

HUBER Detection System Safety Vision



An innovative building block for your digitisation strategy

- Continuous monitoring and intelligent early detection of critical coarse material
- Online measurement of screenings volumes for load-dependent control of downstream systems
- Detecting and warning of explosion hazards
- Simple connection of process control system and mobile devices

»» The situation

The main duty of the screens installed in the inlet to sewage treatment plants is to protect downstream machines and systems and ensure perfect operation of the sewage treatment plant. When selecting the headworks screens it is usually assumed that only coarse material up to a certain maximum size will occur. Increasingly, however, unforeseen material such as cans, wood pallets, large tree branches or even iron rods are also found in sewers.

Although such coarse material should definitely not be in a sewer, there is no possibility to reliably exclude they are there. If such material arrives at a screen and the screen takes it up, this may lead to malfunctions and operational interruptions of both the screen and downstream systems, such as conveyors or wash presses. The elimination of the fault is time-consuming, requires staffing and costs.

»» The solution – HUBER Safety Vision

The innovative system HUBER Safety Vision is able to identify critical coarse material reliably and in real time.

The heart of the HUBER Safety Vision system is the HUBER 3-D sensor that provides continuous monitoring of the volume and dimensions of the screenings transported by the screen rake. Whenever the system detects any impermissible material, screen operation will be interrupted and a warning message with image sent immediately to the operating staff. They can then easily remove the material and avoid jamming or even damage of equipment.

The system reliably prevents blockage or damage of the screen or downstream systems and at the same time increases equipment availability.



Fig. 1: HUBER Safety Vision system installed on a HUBER Multi-Rake Bar Screen RakeMax®

➤➤ Design and function of the HUBER Safety Vision system

The HUBER Safety Vision consists of several sensors mounted in a casing that is mounted to the front of the screen instead of a cover. HUBER Safety Vision is suitable for installation in new plants and can be retrofitted to existing screens.

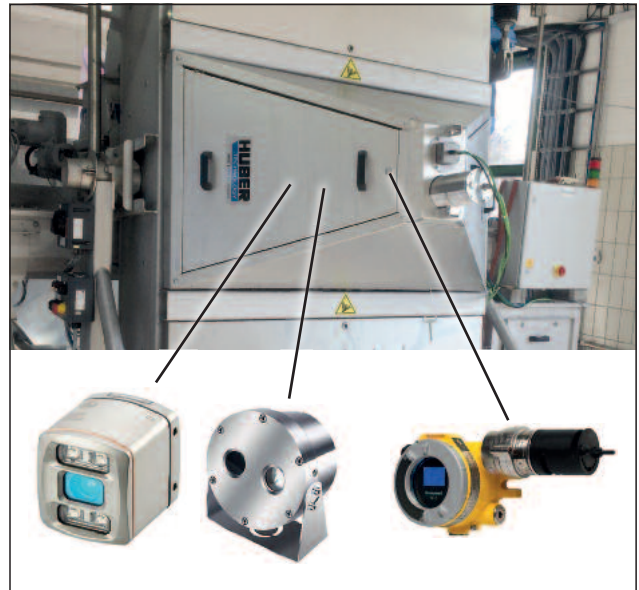


Fig. 2: HUBER Safety Vision with integrated sensors

➤➤ HUBER 3-D sensor

The HUBER 3-D sensor continuously determines the volume and dimensions of the screenings transported by the screen rake. If the sensor detects that the rake is transporting critical material, the operation of the screen is interrupted immediately and a corresponding message is issued to the operating personnel. The HUBER 3-D sensor is individually adjustable to any machine, i.e. it is possible to define for each machine individually the size and/or volume of coarse material that shall be treated as critical material.

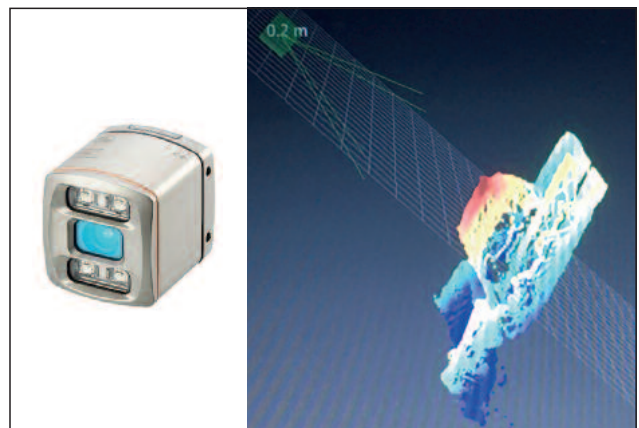


Fig. 3: HUBER 3-D sensor reliably detects critical material

➤➤ HUBER cam

The HUBER cam permanently transmits live images of the moving screen rake. Visual data of the volume and quality of screenings are thus available any time.



Fig. 4: HUBER cam for live images

➤➤ HUBER gas sensor

The HUBER gas sensor monitors the atmosphere inside the screen. If the sensor detects an explosive gas atmosphere, it will transmit a warning message to the operating staff.

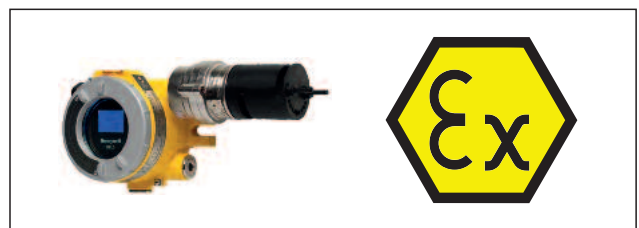


Fig.5: The HUBER gas sensor warns of explosive gases.

Warning management

If the sensor detects material defined as critical material, the operation of the screen is interrupted immediately and a warning message is issued.

Warning message options:

- Message and image transmission to the control station
- SMS to a mobile phone
- Message and image transmission to a smartphone



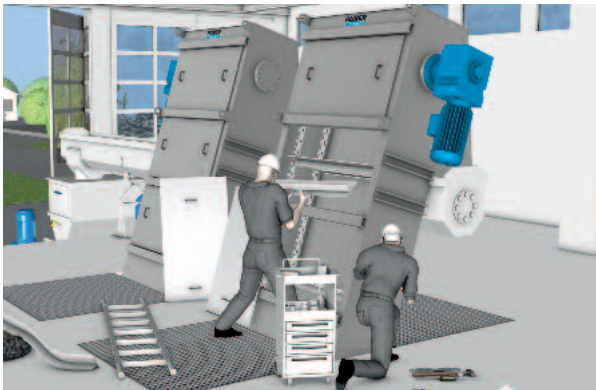
Fig. 6: Both messages and live images can be sent to different end devices

Operator action

Depending on the current situation, various measures can be taken by the person responsible for plant operation:

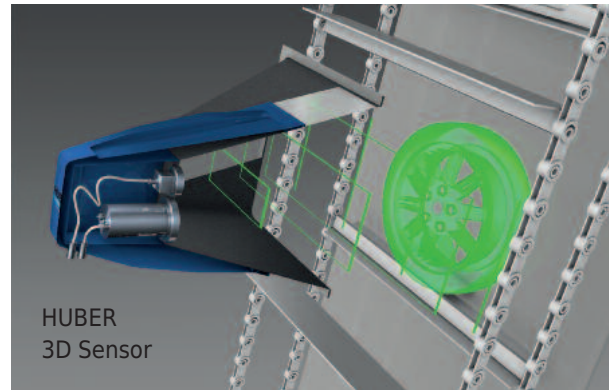
- Immediate removal of the coarse material and immediate continued operation
- Automatic or manual changeover to another screen (for multi-line systems) and subsequent removal of the critical coarse material

Screen without HUBER Safety Vision:



If the screen is stopped by an obstacle, it is labour-intensive to remove it. At least two persons with suitable tools are necessary to put the screen into operation again. Frequently, they additionally have to repair damage.

Screen with HUBER Safety Vision:



The HUBER Safety Vision system recognizes the obstacle and stops the screen before the screen is stopped due to blockage. The obstacle can be removed by one person without the need of tools.

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