MESH technology

A new approach to building – with 3D reinforcement elements for complex reinforced concrete components

PERI

Formwork
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Engineering

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Fast and easy production
of 3D reinforcement elements using automated and robot-assisted technology

Customised use of materials
thanks to geometry-optimised construction and prevention of formwork waste

High degree of design freedom
achieved by dovetailing digital planning with robot-assisted production

MESH technology

A new approach to building – with 3D reinforcement elements for complex reinforced concrete components

MESH technology is a form of robot-assisted technology for efficient and cost-effective production of complex reinforced concrete parts – without any formwork at all.

The main idea behind the innovative MESH technology is to use an automated prefabrication process to produce complex or curved reinforcement cages, which would normally have been produced by hand using elaborate conventional formwork methods. The 3D reinforcement elements created in this way serve as formwork and reinforcement in equal measure and are filled with a specific concrete mixture – without any conventional formwork at all.

MESH technology combines digital planning with robot-assisted production, thereby enabling cost-efficient production of complex geometries in addition to a high degree of design freedom in terms of shape and surface structure. This makes the innovation particularly suitable for the production

of sophisticated moulds for customised concrete components in structural and civil engineering projects. Conventional concrete structures can also be structurally optimised and realised in a material-efficient manner using the innovative technology.

As of 2019, MESH technology has been transformed into an industrial construction process as a result of a partnership between PERI and Sika AG. This was followed by the founding of MESH AG – an ETH spin-off based in Zurich. Another milestone for MESH AG was its nomination for the 2022 bauma Innovation Award.
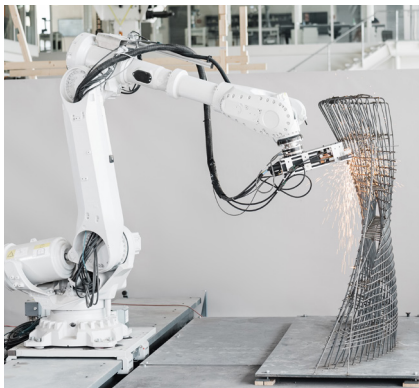
Source: MESH AG
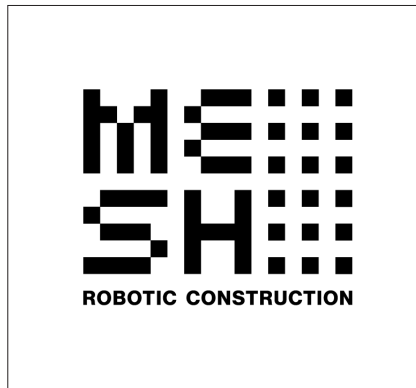
The automated prefabrication process is based on digital planning with subsequent manufacture by robots.

MESH AG was nominated for the 2022 bauma Innovation Award in the Digitalisation category.

The prefabricated 3D reinforcement elements are filled with a specific concrete mixture and serve as formwork and reinforcement in equal measure.

The benefits to you at a glance:

- High efficiency thanks to robot-based production
- Implementation of material-optimised geometries entirely without formwork
- Production of complex moulds without additional costs
- Digital manufacturing method for reinforced concrete structures
- No interface losses thanks to smooth work processes from planning to production
- Enhanced safety due to automation of manual work steps
- Tremendous economic efficiency due to the lack of (special) formwork

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