

HEAT TRANSFER TECHNOLOGY

ISSUE 8

The latest news and views on heat exchanger technology from

BOWMAN®

100 YEARS OF HEAT TRANSFER TECHNOLOGY

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Celebrating 100 years! Bowman achieves its centenary in 2019

2019 has been a significant year for E J Bowman; the company marking an important milestone with the celebration of its centenary.

Achieving 100 years of operation is no small feat for any company, but to achieve this whilst still

being family owned, run by direct descendants of the company's founder, is highly significant and has enabled the business to remain true to its original values.

In this issue of 'Heat Transfer Technology', we take a look at the history of Bowman and the major developments during its first 100 years! See pages 2 and 3 for the full story.

Electric & hybrid marine propulsion

Why keeping cool is vital to performance and reliability.

As the marine industry moves to a new era of low emission propulsion, Bowman is at the forefront of the cooling technology and working with electric and hybrid power system manufacturers to provide the levels of cooling required for their equipment.

Tests undertaken by leading manufacturers show that to maintain performance and extend component operating life, temperatures must be kept as low as possible.

A universal principle of electronics says that a 10°C lower temperature will double the life expectancy of electrical components and that is certainly true for electric marine power systems.

However, whilst component life is of real importance, there is another issue to consider - in many electric power systems, sophisticated sensor-based controls are used to monitor health and performance. If the water temperature in the



cooling circuit rises beyond specified levels, this will be identified by the sensors and power to the drive train will be reduced to protect the components. For users, the implications of this switch into 'limp mode' could range from simply frustrating, to downright dangerous, depending on water and weather conditions.

One company is overcoming this problem by designing the cooling circuit of its 100 kW drivetrain to operate at a maximum temperature of 60°C, based on a maximum cooling water intake temperature of 35°C, using Bowman heat exchangers to ensure consistent and accurate cooling of all components.

100 years of heat transfer

1919: In the beginning

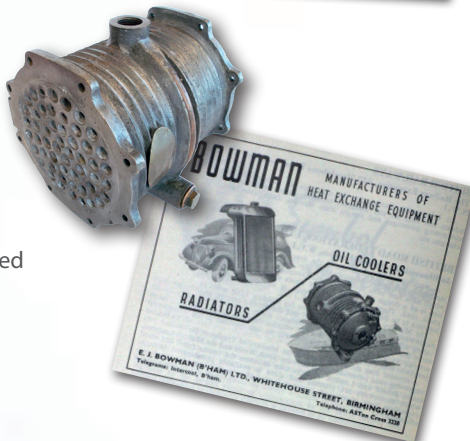
With car manufacturing growing rapidly throughout the UK, high quality components were required by the companies that built them. Seeing the opportunity, James Bowman established Bowman Radiators Limited in 1919 and began supplying this industry.

In 1928, the company changed its name to E J Bowman (Birmingham) Limited as the business expanded to keep pace with demand.

1930 - 1950: Changing times. Challenging years

During the 1930s, the company developed its first tubular marine oil cooler, plus a new design for cooling a 1000HP marine engine.

During World War Two, the company produced radiators for military vehicles and marine engine oil coolers for the Royal Navy. In 1943, founder, James Bowman died and was succeeded by his son, Edwin Bowman as managing director.



1950 - 1960: A change of direction

Peacetime saw Bowman continue marine oil cooler development, including the introduction of removable tubes stacks and new oil cooler and heat exchanger designs were developed for industrial and marine applications. The company also started to export its products and today, over 70% of all Bowman heat exchangers are exported around the world.

1960 - 1970: Innovation leads to further growth

Radiator production ceased as Bowman concentrated on marine and industrial markets and developed a concept that combined the marine heat exchanger, header tank and exhaust manifold in a single unit, reducing pipework and improving 'packaging'.

Floating water pumps break new ground!

Bowman Charge Air Coolers have been specified for a new range of floating water pumps developed by a leading South American manufacturer.

Designed to provide an efficient, yet flexible pumping solution, the units have proved to be highly successful in applications including flood water control, crop irrigation, aquaculture and drainage.

The modular design enables fast relocation and installation to wherever the units are required. Capable of handling high water flow, they are suitable for emergency use over short periods, as no civil engineering work is required prior to installation.

Powered by John Deere engines, linked to ZF marine transmission, Bowman GL140 and GK190 Charge Air Coolers are installed to cool incoming air from the engines turbocharger to improve combustion efficiency and engine performance.

The compact design of the Bowman units enables them to be neatly integrated into the pumps engine bay, where available space is at a premium. Supplied in marine specification, the charge air coolers are suitable for use with a range of cooling

media, including seawater, plus contaminated or mineral rich freshwater and have proved to be highly efficient in operation.



er technology!

Turn this
into this
in less than
5 minutes
and all you need is this!



Bowman standard oil coolers are easy to strip and maintain, spares are always in stock and most models are 10 days delivery from order.

What more do you want?

Bowman oil coolers from 6 to 180 gallons per minute for fluid power systems and transmissions, also water/water heat exchangers and air blast coolers.

Write now for free comprehensive technical literature.

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E. J. Bowman (Birmingham) Limited
Whitehouse Street, Birmingham, England B9 4AP
Telephone: 021-359 3727 Telex: 330523

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1970 - 1990: Putting the customer first.

In 1972 Edwin Bowman died, leaving his sons John and Roger as joint managing directors. A period of investment in its engineering and technical resources followed, including thermal testing, leading to the introduction of a computer selection programme that provided customers with fast, accurate recommendations for their requirements.

1990 - 2000: New products. New markets.

The company embarked on a major diversification programme, introducing swimming pool, exhaust gas and plate type heat exchangers – the latter being a unique design quite different to anything else available.



2000 - 2019: Continuing the tradition of success

Bowman continues to be family owned and run with Claire Bowman joining the company earlier this century.



A 'quiet revolution' in Spain

A new approach to street cleaning

Street cleaning in Spain is usually carried out using small vans fitted with integral pressure washers, as they're capable of operating in the narrow streets often found in towns and cities. Whilst highly efficient, noise is an important issue, as most works are carried out at night.

Bowman's Spanish distributor, Transdiesel, identified an opportunity to improve the design of these vehicles, making them more efficient and much quieter. Based around the Piaggio Porter chassis, Transdiesel's engineers developed a solution using a compact Kubota industrial water cooled engine to drive the water pump.

The cooling system was discarded in favour of a Bowman EH100 header tank heat exchanger and a novel cooling system was developed, whereby water is diverted from the main flow to the heat exchanger, where it cools the engine, before returning to the pumps main water flow. The result is efficient engine cooling and a pressure washer system is up to 15% quieter than the previously used air cooled system, as well as being easier to install and maintain.

A 'Military' presence!

Bowman heat exchangers have been specified for a refurbishment project for the Romanian Navy!

Five naval patrol vessels have been upgraded by a specialist Romanian marine engineering company.

The work included a complete new propulsion system, where the old engines were replaced with three Volvo 1200HP industrial diesel engines, converted for marine operation, plus two new Marelli 70Kva electrical systems.

Bowman heat exchangers were used throughout, the company supplying 20 oil coolers, 8 charge air coolers and 8 header tank heat exchangers to cool the engines jacket water, turbocharged combustion air and lubrication systems.

The success of the heat exchangers has led the company to specify Bowman oil coolers for a further military project, where the gearbox heat exchangers are being replaced on a series of boats used for positioning a mobile bridge.



OUR PEOPLE

Bowman is delighted to welcome a number of new members to our team and wish them every success.



Chris Brand-
Purchasing Manager



Marcos Restrepo Yepes
International Business Development



James Pritchard
Shipping Administrator



Bernadette Rowley
Accounts Assistant

See us at:

Piscina & Wellness Barcelona,
15-18 October 2019, Barcelona, Spain

Holiday Park & Resort Innovation,
6-7 November 2019, NEC, UK

Electric & Hybrid Marine World Expo 2020

23-25 June 2020, Amsterdam Rai,
Amsterdam, Netherlands

Bowman score in Argentina!

Bowman heat exchangers chosen for Olympic sized swimming pool

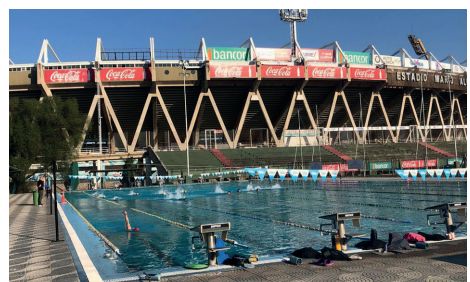
The Mario Alberto Kempes Stadium in Cordoba, Argentina has a long and illustrious sporting history. Chosen in 1978 as the venue for the first match in the World Cup Tournament, it has hosted an innumerable amount of sporting events at an international level.

Though primarily a football stadium and named after one of Cordoba's most successful players, today it is a multi-sport complex offering such facilities as an athletics track, tennis courts, basketball and volleyball courts, a cycling circuit, a fitness gym plus restaurant and conference facilities.

It also boasts some very impressive 'wet leisure' facilities, including a 50 metre Olympic pool, with 10 lanes, each being 2.5 metres wide and a 25 metre covered pool. The 50 metre pool was recently upgraded with a new 'state-of-the-art' pool heating system. A total of 20 natural gas boilers were linked to 10 Bowman FC100-5114-2S units which successfully heat 2500 m3 of pool water.

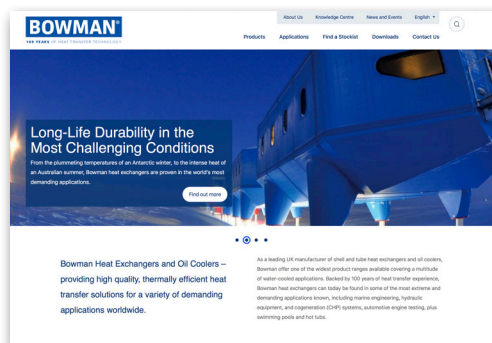


Bowman swimming pool heat exchangers are used throughout the world for heating everything from spas and hot tubs to Olympic pools, in both commercial and domestic applications.



Coming Soon! Our brand new web site.

We've taken a long look at what customers want from our site and have developed the new one with much more information on our products, their technical specification, plus latest news and other helpful information. One example is the new 'Knowledge Centre' resource. It's packed with useful information on the installation, operation and maintenance of our heat exchangers, plus a huge amount of general heat transfer information.



There's also a 'News and Events' area, plus a comprehensive 'downloads' section, where all of our product literature will be available in a choice of languages.

Our new web site is due to be launched very soon, so watch this (web) space.

For More Information

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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