



NobleLight®

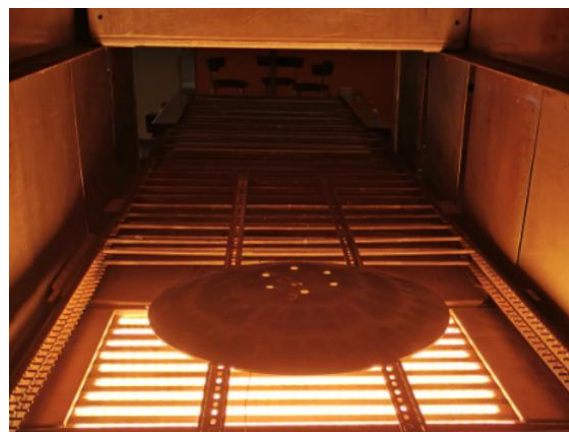
## Infrared Heat Adjusts Material Properties in Agricultural Machinery

Excelitas has enabled the wear protection specialist FRANK Walz- und Schmiedetechnik GmbH to adjust the material properties of quenched and tempered steels in an energy-efficient manner. Decades of experience with radiation systems, process expertise, and practical laboratory-scale trials at Excelitas' customer application center formed the basis for this exemplary collaboration.

Soil cultivation tools used in agricultural machinery must withstand harsh and highly variable working conditions. The critical factors are robustness and durability. For this reason, specialized press-hardened and heat-treated steels from FRANK Walz- und Schmiedetechnik GmbH are used in professional applications. These steels are characterized by an excellent combination of wear and impact resistance. One disadvantage, however, is the relatively time-consuming thermal treatment required to achieve the desired material properties.

For this reason, FRANK Walz- und Schmiedetechnik GmbH contacted Excelitas. The exchange of expertise between the two companies, along with practical trials, resulted in the first improved press-hardened steel components with excellent material properties and a very good energy balance.

Based on proof of fundamental technical feasibility, a comprehensive research project was initiated at FRANK in order to make optimal use of the potential structural changes occurring during press hardening. This project was supported by EU funding from the European Regional Development Fund (ERDF) from 2014 to 2020 (IWB-EFRE program)—“Investment for Growth and Jobs.” As a result, the project led to the development of an innovative infrared tempering process and a calculation model capable of determining the minimum heating and holding times required to achieve the desired material properties for different steels.



### FEATURES

- Development of an innovative infrared tempering process for press-hardened steel components
- Optimization of energy efficiency

### TECHNICAL DATA

- Short-wave infrared emitters with up to 100kW/m<sup>2</sup>

