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Road construction and maintenance equipment — Bituminous binder sprayers and binder sprayers/chipping spreaders — Terminology and commercial specifications

Équipement pour la construction et l'entretien des routes — Répandeuses de liants bitumineux et répandeuses mixtes — Terminologie et spécifications commerciales

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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
Website: www.iso.org

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Foreword

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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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 195, Building construction machinery and equipment.

This second edition cancels and replaces the first edition (ISO 15643:2002) and Amendment A1:2012, which have been technically revised.

The main changes compared to the previous edition are as follows:

— Adjusted the use of the terms "spread" and "spray" throughout the document;

— Added figure 1c. — Trailed binder sprayer;

— added chipping spreaders;

— Corrected the references for most of the figures.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Road construction and maintenance equipment — Bituminous binder sprayers and binder sprayers/chipping spreaders — Terminology and commercial specifications

1 Scope

This International Standard establishes the terminology for bituminous binder sprayers and binder sprayers chipping spreaders. It provides the terminology for the machine and its components, also the definitions of operation principles and parameters.

This document covers cold and hot binder sprayers.

NOTE additional requirements can apply in some regions for the transportation of bituminous binders.

This International Standard also establishes the parameters required for the technical characteristics of the whole machine and its components, such as the transport vehicle bituminous binder spraying device and chipping spreading device, for commercial specifications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15644, *Road construction and maintenance equipment — Chippings spreaders — Terminology and commercial specifications*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions of ISO 15644 and the following apply.

3.1
bituminous binder sprayer
machine used to apply a film of binder on a pavement at a predetermined application rate

Note 1 to entry: The particular sprayer types may be defined by associating the operating principle, the shape of the components, the type of binder, and by specifying the spraying performances.

3.2
combined unit
binder sprayer chipping spreader
machine used to make synchronized application of binder and chipping on a pavement at a predetermined application rate for a complete road surface treatment

3.3
displacement pump sprayer
machine in which binder transfer from the storage tank to the spray bar is provided by a pump

Note 1 to entry: The pump's output is proportional to its rotating speed which may be controlled by the vehicle movement speed.

3.4
constant pressure sprayer
machine in which binder transfer from the storage tank to the spray bar is provided by pressurizing the binder

Note 1 to entry: The binder may be pressurized directly by compressed air above the binder, or by a pump and regulating valve maintaining a constant binder pressure in the spray bar feeder circuit.

3.5
heat-insulated sprayer
machine in which the tank is equipped with thermal insulation to avoid heat loss

3.6
directly heated sprayer
machine with heating provided by circulation of hot gases in a tube or by an electrical resistor in contact with the binder

Note 1 to entry: see Figure 4.

3.7
indirectly heated sprayer
machine with heating provided by circulation of a hot liquid supplied by a generator outside or inside the sprayer

Note 1 to entry: see Figure 4.

3.8
hot binder sprayer
machine which enables application of binder at a temperature greater than 100°C

3.9
cold binder sprayer
machine which sprays binders at a temperature lower than 100°C

3.10
high-viscosity-binder sprayer
machine which enables application of a binder with a viscosity greater than 300 cSt at the application temperature

3.11
tank volume
internal volume of the tank

Note 1 to entry: It is expressed in cubic metres.

3.12
rated capacity
volume of binder which can be carried

Note 1 to entry: It is expressed in cubic metres, taking into account that the nominal loading of the tank depends on the density of bituminous binder.

3.13
spray bar width
distance between end flow points

Note 1 to entry: It is expressed in metres.

3.14
maximum output of pumping unit
largest capacity for a binder with a viscosity of 100 cSt

Note 1 to entry: It is expressed in cubic metres per hour.

3.15
nominal application rate
application rate at maximum output of a pumping unit moving at a speed of 4 km/h with a binder of a density of 1 g/cm^3 and a viscosity of 100 cSt and with maximum spray bar width

Note 1 to entry: It is expressed in kilograms per square metre.

3.16
binder carrying capacity
difference between the laden and kerb mass of a sprayer or combined unit

3.17
spraying height
height measured between the average plane of the pavement and the orifice of the nozzles

Note 1 to entry: It is expressed in millimetres.

Note 2 to entry: See *h*2 in Figure 8.

4 Description of sprayer components

4.1 Transport vehicle

This vehicle, in the form of a truck, trailer or semi-trailer, carries all the components and provides movement of the sprayer during spraying and during road transfers.

4.2 Tank

The tank is used to store the binder during work and transport.

It may have a facility to heat the binder and may have a system to protect against loss of heat, i.e. heat insulated sprayer.

4.3 Binder transfer device

This device provides transfer of the binder from the tank to the spray bar in order to apply a specific quantity to the pavement.

4.4 Spray bar

The spray bar distributes the binder uniformly across the pavement.

4.5 Control station

The control station contains all the control, adjustment, measuring and automatic control equipment. There are two types, as follows.

a) Manual control: the operator adjusts all the operating parameters to obtain the required application rate.

b) Automatic control: using predetermined operating parameters, automation ensures accuracy of the application rate.

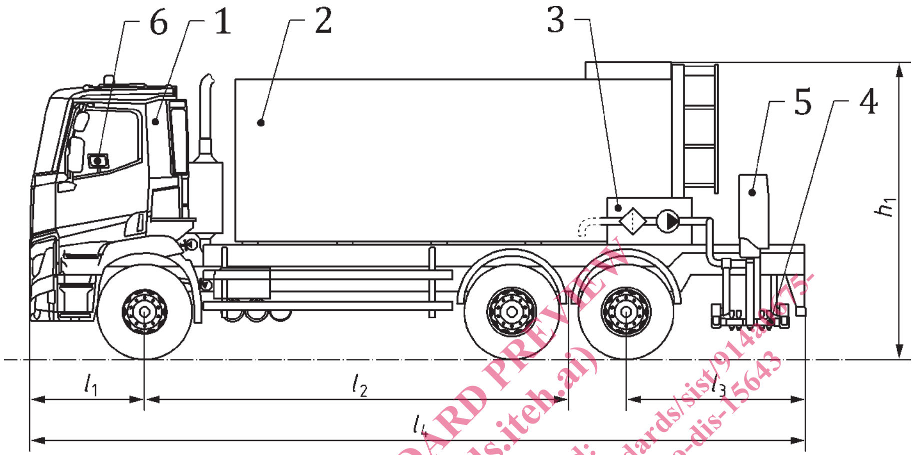
5 Commercial specifications of binder sprayers and spraying part of combined unit

The components of and dimensions of a binder sprayer and spraying part of a combined unit shall be specified according to Clause 4 and 5.

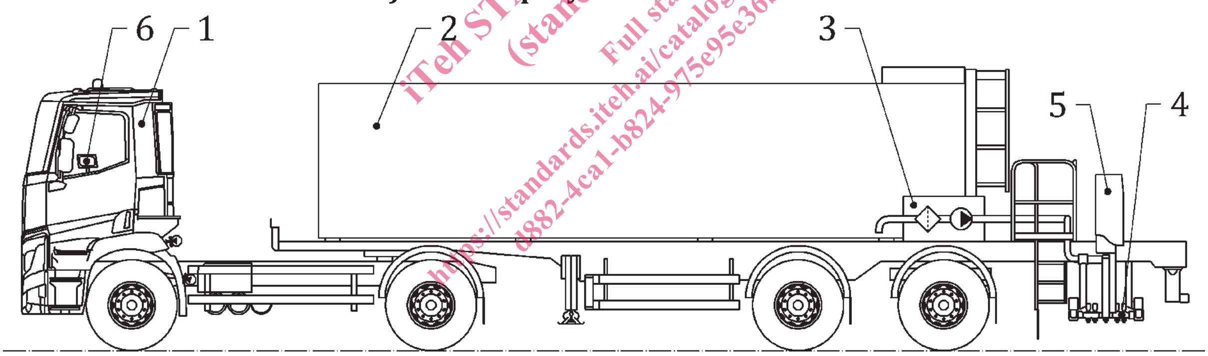
The spreading part of combined unit shall be specified according to Clause 6.

5.1 Binder sprayer components list

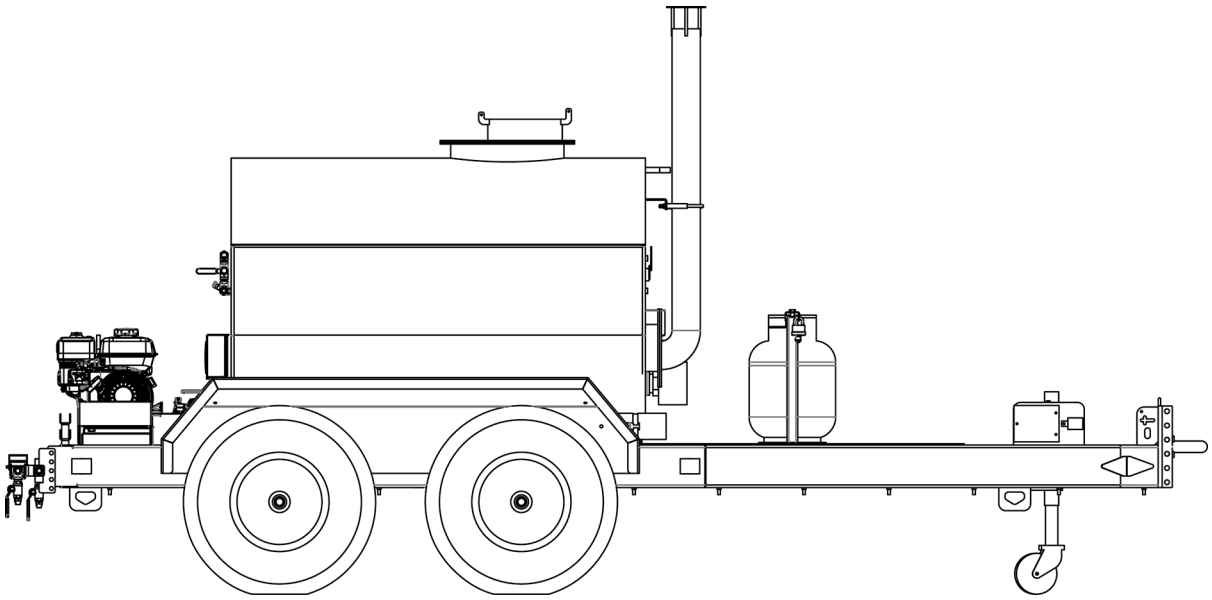
Examples of sprayer component lists are shown in Figures 1a, 1b, 1c, 2a and 2b.



a) Binder sprayer on 3 axles truck



b) Binder sprayer on semi-trailer

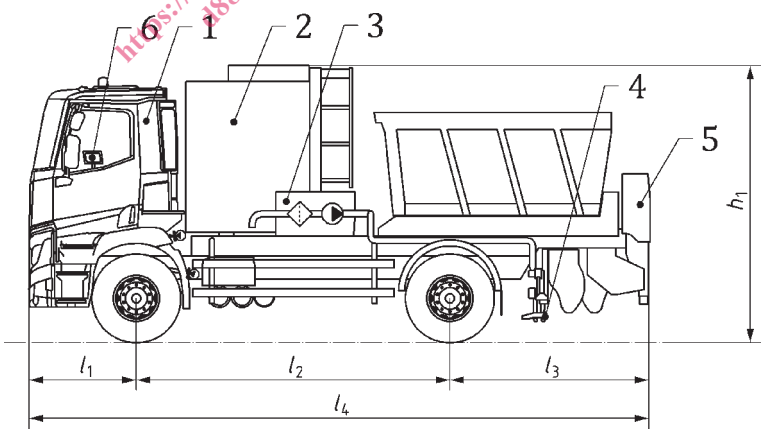


c) Trailed binder sprayer

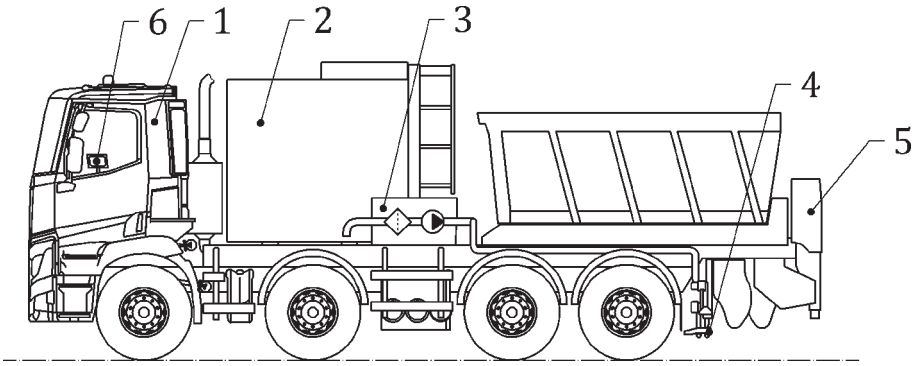
Key

1	Vehicle	4	Spray bar
2	Tank	5	Measuring instruments placed in driver's cab or on the rear part of the vehicle platform
3	Binder transfer unit	6	Measuring instruments placed in driver's cab or on the rear part of the vehicle platform
l_1	front overhang	l_2	wheel base
l_3	rear overhang	l_4	length
h_1	height		

Figure 1 — Binder sprayer



a) Combined unit on two axles truck



b) Combined unit on 4 axles truck

Key

1	Vehicle	4	Spray bar
2	Tank	5	Measuring instruments placed in driver's cab or on the rear part of the vehicle platform
3	Binder transfer unit	6	Measuring instruments placed in driver's cab or on the rear part of the vehicle platform
l_1	front overhang	l_2	wheel base
l_3	rear overhang	l_4	length
h_1	height		

Figure 2 — Combined unit

5.2 Vehicle characteristics

The following characteristics shall be specified:

— laden mass kg;

— kerb mass kg;

— binder carrying capacity kg;

— minimum spreading speed km/h;

— overall dimensions:

— length, *l*4 mm;

— width mm;

— height, h_1 mm;

— front overhang, l_1 mm;

— wheel base, l_2 mm;

— rear overhang, l_3 mm;

— external turning radius m;

— internal turning radius m;

— maximum axle load daN;

— engine rating power kW;