STEBATEC®
Measure - Control - Regulate

Technical information

Hydraulic screen

Imprint

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List of changes

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1 Introduction

Hydraulic screens are used in stormwater spillway structures to reliably retain coarse and fine materials during overflows.

Attention

This technical information is no substitute for the operating instructions. In particular, the warning and safety instructions required in accordance with DIN EN 82079-1 (preparation of information for use (instructions for use) of products), which are necessary for installation, maintenance and troubleshooting on site, are missing.

2 Areas of application

The high-performance screen is a horizontal bar screen with automatic cleaning device. It is regularly used as an effective measure for active water pollution control at overflows / spillways of combined sewers and in the inlet of soilfilters.

The screen finds its application in the following areas:

- Stormwater basin
- Stormwater overflow basin
- Separating structures

Figure 1: Vertical screen

3 Functional features

The high-performance vertical screen is installed between the drain channel and the relief channel. It reliably retains all visible solids as the excess water flows through.

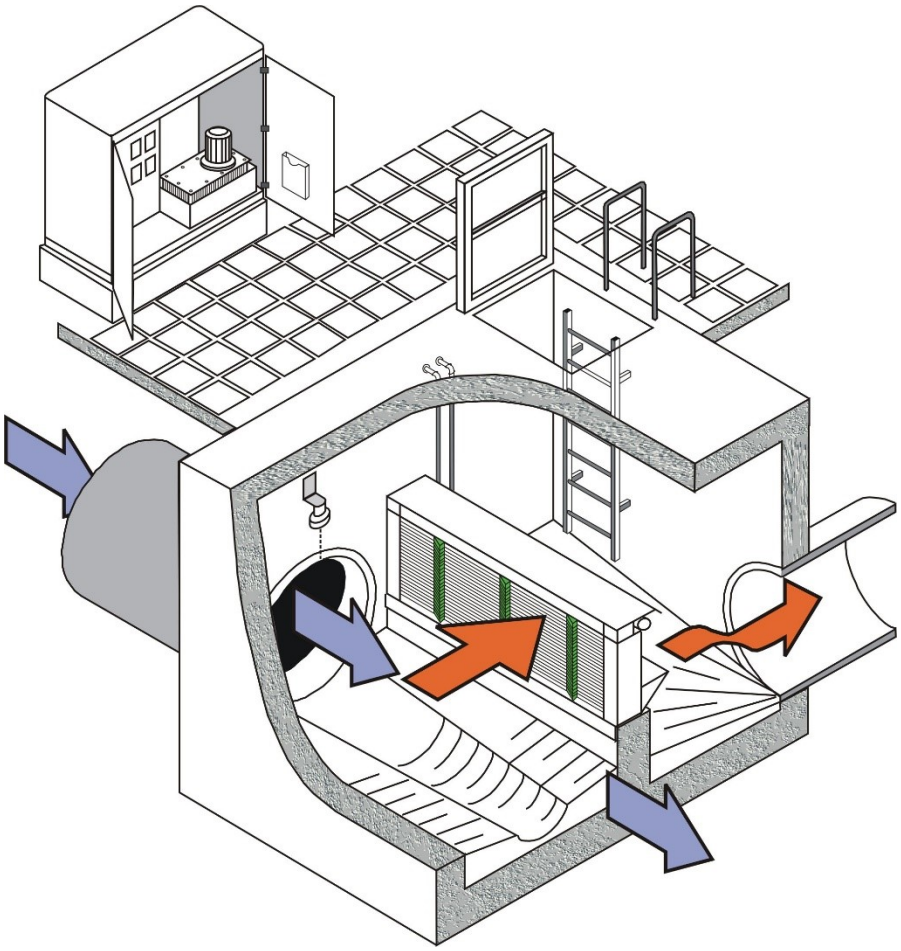

Figure 2: Installation position screen

Importance was attached to operational reliability. The first step in this direction is the omission of components that are susceptible to failure, such as limit switches. Furthermore, the electrical and hydraulic control elements are located outside the critical zone, so that only two hydraulic lines lead into the wet area. Due to the clever design, the screen is constantly self-cleaning. There are no cross braces in the screen area on the inlet side that could lead to screenings build-up. Should a solid material cause a brief jamming, the control is designed in such a way that the comb movement is repeated at this point until the screen is free again.

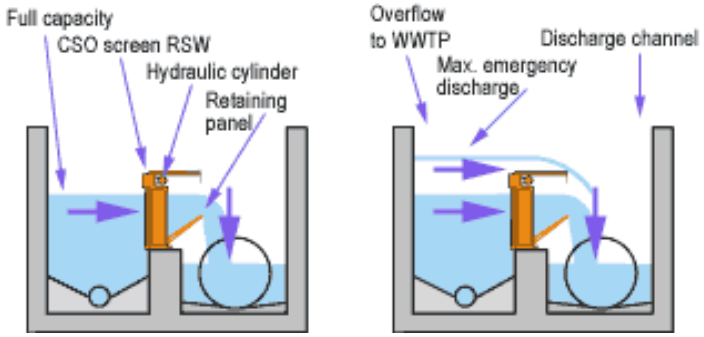

Figure 3: Cross-section installation position sieve screen

3.1 Advantages

- Only low investment in storage volume required
- Prevents unnecessary pollution of receiving waters
- Operationally safe
- Permanently cleans mechanically
- Corrosion resistant
- Robust
- Low maintenance
- Small bar spacing (4mm)
- Conveys the screenings from the inlet zone
- Materials stainless steel V4A / V2A

4 Technical structure

The high-performance screen consists of a robust frame made of stainless-steel profiles. The horizontal rake bars are clamped in it. At the rear is the cleaning carriage, which is moved back and forth by a double-acting hydraulic cylinder. Several rows of combs with an asymmetrical triangular shape reach through between the rake bars.

The flowing water presses the screenings against the bars, where they are transported further in the longitudinal direction by the cleaning combs with their steep side. The direction of flow supports this transport. On the way back, the "flat side" of the combs slides under the screenings.

The travel paths and shapes of the combs are coordinated so that each cleaning comb transfers the screenings to the next one. It is pushed to the end of the screen and reaches the treatment plant with the outflowing wastewater.

This prevents a problematic concentration of screenings on the feed side.

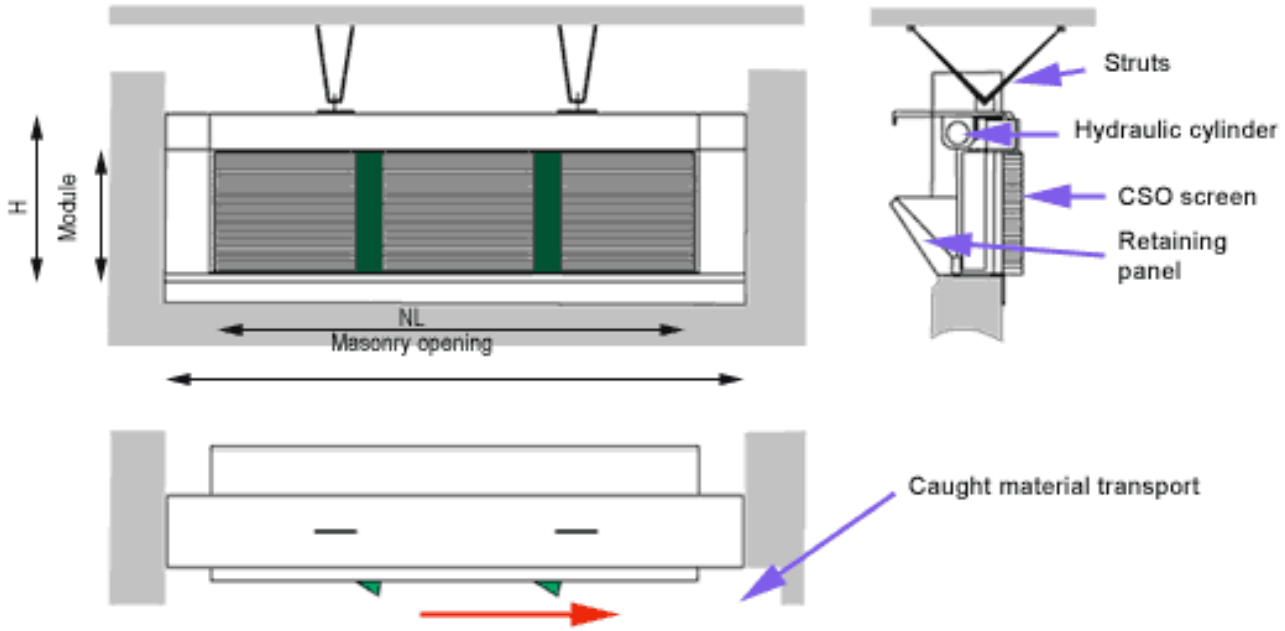

Figure 4: Functionality screen

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Screening preselection table

Nominal length	**[m]**	2	3	4	5	6	7	8
Total length	**[m]**	2.84	3.84	4.84	5.84	6.84	7.84	8.84
Wall opening	**[m]**	3.00	4.00	5.00	6.00	7.00	8.00	9.00

Module	**Height H [mm]**	**Average max. computing power [m³/s]**						
2	330	0.3	0.41	0.53	0.67	0.82	0.96	1.10
3	426	0.44	0.62	0.79	1.01	1.22	1.44	1.66
4	522	0.59	0.82	1.06	1.34	1.63	1.92	2.21
5	618	0.74	1.03	1.32	1.68	2.04	2.40	2.76
6	714	0.89	1.24	1.59	2.02	2.45	2.88	3.31
7	818	1.03	1.44	1.85	2.35	2.86	3.36	3.77
8	914	1.18	1.65	2.11	2.69	3.27	3.84	4.31
9	1010	1.33	1.85	2.38	3.03	3.67	4.20	4.85
10	1106	1.48	2.06	2.64	3.36	4.08	4.67	5.39
11a	1202	1.62	2.27	2.91	3.70			
11b	1252					4.49	5.13	5.92
12a	1298	1.77	2.47	3.17	4.03			
12b	1348					4.90	5.60	6.30
13a	1394	1.92	2.68	3.44	4.37			
13b	1444					5.13	6.07	6.82
14a	1490	2.07	2.88	3.70	4.71			
14b	1540					5.52	6.53	7.35

5 Practical applications

Which application is the right one for you, we will find out together during a conversation or an on-site inspection. Do not hesitate to call us.

Figure 5: Vertical screen with special arrangement in Lausanne, Capelard.

Figure 6: Vertical screen

Figure 7: Hydraulic system for multiple screens

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