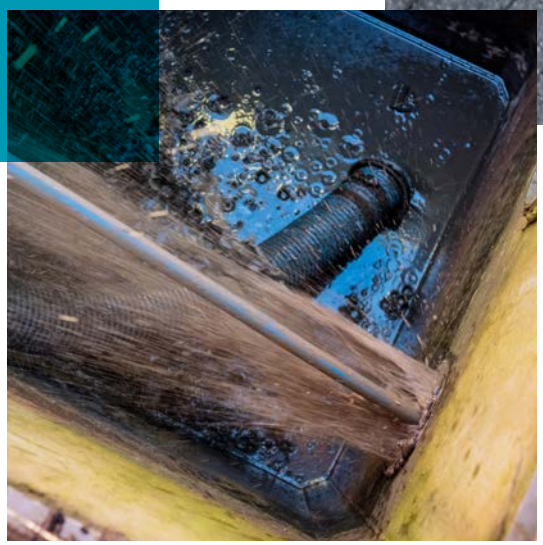
RAINWATER SYSTEMS

ROCKWOOL®

Inspection & Cleaning guidelines



ROCKWOOL®

Rockflow system Inspection & Cleaning

These guidelines explain the basic principles for inspecting and cleaning a Rockflow attenuation and infiltration system.

A Rockflow system consists of a set of vertically stacked stone wool blocks, connected to water inlet and air venting channels.

Water enters the Rockflow system through the water channel at the bottom. The water then flows into the stone wool buffer. Air makes room for the water and leaves the system through the air vent at the top (fig.1)

Rockflow has been designed to have a long lifetime of more than 50 years. During this time, the system will capture, attain and infiltrate all incoming rain and stormwater from its catchment area many times. Like all infiltration systems, Rockflow stone wool will also become subject to sedimentation, caused by particles being transported into the system by the inflowing water. The sediments do not enter the stone wool matrix, but build up in the water channels over time, and could start to clog the channels. This is turn will decrease the system's water absorption capacity/ speed.

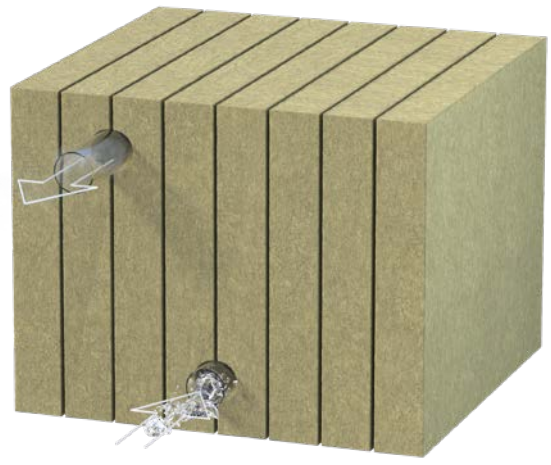


Fig. 1: Working principle of a Rockflow system: Water inlet channels at the bottom, air outflow on the top.

The good news is that the water channels can be easily inspected and cleaned. Once the system has been cleaned, the absorption speed and buffer capacity are restored, making it possible to safeguard the performance of the system throughout its lifetime. This aspect is not something that is guaranteed for other infiltration solutions on the market.

Cleaning is not always necessary, and the frequency for cleaning will vary depending on two main factors:

1. The occurrence of stormwater or other extreme events such as flooding

Your Rockflow system is dimensioned to handle stormwater events that usually occur once in a period of several years or even decades. These extreme downpours and masses of water also transport a high amount of sediment into an infiltration system installed in the affected area. When downpours are more extreme, or unexpected events such as flooding occur, there is an increased likelihood of a high sediment load entering the system over a short period of time. In this case, cleaning is necessary to restore the water absorption performance.

2. The type of sediment in the system's catchment area

The type of sediment your system is confronted with is location-dependent. For example, if your system is installed in an area with lots of trees and plants, you will probably find a larger share of organic sediment (from leaves, seeds or small branches) in your system, than in comparable systems in industrial areas.
The soil type can also make a difference: Silt or loam particles tend to clog the channels faster than sand.

First inspect, then clean

Because the above-mentioned factors differ from system to system, it is difficult to predict the exact inspection and cleaning frequency. This is why we recommend you first inspect the system, to see if cleaning is necessary or not.

When to inspect, and when to clean: the rule of 2

As a general guideline for when to inspect your system, we advise first inspecting your system roughly 2 years after installation. If you encounter a sediment load of > 2cm on the bottom of the water channels, we recommend cleaning them.

If the sediment level is less than 2cm, you can plan another inspection moment in 2 years' time (or earlier, depending on the sediment load found in the channel).

If your system has had to deal with an extreme stormwater event or other type of flooding, you should inspect the system shortly afterwards, to see if cleaning is needed (Fig. 2).

Note: Not all channels need to be inspected in order to decide whether or not to clean. If you have a system with several channels, you can select a few for inspection. You also do not need to inspect the entire length of a channel.

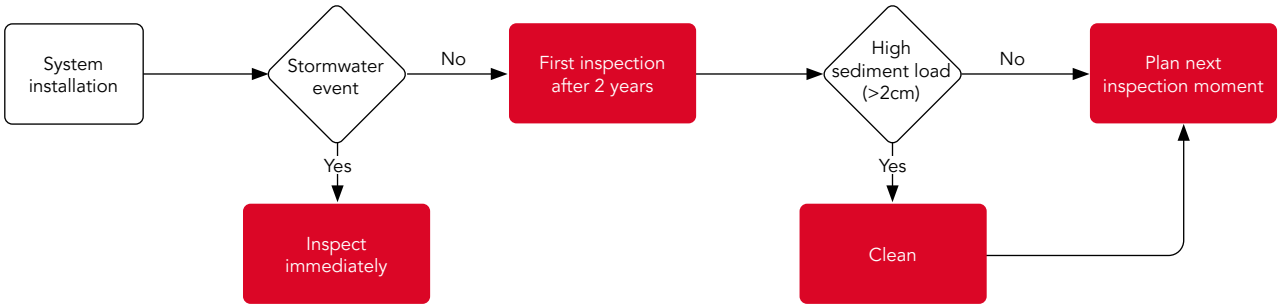


Fig. 2: When to inspect or clean a Rockflow system

How to inspect a Rockflow system

Rockflow systems or, more specifically, the water channels in a Rockflow systems can be visually inspected using a robot or push camera. The choice of tool depends on the local situation:

- The robot camera (Fig. 3) is the preferred choice as it produces higher resolution images. It can, however, only be used if there is straight access to the water channel. It cannot navigate round bends, or be used in very narrow wells.
- A push camera is more flexible, can handle most bends, but does produce an inferior image quality.

Fig. 3: Robot camera

Tip: most sewer maintenance companies rent out the equipment you need to carry out an inspection.

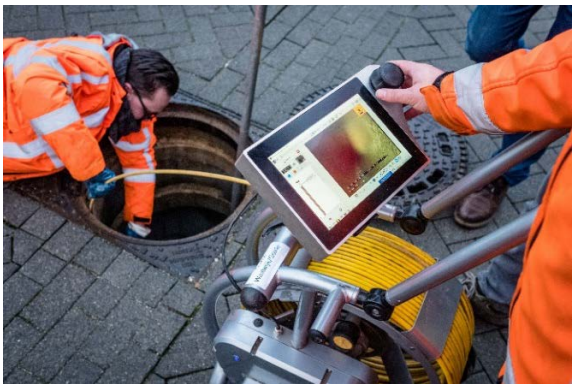


Fig. 4: Push camera

How to inspect your Rockflow system:

1 Open the well.

2 Place the camera in front of the required pipe/channel.

3 Push the camera inside the channel.

4 Analyse the camera images based on the visual checklist below.

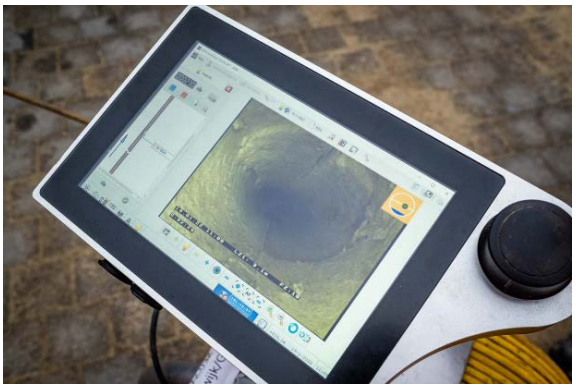


Fig. 5: Example of camera visual

Visual checklist

Is there a visible sediment layer on the bottom of the water channel?

A

No, the channel is clean

> no action required

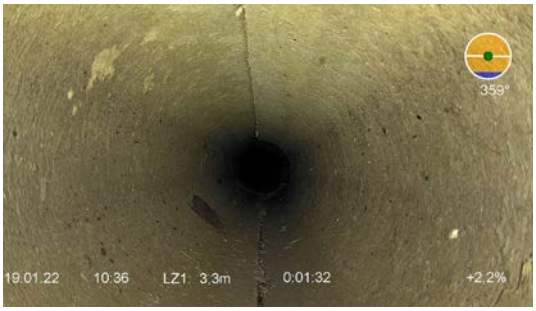


Fig. 6: Example of clean channel (after cleaning)

B

Yes, but the sediment layer is thin

> no immediate action required, but plan a new inspection date

Fig. 7: Example of typical sediment layer < 2cm

C

Yes, the sediment layer is >2 cm

> clean the channel

Fig. 8: Example of sediment layer > 2cm

D

The whole channel circumference contains sediment and the stone wool structure no longer visible

> clean the channel

Fig. 9: Example of channel with sediments around the whole channel surface

Is there root growth/ penetration visible in the water channel?

Root growth/penetration can occur, but it is rare.
It can impact the water flow in the channel. It does not affect the absorption speed of the stone wool.
It is possible to cut or mill the roots.

> Contact the Rockflow team

Fig. 10: Example of hair roots growing into the channel

Are there any traces of animals in the channels?

Stone wool is animal friendly, so you may encounter spiders, other insects, or even frogs.
They do not harm to the system.

> No action required

Fig. 11: Example of a frog inside a channel

How to clean a Rockflow system

Rockflow channels can be cleaned with water pressure (50-80 bar). For this, you need a 0-15° (or back-spraying) nozzle. A forward-spraying nozzle can be useful to break up large amounts of sediments.

Fig. 12: 0-15° or back spraying nozzle

How to clean your Rockflow system:

1 Open the well.

2 Place the nozzle in front of the pipe or channel that needs cleaning.

3 Apply the water pressure (50-80 bar).

4 Support the hose and then move the nozzle inside the channel. In principle, you should be able to enter hose into the channel for a length of 20-40 metres. If the channel is longer, you should clean it from two sides.

5 In case of very high sediment load, you can use a forward-spraying nozzle to break up the sediment layer, before applying the back-spraying nozzle for cleaning.

6 When the nozzle is at the desired or maximum depth in the channel, pull the hose towards you. The sediment will then be transported back to well, where it can then be sucked up (Fig. 13)

Fig. 13: Sediment being pushed out of the channel into the well

Prevention

In order to prevent sediment from entering the Rockflow system, we recommend that you regularly clean the wells and sand traps connected to the system. This is particularly important when new systems are commissioned as large amounts of grout are often used, or the system is surrounded by bare land. This can cause large amounts of sediment to enter the Rockflow channels at an early stage. This is why we also recommend extra cleaning of the sand traps in the gullies.

ROCKWOOL Group is the world leader in stone wool products, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine & offshore. We are committed to enriching the lives of everyone who experiences our products and services, and to helping customers and communities tackle many of today's biggest sustainability and development challenges including energy consumption, noise pollution, fire resilience, water scarcity, urban flooding and more.

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ROCKWOOL®

Visiting address
ROCKWOOL Rainwater Systems
Delfstoffenweg 2
6045 JH Roermond
The Netherlands

Postal address
ROCKWOOL Rainwater Systems
P.O. Box 1160
6040 KD Roermond
The Netherlands

Tel: +31 4 75 35 35 55
Email: rain@rockwool.com
rain.rockwool.com