



Advantage HSI Heating Ribbon compared to current technologies

In this document we like to explain the difference between the available copper wires and our heating ribbons based on metal glass.

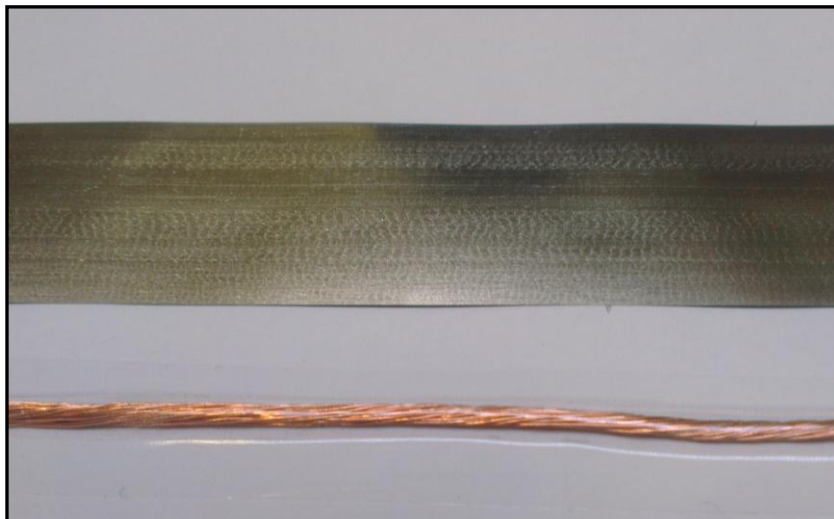
There are two main differences between those two techniques

- a) Material composition
- b) Design heating element

1. Material composition

The copper wires which are used in a heating system are similar in shape and performance to regular electricity cables.

The metal glass ribbon consists of a mixture of 6 metals which is heated up till 1300 degrees and is cooled down within 1 million of a second during production. As a result of the extreme short cooling period no crystalline structure is created but an amorphous structure is formed instead . The ribbon is very thin (20 till 30 micron) and has a width of approx. 25 mm. Due to the low mass of the heating elements, they perform far better than regular (copper wire) heating elements. The heat transfer area is almost 5 times larger than the area from traditional copper wires.



Standard copper wire versus metal glass

2. Design heating element

Due to the shape of the heating element the structure of the total heating ribbon is different. Some companies of the “copper wire” technology have copied the structure of the HSI Heating Ribbon. However due to the format of the basic material (copper versus metal glass) there is still a huge difference in efficiency.



Copper wire heating ribbon

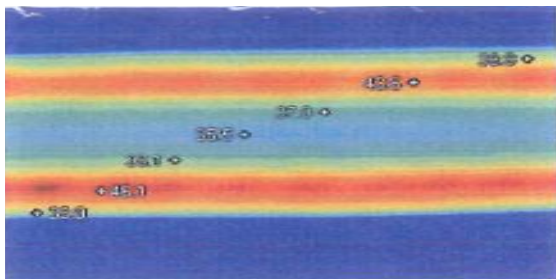


Metal glass heating ribbon

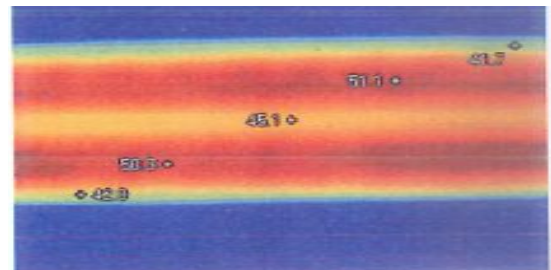
Conclusion

Based on different tests performed by external labs and universities it has become evident that the metal glass heating ribbon has a much higher efficiency due to the difference in the heating transfer area and the use of a different type of material. The difference in efficiency can go up till 50% in combination with our unique operating device. This will result in lower energy costs and a lower power supply connection.

The pictures below visualize the difference between both technologies (infrared camera).



Copper wire heating ribbon



Metal glass heating ribbon

Note; both ribbons are powered with the same power m^1 .

For more detailed technical questions please contact us.