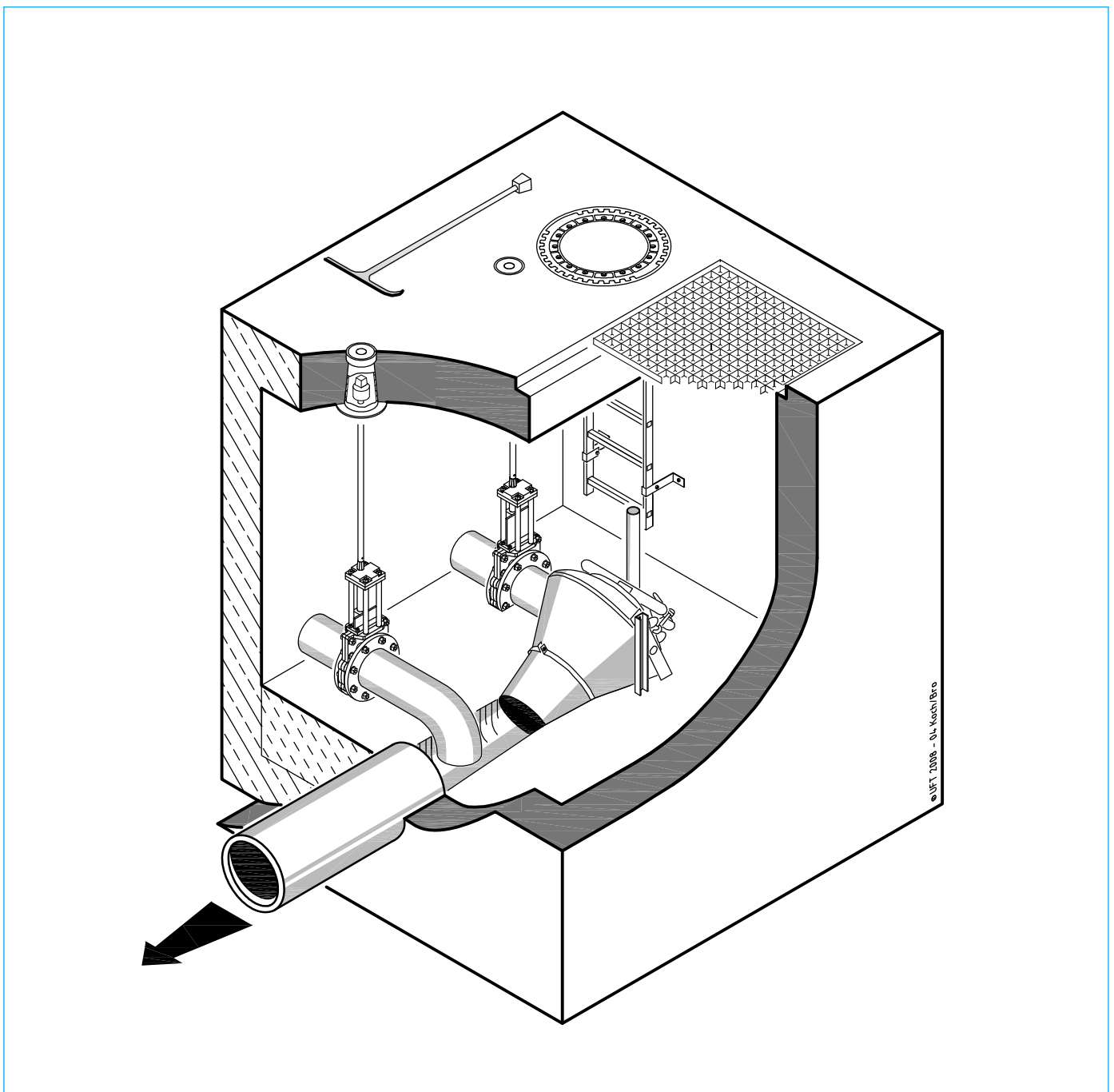


Product Information

Vortex Flow Regulator UFT-FluidCon

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1 Application

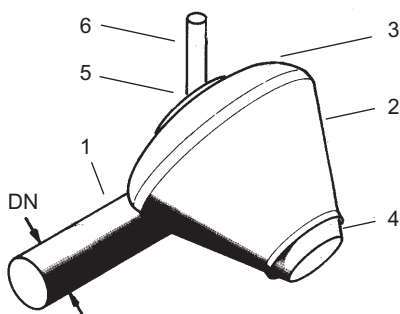
The UFT-*FluidCon* Vortex Flow Regulators operate without moving parts, exclusively under the effects of the flow.

UFT-*FluidCon* Vortex Flow Regulators are designed to perform dynamic flow regulation. They find their application in Stormwater, Combined or Sanitary Sewers. They are installed at the outlet point of drains, retention tanks, Storm outfalls, etc.

The UFT-*FluidCon* allows practical and easy flow regulation of sites that are otherwise difficult to manage. Some 6 000 UFT-*FluidCon* regulators of all kinds are installed throughout the world. The fact that, until now, none of them have failed its task, confirms the exceptional reliability of the product.

2 Operation

The UFT-*FluidCon* Vortex Flow Regulator has a rigid hydrodynamic body without any moving parts. Water enters the vortex chamber through the tangential inlet pipe. In dry time flow conditions, the unit presents very open sections to the flow. The dry time flow is simply deviated in soft curves; the flow pattern here is a simple large area change of direction. In this flow



- DN regulator's inlet nominal diameter
- 1 horizontal inlet pipe
 - 2 vortex chamber
 - 3 dished head top
 - 4 interchangeable outlet orifice
 - 5 hinged inspection lid
 - 6 air vent

Fig. 1: Parts of a Vortex Flow Regulator

Advantages of Vortex Flow Regulator UFT-*FluidCon*

The UFT-*FluidCon* Vortex Flow Regulator is an automatic water flow control unit. The regulation effect is simply caused by the non-destructive effects of flow. The active force of the flow resides in the differential pressure head between the inlet and outlet of the Vortex Flow Regulator.

The advantages of the UFT-*FluidCon* Vortex Flow Regulator are as follows:

- no moving parts
- no wear
- no external energy required
- large open port section for free flow passage
- high reliability and safe operation
- no additional concrete chamber necessary
- anticorrosive construction
- precise reduction of flow rate
- low headloss in dry time flow conditions
- flow regulation even at small water head
- possibility of flow rate adjustment after installation
- easy and quick installation
- no adjustment required
- easy operation and control

mode, the Vortex Flow Regulator presents virtually no resistance to the flow (see Figure 2 - top).

If the upstream head increases, air escapes from the vortex chamber. The conical vortex chamber creates a vortex flow pattern. High tangential velocities are formed, as well as a swirling core of air in the center. The air core blocks the major part of the outlet section (see Figure 2 - bottom). In this mode, the vortex regulator is an ideal hydraulic brake. The flow restriction is equivalent to an orifice plate with an open area up to 6 times smaller.

Vortex flow regulators obtain a flow of 25 l/s with a free opening letting through 150 to 200 mm diameter spheres. They are consistent to the German technical guideline DWA-A 111.

3 Performance

The UFT-*FluidCon* flow regulator presents flow curves as shown in Figure 3. The lower portion represents the dry time flow conditions and the top portion, the vortex flow conditions. The flow characteristics are determined by the geometry of the regulator's body.

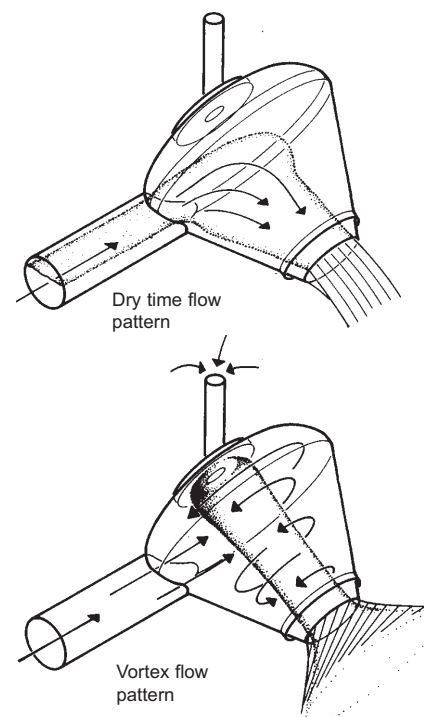


Fig. 2: Flow patterns of a Vortex Flow Regulator

The required geometric parameters are as follows:

- Nominal diameter
- Assembly angle
- Dimensions of the vortex chamber
- Diameter of the outlet orifice

The UFT-FluidCon Vortex Flow Regulators are constructed with nominal diameters from DN 100 to DN 1000. Based on the above parameters, there are several hundred possible configurations for these regulators. We use a selection program to calculate the ideal solution that will grant the perfect hydraulic solution.

Figure 5 shows the typical discharge-curve of a Vortex Flow Regulator which is designed for a pressure head of 2.5 m and a flow of 35 l/s. The computed averaged flow rate is about 28 l/s.

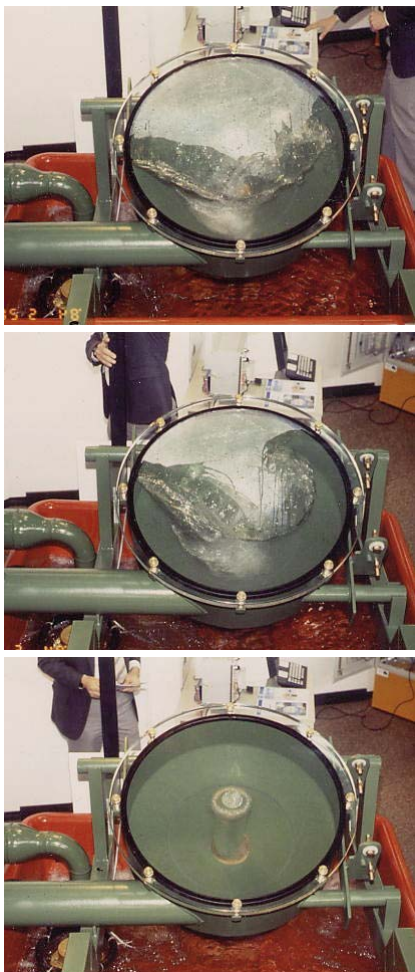


Fig. 3: Activation of the vortex with increasing pressure head

4 Material

The Vortex Flow Regulators are made to be used in both stormwater and sanitary or combined sewers. The only materials used for fabrication are stainless steel and plastics. Any additional corrosion protection is not required. We guarantee the exact operation of the device for five years.

5 Installation

The UFT-FluidCon Vortex Flow Regulators are shipped calibrated and ready to use. They are flange-mounted at the wall-duct or the gate valve respectively. Finishing concrete is then poured around the unit and once it hardens, the regulator is functional.

6 Maintenance

UFT-FluidCon flow regulators require no maintenance. A regular visual control is recommended. It is possible to verify the interior of the regulator by opening the top cover. In case the flow rate should need to be changed, depending on the model, we can change the outlet orifice plate. This operation requires only minor manipulations and can be done by the maintenance personnel.

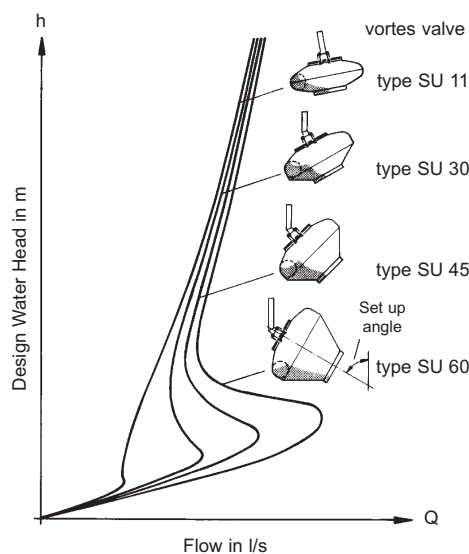


Fig. 4: Influence of unit angle on the flow curve

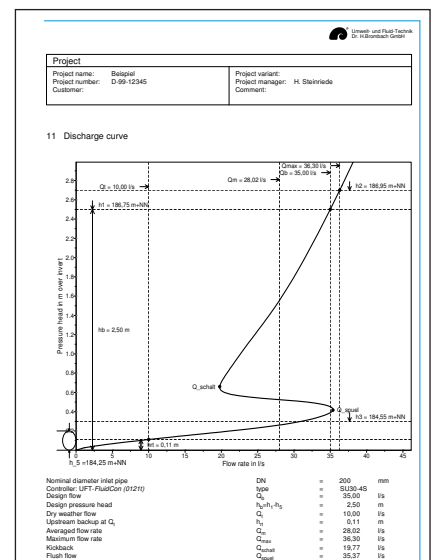
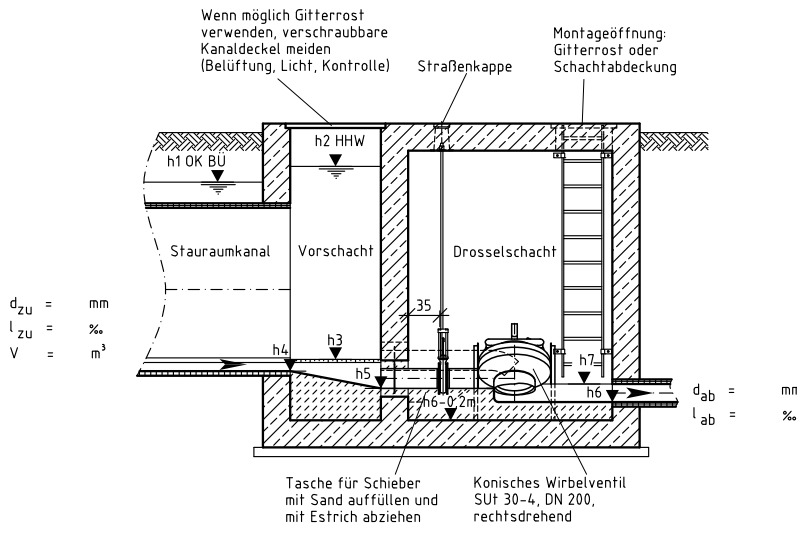


Fig. 5: Typical discharge-curve calculated by our dimensioning program for Vortex Flow Regulators type UFT-FluidCon

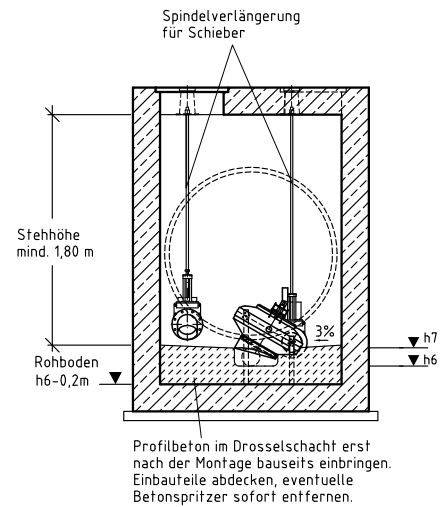
Typical Specification Text

We do have a large range of Vortex Flow Regulators. We provide assistance with the choice of the appropriate device. The typical specification text is part of our technical documentation that you will get from us. Please contact us.

Schnitt A-A



Schnitt B-B



Draufsicht

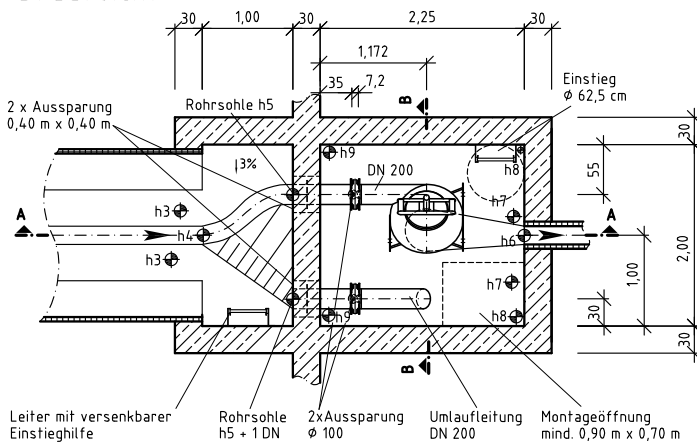


Fig. 6: Template drawing of a throttle shaft with a Vortex Flow Regulator type SUT 30-4 DN 200



Bild 7: Two Vortex Flow Regulators form stainless steel, Model UFT-FluidCon.
left: type SUT 30-4, DN 200,
right: type SUT 45-3, DN 250.

Bibliography

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DWA-Arbeitsblatt DWA-A 166 (2013): Bauwerke der zentralen Regenwasserbehandlung und -rückhaltung. Konstruktive Gestaltung und Ausrüstung. Konstruktive Gestaltung und Ausrüstung. Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e.V., Hennef : DWA, November 2013.

Further information:

- Product Information Vortex Flow Regulator for Wet Well Installation SUN 0121n