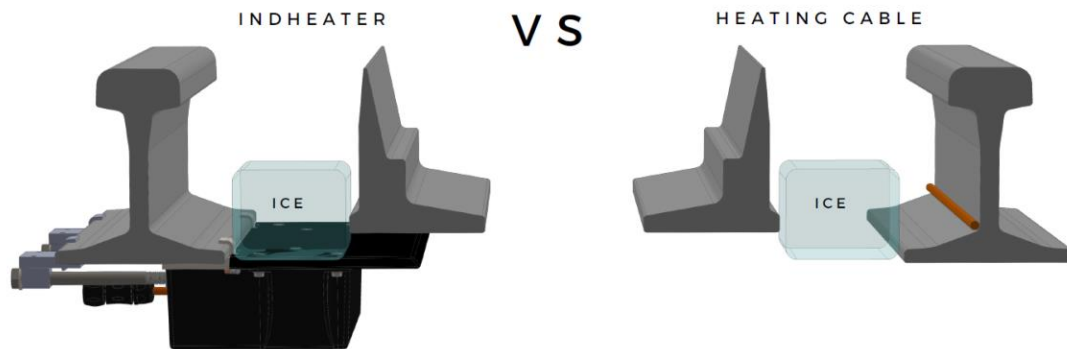


INDHEATER VS HEATING CABLE



2022 03 01

Supplement month 3.

Seasonal test at Brista terminal of Indheaters Induction heat system for switches

The test covers the period from 21 12 01 Here supplement with 3rd month report.

There is still a huge amount of energy savings!

The difference in electricity consumption between the Wire Heating in switch 118 and the Induction Heat in switch 114 has during February increased from 10,000 kwh to about 15,000 kwh, i.e. about 21,000 kwh for the Wire Heat against about 6,000 kwh for the Induction Heat. That's about 70% savings!

Our previous calculation that, only for Brista terminals, 9 switches, the energy saving would be about 500,000 SEK per season, is further strengthened.

Superior higher heat and fast melting capacity

Through the camera surveillance, we also see the considerable differences in fast melting capacity that the Induction heating has in switch 114, compared to other switches at the Brista terminal. This is also confirmed by temperature giver in the rails that show the speed and efficiency of the heating.

Our test result on Brista is being noticed...

Not least because of the large energy savings, there is a great interest among those who have seen the result. We therefore plan to show at Brista for interested, during March-april.

See further below in the first report from 2022 02 01

2022 02 01 Report vid half-time, after 2 months.....

Seasonal test at Brista terminal of Indheaters Induction heat for switches

In switchboard 114 at Bristaterminalen, Indheater's induction heating has been installed in November 2021, where the traditional wire heating has been removed for testing during the 2021-22 season.

Comparison test of two equal gears with new and old heating system

The test period started on 1 Dec 2021 and includes switch 114 with induction heating and nearby switch 118 with wire heating. The switches are the same in radius and they belong to some of the larger switches.

Through our Connection to the cabinet, we have also obtained the electricity consumption for the wire heating in switch 118. This means that comparative consumption values are available in real time and in total from the start on 1 Dec 2021.

Qualified control provides, among other things, great energy savings

Indheater's system includes qualified automated control.

The control means a fast and efficient heating exactly when it is needed and exactly where it is needed, but overall, with significantly lower energy consumption, compared to traditional wire heating.

After 2 months of comparison, Indheater's consumption is in switch 114, at 28% of the existing wire heat in switch 118. The difference of 2 months between the two switches is about 10,000 kwh.

Energy savings per gear

If you count one season to 4 months at our latitudes (in North Sweden about 5 months) the saving per season would be 20,000 kwh per switch.

Energy Saving for a Terminal/Brista

For example, for Brista the terminal with 5 own switches, the saving will be 5 x 20,000 kwh = 100,000 kwh per season.

If you add TRV's 4 switches, the savings will be an additional 80,000 kwh per season.

The price per kwh varies greatly but is at its highest when this heating is needed. This season, we cautiously guess that the average price will be SEK 3/kwh.

With these two months of testing and estimated cost, the savings for Brista-Terminalen's switches alone would be about 500,000 SEK/season.

In addition, all the benefits come from fast and efficient heating that works in all weathers.

Why does induction heating technology provide so much lower consumption?

The low consumption in the Induction Heating System is primarily due to efficient weather control (on and off) against temperature and precipitation, which is possible due to the fast heating provided by the induction heating plates. I.e., developing improved energy management for the old wire heat would have a marginal effect, as it is too slow and still cannot withstand the temperature fluctuations.

The sectioning of the Inductive heating plates in each switch provides additional savings. Primarily, for example, more heat is placed on the front open side of the switch. The Indheater's system also includes sensors for switch position that controls the heat exactly where it is most needed.

In addition, each plate acts separately with its own thermostat. This means, for example, that when a train drops a lump of ice, one or two plates automatically start, in a position when the rest is turned off due to higher air temperature. The ice lump disappears quickly and energy efficiently.

Energy savings during the winter season are becoming increasingly important. This shows not least the now sharply increased winter prices some this winter vary between 2-6 SEK per kwh.

Other benefits

Above, we have only made the energy saving comparison. To this can also be added other major advantages between Induction heating and traditional wire heating e.g.

2 Fast heating of the rail to high temperature

3 The position of the plates under the rail foot provides rapid melting of snow and ice, even e.g., ice lumps that detaches from the trains and ends up between the support rail and rail tongue disappears very quickly, especially compared to the wire heat.

4 One problem that sometimes arises with the wire heat is that it reproaches the snow into water, but in case of rapid temperature, the water freezes to ice before it has time to dry. The wire heat then has a limited efficiency. With Induction, the temperature is automatically increased to a much higher level and there never has time to be any icing.

How much does an Indheater Induction Heating System cost.

The investment in a complete Indheater system is between 150-250K SEK per switch, depending on the size (radius) and if there is an existing control cabinet with space or if a new control cabinet is needed.