



EUROPEAN ASSESSMENT DOCUMENT

EAD 180008-00-0704

March 2016

TRAPPED GULLY – REMOVABLE – MECHANICAL CLOSURE

The reference title and language for this EAD is English. The applicable rules of copyright refer to the document elaborated in and published by EOTA.

This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation (EU) No 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

Contents

1	Scope of the EAD	4
1.1	Description of the construction product	4
1.2	Information on the intended use(s) of the construction product	4
1.2.1	Intended use(s).....	4
1.2.2	Working life/Durability.....	4
2	Essential characteristics and relevant assessment methods and criteria	6
2.1	Essential characteristics of the product	6
2.2	Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product	6
2.2.1	Reaction to fire	6
2.2.2	Water tightness.....	7
2.2.3	Odour tightness	7
2.2.4	Blockage prevention.....	7
2.2.5	Effectiveness	7
2.2.5.1	Access for cleaning	7
2.2.5.2	Water through the grating, grating and side inlets and side inlets.....	7
2.2.6	Mechanical endurance	7
2.2.6.1	Loading strength.....	7
2.2.6.2	Mechanical strength for extension connection	7
2.2.6.3	Mechanical strength for clamping ring	7
2.2.6.4	Apertures in gratings.....	7
2.2.6.5	Mechanical durability of the spring.....	7
2.2.7	Heat resistance.....	8
3	ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE	9
3.1	System(s) of assessment and verification of constancy of performance to be applied	9
3.2	Tasks of the manufacturer	9
4	Reference documents	10
Annex 1	Drawings of the traps with partially mechanical closure	11
Annex 2	Sketches showing the principle of the spring in the trap	12
Annex 3	Principal drawings of the gullies	13
Annex 4	Method for blockage prevention of gullies with spring-loaded traps	14

1 SCOPE OF THE EAD

1.1 Description of the construction product

Trapped gully with a removable trap.

The trap is made of polypropylene and designed as a bottle trap with a dip tube (see Annex 1 for two different designs). Contrary to an ordinary bottle trap the bowl is loosely fixed to the dip tube by means of a spring which is designed in such a way that the trap in unused condition is closed (see Figure 1 in Annex 2). The spring is made of stainless steel 1.4310 according to EN 10270-3.

When water runs into the gully the imposed water weight will move the bowl downwards and open the trap (see Figure 2 in Annex 2).

When no water is running into the gully, the bowl will by means of the spring return to the top position, close the trap and supply a mechanical seal in addition to the water seal.

The gullies (see Annex 3) are made of polypropylene, cast iron or stainless steel and produced by the same manufacturer as of the trap.

The product is not covered by a harmonised European standard (hEN).

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

1.2 Information on the intended use(s) of the construction product

1.2.1 Intended use(s)

The trapped gully is for use in buildings for domestic waste-water and designed for installation in concrete floors, floors with a watertight covering of PVC or floors with concrete on a layer of wooden beams.

The trapped gully secures that:

- No gasses or fowl air will enter the room if the water in the water seal evaporates
- No insects or similar can enter the room via the drainage system.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the trapped gully for the intended use of 25 years when installed in the works (provided that the trapped gully is subject to appropriate installation (see 1.1)). These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works¹.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

¹ The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than the assumed working life.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of the Trapped gully with a removable trap is assessed in relation to the essential characteristics.

Table 1 Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics

No	Essential characteristic	Assessment method	Type of expression of product performance <i>(level, class, description)</i>
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire	2.2.1	Class
Basic Works Requirement 3: Hygiene, health and the environment			
2	Water tightness	2.2.3	Level
3	Airtightness/Odour tightness	2.2.4	Level
4	Blockage prevention	2.2.5	Level
5	Effectiveness	2.2.6	Level
Basic Works Requirement 4: Safety and accessibility in use			
6	Mechanical endurance	2.2.7	Level
7	Heat resistance	2.2.8	Level

2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

Characterisation of products to be assessed shall be done in accordance with available specifications, notably dimensions, materials and mechanical properties.

2.2.1 Reaction to fire

The components of the trapped gully shall be tested, using the test method(s) according to EN13501-1 and relevant for the corresponding reaction to fire class. The product shall be classified according to Commission Delegated Regulation (EU) 2016/364.

The metal parts shall be classified according to Commission Decision 1996/603/EC as amended and other components shall be classified according to Commission Delegated Regulation (EU) 2016/364.

2.2.2 Water tightness

The water tightness of the kit is determined in accordance with EN 1253-1, clause 5.8.2, and the performance level is given in accordance with 1253-1, clause 4.6.2 and 4.6.3.

The tightness for sheet floor coverings and/or membrane is determined in accordance with EN 1253-1, clause 5.8.3, and the performance level is given in accordance with 1253-1, clause 4.7.3.

2.2.3 Odour tightness

The odour tightness of the kit is determined in accordance with EN 1253-1, clause 5.8.1, and the performance level is given in accordance with 1253-1, clause 4.6.1.

2.2.4 Blockage prevention

The blockage prevention ability is determined in accordance with Annex 4, and the performance level is given in accordance with annex 4.

2.2.5 Effectiveness

2.2.5.1 Access for cleaning

The access for cleaning of the kit is determined in accordance with EN 1253-1, clause 5.4.1, and the performance level is given in accordance with 1253-1, clause 4.2.1.

2.2.5.2 Water through the grating, grating and side inlets and side inlets

The water through the grating and side inlets of the kit is determined in accordance with EN 1253-1, clause 5.9.1 and 5.9.2, and the performance level is given in accordance with 1253-1, clause 4.8.1 and 4.8.2.

2.2.6 Mechanical endurance

2.2.6.1 Loading strength

The loading strength is determined in accordance with EN 1253-1, clause 5.6, and the performance level is stated in the ETA.

2.2.6.2 Mechanical strength for extension connection

The mechanical strength for extension connection is determined in accordance with EN 1253-1, clause 5.7.1, and the performance level is given in accordance with 1253-1, clause 4.7.3.

2.2.6.3 Mechanical strength for clamping ring

The mechanical strength for clamping ring is determined in accordance with EN 1253-1, clause 5.7.2, and the performance level is given in accordance with 1253-1, clause 4.7.2.

2.2.6.4 Apertures in gratings

The effect of apertures in gratings is tested in accordance with EN 1253-1, clause 5.1, and the performance level is given in accordance with 1253-1, clause 4.1.3.

2.2.6.5 Mechanical durability of the spring

The performance of spring is in accordance with EN 15800. The mechanical durability of the spring expressed as the permissible number of stress cycles are calculated in accordance with SS 2389. The permissible number of stress cycles as calculated shall exceed 350.000 cycles corresponding to the estimated use of one waste discharge pipe in a dwelling for 25 years.

2.2.7 Heat resistance

The temperature cycling is tested in accordance with EN 1253-1, clause 5.5, and the performance level is given in accordance with 1253-1, clause 4.5.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System(s) of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal act is: Decision 2000/273/EC amended by 2001/596/EC

The system is: 4

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 2.

Table 2 Control plan for the manufacturer; cornerstones

No	Subject/type of control (product, raw/constituent material, component - indicating characteristic concerned)	Test or control method (refer to 2.2 or 3.4)	Minimum frequency of control
Factory production control (FPC) [including testing of samples taken at the factory in accordance with a prescribed test plan]*			
1	Appearance (trap)	EN 1253-3 table 1	EN 1253-3 table 1
2	Dimensions (trap)	EN 1253-3 table 1	EN 1253-3 table 1
3	Materials (trap)	EN 1253-3 table 1	EN 1253-3 table 1
4	Skirt membrane affixed to the gully	EN 1253-3 table 1	EN 1253-3 table 1
5	Classification by loading strength (trap and gully)	EN 1253-3 table 1	EN 1253-3 table 1
7	Raw material/constituents (all components)	Check conformity with the ordered quality	Every lot delivered

4 REFERENCE DOCUMENTS

As far as no edition date is given in the list of standards thereafter, the standard in its current version at the time of issuing the European Technical Assessment, is of relevance.

EN 10270-3	Steel wire for mechanical springs - Part 3: Stainless spring steel wire
EN 13501-1	Fire classification of construction products and building elements -- Part 1: Classification using test data from reaction to fire tests
EN 1253-3	Gullies for buildings - Part 3: Quality control
EN 1253-1	Gullies for buildings - Part 1: Gullies for buildings – Part 1: Trapped floor gullies with a depth water seal of at least 50 mm
EN 15800	Cylindrical helical springs made of round wire - Quality specifications for cold coiled compression springs
SS2389	Helical springs made from round wire - Compression springs. Calculations

ANNEX 1 DRAWINGS OF THE TRAPS WITH PARTIALLY MECHANICAL CLOSURE

Figure 1

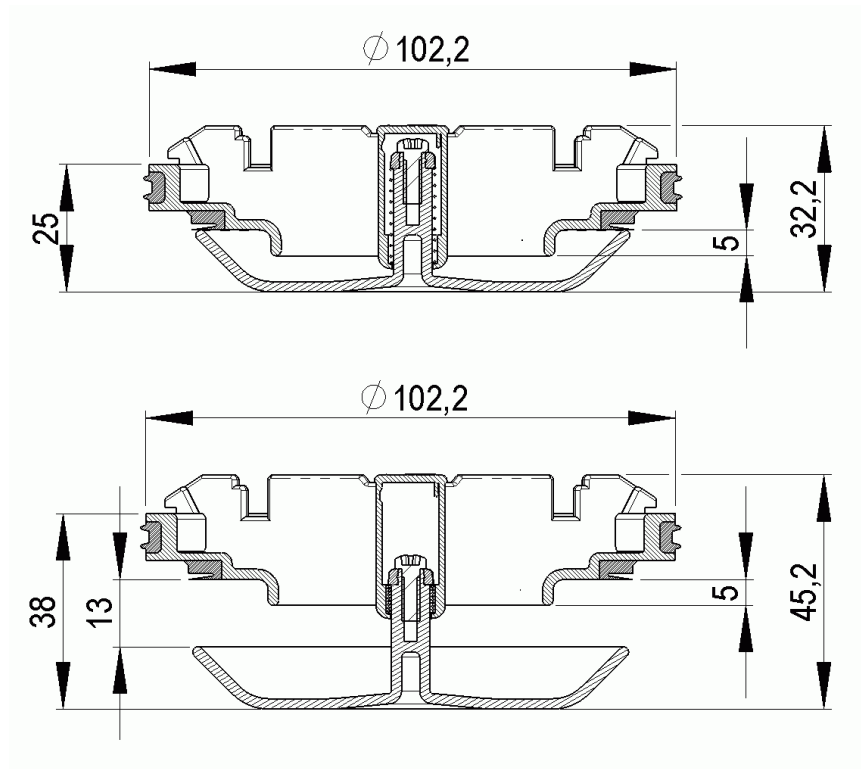
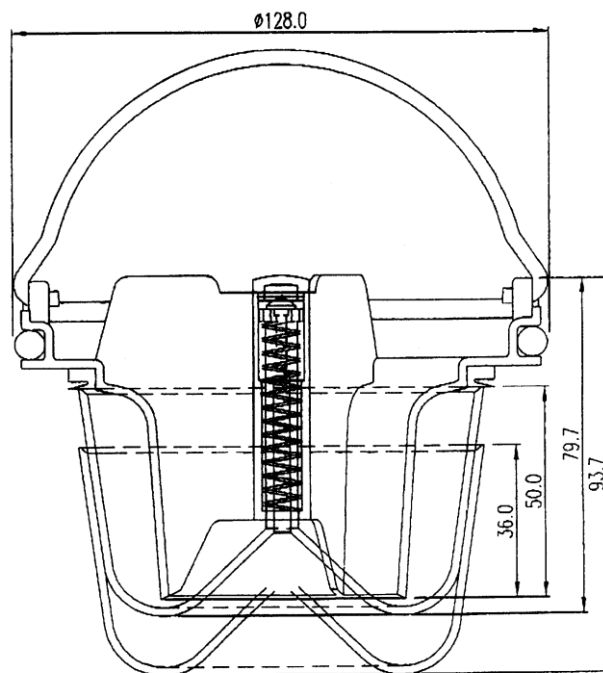


Figure 2



ANNEX 2 SKETCHES SHOWING THE PRINCIPLE OF THE SPRING IN THE TRAP

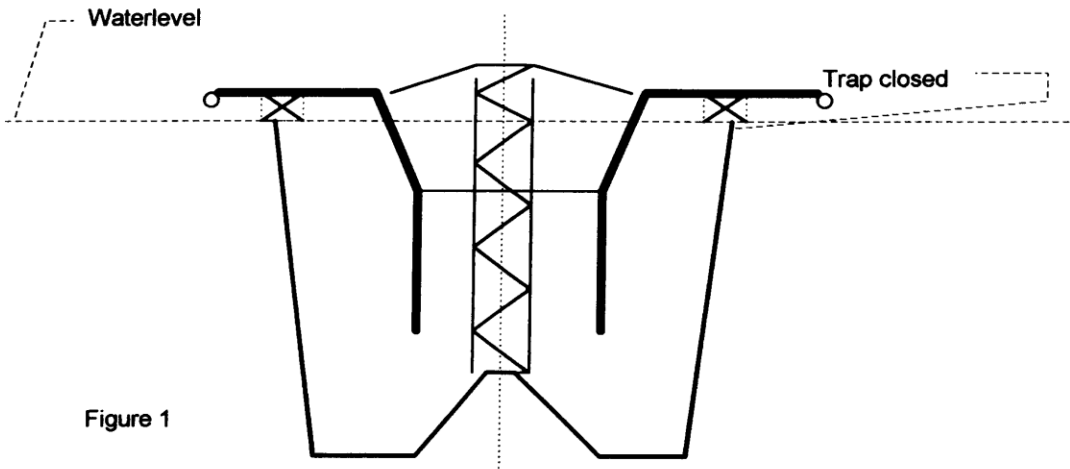


Figure 1

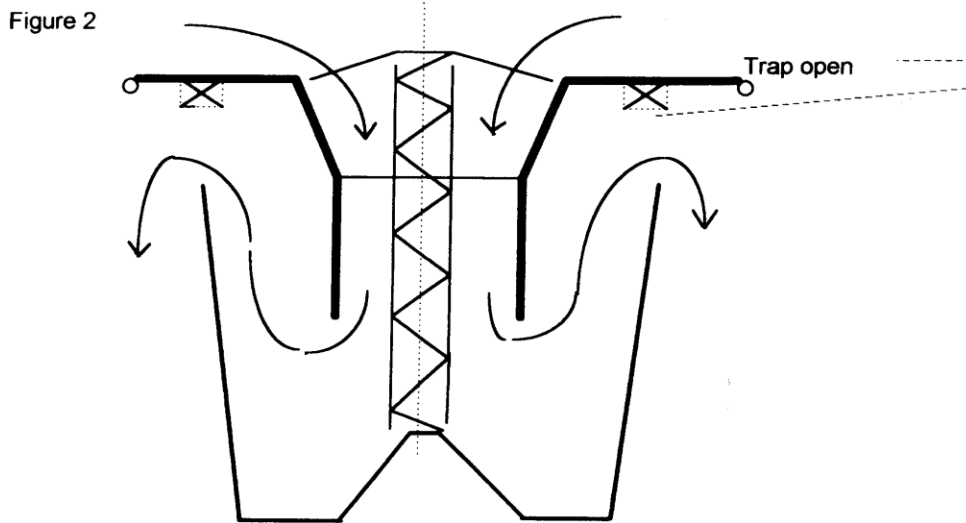
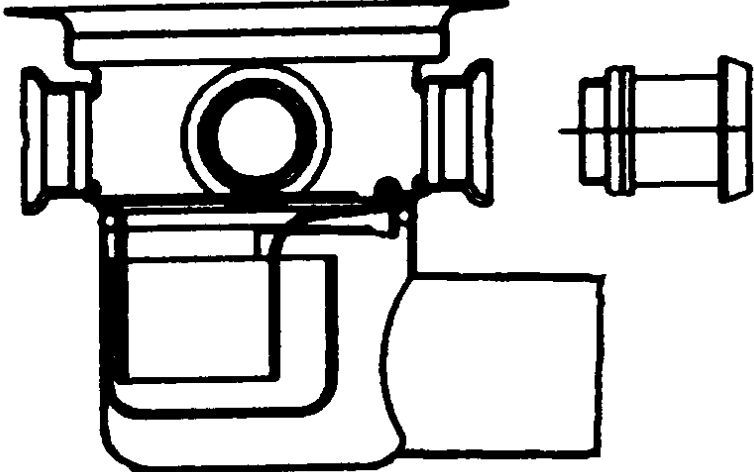
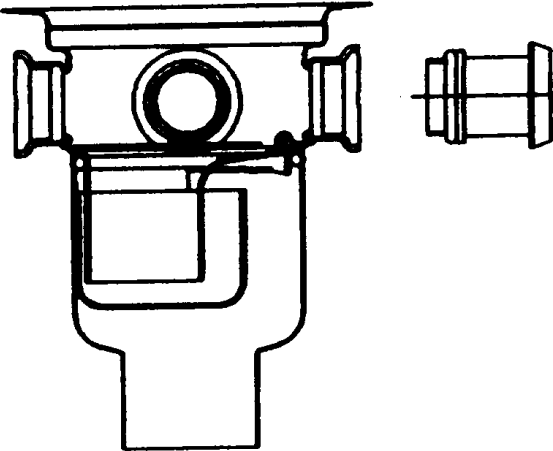


Figure 2

ANNEX 3 PRINCIPAL DRAWINGS OF THE GULLIES



Gully with horizontal outlet



Gully with vertical outlet

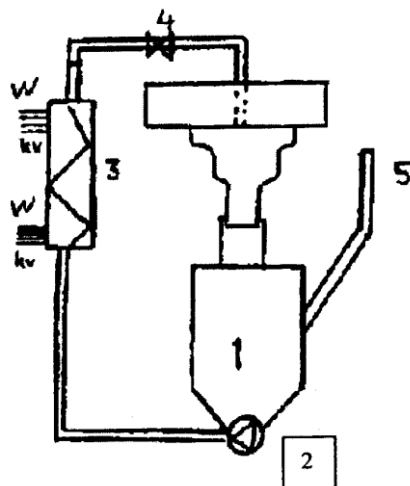
ANNEX 4 METHOD FOR BLOCKAGE PREVENTION OF GULLIES WITH SPRING-LOADED TRAPS

Introduction

The mechanical function shall be the same after the test as before, i.e. the spring must not bind or be stuck in a specific position.

After the test, the gully must not show any other signs of damage that might influence its function.

Test arrangement



1. Tank with test medium
2. Pump
3. Heat exchanger with cold and hot water connection
4. Flow control, type clamped plastic tubing
5. Air pipe to let out any positive or negative pressure that have occurred

The tank shall have a shape which avoids sedimentation. The pressure pipe from the pump shall be designed to give the test medium a sufficient transport speed.

Test-medium

The following shall be added to 5 litre water:

- 5 ml sand of each of the 3 following granular fractions: 0,125-0,25 mm, 0,25-0,5 mm, and 0,5-1,0 mm
- 15 ml dripping
- 5 ml soap (in one piece)
- 5 ml shampoo
- 5 ml hair balsam
- 2,5 g straight synthetic human hair cut into different lengths. The quantity of all hair lengths shall be the same. Max length 20 cm.
- 2,5 g origin dog hair from an Old English Sheepdog.

Test method and sequences

The gully is exposed to the following cycles during a period of 14 days:

Flow cycle:

- The solution flows during 30 s
- Pause 30 s

Temperature cycle:

At the same time the solution is heated and cooled in the following intervals:

- Heating to 40 ± 2 °C in 5 min
- Cooling to 20 ± 2 °C in 10 min

Flow control:

Water is supplied to the gully till the water level reaches the lower part of the outlet (bottom outlet). For gullies with side outlet the water level shall be 100 mm below the lower part of the outlet. The pump is started and the flow is adjusted to 0.2 l/s. This is established by using a removable side inlet and measuring with a bucket and a clock.

Test sequences:

The pump is started to run continuously and the sand is slowly added. The smallest granular fractions are added firstly, then the middle-sized and at last the largest ones. Hereafter the dripping, soap, shampoo and hair balsam are added at the same time through a funnel into the grating. The ingredients are mixed and dissolved in warm water before adding. When the mixture has been pumped around in the system for some minutes:

1. The automatic on/off-switch for the pump is started.
2. The heating/cooling cycle is started.

After 2 cycles with heating/cooling (30 min) the hair is added. Firstly, the short human hair and then gradually the longer ones. After 15 min. the dog hair is added. During the coming 2 hours observations are made, e.g. to examine whether the hair get stuck somewhere.

Once a day a pause is made for 1 hour, directly after that the solution has been heated to 40 °C. (This is to obtain a possible sedimentation effect in the water trap). After the pause the function of the closing mechanism in the gully is checked. After this check, the flow- and temperature cycles are started again.

After the 3rd day an evaporation test is added after the 1 hour pause and the function control. The evaporation test shall last for 7 days at 20 °C ambient temperature, and shall be forced by the means of a small blowing fan with an air stream directed obliquely down to the gully (do not remove the side inlet during this test). A function control of the siphon is carried out and the flow and temperature cycles are started again.

After the 14th day a function control is made. The amount and position of the sediment there in the siphon are noted. Then the gully is flushed through the side inlet with a flow of 0,9 l/s during 90 s and thereafter a final function control is made and the condition of the gully is noted.