

## საქართველოს ეროვნული სტანდარტი

საღრეანო არხები სატრანსპორტო და ფეხით მოსიარულეთათვის.  
კლასიფიკაცია, დაკროებები და ტესტირებას მოთხოვთ. მარკირება და  
შესაბამისობის შეფასება

საქართველოს სტანდარტების, ტექნიკური რეგლამენტების  
და მეტროლოგიის ეროვნული სააგენტო  
თბილისი

საინჟორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტებისა და ტექნიკური რეგლამენტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეტროლოგიის ეროვნული სააგენტოს 2009 წლის 10 სექტემბრის № 35 “ს” განკარგულებით

3 მიღებულია გარეკანის მეთოდით სტანდარტიზაციის საერთაშორისო ორგანიზაციის სტანდარტი მსრ მ6 1433 : 2002 „სადრენაჟო არხები სატრანსპორტო და ფეხით მოსიარულეთათვის. კლასიფიკაცია, დაპროექტება და ტესტირების მოთხოვნები. მარკირება და შესაბამისობის შეფასება”

4 პირველყად

5 რეგისტრირებულია საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2009 წლის 4 სექტემბერი № 268-1.3-2976

წინამდებარე სტანდარტის სრული ან ნაწილობრივი აღწარმოება, ტირაჟირება და გავრცელება საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეტროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე არ დაიშვება

**EUROPEAN STANDARD**

**EN 1433**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

November 2002

ICS 93.080.30

English version

**Drainage channels for vehicular and pedestrian areas -  
Classification, design and testing requirements, marking and  
evaluation of conformity**

Caniveaux hydrauliques pour l'évacuation des eaux dans  
les zones de circulation utilisées par les piétons et les  
véhicules - Classification, prescriptions de conception et  
d'essai, marquage et évaluation de la conformité

Entwässerungsrinnen für Verkehrsflächen - Klassifizierung,  
Bau- und Prüfgrundsätze, Kennzeichnung und Beurteilung  
der Konformität

This European Standard was approved by CEN on 9 October 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

	page
<b>Foreword</b> .....	<b>5</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>7</b>
<b>4 Classification</b> .....	<b>12</b>
<b>5 Places of installation for drainage channels</b> .....	<b>12</b>
<b>6 Materials</b> .....	<b>14</b>
<b>6.1 General</b> .....	14
<b>6.1.1 Drainage channels</b> .....	14
<b>6.1.2 Gratings and covers</b> .....	14
<b>6.1.3 Use of rolled steel</b> .....	14
<b>6.2 Production, quality and testing</b> .....	15
<b>6.2.1 Metallic materials</b> .....	15
<b>6.2.2 Concrete and synthetic resin concrete</b> .....	15
<b>6.3 Additional requirements</b> .....	15
<b>6.3.1 Welding of rolled steel</b> .....	15
<b>6.3.2 Stainless steel</b> .....	15
<b>6.3.3 Precast concrete</b> .....	16
<b>6.3.4 Synthetic resin concrete</b> .....	16
<b>6.3.5 Concrete with fibre</b> .....	17
<b>7 Design and manufacturing requirements</b> .....	<b>17</b>
<b>7.1 General</b> .....	17
<b>7.2 Dimensions and dimensional tolerances</b> .....	18
<b>7.3 Geometric design</b> .....	18
<b>7.4 Gradient</b> .....	19
<b>7.5 Jointing of drainage channel units</b> .....	19
<b>7.5.1 Watertightness</b> .....	19
<b>7.5.2 Step of invert</b> .....	19
<b>7.6 Depth of insertion of gratings and covers</b> .....	19
<b>7.7 Seating</b> .....	19
<b>7.8 Trafficked edge and contact surface protection</b> .....	19
<b>7.9 Securing of gratings or cover</b> .....	20
<b>7.10 Dimensions of inlet openings</b> .....	20
<b>7.10.1 Straight slots</b> .....	20
<b>7.10.2 Slots in other shapes</b> .....	21
<b>7.10.3 Other inlet openings</b> .....	21
<b>7.11 Dirt buckets</b> .....	22
<b>7.12 Correct positioning of gratings and covers</b> .....	22
<b>7.13 Surface condition</b> .....	22
<b>7.14 Opening angle of hinged gratings and covers</b> .....	22
<b>7.15 Strength testing</b> .....	23
<b>7.15.1 Channel bodies</b> .....	23
<b>7.15.2 Gratings and covers</b> .....	23
<b>7.16 Permanent set</b> .....	24
<b>7.17 Recommendations for installation</b> .....	24
<b>8 Marking</b> .....	<b>25</b>
<b>8.1 Marking of gratings and covers</b> .....	25
<b>8.2 Marking of channel bodies</b> .....	25

<b>9</b>	<b>Testing .....</b>	<b>26</b>
9.1	Loading test.....	26
9.1.1	Test loads .....	26
9.1.2	Test apparatus .....	26
9.1.3	Preparation for the test .....	27
9.1.4	Test procedure .....	28
9.2	Materials .....	29
9.2.1	Precast concrete .....	29
9.2.2	Synthetic resin concrete .....	30
9.2.3	Concrete with fibre .....	32
9.3	Design requirements .....	32
9.3.1	General inspection.....	32
9.3.2	Dimensions.....	32
9.3.3	Discharge cross section (see 7.3).....	32
9.3.4	Gradient (see 7.4).....	32
9.3.5	Discharge openings/connecting openings (see 7.3).....	33
9.3.6	Jointing of channel units (see 7.5).....	33
9.3.7	Depth of insertion of gratings and covers (see 7.6).....	33
9.3.8	Seating (see 7.7).....	33
9.3.9	Trafficked edge protection (see 7.8 and 6.1).....	33
9.3.10	Securing of a grating and/or cover in a grid unit (see 7.9).....	33
9.3.11	Dimensions of inlet openings (see 7.10).....	33
9.3.12	Dirt buckets (see 7.11).....	34
9.3.13	Correct positioning of gratings and covers (see 7.12) .....	34
9.3.14	Surface condition (see 7.13) .....	34
9.3.15	Opening angle of hinged gratings and covers (see 7.14).....	34
9.4	Marking (see clause 8) .....	34
9.5	Type testing.....	34
9.6	Routine loading test .....	34
<b>10</b>	<b>Evaluation of Conformity .....</b>	<b>35</b>
10.1	General.....	35
10.2	Type testing (initial testing of the product).....	35
10.3	Factory production control to be carried out by the manufacturer (internal quality control) .....	35
10.4	Non-conforming products .....	36
<b>11</b>	<b>Installation .....</b>	<b>36</b>
<b>Annex A (normative) Model procedure of internal quality control .....</b>		<b>37</b>
<b>Annex B (normative) Supplementary requirements for concrete products submitted to very severe freeze-thaw conditions with standing water containing de-icing salts.....</b>		<b>44</b>
B.1	Scope.....	44
B.2	Conditions of application .....	44
B.3	Resistance to freeze-thaw with de-icing salts.....	44
B.4	Marking.....	44
<b>Annex C (normative) Determination of freeze/thaw resistance with de-icing salt .....</b>		<b>45</b>
C.1	Principle .....	45
C.2	Sampling .....	45
C.3	Materials .....	45
C.4	Apparatus.....	45
C.5	Preparation of test specimens .....	46
C.6	Procedure.....	47
C.7	Expression of test results .....	49
C.8	Test report.....	49
<b>Annex D (informative) Inspection control, carried out by a third party certification body (third party control).....</b>		<b>50</b>
D.1	Purpose and procedure of third party Inspection .....	50
D.2	Report by the third party .....	51
<b>Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive.....</b>		<b>52</b>

<b>Bibliography .....</b>	<b>58</b>
---------------------------	-----------

## Foreword

This document (EN 1433:2002) 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 May 2003, and conflicting national standards shall be withdrawn at the latest by August 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

Annexes A, B and C are normative. Annex D is informative.

This document specifies the application and use of drainage channels both as single or multi-part assemblies. An assembly is defined as a single unit and can be used in conjunction with other similar units to provide a drainage system. Guidance is given on the location of units, the strength of the units and appropriate grating or cover. Fittings and other special adapters are excluded from the scope of this standard.

Installation does not form part of this standard but can form part of a future related standard. Drainage channels are installed so that sufficient support is provided to enable them to withstand proposed service loads.

Due regard has been taken of formalized Quality Assurance Systems and this standard details those specific and relevant quality control activities necessary for both manufacturer and external assessors (if applicable).

This standard specifies materials currently used in the manufacture of drainage channels. However, with some materials there are limited data currently available.

Rainwater forms the main application of drainage channels. Other liquids can be carried, subject to correct selection of the drainage channel.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European Standard specifies requirements for linear drainage channels for the collection and conveyance of surface water when installed within areas subjected to pedestrian and/or vehicular traffic.

These channels are defined as either Type I, which requires no further support or Type M, which requires additional support to accommodate the vertical and horizontal loads in service, in accordance with the manufacturers' recommendations.

This standard specifies requirements for gratings and covers integral with a linear drainage system. This standard applies to grid units, slot units and kerb units up to a clear opening of 1 000 mm.

This standard specifies definitions, classes, design and testing requirements, marking and quality control for drainage channels.