Nederlandse norm

NEN-EN 124-4

(en)

Afdekkingen voor putten en kolken voor verkeers- en voetgangersgebieden - Deel 4: Roosters en deksels voor putten en kolken van gewapend beton

Gully tops and manhole tops for vehicular and pedestrian areas - Part 4: Gully tops and manhole tops made of steel reinforced concrete

Vervangt NEN-EN 124:1994,deels;
NEN-EN 124:1994/Ontw. A1:2002,deels;
NEN-EN 124:2007 2e Ontw.,deels;
NEN-EN 124-4:2012 Ontw.

ICS 93.080.30

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- EN 124-4:2015,IDT

Normcommissie 349165 "Afvalwatertechniek"

NEN

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EUROPEAN STANDARD **EN 124-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM June 2015

ICS 93.080.30 Supersedes EN 124:1994

English Version

Gully tops and manhole tops for vehicular and pedestrian areas - Part 4: Gully tops and manhole tops made of steel reinforced concrete

Dispositifs de couronnement et de fermeture pour les zones de circulation utilisées par les piétons et les véhicule - Partie 4: Dispositifs de couronnement et de fermeture en béton armé d'acier

Aufsätze und Abdeckungen für Verkehrsflächen - Teil 4: Aufsätze und Abdeckungen aus stahlbewehrtem Beton

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

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Foreword

This document (EN 124-4:2015) 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of an identical text or by endorsement, at the latest by December 2015 and conflicting national standards shall be withdrawn at the latest by March 2017.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 124-1:2015, EN 124-2:2015, EN 124-3:2015, EN 124-5:2015 and EN 124-6:2015, this document will supersede EN 124:1994.

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 the Regulation (EU) No. 305/2011.

For relationship with EU Regulations, see informative Annex ZA, which is an integral part of this document.

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)*.

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.

1 Scope

This European Standard is applicable to precast gully tops and manhole tops made of steel reinforced concrete with a clear opening up to and including 1 000 mm for covering gullies, manholes and inspection chambers for installation within areas subjected to pedestrian and/or vehicular traffic.

It is applicable to manhole tops and gully tops for use in

— areas which can only be used by pedestrians and pedal cyclists (at least class A 15),

— pedestrian areas and comparable areas, car parks or car parking decks (at least class B 125),

— the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into the carriageway and a maximum of 0,2 m into the pedestrian area (at least class C 250),

— carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all types of road vehicles (at least class D 400),

— areas imposing high wheel loads, e.g. docks, aircraft pavements (at least class E 600),

— areas imposing particularly high wheel loads, e.g. aircraft pavements (Group 6, class F 900).

This European Standard is not applicable in isolation but only in combination with EN 124-1 and gives guidance for combinations of covers/gratings made of steel reinforced concrete with frames according to EN 124-2, EN 124-3, EN 124-5 and EN 124-6.

This European Standard is not applicable to:

— concave gratings for class D 400 installed in carriageways of roads or hard shoulders and concave gratings for classes F 900 and E 600;

— 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); and

— 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 124-1:2015, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 1: Definitions, classification, general principles of design, performance requirements and test methods*

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 124-5:2015, *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 1339:2003, *Concrete paving flags — Requirements and test methods*

EN 1992-1-1:2004, *Eurocode 2: Design of concrete structures — Part 1-1: General rules and rules for buildings*

EN 13369:2013, *Common rules for precast concrete products*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods (ISO 1461)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 124-1:2015 apply.

4 Materials

4.1 General

Precast manhole tops and gully tops according to this European Standard shall be made from steel reinforced concrete. The concrete quality of any element shall be dense, homogenous and conform to the requirements given in 4.2 to 4.6. For general aspects, constituent materials of concrete and reinforcing steel, EN 13369:2013, 4.1, shall apply.

Any element made of the materials specified in Clause 4 can be used in combination with elements of materials specified in EN 124-2, EN 124-3, EN 124-5 or EN 124-6. In such cases the manhole tops or gully tops shall comply with the relevant design and performance and testing requirements as listed in Table 1.

In addition, elements shall comply with the requirements for the material related EN 124-2, EN 124-3, EN 124-5 or EN 124-6, as applicable. Each element shall be marked accordingly. The load class to be declared for the combined product shall be restricted to the lower class determined for any constituent element according to the relevant part of EN 124 series.

EXAMPLE Where a cover is made of steel reinforced concrete, class D 400, and the frame is made of steel, class C 250, the manhole top or gully top is marked with EN 124-4 and the class to be declared for the combined product is the class of the frame according to EN 124-3 for steel.

4.2 Exposure classes

Manhole tops and gully tops according to this standard shall be at least suitable for use in “wet and dry” conditions and a slightly aggressive chemical environment, i.e. normal conditions for domestic sewage and treated industrial effluent, and for most natural soils and ground-waters. If more severe conditions are expected, additional requirements for corrosion protection can be necessary.

The exposure class determined in accordance with EN 206:2013 shall be a minimum of XC2.

Where resistance against freeze/thaw or chemical attack on concrete is required, the composition and properties of the concrete shall meet the requirements for XF, XD or XA classes taking into account the relevant description of the environment in accordance with EN 206:2013.

If more severe conditions are expected higher exposure classes can be necessary. In such cases the higher class shall be declared.

4.3 Resistance against freeze - thaw with de-icing salts

When manhole tops and gully tops are used in specific conditions of use (corresponding to frequent contact of a surface, partially or entirely made with concrete, with standing water containing de-icing salts in frost conditions) the concrete shall not show a mean mass loss higher than 1,5 kg/m^2 with no individual result higher than 2,0 kg/m^2 when tested according to 6.4. Products complying with this requirement shall be marked with "+R".

4.4 Compressive strength

The compressive strength class of the concrete shall conform to the specific environmental conditions in accordance with 4.2 but not be less than C35/45 according to EN 13369, except for class A 15 covers, where the minimum compressive strength shall not be less than C25/30 according to EN 13369.

4.5 Water content of concrete

The ratio of water to cement plus any pozzolanic or latent hydraulic addition in the fully compacted state shall not be greater than 0,5 and shall conform to the specific environmental conditions in accordance with 4.2.

4.6 Cement content of concrete

Concrete shall have such a composition that the minimum content of cement plus any pozzolanic latent addition in the fully compacted state is consistent with the serviceability conditions of 4.2 and 4.7 for the exposure classes.

4.7 Chloride content of concrete

The maximum amount of chloride ion in the concrete shall be evaluated by calculation in accordance with EN 206:2013, 5.2.8.

4.8 Water absorption of concrete

When determined in accordance with EN 13369:2013, 5.1.2, the water absorption of concrete shall not exceed 6 % by mass.

5 Requirements

5.1 Design and performance requirements

Manhole tops and, gully tops made of concrete shall comply with the design and performance and testing requirements in accordance with EN 124-1, as listed in Table 1.

Table 1 — Design, performance and testing requirements specified in EN 124-1 for gully tops and manhole tops made of steel reinforced concrete

Characteristic	Requirements acc. to EN 124-1: 2015 Clause	Testing acc. to EN 124-1: 2015 Clause	Relevant for class					
			A 15	B 125	C 250	D 400	E 600	F 900
Related to the design								
Vents in covers	6.1	8.4.1	x	x	x	x	x	x
Clear opening of manhole tops for man entry	6.2	8.4.2	x	x	x	x	x	x

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