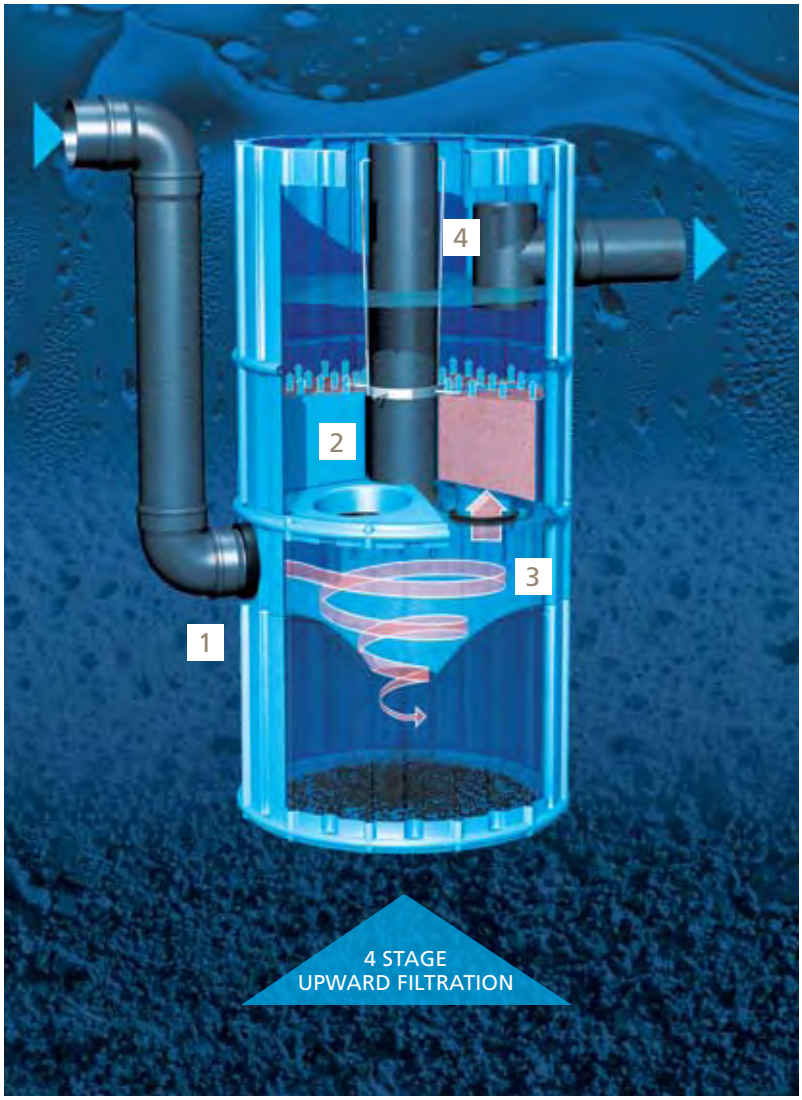
Complementary
Stormwater treatment system for roof

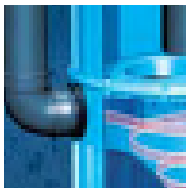
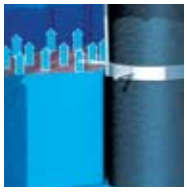
Storm-X4 utilises the latest four stage upward filtration technology to improve the quality of surface water run-off from roofs, car parks and the most polluted roads, even in heavily trafficked areas.



products Storm-X4
and surface water run-off

Function principles

1. Contaminated surface water run-off is fed into the basal section of the filter. The angled inlet generates a radial flow pattern.
2. The hydrodynamic separator converts the radial flow to generate particle sedimentation to remove heavy debris and silt from the contaminated water. The sediment is then retained in a silt trap chamber below the separator for easy maintenance and access.
3. The filter element is housed in the central section of the Storm-X4. The filter element is specifically designed for traffic, heavy traffic or roof applications and filters out fine materials in an up-flow process. Dissolved materials are absorbed by the filter, which will need to be replaced every two years on average.
4. Situated above the filter element is an oil retention unit which removes the remaining contaminants from the surface water run-off. The clean water then flows via the outlet to the soakaway or watercourse.

1. 
2. 
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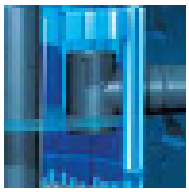
4. 

Stormwater treatment

Storm-X4 is capable of cleaning surface water run-off from roofs, car parks and the most polluted roads, even in heavily trafficked areas. Storm-X4 has been designed to remove heavy particles, silt and nutrients and heavy metals such as copper, zinc and cadmium from the surface water to provide an environmentally sound solution which benefits the natural watercourse and increases biodiversity.

Improved surface water quality

Storm-X4 minimises pollution of the natural watercourse and enables clean surface water run-off to be discharged from site. In line with new legislation and guidelines such as the Water Framework Directive, Storm-X4 offers a regulatory compliant solution for dealing with the issues of water quality. With the support, technical expertise and knowledge of Polypipe WMS, developers can be confident that a long-term, affordable, sustainable solution can be designed.

Source control

By using Storm-X4 developers can improve water quality even before discharge from site by treating surface run-off as close to its source as possible. Once it has passed through the Storm-X4 filter and used in conjunction with attenuation and flow control devices from Polypipe WMS, water run-off can be discharged from site at an agreed rate, reducing the risk of downstream flooding.

Complementary

Low maintenance

The advanced four stage filtration system within Storm-X4 utilises no moving parts, providing a low maintenance solution for all surface water run-off applications. The filters within the unit only need to be replaced on average every two years, providing an easily maintainable solution on-site.

Easy to install

Polypipe WMS can supply Storm-X4 as a standalone unit, or housed within a bespoke plastic chamber. When housed within a chamber, the units are constructed off-site and delivered to site ready to install, making installation quicker, safer and easier with a much lower development footprint.

Storm-X4 1000 traffic

- Surface water filter complying with DIN 1989-2 Type A
- For drained traffic areas to 500m²
- Connections: at DN150 or DN200
- 4 Filter Elements:
  Material: Filter Substrate: Traffic
  Weight per element: 16kg

Storm-X4 1000 heavy traffic

- Surface water filter complying with DIN 1989-2 Type A
- For drained traffic areas to 500m²
- Connections: at DN150 or DN200
- 4 Filter Elements:
  Material: Filter Substrate: Heavy Traffic
  Weight per element: 32kg

Storm-X4 1000 roof

- Surface water filter complying with DIN 1989-2 Type A
- For drained roof areas to 1000m²
- Connections: at DN150 or DN200
- 4 Filter Elements:
  Material: Filter Substrate: Roof
  Weight per element: 16kg

products Storm-X4

This table shows capabilities of Storm-X4 to reduce chemical pollutants.

Parameter	Unit	Main road, distributor		Aims of LAWA[a]	Drinking water[b]	Seepage[c]	Storm-X4
		From	To	Permissible limit	Permissible limit	Control value	Aim[e]
Physio-chemical parameters				90-percentile			
El. cond.	(µS/cm)	110	2400	–	2500	–	<1500
pH	(-)	6.4	7.9	–	6.5 - 9.5	–	7.0 - 9.5
Nutrients							
P tot	(mg/L)	0.23	0.34	–	–	–	0.10
NH_4	(mg/L)	0.5	2.3	–	0.5	–	0.3
NO_3	(mg/L)	0.0	16.0	–	50.0	–	–
Heavy metals							
Cd	(µg/L)	0.3	13.0	1.0	5.0	5.0	<1.0
Zn	(µg/L)	120	2.000	500	–	500	<500
Cu	(µg/L)	97	104	20	2000	50	<50[d]
Pb	(µg/L)	11	525	50	10	25	<25[d]
Ni	(µg/L)	4	70	50	20	50	<20
Cr	(µg/L)	6	50	50	50	50	<20
Organic substances							
PAH (EPA)	(µg/L)	0.2	17.1	–	0.1 (6 Subst.)	0.2	<0.2
MOTH	(mg/L)	0.1	6.5	–	–	0.2	<0.2

a Aims of the German Working Group on water issues of the Federal States and the Federal Government (LAWA) for surface water usage as potable drinking water (1998).
b Permissible limit of the German Drinking Water Ordinance (2001).
c Control value for seepage of the German Federal Soil Protection Act an Ordinance (1999) according to §8 1,2.
d For copper and lead roofs a second treatment step is necessary.
e The aims of the system refer to average annual loads.

Critical parameter, treatment necessary	
Treatment may be necessary, not generally	
Non critical parameter	