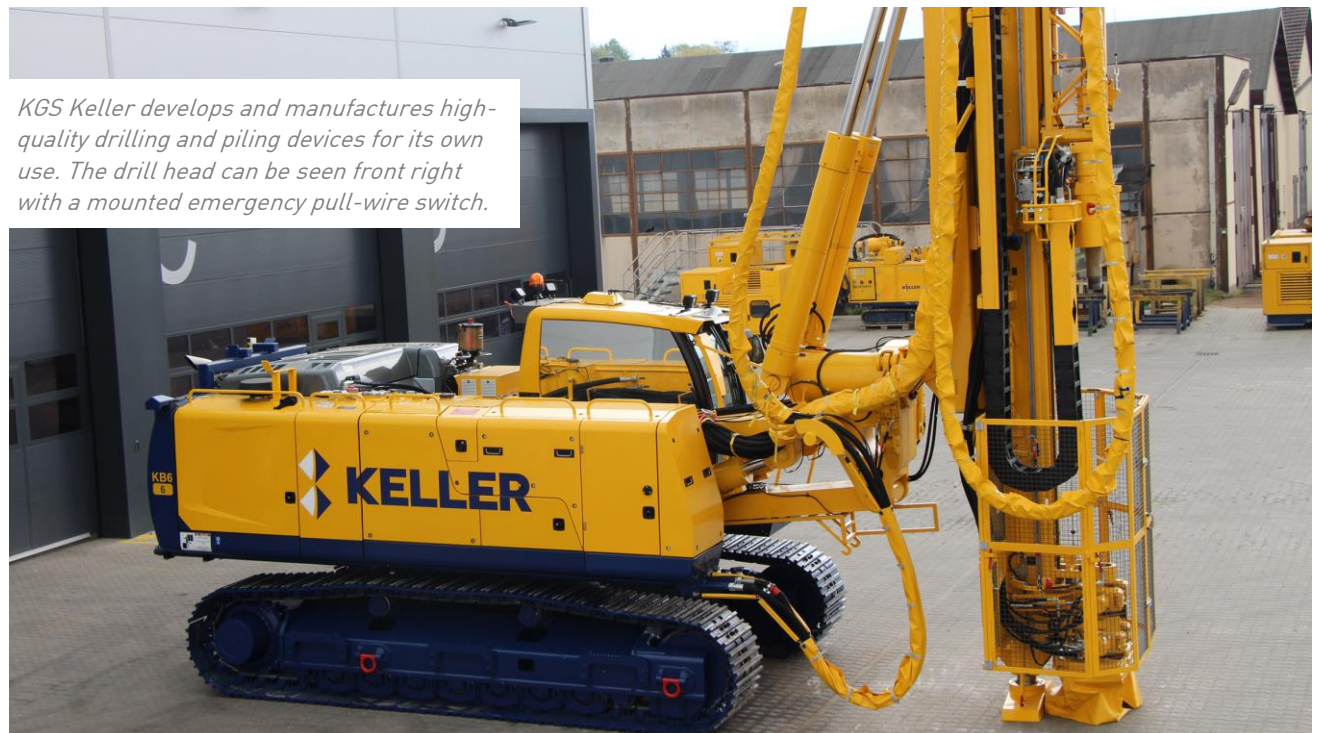


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Switching in Extreme conditions

Switches and sensors which are used on moving machinery often need to function in Extreme environments. And this requires some Extreme components.



KGS Keller develops and manufactures high-quality drilling and piling devices for its own use. The drill head can be seen front right with a mounted emergency pull-wire switch.

There is no way around it: mechanical engineering often means developing machines for use in changing and unfavourable environmental conditions. Moving machinery, such as tractors or construction well in dust and dirt, exposed to severe mechanical wear and tear, and within very broad temperature ranges – not to mention in contact with damp or corrosive materials such as fertilisers.

In the light of these complex requirements for moving machinery, it will come as no surprise that switching devices

from the steute "Extreme" range are often used where conventional switches and sensors fail.

One such example is a safety switch mounted on mobile drilling devices from the KGS Keller Geräte & Service GmbH company in Renchen near Offenburg. This company engineers and manufactures machines exclusively for the needs of its mother company. The Keller Group is active in 40 countries, with around 9000 employees, and takes on contracts such as building foundations for major infra-

structural projects. In Renchen drilling and piling machines featuring low downtimes are built especially for these tasks.

These machines need high-quality components suited to harsh environments. The ambient conditions they face include dust and dirt, as well as severe mechanical wear and tear. Last but not least, all components are subjected to strong vibrations during the drilling and piling process. The movement of the rotating drill head, located on an exposed part of the machine, is dangerous and the head must therefore be guarded by a protective cage. An emergency pull-wire switch runs along the three sides of the cage which can be opened. If staff should detect a dangerous situation when the protective cage is open, e.g. during set-up of the piling device, they only have to pull the wire and the machine will come to a safe stop. The emergency pull-wire switch thus functions as an "extended", and in this case multi-dimensional, emergency stop button.

Tough emergency pull-wire switch

KGS Keller uses a ZS 71 emergency pull-wire switch from the steute Extreme range. It is perfectly suited to withstand severe mechanical wear and tear, as proven by diverse impact tests in the steute laboratory, and can also be used in damp and/or dirty environments without any problems (protection class IP 69).

The next step after the drilling process is to ram piles or sheet piles into the

ground. Here, too, Extreme switching devices from steute are involved. The key requirement is vibration resistance because the piles are hammered into the ground. These ramming or piling devices deliver up to 50 powerful hits per minute, and the number achieved is an important parameter for the progress and success of this process.

A global leader in the manufacturing of ramming devices uses steute Wireless inductive sensors in order to record the number of impacts. The steute sensor was selected because it is very vibration-resistant, thanks to its fixed connection and fully die-cast metal housing. The wireless version offers the advantage that no additional cables lead to the impact hammer (which is usually connected to a digger arm). The RF IS M8 sensor is connected to a RF 96 ST transmitter unit, which also contains the battery. It transmits the wireless signal to a corresponding wireless receiver.

As these examples show: for (nearly) all Extreme conditions, such as damp, subzero temperatures, vibrations, impacts, risk of explosion, there is not only the right steute switching device, but also often the choice between electromechanical switches and non-contact sensors. More and more frequently, wireless technology is now being used, advantageous especially in rough conditions because no cables can become damaged.

FACT

*Drilling and piling machines require high-quality components suited to **tough environmental conditions** such as dust and dirt, as well as severe mechanical wear and tear.*

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Images: KGS Keller GmbH