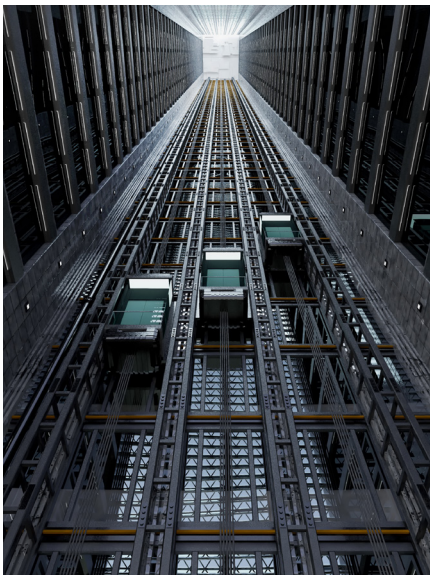
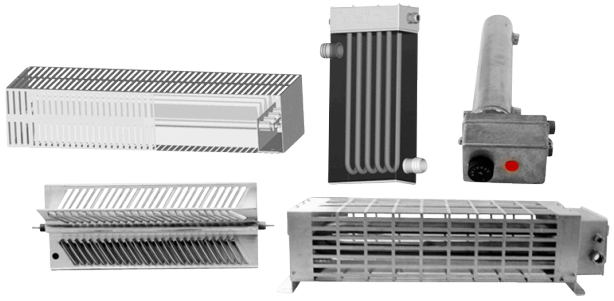
RESISTORS – HEATING ELEMENTS

All types of tubular heating elements can be used as resistors. The use of large diameter resistance wires, gives low resistance elements that withstand high loads. Large element diameter withstands high voltage.



Types of cooling	Air; convection or forced convection Liquid; water, oil etc.
Materials	Steel – grade D Stainless steel – EN 1.4301, EN 1.4404, UNS S31254 UNS N08904, Incoloy 800, Incoloy 825 Aluminium AA6060, AA6063
Dimensions	Tubular elements: Ø 8.5, Ø 14, Ø 21 mm Aluminium I or X shaped with or without cooling fins.
Example of applications	Cranes Trains Trams Vehicles Hybrid vehicles Frequency converters Sine-wave filter resistors
Fastening of elements	Flanges; welded or brazed Nipples; pressed or brazed
Electric connections	Cables Threaded pins M4/M6

Designs	Numerous elements are often connected together, series and/or parallel, to achieve intended properties.
Safety	The elements are 100 % tested for insulation and dielectric rigidity. Also, the elements are often built into protection cages to prevent contact with heated parts. Connection boxes with different IP classes can be used.
Others	Computerized pulse load simulation is done to optimize each resistor application. Specific element data on the back side of this leaflet.



Example of product design

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Technical Specifications

	Ø 8.5 al-profiles	Ø 14 al-profiles	Ø 18	Ø 21
Minimum resistance/ element	0.12 ohm/m	0.06 ohm/m	1.6 ohm/m	1.5 ohm/m
Resistance tolerance	± 5 %	± 5 %	± 5 %	± 5 %
Dielectric strength	1.5 kV DC 1 min	4 kV DC 1 min	7 kV DC 1 min	9 kV DC 1 min
Length	300–6000 mm	300–6000 mm	300–1500 mm	300–1500 mm
Minimum bending radius	12.5 mm	25 mm	40 mm	60 mm
Inductance	0.5–1 µH / element			