
Oprema za vzdrževalna dela zimske službe in službe za vzdrževanje cest - Oprema za namestitve na sprednji del vozila - 2. del: Zamenljivost dviznih sistemov

Winter and road service area maintenance equipment - Mechanical interface on vehicles for front-mounted equipment - Part 2: Interchangeability on lifting systems

Winterdienst- und Straßenbetriebsdienstausstattung - Mechanische Schnittstelle an Fahrzeugen für frontangebaute Maschinen Teil 2: Austauschbarkeit an Hubsystemen

Matériels de viabilité hivernale et d'entretien des dépendances routières - Interface sur les véhicules pour matériels montés à l'avant - Partie 2: Interchangeabilité des systèmes de levage

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Ta slovenski standard je istoveten z: EN 15432-2:2013

ICS:

43.160 Vozila za posebne namene Special purpose vehicles

SIST EN 15432-2:2013

en,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15432-2

April 2013

ICS 43.160

English Version

Winter and road service area maintenance equipments - Front-mounted equipments - Part 2: Interchangeability on lifting systems

Matériels de viabilité hivernale et d'entretien des dépendances routières - Interface sur les véhicules pour matériels montés à l'avant - Partie 2: Interchangeabilité des systèmes de levage

Winterdienst- und Straßenbetriebsdienstausstattung - Frontangebaute Maschinen - Teil 2: Austauschbarkeit an Hubsystemen

This European Standard was approved by CEN on 14 March 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 15432-2:2013) has been prepared by Technical Committee CEN/TC 337 “Winter and road service area maintenance equipment”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document “*Winter and road service area maintenance equipments - Front-mounted equipments*” consists of the following parts:

- *Part 1: Fixed front-mounting plates*
- *Part 2: Interchangeability on lifting systems*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 15432-2:2013 (E)

1 Scope

This European Standard specifies the requirements for elements mounted to carrying vehicles to ensure interchangeability between a vehicle and different equipments that are to be mounted frontally. It specifies certain interchangeability dimensions of the front mounting plate as well as the locations of coupling devices for electrical and hydraulic connections.

This European Standard specifies a mounting plate in order to cover road vehicles having a maximum total mass of up to 6,0 tons (commercial vehicles, multi-purpose vehicles, communal vehicles, ...) which are capable of carrying front-mounted equipments for winter maintenance and for road service area maintenance. The mounting plate is designed to allow quick and easy changing of carrying vehicle equipments. Mounting or demounting of front-mounted equipments is generally effectuated by one person using conventional tools (mobile or fixed) prior to securing of the front-mounted equipment (by e.g. bolts or hydraulic element).

This European Standard does not specify vehicle-side lifting systems or receiving devices for mounting plate (device side).

The vehicle body guidelines from the vehicle manufacturer should be adhered to when performing any modifications to the vehicle.

This European Standard specifies, with regard to electrical and hydraulic connections, only location areas and clearance spaces in order to ensure interchangeability.

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.

EN 15431, *Winter and road service area maintenance equipments — Power system and related controls — Interchangeability and performance requirements*

3 Interchangeability requirements — F4 front mounting plate

3.1 General provisions

Mounting plates as defined in 3.2 shall be designed and installed to the carrying vehicle so as to allow for the easy and safe tilting of the cabin (if the vehicle has been designed to provide for this facility).

Mounting plates as defined in 3.2 shall be designed and installed to the carrying vehicle so as to allow for the mounting of a front towing hitch (if the vehicle has been designed to provide for a towing facility). Compliance to this requirement may be achieved in different ways, e.g. by a pivoting or folding mounting plate or by a hitch integrated in the mounting plate itself.

3.2 F4 mounting plate class

Table 1 gives indication on installation heights and on recommended range of the maximum design total mass (ISO-M07, item 4.7 of ISO 1176:1990).

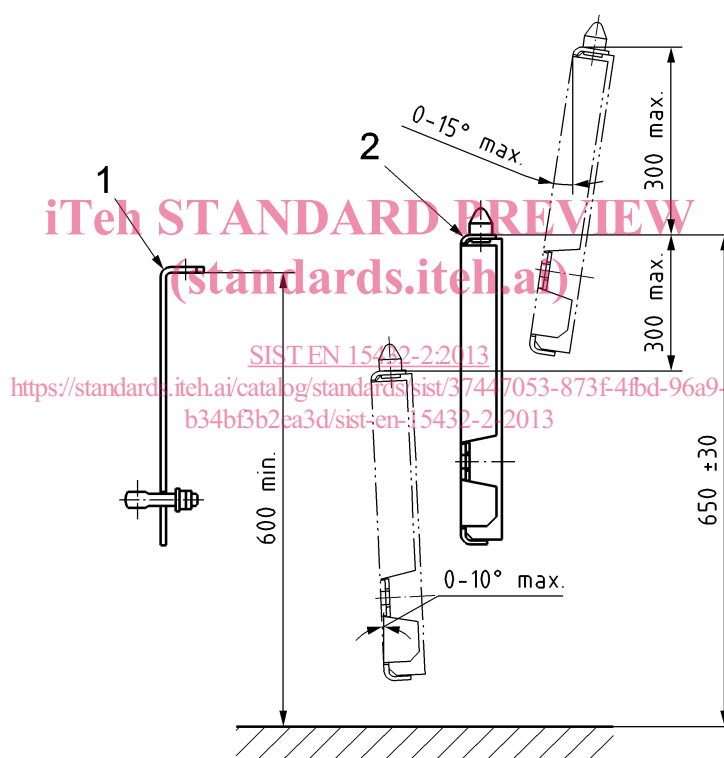
Installation height is measured with the carrying vehicle being at kerb mass (ISO-M06, item 4.6 of ISO 1176:1990) from the ground to the upper edge of the mounting plate (without pin), as shown in Figure 1.

Table 1 — Installation heights of F4 mounting plate class

Mounting plate class	Height upper edge mm		Recommended range of carrying vehicle maximum total mass t
F4	Lifted	$650 (\pm 30) + 250 (\pm 50)$	0 up to 6,0 t
	Work position ^a	$650 (\pm 30)$	
	Lowered	$650 (\pm 30) - 250 (\pm 50)$	

NOTE Work position means the position of the equipment in which the front mounting plate is located in vertical position to ground.

To mount the implement to the vehicle the inclination angles of the plate shall adhere, as shown in Figure 1.



Key

- 1 implement plate
- 2 vehicle plate

Figure 1 — Vehicle and implement plate

3.3 Strength requirements for the front mounting plate class F4

Mounting plates of the F4 class shall be designed so as to withstand to the maximum loads and moments that are given in Table 2. The values given in Table 2 refer to the maximum static loads and moments applied by the greatest variety of equipments (e.g. snow plough, grass cutting machine) that may be fixed on the mounting plate. Static loads and moments refer to load applying when equipments are being held in a raised position, transport and work position.

Table 2 — Maximum static loads of the front mounting plate class F4

Mounting plate class	Vertical load, F_z	Bending moment, M_y	Torsion moment, M_x
	kN	kNm	kNm
F4	7,5	3,0	1,0

Loads and moments given in Table 2 refer to the vehicle coordinate system as shown in Figure 2. Vertical load, F_z , is considered as load directly applying to the mounting plate. As load centre distance of the equipment and the mounting plate grows, the admissible total mass of the equipment reduces.

If the torsion moment M_x exceeds 1,0 kNm additional supporting measures (e.g. support wheel) on vehicle or implement side shall ensure the maximum moment.

In compliance with the road traffic regulations, the admissible vehicle axle loads may not be exceeded.

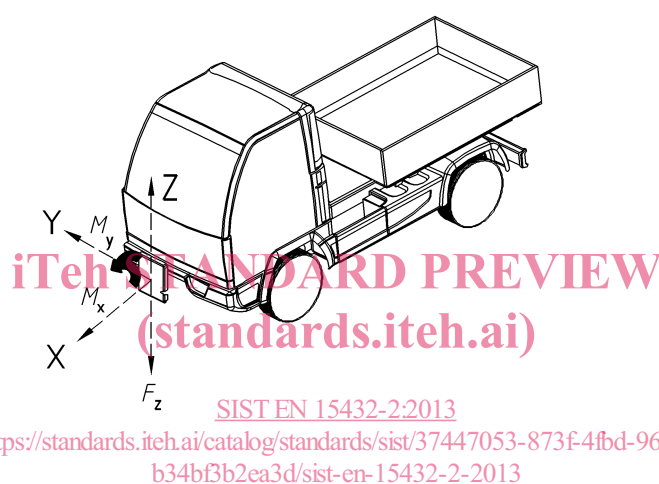


Figure 2 — Vehicle coordinate system (see Table 2)

3.4 Designation

Mounting plates meeting the requirements of this European Standard shall be identified by the following information:

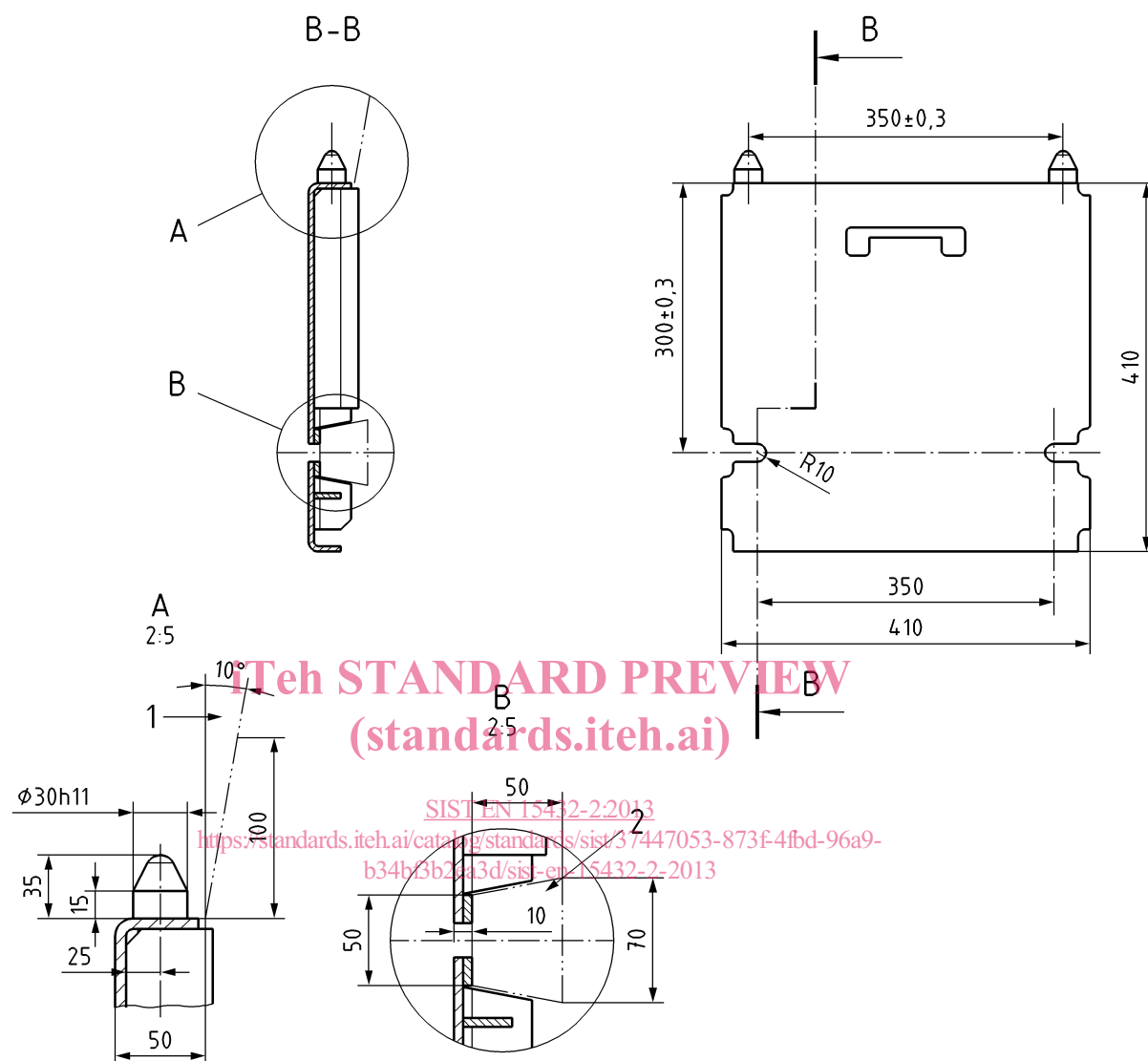
- reference to this European Standard (EN 15432-2);
- reference to the mounting plate class.

EXAMPLE Front mounting plate of class F4:

Front mounting plate EN 15432-2 F4

3.5 Dimensions

In order to ensure interchangeability, mounting plates of the F4 class shall be dimensioned according to Figure 3:



Key

- 1 clearance for locating holes
- 2 clearance for swivel bolt
- 3 road, maximum height dimension to road level with lifted mounting plate

Figure 3 — Dimensions for front mounting plates of the F4 class

For improved coupling, inclination of mounting plate to front is admitted and for increasing of ground clearance (e.g. greater ramp angle), inclination of mounting plate to the rear is admitted.

Mounting plate may include several parts.

Additional cut-outs are admitted if they do not reduce strength of the mounting plate.

Additional fixing elements which do not alter the characteristic dimensions of the mounting plate may also be added for attachment of conventional equipment.