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Machinery for forestry — Forwarders — Terms, definitions and commercial specifications

Matériel forestier — Débardeuses — Termes, définitions et spécifications commerciales

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Machinery for forestry — Forwarders — Terms, definitions and commercial specifications

1 Scope

This International Standard specifies terminology and required information as a general framework for identifying and describing the main dimensions and features of wheeled forwarders.

It is applicable to articulated wheeled forwarders as defined in ISO 6814.

2 Normative references

The following referenced documents are indispensable for the application 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 6814:2009, Machinery for forestry — Mobile and self-propelled machinery — Terms, definitions and classification

3 Terms and definitions

3.1 General

For the purposes of this document, the following terms and definitions in Figures 1 to 6 apply. The figures are for illustrative purposes only and are not intended to depict specific machines.

All dimensions are with the axles parallel, and articulation joint angle 0°, unless otherwise specified.

3.2 Basic definitions

3.2.1

front/rear

defined for the primary direction of the travel; primary driving direction is front and load space is in the rear of the machine.

3.2.2

right (left) hand side

operator's right hand side or left hand side, respectively, facing in the normal direction of travel and with the machine in its primary functional mode.

3.2.3

ground reference plane

GRP

hard, flat, horizontal surface on which the machine is placed for measurements.

3.3 Masses

NOTE Adapted from ISO 6016.

NOTE Masses are expressed in kilograms.

3.3.1

operating mass

OM

mass of the base machine with equipment and empty attachment as specified by the manufacturer, and with the operator (75 kg), full fuel tank and all fluid systems at the levels specified by the manufacturer.

3.3.2

rated paymass (payload)

PM

manufacturer's rated mass that can be carried by the machine

3.3.3

gross machinery mass

GMM

combined mass of the operating mass (OM) of the machine and the rated paymass (PM).

3.3.4

axle distribution of masses of wheeled machines

load on each axle at operating mass (See 3.3.1.)

3.3.4.1

axle load

load on each axle at operating mass.

3.3.4.2

maximum permissible axle load

maximum load on each axle specified by the manufacturer.

3.3.5

shipping mass

SM

mass of the base machine without an operator, and with fuel level at 10 % of tank capacity, all fluid systems at their levels specified by the manufacturer and with or without equipment, attachment, cab, canopy, ROPS and/or FOPS, wheels and counterweights as stated by the manufacturer.

NOTE If the machine has to be disassembled for shipping purposes, the masses of these dismantled components shall be stated by the manufacturer.

3.3.6

cab, canopy, ROPS and/or FOPS mass

mass of a cab, canopy, ROPS or FOPS with all their components, and the mountings required to secure these to the base machine.

3.4 Main machine dimensions

3.4.1

total frame length

l_1

horizontal distance between the vertical planes perpendicular to the longitudinal axis passing through the farthest points on the front and rear frame of the machine, blade and loader excluded.

3.4.2

overall length

l_2

horizontal distance from a vertical plane touching the forward-most point of the machine, blade positioned to give maximum forward reach (if so equipped), to a vertical plane touching the rearmost point of the machine, loader excluded.

3.4.3 wheelbase

l_3

horizontal distance from the centre of the front axle or front bogie axle assembly to the center of the rear axle or rear bogie axle assembly when both axles are perpendicular to the longitudinal axis.

3.4.4 articulation joint to maximum blade arc

l_4

horizontal distance from the centreline of the articulation joint to a vertical line tangent to the arc of the blade's lower edge as it passes from its maximum height h_4 to the lowest blade position h_5 .

3.4.5 articulation joint to front of machine

l_5

horizontal distance from the centreline of the articulation joint to a vertical plane touching the farthest point forward, blade excluded.

3.4.6 articulation joint to front axle

l_6

horizontal distance from the centreline of the articulation joint to the centre of the front axle or front bogie axle assembly.

3.4.7 overall height

h_1

horizontal distance from the centreline of the articulation joint to the centre of the front axle or front bogie axle assembly.

3.4.8 operator cab overall height

h_2

height of the operator cab frame with rigid attachments.

3.4.9 blade height

h_3

vertical distance from the lower edge, resting on the GRP, to the top of the blade, decking lugs excluded.

3.4.10 blade width

w_3

the horizontal distance between the outer edges of the blade.

3.4.11 maximum blade lift lower edge

h_4

maximum vertical height to which the lower edge of the blade can be raised from the GRP.

3.4.12

lowest blade position

h_5

vertical distance from the GRP to the blade's lower edge with blade at its lowest position.

3.4.13

ground clearance

h_6

vertical distance from the GRP to the machine centre portion, i.e. 25 % of the track width either side of the longitudinal centreline.

3.4.14

ground clearance at articulation joint

h_7

vertical distance from the GRP to the lowest point at the articulation joint.

3.4.15

loaded tire radius

r_1

vertical distance from the GRP to the horizontal centre of the axle with the machine at normal operating mass.

3.4.16

articulation joint to the axis of loader rotation

l_7

horizontal distance from the centreline of the articulation joint to the centreline of the vertical axis of loader rotation along the longitudinal axis of the machine.

3.4.17

distance of load bunk headboard (load bunk front guard) to rear axle

l_8

horizontal distance from the load side of the headboard to the centre of rear axle or to rear bogie axle assembly.

3.4.18

distance of load bunk headboard (load bunk front guard) to rearmost bunk

l_9

horizontal distance from the load side of the headboard to the rear of the rearmost position of adjustable bunk.

3.4.19

overall width

w_1

horizontal distance between two vertical planes parallel to the longitudinal axis of the machine and passing through the farthest points on the two sides of this axis.

3.4.20

trackwidth

w_2

horizontal distance between two parallel vertical planes passing through the centreline of the tires on an axle.

NOTE If the front and rear are different, both must be specified.

3.4.21

frame oscillation angle

a_1

angle that one frame will rotate from a horizontal datum, in both directions, without rotating the other frame, measured in degrees.

3.4.22

axle oscillation angle

a_2

angle that one axle will rotate from a horizontal datum, in both directions, without rotating either frame, measured in degrees

3.4.23

clearance circle

d_1

diameter of the smallest circle that the outermost point on the machine will describe when turning (brakes unapplied, blade in uppermost position, unloaded).

3.4.24

angle of articulation

a_3

maximum angle of frame steering movement from the straight ahead position measured in degrees between longitudinal centrelines of the front and rear frames. Quantify both left and right if unequal.

3.5 Loader dimensions

3.5.1

loader tilt

aa_1

maximum angle between the axis of loader rotation and vertical line, on loaders with a tilting base. Specify direction if unequal.

3.5.2

loader rotation

aa_2

maximum loader horizontal rotation from the longitudinal centreline of the machine, measured in degrees. Specify if continuous rotation, quantify both right and left if unequal.

3.5.3

maximum loader reach

ll_1

maximum horizontal distance from the loader axis of rotation to the centreline of the grapple yoke.

3.5.4

maximum loader reach at ground level

ll_2

maximum horizontal distance from the loader axis of rotation to the grapple yoke with the open grapple resting on the GRP, measured when loader oriented 90 degrees sideways from the machine axis.

3.5.5

maximum loader lift height

hh_1

maximum vertical lift height from the GRP to the bottom of the grapple in tip-to-tip condition at a specified horizontal radius from the axis of rotation.

3.5.6

loading height of loader at maximum reach

hh_2

vertical distance from the GRP to the bottom of the grapple in tip-to-tip condition with the loader at the maximum horizontal reach (EE).

3.5.7

maximum depth of loader

hh_3

maximum depth below the GRP to the bottom of the grapple in tip-to-tip condition at a specified horizontal radius from the loader axis of rotation.

3.5.8

grapple height closed

hh_4

vertical distance between the centreline of the boom pivot of the grapple yoke and the bottom of the grapple in tip-to-tip condition.

3.5.9

grapple height open

hh_5

vertical distance between the centreline of the boom pivot of the grapple yoke and the tips of the fully open grapple.

3.5.10

area of grapple opening

A

cross-sectional area of the grapple opening in the tip-to-tip position.

3.5.11

height of main boom pivot

hh_6

vertical distance between the GRP and the horizontal axis of the main boom pivot.

3.6 Bogie and load space dimensions

3.6.1

bogie axle assembly centreline distance

ll_3

horizontal distance from the centreline of the bogie axle to the centreline of the front or rear tire of the bogie axle assembly.

3.6.2

bogie axle assembly wheelbase

ll_4

Horizontal distance between the centrelines of the front and rear tire of the bogie axle assembly.

3.6.3

bogie axle assembly wheelbase

aa_3

angle that the bogie axle assembly can rotate from a horizontal datum.

3.6.4

cross-sectional area of load space

AA

effective area of the load space in a vertical plane perpendicular to the longitudinal axis of the machine with the height of the load defined by the height of the stakes or the headboard whichever is lower.

3.6.5

width across stakes

WW_1

horizontal distance between the load side of the stakes.

3.6.6

stake height

hh_7

vertical distance from the GRP to the top of the stakes

3.6.7

height of load centre

hh_8

vertical distance from the GRP to the centroid of the effective area of the load space.

4 Required information

In addition to the identification of relevant dimensions and features as defined in clause 3, the following information shall be supplied where appropriate:

- tyre size
- ply rating
- inflation pressure
- possible hydro-inflation
- maximum and minimum for adjustable dimensions, e.g. stage height (3.6.6)
- unequal front/rear of left/right for asymmetrical dimensions, e.g. track width (3.4.20), angle of articulation (3.3.24), loader tilt (3.5.1), loader rotation (3.5.2);
- continuous or in steps, e.g. loader rotation (3.5.2)