

Types of Electric Elements (For Use in Air)

| | Nickel-Chrome NiCR | Iron-Chrome -Aluminum Fe-CR-AL | Silicon Carbide SiC | Molybdenum Disilicide MoSi ₂ | Zirconia ZrO ₂ |
|--|-----------------------|--|--|---|-----------------------------------|
| Max. Element Temp. (Air) | 1200°C | 1400°C | 1650°C | 1900°C | 2200°C |
| Max. Use Temp. (Air) | 1100°C | 1300°C | 1550°C | 1800°C | 2000°C |
| Max. Use Temp. (N ₂) | 1120°C | 1100°C | 1350°C | 1650°C | |
| Element Material Class | Metallic | Metallic | Ceramic | Cermet | Ceramic |
| Electrical Resistance vs. Time (Aging) | Constant | Constant | Increases 4 times | Constant | Constant |
| Electrical Resistance vs. Temperature | Constant | Constant | Decreases to 800°C then slowly increases | Increases 10-14 times | Conduction starts at 1000°C |
| Type Control Required | On/Off | On/Off | SCR | SCR | SCR |
| Major Limitation | Limited to 1100°C | Poor hot strength Needs element support | Elements age | High cost | Must be preheated to 1000°C |

Source: *Firing Ceramics*. G. Bickley Remmey Jr. World Scientific.