

Thermostat protection prevents frozen pipes and improves energy efficiency

23 February 2023

For buildings as diverse as schools, hotels, prisons, or airports, it's important to protect pipes from freezing in order to maintain the water supply and heating. Trace heating achieves this but, particularly alongside rising energy costs, these systems are being increasingly used to maintain water temperature and increase efficiency. Trace heating is usually thermostat-controlled, so it's imperative to achieve the right specification, including protection for the thermostat itself.

Chris Lloyd, Managing Director of Spelsberg UK, discusses the benefits of trace heating thermostat protection.

In 2021, the UK experienced over 50 frost days⁽¹⁾, meaning a day where the minimum temperature fell below 0°C. What's striking is that some of these days extended well into April, and even May. While these figures present an average, the potential challenge of frozen pipes is, at minimum, an annual occurrence. Frozen pipework doesn't just mean a service outage but can also mean costly damage and repair. While disruption to drinking water or heating can be extremely problematic, frozen pipes on a fire suppression system can create an even more serious situation.

To combat this challenge, the origins of trace heating were first developed in the 1930s. Since then, the principle, where an electrical element runs along the length

of the pipe, covered with additional insulation to retain heat, largely remains the same. Trace heating can also be applied to valves, tanks, and vessels. However, with rising energy costs, trace heating is increasingly being used to efficiently maintain water temperature.

Reducing energy costs

Even in milder seasons and climates, the energy efficiency of pipes is impacted by the imbalance of a lower external ambient temperature. For extended pipe systems, such as those found at schools and hotels, there's potential for even greater heat loss, requiring higher energy input to achieve and maintain the desired temperature. With energy prices at unprecedented levels, the short-term outlay of a trace heating system can represent a lower total cost of ownership compared to unprotected piping subject to fluctuating heat levels. While conserving energy reduces the need to re-heat water, therefore lowering cost, it also contributes towards an organization's sustainability commitment.

Trace heating can also protect public health by helping to prevent Legionnaire's disease, the harmful bacteria that can grow in water of temperatures between 20°C and 45°C. While uncommon in houses, larger buildings with extended pipework are more likely to encourage spread of the disease, so maintaining the temperature at 55°C to 60°C, where the bacteria cannot survive, can disarm the challenge.

Thermostat protection

The 'brain' of a trace heating system is the thermostat, regulating the temperature, typically at a constant desired level. A key requirement of thermostat design includes temperature control accuracy, and the ability to adjust the set point across a wide

range adds flexibility. The thermostat itself also has to be protected from the elements, so depending on the installed environment, an enclosure has to provide the right level of thermal and ingress protection.

Facilities or operational managers can buy a thermostat and then install a protective enclosure as retrofit, but aside from the time and expense of separate procurement and installation, there's a risk that retrofit won't provide the right protection. The enclosure needs to be specified to provide sufficient protection, and if it isn't accurately sized, including sealing around entry and exit points, there's significant risk of ingress. This can lead to failure of the thermostat over time, and a fault could cause a failure of the overall temperature control system.

Protected enclosure

Instead, thermostats pre-assembled with a protective enclosure remove the time required and the risk of inaccurate specification and sizing. It's crucial to ensure the supplier has expertise in CNC machining and assembly to create a secure and protected unit, and the enclosure itself should also meet a high level of ingress protection.

Spelsberg's HT range of thermostats are designed specifically for their task and are protected by an IP66-rated polycarbonate enclosure, while a clamping cable gland protects the temperature probe's seal. Despite the durability, lightweight polycarbonate enables easy installation, meaning the units, fully assembled in-house, only require simple integration into the trace heating system onsite. When installed, control is provided by a mechanically adjustable thermostat and a temperature range of up to 320°C covers a wide variety of applications.

While protection from frozen pipes is imperative, trace heating is increasingly relied upon to reduce energy costs. With high energy prices and uncertainty over their future, a cost-effective initial outlay can reap long-term financial rewards.

Ref: ⁽¹⁾ <https://www.statista.com/statistics/584934/number-of-days-with-air-frost-in-uk/>

Image captions:

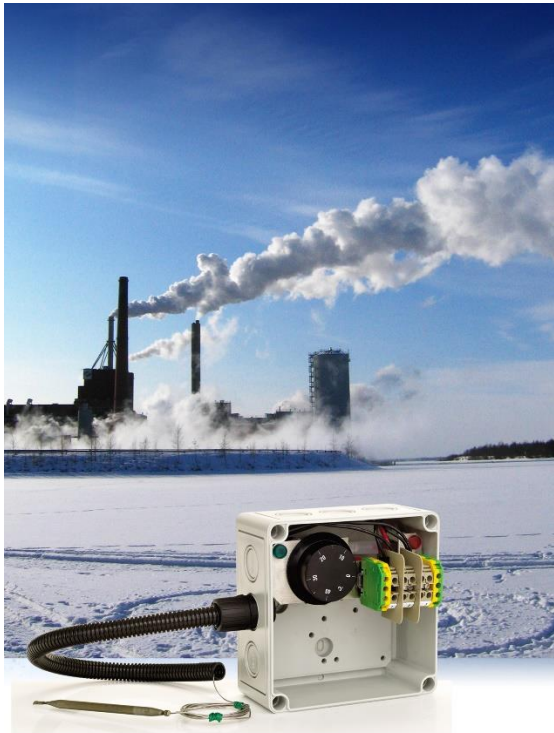


Image 1: Spelsberg HT range



Image 2: HT thermostats are turnkey units, housed in Spelsberg's IP66-certified TK polycarbonate enclosures.

The image(s) distributed with this press release are for Editorial use only and are subject to copyright. The image(s) may only be used to accompany the press release mentioned here, no other use is permitted.

About Spelsberg

Spelsberg is one of the largest manufacturers of electrical enclosures in the world. With over 4,000 enclosures available as standard and further customisation possible, it offers solutions for almost any application.

With the largest supply of non-metallic enclosures, ex-stock in the UK, its products are often available for delivery within 24 hours; customisation is possible on any product, including bespoke entries, engraved corporate logos or fitted terminals, within 48 hours. Products can be ordered direct from Spelsberg or from most leading supply specialists including RS, Rapid, Farnell and CPC.

The image(s) distributed with this press release may only be used to accompany this copy and are subject to copyright. Please contact DMA Europa if you wish to license the image for further use.

Press contact:

Spelsberg els UK Ltd.

Chris Lloyd

Tel.: +44 (0)1952 605849

c1l@spelsberg.co.uk

PR agency:

DMA Europa

Elizabeth Patrick

Progress House, Great Western Avenue, Worcester,
WR5 1AQ, UK

Tel.: +44 (0)1905 917477

liz@dmaeuropa.com

news.dmaeuropa.com