

New PE welding machine with GPS, automated welding process and Web documentation

LOGSTOR is introducing a new welding machine that utilises the very latest technology for welding PE outer casings of district heating pipes in a new, fast and efficient way: the joints used to join the PE outer casing pipes are fitted with a chip – an RFID tag. This makes each joint unique and traceable via the GPS system.

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The chip is used by the welding machine to “recognise” each individual joint and to enter the correct settings for the welding process automatically. The welding machine, which is remote-controlled via a PDA- i.e. a hand-held computer - provides full documentation and data for each individual weld.

It is a trail-blazing concept, and the technology can be utilised to great benefit for operators and energy companies.

**The new welding machine is called:
The LOGSTOR WeldMaster.**

“Joints are always the weakest links in any construction ...”

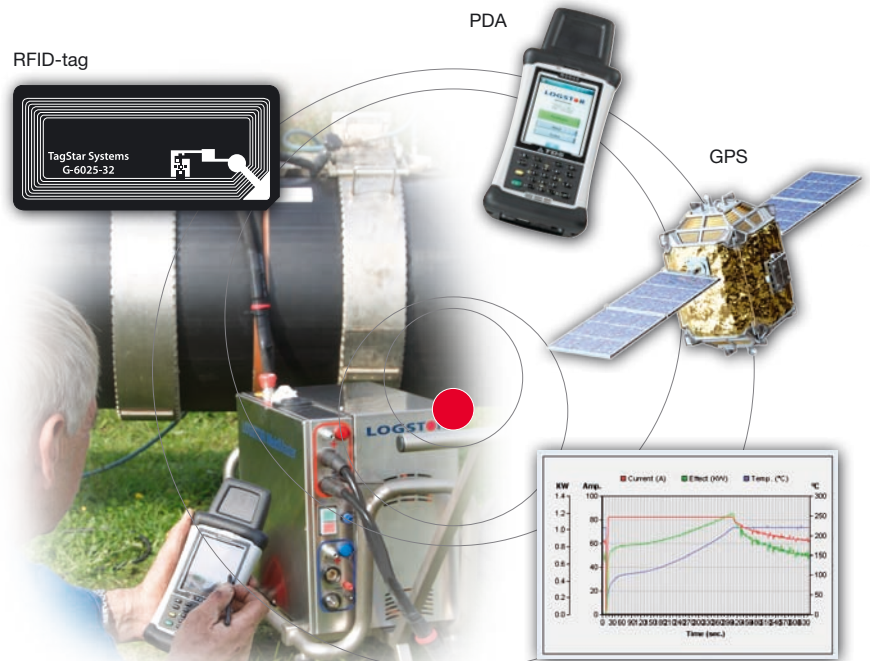
Joints are always the weakest links in any construction, and this naturally also applies to the district heating pipe system. Therefore, it is important to focus on ensuring that the joints are made correctly, and that the welds performed can subsequently be traced and documented. These requirements are all met by the LOGSTOR WeldMaster, which is a combination of a welding machine, a PDA and chip-labelled joints.

Unique joints

The outside of district heating pipes is protected by a PE outer casing, which shields the service pipe and

insulation from external influences. In addition, the outer casing forms part of the insulating construction. When the service pipes are welded together, the PE pipe sections have to be joined as well. This is carried out using a unique joint which in practice is positioned around the two pipe ends.

The welding joints are unique because they are fitted with a chip – known as an RFID tag – that can best be compared to a tiny hard disk containing the product and production data for the joint in question. This means that simply by using the PDA to scan the data from the chip, the correct settings for the welding machine will be entered automatically, thus avoiding errors in connection with its operation. All production data are collected and stored automatically for use in the complete documentation.



Welding process, time, temperature, current and output.



Chip-labelled joints

The settings of the welding machine are entered correctly on the basis of the individual product and welding data stored in the RFID tags in the individual joints.

The technologies involved are tried and tested. The new aspect is the combination, which ensures a coherent flow along with high safety, quality and productivity – while simultaneously monitoring and documenting the entire process. Another benefit for the energy companies is that the new process ensures simple traceability.

“At the same time, this new feature reduces work and lead time for processing the documentation”

The welding process

The risk of human error is present in any process – errors such as incorrect reading, incorrect data entry, or simply incorrect assessment. The PDA automatically enters all the relevant data, thus preventing errors. In addition, the settings are entered much more quickly.

Should anything unforeseen occur in the process, such as damage to a cable, a power failure or a short cir-

cuit, the operator is immediately informed about the fault, and about what he should do to rectify it. If the fault is identified before the process begins, the welding machine will not start until the fault has been dealt with.

LOGSTOR WeldMaster is remote-controlled via a PDA. Once welding has been initiated, the operator has full control of the process as the system informs him automatically once the weld has been completed. The operator can therefore start preparing the next joint installation, thus improving the efficiency of the installation work.

Global Position System (GPS)

The PDA that the system uses features a built-in GPS receiver. This means that the position of each joint is registered on site.

The GPS unit utilises the satellite system to identify the location and state the date and time for the work performed. The GPS position is automatically entered in the joint report, can be displayed via Microsoft Bing Maps. These are data that make it easy to relocate each individual installation.

User benefits

- *The built-in chip makes the joint unique and secures the process*
- *Welds multiple joints and joint types at the same time*
- *Welding operation via PDA direct from the trench*
- *Simple errors – such as data entry errors – eliminated from the process*
- *Built-in automatic check routines ensure the prevention of potential faults*
- *Reports can be used as a settlement basis, and provide an overview of the project status*
- *All data are sent in a fully processed and straightforward form to a Web server which customers can access using a unique login and password.*
- *The GPS position is displayed via Microsoft Bing Maps.*

Web documentation

Another innovation is the ability to transfer all data automatically to a Web server, so that customers can read documentation on the welds that have been carried out. This helps to prevent misunderstandings in connection with reporting during a project process. All the welds are positioned, documented and stored on a Web server dedicated to the purpose.

At the same time, this new feature reduces work and lead time for processing the documentation.

All data are protected, and a user login and password must be used for all types of access. This means that

customers only have access to their own data. For each weld, the website will display a graphic presentation of the process, showing the time, temperature, current and output.

Improved efficiency and multiple welds at the same time

The LOGSTOR WeldMaster is a multifunction welding machine that can weld several joint types – and even weld multiple joints at the same time. Uniting familiar technology with the latest IT technology improves efficiency and sets new standards for welding machines.



Quality documentation and traceability are now possible for each and every joint/joint installation, no matter where in the world it was performed.