Molybdenum Disilicide Electric Heating Elements up to 1,800°C

electric heating elements are dense cermet materials, mainly composed of $MoSi_2$ (molybdenum disilicide) and some ceramic components. Above 900°C service temperature the surface will form a protective high temperature layer of pure quartz, which gives the material a high resistance to oxidation. If this glassy phase should be exposed to contaminants, a lower melting phase forms. This material literally drips off the element exposing more molybdenum disilicide on which a new protective oxide layer forms. elements become somewhat ductile at approximately 1,200°C.
elements may be used up to a surface temperature of 1,800° C in oxidizing atmospheres. Long service life and ease of replacement contribute to high furnace utilization and low maintenance costs.
New and old elements can be used together and in series. elements are manufactured according to established industry standards. The elements can also be used in combination with other molybdenum disilicide elements as an alternative or replacement part.
At low temperatures, an oxidation of molybdenum and silicon on the surface of the elements can occur at temperatures of around 550°C. The oxidation product is a yellowish powder known as „pest“ and has normally no detrimental effect on the performance of elements because the material is dense.

heating elements have a high purity glassy silica layer and this layer works as an oxidation protection layer with very low oxidation permeability. Therefore the heating elements show less deformation, an excellent low temperature oxidation (“pest”) resistance and long life use.
The High-Purity and No-Pest Grades are available in 3/6, 4/9 and 6/12 mm at a maximum temperature of 1,800°C.

Palenzo

IMPURITIES

[ppm]	Al	Fe	Mg	Ca	Ti	Na	K	Cr	Ni	Mn	Cu
Competitor	3500	1200	740	560	114	104	95	53	43	13	<10
	<10	590	<10	<10	<10	<10	<10	20	11	<10	<10

MATERIAL PROPERTIES

	MolyCom®-Ultra 1700	MolyCom®-Ultra 1800	MolyCom®-Ultra 1800KW	MolyCom®-Hyper 1800
Density	5.8 kg/dm³	5.8 kg/dm³	5.8 kg/dm³	5.8 kg/dm³
Bending Strength at 20°C	350-450 N/mm²	350-450 N/mm²	450-500 N/mm²	350-450 N/mm²
Porosity	<1 %	<1 %	<1 %	<1 %
Max. Element Temperature (under air)	1,700°C	1,780°C	1,800°C	1,800°C
Max. Furnace/Kiln Temperature (under air)	1,600°C	1,650°C	1,720°C	1,720°C

MAXIMUM RECOMMENDED ELEMENT TEMPERATURES IN ATMOSPHERES (°C)

	MolyCom®-Ultra 1700	MolyCom®-Ultra 1800	MolyCom®-Ultra 1800KW	MolyCom®-Hyper 1800
Air	1,700°C	1,800°C	1,800°C	1,800°C
Nitrogen (N_2)	1,600°C	1,700°C	1,700°C	1,700°C
Argon (Ar); Helium (He)	1,600°C	1,700°C	1,700°C	1,700°C
Hydrogen (H_2), dry	1,150°C	1,150°C	1,150°C	1,150°C

STANDARD TYPES AVAILABLE

Size of element [mm]	Ø d	Ø c	Lu	Le	a	f
3/6 *	3	6	50-400	50-400	25	25
4/9 *	4	9	50-400	50-400	25	25
6/12*	6	12	125-800	125-1400	50	45
9/18	9	18	280-800	125-1400	60	75
12/24	12	24	280-800	125-1400	80	100

heating elements are manufactured by the Powder-Metallurgy-Technology. They are made in U-, W- and L-shapes, diameters 3/6, 4/9, 6/12, 9/18, 12/24 mm and in total length up to about 2,000 mm and more.

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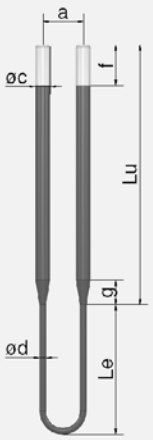
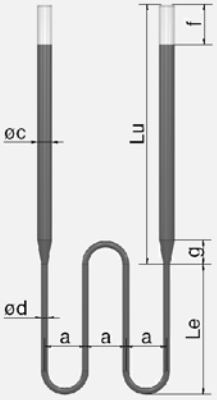
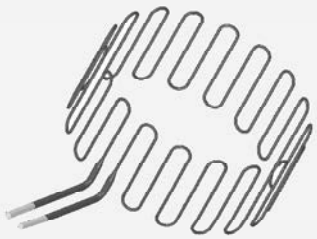
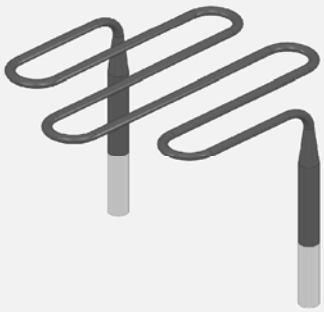
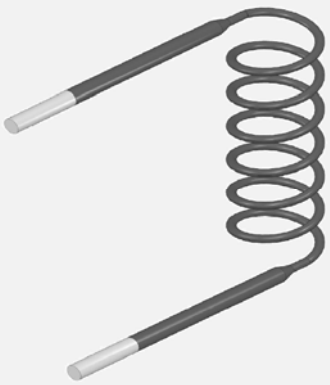
STANDARD TYPES AVAILABLE

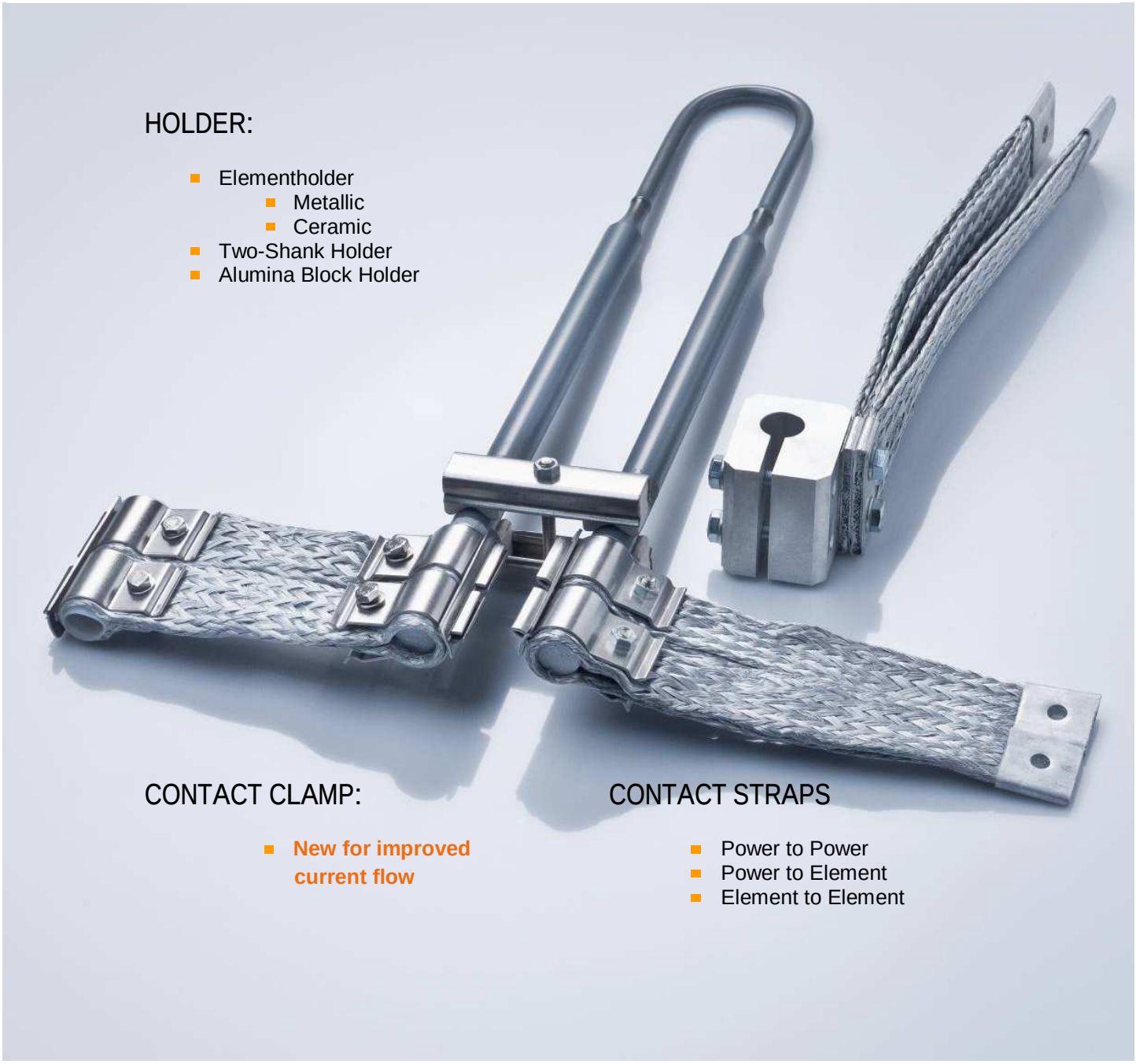
U-Shape	W-Shape and Multi-Shank	L-Shape (bent 90° at Lu)	L-Shape (bent 90° at Le)
			

SPECIAL TYPES AVAILABLE

Rod-Type	Panorama-Shape	Meander-Shape	Spiral-Shape
			

Other types upon request.

STANDARD TYPES AVAILABLE



HOLDER:

- Elementholder
  - Metallic
  - Ceramic
- Two-Shank Holder
- Alumina Block Holder

CONTACT CLAMP:

- **New for improved current flow**

CONTACT STRAPS

- Power to Power
- Power to Element
- Element to Element

All necessary accessories like contact-straps, single & double holders, clips, passage bricks are available.