Rockflow from Lapinus

Water management for the urban environment
The climate is changing: how do we manage extreme rainfall?

Not only more rain is falling due to climate change, but rain showers are often more extreme. This means a lot more water has to be collected and disposed of in a short time. In the countryside this is not usually a problem, but it is more so in the increasingly urbanised environment. More and more land area is being paved or surfaced, as a result of which water can no longer drain into the soil and must be disposed of via the sewer system. The system is not designed to handle extreme rainfall, resulting in flooded streets and basements and other nuisance for residents. The only way to prevent this local flooding is to ensure water is collected and used or disposed of more quickly and effectively.

This is exactly what Rockflow from Lapinus is designed to do.
Sustainable water management
Rockflow is an innovative water management system which buffers the rainfall from extreme showers quickly and effectively for it to be subsequently infiltrated into the soil or discharged to the sewer system. The basis of the Rockflow system is formed by sustainable stone wool elements with an extremely high capacity for absorbing and buffering water.

The Rockflow stone wool elements have a spare volume of 95%. This means practically the entire volume of the elements is available for the collection of water.

The Rockflow system is used underneath roads, streets, squares, car parks, industrial estates, water retention areas or other locations where water nuisance can occur.

You only notice Rockflow when it is needed

The system buffers water from even the heaviest showers, whilst the functionality of the above ground facilities remains fully intact. Vehicles can continue to travel or park above the system and vegetation can continue to grow. You only notice Rockflow when it is needed.

Because the use of Rockflow prevents local flooding, the town remains vibrant and future-proof. Water damage to shops, homes and businesses is prevented, even during the most extreme rainfall.

The Rockflow elements buffer the water and discharge it to the soil in a controlled manner, which creates the optimum water balance.

Rockflow can be applied in various locations...
Water management with Rockflow

Water management systems which use Rockflow constitute a sustainable solution to flooding caused by extreme rainfall in urban areas. Rockflow is utilised for water nuisance in streets, in squares and in suburbs, when decoupling areas from the sewer system and when (re)designing water retention areas.

High drainage and buffer capacity
Rockflow stone wool elements can absorb 95% of their volume in water within a very short time and have a throughput speed of 200 metres per day.

No loss of urban space
The basic material is stone wool, which has all the properties of rock. Vehicles can park on top of the system without the elements becoming deformed or losing any functionality. All urban functions therefore remain unaffected.

Self-filtration
The structure of the stone wool elements filters any contamination from the incoming water, as a result of which the system never becomes clogged. The system continues to infiltrate from the bottom, even without the use of geotextiles. Furthermore, stone wool filtration cassettes can be applied at the entrance into the system or in filtration pits. The elements are easy to replace and are fully recyclable.

Custom design
The stone wool elements are easy to adapt, without loss of functionality during and after installation (without harming quality and performance), so that any pipes or other obstacles in the ground do not represent a hindrance.

Sustainable
Stone wool is a natural material (made from natural rock) which is produced sustainably by ROCKWOOL. Stone wool is 100% recyclable.

This is how Rockflow works

In urban areas with insufficient buffering and infiltration capacity, Rockflow from Lapinus ensures regulated water collection and disposal. The system is installed completely underground, leaving above ground functionality intact.

This is how Rockflow ensures rainwater is delayed naturally.

1. Modular Rockflow stone wool elements are installed below ground level.
2. A piping system swiftly channels water into the Rockflow package.
3. When it rains, water flows via the street gullies to the lowest section of the stone wool package.
4. The hollow spaces between the stone fibres are then completely filled with water. The Rockflow elements can absorb 95% of their volume in water.
5. Whilst the Rockflow elements are filled from below with water, air is displaced at the top via the air vent. This means the buffer is always able to fill up quickly.
6. The system can be configured in such a way that the volume is fully available again within 24 hours. This is possible via infiltration, free outflow or a combination of both.
Rockflow is custom designed

Smart water management using Rockflow from Lapinus is always custom designed. In its simplest form, it consists of buried and covered stone wool elements which release buffered water into the soil in a regulated manner. For more complex problems, for example in intensively built-up urban areas, or beneath roads or industrial estates, the system is designed, dimensioned and calculated in conjunction with engineering agencies. In that case, the stone wool elements are connected to a carefully-designed system of pipes, drains, gullies and (stone wool) filtration cassettes.

Rockflow in urban design practice

Schimmert case study

In the South Limburg village of Schimmert, situated in the south of the Netherlands, some streets were regularly submerged every time we had one of those heavy rainstorms that seem to be much more frequent in recent years. The problem was resolved in 2017, however, when Lapinus, working together with the Royal HaskoningDHV engineering bureau, installed a Rockflow water management system beneath a square in the town centre.

The rainwater running off the roofs of the neighbouring school, gymnasium and from the playground is captured by Rockflow. In fact, the system is a subterranean buffer made from rockwool sheets with accompanying connections. The installation captures around 500,000 litres (500 m³) water, which is then slowly discharged to the sewer system.

Rockflow from Lapinus is used for:
- the prevention or reduction of local flooding
- the reduction of peak drainage flows to the sewer system
- the reduction of operational (maintenance) costs
Lapinus is an innovative partner offering sustainable solutions based on stone wool. We identify global trends and challenges and then develop products and systems to address them.

We design solutions which have a positive effect on quality of life by improving safety, reducing emissions, sound and vibrations and optimising urban water management.

Lapinus has an extensive research department with its own laboratories which combine innovative ability with customer focus. We share our knowledge and expertise and contribute globally to solving the problems of our customers and clients.

Lapinus is part of the ROCKWOOL Group

With more than 11,000 employees in 39 countries, the ROCKWOOL Group is the market leader in stone wool solutions for the fire safe insulation of both residential and non-residential construction, the processing and petrochemicals industry and the marine and offshore industry. The group also develops and manufactures facade cladding, acoustic ceiling systems, cultivation substrate systems for horticulture and fibre solutions for damping sound and vibration.
All Lapinus products are biosoluble and safe for human and environment.

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