

Description:

A specialist rainwater filter, designed for installation within load bearing shafts and chambers of concrete or plastic construction. The pre fitted plastic housing is safe and easy to fit at site.

The Hydrosystem 1000 Filter uses an up-flow process. This means there is a minimal head drop between the inlet and the outlet.

The cleaned water is of an outstanding water quality. The rainwater is treated within the unit by the following processes: sedimentation, filtration, adsorption and precipitation.

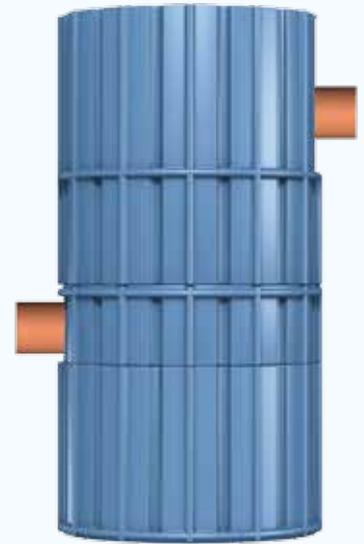
The initial treatment steps take place in the Dynamic Separator, where sedimentation

of solid particles occurs within a radial flow regime, characterised by secondary flows.

A settling funnel to the silt trap chamber entrance ensures sediments are not re-mobilised. Above the separator are the filter inserts, covering the entire diameter of the unit's housing, where the second treatment step takes place.

Water flows upwards through the removable filter element. As a result of both the upward flow within the filter element and the fact that the filter remains saturated, the rate of filter clogging by solids is both very limited and slow.

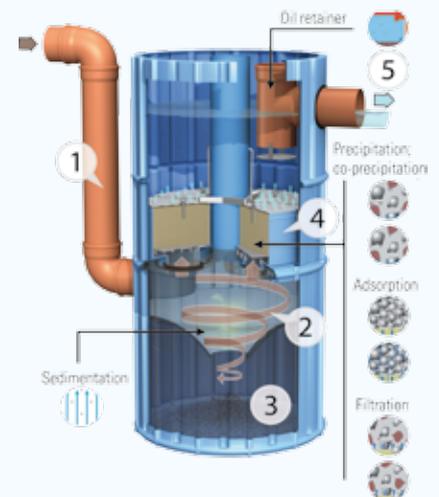
The filter inserts are easy to exchange. Servicing is required once per year.



How it works

1. The rainwater from the drained area is fed into the inlet, which is at the lower end of the shaft. A deflector plate sets up a radial flow.
2. Here, sedimentation of particles, especially the sand fraction and above, takes place in the hydrodynamic separator. This is due to turbulent secondary flows within a radial laminar flow regime.
3. The settleable solids are collected via an opening in the silt trap chamber. This chamber is evacuated periodically, via the by-pass central tube at intervals.

4. Four filter elements are located within the filter shaft. As waters flow upwards the finer particles are filtered out, whilst the dissolved pollutants are precipitated and absorbed. The filter is easily backwashed, and if completely clogged or exhausted, is easily replaced.
5. Clean water above the filter elements passes to discharge via an oil trap assembly. In the event of major spill, free floating oils etc are retained here. Normal concentrations of dissolved oils are retained within the filter elements.



Technical Data:

Rainwater filter complying with DIN 1989-2, Type A for roof and traffic areas of between 500 and 1,000 m². Connections: DN 200; the various types of filter elements have different material structures

Housing material: Polyethylene

Housing weight: 68 kg Total weight: 220 to 350 kg depending on filter type

Packing unit Hydrosystem 1000: Pallet: 1 piece

Accessories 1:

3P Filter element
Art.-Nr. 3100115 roof
Art.-Nr. 3100115 traffic

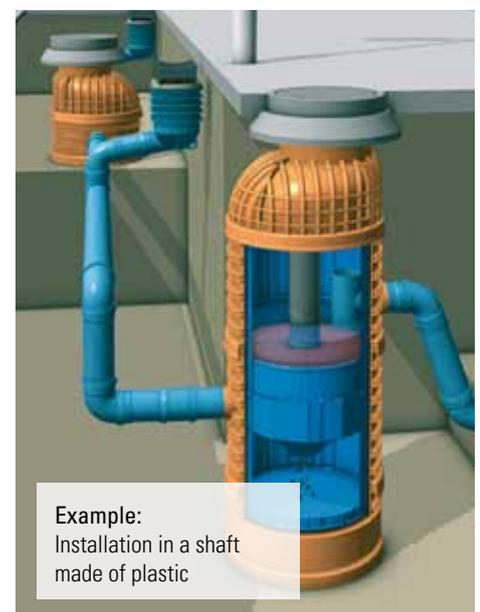
Weight per filter element:
34 kg (roof / traffic)



Accessories 2:

3P Filter element
Art.-Nr. 3100125 heavy traffic
Art.-Nr. 3100135 metal

Weight per filter element:
54 kg (heavy traffic)
66 kg (metal)



Example:
Installation in a shaft
made of plastic

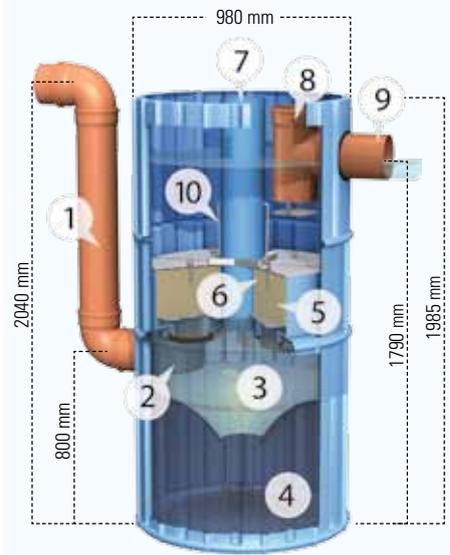
Example:

The 3P Hydrosystem 1000 traffic installed in a concrete shaft DN1000. The cleaned storm water is then discharged into an infiltration system using plastic crates.



Product structure:

1. Stormwater inlet (DN 200)
2. Deflector plate
3. Hydrodynamic separator
4. Silt trap
5. Filter element
6. Extraction aid for filter element
7. Overflow and suction pipe
8. Oil trap
9. Outlet stormwater storage, soakaway system or surface waters
10. Buoyancy restraint for filter elements



The HS1000 is available with various filter types, depending on the usage of the connected area. The Roof type is used for roof areas that do not have a significant proportion of uncoated metals; the Metal type is employed for metal roof areas, and the Traffic type is used for slightly polluted traffic areas. The Heavy Traffic type is employed for heavily polluted traffic areas and has been granted general technical approval (Z-84.2-4) by the German Institute for Structural Engineering (DIBt). The maximum areas that may be drained depend on the nature of the surfaces. These are given in the following table.

Type	Art.-Nr.	Nature of the surface to be drained	Size of the surface to be drained	Art.-Nr. of filter element	Weight of filter element / piece	Total Weight
heavy traffic with technical approval (Z-84.2-4)	3100120	Highly polluted traffic areas (car parks in front of supermarkets, main roads, HGV access roads)	500 m ²	3100125	54 kg	300 kg
traffic	3100110	Slightly polluted traffic areas (side streets, staff car parks, yards)	750 m ²	3100115	34 kg	220 kg
roof	3100100	Roofs without a significant proportion of uncoated metals (< 50 m ²)	1.000 m ²	3100115	34 kg	220 kg
metal	3100130	Roofs made of uncoated metals (copper, zinc, lead)	500 m ²	3100135	66 kg	350 kg

A design approval acc. to Art. 41f BayWG was applied for in the case of the Metal system. According to recent results of the Technische Universität München (Technical University of Munich), it can be assumed that the system complies with the cleaning performance levels as specified by the Bavarian Environmental Agency.

Parameter	Unit	non metal roof		Copper roof		Zinc roof		Parking lot, residential street		main road distributor		① aims of LAWA	② drinking water	③ See-page	④ Hydro-system
		from	to	from	to	from	to	from	to	from	to	permissible limit	permissible limit	control value	Aim
Phsico-chemical parameters												90-Perzentil			
electrical conductivity	[uS/cm]	25	270	25	270	25	270	50	2400	110	2400	-	2500	-	< 1500
pH value	[-]	4,7	6,8	4,7	6,8	4,7	6,8	6,4	7,9	6,4	7,9	-	6,5 - 9,5	-	7,0 - 9,5
Nutrients															
phosphorous (P ges)	[mg/l]	0,06	0,50	0,06	0,50	0,06	0,50	0,09	0,30	0,23	0,34	-	-	-	0,20
ammonium (NH ₄)	[mg/l]	0,1	6,2	0,1	6,2	0,1	6,2	0,0	0,9	0,5	2,3	-	0,5	-	0,3
nitrate (NO ₃)	[mg/l]	0,1	4,7	0,1	4,7	0,1	4,7	0,0	16,0	0,0	16,0	-	50,0	-	⑤
heavy metals															
cadmium (Cd)	[µg/l]	0,2	2,5	0,2	1,0	0,5	2,0	0,2	1,7	0,3	13,0	1,0	5,0	5,0	< 1,0
zinc (Zn)	[µg/l]	24	4.880	24	877	1.731	43.674	15	1.420	120	2.000	500	-	500	< 500
copper (Cu)	[µg/l]	6	3.416	2.200	8.500	11	950	21	140	97	104	20	2000	50	< 50
lead (Pb)	[µg/l]	2	493	2	493	4	302	98	170	11	525	50	10	25	< 25
nickel (Ni)	[µg/l]	2	7	2	7	2	7	4	70	4	70	50	20	50	< 20
chromium (Cr)	[µg/l]	2	6	2	6	2	6	6	50	6	50	50	50	50	< 50
organic substances															
polynuclear aromatic hydrocarbons (PAK)	[µg/l]	0,4	0,6	0,4	0,6	0,4	0,6	0,2	17,1	0,2	17,1	-	0,1 (6 compounds)	0,2	< 0,2
petroleum-derived hydrocarbons (MKW)	[mg/l]	0,1	3,1	0,1	3,1	0,1	3,1	0,1	6,5	0,1	6,5	-	-	0,2	< 0,2

critical parameter, treatment necessary

treatment maybe necessary not generally

no critical parameter

① Aims of the German working group on water issues of the Federal States and the Federal Government (LAWA) for surface water, usage as potable water (1998) ② Permissible of the German Drinking Water Ordinance (2001)
 ③ Control value for seepage of the German Federal Soil Protection Act an Ordinance (1999) according to § 8 1,2 ④ The aims of the system refer to average annual loads
 ⑤ Nitrate cannot be reduced significant with this filter



Text for invitation of tenders:

Pos.	Quantity	Article	Price in €
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1.1	_____	3P Hydrosystem 1000	_____
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Supply and installation of a 3P Hydrosystem 1000 of type

- | | |
|----------------------------------------|------------------------------------------------------------------------------------------|
| <input type="checkbox"/> heavy traffic | highly polluted traffic areas up to 500 m ²
with approval for construction |
| <input type="checkbox"/> traffic | Slightly polluted traffic areas up to 750 m ² |
| <input type="checkbox"/> roof | Roofs without a significant proportion of uncoated metals up to 1.000 m ² |
| <input type="checkbox"/> metal | Roofs made of uncoated metals up to 500 m ² |

Supply and installation of the shaft construction described below

for the treatment of stormwater from roof areas/traffic areas:

Installation in prepared building pit by means of DEHA transport anchor system
or anchor bolts or positioning clamps.

Install lower shaft part of type 2 according to DIN EN 1917 into connection with DIN V 4034-1
with factory-installed, monolithically constructed filter system.

Place further shaft rings or shaft covers on top and seal joints professionally.

Supply and install shaft compensation rings for adjusting to the height of the surrounding terrain
if necessary.

Connect stormwater inlet pipe DN 200 flexibly and watertight to the shaft.

Height difference between inlet and outlet: at least 250 mm

Internal diameter of concrete shaft: DN 1000

Height: _____ m

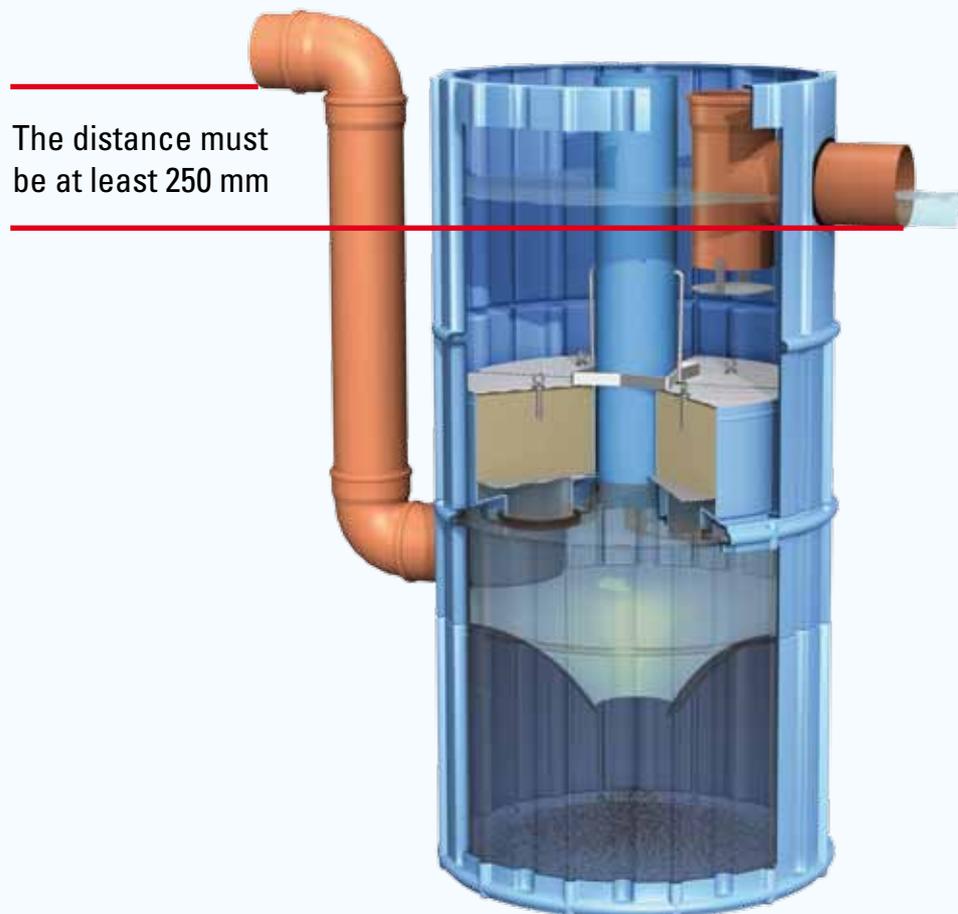
Cone: 1000/625, installation height 600 mm

Optional: cover slab 1000/625 or installation height 200 mm

Shaft cover BGEU KI __ without ventilation



CAUTION! Important information, please observe



The distance must
be at least 250 mm

The following is to be checked before installation:

The filter must be installed with a so-called fall. This means that the incoming pipe (stormwater inlet) is led downwards just ahead of the shaft and can be connected to the lower connection as described.

The difference in invert between the incoming pipe and the outlet to discharge must be at least 250 mm.