SIROBLOC-Rw

HEGLER SIROBLOC-*Rw* I/1

Block system for storm water infiltration fields in accordance with DWA-A 138



SIROBLOC-Rw:

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Ecologically friendly system made of PE/PP for storm water management in infiltration fields in accordance with DWA-A 138

Components:

- Filter blocks
- Inspection chambers
- Fittings, accessories

Application:

- Infiltration fields
- Swale infiltration
- Storm water retention basins



Corrugated and Twin Wall Pipes of Plastics

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Infiltration Systems

Fundamental idea of storm water infiltration according to DWA-A 138

The German ATV/DWA set of rules and standards are the basis for efficient storm water management: DWA-A 138 defines design, construction and operation of facilities for storm water infiltration while ATV-DVWK-M 153 gives recommendations for storm water treatment. Efficiency and sensibility from the ecological point of view are of great importance with regard to the technical feasibility of a drainage system. HEGLER's SIROBLOC-Rw and SIROBAU-Rw systems take this into account with a variety of options in regard to design. Their basic assignment is to preserve the ecological balance and lead clean storm water into the ground water; thus avoiding cost-intensive extra loads for sewer and waste water treatment plants. Depending on the classification of the project and the ranking in importance of the influencing factors, there are various possibilities of designing an infiltration system. Usually, the systems are designed as swales, troughs with filter elements or filter elements. Soil conservation and pollution control have to be taken into account in design, construction and operation of infiltration

systems. The local water authorities have to be involveed/consulted with regard to the construction project. Systems for storm water infiltration require qualitative rating of the storm water into categories such as harmless, tolerable and non-tolerable, as defined in ATV-DVWK-M 153. For the reliable operation and adequate design of an infiltration system proof has to be furnished by dimensioning it in accordance with DWA-A 138. Size and design of infiltration fields are mainly dependent on the connected catchment areas, infiltration capacity of soils, and actual amounts of precipitation.



SIROBLOC-Rw

Planning and Service

HEGLER offers sizing calculations for free for all kinds of infiltration systems (SIROBLOC-*Rw* and SIROBAU-*Rw*). Rating is based on official calculating programmes according to DWA-A 138 and the current precipitation values from the KOSTRA DWD 2020 Rain Atlas.

Here we profit from our long- standing experience in the co-operation with project engineers and contracting firms.



Layout according to DWA-A 138

To ensure reliable and professional operation of the infiltration system, the following options are available for a layout adapted to the respective building project: A) The applicant's calculation and layout specifications (client/contractor/engineer) are in hand¹

The offer is submitted on the basis of the calculation specifications. This design proposal is primarily based on a given external dimensioning and adapted to the product parameters of the SIROBLOC-*Rw* system. System-related deviations have no influence on the efficiency of such a proposal.

B) The planning basis for the dimensioning of the infiltration system is in hand¹

Based on the draft and design planning, the infiltration system is dimensioned in accordance with DWA-A 138. This, and a component list of the SIRO-BLOC-*Rw* system, serve as basic concept for preparing an offer. The necessary information is obtained by means of the questionnaire "Infiltration Fields" to DWA-A 138.

Project specifications for dimensioning of infiltration trenches:

- Project name
- Project address
- All connected catchment areas with kind of fixation (Ψ)
- k_f value, infiltration variable of surrounding soil (geotechnical report)
- Distance between ground water level and lower edge infiltration trench ≥ 1.0m
- Available area for optimised position adjustment of infiltration trench

¹ The design proposal for an infiltration trench must be coordinated with the local project-related specifications on site and, taking these into account, approval must be obtained from the client/the building authority.

Infiltration Systems

SIROBLOC-*Rw* infiltration systems

The area required for an expertly designed infiltration system using swales or gravel trenches is rather extensive. A good many of such systems fail because of inadequately large drain fields. The SIROBLOC-*Rw* infiltration system provides considerable storage capacity even in case of a minimum of available surface area.

Bigger infiltration units can be easily achieved by simply joining several blocks.





Advantages of SIROBLOC systems

- High storage capacity (95 %)
 - High load capacity
- Suitable under high traffic loads (60 t vehicles)
- Impact-resistant, thus suitable for construction in winter
- Connecting sizes DN 160 and DN 200: sewer pipes to EN 1401 (PVC-U) and DIN 14758-1 (PP)
- Easy and economical installation

HEGLER filter block:

The SIROBAU-Rw filter block is the standard design of an infiltration trench packing for surface water percolation and allows quick and efficient installation. Dimensions of a single block element: 1.20 m x 0.60 m x 0.42 m (L x W x H).

SIROBLOC-*Rw* filter blocks and filter and overflow chambers SIROBAU S 400 make a perfect team. The modular system allows infiltration units of any design to meet all requirements. An extensive range of accessories for the several components complete the SIROBLOC-*Rw* system.



SIROBLOC-Rw

System configuration SIROBLOC-*Rw*

The SIROBLOC-*Rw* elements of PP are mainly used in conventional subsoil infiltration systems where the supplied surface water shall be fed to the local ground water body.

As an alternative, they can be designed for use in storm water retention systems. For use as water reservoir or fire water supply, the group of blocks is completely wrapped in PE foil, tightly welded at the interfaces and pipe joints. This design is accomplished at site by local providers. Detailed information on request.

SIROBLOC-Rw elements and accessories:

SIROBLOC-Rw

for common use in infiltration trenches up to three block layers, in combination with the SIROBAU S 400 chamber system; suitable for high traffic loads (60 t)

• Distribution chamber SIROBAU S 400

for infiltration systems with one, two or three layers of SIROBLOC-Rw

nominal size inlet pipe: DN 160 and DN 200 (sewer pipes to EN 1401/PVC or DIN 14758-1/PP)

nominal size vent pipe: DN 110

(sewer pipes to EN 1401/PVC or DIN 14758-1/PP)

Chamber riser/extension element SIROBAU S 400

with/without inlet of DN 200 (sewer pipes to EN 1401 or DIN 14758-1)

Filter basket

for use in chamber system SIROBAU S 400 (catchment areas $A_E \le 150m^2$)

Cleaning chamber

system with preceding screen plate, sand trap and light liquid barrier:

Type S 400: use in catchment areas $A_E \le 500m^2$ Type S 500: use in catchment areas $A_E \le 1000m^2$

• Chamber cover

Classes B 125 and D 400 with/without ventilation openings, inlet grating



SIROBLOC-Rw Design Examples

Design example small trench of 1 layer/1 row

As to size, the dimensioning of an infiltration trench is based on the specifications of DWA-A 138. With raster lengths of 0.6 m or 1.2 m and arrangement in one, two or three layers i.e. total heights of 0.42 m, 0.84 m or 1.26 m resp., the SIROBLOC-*Rw* modular system allows the realisation of solutions tailored to the local conditions. The upstream SIROBAU S 400 distribution chambers are arranged in accordance with the local requirements.

Example of a small infiltration system as often used in residential building for single-family houses:

Variant A with connection to a chamber on one side Variant B with connection to chambers on both sides

- single-layer, single-row arrangement very flat construction height h = 0.42 m width = 1.2 m/length = x
- integrated filter basket for a catchment areas A_E ≤150 m²



Longitudinal view of a small infiltration trench for a single-family house. For small infiltration trenches Variant A with chamber connection on one side; for medium-sized infiltration trenches chamber connection on both sides is recommendable.



Ground plan of a block infiltration trench: single-row width with b = 1.2 m ... trench length dependent on object dimensioning.

for Storm Water Infiltration

Design example multi-layer/multi-row trench

Example of an infiltration trench with several block layers for the following construction projects: medium-sized hall constructions, areas of stationary traffic, or a combination of residential buildings and access roads where sufficient storage volume must be ensured.

Example layout:

- two-layer, two-row block arrangement construction height h = 0.84 m width = 2.4 m/length = x
- with upstream cleaning chamber SIROBAU S 400 for a catchment areas A_E ≤ 1,000 m²



Longitudinal view, two rows, with upstream



Ground plan of a two-row installation layout with x-fold block length according to dimensioning

SIROBLOC-Rw System Accessory

Product

SIROBLOC-Rw (Filter block)

SIROBLOC-Rw	7588001
filter block of PP	7500001
SIROBLOC-Rw jointing element	7588101
SIROBLOC-Rw pipe connector	
DN 160 and DN 200	(direct connection
sewer pipe to EN 1401 (PVC-U)	possible)
or DIN 14758-1 (PP)	
SIROTEX fleece filter	7589998
Product	Item number
Inspection/flushing chamber SIROBAU S 400	
with inlet DN 160	
 for single-layer packing 	7859140
- for two-layer packing	7859141
 for three-layer packing 	7859142
Inspection/flushing chamber SIROBAU S 400	
- for two-layer packing	7850111
- for three-laver packing	7859145
Chamber riser with inlet DN 200	1000140
effective length 109 cm	7859703
Chamber riser without inlet	
effective length 109 cm	7859704
Sedimentation chamber SIROBAU S 400	
with sand trap and baffle	7859121
Filter basket with top ring	7859643
Cleaning chamber SIROBAU S 400 with	
fine screen and light liquid separator	7859130
Cleaning chamber SIROBAU S 500 with	7050404
fine screen and light liquid separator	7859134
Throttle chamber with fixed opening	
- inlet/outlet at same level	7859102
 inlet/outlet at different levels 	7859103
Throttle chamber with storage level regulator	
- inlet/outlet at same level	7859100
 inlet/outlet at different levels 	7859101
Chamber covers S 400	
- Class B 125 with ventilation openings	7859611
 Class B 125 without ventilation openings 	7859610
- Class B 125 grating	7859612
- Class D 400 with ventilation openings	7859621
- Class D 400 without ventilation openings	7859620
- Class D 400 grating	7859622
Dirt collection bucket, coarse	7850640
for chamber covers	1009040
	SIROBLOC- <i>Rw</i> jointing element SIROBLOC- <i>Rw</i> pipe connector DN 160 and DN 200 sewer pipe to EN 1401 (PVC-U) or DIN 14758-1 (PP) SIROTEX fleece filter Product Inspection/flushing chamber SIROBAU S 400 with inlet DN 160 - for single-layer packing - for two-layer packing - for three-layer packing Chamber riser with inlet DN 200 effective length 109 cm Chamber riser without inlet effective length 109 cm Sedimentation chamber SIROBAU S 400 with sand trap and baffle Filter basket with top ring Cleaning chamber SIROBAU S 400 with sand trap and baffle Filter basket with top ring Cleaning chamber SIROBAU S 400 with fine screen and light liquid separator Cleaning chamber SIROBAU S 400 with fine screen and light liquid separator Throttle chamber with fixed opening - inlet/outlet at same level - inlet/outlet at different levels Throttle chamber with storage level regulator - inlet/outlet at different levels Throttle chamber with storage level regulator - inlet/outlet at different levels Chamber covers S 400 - Class B 125 with ventilation openings - Class D 400 grating Dirt collection bucket, coarse for chamber covers





Item number

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SIROBAU inspection chambers (Chambers, chamber covers, risers, filter elements, etc.)

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