

RIDGISTORM-X4 is a chamber containing a 4 stage treatment device, used for the treatment of surface water run-off, providing high levels of contaminant removal, including hydrocarbons and heavy metals. Utilising a number of processes the RIDGISTORM-X4 Stormwater Treatment System consistently provides proven levels of protection for the downstream elements of the drainage system and local environment.

- 1 Sedimentation:** Water is induced into a radial flow within the dynamic separator at the base of the unit, promoting sedimentation of solid particles.
- 2 Filtration:** Water flows up from the separator and through removable filter elements. The filter elements remain saturated, minimising the risk of the filter elements clogging.
- 3 Chemical Separation:** While passing through the filter unit, dissolved chemical pollutants are removed through a process of adsorption, absorption and precipitation.
- 4 Oil Retention:** Water is finally discharged via an oil trap assembly which is designed to retain free floating oils in the event of a major spill.



## Applications

RIDGISTORM-X4 is capable of cleaning surface water run-off from roofs, car parks, roads and heavily trafficked areas. The RIDGISTORM-X4 Stormwater Treatment System is a low maintenance solution for all surface water applications.

## Key Features and Benefits

- Advanced 4 stage filtration system
- Treats water from roofs, car parks and roads
- Separates and removes silt heavy particles, oil, phosphorus and heavy metal pollutants
- Low maintenance – no moving parts
- Facilitates compliance with Water Framework Directive
- Surface water filter complying with DIN 1989-2 Type A
- Supplied within a pre-fabricated chamber delivered to site ready-to-install or as a stand alone unit
- Step irons to BS EN 13101 and ladders to BS EN 14396
- Integral lifting points available on request to improve Health and Safety of handling and installation
- Chamber is strong but light in weight, minimising Health and Safety risks.

## RIDGISTORM-X4

PHYSICAL PROPERTIES	HEAVY TRAFFIC	TRAFFIC	ROOF
Height mm	1985	1985	1985
Diameter mm*	980	980	980
Chamber material**	PE	PE	PE
Weight kg*	122	122	122
Recommended max. catchment area m <sup>2</sup>	500	750	1000
Number of filter elements	4	4	4
Weight/element kg	54	34	34
Pipe connections mm	200	200	200

\*Unit typically supplied within a pre-fabricated chamber. However these measurements may increase dependant on the proposed unit's general arrangements.

\*\*Majority of components are polyethylene (PE), however other materials are used in the unit manufacture.

## Performance

RIDGISTORM-X4 Stormwater Treatment System Chambers are fabricated from Ridgiform-XL pipework, which is manufactured to meet the material requirements of BS EN 13476:2007 (Part 1-3). Filters have no moving parts and have an average expected lifespan of 2 years (based on nominal usage).

## Stormwater treatment

RIDGISTORM-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

RIDGISTORM-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 (WFD), RIDGISTORM-X4 offers a regulatory-compliant solution for dealing with the issues of water quality.

## Source control

RIDGISTORM-X4 improves 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 RIDGISTORM-X4 filter and used in conjunction with attenuation and flow control devices from Polypipe, water run-off can be discharged from site at an agreed rate, reducing the risk of downstream flooding.

## Low maintenance

The advanced 4 stage filtration system within RIDGISTORM-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.

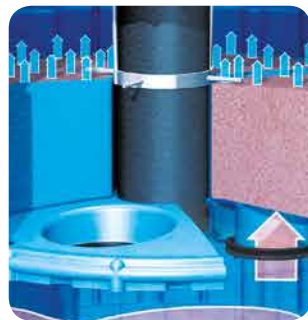
## Easy to install

Polypipe can supply RIDGISTORM-X4 as a standalone unit, or housed within a pre-fabricated 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.

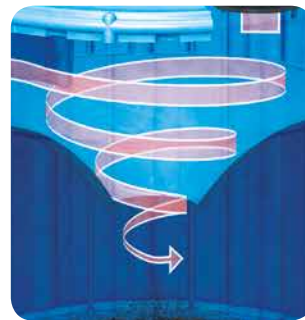
## Function Principles



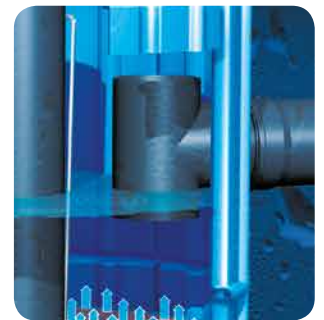
1. Contaminated surface water run-off is fed into the basal section of the filter. The angled inlet generates a radial flow pattern.



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 RIDGISTORM-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.

### RIDGISTORM-X4 Traffic

Surface water filter complying with DIN 1989-2 Type A  
 For drained traffic areas to 750m<sup>2</sup>  
 Connections: at DN150 or DN200.  
 4 filter elements:  
 Material: Filter Substrate: Traffic  
 Weight per element: 16kg

### RIDGISTORM-X4 Heavy Traffic

Surface water filter complying with DIN 1989-2 Type A  
 For drained traffic areas to 650m<sup>2</sup>  
 Connections: at DN150 or DN200  
 4 filter elements:  
 Material: Filter Substrate: Heavy Traffic  
 Weight per element: 32kg

### RIDGISTORM-X4 Roof

Surface water filter complying with DIN 1989-2 Type A  
 For drained traffic areas to 1000m<sup>2</sup>  
 Connections: at DN150 or DN200  
 4 filter elements:  
 Material: Filter Substrate: Roof  
 Weight per element: 16kg

PARAMETER	UNIT	MAIN ROAD, DISTRIBUTOR		AIMS OF LAWA <sup>1</sup>	DRINKING WATER <sup>2</sup>	SEEPAGE <sup>3</sup>	RIDGISTORM-X4
		FROM	TO	PERMISSIBLE LIMIT	PERMISSIBLE LIMIT	CONTROL VALUE	AIM <sup>5</sup>
<b>PHYSIO-CHEMICAL PARAMETERS</b>				<b>90-PERCENTILE</b>			
Electrical conductivity	[uS/cm]	110	2400	-	2500	-	<1500
pH value	[-]	6.4	7.9	-	6.5 - 9.5	-	7.0 - 9.5
<b>NUTRIENTS</b>							
Phosphorous (Pges)	[mg/L]	0.23	0.34	-	-	-	0.20
Ammonium (NH <sub>4</sub> )	[mg/L]	0.5	2.3	-	0.5	-	0.3
Nitrate (NO <sub>3</sub> )	[mg/L]	0.0	16.0	-	50.0	-	-
<b>HEAVY METALS</b>							
Cadmium (Cd)	[µg/L]	0.3	13.0	1.0	5.0	5.0	<1.0
Zinc (Zn)	[µg/L]	120	2.000	500	-	500	<500
Copper (Cu)	[µg/L]	97	104	20	2000	50	<50 <sup>4</sup>
Lead (Pb)	[µg/L]	11	525	50	10	25	<25 <sup>4</sup>
Nickel (Ni)	[µg/L]	4	70	50	20	50	<20
Chromium (Cr)	[µg/L]	6	50	50	50	50	<50
<b>ORGANIC SUBSTANCES</b>							
Polynuclear aromatic hydrocarbons (PAK)	[µg/L]	0.2	17.1	-	0.1 (6 compounds)	0.2	<0.2
Petroleum-derived hydrocarbons (MKW)	[mg/L]	0.1	6.5	-	-	0.2	<0.2

<sup>1</sup> 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).

<sup>2</sup> Permissible limit of the German Drinking Water Ordinance (2001).

<sup>3</sup> Control value for seepage of the German Federal Soil Protection Act an Ordinance (1999) according to §8 1,2.

<sup>4</sup> For copper and lead roofs a second treatment step is necessary.

<sup>5</sup> The aims of the system refer to average annual loads.

Critical parameter, treatment necessary	
Treatment may be necessary, not generally	
No critical parameter	

For further information please see Technical Datasheet available on our website [www.polypipe.com/toolbox](http://www.polypipe.com/toolbox)

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