

# SAN<sup>®</sup>

Railway Systems



## STOCK RAIL INSULATION

### EMPROVE EFFICIENCY BY MINIMUM 25%

-  **20% + Energy reduction**  
Minimum 20% reduction of the energy used for electrical heating of switch points. The more windy the bigger the savings.
-  **Empoved efficiency**  
The installed heating will raise the rail temperature faster.
-  **Easy to install**  
No need of removing ballast. Use special knock-on clips to keep the insulation in position in seconds.
-  **Easy installation adjustments**  
Make cut-outs or reduce length using hand tools.
-  **No maintenance**  
No maintenance is needed. Only a visual inspection.
-  **Easy to remove**  
The insulation can easily be removed if work on the switch requires it.

#### **Improve the electrical switch point heating by reducing the ambient cooling of the rail.**

This insulation covers the neck and part of the shoulder on the outside of the stock rail. This reduces the cooling effect from the ambient wind and keeps the rail more hot.

The result is that most of the energy is directed towards the critical place between the stock rail and the switch rail.

The last two winter seasons has shown an over all energy reduction of 20-30%.

In some cases it is not possible to add the efficient amount of power to heat the switch. In these cases this insulation could be used to increase the efficiency of the existing power.

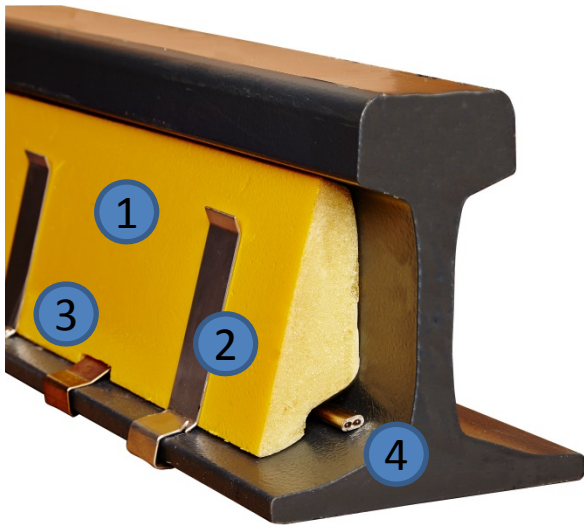
### SPECIFICATION - STOCK RAIL INSULATION/RETAINER

Section length:	1600 mm
Weight per section:	app. 900 g (560g/m)
Rail profile:	Individual
Material:	Foamed Polyurethane
Thermal density:	98 kg/m <sup>3</sup>
Surface:	Acryl coating
Colour:	Yellow
Flammability:	DIN 4102 class B2*
Clips:	Knock-on Stainless Steel
Number of clips:	one per 30-40 cm (4-5 per section)
Yellow Insulation section	
Rail: CEN60E1 (UIC60)	1-801-000045
Rail: CEN54E1 (BS113a)	1-801-000046
Knock-on clips:	
Rail: CEN60E1 + CEN54E1	1-801-001092



\* The foam used for this specific shape – No test report available

### INSTALLATION OF INSULATION/RETAINER



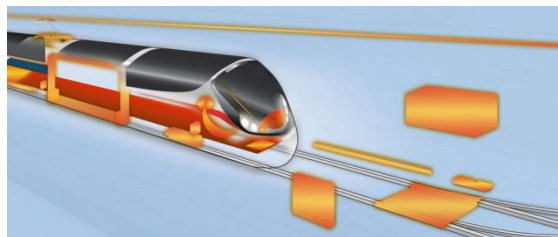
The picture shows a cut out of an Insulation section. The Insulation is mounted on the outside of the CEN60E1 Stock Rail.

This example shows that the heating element also could be placed on the outside of the stock rail, under the insulation.

1. The Yellow Insulation section
2. Stainless steel clips
3. Easy made cut-outs for heating element clips
4. Heating element (when mounted on the stock rail outside)

#### SAN Electro Heat A/S (Member of the NIBE group)

Danish located international company offering more than 50 years of experience in development and manufacture of advanced technical electric heating solutions and components. Products are highly cost and energy optimized, and developed together with our customers. Our focus and know-how is divided into four business areas: Railway Systems, Wind Power, Process Heating and Heating Cables.



#### SAN - Railway Systems (Part of NIBE Railway Components)

Supply of complete systems, which secure optimum operation under any winter weather situations: Switch point heating, overhead wire de-icing and third rail de-icing. Our aim is to supply highly efficient systems that reduce energy consumption as well as the total cost of ownership. From heating elements through intelligent controllers to advanced server based computer monitor program. Including all necessary fittings, power transformers, weather stations etc. Rolling stock comfort heating, door step de-icing, heating of hydraulic systems, toilet/waste water systems and test load resistors.

Our design has proven its reliability through thousands of installations all over Europe.

#### SAN Electro Heat a/s - SAN Railway Systems

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