Ualloy-5J1580 (Bimetallic strip)

Common Name: Kanthal 155

Bimetallic strip is used to convert a temperature change into mechanical displacement. The strip consists of two strips of different metals which expand at different rates as they are heated, usually steel and copper, or in some cases steel and brass. The strips are joined together throughout their length by riveting, brazing or welding. The different expansions force the flat strip to bend one way if heated, and in the opposite direction if cooled below its initial temperature. The metal with the higher coefficient of thermal expansion is on the outer side of the curve when the strip is heated and on the inner side when cooled.

The sideways displacement of the strip is much larger than the small lengthways expansion in either of the two metals. This effect is used in a range of mechanical and electrical devices. In some applications the bimetal strip is used in the flat form. In others, it is wrapped into a coil for compactness. The greater length of the coiled version gives improved sensitivity.

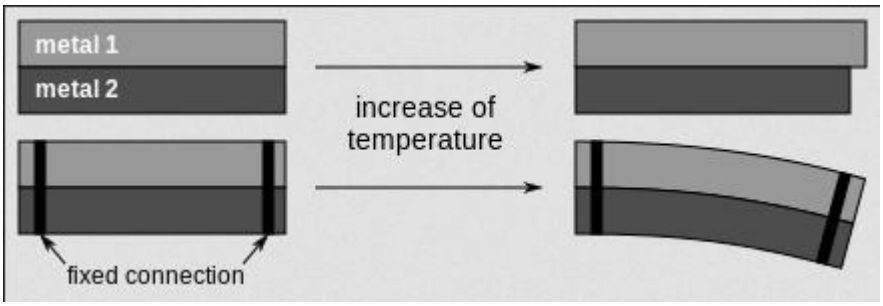


Diagram of a bimetallic strip showing how the difference in thermal expansion in the two metals leads to a much larger sideways displacement of the strip.

Composition

Grade	5J1580
High expansion layer	Ni20Mn6
Low expansion layer	Ni36

Information presentation property of Ualloy

Chemical composition(%)

Grade	C	Si	Mn	P	S	Ni+Co	Cu	Cu	Fe
Ni36	≤0.05	≤0.3	≤0.6	≤0.02	≤0.02	35~37	-	-	Bal.

Grade	C	Si	Mn	P	S	Ni+Co	Cu	Cu	Fe
Ni20Mn6	≤0.05	0.15~0.3	5.5~6.5	≤0.02	≤0.02	19~21	-	-	Bal.

Typical Physical properties

Density (g/cm^3)	8.1
Electrical resistivity at 20℃(Ωmm^2/m)	0.8±5%
Thermal conductivity, λ/ W/(m*℃)	12
Elastic Modulus, E/ Gpa	147~177
Bending K / 10^{-6}℃$^{-1}$(20~135℃)	15
Temperature bending rate F/（20~130℃）10^{-6}℃$^{-1}$	28.5%±5%
Allowable temperature (℃)	-70~350
Linear temperature (℃)	-20~180

Application: The material is mainly in automatic control devices and instrumentation (eg: exhaust thermometers, thermostats, voltage regulators, temperature relay, automatic protection switching, diaphragm meters, etc.) make temperature control, temperature compensation, current limit, temperature indicator and other heat-sensitive components.

Feature: The basic characteristics of Thermostat Bimetallic is bending deformation with temperature changes, resulting in a certain moment.
Thermostat Bimetallic Strip expansion coefficient is different from the two or more layers of metal or alloy along the entire contact surface firmly bonded, having a temperature-dependent shape change occurs thermosensitive functional composites. Wherein the higher expansion coefficient of the active layer is a layer called a low coefficient of expansion of the layer is named passive layer.

Style of supply

Alloys Name	Type	Dimension	
Ualloy-5J1580	Strip	W= 5~120mm	T= 0.1mm

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Information presentation property of Ualloy