



HOLDING

GRA**Z**

WASSERWIRTSCHAFT

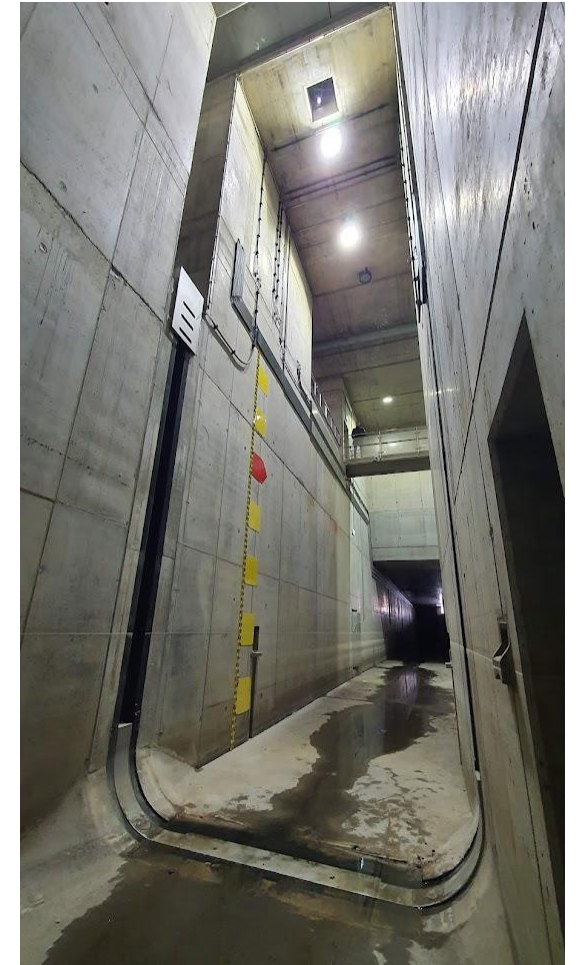
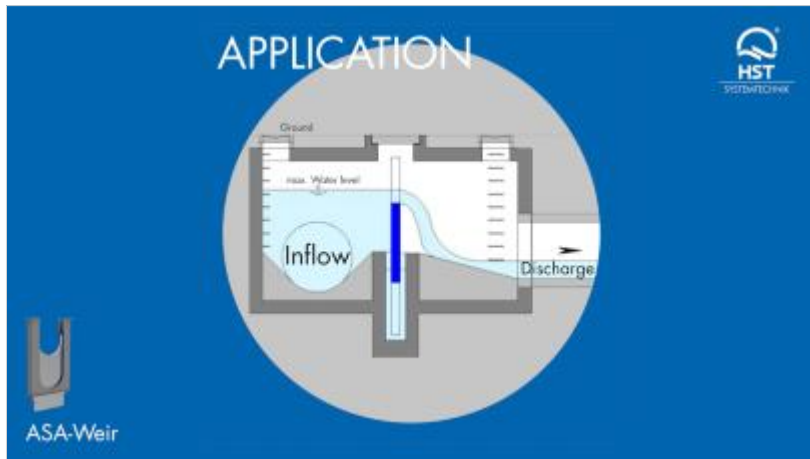
 **HST**

 **nivus**

SYSTEMTECHNIK

HST Systemtechnik | Thomas GRÜNIG
NIVUS Austria | Johannes BUGL

Agenda

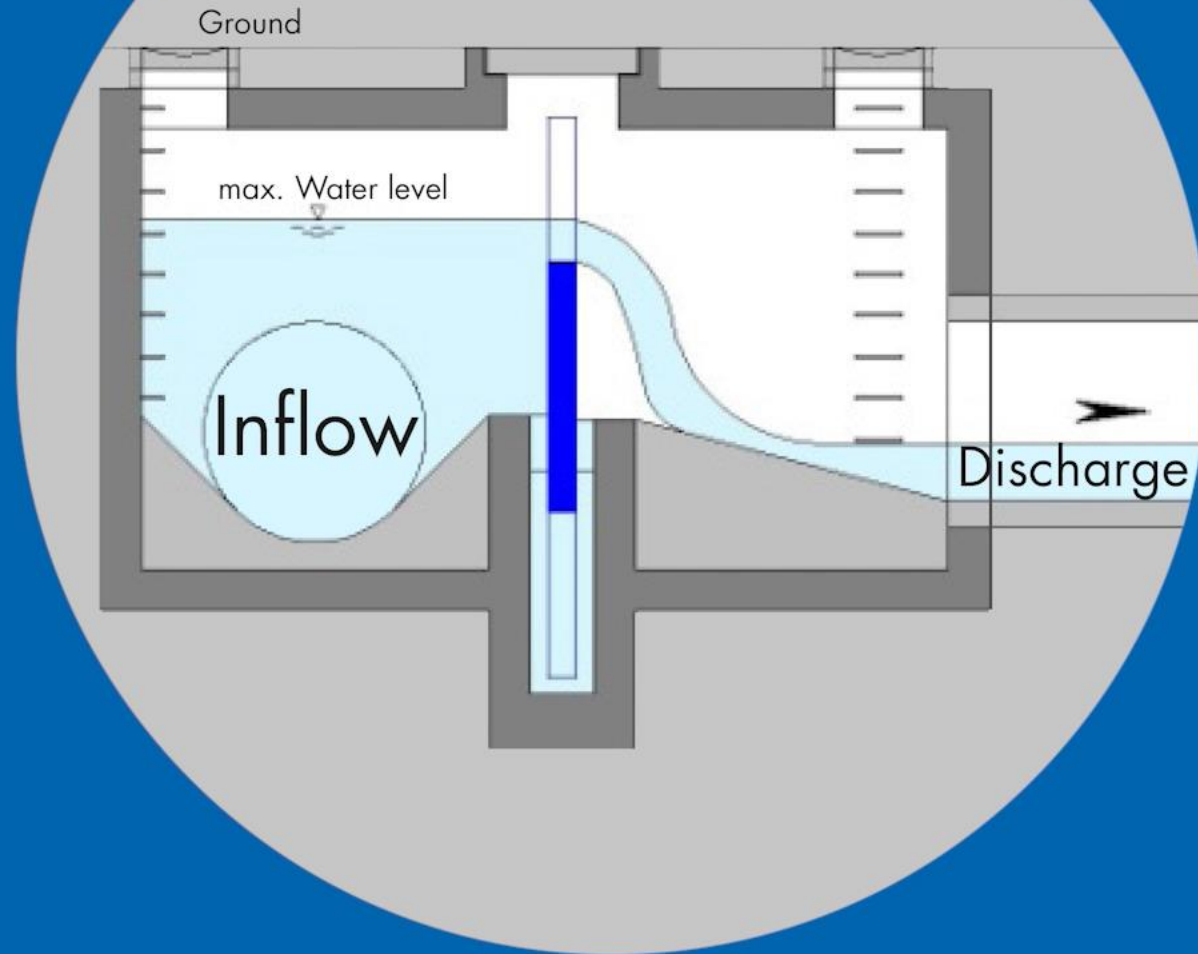




measure analyse optimise

Thank you!

APPLICATION



ASA-Weir

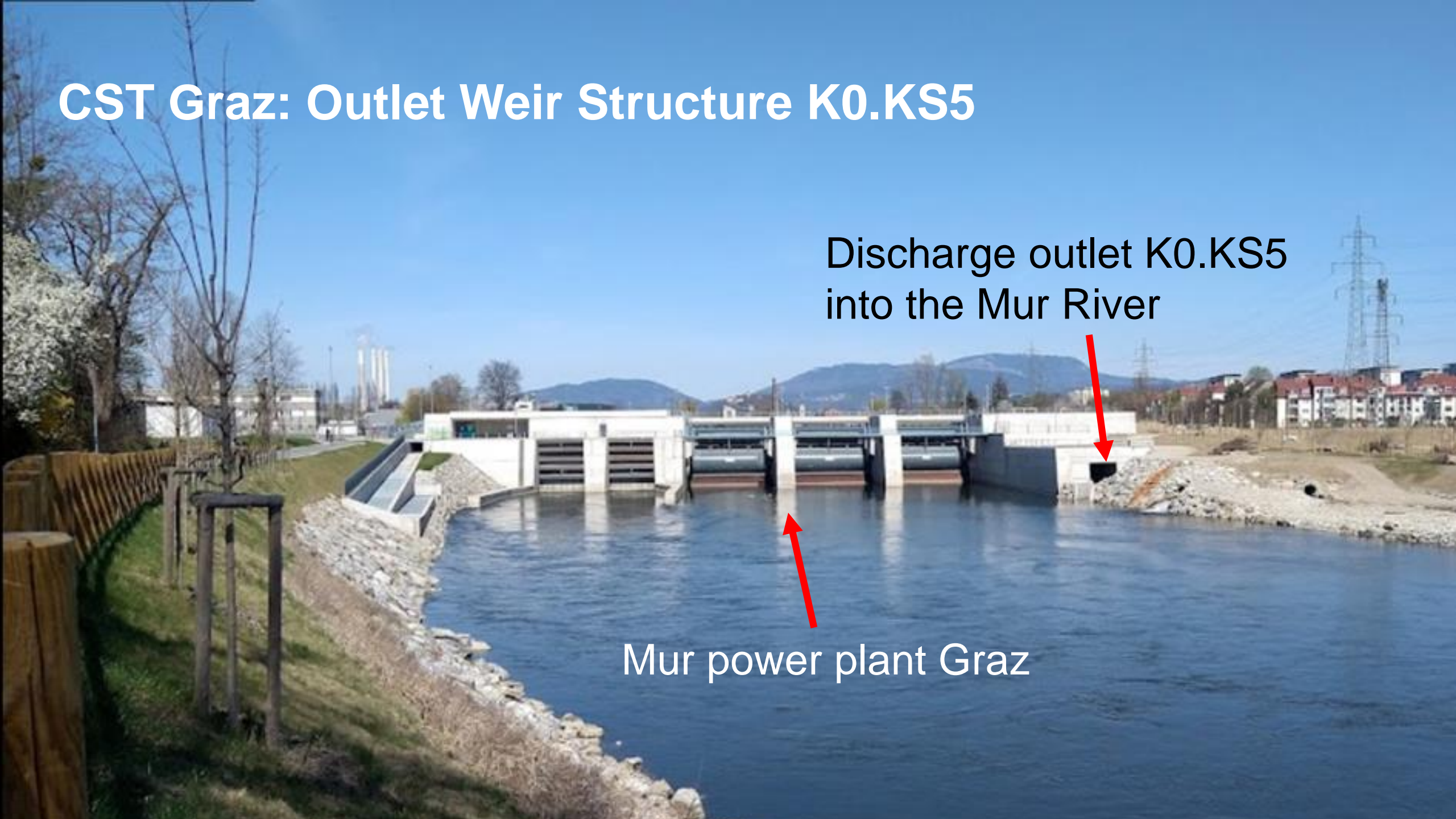


K0.KS5: Discharge Detection with NIVUS

CST Graz: Outlet Weir Structure K0.KS5

Discharge outlet K0.KS5
into the Mur River

Mur power plant Graz



CST Graz: Outlet Weir Structure K0.KS5



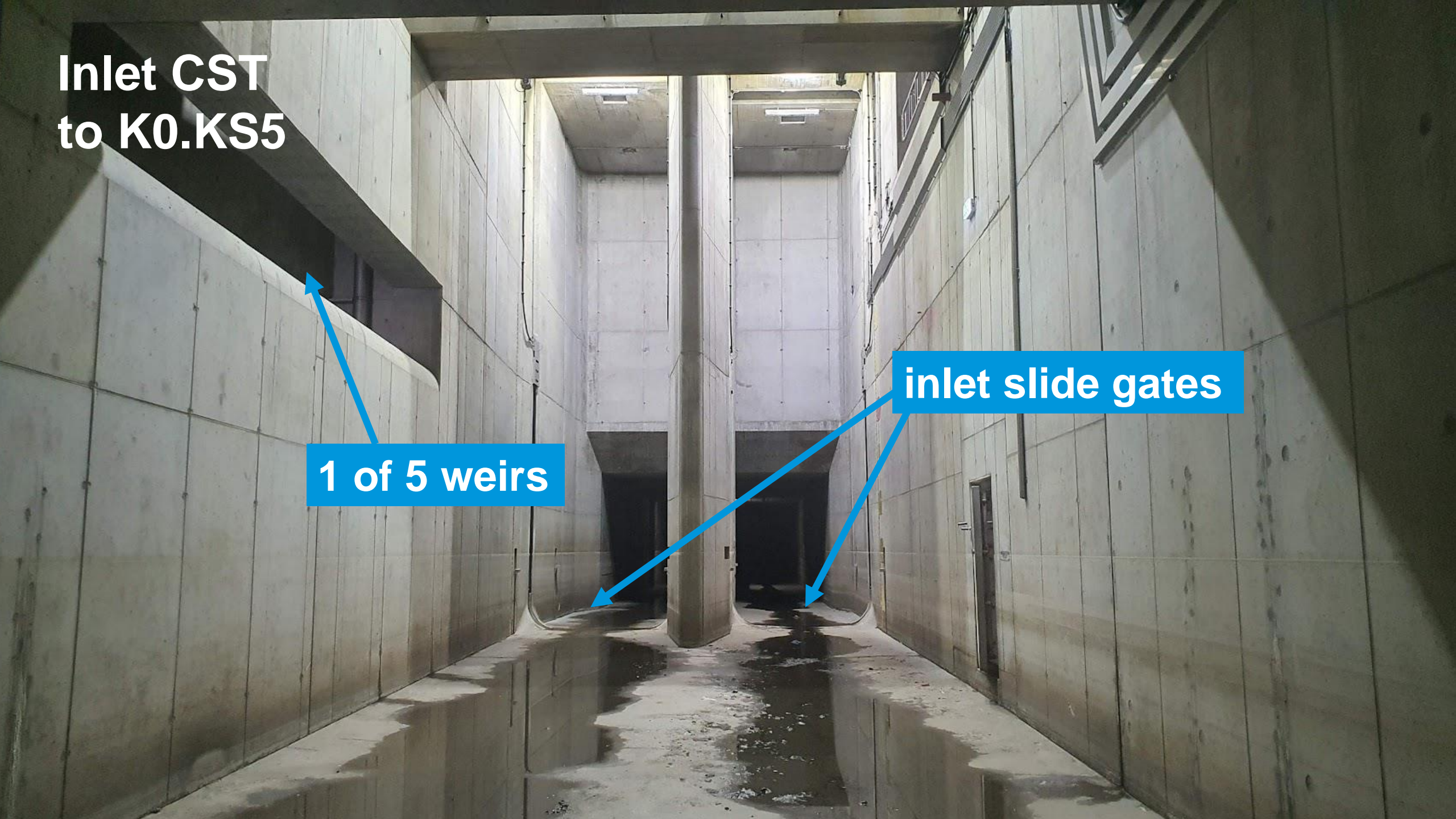
CST Graz: Main Entry K0.KS5



**Inlet CST
to K0.KS5**

1 of 5 weirs

inlet slide gates



Discharge Weir

outlet slide gate

5

**weir with 5
sections
each 10 m**

4

3

2

1

Unique HC Plus Functions

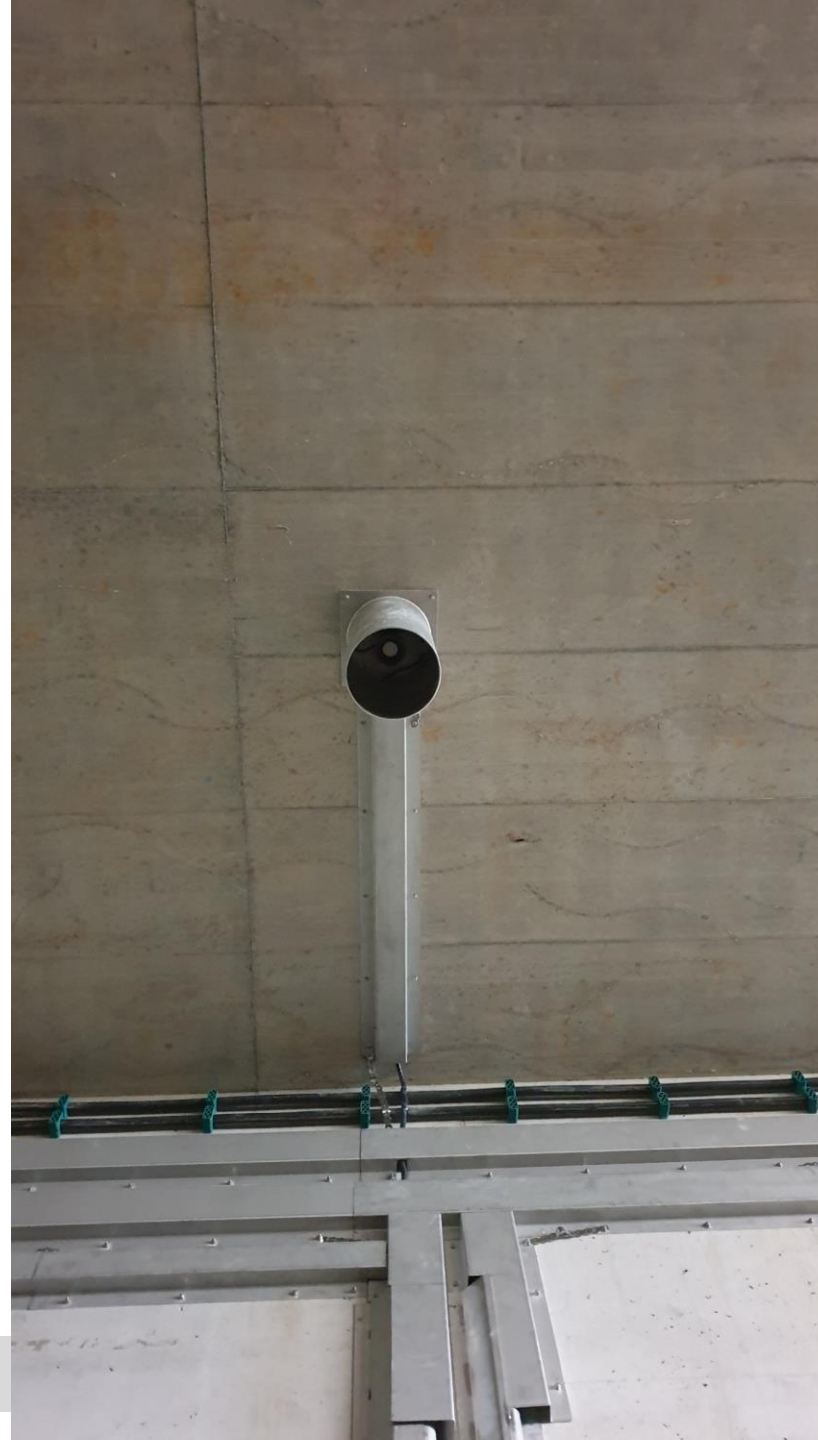
- Operation mode: reduction of discharge volume in case of back water
- Accurate detection of discharge due to several level measurements



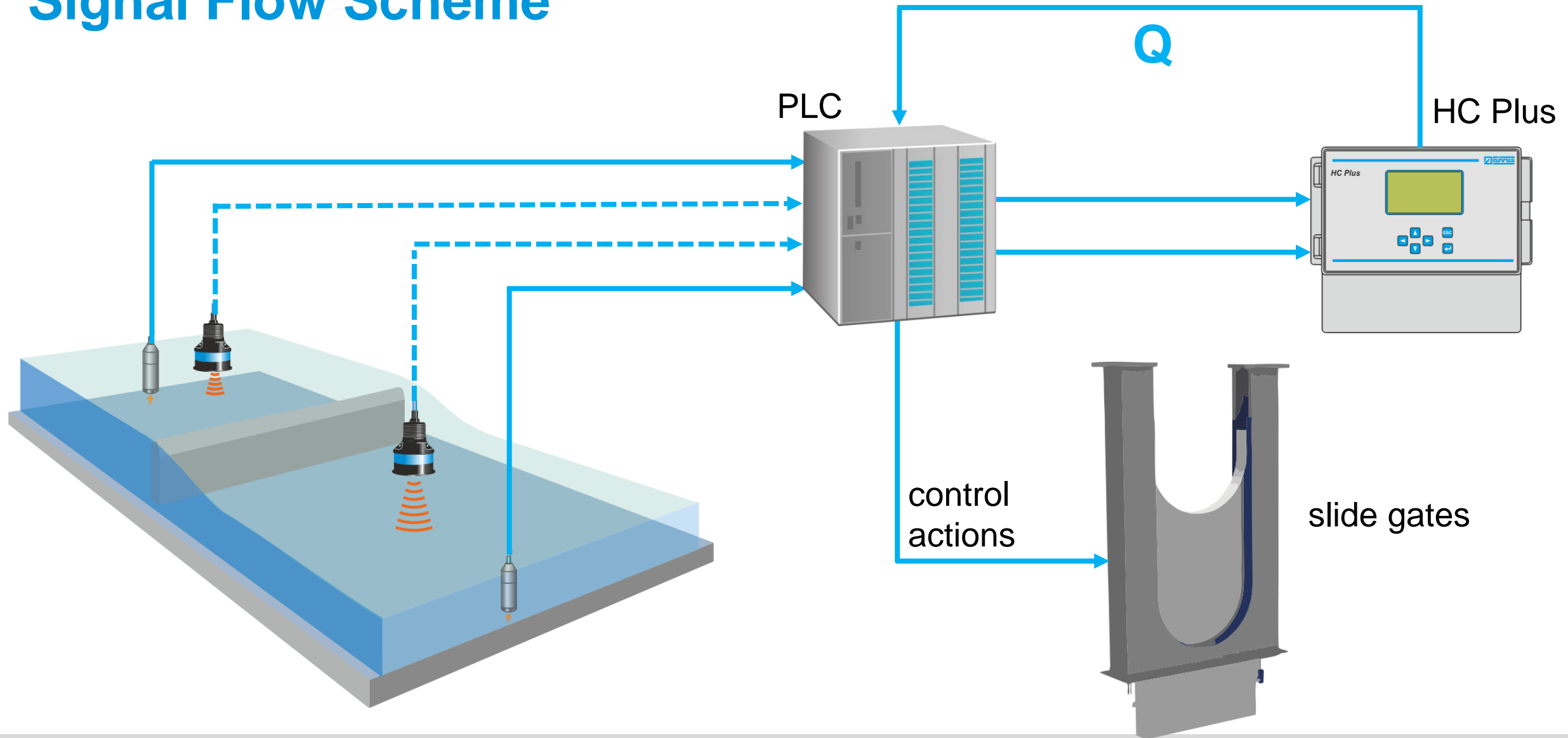
Multi-Redundant Measurement

Combined advantages of two level measurement technologies

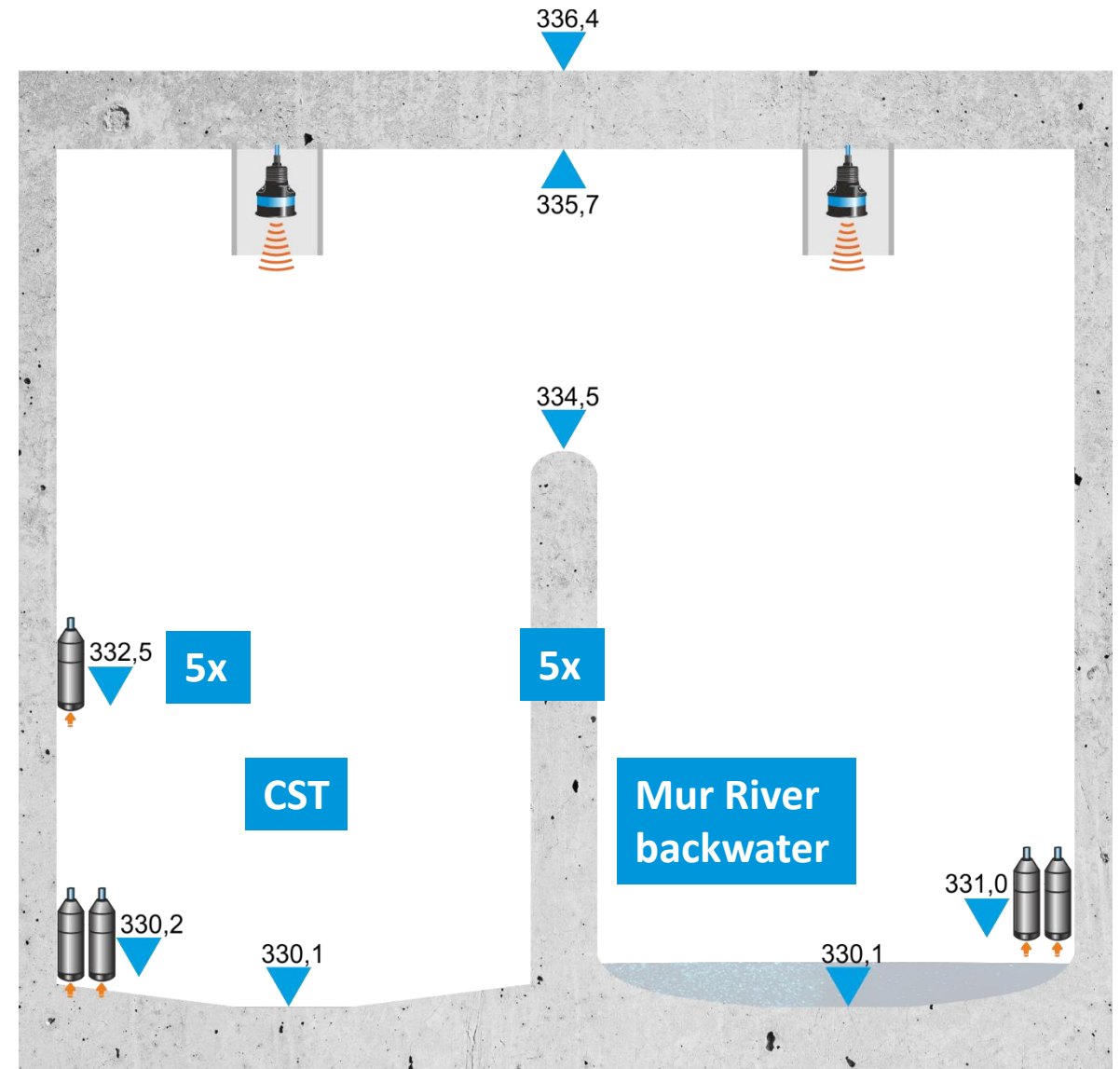
- Drift-free ultrasonic i-Series sensors
- Easy handling NivuBar Plus pressure sensors



Signal Flow Scheme



Cross Section Discharge Chamber



Cross Section Discharge Chamber



HQ100 / 336,59

336,4

HQ30 / 335,51

335,7

HQ5 / 334,45

334,5



332,5

5x

5x

CST



330,2

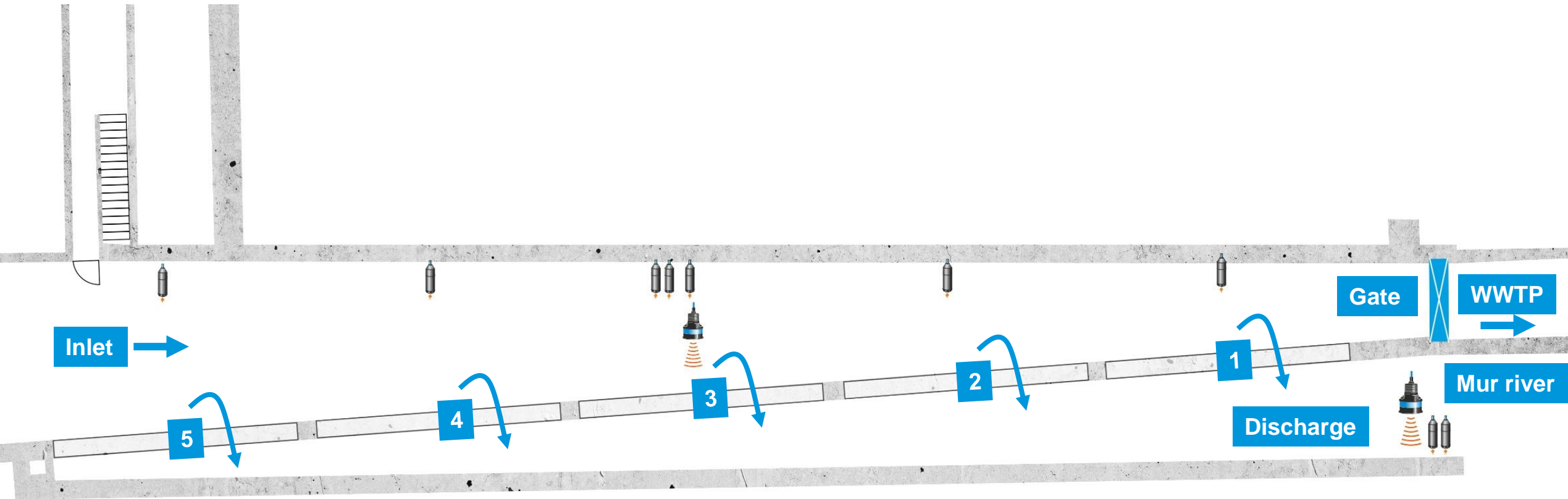
330,1



331,0

330,1

Layout K0.KS5 Discharge Structure









measure analyse optimise

Flow Measurements
related to CST Project

Flow Measurement Combined Sewers to CST

- Special Channel Shapes
- NivuFlow 750 cross correlation flow measurement
- Each 2 wedge CS2 sensors



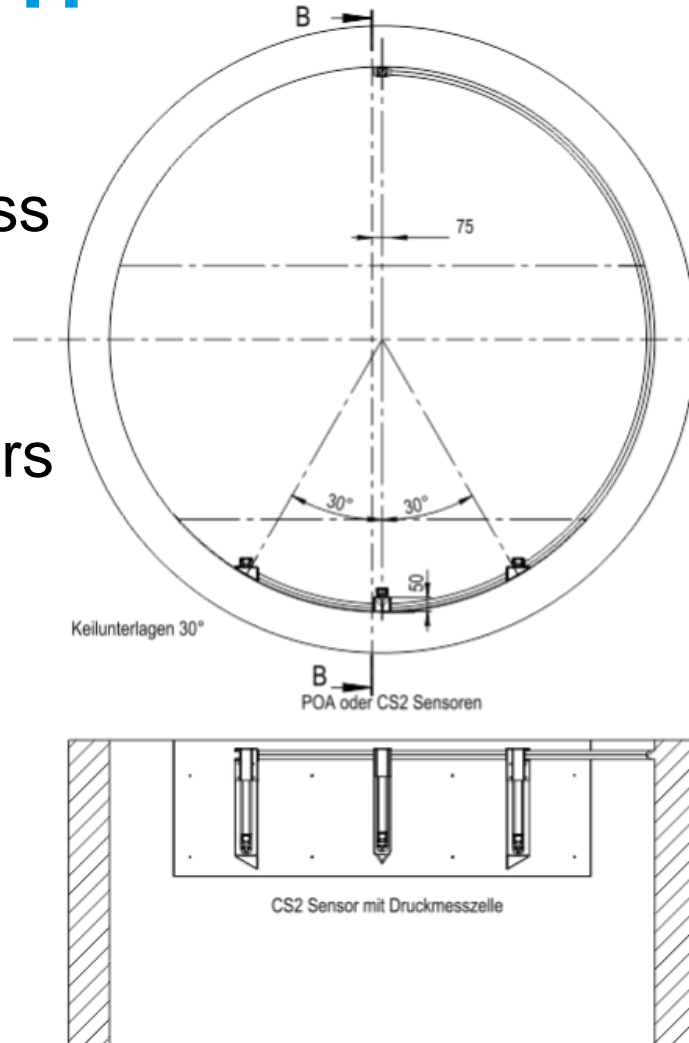
Flow Measurement CST Volume to WWTP or Mixed Water Basin

- Rectangular channel
- NivuFlow 750 cross correlation flow measurement
- 3 x CS2 wedge sensor for detection of real flow profile
- Side wall installation



Flow Measurement Main Channels to WWTP

- 2x DN 2000
- 2x NivuFlow 750 cross correlation flow measurement
- Each 3 wedge sensors
2x POA and 1x CS2

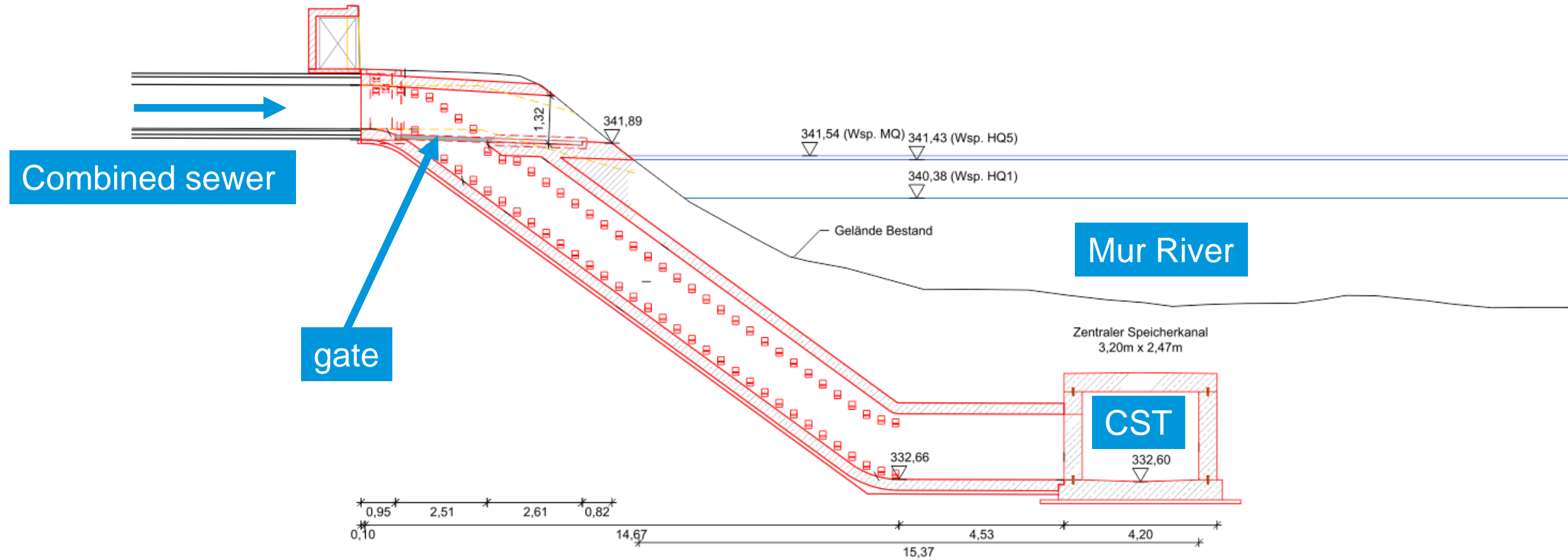




measure analyse optimise

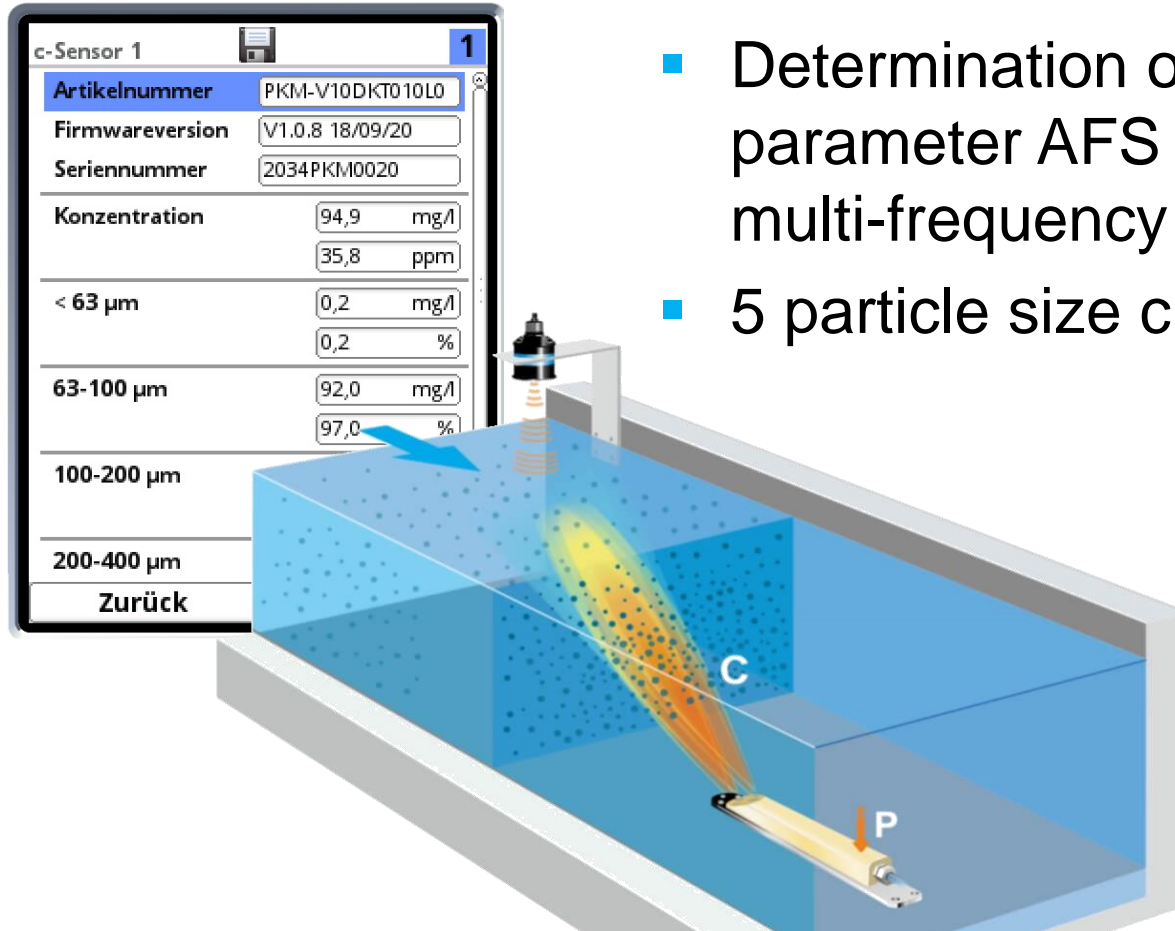
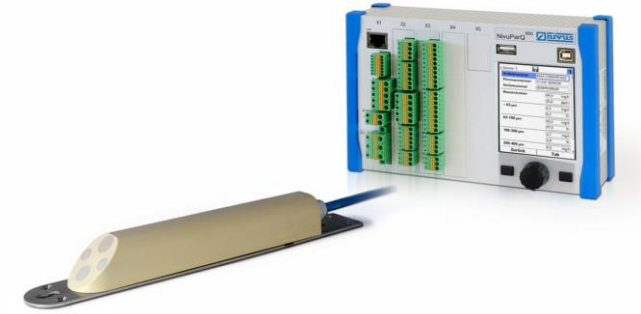
Particle Concentration Measurement

Control of Combined Sewage based on Water Quality



Particle Concentration Measurement

continuous. maintenance-free. easy. measuring

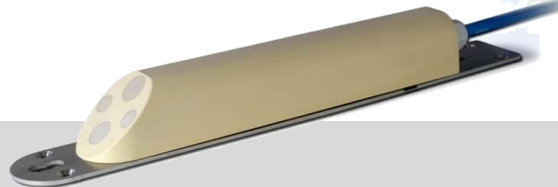


- Determination of solids concentrations with the parameter AFS (Filterable Substances) ultrasonic multi-frequency echo
- 5 particle size classes, also fine content < 63 µm

Particle Concentration Measurement

Benefits

- Very low operating costs
→ no sampling
- Real time field measurement
- Low maintenance and reliable
- Operation in Ex areas



Particle Concentration Measurement

Applications



- Filterable substances load in stormwater discharges
- Measurement data as a basis for optimal dimensioning of treatment structures
- Recording the retention effect of stormwater treatment plants

