**Electrothermic Heads**

**How do they work?**

At the heart of the electrothermic head is an electrothermic element. The element uses a wax compound that expands when it takes on heat. This expansion drives a small piston in a linear direction. The heat is created when current is passed through a PTC resistor attached to the element body.

Both N/O and N/C valves use the same electrothermic element but in slightly different ways. In the N/C valve the element sits in a plastic cradle surrounded by a spring. The spring pressure forces the element down onto a black plastic plunger which in turn pushes down on a spring loaded mechanical pin projecting from the manifold electrothermic body. When power is applied to the valve, current passes through the PTC warming the wax compound, this causes the piston to move, forcing the element to compress the spring. This removes pressure on the black plunger allowing the manifold pin to push the plunger back up into the valve head.

The N/O valve element again sits in a spring loaded plastic cradle, this time when power is applied to the valve the element piston acts directly on the plastic plunger pushing down on the mechanical pin contained within the electrothermic body. When not actuated, the counter spring gradually pushes the piston back into the element. This spring also absorbs any over stroke, when on full actuation.

**Components**

[Diagram showing components labeled 1 to 10]

1. Polycarbonate case
2. Stainless steel spring
3. Indicator PPA (35% FV)
4. Steel radial stop ring
5. Brass shelf TN UNI EN 12164 CW614N
6. Polycarbonate base
7. M30x1.5 ring nut PA 66 (50% FV)
8. PVC cable
9. Microswitch 5A
10. Wax expansion electrothermal actuator

**Features and Benefits**

- Unique oval shape allows finger access either side of the head when mounting the electrothermic head onto the manifold body (this is done by screwing the loose ring).
- Black pop up indicator, which tells you whether the valve is opened or closed. This pop up indicator is in a separate channel, to avoid ingress of water into the electrical parts.
- IP44 in vertical position, IP40 horizontal or inverted.
- Reaction time – it responds in a linear fashion, taking 5 minutes (80% of travel is completed in 3 minutes)
- Low energy input approx. 3W – 3.5W, therefore a low cost, energy efficient device
- Breakaway current: 0.35A (24V) 0.25A (230V)
- 24V can be supplied from either an AC or DC source
- It exerts a strong force, overcoming between 45 N to 140 N spring resistance
- Pin travel 3.6mm
- Maintenance free.
- They are silent running.
- Micro switch facility (4A switching capacity) 4-wire version (01213252 or 01213212)
- PVC cable 1m length

**Wiring Diagrams**

**NC 24V / 230V**

```
1  TA
2  230 V / 24V
```

**NO 24V / 230V**

```
1  TA
2  230 V / 24V
```

**NC 24V / 230V - c/micro (*)**

```
1  TA
2  230 V / 24V
4A
```

Cable identification: 1: Brown / 2: Blue / 3: Black / 4: Black

Coil resistance:
24V: 115 Ohms +/-29
230V: 6000 Ohms +2100/-1500

For further details such as product codes and prices please refer to our Emmeti Product Price List or visit our website www.emmeti.co.uk, or alternatively please call us on 01993 824900
**Electrothermic Heads**

**Control T Electrothermic Heads**

### Control T - electrothermic head normally closed

<table>
<thead>
<tr>
<th>Type</th>
<th>Pcs/Pack</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>230V NC</td>
<td>1</td>
<td>01213242</td>
</tr>
<tr>
<td>24V NC</td>
<td>1</td>
<td>01213202</td>
</tr>
</tbody>
</table>

Note: The electrothermic heads can be used in conjunction with: Topway T2, FCU Floor Control Unit and FMU2 Floor Mixing Unit. Supplied with 1m cable. 2 wire.

### Control T - electrothermic head normally closed with end switch (4 A 230 V)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pcs/Pack</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>230V with micro switch NC</td>
<td>1</td>
<td>01213252</td>
</tr>
<tr>
<td>24V with micro switch NC</td>
<td>1</td>
<td>01213212</td>
</tr>
</tbody>
</table>

Note: The electrothermic heads can be used in conjunction with: Topway T2, FCU Floor Control Unit and FMU2 Floor Mixing Unit. Supplied with 1m cable. 4-wire. The two additional cores are connected to an auxiliary switch, which allows an external load to be energised on operation of the head.

### Control T - electrothermic head normally open

<table>
<thead>
<tr>
<th>Type</th>
<th>Pcs/Pack</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>230V NO</td>
<td>1</td>
<td>01213280</td>
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<tr>
<td>24V NO</td>
<td>1</td>
<td>01213260</td>
</tr>
</tbody>
</table>

Note: The electrothermic heads can be used in conjunction with: Topway T2, FCU Floor Control Unit and FMU2 Floor Mixing Unit. Supplied with 1m cable. 2-wire.

### Adaptor for Control T electrothermic heads

<table>
<thead>
<tr>
<th>Size</th>
<th>Pcs/Pack</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spacing disc c. 9mm dia. X 1mm thick</td>
<td>12</td>
<td>90039364</td>
</tr>
</tbody>
</table>

To be fitted to electrothermic heads in order to give additional travel when fitted to non-Emmeti manifolds.

For further details such as product codes and prices please refer to our Emmeti Product Price List or visit our website www.emmeti.co.uk, or alternatively please call us on 01993 824900