee responsible for this document is ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 2, *Common tests*.

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Introduction

This International Standard provides definitions and terms for types of agricultural machinery and tractors used in agriculture and forestry. It establishes uniformity in definitions for ISO/TC 23 published standards.

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INTERNATIONAL STANDARD ISO 12934:2013(E)

Tractors and machinery for agriculture and forestry — Basic types — Vocabulary

1 Scope

This International Standard provides terms and definitions for agricultural field equipment designed primarily for use in agricultural operations for the production of food and fibre.

NOTE Other terms commonly used for "agricultural field equipment" are "farm machinery", "farm implements", "implements of husbandry" and "agricultural machinery".

This International Standard also applies to agricultural tractors used in forestry applications. Purpose-built forestry machines, as defined by ISO 6814, are not included.

2 Basic terms and definitions

2.1
machine
machinery
assembly, fitted with or intended to be fitted with a drive system consisting of linked parts or components, at least one of which moves, and which are joined together for a specific application

Note 1 to entry: The terms "machinery" and "machine" also cover an assembly of machines which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole.

[SOURCE: ISO 12100:2010, 3.1, modified — "and machine" has been added to Note 1; Note 2 is not included here.]

2.2
agricultural field equipment
agricultural tractors (3.1), *self-propelled machines* (3.2), implements, and combinations thereof designed primarily for agricultural field operations

2.3
agricultural vehicle
agricultural tractor (3.1), *self-propelled machinery* (3.2), trailer or interchangeable towed machinery which is primarily intended to be used in agriculture including occasional road travel

2.4
interchangeable towed machinery
machine which is designed to be towed by a tractor and changes or adds to its functions

Note 1 to entry: It may include a load platform designed and constructed to receive any tools and appliances needed for those purposes, and to store temporarily any materials produced or needed during work.

Note 2 to entry: Any vehicle intended to be towed by a tractor and permanently incorporating an implement or designed to process materials shall be considered interchangeable towed machinery if the ratio of the technically permissible gross mass to the unladen mass of that vehicle is less than 3,0.

2.5
maximum design ground speed
speed based on the nominal design capability of the machine with tyres offered as original equipment

Note 1 to entry: The tyre size will be the largest diameter drive tyres on tractors and *self-propelled machines* (3.2) but not necessarily on towed equipment.

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2.6
maximum mass
mass stated by the *agricultural vehicle* (2.3) manufacturer to be technically permissible

2.7
technically permissible mass
sum of the maximum allowable equipment mass and allowable payload specified by the manufacturer

Note 1 to entry: This mass corresponds to the sum of the technically maximum possible axle loads and, in the case of a semi mounted trailer, the vertical static load.

2.8
unladen mass
mass of the *agricultural vehicle* (2.3) in running order, if applicable with full fuel, lubricant and coolant tanks and with a driver of a mass of 75 kg, but without passengers, optional accessories or load

3 Machine terms and definitions

When used in ISO/TC 23 standards, the following terms and definitions apply. One or more definitions may apply to a certain machine configuration. The list provided below is not comprehensive and therefore does not represent all the machine types that exist.

3.1
agricultural tractor
self-propelled *agricultural vehicle* (2.3) having at least two axles and wheels, or endless tracks, particularly designed to pull agricultural trailers and pull, push, carry and operate implements used for agricultural work (including forestry work), which may be provided with a detachable loading platform

Note 1 to entry: The *agricultural vehicle* (2.3) has a maximum design speed of not less than 6 km/h and may be equipped with one or more seats.

3.1.1
standard agricultural tractor
agricultural tractor (3.1) having a minimum wheel track width of 1 150 mm or greater; an unladen mass, in running order, of 400 kg or greater; and a ground clearance of 1 000 mm or less

Note 1 to entry: In some special definitions, the width, mass, and or ground clearance may be smaller or greater.

Note 2 to entry: The front tyres are smaller than the rear tyres.

3.1.2
two-wheel drive tractor
agricultural tractor (3.1) with traction power provided only through the rear tyres

Note 1 to entry: The front tyres are smaller than the rear and typically use a profile type with no traction capability.

3.1.3
all-wheel drive tractor
agricultural tractor (3.1) with two axles or more, having power to all axles

Note 1 to entry: The drive of one or more axles may be disengageable.

3.1.3.1
four-wheel drive tractor with unequal sized wheels
all-wheel drive tractor (3.1.3) with primary power provided through the rear tyres and disengageable power through the front tyres

Note 1 to entry: The front tyres are generally larger in rolling radius than those of a two-wheel drive tractor and use a tyre profile that will transmit traction capability.

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3.1.3.2
four-wheel drive tractor with equal sized wheels
all-wheel drive tractor (3.1.3) with equal sized wheels and having power to both axles

3.1.3.3
all-wheel drive tractor with more than 2 axles
all-wheel drive tractor (3.1.3) with more than two axles having power to all axles

3.1.4
standard track-laying tractor
agricultural tractor (3.1) with the primary interface for traction using even multiples of belted or linked drive tracks

Note 1 to entry: Belted units in this definition may have a positive, friction, or combination positive-friction drive. Belts that fit over regular tractor tyres are not included in this definition.

3.1.5
articulated tractor
agricultural tractor (3.1) that is steered by means of a centre pivot articulation system

3.1.6
small tractor
agricultural tractor (3.1) having an unladen mass, in running order, of less than 400 kg

3.1.7
compact utility tractor
agricultural tractor (3.1) equipped with a 540-rpm rear PTO and a three-point hitch designed for Category I implements only

Note 1 to entry: These tractors generally have a mass less than 1 800 kg; have less than 30 PTO kW, and are primarily designed and advertised for use with mowers and light-duty material handling equipment. The rear PTO and hitch categories are defined by ISO 500-1 and ISO 730, respectively.

3.1.8
extra wide tractor
agricultural tractor (3.1) characterised by their large dimensions, primarily intended for working large areas of farmland

3.1.9
high speed tractor
standard agricultural tractor (3.1.1) having a maximum design ground speed greater than 40 km/h

3.1.10
specialized tractor
agricultural tractor (3.1) designed to operate in special field conditions (e.g. in vineyards, orchards, speciality row crops), and that requires unique design configurations (e.g. low clearance, high clearance, narrow profile) for functional operation

3.1.10.1
boat tractor
agricultural tractor (3.1) supported by a boat body and propelled by the wheels of the tractor

3.1.10.2
high clearance tractor
agricultural tractor (3.1) having clearance under the front and rear axles greater than the *standard agricultural tractor* (3.1.1)

Note 1 to entry: High-clearance tractors are typically designed for operation in vegetables, cotton, rice, tobacco or other speciality row crops requiring high clearance to avoid crop damage and are characterized by the addition of extended length axle spindles for front axles with rear axle modifications that provide an axle output significantly below the centreline of the rear axle trumpets. They are normally equipped with large diameter, narrow width tyres to minimize crop damage.

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3.1.10.2.1
mudder tractor
specialized *high-clearance tractor* (3.1.10.2), designed for adverse field conditions, and usually equipped with front wheel drive assist

3.1.10.3
low clearance tractor
agricultural tractor (3.1) having clearance under the front and rear axles less than the *standard agricultural tractor* (3.1.1) and typically having low profile body work and foldable ROPS

Note 1 to entry: Low clearance tractor are typically designed for operation in orchards or low clearance buildings.

Note 2 to entry: These tractors are characterized by having a technically permissible mass no greater than 10 t, and for which the ratio of this mass to the maximum unladen mass in running order is less than 2,5. These tractors are equipped with one or more power take-offs and may have a supporting frame.

3.1.10.4
low profile tractor
agricultural tractor (3.1) optimized for low clearance operation for use in orchards and low headroom applications, usually configured such that the highest point of the hood does not exceed 1 525 mm

3.1.10.5
mountain tractor
all-wheel drive tractor (3.1.3) whose interchangeable equipment is intended for agricultural or forestry use and which is characterized by a supporting frame, one or more power take-offs, a technically permissible mass not greater than 10 t at a ratio to the maximum unladen mass in running order of less than 2,5, and which has a centre of gravity less than 850 mm

Note 1 to entry: The height of the centre of gravity is in accordance with ISO 789-6 and is measured relative to the ground using the tyres that are normally fitted.

3.1.10.6
narrow tractor
agricultural tractor (3.1) having a fixed or adjustable track width less than 1 150 mm; an unladen mass, in running order, of 400 kg or more; and a ground clearance of 600 mm or less

Note 1 to entry: It is assumed that the axle mounted with the wider tyres is set at a track width of not more than 1 150 mm. It shall be possible to set the track width of the other axle in such a way that the outer edges of the narrower tyres do not protrude beyond the outer edges of the tyres of the other axle. Where the two axles are fitted with tyres and rims of the same size, the fixed or adjustable track width of the two axles shall be less than 1 150 mm.

3.1.10.6.1
vineyard tractor
narrow tractor (3.1.10.6) with a fixed or adjustable track width not more than 950 mm

3.1.10.6.2
orchard tractor
narrow tractor (3.1.10.6) with a fixed or adjustable track width not less than 950 mm and not more than 1 150 mm

3.1.10.7
scraper tractor
standard agricultural tractor (3.1.1) adapted primarily to pull one or more towed scrapers

Note 1 to entry: Towed scraper is defined in ISO 6165:2012, 4.7.1.

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3.1.10.8
utility transport tractor
agricultural tractor (3.1) that combines the primary functions with the capability to transport materials in conditions requiring greater maneuverability of equipment.

Note 1 to entry: For transport functions, in addition to offering the feature of a drawbar or three-point hitch, this tractor can utilize load-carrying devices to transmit portions of a towed load onto the tractor chassis. This provides for closer coupling of the tractor and trailed implement for improved maneuverability. Configurations may include mounted boxes or tanks for transport of materials.

3.1.10.8.1
utility transport tractor (Type 1)
utility transport tractor (3.1.10.8) with the provision for only the operator

3.1.10.8.2
utility transport tractor (Type 2)
utility transport tractor (3.1.10.8) with the provision for an operator and additional personnel

3.2
self-propelled machine
self-propelled machinery
agricultural vehicle (2.3) having at least two axles and wheels, or endless tracks, primarily designed for use in agriculture and which, according to its design and the permanently mounted devices provides its own means of tractive movement and is suitable and intended to perform work

Note 1 to entry: Additionally, there may be transport facilities which are suitable and intended to carry instruments and auxiliaries required for the performance of work as well as materials resulting from and necessary for the work for intermediate storage.

Note 2 to entry: *Agricultural tractors* (3.1) are not considered as being self-propelled machines for the purpose of this International Standard.

3.2.1
self-propelled beet harvester
self-propelled machine (3.2) that digs and conveys sugar beets to an attached bin or into an accompanying truck or wagon

3.2.2
self-propelled combine
self-propelled machine (3.2) for harvesting a wide variety of grain and seed crops

3.2.3
self-propelled cotton harvester
self-propelled machine (3.2) for selection and collecting cotton from open bolls on cotton stalks consisting of picking heads equipped with revolving spindles or other picking means, a conveying means, and a bin for carrying the picked cotton

3.2.4
self-propelled forage harvester
self-propelled machine (3.2) that gather and chop forage crops

Note 1 to entry: The machine usually has a discharge that loads the chopped material into an accompanying wagon or truck.

3.2.5
self-propelled forage baler
self-propelled machine (3.2) that picks up and compress loose forage into compact secured bales.

Note 1 to entry: Bales are discharged to ground surface or to an accompanying conveyance.

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3.2.6
self-propelled sprayer
self-propelled machine (3.2) that carries a supply tank, pump and spray heads for spraying crops

3.2.6.1
self-propelled high clearance sprayer
self-propelled sprayer (3.2.6) having the crop clearance of the machine greater than 1 220 mm

3.2.7
self-propelled windrower or mower conditioner
self-propelled machine (3.2) that cuts and gathers standing forage, grain crops, or seed crops into windrows for drying and pickup. In forage operations, the machine normally includes a crop conditioning attachment

3.2.8
self-propelled telehandler
self-propelled machine (3.2) designed and advertised for both the mobility and handling of agricultural materials.

Note 1 to entry: These machines are equipped with telescopic boom lifts for material placement. A drawbar may also be provided for light towing applications.

3.2.9
self-propelled bale accumulator
self-propelled machine (3.2) that pick up, accumulate, stack and deposit bales of forage that have been deposited on the ground

3.3
mounted implement
device or machine that performs a specific operation and which is normally attached to a tractor or a self-propelled machine and fully carried by the tractor or *self-propelled machine* (3.2)

Note 1 to entry: Implements can be mounted on the front, the rear, the load platform (if any) and/or between the axles of the *agricultural tractor* (3.1) or *self-propelled machine* (3.2).

3.3.1
rear mounted implement
mounted implement (3.3) attached on the rear and fully carried during transport

3.3.2
front mounted implement
mounted implement (3.3) attached on the front and fully carried during transport

3.3.3
mid-mounted implement
mounted implement (3.3) attached between the axles and fully carried during transport

3.3.4
platform mounted implement
mounted implement (3.3) attached on a load platform and fully carried during transport

3.4
semi-mounted implement
interchangeable towed machinery (2.4) with one axle or axle group of land wheels and a drawbar towing device, which cannot move relative to the *agricultural vehicle* (2.3) allowing the transmission of vertical forces from the towed agricultural vehicle through the drawbar to the towing agricultural vehicle

Note 1 to entry: Some slight vertical movement may occur at a rigid drawbar, e.g. due to suspension movements. A hydraulically adjustable articulated drawbar is considered to be a rigid drawbar.

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3.5
balanced towed implement
interchangeable towed machinery (2.4) which is designed to be towed by an *agricultural vehicle* (2.3) that changes or adds to its functions but does not transmit any vertical force(s) through the hitch to the towing agricultural vehicle

3.6
trailer
trailed *agricultural vehicle* (2.3) fitted with wheels or endless tracks, intended mainly to carry loads and designed to be towed by an *agricultural tractor* (3.1) or *self-propelled machine* (3.2)

Note 1 to entry: Any *agricultural vehicle* (2.3) coupled to an *agricultural tractor* (3.1) and permanently incorporating an implement shall be assimilated to an agricultural or forestry trailer if the ratio of the gross mass to the unladen mass of that agricultural vehicle is equal to or greater than 3,0, and the agricultural vehicle has not been designed to process materials (e.g. bulk carriers).

3.6.1
balanced load carrying trailer
trailer (3.6) with at least two land wheel axles at least one of which is steerable, and a drawbar towing device that allows vertical movement so that vertical forces cannot be transferred to the towing *agricultural tractor* (3.1) or the *self-propelled machine* (3.2)

3.6.2
semi-mounted load carrying trailer
trailer (3.6) with one axle or axle group of land wheels and a drawbar towing device, which cannot move relative to the *agricultural vehicle* (2.3) or the *self-propelled machine* (3.2) allowing the transmission of vertical forces from the trailer through the drawbar to the towing *agricultural tractor* (3.1) or the *self-propelled machine* (3.2)

Note 1 to entry: Some slight vertical movement may occur at a rigid drawbar (e.g. due to suspension movements). A hydraulically adjustable articulated drawbar is considered to be a rigid drawbar.

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