

## Tubular Heaters



**Description** Heating elements for a wide range of heating applications. High power density and easy installation provide a solution for most heating applications. The elements can be adapted to most requirements. Various sheath materials are available.

- Features**
- Controllable heat by resistance wire technology
  - Resistance wire embedded in magnesium oxide thereby insulated from the metall sheath
  - Heat transfer by conduction, convection or radiation.

**Design Characteristics**



- Sheath diameter 8.1, 8.5mm and 6.5mm
- Sheath length from 400 to 4300mm
- Connection area unheated, unheated lengths as required preferably 50, 75, 105, 140, 180, 280 and 900mm.
- Operating voltage up to 500V
- Power output tolerance conforming to DIN EN 60335 (VDE 0700)
- Sheath bendable, annealed, bending as required, preferred bending radii R15, R20, R25, R30, R35, R45, R50, R60, R70, R80, R100
- Corrosion-proof by choice of adequate material
- Sheath materials 1.4541, 1.4571, 1.4435 and 1.4876 other materials on request
- Electrical terminations: threaded stud M4  
unthreaded stud diam. 2.5 and 3.5mm  
blade terminal 6.3  
Lead wires

- Design**
- Bent according to drawing or sample
  - If desired we will make proposals for optimum configuration of the heating elements
  - Please note that the transition from heated to unheated section must not be located in a bend
  - Minimum bending radii are R=15mm for 1.4876 R=20mm

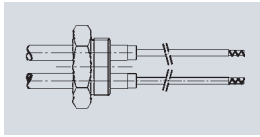
DBK David + Baader GmbH

Industrial Heating

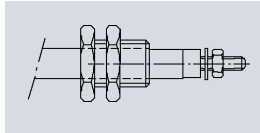
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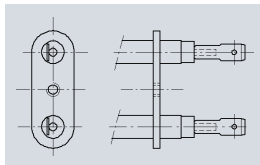
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Threaded nipple G1, with lead connection



Threaded nipple M14, threaded connection M4



Oval flat flanges, blade terminal



Lead connection bead-insulated with end sleeve

- Mounting** Various mounting configurations are available:
- threaded nipples soldered, welded or pressed on
  - threaded flanges
  - flat flanges round or rectangular
  - metal bases customized design

- Available Nipples**
- |                 |                                  |
|-----------------|----------------------------------|
| For pressing on | R ¼" x 12 x Ø 18 St37            |
|                 | R ¼" x 12 x Ø 18 stainless steel |
| For soldering   | R ¼" x 12 SW 17 brass            |
|                 | R ¼" x 35 SW 17 stainless steel  |
|                 | M 14 x 18 SW 19 brass            |
|                 | M 14 x 24 SW 19 brass            |
|                 | M 14 x 35 SW 19 brass            |
| For welding     | R ¼" x 16 SW 17 stainless steel  |

- Applications**
- Grills, baking ovens, broilers, baking plates
  - Washing machines, dishwashers
  - Instantaneous water heaters, boilers, water heaters
  - Heating of dies, moulds and tools
  - Comfort heaters, air heaters, radiation heaters
  - Steam generators, evaporators, dryers
  - Deep fat fryers and frying pans

- Inquiries and orders should indicate/include:**
- Formation, dimensions
  - Intended use, substance to be heated
  - Tube diameter, material, unheated tube length
  - Mounting and fastening devices
  - Electrical connection
  - Voltage and performance
  - Desired quantity

**DBK will gladly assist you with the design and calculation of your heater requirements or will provide the complete heater solution.**

Applications <i>*Instantaneous Heater</i>		Temperature of substance to be heated	Admissible Surface Load in W/cm <sup>2</sup>		
			1.4541	1.4876	1.4435
Heating of Gases	Still Air	250°C	2,5	3	
	Forced Air 2 m/s	250°C	3,2	4	
	Forced Air 10m/s	250°C	7	8	
Heating of Liquids	Still Water	100°C	10	10	10
	Flowing Water*	100°C	20	20	20
	Water (Dry Run Heater)	95°C	5	6	6
	Acid Baths	100°C	6		
	Thinned Acids	100°C		2,5	2
	Phosphat Acids	90°C	4		4
	Liquid Oils	50°C	3,5		
	Liquid Oils	250°C	2		
	Viscous Oils	300°C	1,2		
	Glycerine	150°C	2		
	Tar	150°C	1		
Heating of Solids	Lead Bath	500°C	4		
	Contact Heating of Metals	250°C	4	5	
	Indirect Heating		4	4	
	Cast in soft metal with control	250°C	25		
	Cast in soft metal w/o control		6		