



**SLOVENSKI STANDARD**  
**oSIST prEN 12574-4:2016**  
**01-november-2016**

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**Nepremični zabojniki za odpadke - 4. del: Mehatronika zabojnikov**

Stationary waste containers - Part 4: Waste-Mechatronics

Stationäre Abfallsammelbehälter - Teil 4: Abfall-Mechatronik

Conteneurs fixes à déchets - Partie 4 : Mécatronique pour déchets

**Ta slovenski standard je istoveten z: prEN 12574-4**

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**ICS:**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**DRAFT**  
**prEN 12574-4**

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## Stationary waste containers - Part 4: Waste-Mechatronics

Conteneurs fixes à déchets - Partie 4 : Mécatronique  
pour déchets

Stationäre Abfallsammelbehälter - Teil 4: Abfall-  
Mechatronik

This draft European Standard is submitted to CEN members for second enquiry. It has been drawn up by the Technical Committee CEN/TC 183.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (prEN 12574-4:2016) has been prepared by Technical Committee CEN/TC 183 “Waste management”, the secretariat of which is held by DIN.

This document is currently submitted to the second CEN Enquiry.

This European Standard is one part of the series of standards EN 12574 about “Stationary waste containers” comprising the following parts:

- *Part 1: Containers with a capacity up to 10 000 l with flat or dome lid(s), for trunnion, double trunnion or pocket lifting device – Dimensions and design;*
- *Part 2: Performance requirements and test methods;*
- *Part 3: Safety and health requirements;*
- *Part 4: Waste-Mechatronics.*

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## Introduction

Mechatronics for the collection of waste comprises intelligent devices that can be installed on a waste collection container, the main purposes of which are summarized below.

Mechatronics of the waste containers has two main objectives:

- a) pricing on service demand so-called “Pay as you throw”;

As for the pricing on service demand, mechatronics provides two types of devices for access control:

- 1) systems for geometrical limitation of waste thrown;

The intelligent devices can be mechanical parts that restrict the transfer of waste by establishing a maximum size. Depending on the type of waste, such as paper, glass, plastic, bio-waste, mixed waste, the filling apertures could assume specific shapes.

- 2) identification and/or authorization of the users who throw their waste into the container;

The identification of users allows to manage permissions only to persons who are entitled to. The identification can occur by means of a card, an electronic key or code or other systems that characterize a user (i.e. person, family, company).

- b) optimization of the service.

The Mechatronics includes devices that can detect certain characteristics of the waste disposal (detection, restriction, location, parameters reading, etc.) and transmit (or not) information in order to optimize the service of emptying of waste containers, the purity of the materials collected and container location. For example, the automatic detection of the level of waste within a container and the transmission of this information allows to optimize the timing and routes of emptying the containers operating in a territory.

Other intelligent device can be added such as fire sensors for detecting and transmitting information about internal temperature changes, temperature control, localization, or any other data measurement than can be made. The mechatronics can be applied to one or to a combination of these aspects.

Mechatronics allows to achieve a fundamental objective: Mechatronics can help the purity of the materials collected, as a very important target for separate collection of recyclable materials.

This European Standard defines:

- the characteristics of the “enabled containers” intended as containers designed or upgraded for installing the Mechatronics devices that can be produced and certified in accordance with this European Standard;
- the mechanical and geometrical characteristics of mechatronics devices that may be installed on the container.

This European Standard applies also in case that mechanical devices are fitted and operative without any electric and/or electronic devices.

This European Standard identifies the different requirements, tests and responsibilities in case of:

- Container in accordance with FprEN 12574-1:2016, FprEN 12574-2:2016 and FprEN 12574-3:2016 (not prepared to receive mechatronics devices);

- “Enabled Container” in accordance with FprEN 12574-1:2016, FprEN 12574-2:2016, FprEN 12574-3:2016 and prEN 12574-4:2016 prepared for receiving mechatronic devices (where the mechatronics devices have not been fitted);
- Container in accordance with FprEN 12574-1:2016, FprEN 12574-2:2016, FprEN 12574-3:2016 and prEN 12574-4:2016 equipped with mechatronics devices (i.e. directly sold and certified by the container manufacturer);
- Installation of mechatronics devices on existing containers to be upgraded.

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**prEN 12574-4:2016 (E)****1 Scope**

This part of EN 12574 specifies geometrical, performance and test aspects regarding the mechanical devices or electro-mechanical devices fitted on a waste container for locking the lid/s and/or for restricting the quantity of waste loadable and/or for filling level measuring.

**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.

FprEN 12574-1:2016, *Stationary waste containers - Part 1: Dimensions and design*

FprEN 12574-2:2016, *Stationary waste containers - Part 2: Performance requirements and test methods*

FprEN 12574-3:2016, *Stationary waste containers - Part 3: Safety and health requirements*

EN 14803:2006, *Identification and/or determination of the quantity of waste*

EN 1501-2, *Refuse collection vehicles and their associated lifting devices - General requirements and safety requirements - Part 2: Side loaded refuse collection vehicles*

**3 Terms and definitions**

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For the purposes of this document, the terms and definitions given in FprEN 12574-1:2016, EN 14803:2006 and the following apply.

**3.1**  
**waste-mechatronics** <https://standards.iteh.ai/catalog/standards/sist/b2c5ba5b-4c39-4f0b-93f4-c5d67a8514ee/osist-pr-en-12574-4-2016>  
combination of mechanical engineering and electronic engineering applied to waste collection including mechanical and electronic devices fitted on a waste container for locking the lid/s and/or for restricting the quantity of waste loadable and/or for filling level measuring, temperature control, localization or any other data measurement than can be made

**3.2**  
**waste-mechatronics device**  
**WMD**  
mechanical and/or electronic device fitted on a waste container for one or more targets as defined in 3.1

**3.3**  
**waste access restriction**  
**WAR**  
waste access device with a specific volume for restricting the quantity of waste loadable, with a tri-dimensional room, typically a cap consisting of one or two rotating drums or a rotating flap with a box with a specific room available

**3.4**  
**waste access limitation**  
**WAL**  
waste access device with a specific bi-dimensional shape for limiting the dimension of the waste loadable, including a flap in the lid, typically one or more filling apertures with specific shapes for limiting the dimension of the waste loadable or a rotating flap or a grill with various filling apertures



**3.5****filling level measuring****FLM**

device for the determination of the quantity of waste inside a receptacle with a certain known volume, by measuring the filling level of that receptacle

**3.6****lid/s locking device****LLD**

system for locking the lid or the lids with manual or automatic unlocking device, to avoid illegal dumping of waste

**3.7****identification****ID**

process which consists in accurately recognising and verifying a waste container by reading a data carrier

**3.8****determination of the quantity of waste****DQW**

determination of the waste volume stored within the receptacle and/or weighing of the waste mass and/or counting of emptying operations

**3.9****data carrier**

device carrying data which can be recognised by an electro-magnetic, optical or other reading device

**3.10****interface****IF**

boundary linking two systems

Note 1 to entry: The interface could be a mechanical interface, a data interface, an electrical interface, etc.

**3.11****user interface**

specific area onto the container in which a person can identify and/or interact with a waste container by means of a mechanical or an electro-mechanical device

**3.12****enabled waste container**

container for waste collection prepared for accepting mechatronics devices in accordance with FprEN 12574-1:2016 to prEN 12574-4:2016

**3.13****upgraded waste container**

container for waste collection developed and strengthened in order to be suitable for the installation of mechatronic devices

**3.14****equipped waste container**

container for waste collection with mechatronic devices fitted on

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**prEN 12574-4:2016 (E)****3.15****resistant area**

specific area on the container, both in the body and in the lid, which may be cut or drilled for the mounting of a mechatronics device, without influencing the mechanical strength of the container

**4 Requirements****4.1 Classes of containers**

This European Standard defines dimensions and design rules concerning the following classes of containers:

- Class A: Container in accordance with FprEN 12574-1:2016 to FprEN 12574-3:2016 (not prepared to receive mechatronics devices);
- Class B: Enabled container in accordance with FprEN 12574-1:2016 to prEN 12574-4:2016 designed, realized and tested for receiving mechatronic devices (where the mechatronics devices have not been fitted);
- Class C: Upgraded container (it was previously a Class A, new or used), developed and strengthened by installer/manufacturer/a third part in order to be suitable for the installation of mechatronic devices;
- Class D: Equipped container in accordance with FprEN 12574-1:2016 to prEN 12574-4:2016 with mechatronic devices fitted on.

**4.2 General aspects****4.2.1 General**

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General aspects for Class A are indicated in FprEN 12574-1:2016 to FprEN 12574-3:2016.

General aspects for mechatronics devices and for Classes B, C and D follow.

Maximum sizes and allowed positions of Mechatronics devices shall be compatible with the lifting device of Refuse Collection Vehicles as in EN 1501-2 and relative cleaning machines. The design of the hopper of a Refuse Collection Vehicles and of the washing room of cleaning machines could take into account the maximum dimension of the mechatronic devices fitted on a stationary waste container.

Build a new container in Class B or reinforce a container to take it to be in Class C means toughen the lid, the support beam of the lid, if present, the hinges and any other component held responsible for the mechanical strength of the container to properly carry out the function of mechatronic container and ensure resistance to the tests specified in this European Standard.

In case the container is lifted by trunnions, the maximum difference in weighing from two sides of container shall be 50 N; the container shall descend balanced, after emptying phase; street side and aisle side with the target to be as much as possible balanced; counter-weight could be necessary for balancing to comply with the above limit.

The internal structure of the container should not have any disturbing structures that might interfere the fill level measurement results of the FLM device.

**4.2.2 General aspects regarding mechatronic devices**

Mechatronics devices shall resist during the normal use of the container: introduction of waste, emptying by an RCV, cleaning by a washing machine, etc.

Mechatronics devices shall respect the geometrical dimension and the mechanical conditions when fitted on a enabled waste container.

The total maximum weight of the all mechatronics devices fitted on a container shall be 600 N, including any counter-weight.

#### 4.2.3 General aspects regarding Class B containers

All the parts of the enabled waste container shall be prepared to accept all the mechatronics devices defined in a specific following ranges.

#### 4.2.4 General aspects regarding Class C containers

All parts of the upgraded waste container shall be prepared to accept all the mechatronics devices defined in a specific following ranges.

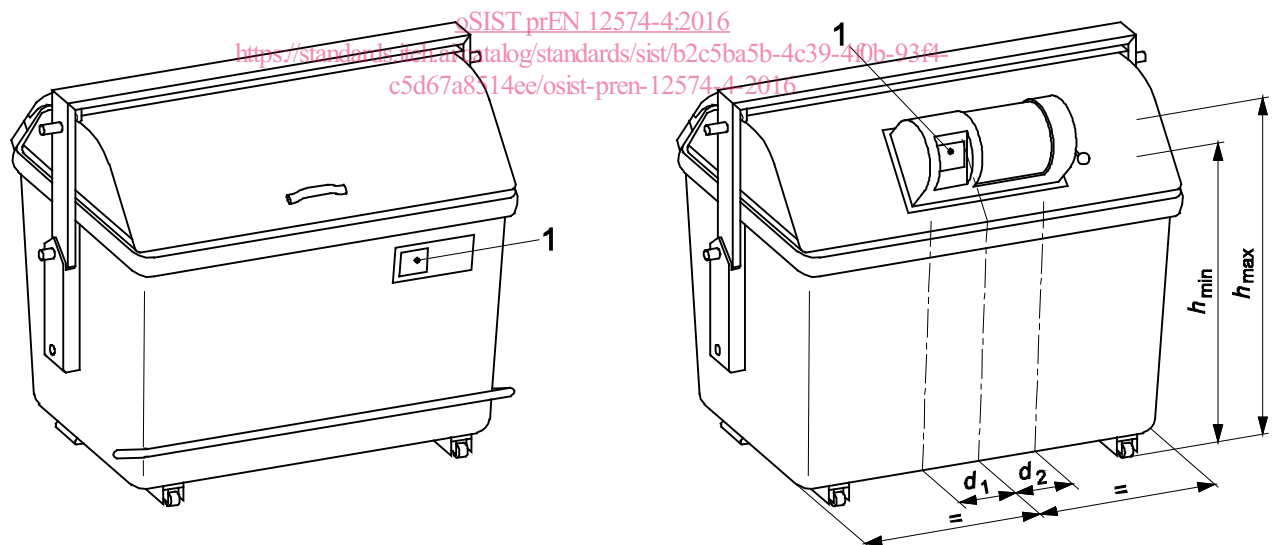
#### 4.2.5 General aspects regarding Class D containers

An equipped waste container shall respect all the external geometrical dimension and shall be in accordance with all tests in this European Standard.

### 4.3 User interface

The waste container shall present a safety and ergonomic location onto the container for fitting a the user interface; the location can be on the body or the lid, see Figure 1.

The location of the user interface is intended as the point where the user is identified or where the user commands the opening if there is not an identification. The user interface shall be located on the same side of the container where there is the introduction of waste preferably and it shall be located in a specific area.



#### Key

1 user interface

Figure 1 — User interface location