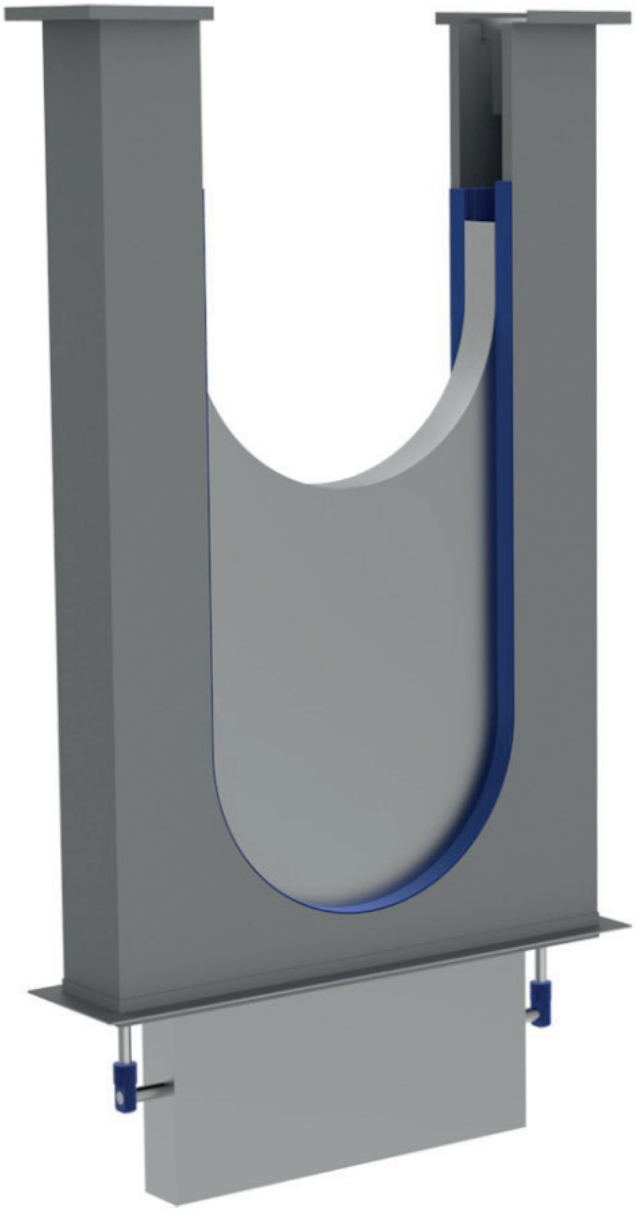
TO KNOW HOW . . .

Solutions for water, energy and infrastructure

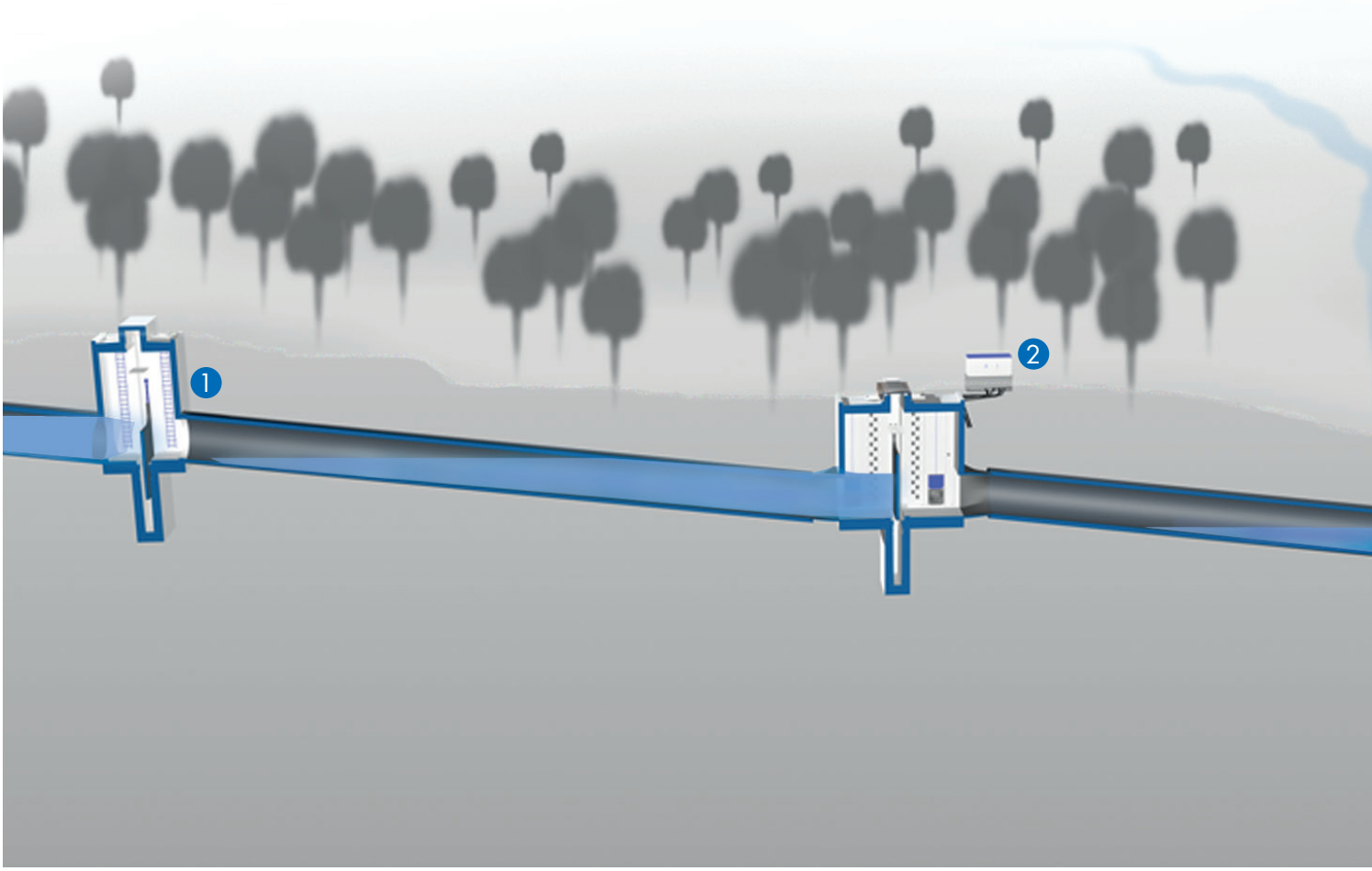


FUTURE ORIENTATED MANAGEMENT OF SEWER SYSTEMS

The use of cascade technology allows an efficient and ecological management of retaining capacities in combined systems.

HST®
SYSTEMTECHNIK

Water Drainage Management



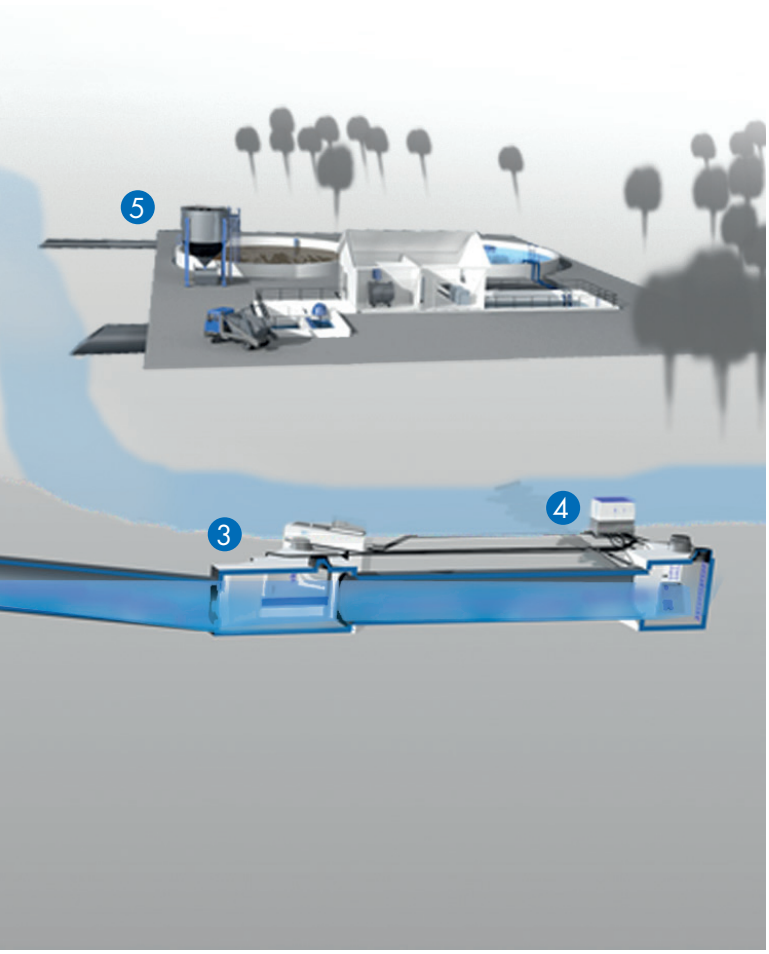
CONTEXT

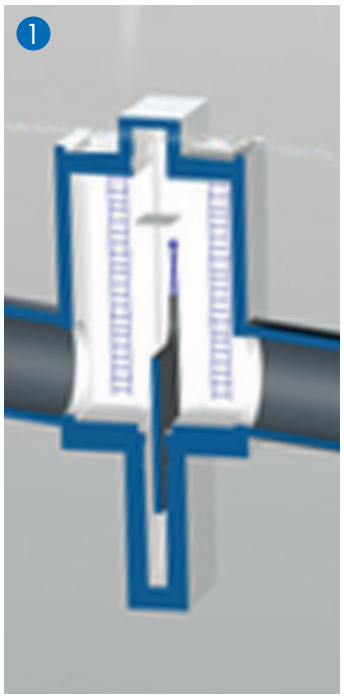
Precipitation leads to an increased amount of water in natural waters and sewer systems that require draining. Engineers around the world therefore deal with the interpretation, conception and dimensioning of sewerage and drainage networks and their special constructions in order to facilitate an efficient operation even during heavy precipitation.

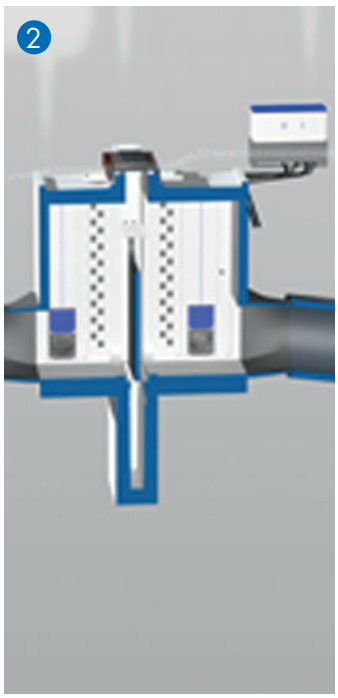
Apart from the avoidance of risks due to inundations, congestions or floodings, health aspects take center stage. Both hygienic aspects of urban water management and water protection control take priority.

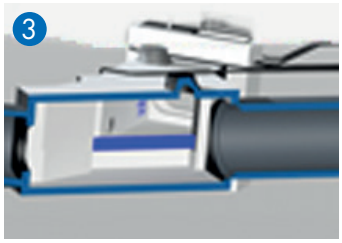
For economic reasons, sewer networks are dimensioned to handle certain heavy precipitation events. Exceeding discharge rates need to be released accordingly. Such a discharge usually occurs through overflows into the waters. Technically speaking, this is achieved by so-called overflow structures or spillways. These are arranged according to height in such a fashion, that on reaching a certain level of water, they discharge the superset in the waters or into other receiving stream possibilities.

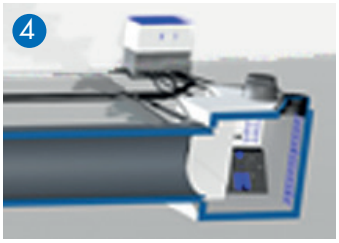
Ideally, discharges with retention areas are created to control and manage the effluent flow. Such retention areas are used to buffer hydraulic peak discharges as well as to reduce or avoid the entry of pollutants from the sewage system into the waters. These retention areas are usually called storm water retention basins and are either of a concrete or earth construction, taking a round, angular or tubular shape and function as rain water or mixed water storages.











THE HST STRATEGY

During the past 40 years HST has developed solutions for improved management of (flood) retention areas with their (special) requirements regarding flow and discharge control as well as cleaning and process monitoring. These solutions in the form of products and systems used either by themselves or in interconnection, enable investment as well as operational advantages. Alongside classical mechanical weirs and drain controllers, self-acting ASK-weirs and ASA-weirs represent the current state of technology (for improved management).
In this context, ASA weirs occupy a special positions since they are not only able to make ideal use of large-volume channels for stowage space but are also able to simultaneously carry out the (sewer) cleaning (process) via flushing waves.

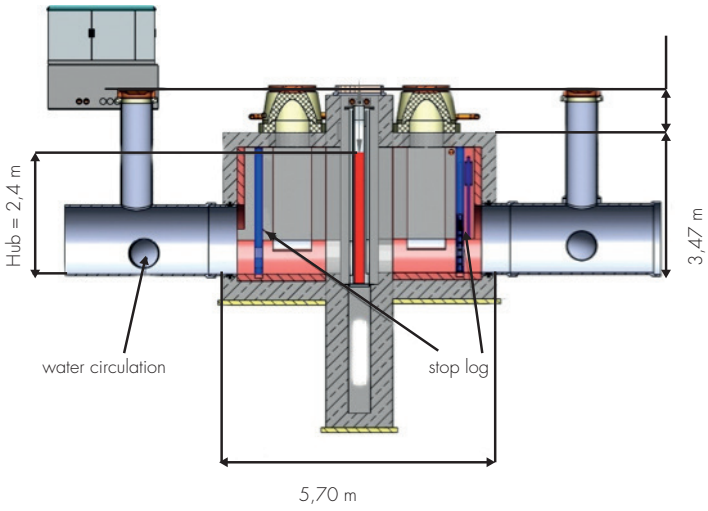
1. Cascade weir 1
2. Cascade weir 2 with water circulation
3. Discharge weir with STW/V scum baffle
4. Double slide structure in front of a sewage plant
5. SBR sewage plant (Sequencing bath reactors)

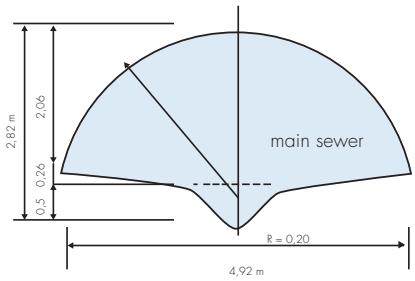
HST ASA-Weirs

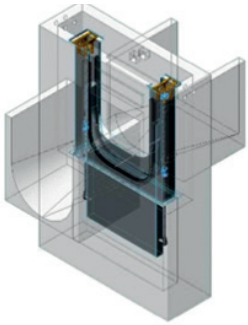
HST ASA-WEIRS

ASA weirs are XXL hydraulically-driven, pressure-sealed sliders, manufactured with the highest level of precision. The requirements made on a barrier-free flow rate, safety in the event of power failure, the capacity to open up against water pressure and to specifically accumulate up to variable levels, as well as backflow and flood protection are covered at 100% through its construction and design.
Innovative planners and operators in Europe are already using this technology for sewer networks of cities and municipalities, industrial sites and airports. HST ASA-Weirs are monitored with the help of the HST-SCADA system, possibly combined with the use of cameras, and controlled dependent on filling level and precipitation, whilst taking into account surrounding interconnected systems and discharges. All performance and operating data is recorded for analysis and documentation purposes and is available via SCADA.web at all times. Always focusing on making full use of the retention and collector basin's storage capacity and thereby reducing water contamination to a minimum.

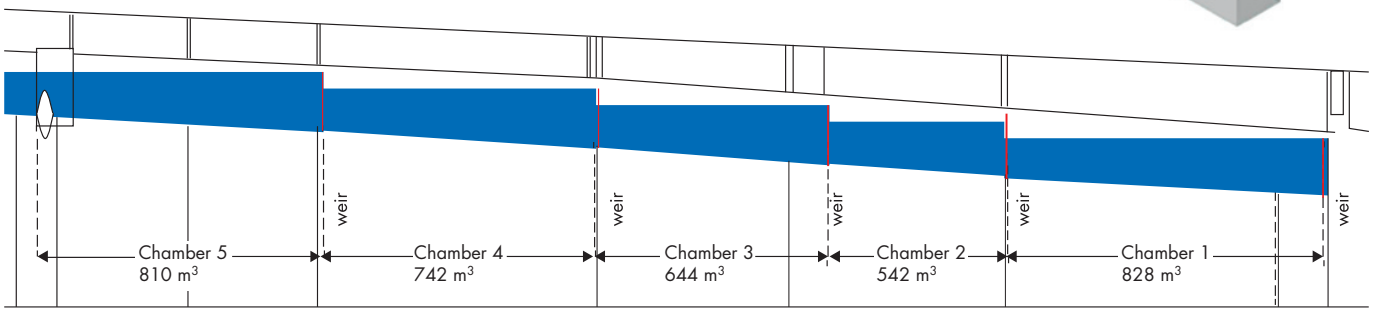
Functionality and Effectiveness







Main Sewer Cascades (Reservoir = 3560 m³)



BRIEF DESCRIPTION OF HST ASA-WEIRS

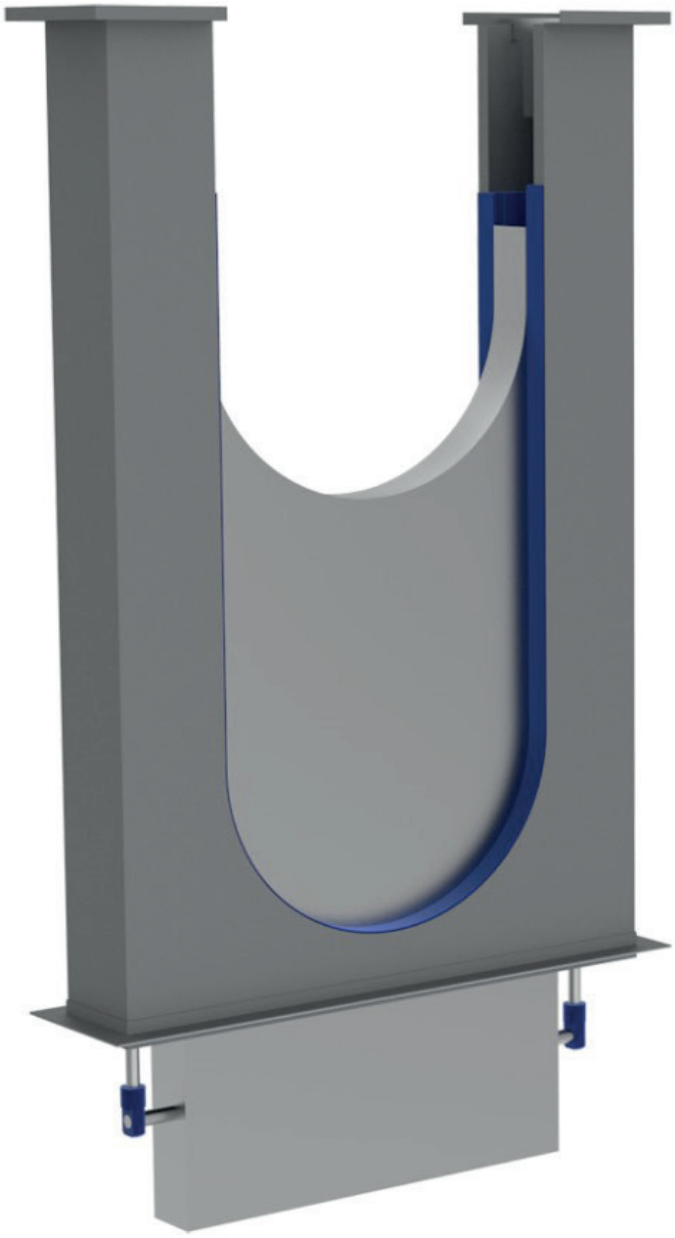
- Vertical up and down function with hydraulic control, dependent on actual arrangement
- To fill channels in their various shapes and profiles, also in a cascading arrangement
- To flush channels
- To charge water retentions basins and retention areas
- To discharge the sewer at maximum drainage and discharge rates into the waters
- Also suitable for retrospective installment in any measurements and collector profiles desired

EXPLAINING THE GRAPHIC

The graphical representation shows that the retrospective installation and the effectiveness of HST ASA-Weirs in an old, existing main collector in major German city (approximate pipe arch of 5.0 x 3.0 m). With the capacity of storing about 3,600 m³ of waste water in cascaded inside the existing canal and feeding it, after the precipitation event, to the sewage treatment plant.

Cascada Weir – ASA-Weir

SMART Machine



PRODUCT SPECIFICATIONS

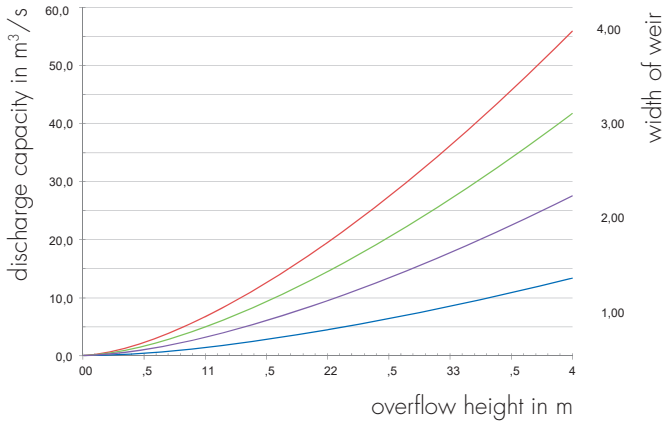
ASA weirs serve primarily as cascade dams, flushing-weirs and relief weirs. They activate reservoir volumes, generate hydropeaking and make a variable overflow edge to separating structures and relief dams. Technically, the ASA weirs are XXL hydraulically-driven, pressure-sealed sliders, manufactured with the highest level of precision.

Height/Hub:	0,50 – 3,00m
Widith:	1.00 – 7,00m
Capacity:	up to 70,00m³/s
Opening Speed:	3 – 8m/min
Actuator:	elektrohydraulic
Instaled Power:	max. 2,2 – 14,00KW
Material of Construction:	Stainless Steel/Cornposite

Customized executions and sizes on request.

SIZING / CHARACTERISTICS

Pre-selection diagram



YOUR ADVANTAGES

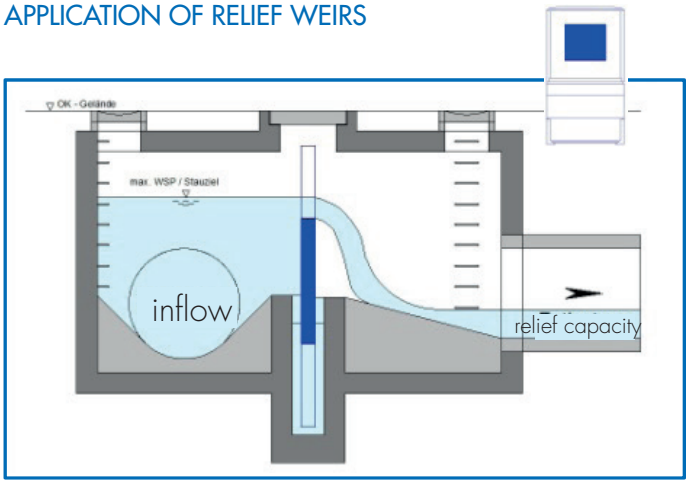
- Activation of reservoir volurnes
- Generation of flushing waves
- Flood protection
- Reduction of structural dimensions
- Network connection to cascades
- Safety even in case of power failure
- Adjustable operation levels

APPLICATIONS

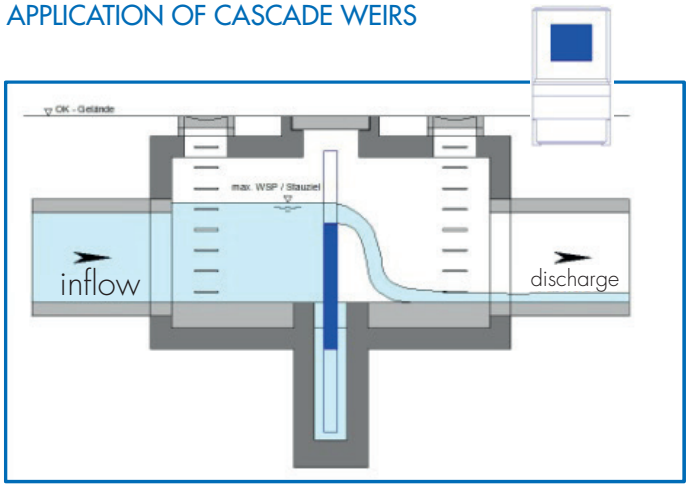
- Sewer reservoirs
- Storm water tanks
- Coastal protection/dykes
- Separating structures
- Polders
- Seals
- Locks

Application and Additions

APPLICATION OF RELIEF WEIRS



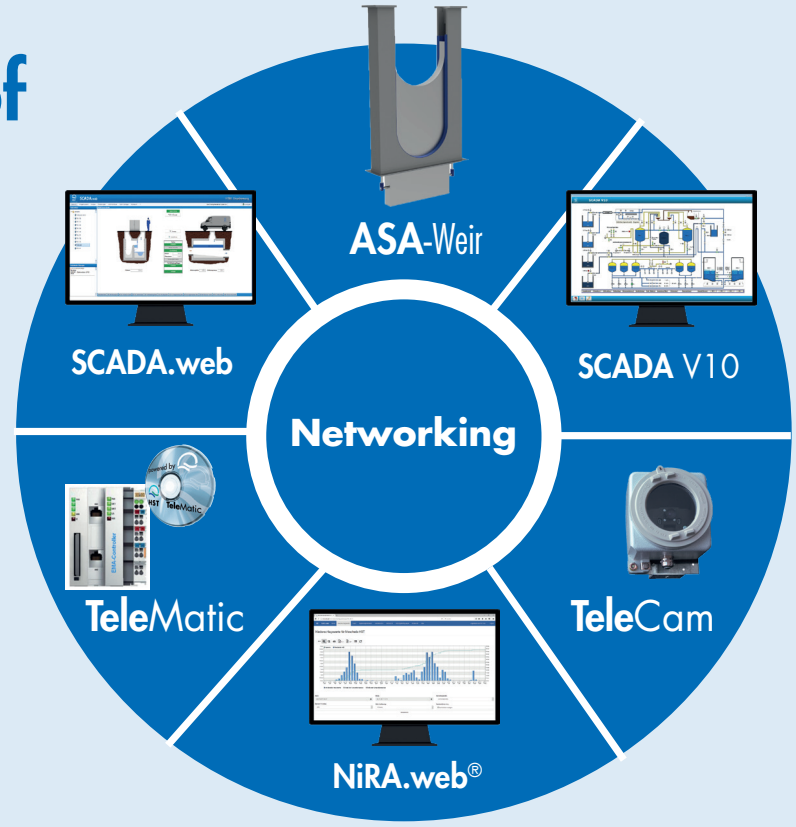
APPLICATION OF CASCADE WEIRS



Useful Additions of Cascade Weirs

THE COMPONENTS OF THE HST - OVERALL SOLUTION

- Cascade, surge and relief technology – CSR
- SCADA V10 / SCADA.web for the complete monitoring, documentation and logging
- TeleMatic for central data logging, processing and archiving and remate data retrieval
- NiRA.web for precise local precipitation results
- TeleCam for monitoring



THE COMPONENTS OF THE HST - OVERALL SOLUTION

Due to the use of HST's intelligent additions for the cascade weirs, operators are able to gather comprehensive information. This data (i.e. from local precipitations) can be used to control and manage the combined channel system. Also the important assessment-data of machine functionality (cascade weirs) and the sewer network organization can be gathered and utilized. As a result operators are equipped with a comprehensive installment: an information system that includes all process relevant data

Success Built on Quality

The excellence of a system is only possible when the quality of the individual components is outstanding. Products from HST must fulfil very high technological standards in their design, safety and functionality. Often, years of intense research, development and testing pass before an innovation – be it a machine, system or software – is ready for the market. And even then we don't stop working at HST. Once installed, the technicians and engineers observe very precisely how the product stacks up in the market. Feedback from customers is taken seriously and is considered and important seismograph in order to potentially optimise the product.

OUR CLAIM

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YOUR CONTACT PERSON AT HST

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SMART Machines

SMART machines are what we call machines that are equipped with special automation intelligence as well as smartSCADA and smartKANiO. These machines have special functions and characteristics. They fulfil integrated safety beyond the requirements of the machine guidelines.

ENERGY EFFICIENCY

HST products are developed to work without external power or are equipped with IT and process automation that reduces the external energy consumption to a minimum.

MATERIAL EFFICIENCY

Resources are scarce and more expensive. Therefore HST uses well thought through designs and production methods to produce plants and machinery particularly efficient.

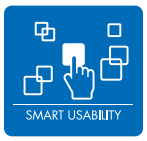
DATA EFFICIENCY

HST systems prepare obtained data and relevant information so that they are tailored to the needs of the user(s). They get the information they need.

SECURE QUALITY

System failures and the loss of data are expensive. HST software products ensure maximum availability and the security of the data.

SMART USABILITY



Operate complex processes easily. Exactly this challenge is realised by HST's software products in a special way.

Water

Energy

Infrastructure

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