3P Hydrosystem 1000 Metal

Art.-Nr. 3100130

3P Technik

3P Hydrosystem 1000 Metal

Specialist rainwater filter for installation within standard manhole shafts or plastic shafts. The ready-to-install Hydrosystem 1000 is quickly and safely installed on site. Suitable for roof areas of metal up to 500 m². The cleaned water has such an excellent water quality that it can be discharged directly into soakaways, surface waters and the wider environment.
The filter function is an up-flow process and this allows for a design with a minimal height difference between the inlet and outlet.
In the filter shaft the rainwater is cleaned by basic operation of the following processes:
Sedimentation, Adsorption and Filtration.

Incoming rainwater is led down to the basal section of the filter shaft. A hydrodynamic separator built in the base section promotes particulate sedimentation. The water is led into this separator tangentially and generates a radial flow pattern. Particles settle into the silt trap located below the separation chamber. Above the separation chamber are 4 filter elements, occupying the full shaft width such that all water must flow up through the filter. The Siltation of this filter is slow due to the upwards flow, and the fact that the filter is below the water level. The filter is easily exchanged. The system is maintained once a year.

Function Principles:

1. The rainwater from the connected area is fed into the basal section of the filter housing. The angled inlet generates a radial flow pattern.

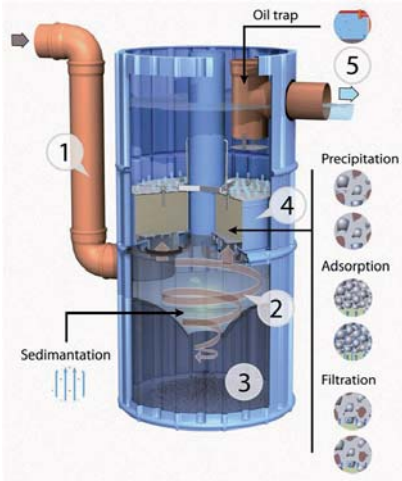
2. The hydrodynamic separator converts turbulent waters into a radial laminar flow pattern, generating particle sedimentation, particularly of the sand fraction.

3. This takes place over an inlet to the lower section of the filter shaft. The sediment is retained in a silt trap chamber below the separator. The silt trap needs to be emptied out at intervals.

4. In the central section of the filter housing is the actual filter, Filter Element: Metal. The filter element filters out the fine materials in an up-flow process and dissolved materials are precipitated and adsorbed. The filter can be backwashed. When exhausted the filter is easily exchanged.

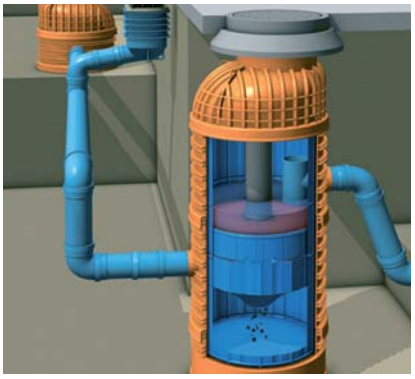
5. The filter element is easily pulled up via shaft openings.

6. Above the filter element is the clean water. It passes via a blockade of light substances and then flows over the outlet into a soakaway.



Installation Example 1:

Installed in a plastic shaft.



Technical Data:

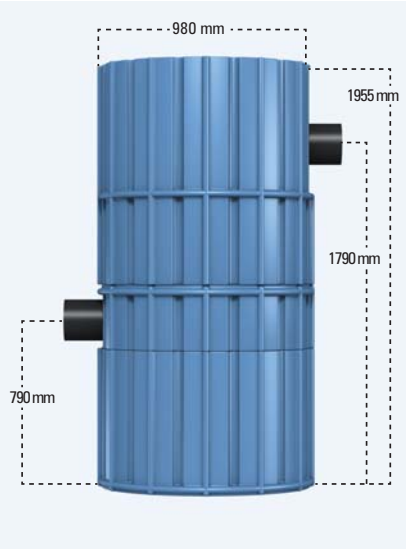
Rainwater filter complying with DIN 1989-2, Type A.

Connections: DN200.

4 Filter Elements:
Material: Filter Substrate: Metal
Weight per element: 32 kg.

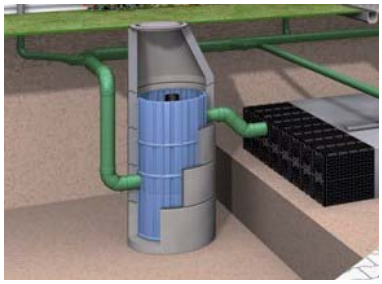
Housing:
Material: Polyethylene.
Housing: 68 kg.

Total weight: 196 kg



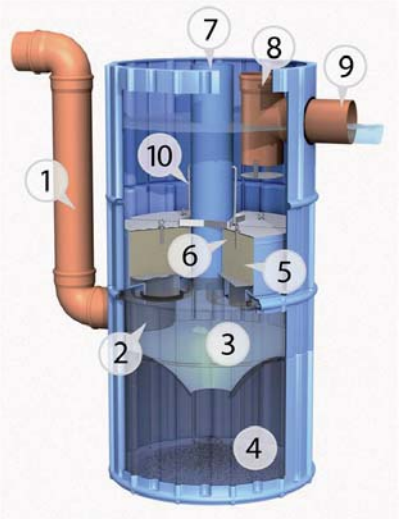
Installation Example 2:

A schematic of the 3P Hydrosystem 1000 Metal, installed in a concrete shaft. The cleaned water can then be discharged to a subsurface soakaway treatment.



Product Components:

1. Rainwater Inlet (DN 200).
2. Angled Inlet.
3. Separator Chamber.
4. Silt Trap.
5. Filter Elements (4 No.).
6. Removal Device for Filter Element.
7. Overflow.
8. Blockade of light substances and suction pipe
9. Outlet to storage or to waste.
10. Locking buoyancy control system



Specifications Text:

Number Quantity Description
Price in €
1.1 --- - Delivery and Installation of a 3P Hydrosystem 1000 Metal
_____
Delivery and installation of the following shaft specification for treatment of rainwater collected from metal roof areas:
Installation excavation to be prepared in accordance with relevant specifications and local regulations.
Install Shaft or manholes in accordance with manufacturer's specifications and complying with all National Regulations. For difficult ground conditions consult an expert Engineer. Ensure particular attention is paid to the shaft lid and seal all gaps expertly.
Delivery and Installation of Shaft chamber sections will need to adjust and take account of any height differences to surrounding area if and as required.
Rainwater inlet DN--- connect on shaft with care and make watertight.
Rainwater outlet DN--- connect on shaft with care and make watertight.
Module Type 3P Hydrosystem 1000 Metal. Connectable area as determined from local rainfall conditions.
Module comprises ready to install PE shaft in concrete surround with hydrodynamic separator, silt trap chamber, Filter Unit to clean water from roofs.
Shaft dimensions:
Upper section diameter 1000mm down to 625mm at surface, height between 300 and 600mm.
Central section at 1000mm, height 1000mm with outlet point at DN___.
Lower central section at 1000mm diameter and height to 500mm, with inlet port at DN__.
Basal section at 1000mm diameter, height to 550mm.
PE Shaft housing with hydrodynamic separator and removal handle for Filter Elements (4 No), diameter =980mm, height

Accessory 1:

Filter element metal
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Every 3P Hydrosytem 1000 Metal is supplied with 4 filter elements installed.

Parameter	Unit	Copper roof		Zinc roof		Aims of LAWA [1]	Drinking water[2]	Seepage[3]	Hydro-System[5]
		from	to	from	to	Permissible limit	Permissible limit	Control value	Aim
Physico-chemical parameters						90-percentile			
El. cond.	[µS/cm]	25	270	25	270	-	2500	-	< 1500
pH	[-]	4,7	6,8	4,7	6,8	-	6,5 - 9,5	-	7,0 - 9,5
Nutrients									
P_{tot}	[mg/L]	0,06	0,50	0,06	0,50	-	-	-	0,10
NH_4	[mg/L]	0,1	6,2	0,1	6,2	-	0,5	-	0,3
NO_3	[mg/L]	0,1	4,7	0,1	4,7	-	50,0	-	-
Heavy metals									
Cd	[µg/L]	0,2	1,0	0,5	2,0	1,0	5,0	5,0	< 1.0
Zn	[µg/L]	24	877	1.731	43.674	500	-	500	< 500
Cu	[µg/L]	2.200	8.500	11	950	20	2000	50	< 50[4]
Pb	[µg/L]	2	493	4	302	50	10	25	< 25[4]
Ni	[µg/L]	2	7	2	7	50	20	50	< 20
Cr	[µg/L]	2	6	2	6	50	50	50	< 20
Organic substances									
PAH (EPA)	[µg/L]	0,4	0,6	0,4	0,6	-	0.1 (6 Subst.)	0,2	< 0,2
MOTH	[mg/L]	0,1	3,1	0,1	3,1	-	-	0,2	< 0,2

critical parameter, treatment necessary
treatment may be 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 limit 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] for copper- and lead-roofs a second treatment step is necessary
[5] the aims of the system refer to average annual loads

Observations:

Packaging Information:

1 unit per pallet.

EAN: