



Go further

Siphonic Roof Drainage Systems

 akatherm

Driven by demand



FACT

Changing climate

Weather is getting more extreme. Temperatures are rising, and in recent decades the frequency of wet days in northern Europe has significantly increased. Research shows that when the average temperature increases by 1°C, the chance of heavy rainfall increases by 10%.



FACT

Larger roof spans

The world's largest unsupported roof span, Boeing's 777 factory at Everett, WA., covers a total area of over 370,000 m². For obvious reasons there are no roof supports anywhere in the interior. Instead, the entire roof is supported on a truss that sits on the four outer walls.



FACT

Collecting rainwater

During an average northern European rainstorm, a 20,000 m² flat roof collects 36,000 litres of rainwater per minute.



The use of siphonic roof drainage technology in buildings with large or complex roofs, enables you to achieve more. Today, whether a consultant or installer, you need roof drainage solutions capable of responding to the commercial challenges faced by your clients' and end users' businesses.

The drive for more:

Space

End users gain more useable space inside the building because the number of down pipes is minimised and the horizontal (collection) pipes can be installed close to the roof – without gradient.

Cost efficiency

Material and installation costs are reduced through smaller pipe diameters, low weight, fewer down pipes and roof outlets, and less groundwork.

Freedom of design

Architects can create extreme building and roof shapes due to the negative pressure in siphonic systems, allowing the routing of pipe work to be fully flexible.

Safety

In cases of heavy rainfall the roof remains safe because the self-cleaning system works with less water depth on the roof, which can be equipped with emergency overflows.

These particular challenges can only be overcome by a specialist drainage solution. Akatherm helps you meet these demands with confidence.

Akatherm offers more than just a siphonic roof drainage system. Like every specialist drainage solution from Akatherm, it comes with a comprehensive level of support.

All our systems are backed by dedicated software, full training and unique products, plus the service standards you would expect from high performance drainage experts and the worldwide backing of the Aliaxis group.

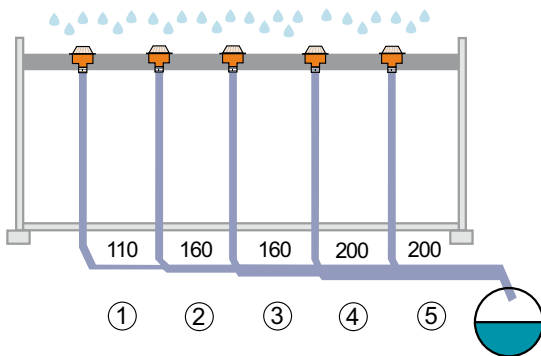


Expand capacity

Today, as roofs cover ever greater areas and buildings take on increasingly modern shapes, roof drainage is becoming an even more critical issue.

When space and design are at a premium, there's often little room for pipe work.

Faced with these challenges, you can expand capacity thanks to the Akatherm siphonic roof drainage system.

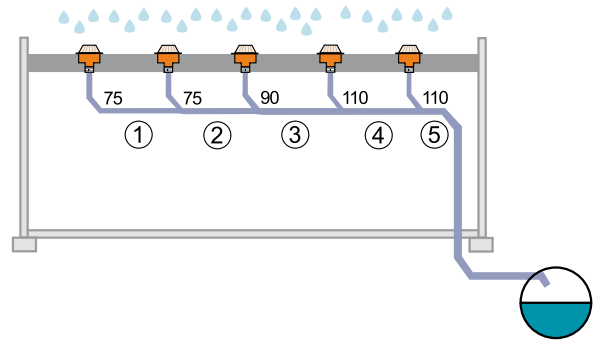


Conventional roof drainage

- Many down pipes
- Gradient pipe work
- Larger diameters
- Groundwork in building structure
- Low speed

Akatherm system benefits:

- Save space for the function and mechanical services of the building
- Total freedom & flexibility of roof drainage design
- Economical installation with a light, plastic (PE) and welded pipe system
- Full peace of mind from a sophisticated risk management system



Siphonic roof drainage

- Fewer down pipes
- Level pipe work
- Smaller diameters
- Less groundwork in building structure
- High speed
- Self-cleaning

Going siphonic

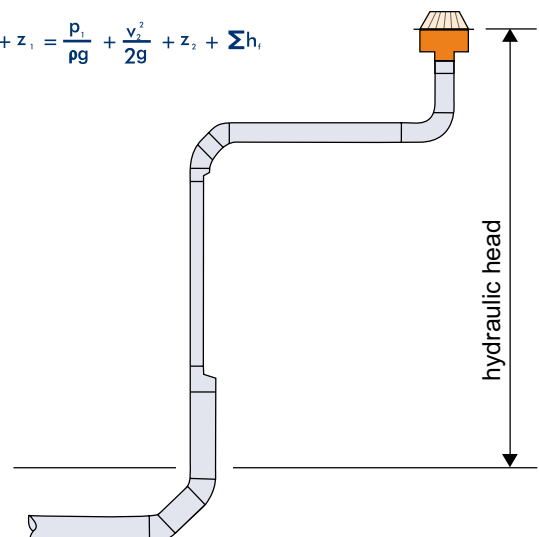
Akatherm siphonic roof drainage systems are engineered on the concept of full bore (a fill rate of 100%). This implies that rainwater flows at high speed through small diameter pipe work, at normally zero gradient.

This siphonic effect is created by the (kinetic) energy derived from the hydraulic head, caused by the difference in height between the roof outlet and the discharge point in a building. Specialised roof outlets prevent air from being sucked into the system.

The engineering principle of siphonic roof drainage design is based on the Bernoulli energy equation for a steady flow of an incompressible fluid with constant density. In order to balance the equation, and to guarantee the required siphonic effect according to the rainfall's intensity, the ideal pipe dimensions per flow path need to be determined.

Bernoulli's equation:

$$\frac{p_1}{\rho g} + \frac{v_1^2}{2g} + z_1 = \frac{p_2}{\rho g} + \frac{v_2^2}{2g} + z_2 + \sum h_f$$



akacad design software

high accuracy and flexibility

Cost-effective siphonic roof drainage systems are engineered as a function within the layout of the building, type of roof, rainwater intensities, etc.

Our Technical Support department is specialized to fully assist you. Our akacad design software will help in this process. This software enables us to optimise technical analysis accurately and produce a hydraulic calculation, parts list and isometric drawing of the pipe work.



akasion roof outlets

top choice for every roof and climate

At the heart of the siphonic roof drainage system, the roof outlet responds to negative pressure conditions in the system by streamlining the fluid flow, whilst preventing the entry of air.

For every level of rain intensity, type of roof construction and roof membrane, you can choose a dedicated akasion roof outlet.



akasion fixing system

maximum safety & convenience

The akasion fixing system is designed to absorb length changes without transferring stress onto the roof construction.

The brackets can be installed single-handed using easy clip-on mounting, allowing maximum freedom of action high up in the building.



akatherm PE pipe system

low weight and durability

The Akatherm siphonic roof drainage system is made from High Density PolyEthylene (PE). The low weight, impact resistance and flexibility of this material make it the ideal choice for the siphonic roof drainage system.



akafusion technology

simple, secure and fast jointing

For jointing Akatherm PE pipe and fittings, we recommend our electrofusion system (akafusion). Electrofusion is the ideal method for jointing roof drainage systems as the pipe work can be easily assembled and welded close under the roof. The akafusion control box is extremely light (2 kgs) and can weld the full diameter range of electrofusion couplers, 40–315 mm.



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