

Sanitary Components

Technical document 076-04

Gullies and gutters

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Modification history

Revision No.	Date	Modifications
10	01/09/2018	Update to the document introduction and reference.

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1. APPLICATION RULES FOR STANDARDS NF EN 1253-1, NF EN 1253-2 AND COMPLEMENTARY SPECIFICATIONS

Purpose

The purpose of this document is to clarify and/or complete some technical specifications and test methods, using the same numbering system as that used in Standard NF EN 1253 part 1.

The following table contains the list of requirements set down in standard NF EN 1253-1 and identifies the clauses that have been modified and/or extended and presented in this document, and are applicable to all mechanisms to which this standard is applicable.

Table 1: List of points to be verified

Specifications clause in Standard NF EN 1253-1	Requirements	Clauses concerned by this document
1	Scope	Clause completed
2	Standard references	/
3	Terms and definitions	Clause completed
4	Load resistance	Clause completed
4.1	Gullies	Clause added
4.2	Gutters	Clause added
5	Installation location	Clause completed
5.1	General	/
5.2	Exceptions	/
5.3	Classification	Clause added
6	Nominal diameters	/
7	Materials	Clause completed
7.1	Choice of materials	Clause added
7.2	Characteristics of materials	Clause added
7.3	Corrosion resistance tests	Clause added
8.1	General	/
8.1.1	Connection of the product to the pipe	Clause added
8.1.2	Stability of the grating: gutters	Clause added
8.2	Appearance	Clause completed
8.3	Depth of water seal	Clause completed
8.4	Resistance of water seal to pressure	Clause completed
8.5	Openings in the gratings	Clause completed
8.6	Prevention of blocking: gullies	/

Specifications clause in Standard NF EN 1253-1	Requirements	Clauses concerned by this document
8.7	Lateral water inlets	Clause completed
8.8	Thermal behaviour	Clause completed
8.8.1	Gully temperature cycles	Clause completed
8.8.2	Additional installation and test conditions for gullies used with a flexible plastic floor covering	/
8.9	Seal	Clause completed
8.9.1	Gully seal against smells	/
8.9.2	Gully water seal	Clause completed
8.9.3	Water tightness of gullies used with a membrane	/
8.9.4	Water tightness of gullies used with a flexible plastic floor covering	/
8.9.5	Water tightness of gullies used with a membrane built-in in the factory	cf. § 8.9.2
8.9.6	Water seal of the upstand	cf. § 8.9.2
8.10	Mechanical strength	Clause completed
8.10.1	Mechanical strength of the upstand for gullies used with a flexible plastic floor covering	/
8.10.2	Mechanical strength of the ring or the membrane attachment flange	Clause completed
8.10.3	Mechanical strength of gullies equipped with a membrane built-in in the factory	Clause completed
8.11	Flow rates	Clause completed
9	Marking	Clause completed
9.1	Delivery disposition	Clause added
9.2	Technical documents	Clause added
10	Quality control	Clause completed See part 2 p.23

1 Scope

This document is applicable to gullies and gutters for use in evacuation systems inside buildings, except for balconies.

This document does not concern drainage devices, associated with sanitary fixtures (drain outlet, gullies installed on shower pans, bathtubs ...). These products are covered by standards NF EN 274.

The product families covered until now are gullies and gutters Class K3 and Class L15.

The Class K3 gullies are designed for zones without vehicle traffic, such as kitchens and wet rooms in dwelling units, retirement homes, hotels, schools, swimming pools, public baths.

The Class L15 gullies are designed for zones carrying light vehicle traffic (weight less than 1500 kg), to the exclusion of lift trucks, in commercial premises.

The characteristics verified include:

- Characteristics of materials
- Dimensional characteristics: dimensions of openings in gratings, prevention of clogging, water seal
- Leak tightness characteristics: for smells and water
- Mechanical characteristics: resistance to loads and mechanical strength of the ring / attachment flange and sealing membrane
- Hydraulic characteristics: flow through the grating and the lateral water inlets.

2 Standard references

NF EN 1253-1: Gullies for buildings — Part 1: Specifications.

NF EN 1253-2: Gullies for buildings — Part 2: Test methods.

NF EN ISO 9227: Corrosion tests in artificial atmospheres. Salt spray tests.

NF EN ISO 4628-3: Paints and varnishes -- Evaluation of degradation of coatings -- Designation of quantity and size of defects, and of intensity of uniform changes in appearance -- Part 3: Assessment of degree of rusting

NF EN 10088-1: Stainless steels – Part 1: List of stainless steels

NF EN 10088-2: Stainless steels – Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes

NF EN 10088-3: Stainless steels – Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.

3 Terms and definitions

This section recalls the definition of a gully, includes the definition of a gutter and gives a non-exhaustive list of the components of a gully.

A gully is defined as a water removal component, the upper part of which is a grating or a grating cover that can be installed at the level of the ground, floor or slab and designed to receive wastewater through the grating and/or via pipes, connected to the outlet body.

A gully fitted with a rectangular grating is commonly called a gully. A gully can be installed horizontally at floor level or vertically at the partition wall.

Metallic gullies and gutters to be built into the structure shall be earthed and this shall be clearly indicated in the installation instructions.

All the elements constituting the gully will be referred to as "gully components". For the definition of these components, refer to Article 3 of standard NF EN 1253-1.

The manufacturer will need to indicate the elements constituting its product (see Table 2).

Table 2: List of gully components

Gully components	Basic elements constituting the gully (to be filled in by the manufacturer)
grating	<input checked="" type="checkbox"/> number of gratings: ... reference of gratings: ...
frame	<input type="checkbox"/>
sediment bucket	<input type="checkbox"/>
extension	<input checked="" type="checkbox"/>
clamp	<input type="checkbox"/>
counter-flange	<input type="checkbox"/>
seal plate	<input type="checkbox"/>
connecting plate	<input type="checkbox"/>
immersion tube	<input checked="" type="checkbox"/>
gully body	<input checked="" type="checkbox"/>
membrane	<input type="checkbox"/>
other elements to be defined, if any	<input type="checkbox"/>

4 Load resistance

Note: This clause is additional to the specifications in clause 4 in standard NF EN 1253-1. Sections 4.1 and 4.2 have been added.

4.1 Gullies

This section describes parts of the gully to be tested and defines test conditions for floor gullies.

Procedure

The test may be done on the complete floor gully (body+upstand and/or grating support+grating), or on the upstand and/or grating support+grating, placed in an adapted test support, placed flat on the test machine plate.

The tests shall be carried out under the following conditions:

Place the specified test punch on the assembly, making sure that:

- the force is applied perpendicular to the surface of the assembly;
- the load is applied at the geometric centre of the test assembly.

The deformation may be measured using a dial gauge placed under the grating or other appropriate measurement systems.

For the procedure, refer to clause 4.4 in standard NF EN 1253-2

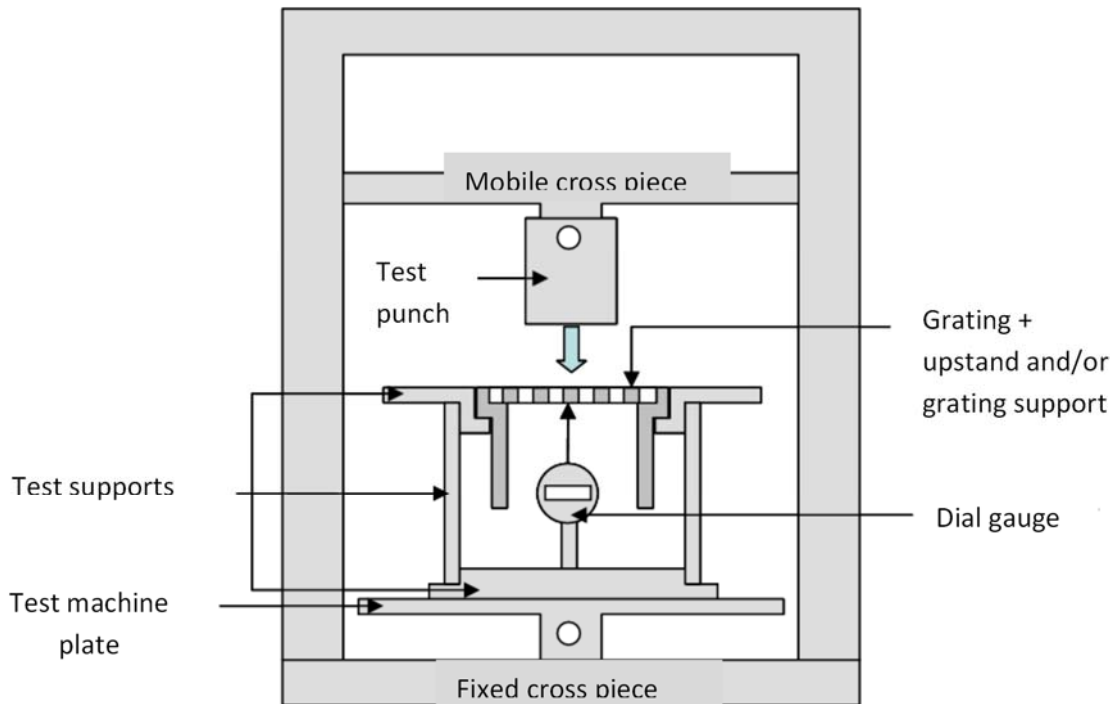


Figure 1: Device for load test and deflection measurement principle

Measurement of the residual deflection

The deformation of the grating shall be measured:

- After application of 2/3 of the force
- And after 1 hour

The residual deflection is obtained by taking the difference between the two measurements and shall be between 0.4% of the passage size (CP) and 2.0 mm.

Required characteristics

The uplift system and/or grating support+grating or the complete gully fitted with its grating shall resist a load of 3 kN or 15 kN depending on the class.

No cracks or fractures shall occur before the test load has been reached.

4.2 Gutters

Note: In addition to the load test, a stability test shall be carried out on the grating as described in section 0.

Test conditions for the load test are defined below:

The load resistance test is not applicable if the width of the gutter is less than 25 mm.

For other widths, the method used for gullies shall be applied using a 35 mm diameter punch located at the geometric centre of the grating.

7 Materials

Note: paragraphs 7.1 and 7.2 have been added.

7.1 Choice of materials

The choice of materials is left to the manufacturer's initiative provided that they comply with the requirements in § 7.2.

7.2 Characteristics of materials

All the materials shall resist the flows of domestic wastewater up to a temperature of 95°C during a number of cycles as pre-defined depending on the location of use (see Table 4).

Table 4: Resistance class to thermal shocks as a function of the usage location

Thermal resistance class	Purpose / Usage location	Resistance of materials at 93°C
Th 360	<ul style="list-style-type: none"> Gullies for single-person bathrooms (private house) Gullies for single-person bathrooms in apartment buildings 	360 cycles (24 h) at 93 ± 2°C
Th 1500	<ul style="list-style-type: none"> Gullies for collective bathrooms Gullies for kitchen 	1500 cycles (100 h) at 93 ± 2°C

Note: All-metal gullies and gutters are deemed to comply with this requirement.

All metallic elements in contact with water must resist corrosion (see section 0).

Only steels mentioned in standards NF EN 10088-1, NF EN 10088-2 and NF EN 10088-3 shall be used, to obtain resistance to corrosion:

austenitic steels: all types

ferritic and martensitic steels: X 8CrTi 17 or X 8CrNb 17 exclusively.

Note: section 7.3 has been added

7.3 Corrosion resistance tests

Perform the neutral salt spray test under the conditions specified in standard ISO 9227.

Procedure

- Spray the partially disassembled gully with its accessories for 200 ±2 h, including a pause lasting (48 ±1) h half way through the treatment, in other words after the first 100 hours ±1 h of spraying.
- Continue heating the tank during the pause in spraying.

Throughout the tests, do not open the tank except to check and maintain the conditions, with a maximum spray time pause of 30 minutes per day. Never stop heating and do not manipulate, wash or verify the samples being tested.

- Rinse the samples with water after treatment and before visual examination, to eliminate all salt residue from them.

When the test is completed, make a visual examination of the surfaces with the naked eye from a distance of 300 mm without a magnifying glass, with indirect non-dazzling light at an intensity of between 700 Lux and 1 000 Lux.

Required characteristics

Parts shall be examined and evaluated according to standard NF EN ISO 4628-3 for characterisation of rusting. The surface degree of rusting shall be \leq Ri 2.

8 Design and construction

8.1 General

No change.

Note: sections 8.1.1 and 0 have been added.

8.1.1 Connection of the product to the pipe

This clause specifies methods of connecting the gully to the drainpipe.

- Glued and welded connections are acceptable without any special additional tests.
- Other connection methods (screw, spigot) are acceptable provided that a special study is carried out followed by appropriate tests that will be defined **in a first admission application**.

Furthermore:

- The connection shall be complete and shall be adapted to the pipe.
- The manufacturer shall clearly show the method of connecting his product on the packaging and how to install it in his installation instructions.

DTUs specify or impose connection methods.

8.1.2 Stability of the grating: gutters

The gutter shall be designed so that the grating remains stable in its frame/grating support.

Gutter gratings may be held in position in the frame or grating support by:

- a locking device;
- a sufficient mass per unit area;
- a special design element (system of shims, etc.).

The stability of the grating is verified as follows:

Put a 50 kg, 25 mm long punch with the same width as the grating at 3 cm from the end of the grating and check that the grating does not lift by more than 1 cm.

8.2 Appearance

This paragraph supplements Article 8.2 of standard NF EN 1253-1 with relation to the appearance and finish of the grating.

The rims, edges of the grating and of the grating's apertures shall contain no risk of injury (no ragged or sharp edges).

8.3 Depth of water seal

This paragraph proposes a method to determine the water seal depth under conditions similar to gully use conditions.

Procedure

Set the gully on a suitable horizontal support. Introduce water until it spills out through the gully's outlet, then measure the water seal's depth using appropriate instruments, such as depth gauge with L-bottom or rule with L-bottom as shown in Figure 2.

Note: If the measurement cannot be made as described above, the check shall be made in accordance with drawings supplied by the applicant.

The water seal's depth is defined as being the distance between the bottom point of the immersion tube and the water's surface (Figure 2).

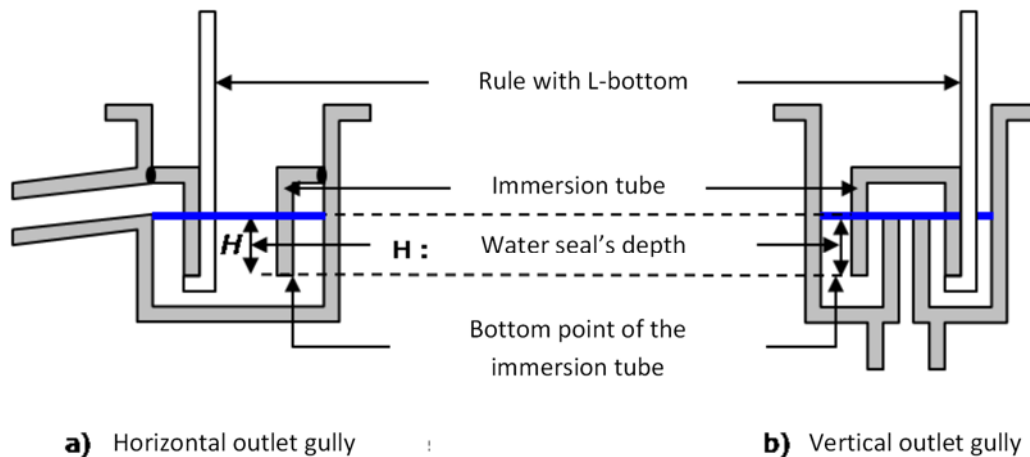


Figure 2: Measurement of the depth of water seal

Required characteristics

The depth of water seal shall be equal to or greater than 50 mm.

8.4 Resistance of water seal to pressure

This paragraph proposes a modification to the test apparatus illustrated in Figure 1 of standard NF EN 1253-2.

Test conditions:

The manometer of the test apparatus is replaced by a differential pressure measurement system (refer to Figure 3 for the test configuration).

The negative pressure and the positive pressure to be applied are expressed by a water head.

The procedure as described in Article 5.2 of standard NF EN 1253-2 remains unchanged.

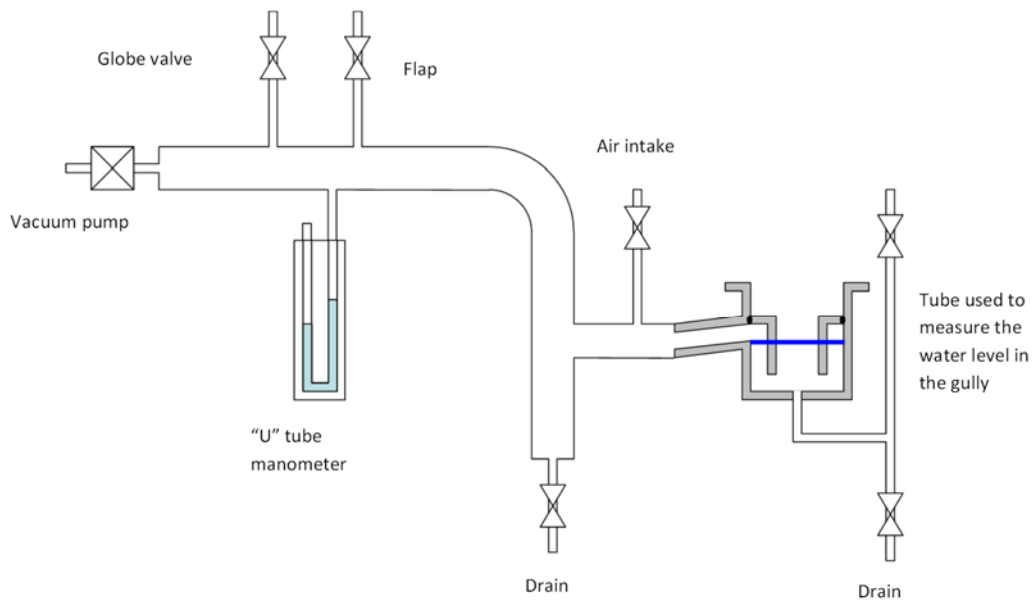


Figure 3: Test apparatus for measuring the water seal's resistance to pressure

Required characteristics

The pressure applied to enable the passage of air shall be greater than 400 Pa.

8.5 Openings in the gratings

This paragraph defines the dimensions of the grating apertures in accordance with their installation location (see Table 4).

Table 4: Grating apertures

Class	Location of use	Minimum (mm)	Maximum (mm)
K3	Room with water outlet, domestic use	4	8
	Kitchen, room with water outlet, collective use	6	10 (8 mm max. in zones where people are walking barefoot)
	Balcony, loggias, deck, planted roof	6	10 (8 mm max. in zones where people are walking barefoot)
L15	Zones subjected to light vehicle traffic, excluding lift trucks in commercial premises	6	25

Required characteristics:

The holes or slots shall let through a metal ball, diameter 4 mm or 6 mm according to the use location and shall stop a ball diameter 8 mm.

Note:

For aesthetic reasons, gratings comprising openings with dimensions partially smaller than 4 mm are accepted if the flow test performed by closing openings with dimensions less than 4 mm is conforming to the specifications given in Table 5).

Gratings without openings (for example gully with finishing frame ready to be tiled, or gutter with stainless steel frame and cover) shall comply with the specifications given in Table 4.

8.6 Prevention of blocking: gullies

No change.

8.7 Lateral water inlets

The lowest connection point or lateral water inlets shall be above the water level.

Procedure

Place the gully on an appropriate horizontal support, connect the lateral water inlet with a pipe about 10 cm long and with an appropriate DN, fill the gully with water and check that the water drains first through the gully outlet.

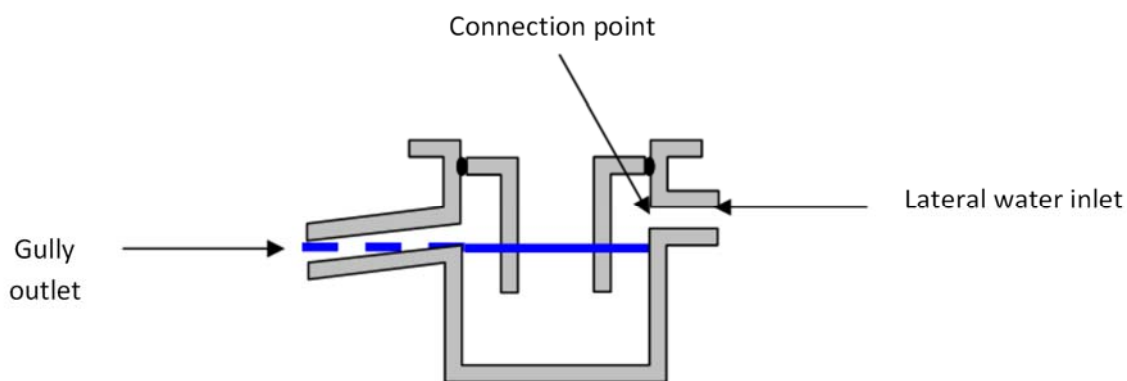


Figure 4: Position of lateral inlets

8.8 Thermal behaviour

This paragraph defines the test conditions to be applied to floor gullies or gutters depending on their installation location.

8.8.1 Gully temperature cycles**Procedure**

The water is poured into the gully through the grating in a cycle described in Article 9.1.1 of standard NF EN 1253-2, that is:

- 0.5 l/s hot water at $(93 \pm 2)^\circ\text{C}$ for 60 s.
- Pause for 60 s.
- 0.5 l/s cold water at $(15 \pm 10)^\circ\text{C}$ for 60 s.
- Pause for 60 s.

For floor gullies or gutters for rooms with domestic water outlet, the cycle is repeated 360 times (24hrs)

For other installation locations, the cycle is repeated 1500 times (100 hrs).

Required characteristics

No deformation or modification of the surface appearance of the gully's components shall impair its fitness for use.

8.8.2 Additional installation and test conditions for gullies used with a flexible plastic floor covering

No change.

8.9 Seal

8.9.1 Gully seal against smells

No change.

8.9.2 Gully water seal

This section includes sections 8.9.5 (leak tightness of the membrane built-in in the factory) and 8.9.6 (leak tightness of the upstand).

Two cases should be considered for this test, depending on the design of the gully.

- Leak tightness between the gully body and its components (upstand, inlet, etc.) (Figure 5 a and c): leak tightness is checked on all elements.
- No leak tightness between the gully body and its components (Figure 5 b): only the leak tightness of the body itself is checked.

Note:

The diagrams in Figure 5 are principle diagrams and are not installation diagrams under any circumstances.

The arrows shown on these principle diagrams indicate the risk (backflow, infiltration under tiles, etc.) considered in the design of the gully.

The product certification does not consider installation.

Furthermore, the function of the gully is not to correct improper installation (for example waterproofing problem under the tiles, etc.).

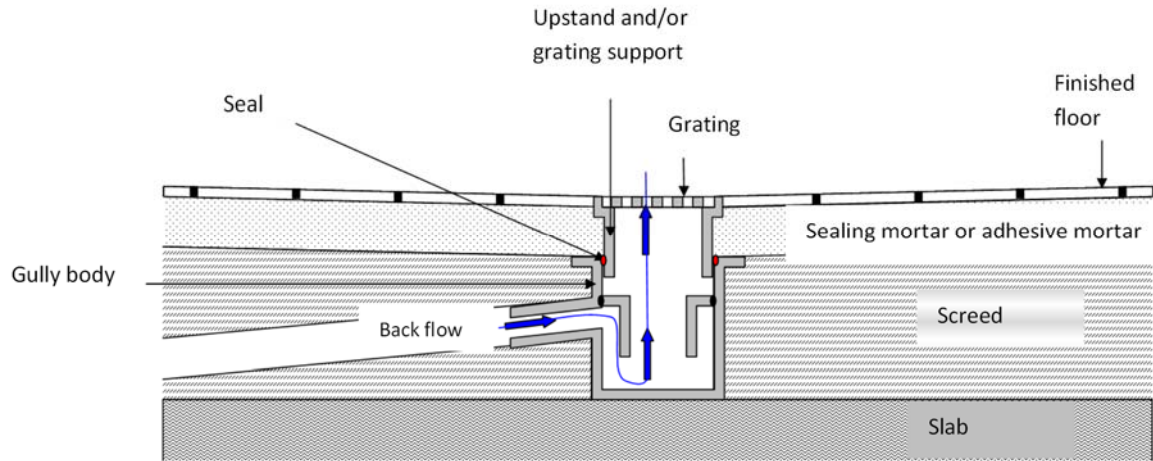


Figure 5 a): leaktightness of the upstand + gully body

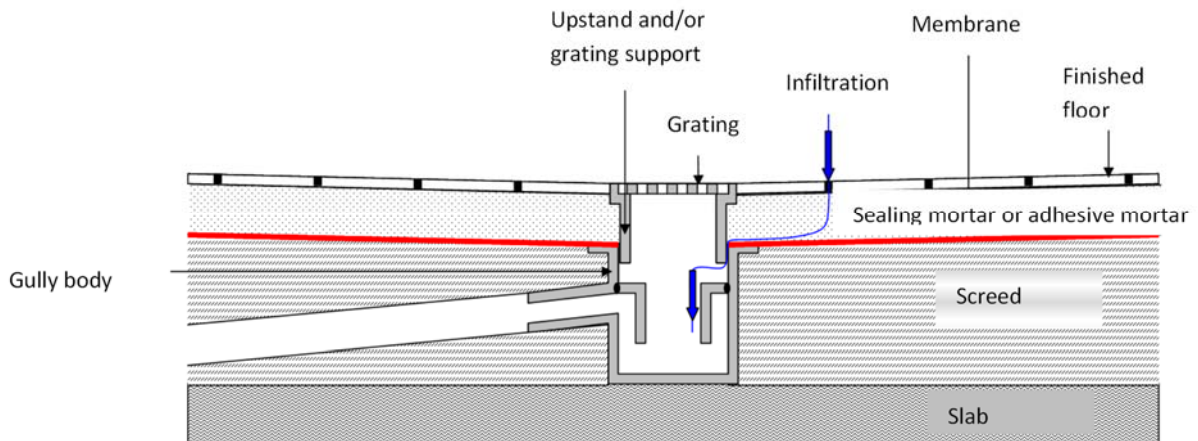


Figure 5 b): leak tightness of the gully body alone

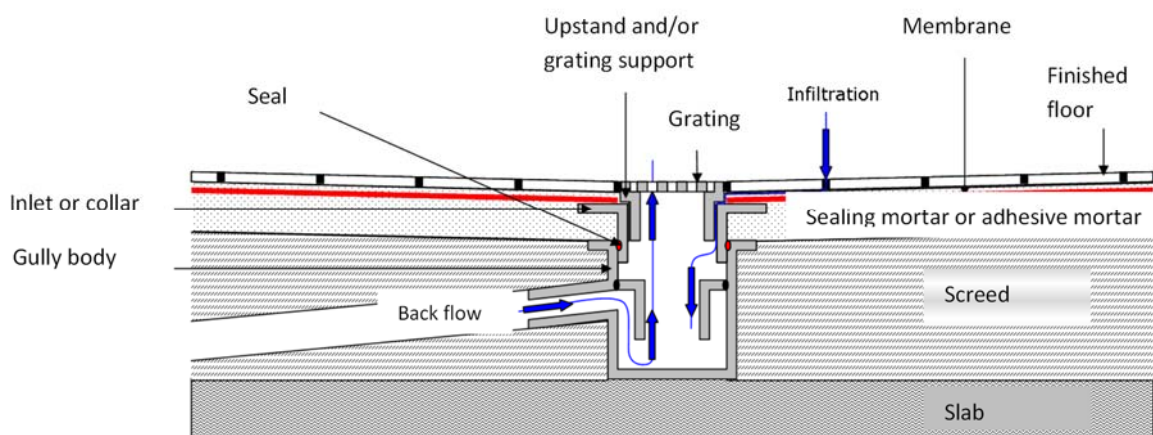


Figure 5 c): leak tightness of the inlet or collar and gully body

Figure 5: Leak tightness checked as a function of the gully design

There shall be no leak in the gully assembly (gully body, gully components (upstand) and sealing elements (seals, etc.) when a pressure of 0.01 MPa (100 mbars or 1 m water column) is applied to it.

8.9.3 Water tightness of gullies used with a membrane

No change.

8.9.4 Water tightness of gullies used with a flexible plastic floor covering

No change

8.9.5 Water tightness of gullies used with a membrane built-in in the factory

See section 8.9.2 Water tightness

8.9.6 Water seal of the upstand

See section 8.9.2 Water tightness

8.10 Mechanical strength**8.10.1 Mechanical strength of the upstand for gullies used with a flexible plastic floor covering**

Only applicable if the gully is not built-in.

8.10.2 Mechanical strength of the ring or the membrane attachment flange

No change.

8.10.3 Mechanical strength of gullies equipped with a membrane built-in in the factory

If the gully is equipped with a built-in membrane installed in the factory, the test specimen shall be prepared in the factory by the manufacturer in compliance with § 10.4.3 of standard NF EN 1253-2.

The manufacturer shall also describe the method of connecting the plate to the membrane (see clause 8.9.3 in standard NF EN 1253-1, Table 2).

The membrane shall not tear off when subjected to a force less than 100 N, applied at a load rate of 50 mm/min.

8.11 Flow rates

This section completes clause 8.11 in standard NF EN 1253-1 and describes another method of measuring and evaluating the flow.

The tests are systematically done in accordance with Figure 8 in standard NF EN 1253-2: gully suspended in water.

The test for certification can be done as shown in Figure 6b described in this chapter: gully in real configuration installed at the bottom of the trough, to determine the flow in the gully without any head above the grating.

Test equipment

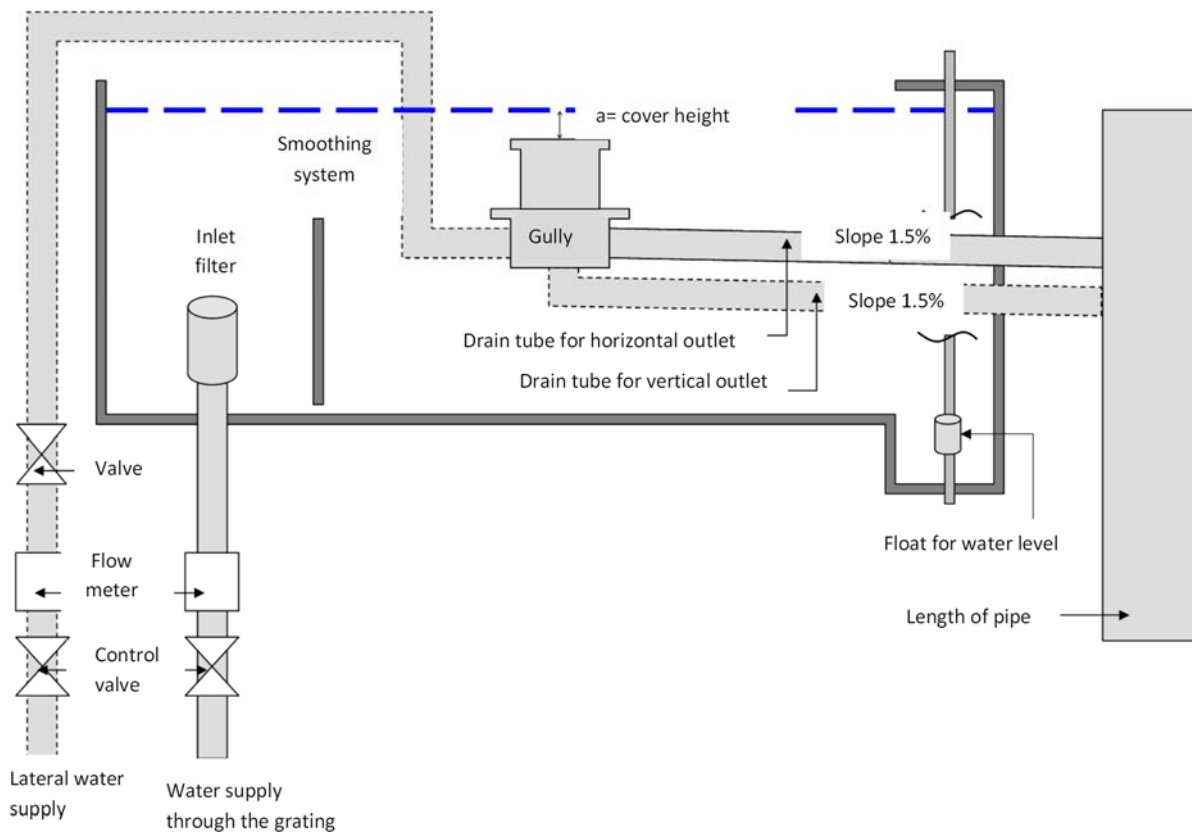
The test equipment consists of a trough 1 m wide, at least 1.30 m long and at least 0.50 m high, resting on a horizontal plane.

This trough is equipped as follows (see Figure 6):

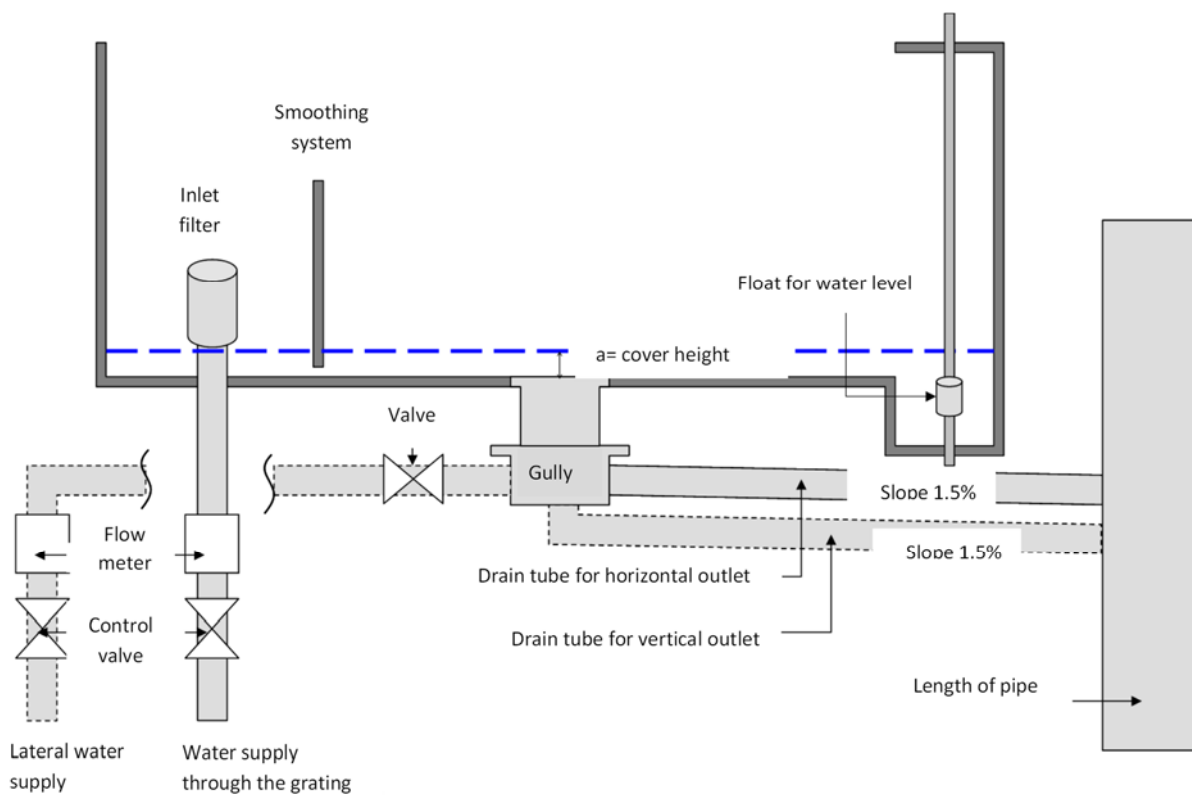
- a smoothing system (for example: grating with tight grid, perforated metal sheet) positioned in such a way that it is delimited by an effective surface of 1 m² (1 m×1 m);
- a water supply coming in at the bottom of a short side and located within its axis, next to the smoothing system. This supply includes a regulating valve as well as a flow meter for measuring the flow rate provided at ± 2%;
- a system for measuring the water height in the trough, positioned on the other short side, within its axis.

An opening is made in the bottom of the trough at the centre of the effective surface to make the flow test with the real configuration.

This opening is blocked up to make the flow test for the gully suspended in water.



6a) – Gully suspended in water



6b) – Gully in configuration

Figure 6: Test apparatus for flow rate measurements

Test principle

The principle of the test is to determine the maximum flow capacity of the gully.

The test consists of:

- measuring a water depth (a) for different flow values and
- plotting the curve « $Q = f(a)$ »

The maximum flow capacity of the gully is equal to the point at which the gradient of the curve changes $Q=f(a)$, (see figure 7).

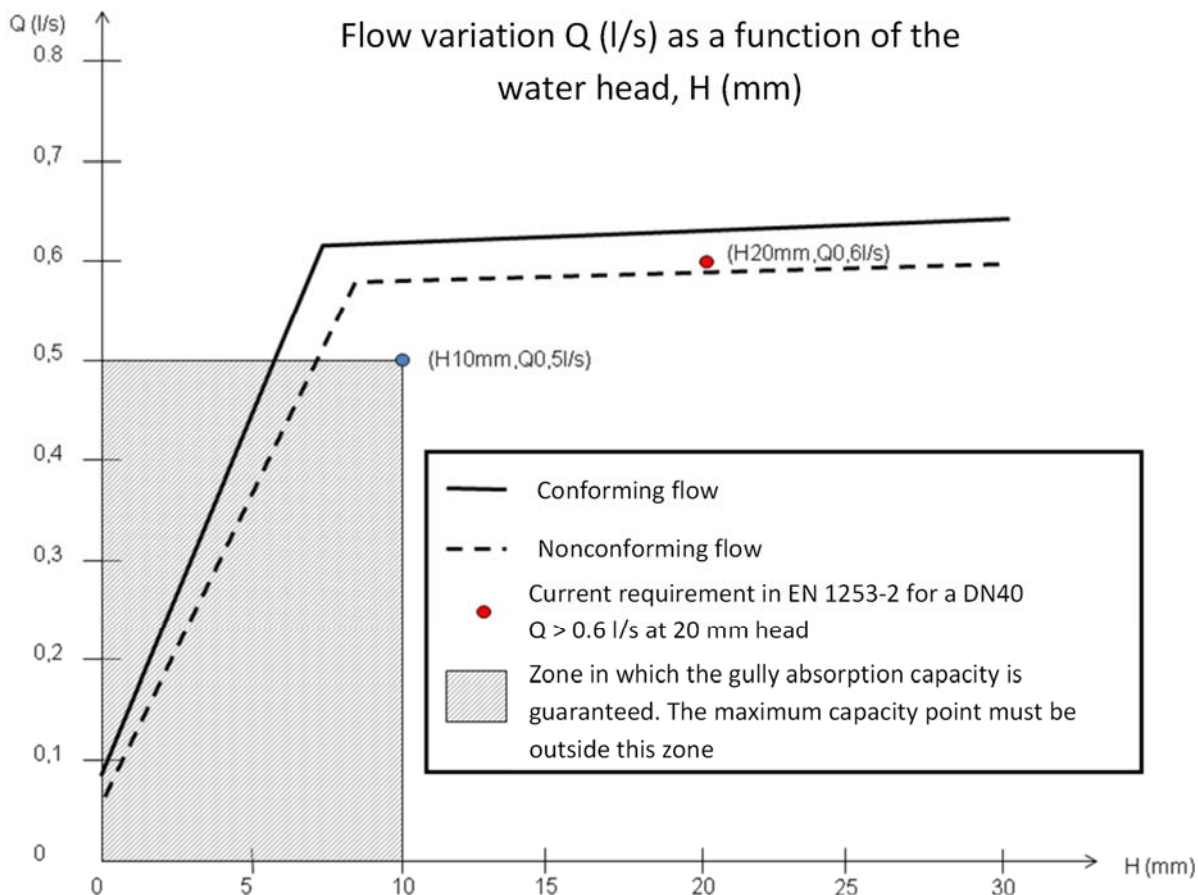


Figure 7: Flow curve

Procedure

a) flow through the grating

The gully shall be connected to a drain pipe, minimal length 1 m with the same diameter as the gully outlet with a slope ranging from 1.4 and 1.6 cm/m.

The drain pipe shall be connected to a length of pipe of DN 100 for wastewater outlets of $DN \leq 100$ and of DN equal to that of the outlet for a $DN > 100$ (ventilated fall).

In case of a gully with adjustable height grating support, the flow rate shall be measured at the minimal height indicated by the manufacturer.

Open the water supply progressively, and record the flow value corresponding to each water depth, after allowing it to stabilise for 5 minutes.

b) flow through the grating and the lateral water inlet

The lateral water supply passes through a bend and a 200 long tube with the same diameter as the diameter of the lateral water inlet.

Adjust the water supply flow to 0.8 l/s through the lateral water inlet and progressively open the water supply. Record the flow value corresponding to each water depth, after allowing it to stabilise for 5 minutes.

c) flow through the lateral water inlet

The lateral water supply passes through a bend and a 200 long tube with the same diameter as the diameter of the lateral water inlet.

Open the water supply progressively until the water rises just above the grating.

Measure the corresponding flow rate value.

Required characteristics:

The gully is deemed to be conforming if the following two conditions are satisfied.

- The maximum flow capacity shall be equal to the lowest of the values given in table 6 in this document
- the flow at 20 mm head is conforming to the specifications in Table 3 in Standard NF EN 1253-1.

Table 5: Minimum flows

Nominal inside or outside outlet diameter (mm)	Flow at 10 mm head (l/s)	Flow at 20 mm head (l/s)
$32 \leq \varnothing < 40$	≥ 0.3	≥ 0.4
$40 \leq \varnothing < 50$	≥ 0.5	≥ 0.6
$50 \leq \varnothing < 100$	≥ 0.7	≥ 0.8

9 Marking

9.1 Delivery disposition

The floor gullies or gutters shall be stored and delivered packed in a single element, grouping together the gully's components.

The grating may be delivered separately in some cases, provided that it is marked according to Table 6.

9.2 Technical documents

Each pack shall:

- Provide technical data concerning the product written in the language of the country of distribution (at least). It shall contain the following information:
 - usage location (wet room, kitchen, etc.)
 - resistance class (if there is no reference to this class on gully components)
 - evacuation flow
 - gully outlet and pipe diameter
 - pipe connection method (glued, screwed, etc.)
 - overall dimensions of the gully for the opening to be left in the slab
- contain installation and assembly instructions that shall be understandable and complete and that shall mention the recommended gradient for the evacuation pipe and the method of achieving the seal.

2 MANUFACTURER'S PRODUCTION QUALITY REQUIREMENTS WITH RELATION TO THE GULLIES AND GUTTERS

1 Nature of inspections

1.1 Checking during manufacture

The manufacturer shall assure that gullies and gutters are manufactured in compliance with the technical specifications in Standard NF EN 1253-1 and the complementary technical specifications in this document.

However, procedures and test apparatus different from those described in the standards may be used.

The functions to be checked as well as their frequencies are specified in Table 6.

Table 6: Checking during manufacture

Controlled function	Specifications Clause No. in NF EN 1253-1	Test method Clause No. in NF EN 1253-2	Check frequency
Appearance	8.2	visual and tactile examination	Quality documentation
Standardised dimensions	6 8.3 8.5 8.6.1	measurements 5.1 measurements 7.1	Quality documentation
Materials	7	Identification for each batch or supplier's certificate of conformity	Quality documentation
membrane clamped to the gully	8.9.5 8.10.2 8.10.3	10.2 10.4.3	Quality documentation
Marking	9	visual examination	Quality documentation
Packaging			Quality documentation

2 Inspection of finished products

The procedures for the inspections carried out on finished products in the plant laboratory and the test rigs used shall comply with the specifications laid down in standard NF EN 1253, Parts 1 and 2 and in this document.

The products to be controlled are sampled at the end of the assembly lines (after packaging) or on entry into the warehouse.

The types of finished product inspections and their samplings are given in Table 7.

Table 7: Inspection on finished products

Tests	Specifications clause No. in NF EN 1253-1	Sampling: Sampling plans accepted by the CSTB
Appearance	8.2	yes
Normalised dimensions	6 8.3 8.5 8.6.1	yes
Materials	7	yes
Membrane fixed to the gully	8.9.5 8.10.2 8.10.3	yes
Marking	9	yes
Packaging		yes
Some tests may not be necessary for ISO 9001 certified manufacturing sites. In this case, the holder shall prove compliance with the specifications through design control and the auditor shall verify the design to assure control over the system.		

3. PROCEDURE OF INSPECTIONS CARRIED OUT BY CSTB

The different types of products controlled by the inspection body and tested by the laboratory of CSTB are floor gullies or gutters in classes K3 and L15.

A product is designated by:

- the product type: gully or gutter
- its characteristics: to be tiled, with panel, with flexible floor covering
- its application

A product may be:

- part of a range: gully or gutter with membrane or without membrane ready to be tiled, gully or gutter with panel ready to be tiled, etc.
- a variant: if another reference or another grating or panel dimension is proposed ... without any technical influence on the product.

1 Nature of inspections

The inspections and tests are carried out based on the specifications in standards NF EN 1253, Parts 1 and 2 and on the complementary specifications in this document.

Table 8: Tests performed on products for admission

Clause No.	Test	SAMPLE No.									
		1	2	3	1	2	3	4	5		
NF EN 1253-2		1			2						
4	Loading strength		x	x		x	x	x			
	Appearance	x			x						
5.1	Depth of water seal	x			x						
5.2	Resistance of water seal to pressure		x			x					
6	Dimensions of apertures in gratings	x			x						
7.1	Access for cleaning	x			x						
7.2	⁽³⁾ Self-cleaning capacity	x			x						
7.3	Blockage prevention	x			x						
8	⁽⁴⁾ Position of lateral water inlets	x			x						
9.1	Temperature cycles for inlets/gullies	x			x						
9.1.2	⁽⁵⁾ Temperature cycles: Additional test						x				
10.1	Odour tightness	x			x						
10.2	Water tightness	x			x						
10.3.1 10.3.2	⁽⁶⁾ Inlet/gully leak tightness with flexible plastic floor covering and/or membrane (vacuum test)						x				
10.4.1	⁽⁷⁾ Mechanical strength of the inlet/gully and the upstand	x			x						
10.4.2	⁽⁸⁾ Mechanical strength of the ring or membrane attachment flange	x			x						
10.4.3	Mechanical strength of the factory fixed skirt membrane	x			x						
11.1	Flow through the grating							x			
11.2	⁽⁴⁾ Flow through the grating and the lateral inlets							x			
	Marking	x	x	x	x	x	x	x			

- (1) Test sequence in the case of an inlet/gully for tiled floor
7.1 --- 10.2 --- 9.1 --- 10.2 --- 7.1 --- 10.1 --- 10.4.1/10.4.3
- (2) Test sequence in the case of an inlet/gully for flexible plastic floor covering
7.1 --- 10.1 --- 10.4.2 --- 10.3 --- 9.1. --- 7.1 --- 10.1 --- 10.4.2 --- 10.3
The test sequence is done on sample 1 but if the test sequence has to be interrupted, the test must be resumed at the beginning. Samples 2 and 3 are provided for this purpose.
- (3) Only if the gully is self-cleaning (gully that cannot be cleaned by removing the gully partition).
- (4) Only for a gully with a lateral water inlet.
- (5) Only for a gully used with a flexible plastic floor covering.
- (6) Only for a gully with a membrane built-in in the factory or used with a flexible plastic floor covering.
- (7) Only when the gully is used with a flexible plastic floor covering and when the gully is not embedded.
- (8) Only for a gully with a membrane built-in or not built-in in the factory.

2 Sampling

2.1 Admission

The manufacturer shall send the samples necessary for the tests listed in Table 8, specifically 5 samples (sample No. 5 being used as a control sample if there is a problem with the tests done).

The tests are performed according to the conditions described below:

- Perform all the tests of Table 8.
- For the load test:
 - If there are several grating references, the manufacturer sends 3 gratings with identical reference and 1 grating for each other reference for which he would like certification. For each follow up operation, a different grating reference will be tested in accordance with standard NF EN 1253-1, article 4, on 3 samples.
 - If there are several dimensions (for gutters), the test shall be done on the smallest gutter.
- The manufacturer will be asked to prepare the specimen to determine the mechanical strength of the sealing membrane built-in in the factory.
- As regards marking, the manufacturer shall submit an implementation project.

2.2 Follow up

The tests are performed according to the conditions described below, on the samples taken during the follow-up audit (namely 3 samples).

Table 9: Checks done by CSTB

Function to be verified	Specifications Clause No. in NF EN 1253-1	Test method clause No. in NF EN 1253-2°	Number of samples
Aspect	8.2	visual and tactile examination	all sampled products
Standard dimensions	6 8.3 8.5 8.6.1	measurements 5.1 measurements 7.1	all sampled products
Materials	7	Identification for each batch or supplier conformity certificate	all sampled products
Thermal behaviour	8.8	9.1 and 9.2 depending on gully	all sampled products
Leak tightness	8.9.1 8.9.2 8.9.6	§10.2	all sampled products
Sealing membrane fixed to the gully	8.9.5 8.10.2 8.10.3	10.2 10.4.3	all sampled products
Marking	9	visual examination	all sampled products
Classification depending on the applied load	4	4	- 3 identical reference gratings and - 1 grating for each different reference for each follow up operation
Packaging			all sampled products

2.3 Case of additional admission (new products) or extension (modified products)

Following CSTB's agreement and depending on the modifications, the manufacturer shall send the samples necessary for the tests to be performed.