

**AEROLINE<sup>®</sup>**

TUBE SYSTEMS  
B A U M A N N G M B H



# AEROLINE<sup>®</sup> Efficiency

Energy efficiency for solar thermal installations  
by optimum pipe insulation.

# AEROLINE® Solar-Label

The impact of thermal pipe insulation on the efficiency and the economy of solar thermal installations is much bigger than one would expect. It is the mission of AEROLINE® to bring this fundamental knowledge of the “Solar Thermal Pipes Rating Label System” to your attention.

On the German market there are at present mainly two different qualities offered:

AEROLINE® SPLIT 100	Label A
Most of the competitors' products	Label D

Looking at a solar system for domestic hot water the difference in the reduction of the solar production margin is at 4.2 %. This comes up to 0.4 m<sup>2</sup> of non-productive installed solar collector surface. Please see the picture chart.

## Costs

The difference in price for a higher quality thermal insulation is at 4-7 € per double meter of the pipe system which sums up to approx. 80 to 140 € for the complete system (20 m twin tubes).

## Efficiency

The return of investment for a system with higher quality insulation pays back already after 6-7 years which is below the ROI of the complete domestic solar hot water installation (mostly 8-12 years) and improves at the same time the efficiency total of the complete system.

For a solar controlled heating support system the ROI (e.g. 12 m<sup>2</sup>/1.000 liters) is even higher. Considering the investment amount the ROI for such an installation is even two or three times higher.

## Summary

AEROLINE® assures a reliable, effective and economic method of operation for your solar thermal system while saving the maximum amount of energy produced.

With more than 16 years of experience with solar twin tube line sets and our more than 20 years of experience with AEROFLEX®-closed cell EPDM-insulation in the solar business, be sure, your solar benefits are our concern.

## Further deficiencies

For the insulation of solar thermal circuits you will now find also open cell products on the market. The use of such material for this application however is not very reasonable as this material is air permeable. Due to the daily warm and cold going of the pipes these open cell materials allow an air convection with the ambient air and thus cause condensation. This is a phenomenon which is also very well known in the collector construction. Moisture gets in the insulation and thus the material loses any efficiency. The same effect you will find on open cell solar insulations.

We highly recommend avoiding such materials!

**Go for 100 % quality.**

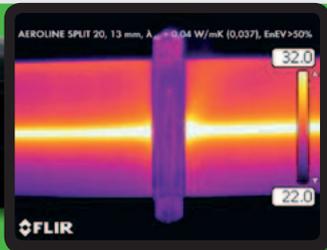
**AEROLINE®**

# A



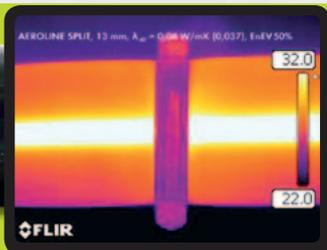
Solar fraction:  
**53 %**

# B



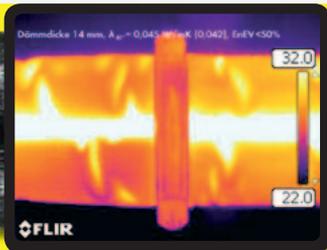
Solar fraction:  
**52,2 %**  
Difference:  
**-0,9 %**

# C



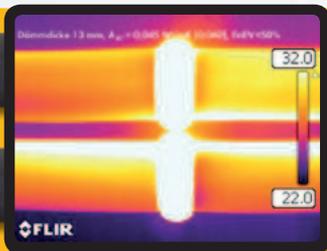
Solar fraction:  
**51,2 %**  
Difference:  
**-3,4 %**

# D



Solar fraction:  
**50,8 %**  
Difference:  
**-4,2 %**

# E



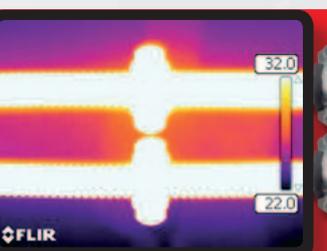
Solar fraction:  
**50,1 %**  
Difference:  
**-5,5 %**

# F



Solar fraction:  
**48,9 %**  
Difference:  
**-7,7 %**

# G



Solar fraction:  
**41,9 %**  
Difference:  
**-20,9 %**

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**Reference installation:** Solar thermal installation for a 4 people family home, placed in Potsdam (Germany), 4 m<sup>2</sup> collector surface,  $\eta = 0,851-4,036W/m^2K-0,0108W/m^2K^2$ , 45° south, 40 m tube system, DN 16 (according to DIN 4701, Part 10) solar thermal water needs 200 l/d at 50°C, storage volume 300 l, fraction without solar tube system 58,2 %.

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