CASTINGS NEWS & VIEWS

DECEMBER 2016

Contents

CTNZ Industry Champion Report

We have now decided that Dunedin will be the venue for next year's conference which will take place 16th—18th August. I am working on obtaining speakers and finalising the hotel. As the year has now disappeared I will try to organise an Auckland Branch industry meeting for approx early March. It is disappointing to see the resignation of two long term members; Precision Foundry (Masport) and Syntech Distributors, however we have a new company member with Alec Farrar Ltd, Christchurch.

The economic effect the engineering and manufacturing industry has on this country is substantial, and should be acknowledged and supported by Government. In the foundry industry many companies rely on manufacturers and engineering companies as suppliers or adding value to a product manufactured by them. As manufacturers move offshore and take with them their supply contracts we lose the opportunity for innovation with our materials and methods. We do not have a Minister of Manufacturing – a person at Government level who works tirelessly for the good of Kiwi manufacturers, who is on your side and knows the value you have created for New Zealand every day of your working life. I hope that Government will listen to our sector with the help of Metals NZ and support a new Ministry.

On behalf of Dean and our Board members I wish you all the best for the festive season and safe and enjoyable holidays.

Bill Lovell
Industry Champion

Competenz Update

The work on the review of existing unit standards and writing of new unit standards that will be used across all the strands of mechanical engineering has now been completed. This work has seen some of the difficult unit standards that apprentices have struggled with in the past, now divided into smaller more manageable units. These new units still deliver the required content that industry requires but rather than all in one go

the content is delivered over 3 years, with each year build on the previous.
The Technical Advisory Groups (TAG's) for each individual strand are now meeting to review all the unit standards that are specific to their industry. Metal Forming which comprises of metal casting, extrusion, forging, had a meeting in October to review the following units:
US2381 - Inspect and repair refractory linings and crucibles used in metal casting processes; Level 3
US19741 - Demonstrate knowledge of common die casting defects; Level; Level 2 (currently)
When reviewing US2431 it was suggested that a Level 4 elective unit be developed for metal casting to cover 'replacement of a monolithic liner'.
The review of US19741 resulted in the level of the unit being raised to Level 3.
It was also suggested that there is a requirement for a new unit standard to encompass all the disciplines 'demonstrate knowledge of metal forming processes'.
The above unit standards are currently being developed into draft units for consultation and feedback.

HERA Waste Heat Research Project

HERA has been working on a national clean energy programme in operation for the last 5 years now, looking at development of distributed generation from low temperature heat sources such as geothermal brine and industrial waste heat. One of the research projects is looking at mapping waste heat across major industry centres and sectors across NZ (pulp/paper, metal, dairy, meat works, food and beverages, foundries, etc.). They would like to make a similar inquiry for the casting industry as well through either a personal visit or any publicly available documentation you may be able to provide to get estimates on any potential waste heat opportunities available either through heat intensive processes or in the utilities plant. In particular, we would appreciate the following:

- Size of the casting industry (number of casting companies, sizes i.e. furnace numbers/types/tonnage product etc.)
- An understanding of furnace waste heats either in temperature or gas/cooling water flows. Any numbers would be helpful here
- Any literature you could point us that would have such information

The information is to be used for a research project in house and HERA will be happy to share a copy of the report with you towards the end in a few months' time.
Contact; Boaz Habib
AGGAT Programme Manager/ Senior Research Engineer
Industry Development │Heavy Engineering Research Association (HERA)
Email; boaz.habib@hera.org.nz

Employment - Job Vacancies

There have been only two recent enquiries from people with foundry trade skills wishing to seek employment in New Zealand.

- **Higor Araujo,** a Brazilian**,** holding a student visa for NZ currently in Auckland. Has experience with industrial process and quality in Metallurgical companies. email; higor_1981@yahoo.com.br
- **J Princely,** based in India. Email; Princely.mech@gmail.com

Members wishing to receive CVs for any of these people please contact; Bill Lovell; bill.lovell474@gmail.com. I would be interested in hearing from any member who successfully employs someone from these applicants.

Bradken Accepts Takeover Offer

Bradken Accepts $520-Million Takeover Offer from Hitachi. Bradken Ltd., an Australian manufacturer of iron and steel castings for mining, construction, rail, and heavy industrial activities, has accepted a takeover offer from Hitachi Construction Machinery

Co., for which it supplies various component parts for mining equipment. The estimated $5207.2-million offer (A$688.5 million) is available to Bradken shareholders until February 10, 2017.

The offer requires Hitachi Construction to collect more than 50% of Bradken's shares and secure relevant regulatory approvals. It has agreed to provide Bradken with a $340 million (A$450 million) credit line to repay private placement notes it has issued.

"(The proposed takeover) lets Bradken, which has a proud history in mining and industrial services, join with one of the world's largest machinery companies," according to Chairman Phil Arnall, in an October statement.

Bradken operates steel foundries, machine shops, and fabricating operations in Australia, Canada, China, Great Britain, India, and the U.S. The North American foundries, each with dedicated machine shops, include Bradken-Amite in Amite, LA; Bradken-Atchison/St. Joe, in Atchison, KS; Bradken-Atlas, Tacoma, WA; and Bradken-London, London, ON.

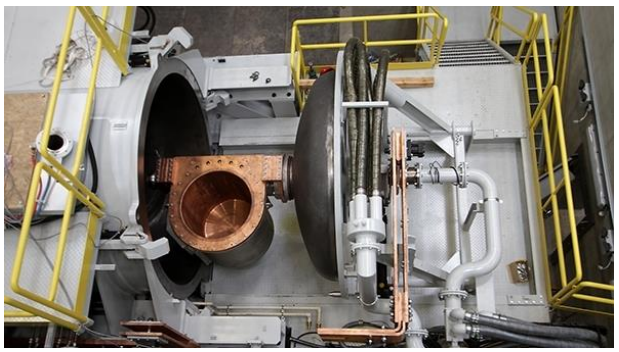
Hitachi Construction Machinery, a part of the broader Hitachi Group, manufactures excavators, front- and rear loaders, recycling equipment, among other heavy equipment.

Courtesy; Foundrymag

Europes Largest Ti Casting Foundry

Britain's AMRC Castings, part of the Advanced Manufacturing Research Centre with Boeing at the University of Sheffield, reports it soon will start up the largest titanium melting and casting operation in Europe, one capable of producing 500-kg (1,100-lb.) castings, described as some of the world's largest aerospace titanium castings.

"We plan to create a world-class titanium casting capability in the U.K., developing the skills base necessary to enable companies to reap the rewards of carrying out a process that is very, very challenging," according to AMRC Castings' commercial manager Richard Gould.



The 1-metric ton copper crucible and melting chamber door of AMRC Castings centrifugal casting installation for titanium aerospace engine and structural components.

AMRC Castings' new furnace is part of a significant research and development effort to raise U.K. companies' expertise for supplying large-scale titanium aerospace engine and structural programs. It is funded by the U.K.'s Aerospace Technology Initiative (ATI), Innovate UK, and the High Value Manufacturing Catapult. The goal is to ensure and maintain Britain's retains its standing near the top of the global aerospace industry, and the largest in Europe. (The U.S. has the only other foundry operations capable of casting near-net-shape titanium parts weighing up to 500 kg, according to AMRC.)In 2013, the Advanced Manufacturing Research Centre purchased Castings Technology International and its affiliate Titanium Castings UK Ltd., a research organization with members that include metalcasters, casting industry suppliers, and casting customers, with capabilities in casting design, material development and selection, manufacturing technologies, quality control, and testing and performance. Both CTI and AMRC are located in a research campus in Rotherham, which allowed AMRC to add casting technology to the range of its industrial research portfolio.

The new titanium melting operation includes two large-scale power supply units to provide energy for a new, Retech consumable-electrode casting furnace. The furnace's melting capacity is 1000 kg, which allows it to pour up to 500 kg. With three interchangeable bodies, it is able to produce

a variety of components for aerospace applications, some that portend finished weights that are 60 kg or more lighter than the established design. Closed-loop cooling prevents the furnace structure from overheating. Hydraulic and pneumatic systems remove air from the furnace and casting chambers, which is critical to safe handling of molten titanium. The furnace rotates to pour molten titanium into ceramic molds in the casting chamber below, which features a turntable that spins the mold at up to 300 revolutions per minute (i.e., centrifugal casting.)Separately, a new plant is being installed to make ceramic mold shells up to two meters in diameter and 2.5 meters long, for finished parts weighing over 2.5 metric tons and suitable for the largest variants of aero engine intercases and other aerospace structures. Furnace construction, followed by training and cold commissioning, will be completed this month. Hot commissioning and the first test melts are expected to be completed in December. Initial casts will be poured into a static metal mold, followed by trials using static ceramic molds from the new shell-mold plant.
Courtesy; Foundrymag

Conferences and Events

SouthMACH 2017
Where: Horncastle Arena, 55 Jack Hinton Dr, Addington
When: 24th—25th May 2017
CTNZ National Conference
Contact: sales@southmach.co.nz
AFI National Conference 2017
Where: Adelaide Oval Function Rooms
When: 27th—29th October 2017

AFI & ADCA Conference 2016

CASTING EXCELLENCE – Innovation & Success

This was the theme at the joint 51st Australian Foundry Institute Conference and the 16th Australian Die Casting Association Conference.

150 participants enjoyed the hospitality of Geelong with the conference venue at the Deakin University Waterfront Campus in Geelong Victoria, and with world class presenters on topics relevant to our future.
The Conference Chair David Sykes in his opening address said “important to everyone today, is not just how to make a casting to the quality, cost and delivery standards, but how to survive and prosper in a global market. It is easy to see where we have been, and where we are now, but the question is, are we the future”
The conference addressed the future challenges, with presentation streams on iron & steel and light alloy technology, industry and research collaboration, business and performance and training in die casting.
Associate Professor Matt Dargusch of The University of Queensland presented a keynote address on “Innovation for Sustainable Manufacturing - Case Studies in Collaboration”, together with Professor Roger Lumley of La Trobe University on “AW Bell’s Transition from Automotive to Aerospace & Defence: Past Challenges and Future Opportunities”
Partners in the Conference were the major sponsors, with the prominence of Keech Castings, Pyrotek and Deakin‘s Institute for Frontier Materials.
Trade displays showed off the excellence in products and services offered in Australia, representing the major Australian and International suppliers in the Foundry and Die Casting Industry.
There were many comments on the excellence of the conference program, venue, presentations, networking opportunities trade displays, plus the all-important social programs. A first for the annual conferences, and appreciated by us old timers, as well as the new generation Cast Metal Achievers, was a memorabilia display on “The Way We Were”. This contrasted the old technologies (and memories), and the present of the product displays, with the future technologies such as the CSIRO Lab 22 and the Voxeljet 3D printing of sand moulds.

Another first, was the Australian Die Casting Association's (ADCA) webinars with international presenters. This interactive presentation worked seamlessly with discussions through the video link. ADCA's training day was also well attended and added value to the conference proceedings The banquet dinner held at "The Pier", an icon in Geelong, was an occasion to recognise and publically thank the "Legends" of the industry for their service. Also recognised were the young "Cast Metal Industry Achievers", for their excellence in proficiency in their casting career. Sam Kekovich, the Australia Day Lambassador entertained us with his post AFL Football career, about the scourge of "un Australianism ", and "you never lamb alone on Australia Day".
A highlight of the Conference was the tour through the facilities at Deakin University; the Institute for Frontier Materials (IFM) and the Centre for Advanced Design in Engineering Training (CADET). The IFM is at the forefront of innovation in materials design and engineering research, covering key research areas of innovative manufacturing technologies; and energy efficiency, resource and infrastructure sustainability.

SouthMACH 2017

SouthMACH is the South Island's premier technology trade show celebrating the heartland of NZ Manufacturing. With 7 months to go and over 60% of floor space confirmed, SouthMACH 2017 is already looking to be the largest ever. Supported by New Zealand's leading industry organisations, SouthMACH will attract over 100 international and local exhibiting companies showcasing the very latest technologies and innovations that are shaping your industry. Add to this special features, exclusive VIP networking evenings and an extensive industry lead education and learning seminar program SouthMACH 17 will be the must attend event of the year the vibrant manufacturing industry.
Venue: Horncastle Arena, 55 Jack Hinton Dr, Addington
Dates: 24th and 25th May 2017
Contact: sales@southmach.co.nz

Board Members

Should you have any queries or require assistance, please feel free to contact a Board member.
Dean Armiger, Chairman
darmiger@carltontaylor.co.nz
Gordon Muldrew,
gordonmuldrew@metcast.com
Craig Smith craig.smith@hamjet.co.nz
Robin Stanley robsta@pyrotek-inc.com
Darryl Bruce darryl.bruce@ixom.com
Bill Lovell bill.lovell474@gmail.com
(Industry Champion/Secretary)