

## MIKAPLAST - Heater Bands for Plastification Cylinders -

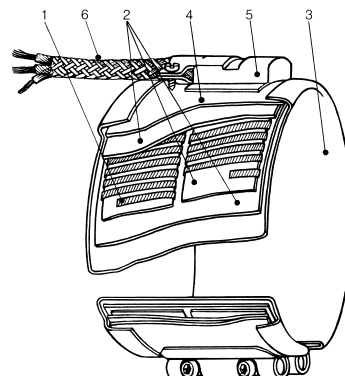
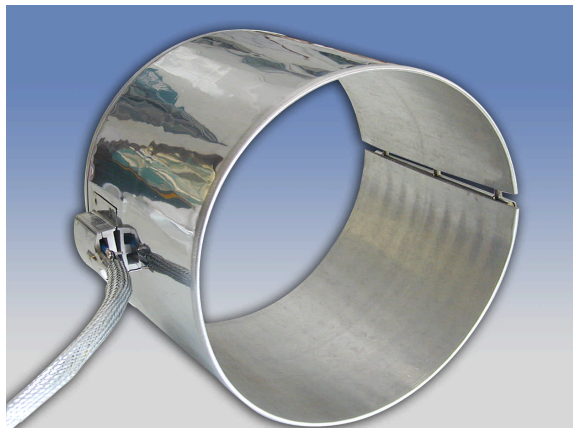


Figure 1

### GENERAL CHARACTERISTICS

Thanks to the most advanced technical solutions, to the selection of the most appropriate materials and to the severe quality control procedures, we can produce heaters that present many advantages. In particular it is worth to mention:

- **Optimum heat conduction and uniform heat distribution**
- **High electrical insulation**
- **Constant Efficiency during lifetime**
- **Easy installation**
- **Great mechanical resistance to shocks and to tearing applied to the cables**
- **Tight manufacturing tolerances**
- **Long Operational Life.**

The heaters undergo dimensional and electrical controls all along the production phase, as requested by the company Quality Control System that is certified in accordance with ISO 9001:2000 Standard. A 100 % electrical acceptance test allows to verify the compliance of each single heater to the requirements specified in the applicable CEI/EN/UL Specification. In particular, the following tests are performed:

- Verification of the earth connector efficiency
- Measurement of the Insulation resistance
- Measurement of the dielectrical rigidity
- Measurement of the dispersion current
- Measurement of the resistance ohmic value

### APPLICATIONS

These heaters are employed in all the plastic moulding machines where the operational temperature does not exceed 280 °C.

### TECHNICAL DATA (see Figure 1)

1. **RESISTIVE WINDING** made of Nickel/Chrome 80/20 DIN 17470, material n° 4869, characterised by large section and consequent low power density, executed with automatic tools which insure reproducibility and uniformity
2. **ELECTRICAL INSULATION** made of high purity continuous mica with a very low presence of binder. The material complies to UL (94 V-O) Specification.
3. **INTERNAL SHEATH** made of galvanically treated steel. Thanks to its high thermal conductivity, it insures the best heat transmission to the plastification cylinder

4. **EXTERNAL CLAMPING SHEATH** made of stainless steel AISI 430 – UNI X 8 Gr 17 resistant to high temperatures. Its compressing action onto the heating band guarantees an optimum heat exchange efficiency
5. **CERAMIC TERMINAL BOARD** connecting the power supply cables to the internal electrical circuit. A special metallic cover protects the ceramic board from shocks and tearings applied to the cables
6. **POWER SUPPLY CABLE** (optional) suitable for high temperatures, with internal conductors in nickel-plated copper or in pure nickel (for the most severe applications). Internal insulation made of fibreglass and Teflon. Externally protected by a metallic braid sheath.

### INSTALLATION

When installing, please make sure that the heater internal surface perfectly adheres to the cylinder. Then tighten adequately the hexagonal-head screws provided with the heater. After initial operation (30 minutes) tighten again the screws in order to compensate the thermal expansion. In case of maximum adherence exigencies (and in any case, if the internal diameter exceeds 300 mm) closing systems provided with pressing springs are supplied (see Figure 2).

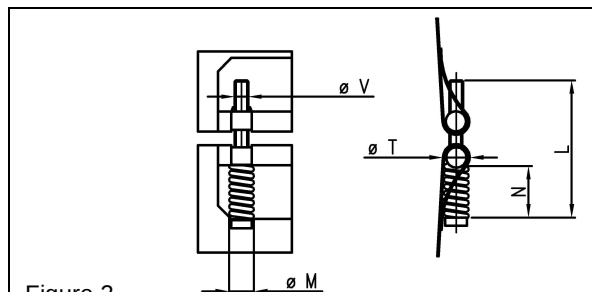


Figure 2

| CLOSURE TYPE | Ø V | Ø T | Ø M | N  | L   |
|--------------|-----|-----|-----|----|-----|
| TR6/50       | M6  | 12  | 12  | 15 | 50  |
| TR7/100      | M6  | 12  | 12  | 40 | 100 |

### DIMENSIONS

MIKAPLAST heaters can be manufactured starting from a minimum diameter of 70 mm and a minimum width of 20 mm. There are no specific limitations for the maximum diameter even if, beyond 500 mm, the best solution is to divide the heater into two or more sectors with separate power supplies. The maximum width is 500 mm.

## POWER

MIKAPLAST heaters are normally manufactured with a specific power around  $3.5 \text{ W/cm}^2$ . To choose correctly the specific power as a function of the plastification cylinder diameter, please look at the graph in Figure 5.

## THERMAL SENSOR HOLE

Holes or slots allowing the installation of thermal sensors can be realised onto the heater surface as required. Their dimensions, in any case, shall be coherent with the overall dimensions of the heater.

## ELECTRICAL CONNECTION

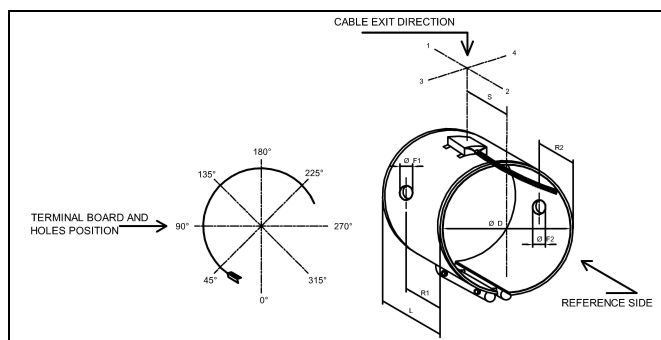
To connect the internal heating circuit to the power supply cable, several terminal boards have been developed. They are provided with specific metallic covers and insure optimum mechanical resistance, easy mounting of the power supply cable, high electrical insulation, efficient electrical contact (also at high temperatures) and minimum envelope.

Different typologies are available. They are summarised in Figure 3. The constructive details of each terminal board are provided in the Electrical Connections Catalogue.

## POWER SUPPLY

MIKAPLAST heaters can be provided with mono-phase power supply and, starting from 120 mm width, also with star and delta three-phase power supply. Solutions with double mono-phase power supply are possible too.

Figure 4: reference system to define angular positions and axial coordinates



TO ORDER A MIKAPLAST HEATER PLEASE SPECIFY (see Figure 4):

- The diameter  $\Phi$
- The width L
- The supply voltage
- The heating power
- The position (in degrees and axial coordinate S) of the power supply and of any required hole. Please follow example in Figure 4 to define angular positions and axial coordinates
- The type of terminal board requested (see Figure 3 and Electrical Connections Catalogue)
- The length of the power supply cable (if required)

Figure 3: different typologies available for the electrical connection

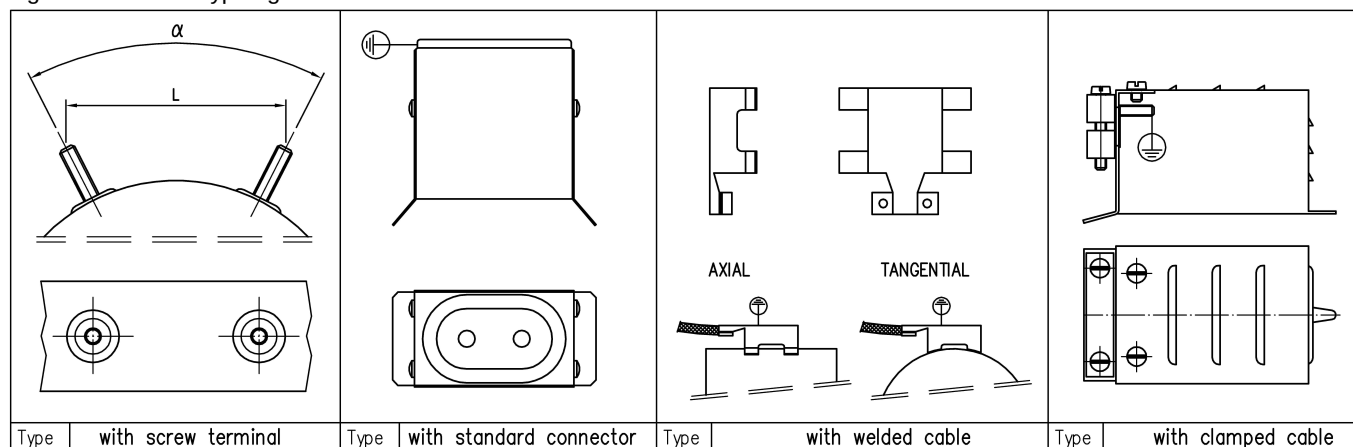
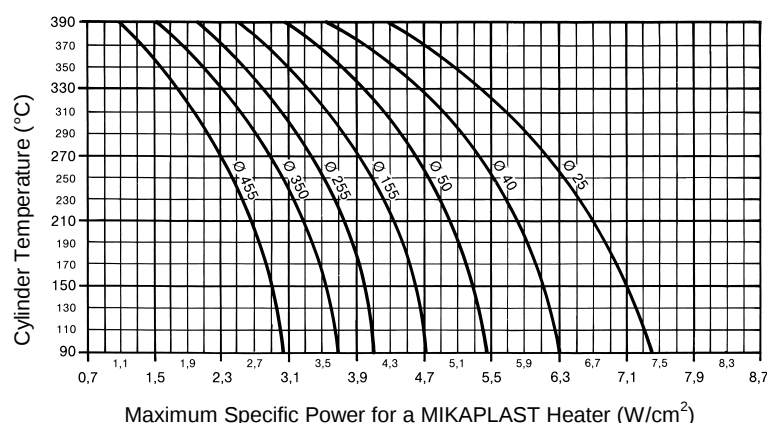


Figure 5: maximum specific power as function of cylinder diameter



With ISOTEX insulating blanket: Reduce by 1 W/cm<sup>2</sup>

With ISORAD insulating cover: Reduce by 1 W/cm<sup>2</sup>

With RADIANT CALOR protective cover: No reduction

With PROTEX protective cover: No reduction