



**STEBATEC**<sup>®</sup>  
Measure – Control – Regulate

Association of the Schwarze Pumpe Industry Park, D-Spremberg

## Exact flow measurement with water analysis

- Certified metering pipes calibrated in the hydraulic lab
- Online water analysis integrated in the metering pipe
- Measurements on ten levels provide full data of the complete flow profile
- Dry weather flow for high precision at times of low inflow



Aerial view of the Schwarze Pumpe Industry Park.

### Starting situation

As municipal company of the association of the Industry Park Schwarze Pumpe, the city of Spremberg and the municipality of Spreetal, the ASG Spremberg GmbH is the service provider to one of the largest industry parks in the south of Brandenburg state with many large and medium size companies that provide over 4,300 jobs. In the last two years, two highly modern sewage treatment plants were constructed. The ASG

Spremberg now wanted to optimize the processes in these plants. As a first step, the waste water volumes in the gravity system upstream the treatment plants were to be measured exactly and the analytical data of the water established. The intention was that two independent metering points should measure the flows at high exactitude and stability whereas a third metering point was, in addition, equipped with an online analytical measuring and data transfer function.

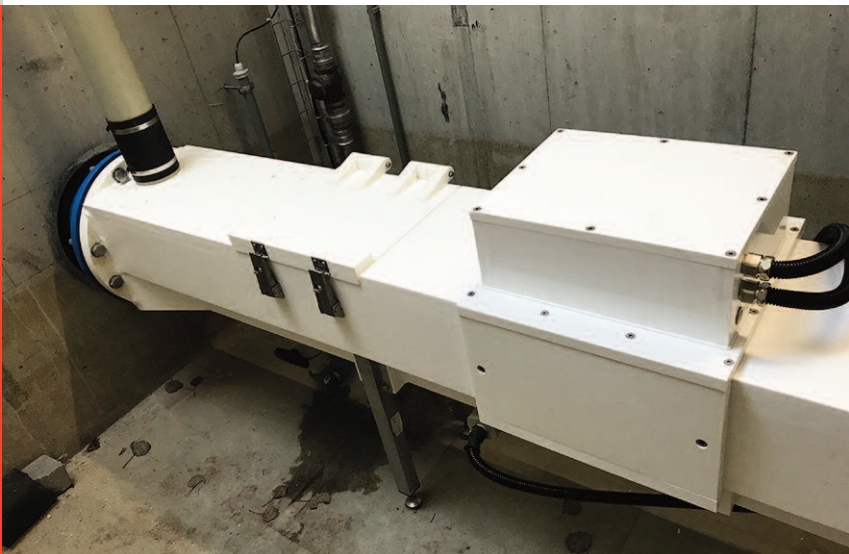
## Requirement

- Exact flow measurement with concurrent water analysis
- Continuous transmission of all data to the SCADA system
- High safety standard
- Solution and design to feature ease of maintenance

## Implementation

In close consultation between Stebatec GmbH and ASG Spremberg, it was decided to install partly filled ultrasonic runtime difference measuring solutions in calibrated metering pipes at all locations. The hydraulic conditions determined the lengths of the metering pipes whereas the diameters were 2 x DN 300 and 1 x DN 600. The metering pipes are equipped with a dry-weather flow waterway so that even very small flows can be measured exactly. The flow velocity is measured on ten levels to obtain full data across the complete flow profile. The system operates without basic impounding. All metering pipes were calibrated in the Stebatec hydraulic lab and certi-

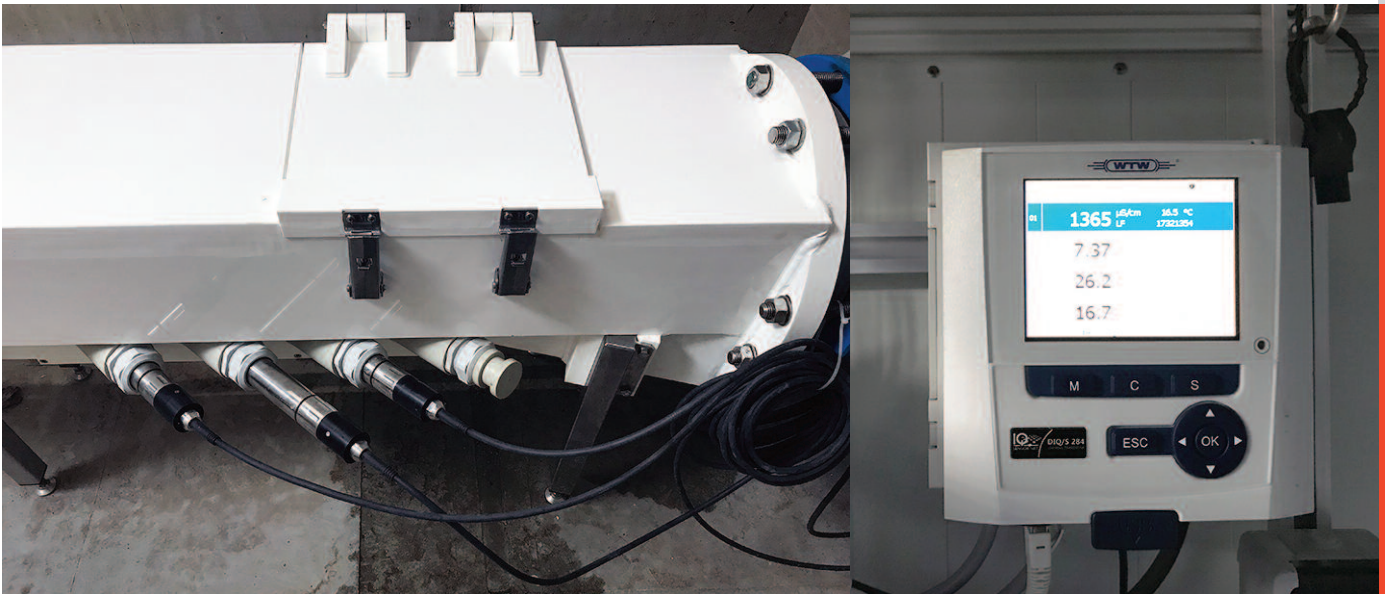
fied before shipment. The biggest challenge, however, was the integration of an online water analysis function in the metering pipes. The solution was developed together with the company WTW. The design of the metering pipe was modified in such a way that the sensors are permanently flooded by the medium measured. Stebatec developed special replacement valves and blanking adapters so that cleaning was made easy and more sensors could be installed when needed. In addition, an exhaust system was integrated in the metering pipe for safety reasons. The use of such high-end metering pipes is only reasonable when a full flow of data is transferred to the available SCADA system to enable the operators to make processes changes early.



Flow velocity measurements are taken on ten different levels to obtain full data of the complete flow profile.



The measuring transducer from Stebatec transmits flow data to the SCADA system or optionally to other users via GPRS.



The sensors of the online water analysis functionality with the specially developed replacement valve and an additional blanking adapter.

The WTW measuring transducer provides data of continuous water analysis.

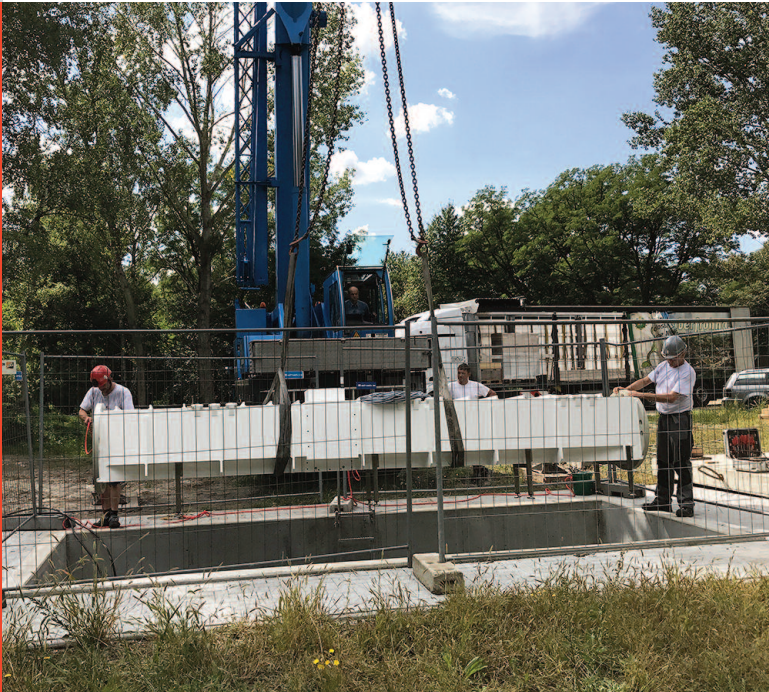
Data from all three metering points is transferred via optical fibre cable. Additional internal or external data users can optionally be linked in via GPRS at any time. The installation of the metering pipes was a high-precision job requiring highest accuracy already during the runup to the installation. The construction of the pits was planned and designed together with the ASG

Spremberg and the Baucom GmbH. Bypasses and slide valve shafts directly upstream the metering pipes form part of the whole project. Safety aspects and ease of maintenance were in focus during the complete planning phase of the project. A waste water pump in the sump pit and high-water alarm in the shaft provide additional safety.



The control cabinet of the North metering pipe of size DN 300. The two measuring transducers are seen on the right of the control cabinet.

Cleverly placed maintenance doors make the metering pipes very easy to maintain (Matthias Mann, Stebatec, and Frank Sanger, construction management/ASG Spremberg)



The installation of the DN 600 metering pipe "An der Heide" was a particularly challenging job because the pipe had to be fitted almost exactly to the inflow pipe.



The finished shaft with a fence around it and the open hatches for maintenance and inspection.

Stebatec GmbH express their gratitude to the ASG Spremberg and the Baucom GmbH for the very good project support from the first idea to completion.