

Make the invisible visible

Reliable sludge level and sediment
monitoring for better process control



Memosens CUS71E

Memosens CUS71E is an ultrasonic sensor for monitoring sediments in basins, tanks, and reservoirs. Precise identification of the interface level between water and sediments enables reliable process control. Manual measurements are no longer required, system availability is increased, and the integrated sensor cleaning ensures consistent measurement results. The unique sedimentation factor serves as a quality indicator of the precipitation process and optimizes chemical dosing.



Memosens CUS71E

Benefits at a glance

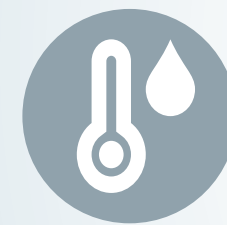
The Memosens CUS71E provides reliable interface level measurement for sedimentation, clarification and thickening processes. Continuous monitoring, integrated sensor cleaning and the unique sedimentation factor support improved process visibility, increased system availability and optimized process performance across a wide range of applications.

Gain deeper insight for better process control: Memosens CUS71E measures the interface layers even at large depth and harsh environments to reliably control and optimize your process.



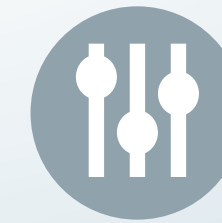
High plant availability by reliable measurement and cleaning: Automated measurement and integrated cleaning increase system availability while delivering consistent measurement results with minimal manual effort.

Reliable results under challenging conditions: High temperatures and saline media cause measurement deviations if not properly compensated. Integrated temperature and medium compensation ensure stable measurements under changing process conditions.



Wide operation range for demanding environments: Monitor interface layers across a broad range of applications. From drinking water to hazardous areas, supported by a complete solution including assembly and transmitter for safe operation.

Seamless integration and easy commissioning: The commissioning wizard supports you step by step, enabling fast integration even in unknown conditions.



Optimize chemical dosing with a unique sedimentation factor: Gain process insights with the sedimentation factor as a quality indicator. Optimize the use of precipitation chemicals and reduce operating costs without compromising process stability.

Industry focus

Reliable sediment monitoring is essential for efficient process control across water and wastewater treatment, mining and hydropower applications. The Memosens CUS71E continuously detects the interface between water and sediments, providing valuable insight into sedimentation, thickening and filtration processes. This enables stable operation, optimized sludge and sediment management and early detection of process changes.

By eliminating the need for manual measurements and combining robust ultrasonic technology with integrated sensor cleaning, the Memosens CUS71E increases system availability and measurement reliability. The unique sedimentation factor provides additional insight into the sedimentation process, helping operators optimize chemical dosing and improve process efficiency with less operational effort.



Wastewater

Maintaining stable wastewater treatment performance can be challenging due to fluctuating hydraulic loads, changing influent characteristics and varying settling conditions. Limited process visibility often leads to increased manual inspection efforts and makes early identification of process changes more difficult. Memosens CUS71E provides continuous monitoring of the interface between water and solids, delivering valuable process insight in real time.

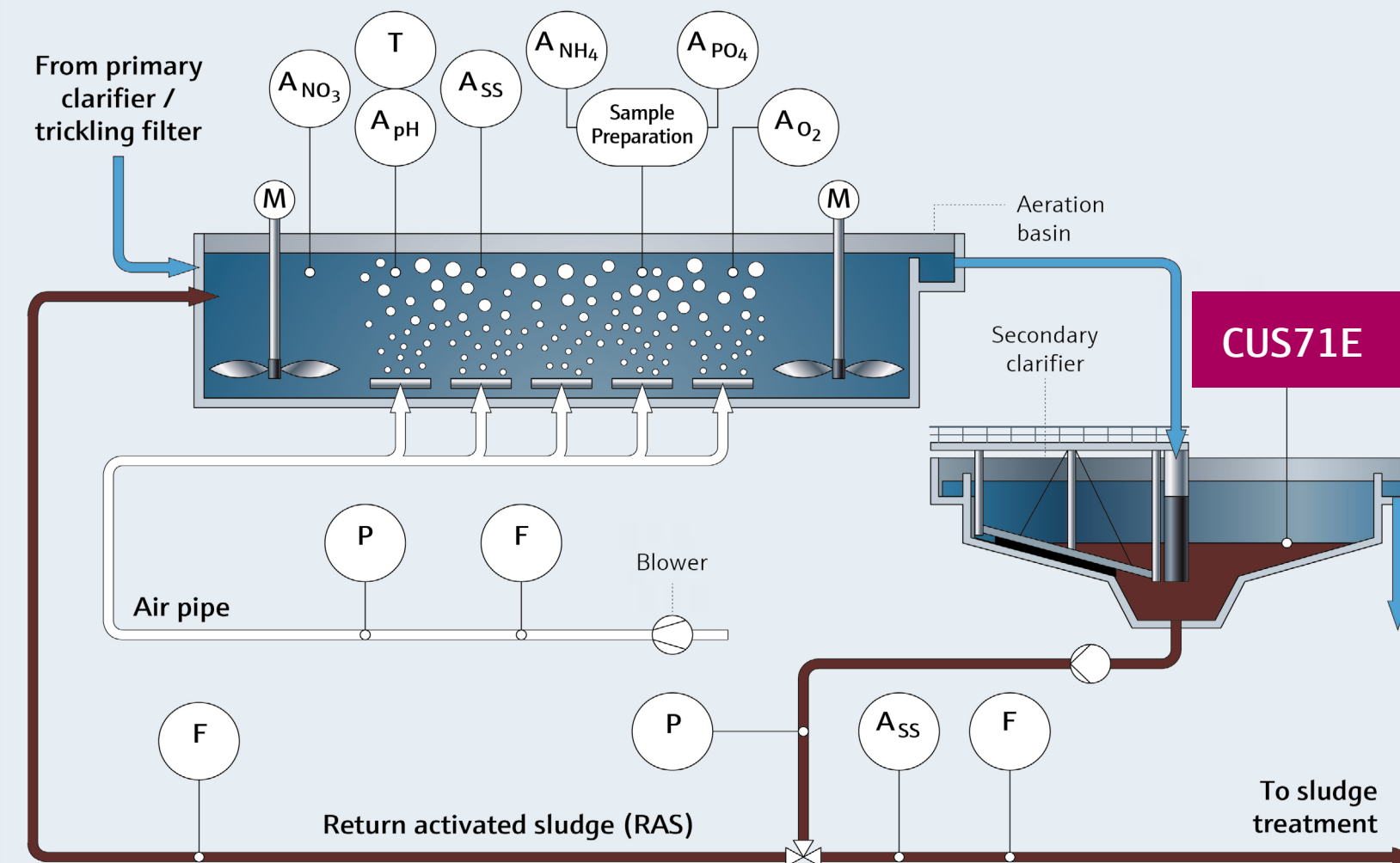
Reliable measurement, integrated sensor cleaning and the unique sedimentation factor help operators improve process transparency, reduce manual intervention and support efficient plant operation.



Secondary clarifier

Effective secondary clarification depends on maintaining the right balance between sludge retention and clarified water. Continuous sludge level monitoring provides valuable insight into the process, helping operators keep sufficient activated sludge in the system while preventing insufficient quality at the effluent. Early detection of sludge level changes supports stable settling conditions, reduces the risk of solids carryover and helps maintain consistent effluent quality.

As a result, sludge management can be optimized while ensuring reliable compliance with discharge requirements and efficient plant operation.



Your challenge

Measuring task: Sludge level monitoring

Measuring point: Second day clarifier

Measuring range up to: 5 m

Medium: Treated waste water

Process temperature: 5...40°C

Process pressure: ambient

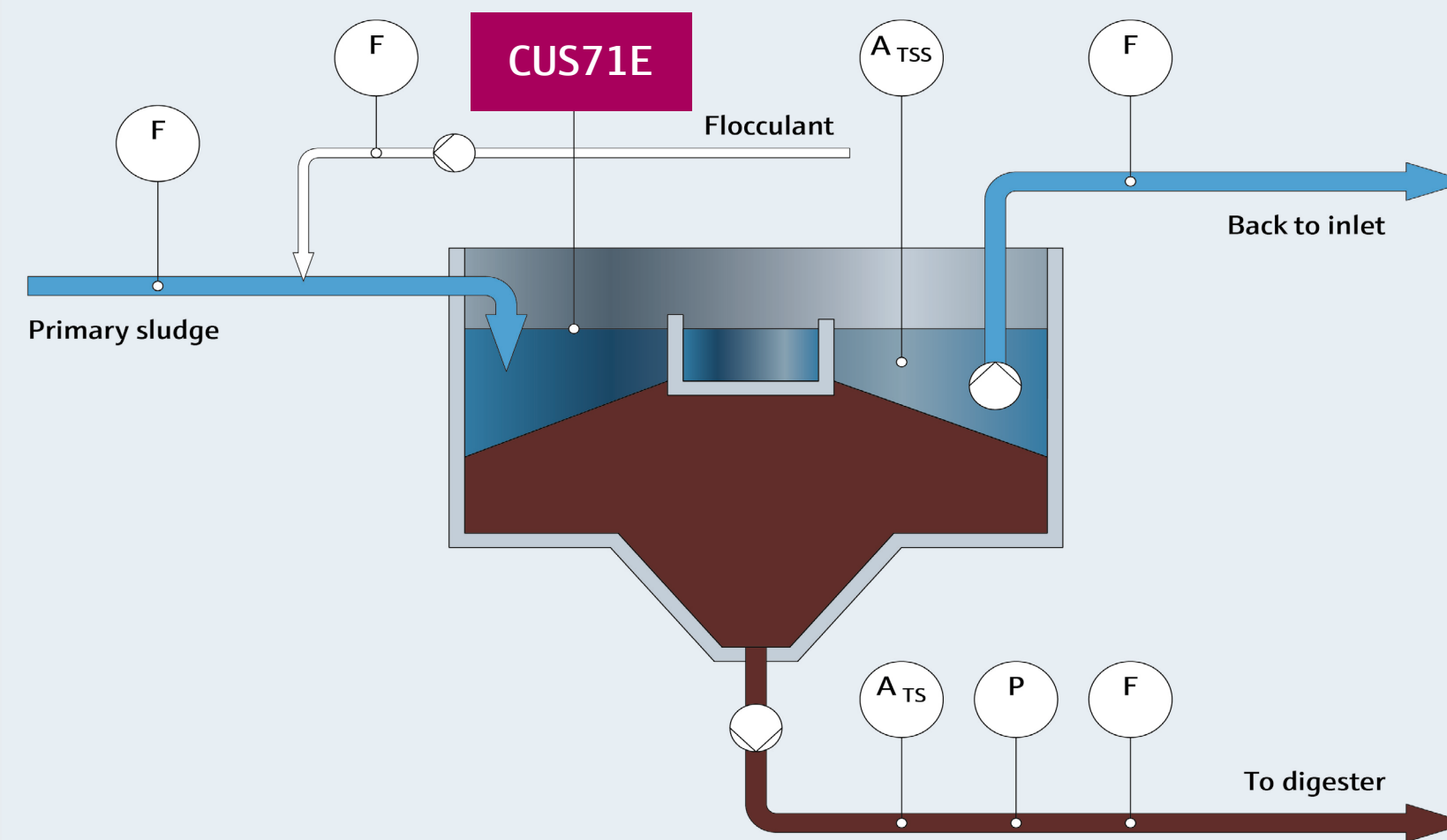
Specific challenges: Multiple reflections from floating particles, surface skimmers, signal transmission in moving installations

Thickener

Gravity thickening is used to increase sludge concentration by removing water from sludge before further mechanical or biological treatment. Continuous sludge blanket monitoring provides valuable insight into the thickening process, allowing operators to maintain optimal operating conditions and achieve consistent thickening performance.

support stable plant operation while reducing operational effort.

The resulting improvement in
sludge handling and
dewatering efficiency helps



Your challenge

Measuring task: Sludge level monitoring

Measuring point: Settlement tank

Measuring range up to: up to 10 m

Medium: Sludge after the secondary clarifier

Process temperature: 5...40°C

Process pressure: ambient

Specific challenges: Floating sludge particles, top layer of biomass with lower density as water, narrow installations

Water

Consistently high water quality depends on stable treatment processes. Variations in raw water quality, operating conditions and volume can impact sedimentation performance and make process monitoring more challenging. Especially in de-ironing processes, close monitoring of the sludge level is essential to prevent the carryover of unsettled particles into downstream treatment steps.

The Memosens CUS71E provides continuous visibility of

sedimentation processes through precise interface level measurement, helping operators gain deeper process insight and reduce manual intervention. Integrated sensor cleaning ensures reliable operation, while the unique sedimentation factor supports process optimization by providing additional information.



Mining, Minerals & Metals

Stable process performance and efficient water recovery are essential in mining operations. Yet changing process conditions and limited process visibility can make it challenging to maintain optimal operating conditions and react quickly to deviations.

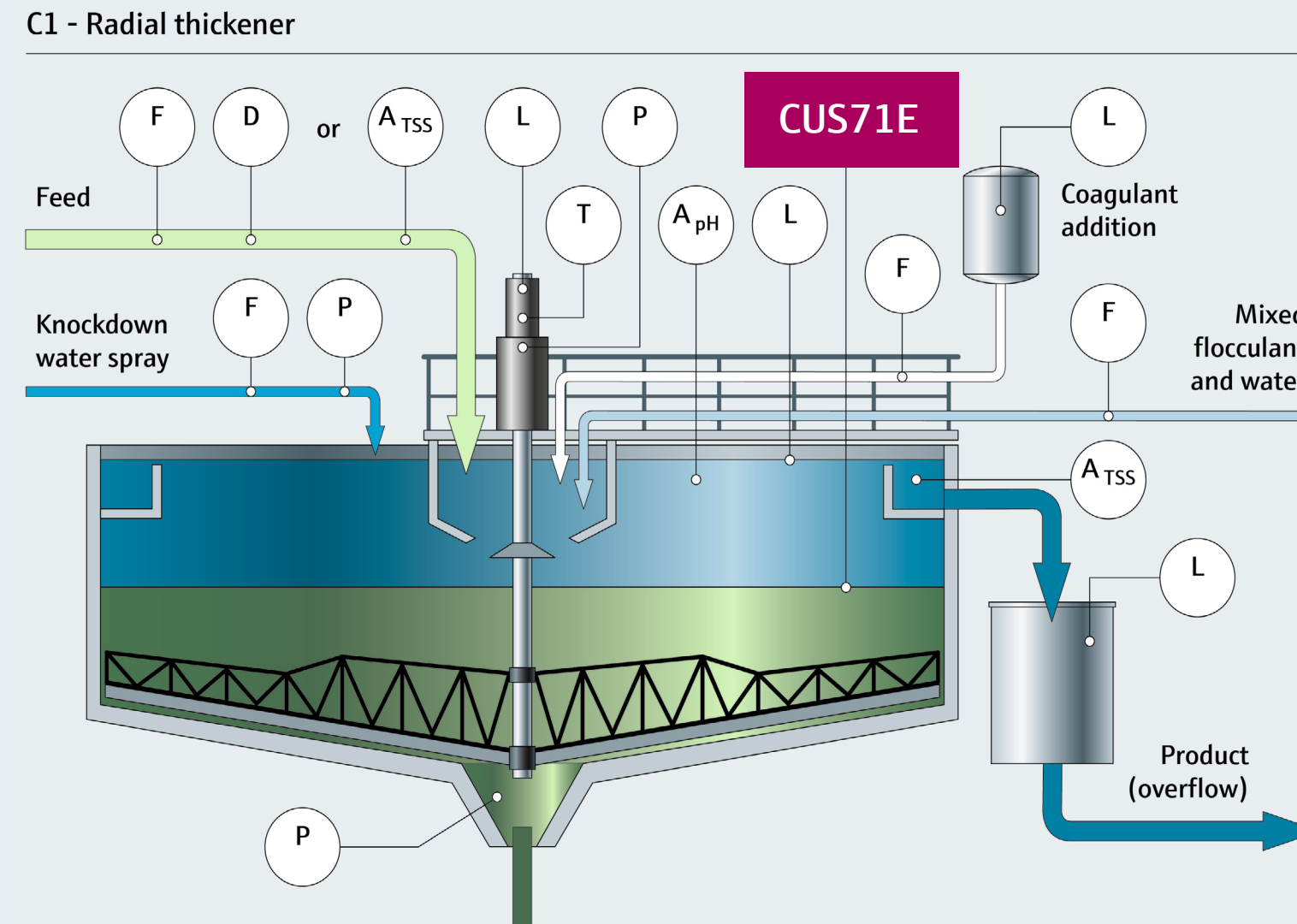
reducing manual measurement effort and ensuring reliable operation through integrated sensor cleaning, the sensor helps increase system availability and operational efficiency while supporting sustainable water management across mining applications.

Memosens CUS71E provides continuous insight into sedimentation processes through reliable bed level monitoring, enabling operators to make informed decisions based on real-time data. By



Radial thickener

Radial thickeners play a key role in tailings management by separating solids from process water for downstream recovery or disposal. Reliable bed level monitoring provides continuous insight into the thickening process, enabling operators to keep track of the solids and stable operation. By detecting changes in the sludge level at an early stage, operators can respond proactively to process variations, optimize chemical dosing, improve thickener efficiency, and ensure reliable plant performance.



Your challenge

Measuring task: Bed level monitoring

Measuring point: Radial thickener

Measuring range up to: 3 m

Medium: Tailing slurry

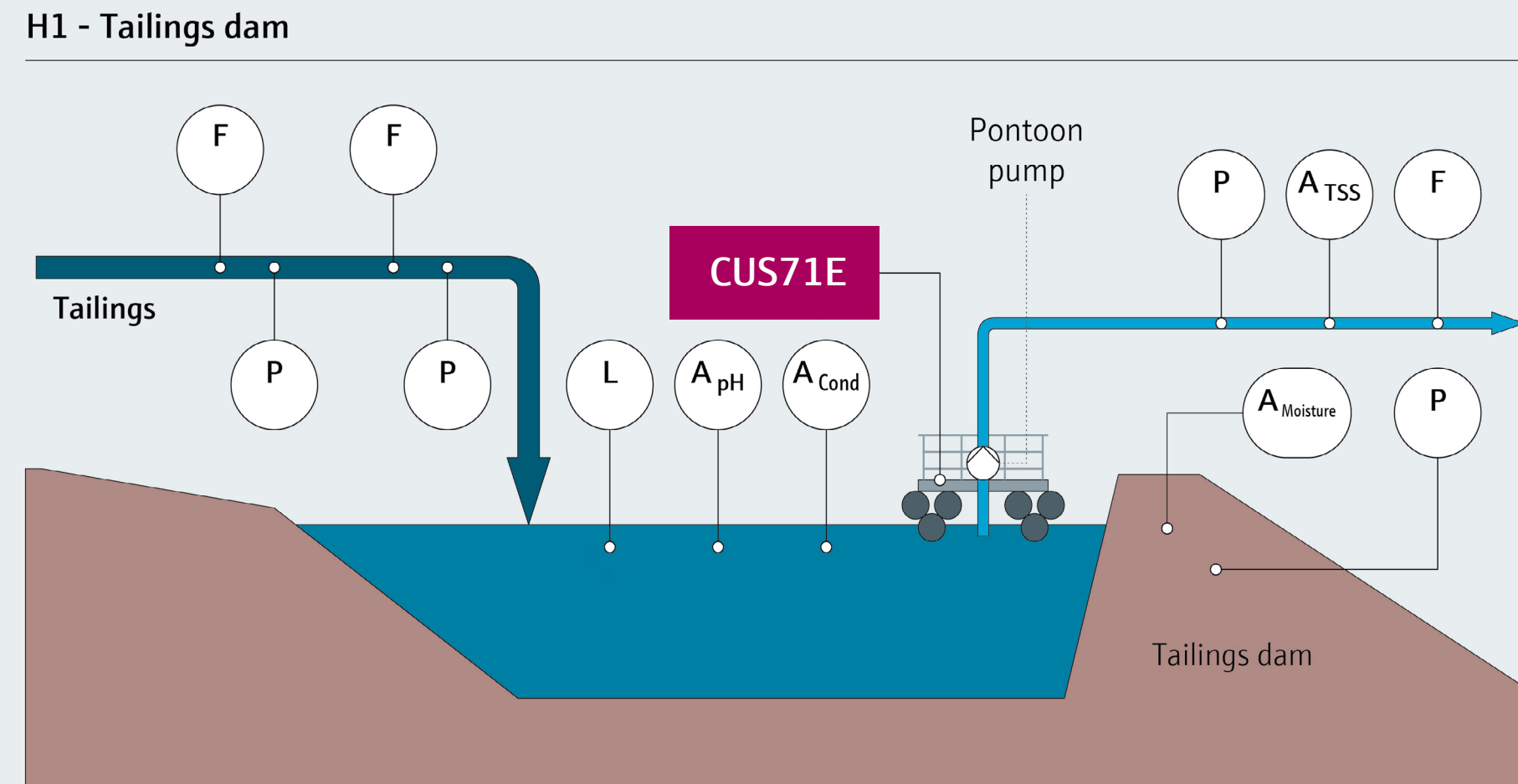
Process temperature: Up to 80°C

Process pressure: ambient

Specific challenges: High concentration of undissolved particles can lead to high solids loading and floating particles can cause multiple reflections

Tailing dam

Efficient thickening is essential for maximizing water recovery and maintaining stable tailings management. Continuous bed level monitoring provides reliable insight into solids inventory and thickener performance, allowing operators to detect process changes early and respond proactively. This supports optimized thickener operation, improved process stability, and reliable plant performance.



Your challenge

Measuring task: Bed level monitoring

Measuring point: Tailing dam

Measuring range up to: 5 m

Medium: Tailings, high load of sediments

Process temperature: 5...45°C

Process pressure: ambient

Specific challenges: High solids loading and floating particles can cause multiple reflections, while abrasive media can lead to increased wear of the cleaning unit

Power & Energy

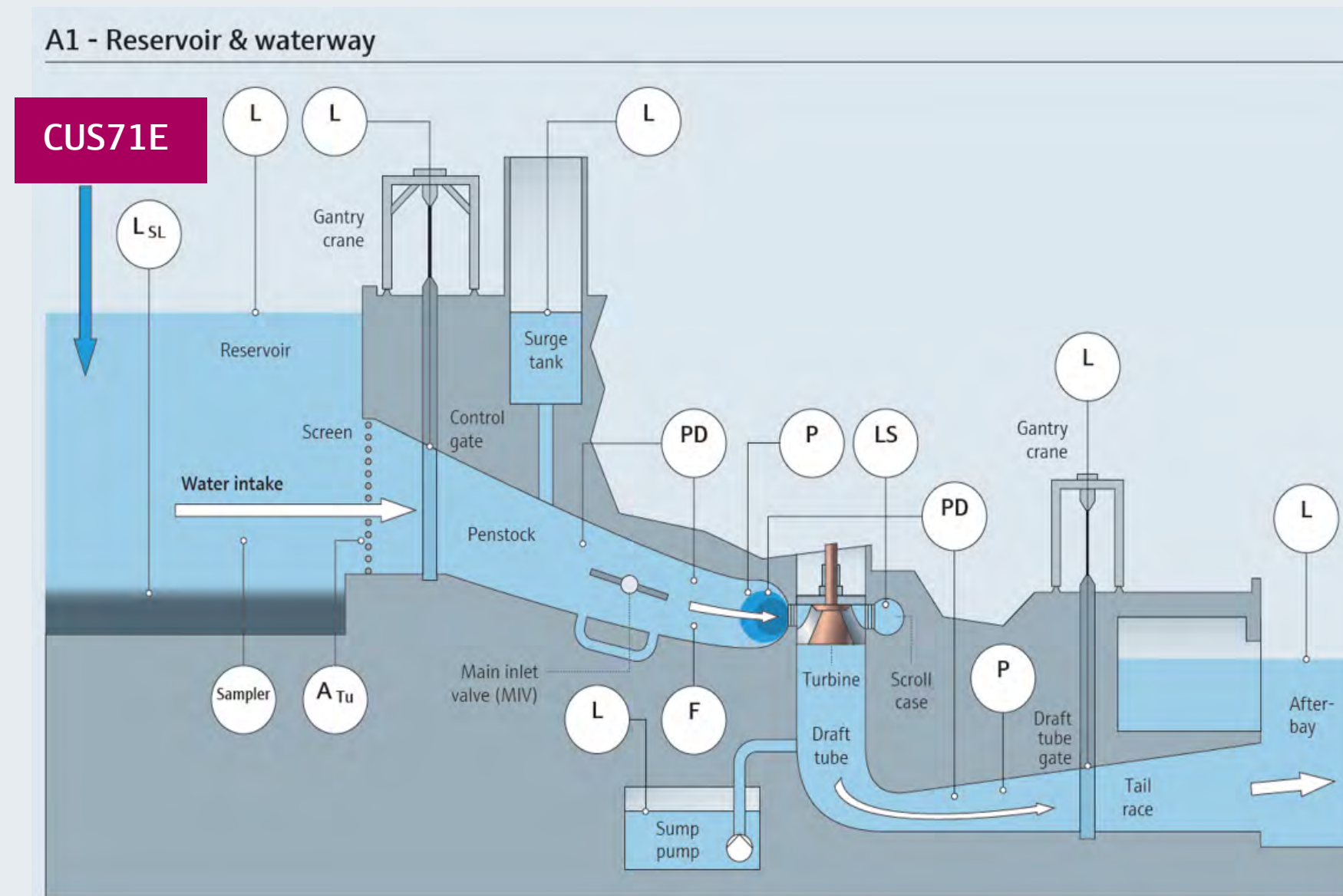
Protecting critical assets from abrasive sediments is essential for reliable hydropower generation. Sediment accumulation can increase wear on turbines and hydraulic equipment, while limited process visibility makes it challenging to determine the right time for sediment removal. Memosens CUS71E provides continuous insight into sedimentation processes, helping operators identify sediment build-up at an early stage and optimize maintenance activities.

Reliable measurement and integrated sensor cleaning support efficient operation, improve asset protection and contribute to increased plant availability.



Hydroelectric power plant

Removing abrasive sediments before water reaches the turbine system is essential for reliable hydropower generation. Continuous sludge level monitoring provides operators with clear visibility of sediment accumulation, enabling timely blow-off operations and efficient sediment management. By supporting effective sediment removal, the measurement helps protect turbines and valves from excessive wear, contributing to reliable plant operation and reduced maintenance effort.



Your challenge

Measuring task: Sediment level monitoring

Measuring point: Desander or sand trap at penstock inlet

Measuring range up to: Up to 30m

Medium: Lake or river water

Process temperature: 5...35°C

Process pressure: Up to 1 bar (10 m immersion)

Specific challenges: Reliable measurement of sludge level of deep sediment beds, abrasive media in desanders

Memosens CUS71E

Ultrasonic interface sensor

The Memosens CUS71E provides reliable sludge blanket and interface level measurement for efficient monitoring and control of sedimentation processes.



Memosens CUS71 with integrated wiper



Memosens CUS71E with drinking water conformity according to UBA



Memosens CUS71E with sensor protection for hazardous areas or surface skimmer

Measured variables	■ Interface ■ Basin depth ■ Temperature ■ Sedimentation factor
Measurement method	■ Distance measurement ■ Interface level ■ Interface depth
Measuring range	■ Specified measuring range: 0.3 to 10 m (1 to 32 ft) ■ Extended measuring range: 0.3 to 30 m (1 to 98 ft)
Process temperature	5 to 80 °C (41 to 176 °F)
Process pressure	0 to 1 bar (0 to 14.5 psi)
Material	Housing: PPS GF40 Wiper: EPDM or Silicone Wiper arm: PPS GF40 Wiper shaft: 1.4571
Certificates, declarations and approvals	CSA GP, ATEX II 3G EX ec, IECEx Ex ec lic, CAN US Cl.1 Div. 2

Compatible products

Memosens CUS71E is fully compatible with the Liquiline CM442 transmitter, Flexdip CYA112 assembly, and CLA140 compressed air cleaning system. Together, the components enable reliable monitoring, flexible installation, and stable operation.

Make the invisible visible

Reliable sludge level and sediment monitoring for better process control

Experience reliable interface level measurement with Memosens CUS71E. Continuous monitoring of sedimentation processes provides the transparency needed to optimize process performance and support informed operational decisions. Integrated sensor cleaning reduces maintenance effort, while the unique sedimentation factor delivers additional process insight to further improve efficiency. Discover how Memosens CUS71E can help increase system availability and simplify process control across your applications.

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