



SIEMENS
Ingenuity for life

Tractronic® Thinity

Newly developed innovative traction transformers

Challenge

Perhaps more than any other factor, mobility is shaping our globalized and increasingly urbanized society. Ever-growing passenger volumes and demographic changes put pressure on the demands on local public transport. By 2030, up to ten million people will be traveling by rail every day in Germany alone.

As one of the globally leading train manufacturers, our customer Siemens Mobility needed to fulfill a set of requirements when developing their new train platform called Mireo®: Capacities needed to be increased while reducing operating costs. But there are even more demands: While focusing on cost-effectiveness, adaptability and sustainability there can never be compromises in regards to safety.

Furthermore, passengers place great value on space and comfort - and want to arrive at their destinations even more quickly.

Solution

Siemens Mobility developed a commuter train called Mireo® inheriting a new generation of traction transformers called Tractronic® Thinity. It is planned to put the entire Rhine Valley rail network into operation in June 2020.

Driven by requirements of the train operator's needs, Siemens Transformers developed Tractronic® Thinity, specifically built for – but not limited to – EMUs.

Lower weight, more freedom of movement, shorter construction times and optimized components – all of these requirements come together in the new Tractronic® Thinity.

With 24 train sets ordered in spring 2017 the first units for the Mireo® are currently manufactured and will be delivered in autumn 2017.

Mireo®

Beginning in 2020, the Mireo will operate as a regional train (RB) along the Offenburg – Freiburg – Basel/Neuenburg (Switzerland) route as well as in the Kaiserstuhl area on Sundays between Freiburg and Endingen/Breisach with approximately 1.9 million kilometers a year and will run the distance in 30 minutes less than today's trains.

Tractronic® Thinity: compact infinity

Special technical aspects

1. Infinity tank design

This newly designed transformer Tractronic® Thinity reduces the weight of the transformer itself by approx. 850kg (approx. 25%), compared to a standard design, this is leading to optimized train efficiency. The name and the consequent shape of the transformer express these benefits at first glance.

2. Efficiency

Efficiency is a crucial factor when it comes to train operation. Nowadays new standards are calling for lower energy consumption than ever before. Tractronic® Thinity is developed to support this trend by optimized low weight to high power ratio and is therefore saving overall resources.

3. Robustness and flexibility

Tractronic® Thinity is just as robust and dependable as all our other Tractronic® products. It even can be installed on the rooftop or underfloor – giving train operators all the freedom needed for a safe, reliable and flexible train operation.

4. Insulation and cooling

Newly developed insulation material is the key to make our main component, the active part, as compact as possible. This does not only save weight but also valuable copper and hence has direct influence on the overall performance of the transformer. By doing this, we're able to utilize our resources perfectly.

Cooling of the Tractronic® Thinity is optimized by using CFX oil flow simulation. Using this advanced engineering tool, we have been able to cut down the oil volume to an absolute minimum. This does not only save weight, also the fire safety can be improved dramatically.

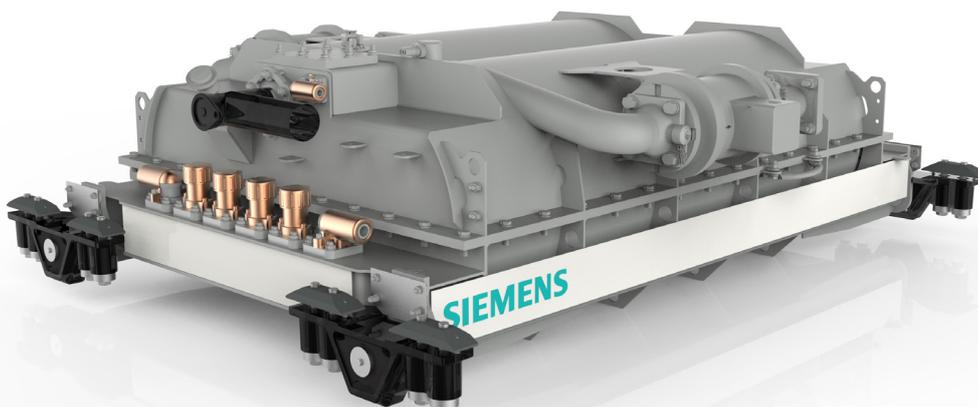
Advantages of Tractronic® Thinity at a glance

- Infinity design saving up to 25% of the transformer weight
- Flexible installation: rooftop as well as underfloor installation possible
- Innovative Insulation
- New cooling concept
- Consequent tank shape
- Adaptable for different types of trains

Although being developed for EMUs, the concept is also applicable for high-speed and electric locomotives. We will happily assist you in facing your challenges and in delivering the right Tractronic® Thinity especially for your railway application!

“The Tractronic® Thinity is the proof that we always get the maximum output out of our transformers. Together with a highly standardized manufacturing process we can adapt this easily to other projects and applications to solve our customers’ concerns.”

Dr. Berthold Sedlmaier,
Head of Traction Transformers



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