



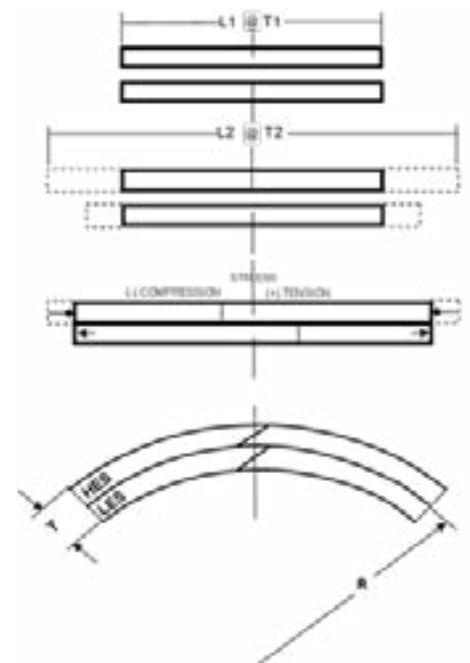
# Thermostatic Bimetal Systems

## Sense. Control. Protect.

Whether you are at work, at home, in an airplane, boat or car - virtually anywhere - you are almost always within reach of a Thermostatic Bimetal device.

In its basic form, Thermostatic Bimetal is comprised of two metals with different coefficients of thermal expansion (CTE) that are bonded together. It is the difference in CTE of the component metals that gives Thermostatic Bimetals their unique property of bending or curving as a result of an exposure to change in temperature. The amount in curvature the Thermostatic Bimetal experiences is proportional to the temperature change. It is also predictable and it is repeatable. It is these unique properties that make Thermostatic Bimetal useful in any application where it is desirable to sense and react as a function of temperature.

At EMS, we produce more than one hundred unique types of Thermostatic Bimetals that can be tailored to meet the specific needs of your application. Production of these high performance metals, strips, and parts, and understanding their innumerable applications and the customized processing parameters critical to their performance, has been the heart of our business since its inception.



# Thermostatic Bimetal Applications

Thermostatic Bimetals are one of the most widely applied families of clad metals. As formed parts, spiral coils, or snap acting discs, they can be used to make and break electrical circuits, indicate or compensate for temperature changes, release springs, open or close valves and perform many other critical tasks.

Because of its reliability, Thermostatic Bimetal is employed as an economical solution for temperature sensing and control applications in a wide range of industries such as; automotive, electrical, HVAC, or home appliance.



**Discgrade**

Discgrade Bimetal is widely used in thermostats in small appliances, in protection devices to keep electric motors from overheating, in controls that turn tea kettles off when water starts to boil, and many other applications where you want to sense and react to changes in temperature.

Over our long history, EMS has developed the processes and capabilities to make our Discgrade Thermostatic Bimetal the most consistent and reliable in the industry. We are the world's leading producer of these materials by measure of quality, quantity, and variety. As a result our "Truflex" Thermostatic Bimetal is the material of choice for the industry's leading control manufacturers.



**Electrical Grade**

Electrical Grade Thermostatic Bimetal is widely used in Circuit Breakers, Appliances, Automobiles, and other applications where there is a need to sense and react to temperature changes.

Electrical Grade Bimetal is typically thicker ( $T > 0.3\text{mm}$ ) and moves linearly as a function of a rise in temperature. It is also often a current carrying element in an end application.

Whether it is protecting your home's electrical circuits, controlling your oven temperature, or making sure your car does not overheat, our Electrical Grade Thermostatic Bimetal can offer you the most reliable and cost effective solution to these sensing and control concerns.



**Stamped Parts, Coils, & Assemblies**

Thermostatic Bimetal cuts differently, forms differently, and requires post fabrication heat treating. Because the material moves with temperature, it even requires temperature controlled manufacturing and inspection areas to ensure that the part dimensions meet print requirements.

Over the course of our history, EMS has perfected our parts manufacturing process for the unique properties of these materials and has invested in the equipment necessary to produce parts to the highest quality levels.

Engineered Materials Solutions  
EMSA  
39 Perry Avenue  
Attleboro, MA 02703  
Phone: +1 508 342 2100  
Fax: +1 508 342 2125  
E-mail: [solutions@emsclad.com](mailto:solutions@emsclad.com)

Engineered Materials Solutions  
EMSH  
600 Valley Road  
Hamburg, PA 19526  
Phone: +1 610 562 3841  
Fax: +610 562 5800  
E-mail: [solutions@emsclad.com](mailto:solutions@emsclad.com)

Engineered Materials Solutions  
EMSC  
Italian Industrial Park  
Baoying, Jiangsu, 225800 PR China  
Phone: +86 514 8891 6888  
Fax: +86 514 8891 6889  
E-mail: [solutions@emsclad.com](mailto:solutions@emsclad.com)

