

Number 3
Christmas
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GEM NEWS

featuring the revolutionary venturi steam trap from Gardner Energy Management

New Practice Case Study 120 provides independent evidence of fine GEM trap performance

Government study brings tidings of great joy for steam users everywhere

In early September the UK Government's Energy Efficiency Best Practice Programme published a study which settles once and for all that the GEM venturi steam trap works as advertised. This year-long, independent study at Withington Hospital, Manchester, also spells out the permanent benefits of GEM traps which it evaluated: a 19% savings on fuel, a 19% reduction in carbon dioxide and nitrogen oxides emissions, low maintenance and no major operational problems.



A GEM trap installed at Withington Hospital laundry

During 1998-1999, ETSU staff logged data before, during and after mechanical steam traps were replaced by 86 GEM venturi traps. At stake was Withington Hospital's annual throughput of 1.8 million kg of laundered items. The main steam users were two washers, six tumble dryers, three ironing machines, a tunnel dryer and space heating in winter.

Vented steam reduced 89%

In an audit before the GEM traps arrived, 11 of 65 mechanical steam traps were found to have failed open and four shut. The result, says the study, "was an unsightly plume of some 500 kg/hour of steam from the vent pipe on the condensate receiver". After replacement with GEM traps, "the vent steam flow was down to 59 kg/hour, an overall reduction of 89%... and the steam vent plume is no longer a problem." Ignoring maintenance savings, the study calculates a pay-back period of 2.43 years, but most trap users know this is an over-egged figure.

The study specifically addressed two "concerns" about the GEM trap aired by some with no

experience of them. The first is "can it cope with varying load?" The Withington system was a tough one, with no control valve and steam shut off and restarted daily. Yet the study found no evidence of water hammer or condensate retention in the steam piping. The second "concern" was that the discharge orifice of the GEM trap might block. At first, some traps on space heating lines blocked due, says the study, to the poor condition of the piping or to jointing compound. Once sorted out by upstream strainers, there was no more blocking.

Summing up, John Tucker, then Estates Manager of the South Manchester University Hospitals NHS Trust which manages the Withington laundry, comments in the study that "the Trust is now considering fitting similar traps to other equipment throughout its hospitals."

Get a copy of the study from GEM or on the ETSU web site which can be located at: www.energy-efficiency.gov.uk/search/search.htm using the keyword = NPC5120.



The ironers and dryers at Withington Hospital laundry

Just one small steam trap...

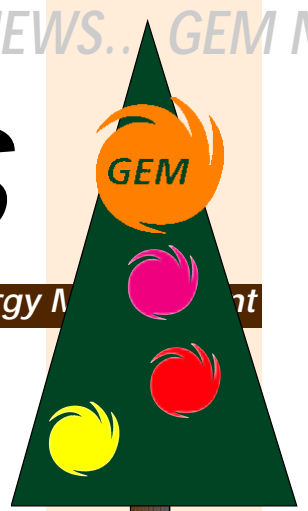
A bottle of champagne to George Higgins of The Royal Hospital, Belfast, for his response to our *bel canto* challenge in *GEM News no 2*:

"That GEM venturi, give it to me.

Efficient steam traps for Italy.

So simple and such a dream.

It gives a hole new meaning to saving steam."



All at GEM wish you a Happy Christmas and a Prosperous New Year!

Now, a Happy Christmas is relatively easy to achieve. But how about continuing the effect into 2001? One way is to minimise the amount of Energy Tax you have to pay from April onwards. And that means fitting GEM traps wherever you can.

Turn over for more ...

more on the revolutionary venturi steam trap from Gardner Energy Management



GEM's man in Ireland is Ken McFeeters, whose persuasive manner is threatening to overload the island's scrap iron recycling facilities with redundant mechanical steam traps. Get him on SANYX@kmcfeeters.freeserve.co.uk

TIM'S TECHNICAL TITBIT

What does back pressure in a steam system show? The only natural back pressure is lift — that is, the height through which the condensate has to be lifted from trap to receiving point. Otherwise back pressure must be due to live steam passing through failed traps and pressurising the condensate return

Water use down 68%, gas bills reduced by 30%

Matrix International in Brechin, Scotland, is a precision engineering company making industrial brakes and clutches, mainly for export. Technical sales director David Baker was acutely aware that his customers in Sweden wanted to see the company comply with ISO 14000. At the same time he was very concerned at the winter space heating bills for water and energy.

The heating at Matrix goes on in October and off in April. Rising bills for water were knocking on to higher sewerage charges and water treatment bills. And Baker and the maintenance engineer could clearly see that jammed mechanical steam traps gushing expensively-produced steam were a large part of the problem.

So in the summer of 1999, Matrix decided to switch entirely from mechanical traps to GEM venturi steam traps, 114 in all. The effect was dramatic: measuring over an eight-month period before and after the changeover, water consumption was down by 68% — a saving of a third of a million gallons a year — and gas consumption by 30%. "The GEM traps paid for themselves in three to four months," says Baker, "and we are saving at least £20,000 a year now, with an estimated further £4,600 off the energy levy from April 2001. And the traps are very much 'fit and forget'".

Cut down on leakage

Irish Fertilizer Industries' site on the Belfast harbour industrial estate has been using GEM venturi steam traps since May 1999. Some are fitted on drip legs for its nominally 20 bar and 2 bar steam mains supplying 30-40 tonnes of steam per hour from three boilers. Maintenance manager Stanley Polly's assessment: "We don't get the same leakage of steam as we did with the old mechanical traps. The GEM traps are working very well."

Meanwhile, in the nitric acid plant, there are four GEM traps installed: two flanged traps on the 2 bar steam line and two welded in the 20 bar steam line. They have, says plant engineer Jack

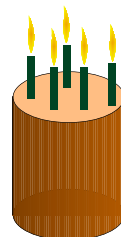
Kerr, performed OK, unlike the previous mechanical traps which passed steam fully open on occasion. "We are hoping," he adds, "to try them in more 'strategic' positions next."

Steam ironer to auto-feed

Everyone knows that ironing is not a smooth business if the iron's too cool. Earlier this year Dyfed Cleaning Services in Milford Haven was having just that problem with its Manlove Supergap ironer. 10 bar saturated steam was producing temperatures falling 20-30°C short of the expected 170+°C. Technical director Ian Ritchie knew why: mechanical steam traps after servicing simply didn't seem to work as well as they used to, and servicing was becoming more expensive and frequent. So out went 11 mechanical traps and in came GEM venturi steam traps, 4 each on the rollers and beds, and 3 on the horns. At once temperatures returned to 170-180°C, and production to higher levels. "Now we can consider bringing in an auto-feeder to replace hand feeding and taking our output from 4-500 items an hour to 750+," comments Ian Ritchie. "We're delighted."

Happy birthday!

Tim Gardner emerged from his parents' garden shed clutching the first GEM trap five years ago in November. For him the best birthday present is satisfied customers saving energy. And there are lots of them. Sales have doubled every year for each of those five years, and show every sign of doing even better.



Space age aid

GEM engineers carry laser gun infra-red surface thermometers. You may have seen them. They're a very handy way of checking steam trap inlet and outlet temperatures at a distance. Now GEM is making this equipment available to customers. The laser gun is made by Minolta and costs £495 + VAT and delivery. Contact your GEM engineer for details.

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