



GEM NEWS



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featuring the revolutionary venturi steam trap from Gardner Energy Management

Making calorifiers simple

Here is the problem: Queen Margaret Hospital (QMH) in Dunfermline, Scotland, traditionally uses steam to heat domestic hot water in a storage heater. The duty is pretty large: 491kW. To avoid stalling conditions, a pressure-powered condensate pump (see diagram 1) had been installed on initial design in 1992/3, even though the lift on the condensate line was only 2 metres. But the pump became a maintenance headache — as well as needing its own steam supply, trap and vent — and the main system 2-inch mechanical steam trap was also jam-prone. What a palaver!

QMH's Estates Officer Ean Galbraith and GEM put their heads together, decided that the system was over-engineered and simplified things dramatically (see diagram 2). With a 1-inch GEM venturi steam trap, no moving parts and even less equipment, "the system simply doesn't stall." Ean Galbraith told GEM News. "And there has been no loss of performance," he continued. Now GEM and Ean are working on another calorifier system which over the years has become even more complex in its fitments. More news on that in the next issue.

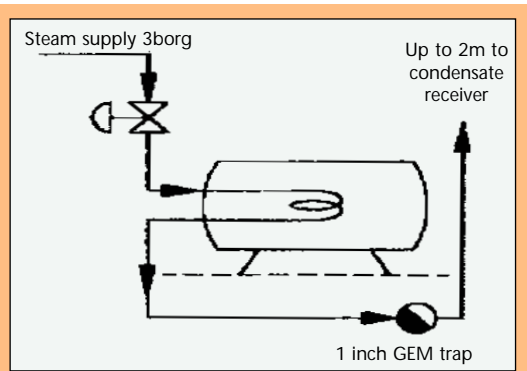


Diagram 2: the GEM solution

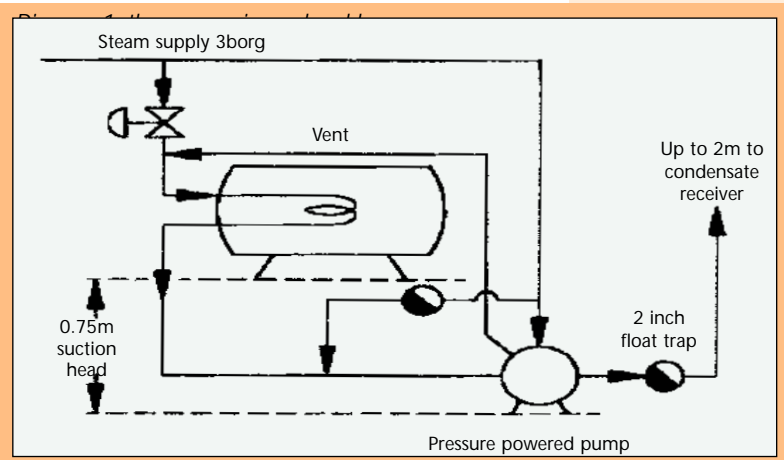
Coca-Cola bubbling

Most of the Coca-Cola consumed in Northern Ireland comes from the company's Lambeg bottling plant. Some time last year GEM's Ken McFeeters assessed the steam trap needs for the water heater of the company's large bottle washer; bucket tests showed variable flow up to a quarter of a tonne of steam per hour. The two inverted bucket steam traps in the system were proving unreliable, so they were replaced with two GEM venturi traps. Another GEM trap went onto the CIP coil in plant number three. Here the load is highly variable and quite a challenge.

"We're having no trouble at all," comments maintenance manager John Hamilton. "And we were surprised but pleased to find that, since fitting these few GEM traps, our gas bill has been well below budget." McFeeters has since rubbed in the superior perform-

ance by training his infra-red (IR) imaging gun on one of Coca-Cola's radiant heat panels. He and Hamilton found that the panel was 5°C hotter when a GEM trap replaced a mechanical trap in the system and, to the amazement of all, condensate downstream was 10°C cooler.

Now Coca-Cola has fitted GEM venturi steam traps on Myson space heaters over the bottling lines and on boiler house drip legs. "They're working well," says Hamilton. The production staff have noticed much warmer air from the space heaters with the GEM traps. By the way, IR guns are available through GEM: ask us about them.



Printing money

At Dunmurray Print, six miles outside Belfast, they print textiles. This small company, employing 25 people and part of the larger Ulster Weaving Group, switched all 75 of its steam traps from old-style mechanical to GEM venturi last May. Since then they have spent £6,000 less than usual on oil — savings of about 20% — and steam losses have reduced considerably. The Dunmurray process is water-based and uses steam-heated dryers on the wet cloth. They use steam for space and water heating too. Since the switch from mechanical steam traps last May, engineer Robin Eccles has bought only 10 oil tanker loads rather than the usual 12, and by May 2001 expects to save another one. Each unnecessary 18,000-litre load is worth about £3,000.

Why the change to GEM traps? "We had to keep a very close eye on the mechanical traps all the time," says Eccles. "They would jam, and some developed holes in the body of the trap. Then GEM offered a free survey where the rest wanted payment. I was very wary: I took a lot of advice from other GEM users and it paid off. I find GEM traps work very well with much less maintenance and no live steam escaping."

In case you'd forgotten, this is a profile of GEM's unique venturi steam trap: the 21st century way of saving energy

**Turn over for:
Sterilisers
Irish finance
Tim's technical
tip ...**



featuring the revolutionary venturi steam trap from Gardner Energy Management



Nicole Silander,
GEM's engineer representative working in Scotland and the north of England. Call her on 0797-4959861

Dry out your sterilisers

Staff at HCI Hospital in Clydebank were concerned about the performance of their sterilisers, and that some packs were coming out of the sterilisers wet. No-one was quite sure what was causing it. Meanwhile engineering and estates manager John O'Connell was having problems with back pressure in the condensate systems; he decided to replace a few of the old and ailing mechanical steam traps on the steriliser steam supply line with GEM venturi traps (see diagram 3). The following week he received a phone call: "What have you done to the sterilisers?" It turned out that the problem with wet packs had been resolved and this had saved the sterilisation team a potentially expensive call out by the steriliser manufacturers. Now, O'Connell tells GEM News, HCI has a policy of replacing old mechanical traps, as they become defective, with GEM venturi steam traps.

traps and install GEM venturi steam traps in their place. IRTU recognises GEM traps as energy-savers and arranged the loan from the Energy Savings Trust.

The benefits to International Leathers, makers of fine leathers for the fashion garment market, were recognised in its application by general manager William McCulla. They include:

- no more steam entering the condensate return tank;
- an estimated saving of at least 10% on oil usage;
- greater reliability and less downtime.

More on getting a loan from energy.irtu@detini.gov.uk And if you are elsewhere in the UK, you might ask the ministry why such help is not more widely available.

Tim's technical tip

The temperature of super-heated steam is higher than that of ordinary steam. Does it therefore increase the output of heat exchangers?

No. In fact, the opposite is true. Steam at its saturation temperature (no super-heat) condenses on heat exchanger surfaces and gives up a lot of latent heat very quickly. In contrast, super-heated steam merely acts as a hot gas; it must cool before it can condense, and that is a slow process. So the output of a heat exchanger decreases by about 1% for every 5°C of super-heat.

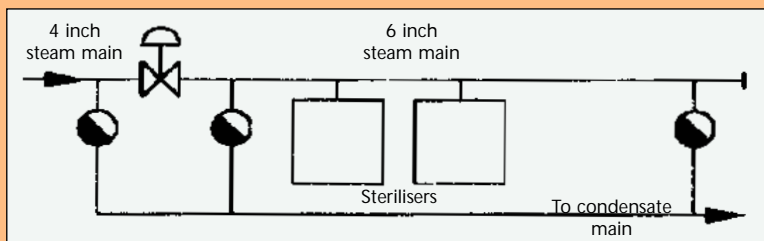


Diagram 3: The HCI steriliser set-up

Help from an Irish friend

One of the good works of the Industrial Research & Technology Unit is to arrange interest-free loans for energy-saving measures. The Unit operates throughout Northern Ireland. International Leathers of Killyleagh, Downpatrick, recently took advantage of the scheme to remove all existing mechanical steam

Limerick competition

Add the final three lines and send them to GEM (see bottom left) by 31 May. The best effort gets a bottle of bubbly and a place in the next issue of GEM News.

*When Climate Change legislation
Was first proposed to the nation ...
(three lines to complete)*

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