

Description:

A specialist rainwater filter, suitable for installation directly in the ground. Connectable areas from 100 to 175m², depending on filter type.

The HS 400 Filter uses an up-flow process. This means there is a minimal head drop across the inlet to 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.

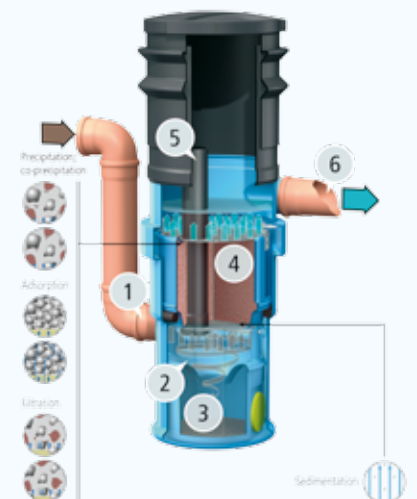
The first treatment step takes place in the Dynamic Separator, where sedimentation

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, which cover the entire diameter of the unit's housing. Water flows upwards through the removable filter element. As a result of the upward flow of the filter element, and that the filter remains saturated, filter clogging by solids is very limited and slow.



How it works:

1. The rainwater from the drained area is fed into the inlet, which is at the lower end of the shaft.
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 solids are collected via an opening in the silt trap chamber. This chamber is a removable container, with a side outlet port to aid cleaning.
4. The filter element is located in the middle of the filter shaft. With this filter element, the finer particles are filtered from the upflow of waters. The dissolved pollutants are precipitated and adsorbed. The filter is easily exchanged, once exhausted or blocked.
5. Emergency overflow
6. Cleaned water outlet, to infiltration system, rainwater storage tank or surface water discharge.



Technical Data:

Rainwater filter complying with DIN 1989-2, Typ B; Connections: DN 100
 Housing material: Polyethylene Housing weight: 7 kg Total weight: 37 kg
 Material telescopic extension: Polyethylene Weight: 5 kg
 Material filter element: Filter substrate Filter element weight: 27 kg

Packing unit Hydrosystem 400:

Pallet: 2 pieces (without telescopic extension)

Accessory 1:

3P Telescopic extension Art.-Nr. 1000560
 The 3P Hydrosystem 400 is combined with the 3P telescopic extension (see fig. A, right) for installation directly into the ground. Its height can be adjusted from 250 to 750 mm.

Accessories 2:

3P Filter element
 Art.-Nr. 3100425 heavy traffic
 Art.-Nr. 3100415 roof / traffic
 Art.-Nr. 3100435 metal



Fig. A

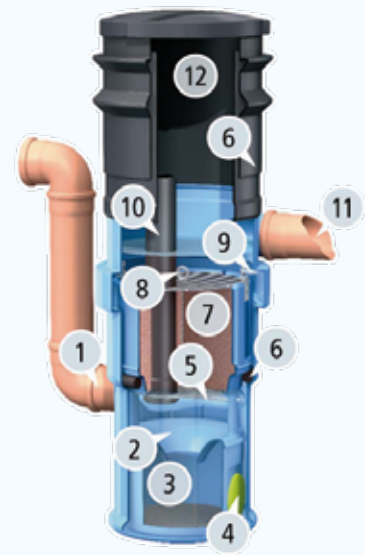
Example:

The 3P Hydrosystem 400 traffic installed before a rainwater tank. To minimise maintenance intervals, in areas of high solids loading or high leaf falls, we recommend using a 3P Leaf Separator or the 3P Rainus filter; these will eject coarse dirt before the hydrosystem filter.



Product structure:

1. Rainwater inlet
2. Separator
3. Sediment basket
4. Maintenance opening for cleaning
5. Removal Handle, chamber removal
6. Rubber seal (Ø 30 mm)
7. Filter element with substrate and cover made of stainless steel
8. Lifting eye for filter removal
9. Latch for buoyancy protection (2 off)
10. Emergency overflow
11. Cleaned water outlet to tank or to infiltration system
12. Telescopic extension



The Hydrosystem 400 is available with various filter types, depending on 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. 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. filter element	Weight of filter element
heavy traffic	3100420	Highly polluted traffic areas (car parks in front of supermarkets, main roads, HGV access roads)	100 m ²	3100425	24 kg
traffic	3100410	Slightly polluted traffic areas (side streets, staff car parks, yards)	130 m ²	3100415	27 kg
roof	3100400	Roofs without a significant proportion of uncoated metals (< 50 m ²)	175 m ²	3100415	27 kg
metal	3100430	Roofs made of uncoated metals (copper, zinc, lead)	130 m ²	3100435	27 kg

Application has been made for general approval in accordance with Article 41f BayWG (Bavarian Water Management Act) for the system type 'metal'. On the basis of the latest results of a measurement programme at the Technical University of Munich, it can be assumed that the system complies with the cleaning performances demanded by the Bavarian State Environmental Department.

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
Phisco-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
mineral oil type hydrocarbons (MOTH)	[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 Nitrat 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 400	
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Supply and installation of a 3P Hydrosystem 400 of type

- | | |
|--|---|
| <input type="checkbox"/> heavy traffic | highly polluted traffic areas up to 100 m ² with approval for construction |
| <input type="checkbox"/> traffic | Slightly polluted traffic areas up to 130 m ² |
| <input type="checkbox"/> roof | Roofs without a significant proportion of uncoated metals up to 500 m ² |
| <input type="checkbox"/> metal | Roofs made of uncoated metals up to 130 m ² |

Special rainwater filter for installation before rainwater tanks or infiltration systems

Height difference between inlet and outlet: min. 250 mm

Connections: DN 100

Rainwater filter complying with DIN 1989-2 with pollutant retention Typ B

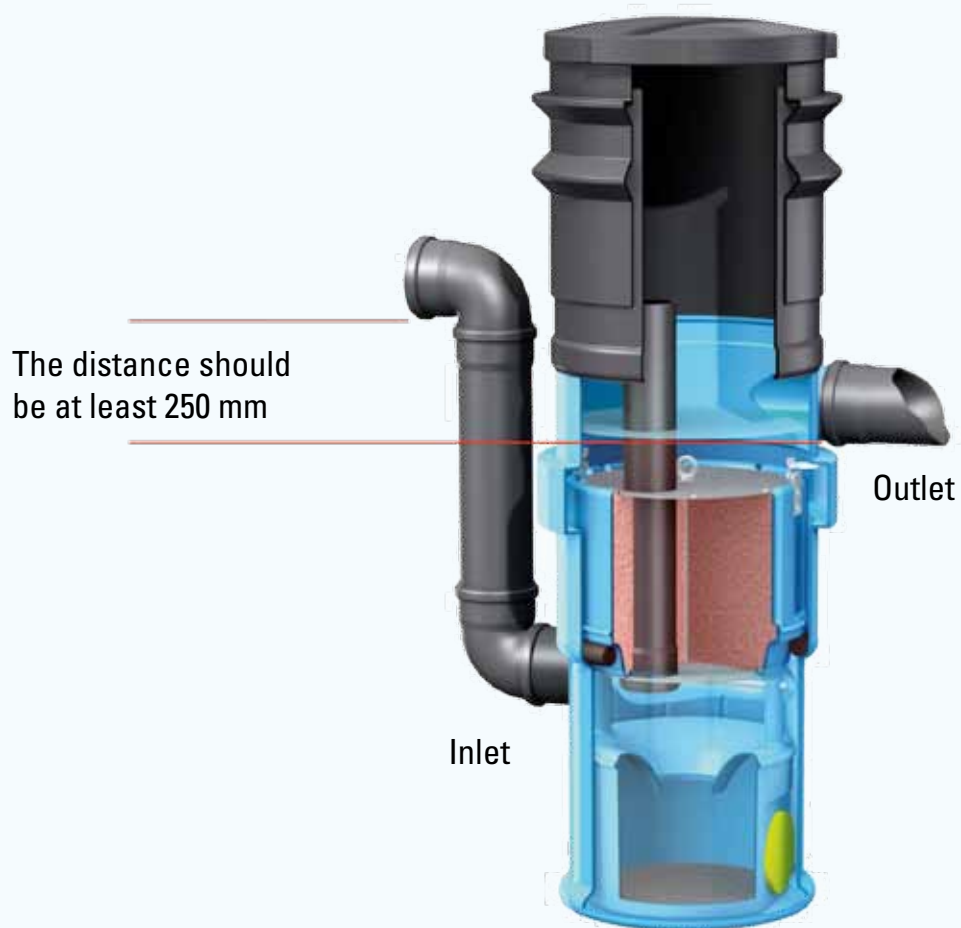
1.2		3P Telescopic extension for 3P Hydrosystem 400	
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Plastic shaft (PE) for the installation of 3P Hydrosystem 400

The 3P telescopic extension can be connected directly to the filter or to other extensions via the bayonet fixing



CAUTION: Important information please observe



The following is to be checked before installation:

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

The distance between the incoming pipe base to the outlet pipe base should be **at least 250 mm**..