

ABP INDUCTION

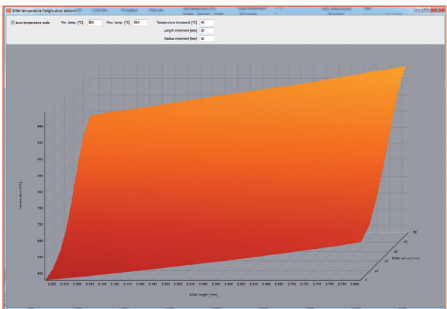


THERMPROF® Simulation Software

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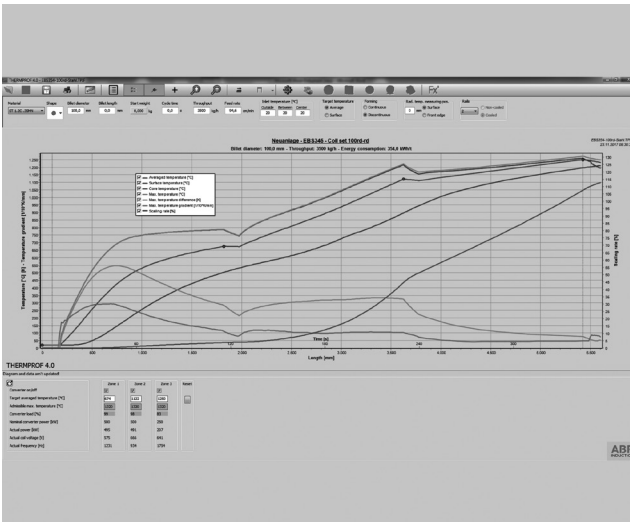
The THERMPROF® thermal profile calculator is used to optimize heating profiles. In conventional heating systems with only one converter, the heating profile is fixed by the numbers of turns of the coils and by the length of the system, so it cannot be adapted to changing heating requirements. The design of a heater with several zones

fed by separate converters allows the arrangement of the heat output to be changed, thereby enabling the heating profile to be adapted to the requirements. The new technical solution is based on a numerical calculation for the expected temperature profile. The result is transmitted to the control system via an interface.



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INDUCTION | TECHNOLOGY.
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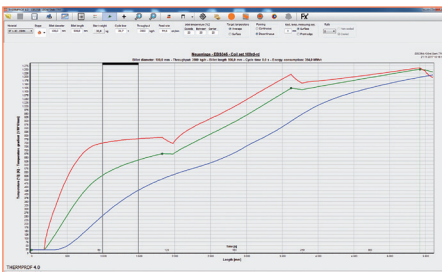


The heat output is controlled by the heating processor in zones, so that the desired heating profile arises in the billet/bar.

The advantage of this technology is an optimal temperature distribution in the billet/bar with different throughputs, billet/bar dimensions and materials.

In addition, the new technology permits a greater degree of manipulation in process optimization with regard to energy consumption, scaling and adhesion of billets.

Saving potentials also result from this concept with regard to the length of the plant, the number of different coil assemblies and stand-by coils.



| | Zone 1 | Zone 2 | Zone 3 | Reset |
|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|
| Converter on/off | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="button" value="Reset"/> |
| Target averaged temperature [°C] | 674 | 1122 | 1250 | |
| Admissible max. temperature [°C] | 1320 | 1320 | 1320 | |
| Converter load [%] | 99 | 98 | 83 | |
| Nominal converter power [kW] | 500 | 500 | 250 | |
| Actual power [kW] | 495 | 491 | 207 | |
| Actual coil voltage [V] | 575 | 666 | 641 | |
| Actual frequency [Hz] | 1231 | 934 | 1754 | |

Various possibilities for optimization

- Reduction in scale
- Optimizing energy consumption
- Optimizing axial temperature uniformity
- Reduction of billet adhesion