SLOVENSKI STANDARD
SIST EN 124-3:2015

01-september-2015

Nadomešča:
SIST EN 124:1996

Pokrovi za odtoke in jaške na voznih površinah in površinah za pešce - 3. del: Pokrovi za odtoke in jaške iz jekla ali aluminijeve zlitine

Gully tops and manhole tops for vehicular and pedestrian areas - Part 3: Gully tops and manhole tops made of steel or aluminium alloys

Aufsätze und Abdeckungen für Verkehrsflächen - Teil 3: Aufsätze und Abdeckungen aus Stahl oder Aluminiumlegierungen

Dispositifs de couronnement et de fermeture pour les zones de circulation utilisées par les piétons et les véhicules - Partie 3: Dispositifs de couronnement et de fermeture en acier ou alliage d'aluminium

Ta slovenski standard je istoveten z: **EN 124-3:2015**

ICS:

93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations

SIST EN 124-3:2015 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 124-3

June 2015

ICS 93.080.30

Supersedes EN 124:1994

English Version

Gully tops and manhole tops for vehicular and pedestrian areas - Part 3: Gully tops and manhole tops made of steel or aluminium alloys

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

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

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Foreword

This document (EN 124-3:2015) 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of an identical text or by endorsement, at the latest by December 2015 and conflicting national standards shall be withdrawn at the latest by March 2017.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 124-4:2015, 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 Regulation(s), 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 gully tops and manhole tops made of mild steel, stainless steel and aluminium alloys whether in combination with concrete or not, with a clear opening up to and including 1 000 mm for covering gullies, manholes and inspection chambers for installation in 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 (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 or aluminium alloys with frames according to EN 124-2 and EN 124-4, EN 124-5 or EN 124-6.

Fabrication of manhole tops and gully tops in accordance with this standard is limited to cold forming, mechanical crimping or welding together component parts made of metal plate, strip or bar or rolled or extruded metal sections.

This European Standard is not applicable to:

— manhole tops and gully tops made of aluminium tread plates for use in carriageways of roads (class D 400) and areas imposing high wheel loads (Classes E 600 and F 900);

— 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 124-4:2015, *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 573-3, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 1386, *Aluminium and aluminium alloys — Tread plate — Specifications*

EN 1676:2010, *Aluminium and aluminium alloys — Alloyed ingots for remelting — Specifications*

EN 1706, *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*

EN 10025-1, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10088-1:2014, *Stainless steels — Part 1: List of stainless steels*

EN 10130, *Cold rolled low carbon steel flat products for cold forming — Technical delivery conditions*

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

EN ISO 3452-1, *Non-destructive testing - Penetrant testing — Part 1: General principles (ISO 3452-1)*

EN ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1)*

EN ISO 9606-2, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys (ISO 9606-2)*

EN ISO 14554 (all parts), *Quality requirements for welding — Resistance welding of metallic materials (ISO 14554)*

EN ISO 14732, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732)*

EN ISO 15609 (all parts), *Specification and qualification of welding procedures for metallic materials — Welding procedure specification (ISO 15609)*

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

Manhole tops, gully tops and gratings complying with this standard shall be manufactured from the following materials:

a) steel according to 4.2;

b) stainless steel according to 4.3;

c) aluminium alloys according to 4.4.

The minimum thickness of sheet material prior to corrosion protection shall be at least 2,75 mm for C 250 covers and above.

Any element made of the materials specified in 4.1 a) to c) can be used in combination with elements of materials specified in EN 124-2, EN 124-4, 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 124-4, 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, class C 250, and the frame is made of PVC-U, class B 125, the manhole top or gully top is marked with EN 124-3 and the class to be declared for the combined product is the class of the frame according to EN 124-6.

4.2 Steel

4.2.1 General

Steel manhole tops and gully tops shall be made from steel according to EN 10130 or EN 10025-1 and shall be resistant to corrosion. For use in normal conditions corrosion resistance can be ensured, e.g. by hot-dip galvanizing on a clean surface in accordance with 4.2.2. Prior to application of any surface corrosion protection system, manhole tops and gully tops shall be fettled.

4.2.2 Hot dip galvanizing

Where corrosion resistance is achieved by hot dip galvanizing it shall be in accordance with EN ISO 1461. There shall be no sharp edges resulting from hot dip galvanizing.

After a manhole top or gully top has been hot dip galvanized it can be straightened to overcome any distortion prior to fitting the manhole cover or gully grating in its frame. Any such straightening shall not adversely affect the integrity of the hot dip galvanizing or the structure of the manhole top or the gully top.

NOTE 1 Hot dip galvanization is regarded as corrosion protection system and not regarded as an aesthetic coating.

NOTE 2 Other supplementary coatings can be applied to the hot dip galvanized surface, e.g. coating or paint systems.

4.3 Stainless steel

Stainless steel manhole tops and gully tops for use in normal conditions (see EN 124-1:2015, 5.1) shall be fabricated from austenitic stainless steel grades 1.4301, 1.4306, 1.4307, 1.4401, 1.4404, 1.4432 or 1.4571 in accordance with EN 10088-1:2014. For normal conditions of use no surface corrosion protection system shall be required. Appropriate post fabrication finishing processes are required to avoid iron contamination, e.g. welded joints shall be treated by pickle passivation process or shot blasting.

Corrosion protection or another grade of stainless steel should be required if the manhole top or gully top is subject to more severe conditions of use, e.g. in a particularly aggressive chemical environment.

Stainless steel manhole tops and gully tops can be supplied with aesthetic surface finishes, e.g. varnish or paint or cleaning or bead blasting.

4.4 Aluminium alloys

Aluminium manhole tops and gully tops shall be fabricated or cast from aluminium alloys according to EN 1706, EN 1676 or EN 573-3 for use under “cyclic wet and dry” conditions and a slightly aggressive chemical environment as specified in EN 124-1:2015, 5.1. Alloys having a declared copper content of less than 0,1 % shall not require additional corrosion protection. Corrosion protection can also be achieved by anodizing according to EN ISO 7599, Class AA 25. Corrosion protection systems other than anodizing or choice of alloys with specific corrosion resistance shall give corrosion protection equivalent to that of anodizing. Corrosion protection or another grade of aluminium may be required if the manhole top or gully top is subject to more severe conditions of use as given in EN 124-1:2015, 5.1, e.g. in a particularly aggressive chemical environment.

Aluminium tread plates shall be in accordance with EN 1386. Their use for manhole tops and gully tops is restricted to classes A 15 to C 250.

4.5 Cover fillings

In the case of covers placed on the market in filled condition the filling shall consist of either:

a) concrete with a minimum compressive strength class of C35/45 according to EN 206:2013, at least suitable for use in “cyclic wet and dry” conditions, or

b) other material complying with the intended use/place of installation expectations and with appropriate relevant European Standards at least suitable for use in “cyclic wet and dry” conditions.

In the case of covers placed on the market in unfilled condition and the filling is applied subsequently, the filling materials shall have a minimum performance comparable to concrete or the surrounding pavement materials and shall fulfil the requirements of the appropriate European Standards.

5 Requirements

5.1 Design and performance requirements

Manhole tops, gully tops and gratings made of materials according to 4.1 shall meet 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 in accordance with EN 124-1 for gully tops and manhole tops made of mild steel, stainless steel or aluminium alloys

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
Depth of insertion	6.3	8.4.3	–	–	–	x	x	x
Clearance	6.4	8.4.4	x	x	x	x	x	x
Compatibility of seatings	6.5	8.4.5	–	–	–	x	x	x
Handling of covers and gratings	6.7	8.4.7	x	x	x	x	x	x
Slot dimensions of gratings	6.8	8.4.8	x	x	x	x	x	x
Dirt pans and dirt buckets	6.9	8.4.9	x	x	x	x	x	x
Positioning of covers and gratings	6.10	8.4.10	x	x	x	x	x	x
Flatness of manhole covers and gratings	6.11	8.4.11	–	–	–	x	x	x
Concaveness of gratings	6.12	8.4.12	x	x	x	x	x	x
Surface conditions	6.13	8.4.13	x	x	x	x	x	x
Manhole tops with sealing features	6.14	Visual inspection of presence of anchors	x	x	x	x	x	x
Frame bearing area	6.15	8.4.14	x	x	x	x	x	x
Frame depth	6.16	8.4.15	–	–	–	x	x	x
Opening angle of hinged covers/gratings	6.17	8.4.16	x	x	x	x	x	x
Appearance	7.1	Visual inspection	x	x	x	x	x	x
Related to the performance								
Load bearing capacity	7.2	8.3	x	x	x	x	x	x
Permanent set	7.3	8.2	x	x	x	x	x	x
Securing of the cover/grating within the frame	6.6	8.4.6	x	x	x	x	x	x
Skid resistance	7.4	8.4.13	x	x	x	x	x	x
Child safety	7.5	8.5	x	x	x	x	x	x
x To be applied.								

5.2 Covers with fillings

When tested in accordance with EN 124-1:2015, Clause 8, covers placed on the market filled with concrete or other filling materials and covers designed to be filled and placed on the market unfilled shall comply with requirements of Clause 4 and Clause 5.

Covers of classes A 15 and B 125, designed to be filled, placed on the market unfilled and which are capable of meeting the declared load class only in filled condition, can be filled subsequently on site with concrete in accordance with 4.5. Those covers shall comply with the requirements of Clause 4 and Clause 5 in the condition filled with concrete.

They shall be tested after being filled in accordance with the manufacturer's instructions for filling. The manufacturer's instructions for filling shall be supplied with the product and shall include all information for the filling procedure including the grade of the material used to ensure the declared performance after filling.

Filling materials used after the manhole top or gully top with an unfilled cover has been placed on the market, are subject to selection by the specifier or client. Their performance in service and their durability should be controlled to comply with the intended use/place of installation expectations, and with appropriate relevant European Standards. If freeze-thaw resistance is required, covers filled with concrete shall meet the freeze-thaw requirements in accordance with EN 124-4.

5.3 Material-specific characteristics for gully tops and manhole tops made of mild steel or aluminium alloys

5.3.1 Reaction to fire

Where use of manhole tops and gully tops in accordance with this standard is subject to national regulatory requirements on reaction to fire, their reaction to fire performance shall be declared. Manhole tops and gully tops made of steel or aluminium alloys are classified as Class A1 without the need for testing (CWT), in accordance with the relevant Commission Decision[1)].

NOTE 1 Steel or aluminium alloys, as homogeneously distributed materials for these products (whether in combination with concrete or not), are considered as material of known and stable performance with respect to the reaction to fire performance as it does not consist of any organic material and consequently does not contribute to fire. Under these conditions it can be considered as Class A1 material.

NOTE 2 The class of reaction to fire performance of manhole tops and gully tops made of steel or aluminium alloys is regarded as the class for the constituent material (e.g. steel or aluminium).

Conversely, where the use of manhole tops and gully tops is not subject to national regulatory requirements on reaction to fire, either the Class A1 (see above) or "No Performance Determined" (NPD) may be declared.

NOTE 3 Where the compatibility of seatings is achieved by the use of cushioning inserts, only a negligible area of the cushioning insert material would be exposed to fire, considering the end use situation. There is no relevance in relation to the reaction to fire performance and embedded cushioning inserts would not be able to ignite or to propagate fire there. Their contribution to fire spread is not of concern, nor is an influence expected on the fire behaviour of the neighbouring material and the contribution to fire propagation is negligible. Considering these aspects, separate testing and classification of cushioning inserts is not necessary.

1) See Decision of the Commission 96/603/EC of 1996-10-04 (*see OJEU L 267 of 1996-10-19*), as amended twice by 2000/605/EC of 2000-09-26 (*see OJEU L 258 of 2000-10-12*) and by 2003/424/EC of 2003-06-06 (*see OJEU L 144 of 2003-06-12*).