ISSUE 6

HEAT TRANSFER TECHNOLOGY

The latest news and views on heat exchanger technology from BOWMAN®

IN THIS ISSUE

WELL CONNECTED!

As part of our product improvement programme, we have developed a new hose adaptor for the FH range of header tank heat exchangers, to connect the coolant water circuit to the heat exchanger body.

Currently supplied with blank counter flange plates, which the customer then modifies to suit their requirements, the high level of demand for the FH range has enabled a new composite adaptor to be developed, making hose connection fast and very easy.

The new composite hose adaptor will be introduced across the FH range from September 2016 - and at no additional cost.

Quick and easy

The hose adaptors are a further development of Bowman's composite technology. Already proven where sea water, or other aggressive cooling media are used in the cooling system, they are designed for operation at the same temperature and pressure ranges as the main heat exchanger itself.

The adaptors enable much faster and easier connection of the engine jacket water circuit to the heat exchanger body. They're also quick to install, using the Nitrile 'O' ring and socket screws supplied.

Bowman at ICCI 2016

Bowman CHP heat exchangers are shown at Turkey's premier power generation show

In April, we joined our Turkish stockist, MDT, at the specialist CHP show, ICCI. Held in Istanbul, we exhibited a range of solutions to show how waste heat can be recovered from virtually every part of the engine using Bowman's 'total solution' approach to heat recovery. The custom-designed stand generated many enquiries from visitors involved in Turkey's CHP and power generation sectors.

BOWMAN®
A World Leader in Heat Exchanger Technology

WE'VE GOT IT COVERED

Composite technology for GL & GH Ranges

The introduction of composite end covers for our marine specification EC, FC & FG oil coolers and FH header tank heat exchangers has proved extremely popular, so we've now introduced them to our larger GL & GH ranges too!

Composite end covers are designed for applications where our heat exchangers are used with a highly aggressive cooling medium and are a direct replacement for traditional brass or gunmetal, which have been historically used for marine applications. The composite material reduces the possibility of galvanic reaction between dissimilar metals, (which can lead to corrosion inside the heat exchanger), plus the problem of sea water erosion of the end cover's internal surface.

The switch to a composite material also reduces the units overall weight - an added advantage for certain installations.

Bespoke designed, threaded brass inserts are moulded into the end cover – an innovation that ensures they cannot come loose under load, or when applying fixings or pipe work connections.

All critical dimensions remain unchanged and the BSP end cover connections are the same as on our previous brass end covers.

GRAIN DRYING SOLUTION CUTS ENERGY COSTS

In what is believed to be a world first, a Bowman exhaust gas heat exchanger has helped a new 'closed loop' heat recovery system dramatically reduce the amount of energy used and emissions produced, during grain drying in Finland.

Drying is an essential part of the grain production process in Finland and must be dried after harvesting to reduce its moisture content for storage. Large grain dryers blow hot air through the grain, usually via an oil or gas burner. However, the energy costs involved are significant and directly impact on food production costs.

During the drying process, warm air, which has passed through the grain, is exhausted to outside atmosphere, in a 'total loss' cycle. Typically this exhaust air still has a temperature of 35° C, so a valuable energy source is lost. It takes up to 24 hours to achieve the required moisture level in a 30 ton batch of grain, so a farms typical drying season can last for up to 2 months, consuming between 25,000 and 40,000 litres of oil.

The new system works by recovering a significant proportion of the warm exhaust air that is traditionally expelled from the farm's grain dryer to atmosphere. Any contaminants and grain debris are removed prior to the 'cleaned' air being recirculated through the high efficiency Bowman exhaust gas heat exchanger, in the main heat pump container, where it is heated back up to 65° C.

The CHP system has been set up to recover heat energy from half of the exhaust air that would normally go to atmosphere.
The first installation took place at Litti, Southern Finland and in the first year of operation, the farm's fuel consumption has reduced by half, saving around 18,000 litres of fuel and halving CO_2 emissions.

HUNGARIAN RHAPSODY

Hazardous gas turned into a valuable energy source

Situated on the southern shore of Lake Balaton, Siofok City is a major tourism destination that has grown significantly in recent years – but this success has also brought its own problems.

The expansion of the tourism economy has put pressure on the city's water treatment facilities, requiring major investment in water treatment infrastructure and a new strategy for dealing with the hazardous methane (CH4) gases produced as a by-product.

Bowman exhaust gas units have been used at the heart of a CHP system solution, which recovers methane gases from the sewage slurry and turns them into valuable electrical power and heat energy.

Green

The plan was to create a new water treatment facility that would operate in conjunction with the existing one. It was vital that the new plant used the hazardous CH4 methane gas which is produced as a by-product of the slurry from the Anaerobic Digestion (AD) process. As CH4 has an effect on the atmosphere that is 21 times more harmful than CO2, it is important to burn this gas within a CHP process - rather than let it escape to the earth's atmosphere - for the protection of environment

Heat exchangers

A completely packaged CHP solution was developed, using two Bowman 8-60-3742-8 exhaust gas heat exchangers to recover waste heat energy from the exhaust stream of the two CH4 gas fuelled gen-set engines. The hazardous methane gas is converted to electrical power by the gen-sets and waste heat is recovered from the engines exhaust stream and converted in to heat energy.

From receipt of the order, Bowman built, tested and shipped the exhaust gas units in just four days to meet tight delivery requirements.

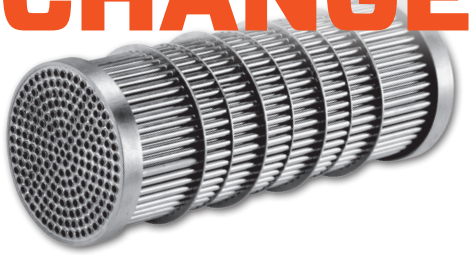
Energy source

The technology utilized enables this potentially hazardous by-product of the water purification process to be converted into a valuable 'free' source of energy, reducing the cost and dependency on traditional fossil fuels, whilst protecting the environment by ensuring the gas is burnt, rather than released to the atmosphere. CH4 is also a renewable energy source, providing a reliable source of cheap fuel to power the two generating sets.

The solution is a 'win-win' outcome as the CHP system eliminates the possibility of any CH4 'leaching' into the atmosphere. Using the gas as a fuel for the CHP system also provides energy that can be sold on the market or utilized within the water treatment system.

TITANIUM – THE 'GOLD STANDARD' FOR HEAT EXCHANGERS

Titanium is the perfect material for heat exchangers used with aggressive minerals or chemical based cooling media. Bowman now offer titanium versions of its heat exchanger and oil cooler ranges for such demanding applications. Here are some of the benefits:



Long life durability
Titanium can be used with any cooling medium – including chemicals, mineral rich water, saline pool water and salt water chlorinators – as it resists attack from most aggressive materials.

Fit & forget reliability
Titanium eliminates the possibility of 'galvanic reaction' – where two dissimilar materials can fail prematurely in certain conditions.

10 year guarantee
All Bowman titanium heat exchangers have a full 10 year guarantee on titanium material in contact with pool water.

Increased performance
Due to their ability to operate at higher flow rates, titanium also offers even greater heat transfer efficiency, often enabling a smaller sized heat exchanger to be used.

Lower 'whole life' cost
The longer life of titanium heat exchangers can actually lower the total cost of ownership, through extended operational life and lower maintenance costs.
For specifications and further information on Bowman's range of titanium heat exchangers, please contact the technical sales team on **+44 (0) 121 359 5402 or email info@ejbowman.co.uk**

OUR PEOPLE

Bowman is delighted to announce promotions and additions to our team and wish them every success in their new roles.

Tony Carter
promoted to Sales Manager

Richard Lyndon
appointed as Logistics Co-ordinator

Georgia Sale
promoted to Business Systems Manager

Matthew Smith
appointed as Sales Administrator

TEAM BOWMAN CONQUERS THE 'BIG BAD WOLF'

The WOLF Run is one of the most challenging off-road runs in the UK.

It's a 10K event designed to re-create the feeling of running in a natural environment.

This spring, 'Team Bowman' were amongst the 6,000 runners taking part in the event. Lead by Engineering Manager, Dr Hezlin Ashraf-Ball, the team included Business Systems Manager, Georgia Sale, Finance Administrator Lucy Chamberlain, Sales Manager Tony Carter and Sales Engineer Jim Johnson.

They completed the course in just 2 hours, thanks to some impressive teamwork, with no more than a few scratches and bruises to show for their trouble! More importantly the team raised an incredible £2,500 for the Birmingham Children's Hospital, their nominated charity.

"We had an brilliant day," said Hezlin, "The WOLF run is such a tremendous physical challenge and I'm so pleased we came through it as a team. We're already planning for the next WOLF run and if anyone cares to join us, they will be more than welcome!"

AN EXCELLENT READ!

New Header Tank and Charge Air Cooler brochures available NOW!

New header tank heat exchanger and charge air cooler brochures are now available from Bowman.

The new literature marks a major change for the company, with a new, modern design that features more product, application, installation and maintenance information. They also contain comprehensive performance and specification data.

Both brochures can be downloaded from www.ejbowman.co.uk or printed versions are available on request.

SEE US AT:

METS 2016
METS 2016 Amsterdam
15-17th November 2016
The world's largest marine equipment trade exhibition

ENERGY 4 POWER LIVE
London 15th November 2016
The UK's major conference on independent power generation

SPATEX 2017
Ricoh Arena, Coventry
31st January – 2nd February 2017

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If you would like more information on any of the articles contained in this newsletter, or for technical data on any of our heat exchanger ranges, please contact us directly;

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