International Standard 5715

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Equipment for harvesting — Dimensional compatibility of forage harvesting machinery

Matériel de récolte — Compatibilité dimensionnelle des récolteuses de fourrage

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Foreword

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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.

International Standard ISO 5715 was developed by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, and was circulated to the member bodies in October 1981.

It has been approved by the member bodies of the following countries :

Australia	France	Romania
Austria	Germany, F. R.	South Africa, Rep. of
Brazil	India	Spain
Bulgaria	Iraq	Sweden
Canada	Italy	Switzerland
China	Korea, Dem. P. Rep. of	Turkey
Czechoslovakia	Mexico	United Kingdom
Denmark	New Zealand	USA
Egypt, Arab Rep. of	Poland	USSR
Finland	Portugal	

The member body of the following country expressed disapproval of the document on technical grounds :

Belgium

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Equipment for harvesting — Dimensional compatibility of forage harvesting machinery

0 Introduction

This International Standard is intended to assist manufacturers of forage trailers, forage harvesters, dump boxes and forage conveyors to make the operation of any one compatible with the others. The satisfactory performance of any of these machines is dependent upon dimensional compatibility.

Dimensions specified in this International Standard pertain to forage harvesters, forage trailers, dump boxes and forage conveyors when used in the following normal sequence :

a) A forage trailer is attached to the rear of a forage harvester or drawn independently beside it. Harvested material is delivered by the forage harvester into the forage trailer.

b) The forage trailer is then removed from the forage harvester and attached to a tractor to transport the harvested material from the field to a storage area.

c) If not independently drawn, the forage trailer is then moved by a tractor beside a dump box or a forage blower. Harvested material is then transferred from the trailer either into the dump box and then to the forage blower, or directly into the forage blower and thereafter into an adjacent silo or store. The forage trailer may also be unloaded directly into a feed trough.

1 Scope and field of application

This International Standard specifies the requirements for dimensional compatibility of forage harvesting machines and transport vehicles necessary to ensure satisfactory operation.

NOTE — This International Standard makes no claim to cover simple types of flail forage harvesters that normally work in conjunction with agricultural trailers fitted with extension sides.

Simple flail forage harvesters are defined as :

a) mounted or semi-mounted units;

b) units without double chop capability;

c) units without secondary blowers or other conveying/blowing devices;

d) units requiring tractors of power less than or equal to 50 kW.

2 Definitions

2.1 forage crops : Legumes, grasses (including all cereals), and other crops, either fresh or wilted.

2.2 forage harvester : A machine for cutting and picking up, or picking up forage crops already cut, and capable of delivering the crop into a trailer, wagon or truck.

2.3 forage trailer : A trailer designed to be coupled behind a forage harvester or independently pulled to receive and unload the forage crop.

2.4 dump box : A stationary machine designed to accept forage crops from a forage trailer, wagon or truck, and capable of feeding them into a forage conveyor at variable rates.

2.5 forage conveyor : A machine designed to convey the forage crop into a store.

2.6 store : A structure designed to store forage crops.

3 Forage harvesters (see figure 1)

3.1 The minimum vertical load-carrying capacity of the rear drawbar of forage harvesters shall be 1 300 kg.

NOTES

1 This requirement is specifically designed to accommodate the single (rear) axle trailers commonly used in some European countries.

2 In cases where base forage harvesters have not been designed to be used with single axle trailers, and it is the manufacturer's intention to sell them in countries where such trailers are used, then the manufacturer's approved accessory should be made available to bring the forage harvesters into compliance with this requirement.

3.2 The horizontal distance (fore and aft) from the centre of the rear drawbar hitch point to the tip of the spout shall be 1 850 mm maximum, as shown in figure 1.

3.3 The vertical distance from the ground to the top of the blower spout (with cap level) shall be 3 050 ± 150 mm when the forage harvester is in the normal operating position as shown in figure 1. For delivery into lorries (trucks), an auxiliary spout height of 3 550 ± 150 mm shall be provided. When an extending type spout is fitted, its maximum extension shall be 4 000 ± 150 mm.

3.4 The tip of the spout shall be capable of being offset laterally no more than 750 mm from the central line of the rear drawbar as shown in figure 1.

4 Forage trailers (see figure 2)

4.1 The vertical distance from the ground to the top of the upper beater (if fitted) or to the top of the trailer sides in the path of the forage harvester spout, as shown in figure 2, shall not exceed 2 850 mm, except when it is within 2 000 mm of the hitch pin (in a horizontal plane), in which case it shall not exceed 2 750 mm.

This dimension is important for it concerns the ability of the spout of the forage harvester to clear the trailer when the combination forager and trailer is turning.

4.2 The vertical distance from the ground to the bottom surface of the cover or hood over the trailer shall be at least 3 350 mm. The maximum height of the trailer, including hood or cover, shall not exceed one and a half times the trailer width.

4.3 The minimum distance between the front edge of the cover or hood and the hitch pin shall be 2 000 mm.

4.4 For trailers designed for rear unloading, the minimum distance between the ground and the bottom of any bed frame member shall be 635 mm. This clearance shall exist for 150 mm from the rear of the trailer.

4.5 In the case of four-wheel trailers, it shall be possible to raise the trailer drawbar hitch point above a 20° inclined plane extending forward from the intersection between the front wheel and ground line as shown in figure 2. The full swing to the right and left shall be possible with the drawbar raised to this height.

4.6 The minimum distance from the ground to the bottom of any conveyor as shown in figure 2 shall be 650 mm. If the cross conveyor is the folding type, it shall be folded for this measurement.

Wheels shall be positioned at maximum track width to ensure maximum stability.

The maximum exterior width of the box of the forage trailer shall be 2 350 mm, as shown in figure 2.

4.7 The maximum inside width of any cross conveyor discharge shall be 610 mm, as shown in figure 3.

4.8 On four-wheel trailers, the trailer drawbar length between the hitch point and vertical pivot bolt that permits horizontal pivot shall be a minimum of 255 mm greater than the radius of an arc about the same pivot bolt that just clears the outermost point on the forage trailer, as shown in figure 3.

4.9 The trailer drawbar and driveshaft shall be of sufficient length to allow a tractor towing the forage trailer to turn right or left to the point where the portion of the driveshaft lying between the two universal joints has rotated 90° in a horizontal plane from the straight ahead position and, in this position, the telescoping elements of the drive shall have a minimum engaged length of 100 mm as shown in figure 3. This shall be on flat ground and with the power disengaged.

NOTE — The length of the drawbars and the length of the driveshaft are related. Also the difference between minimum and maximum telescoping length is related to the trailer drawbar length.

4.10 If the trailer box is made to mount on conventional running gear, the outside width of the support members that attach to the running gear shall be either $965\ ^{0}_{-10}$ mm or $1\ 070\ ^{0}_{-10}$ mm as shown in figure 2.

4.11 The minimum drive-through overlap of any cross conveyor over the blower hopper shall be 100 mm.

NOTE — This overlap is the distance from the outer end of the cross conveyor to the first obstruction on the wagon under cross conveyor as shown in figure 2.

5 Dump boxes (see figure 4)

5.1 The maximum height at the input end of the dump box floor shall be 230 mm.

5.2 The minimum clearance height at the output end of the dump box bed shall be 650 mm.

5.3 The minimum internal width of the dump box at the input end shall be 2 450 mm.

5.4 The width of the outlet from the dump box cross conveyor shall not exceed 610 mm.

5.5 The width of the dump box bed at the output end shall not exceed 2 500 mm.

6 Forage conveyors (see figures 5 and 6)

6.1 The maximum distance from the ground to the top of the feed conveyor sides shall be 585 mm as shown in figure 5.

6.2 The minimum drive-through conveyor length shall be 2 750 mm.

NOTE — This is the distance from the outside of the conveyor casing to the outermost end of the feed conveyor in the operating position, as shown in figure 5.

6.3 The hopper-fed type forage conveyor shall have a hopper of dimensions not less than 750 mm in both horizontal directions, as shown in figure 6.

Dimensions in millimetres

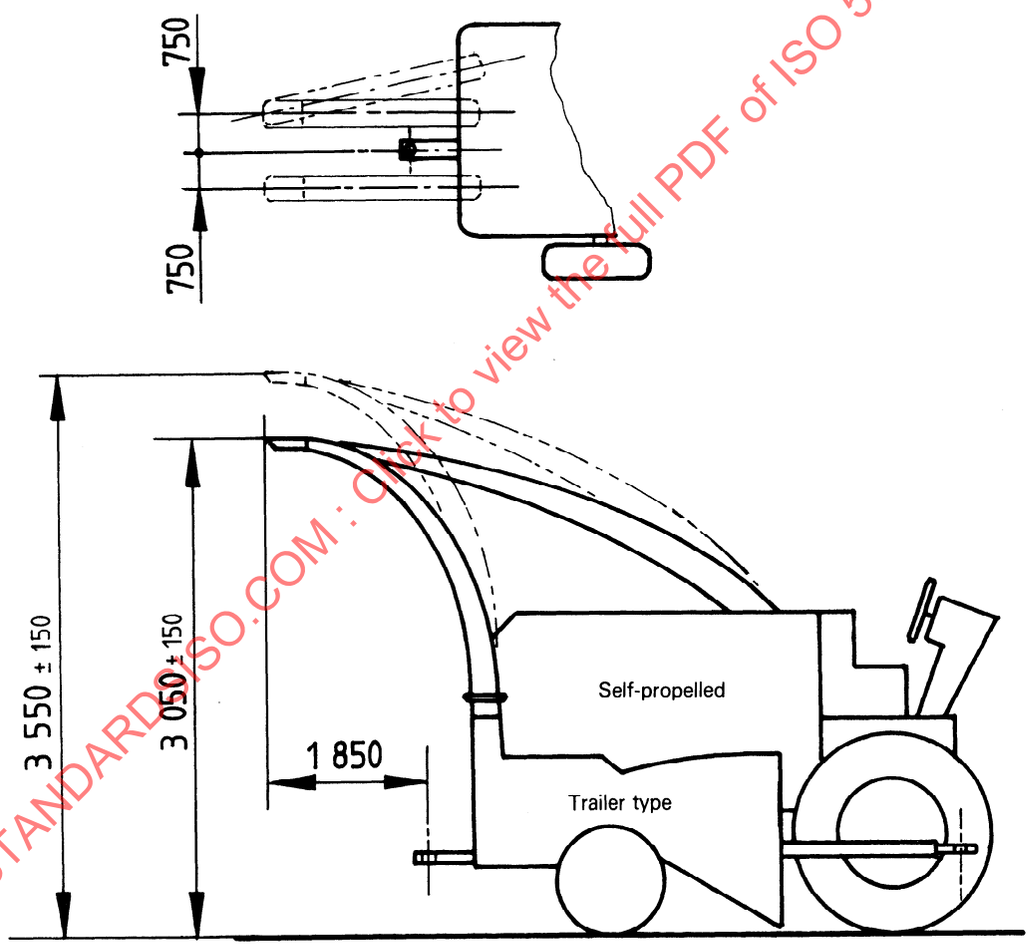

Figure 1 — Forage harvester[1] (see clause 3)

1) This illustration is for dimensional reference only and do not indicate design detail. It is not to scale.

Dimensions in millimetres

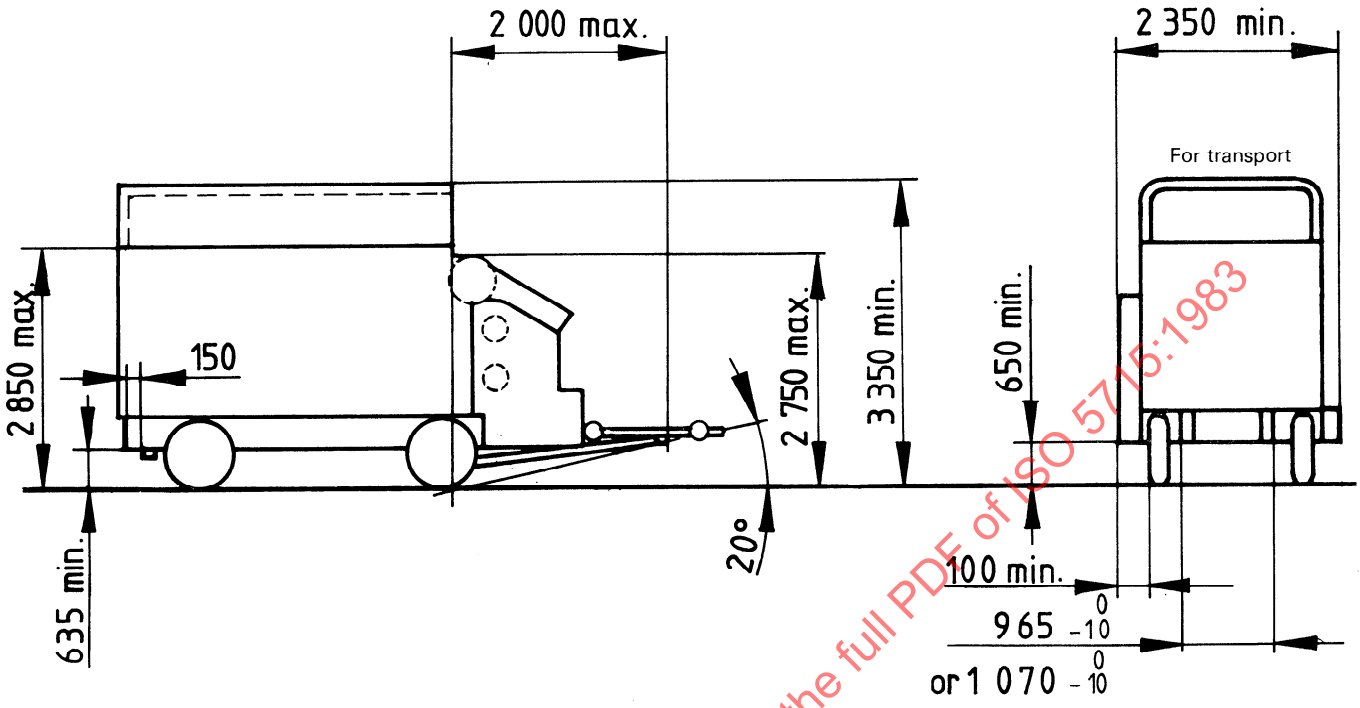

Figure 2 — Forage trailer (see clause 4)

NOTE — The forage trailer may be of two-wheel or four-wheel configuration and may be arranged to discharge by conveyor at front or rear, or by tipping.

Dimensions in millimetres

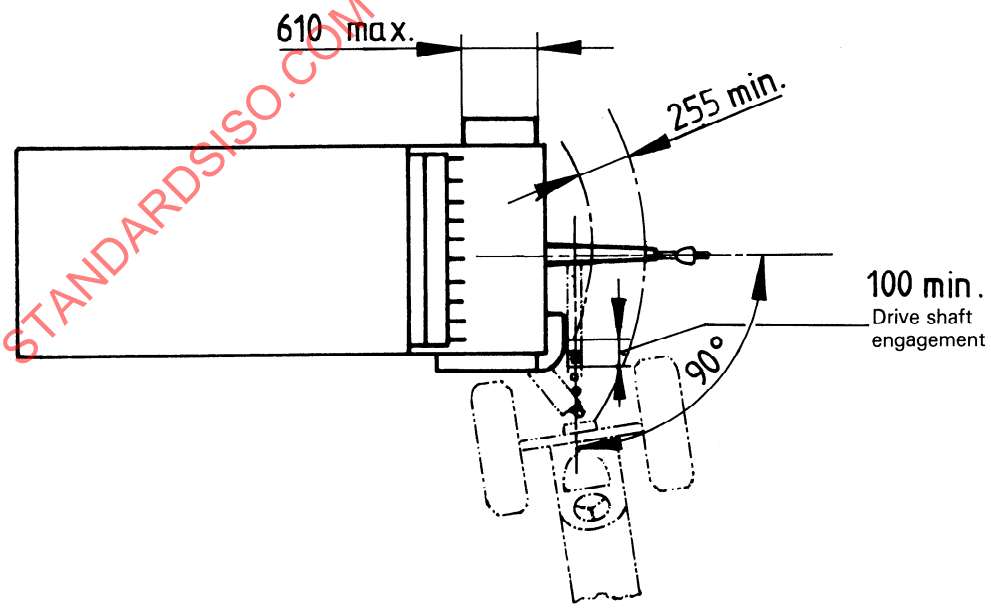

Figure 3 — Forage trailer and tractor[1] (see clause 4)

1) These illustrations are for dimensional reference only and do not indicate design detail. They are not to scale.