

**RESTKAEVUDE PÄISED JA HOOLDUSKAEVUDE PÄISED  
SÕIDUTEDE JA JALAKÄIJATE ALADELE. OSA 1:  
MÄÄRATLUSED, LIIGITUS, KAVANDAMISE  
ÜLDPÕHIMÕTTED, TOIMIMISNÕUDED JA  
KATSEMEETODID**

**Gully tops and manhole tops for vehicular and  
pedestrian areas - Part 1: Definitions, classification,  
general principles of design, performance  
requirements and test methods**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 124-1:2015 sisaldab Euroopa standardi EN 124-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 124-1:2015 consists of the English text of the European standard EN 124-1:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.06.2015.	Date of Availability of the European standard is 10.06.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 93.080.30

**Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele**

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

**The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation**

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

## Gully tops and manhole tops for vehicular and pedestrian areas - Part 1: Definitions, classification, general principles of design, performance requirements and test methods

Dispositifs de couronnement et de fermeture pour les zones de circulation utilisées par les piétons et les véhicules -  
Partie 1 : Définitions, classification, principes généraux de conception, exigences de performances et méthodes d'essai

Aufsätze und Abdeckungen für Verkehrsflächen - Teil 1:  
Definitionen, Klassifizierung, allgemeine Baugrundsätze, Leistungsanforderungen und Prüfverfahren

This European Standard was approved by CEN on 12 March 2015.

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.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

# Contents

	Page
Foreword.....	4
<b>1 Scope .....</b>	<b>6</b>
<b>2 Normative references .....</b>	<b>6</b>
<b>3 Terms and definitions, symbols, units and abbreviated terms .....</b>	<b>7</b>
<b>3.1 Terms and definitions .....</b>	<b>7</b>
<b>3.2 Symbols and abbreviated terms .....</b>	<b>11</b>
<b>4 Classification.....</b>	<b>11</b>
<b>4.1 Basis of the classification.....</b>	<b>11</b>
<b>4.2 Classification in the context of intended use .....</b>	<b>11</b>
<b>5 Materials .....</b>	<b>13</b>
<b>5.1 General.....</b>	<b>13</b>
<b>5.2 Cover fillings .....</b>	<b>13</b>
<b>5.3 Frames in combination with concrete .....</b>	<b>13</b>
<b>6 Design requirements .....</b>	<b>13</b>
<b>6.1 Vents in covers .....</b>	<b>13</b>
<b>6.2 Clear opening of manhole tops for man entry .....</b>	<b>14</b>
<b>6.3 Depth of insertion .....</b>	<b>14</b>
<b>6.4 Clearance.....</b>	<b>14</b>
<b>6.5 Compatibility of seatings .....</b>	<b>15</b>
<b>6.6 Securing of the cover/grating within the frame.....</b>	<b>15</b>
<b>6.7 Handling of covers and gratings.....</b>	<b>16</b>
<b>6.8 Slot dimensions of gratings .....</b>	<b>16</b>
<b>6.9 Dirt pans and dirt buckets .....</b>	<b>17</b>
<b>6.10 Positioning of covers and gratings.....</b>	<b>18</b>
<b>6.11 Flatness of manhole covers and gratings.....</b>	<b>18</b>
<b>6.12 Concaveness of gratings .....</b>	<b>18</b>
<b>6.13 Surface conditions.....</b>	<b>18</b>
<b>6.14 Manhole tops with sealing features .....</b>	<b>18</b>
<b>6.15 Frame bearing area.....</b>	<b>18</b>
<b>6.16 Frame depth .....</b>	<b>18</b>
<b>6.17 Opening angle of hinged covers/gratings.....</b>	<b>19</b>
<b>6.18 Covers with fillings.....</b>	<b>19</b>
<b>7 Performance requirements .....</b>	<b>19</b>
<b>7.1 Appearance .....</b>	<b>19</b>
<b>7.2 Load bearing capacity.....</b>	<b>19</b>
<b>7.3 Permanent set.....</b>	<b>19</b>
<b>7.4 Skid resistance.....</b>	<b>20</b>
<b>7.5 Child safety.....</b>	<b>21</b>
<b>8 Testing .....</b>	<b>22</b>
<b>8.1 General.....</b>	<b>22</b>
<b>8.2 Permanent set (see 7.3).....</b>	<b>22</b>
<b>8.3 Load bearing capacity (see 7.2) .....</b>	<b>22</b>
<b>8.4 Verification of design requirements .....</b>	<b>22</b>
<b>8.5 Child safety.....</b>	<b>24</b>
<b>9 Assessment and verification of constancy of performance (AVCP).....</b>	<b>24</b>

<b>Annex A (normative) Permanent set test</b> .....	<b>25</b>
<b>A.1 Test Samples</b> .....	<b>25</b>
<b>A.2 Permanent set test load, (<math>F_P</math>)</b> .....	<b>25</b>
<b>A.3 Apparatus</b> .....	<b>25</b>
<b>A.4 Procedure</b> .....	<b>26</b>
<b>Annex B (normative) Test of load bearing capacity</b> .....	<b>29</b>
<b>B.1 Test samples</b> .....	<b>29</b>
<b>B.2 Test load (<math>F_T</math>)</b> .....	<b>29</b>
<b>B.3 Test procedure</b> .....	<b>29</b>
<b>B.4 Test report</b> .....	<b>29</b>
<b>Annex C (normative) Test to determine the unpolished skid resistance value (USRV) of manhole covers</b> .....	<b>30</b>
<b>C.1 General</b> .....	<b>30</b>
<b>C.2 Apparatus</b> .....	<b>30</b>
<b>C.3 Calibration of pendulum friction test equipment</b> .....	<b>30</b>
<b>C.4 Selection of test samples</b> .....	<b>30</b>
<b>C.5 Test procedure</b> .....	<b>30</b>
<b>Annex D (normative) Tilt test</b> .....	<b>33</b>
<b>D.1 General</b> .....	<b>33</b>
<b>D.2 Test procedure</b> .....	<b>33</b>
<b>Annex E (normative) Testing of securing of covers/gratings within the frame</b> .....	<b>36</b>
<b>E.1 General</b> .....	<b>36</b>
<b>E.2 Vertical pull-out test procedure</b> .....	<b>37</b>
<b>Annex F (informative) Recommendations for installation</b> .....	<b>41</b>
<b>F.1 General</b> .....	<b>41</b>
<b>F.2 Place of installation and selection of appropriate manhole tops and gully tops</b> .....	<b>41</b>
<b>F.3 Preparations before installation</b> .....	<b>41</b>
<b>F.4 Operative skill, training and installation equipment</b> .....	<b>41</b>
<b>F.5 Bedding and packing materials</b> .....	<b>42</b>
<b>F.6 Condition of supporting chamber</b> .....	<b>42</b>
<b>F.7 Fixing of manhole tops or gully tops</b> .....	<b>42</b>
<b>F.8 Post installation check and cleaning</b> .....	<b>42</b>
<b>Annex G (informative) Explanations on testing of manhole tops with multiple covers and testing the skid resistance</b> .....	<b>44</b>
<b>G.1 Explanation to A.4</b> .....	<b>44</b>
<b>G.2 Explanation to 7.4.2</b> .....	<b>44</b>
<b>Bibliography</b> .....	<b>45</b>

## Foreword

This document (EN 124-1:2015) has been prepared by Technical Committee CEN/TC 165 "Wastewater engineering", the secretariat of which is held by DIN.

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 December 2015 and conflicting national standards shall be withdrawn at the latest by March 2017.

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.

Together with EN 124-2:2015, EN 124-3:2015, EN 124-4:2015, EN 124-5:2015 and EN 124-6:2015, this document supersedes EN 124:1994.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

EN 124, *Gully tops and manhole tops for vehicular and pedestrian areas*, consists of the following parts:

- *Part 1: Definitions, classification, general principles of design, performance requirements and test methods;*
- *Part 2: Gully tops and manhole tops made of cast iron;*
- *Part 3: Gully tops and manhole tops made of steel or aluminium alloys;*
- *Part 4: Gully tops and manhole tops made of steel reinforced concrete;*
- *Part 5: Gully tops and manhole tops made of composite materials;*
- *Part 6: Gully tops and manhole tops made of polypropylene (PP), polyethylene (PE) or unplasticized poly(vinyl chloride) (PVC-U).*

EN 124-1 is not a harmonized standard but a supporting standard for the harmonized standards EN 124-2, EN 124-3, EN 124-4, EN 124-5 and EN 124-6.

The main changes with respect to the previous edition are listed below:

- a) the standard was split into 6 parts, where Part 1 contains general design and performance requirements and Parts 2 to 6 performance requirements for manhole tops and gully tops made of specific materials;
- b) definition for "securing feature" added;
- c) definition for "locking accessory" added;
- d) skid resistance test added;
- e) tilt test added;
- f) test of securing of covers/gratings within the frame added;
- g) evaluation of conformity changed to AVCP;
- h) recommendations for installation added.

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.

This document is a preview generated by EVS

## 1 Scope

This European Standard is applicable to manhole tops and gully tops with a clear opening up to and including 1 000 mm for covering gullies, manholes and inspection chambers installed in areas subjected to pedestrian and/or vehicular traffic. It specifies definitions, classification, general principles of design, performance requirements and test methods for gully tops and manhole tops according to:

- EN 124-2, for gully tops and manhole tops made of cast iron;
- EN 124-3, for gully tops and manhole tops made of steel or aluminium alloys;
- EN 124-4, for gully tops and manhole tops made of steel reinforced concrete;
- EN 124-5, for gully tops and manhole tops made of composite materials;
- EN 124-6, for gully tops and manhole tops made of polypropylene (PP), polyethylene (PE) or unplasticized poly(vinyl chloride) (PVC-U).

Part 1 is only applicable in combination with at least one of the standards EN 124-2, EN 124-3, EN 124-4, EN 124-5 and EN 124-6 each of which has this Part 1 as an integral part.

This European Standard is not applicable to:

- gratings/covers as part of prefabricated drainage channels according to EN 1433,
- floor and roof gullies in buildings which are specified in EN 1253 (all parts),
- surface boxes.

## 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 124-2:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 2: Gully tops and manhole tops made of cast iron*

EN 124-3:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 3: Gully tops and manhole tops made of steel or aluminium alloys*

EN 124-4:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 4: Gully tops and manhole tops made of steel reinforced concrete*

EN 124-5:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 5: Gully tops and manhole tops made of composite materials*

EN 124-6:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 6: Gully tops and manhole tops made of polypropylene (PP), polyethylene (PE) or unplasticized poly(vinyl chloride) (PVC-U)*

EN 206:2013, *Concrete — Specification, performance, production and conformity*

EN 13036-4, *Road and airfield surface characteristics — Test methods — Part 4: Method for measurement of slip/skid resistance of a surface: The pendulum test*



EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868)*

EN ISO 7500-1:2004, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system (ISO 7500-1:2004)*

### 3 Terms and definitions, symbols, units and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

#### 3.1 Terms and definitions

##### 3.1.1

##### **manhole**

structure with a removable cover constructed on a drain or sewer to permit entry by personnel

[SOURCE: EN 16323:2014, 2.2.4.15]

##### 3.1.2

##### **inspection chamber**

structure with a removable cover constructed on a drain or sewer that permits the introduction of cleaning and inspection equipment from surface level, but does not provide access for personnel

[SOURCE: EN 16323:2014, 2.2.4.13]

##### 3.1.3

##### **gully**

assembly to receive water for discharge into a drainage system

##### 3.1.4

##### **gully top**

upper part of a gully consisting of a frame and grating with or without cover

##### 3.1.5

##### **manhole top**

upper part of a manhole or inspection chamber consisting of a frame and cover and/or grating

##### 3.1.6

##### **frame**

part of a gully top or manhole top which receives and supports a grating and/or a cover

##### 3.1.7

##### **frame depth**

distance between the top surface and the bottom surface of the frame

##### 3.1.8

##### **grating**

movable part(s) or opening within a manhole top or a gully top which permit(s) the passage of water through itself into the gully or manhole

##### 3.1.9

##### **cover**

movable part(s) of a manhole top or a gully top which covers the manhole or gully opening