

■ Bohle insulation - Thermal storage



BOHLE TANK INSULATION

FLEXIBLE THERMAL INSULATION CONCEPTS

... connected by quality

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Bohle expertise, the innovative concept for the heat insulation of thermal storage units

Thermal storage - proven technology revitalised on an industrial scale

Thermal energy storage systems enable heat or cold to be stored independently of consumption.

They can separate the heat and electricity production of a generation plant in terms of time and enable more demand-orientated operation of combined heat and power (CHP) plants. With their flexibility, these storage facilities are an important component in the expansion of renewable energies.

The Bohle concept

As a result, it not only includes the moment of sustainable use of environmental resources, it also demonstrates innovative potential for protecting these natural resources thanks to the materials used and newly developed technologies.

In particular, the use of a special plastic film in conjunction with heat decoupling in the roof construction offers new possibilities for larger storage tanks. Basically, there are at least three areas of a storage tank that contribute to thermal losses - the floor, the wall surface and the roof.

The biggest loss-maker in a ground-mounted storage tank is the floor, which is usually uninsulated in existing storage tanks for cost reasons. These losses must be compensated for by the insulation of the outer surface and the roof. A DAA insulation material in accordance with DIN 4108-10 is used.

The assembly concept and HSE

Against the background of the zero-accident philosophy, risk assessments are prepared for each realisation phase.

At the start of the planning phase, the project team evaluates all the risks to people, the environment and materials that are to be expected during installation.

Hazards are minimised with the support of the HSE experts through suitable and effective protective measures.

They are an integral part of the assembly concept:

- Detailed training for the entire staff
- Illustrated notices for safe installation procedures
- HSE inspections on the construction site

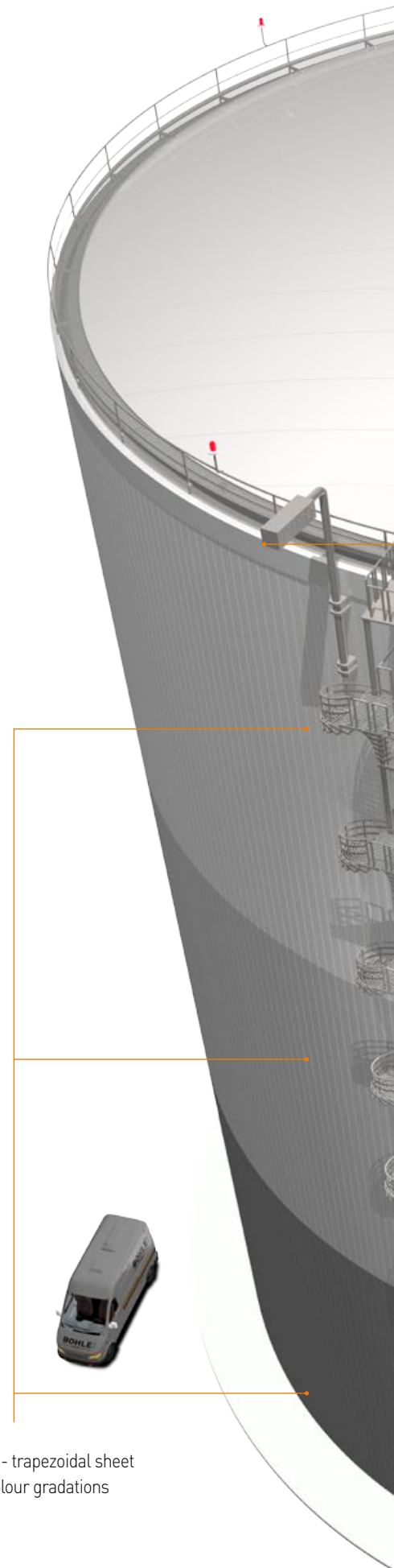
Facts about a realised project

Tank material:	steel
Diameter:	36 m
Overall height (total):	48 m
Volume:	45,000 m ³
Medium:	water/steam
Medium temperature:	min. 70° C
Medium temperature:	max. 98° C

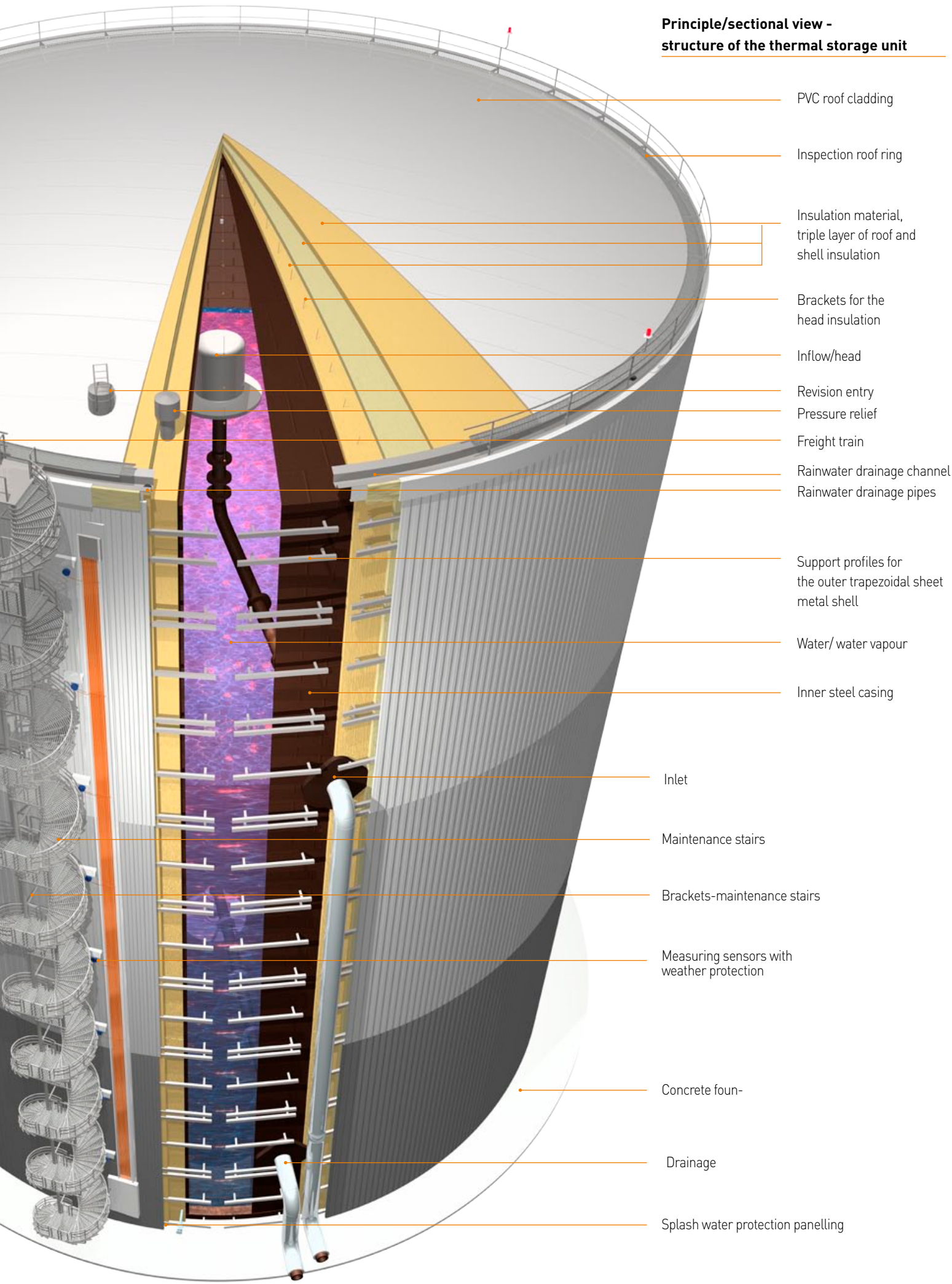
Insulation material used

Total area:	19,880 m ²
Total volume:	3,296 m ³
Weight:	145.54 t
Construction time:	12 weeks

Outer shell - trapezoidal sheet metal, in colour gradations on request



**Principle/sectional view -
structure of the thermal storage unit**



Advantages of a foil roof compared to the sheet metal version

- Complete insulation structure without significant supporting structure
- Heat losses are reduced
- Less effort required for installation
- No rear ventilation required - no condensation as with metallic surfaces
- Internal gutter and downpipe - no problems due to e.g. ice formation
- High surface load-bearing capacity of the roof thanks to the use of high-density insulation materials and special plastic foils



State funding opportunities

Legislation has been promoting the construction of new thermal energy storage systems in connection with combined heat and power generation since the CHP Act was amended in 2015.

The substantial subsidy in accordance with Section 23 (1) KWKG 2016 depending on the volume (water equivalent) is linked, among other things, to the condition that the average thermal losses are less than 15 W/m² container surface (source: worksheet AGWW FW 313 'Calculation of thermal losses of thermal energy storage systems').

Customised designs for heat storage tanks

Bohle Isolertechnik has extensive technical know-how in the field of realising customised designs for power plant heat storage tanks.

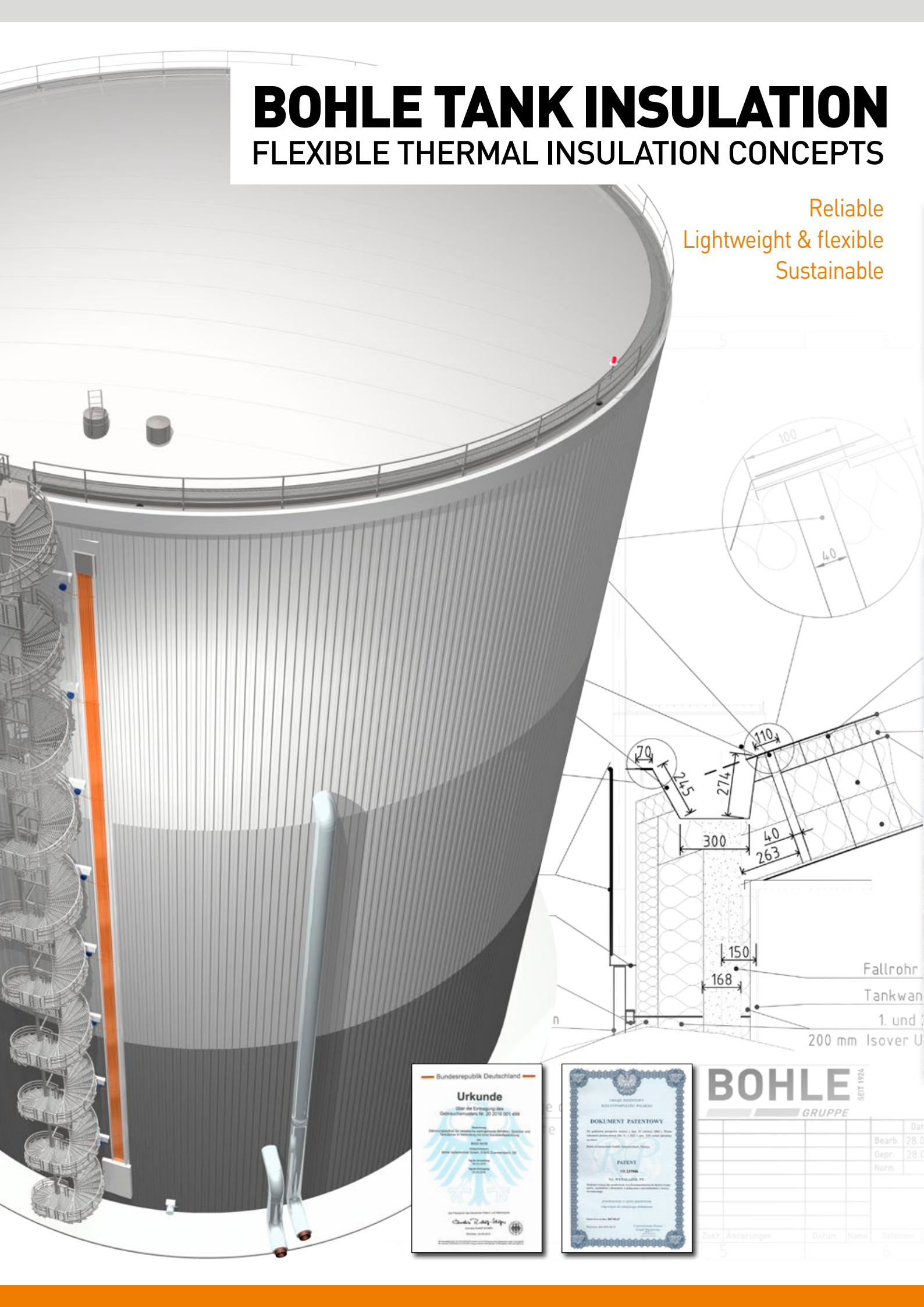
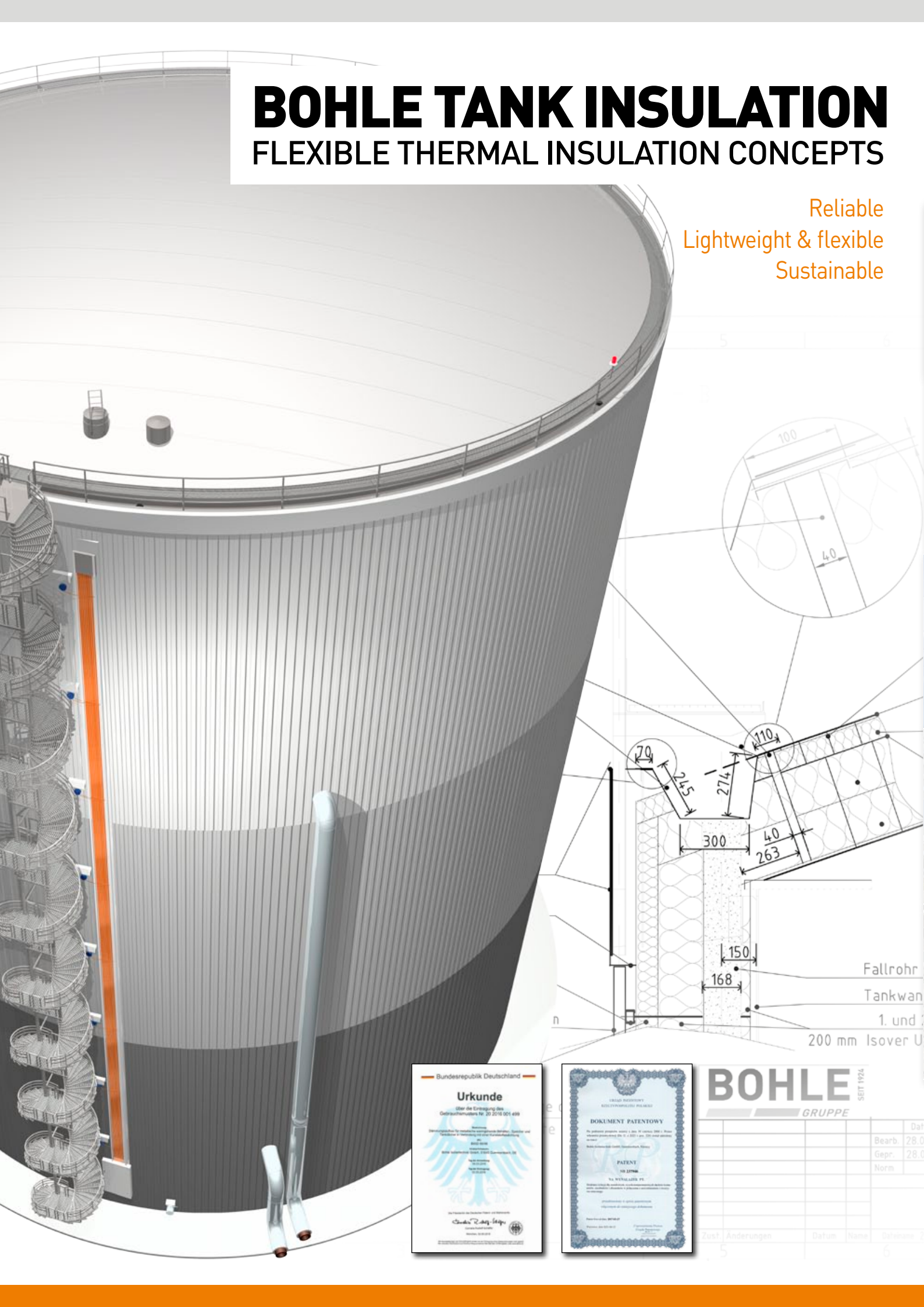


BOHLE TANK INSULATION

FLEXIBLE THERMAL INSULATION CONCEPTS

Reliable
Lightweight & flexible
Sustainable

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Reliable
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Technical drawing details:
Fallrohr
Tankwand
1. und 2. Lage
200 mm Isover U

Dimensions (mm):
100, 40, 70, 245, 274, 110, 300, 40, 263, 150, 168

Certificates:
Urkunde
DOKUMENT PATENTOWY

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28.0				
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The Bohle Group Connected by quality

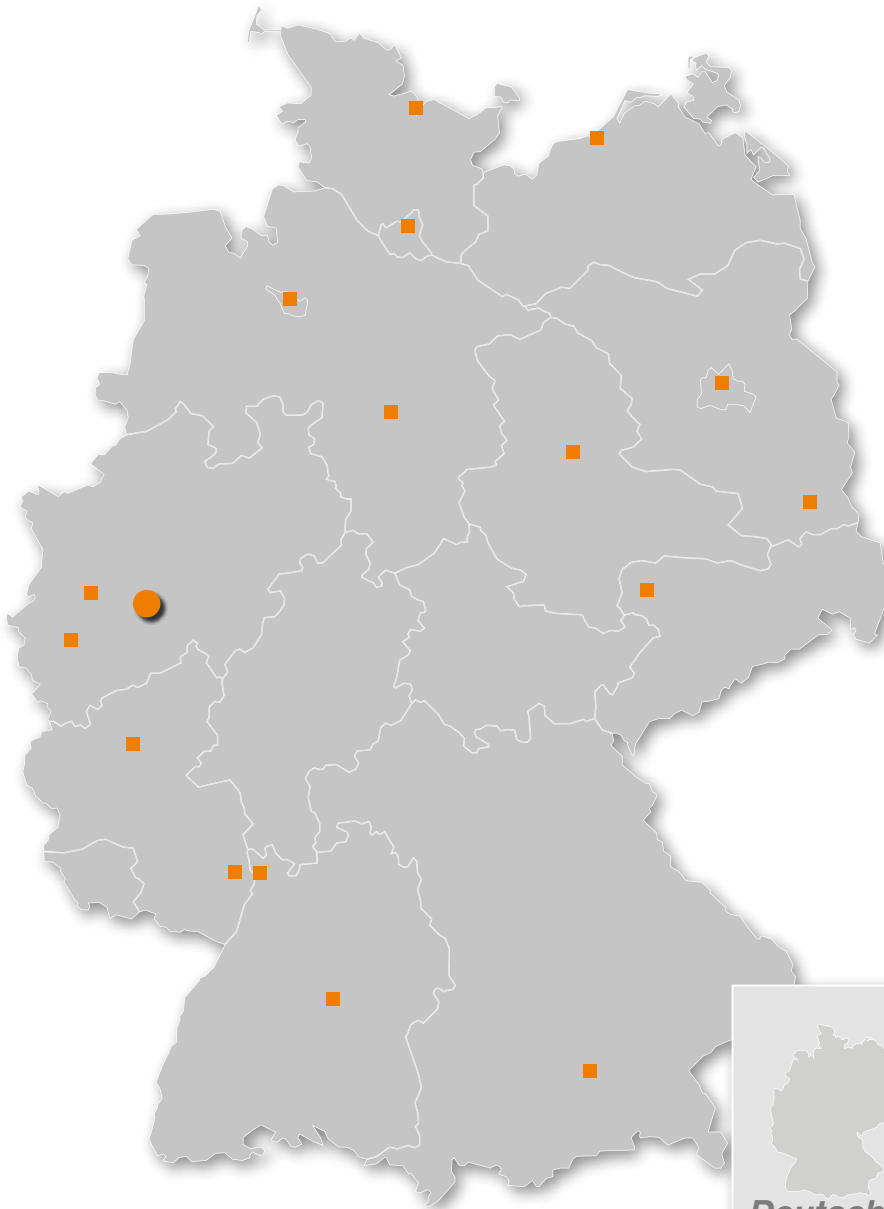


- Insulation technology
- Interior construction
- Fire protection
- Metal construction
- Electrical engineering

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