

# CHEMICAL DOSING LINE JACKET HEATERS

## DATA & SPECIFICATION SHEET

### General Description and Benefits

**Inditherm Dosing Line Jacket Heaters** are a revolutionary new system for heating chemical dosing lines in water treatment and waste water treatment plants.

Some chemicals start to crystallise at low temperatures and it is necessary to apply heat to keep them liquid. For example, 50% Caustic solution starts to thicken at around 16°C and starts crystallising at around 8°C. Traditionally, electrical trace heating has been used to keep chemicals liquid. The individual lines are then lagged to prevent heat loss.

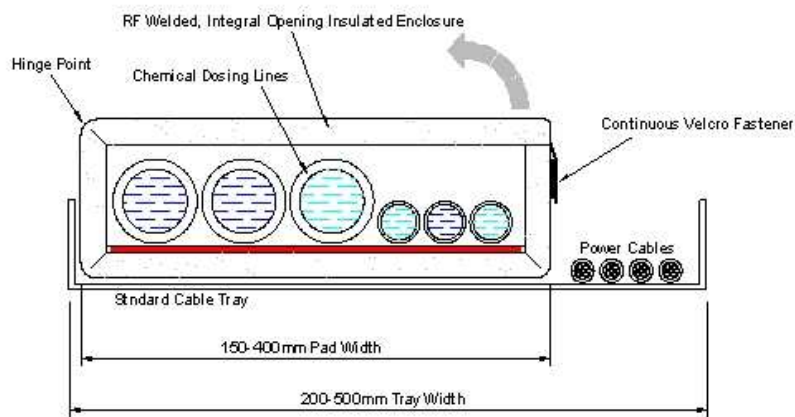
**There are several limitations to this solution:**

- Each line needs to be individually traced and clad.
- Installation time is significant.
- Power consumption is high (typically 10-25 W/m/line).
- Voltage (110V or 230V) requires special safety considerations.
- It is not possible to examine or maintain the lines without removing the insulation.
- It is often necessary to put in underground channels to protect the lines.
- Different parts of the lines cannot easily be individually temperature controlled.

**Laying the dosing lines inside Inditherm heated jackets solves these problems:**

- Multiple lines can be laid inside a single jacket, saving space.
- Installation time is cut dramatically (typically by a factor of 3 or more), due to jackets being manufactured off site and holding multiple lines. This also reduces the health & safety exposure for contractors.
- Power consumption is reduced significantly, and depending upon the number of lines in each jacket and the average ambient temperature, can be reduced to between 24W/m/tray and 50W/m/tray. For example, the energy saving in a 100m dosing line run (with an average of 8 lines per tray) would be around 70,000kWh per year (worth approximately £2,200).
- Low voltage (24Vac) is very safe, particularly in wet environments.
- Jackets can be fitted into standard cable trays, which do not need to be laid below ground, again saving overall project time and cost.
- Each pad has an individual temperature control, so will switch on automatically when needed, even if other parts of the line are switched off because they are in a warmer area.

A typical arrangement is shown in Figure 1.



**Figure 1 - Typical Inditherm Dosing Line Heated Jacket Arrangement**

## System Features

The Inditherm heated jacket system consists of the following:

- **Base unit** comprising Inditherm heated pad mounted on PU foam insulation and encased in heavy-duty, black PVC welded cover. Available in standard sizes that are suitable for most situations, installation can be completed very rapidly.
- **Integral insulated hinged cover** that folds over to enclose the dosing lines and is then fitted to the other side of the base unit with continuous Velcro strips.
- **Heated pipe jackets** that are wrapped around pipes where they are not supported in cable trays, e.g., draw chambers or change-of-direction chambers.



- **Electrical control panel**, manufactured in accordance with the client's standard specification. They are typically powered from the 415/230/110Vac mains input to a 24Vac output transformer housed in an IP55 rated enclosure with hinged doors and lockable handle assembly. The panels have power-on LED indication and mains isolator switches. All power outlets are protected by individual 25A DIN-rail mounted circuit breakers. Panel wiring is in accordance with BS6231. kWh meters can be fitted, as required. There are several sizes of panel, depending upon the length of the dosing line runs. One panel can power up to a maximum of 250m.



- **Cables and junction boxes** that power the heated jackets. Junction boxes are mounted every 10 to 15m, depending upon the rating of the system.
- **Covers to catchpots and points of application boxes.** Inditherm supplies both standard sized or custom-made insulated and heated covers for catchpots and points of application boxes. These can be fitted quickly by the Inditherm installation team.



## Installation

Jacket heaters are laid in standard metal or plastic perforated cable trays, 200mm, 400mm or 500mm wide. They may also be laid into standard channels of the same widths, or wider.

Dosing lines are laid onto the based units and secured at intervals with ties, as necessary. The covers are then placed over them and secured with Velcro. The closed covers may be secured to the cable trays at intervals with straps or ties, as required.

Jacket heaters are made in standard lengths of 3m, 1m and 0.5m. These can be run around corners, both in the same plane or in other planes. 300mm long unheated fill-in sections are used to cover exposed spaces.



Heated jackets are wired together in parallel and terminated at intervals into junction boxes. Cables are laid and secured in the tray to the side of the heated jackets or can be laid within the jacket when installed in ducts.

## Specification

### Heated Jacket Options:

There are a number of standard heated jacket options, as shown in the table below. Alternatively, Inditherm can custom make jackets to suit each particular location.

Description/Item	Width of Cable Tray (mm)		
	200	400	500
Product Code	DL 80-150	DL 100-300	DL 100-400
Width of heating jacket (mm)	150	300	400
Height (mm)	80	100	100
Power consumption (W/m/tray)	25	30	50

**Operating Temperatures:** The system has two temperature options:

1. Frost protection: Operating temperature 15°C in ambient down to -10°C.
2. Heating: Operating temperature 40°C in ambient down to -10°C.

**Cover material:** High tenacity polyester with matt black plasticized PVC coating on both sides. Weight to BS3424/5A: 560g/m<sup>2</sup> ± 25g/m<sup>2</sup>. RF welded to ensure completely waterproof. Cable entry through a waterproof grommet.

**Maintenance:** The system has no moving parts, so maintenance is minimal. Users have the ability to examine dosing lines, simply by undoing the Velcro-secured cover.

**Cables and junction boxes:** Cables will vary in rating, depending upon the application. They are sized to provide 16A with the minimal possible voltage drop. Junction boxes are mounted every 10 to 15m, depending upon the rating of the system. In general, each pad is connected in parallel with the next heating pad through an IP65 rated screw plug, as shown below.



**Typical IP65  
Junction Box**



**Typical IP65  
16A Plug**

## About Inditherm plc

Formed in 1998, marketing a new polymer based heating system, Inditherm is established in numerous markets as a cost-effective provider of innovative solutions to difficult heating problems.

Applications include patient warming and muscle heat therapy within the medical sector, critical temperature management within industry, under pitch heating within sports stadia and as an accelerator for concrete curing in the construction market.

The Company is listed on the London Stock Exchange (AIM).

### Inditherm Conductive Polymer Technology

Inditherm technology is based on a unique carbon-based polymer that generates uniform heat across its entire surface when energised by a low voltage power source.

The Inditherm conductive polymer technology (CPT) has fabric-like qualities and flexibility that enable it to be used on pipes and on most industrial components, including items with shapes that are normally difficult to heat. In addition, it is ideal for heating large, flat areas.

The Inditherm polymer will be encapsulated in an appropriate, insulated outer cover, depending upon the application. Heated pads can be made to a suitable length to fit between brackets, flanges, etc.

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