Ductile Iron News – Issue #1, April 2014

Table of Contents

- Ductile Iron Production Seminar Highlights........ 1
- 2014 CONEXPO, CON/AGG & IFPE ......................... 3
- ASTM A04 ............................................. 4
- 118th AFS Metalcasting Congress ......................... 4
- Ductile Iron Society Annual Meeting ................... 5

Ductile Iron Production Seminar Highlights, Chicago, Illinois

Back in February 11&12, 2014 at the Hilton Garden Inn at the Chicago O’Hare Airport, we held the 2014 DIS Production Seminar. There were 30 in attendance which covered DIS foundry & associate members along with a few non-member guests. Thanks go out to all the companies and attendees for attending. Since this seminar we have lost a teacher and good friend Fred Linebarger of Miller & Company. Fred suddenly passed away on April 11, 2014. Fred has been teaching the DIS production seminar for years. Also Fred was very active on the DIS research Committee and was a past director of the DIS. We will all miss him dearly.

Departments

- News Briefs.......................... 6
- Back Issues
- Home

DIS Production Seminar 2013

We would also like to thank Kathy Hayrynen of Applied Process, Gene Muratore – retired and Don Craig of Selee Corporation for completing the
rest of the teaching staff. Remember to keep in touch with the DIS website for future production seminars. The DIS staff is considering offering a Fall seminar in the northeastern part of the USA. More details will be made available on the website.

DIS Production Seminar 2014

Don Craig (Selee Corporation)
2014 CONEXPO, CON/AGG & IFPE
Las Vegas, NV

On March 4-8, 2014, the DIS Marketing Group took the booth on the road to the 2014 CONEXPO & CON/AGG & IFPE at the Las Vegas Convention Center. The last estimate was around 150,000 people attended the show with over 1500 exhibitors. This is known as the Super Bowl for the heavy equipment manufacturers. And boy was it ever. This had everything from OEM’s in construction equipment to their suppliers to other societies like us, and foundries including a few of our members. I believe that the DIMG felt that it was very successful for the DIS. We would like to thank the following individuals who volunteered their time and also the companies that they work for because without their support we could not do this. They are;

John Lewensky - Pure Power Technologies
Bob O’Rourke - Dura-Bar Company
Greg Selip - Ellwood Engineered Castings
Brian Connell - Ellwood Engineered Castings
Dave Gilson - SinterCast
Carlos De la Garza - Blackhawk de Mexico
Chris Witt - Dotson Foundry
Vadim Pikhovich - MAGMA Foundry Technologies
Mark Mundell - Lethbridge Iron
Dylan Bruins - Lethbridge Iron
Henry Frear - Applied Process
Jim Wood - DIS
Table of Contents

• Ductile Iron Production Seminar Highlights ........ 1
• 2014 CONEXPO, CON/AGG & IFPE ................. 3
• ASTM A04 ......................................... 4
• 118th AFS Metalcasting Congress ..................... 4
• Ductile Iron Society Annual Meeting ................. 5

Departments

• News Briefs ........................................ 6
• Back Issues
• Home

ASTM – A04
Cleveland, Ohio

On March 18, 2014 the Ductile Iron Society joined the ASTM (American Society for Testing and Materials) and specifically the A04 Sub-Committee for Ductile Iron Standards. The DIS Research Committee pushed for the DIS to join the ASTM and be a voice in future decisions when it comes to changes in the Ductile Iron Standards. We will keep the society up-to-date on any developments through the DIS website.

118th AFS Metalcasting Congress
Schaumburg, Illinois

The DIS booth was on the road again by attending the 118th AFS Metalcasting Congress from April 8-11, 2014 at the Renaissance Schaumburg Hotel and Convention Center. There were over 2000 attendees to this Congress and the booth was very busy. It looks like we may have picked up a couple new members. However, most of the current members stopped by to just say hello.
We would like to THANK the following volunteers and their companies for letting them spend time to man the booth. They are;

Mark Beers  ASK
Alan Patrick  Elyria Foundry
Patricio Gil  Blackhawk de Mexico
Alex Gyarmaty  CoorsTek
Jim Wood  DIS

**Ductile Iron Society Annual Meeting**

**Lethbridge, Alberta, Canada**

Make sure you register for this year’s Annual Meeting in Lethbridge, Canada from June 4-6th. The Coastal Hotel is currently booked as of today. Anyone wanting a room will need to contact the Sandman Hotel directly across the street. Don’t forget your passport for traveling to Canada and back home. Also this is one of world’s greatest spot to travel and sightsee. Banff Alberta is only an hour’s drive up in the Rocky Mountains from Calgary. Also there still is the train ride through the Rocky Mountains from Calgary to Vancouver. If you have some extra time, try and take in some of the tourist things to do in Alberta, Canada.

See you all in Lethbridge Canada, eh!!!!

Jim Wood
DIS Executive Director
**NEWS BRIEF**

Heraeus Electro-Nite agrees to sell some US assets to Keystone Sensors  
Jan 09, 2014 | 01:37 PM | Thorsten Schier

NEW YORK — Steelmaking single-use sensor and instrument maker Heraeus Electro-Nite Co. has agreed to sell part of its U.S. business to Keystone Sensors LLC to settle U.S. Justice Department competitive concerns.

Justice Department officials said that Heraeus acquired its closest competitor in the U.S. market, Midwest Instrument Co. Inc. (Minco), in September 2012 after its 85-percent market share fell considerably and Minco’s share climbed. Heraeus intended "to restore its market leadership in the United States by acquiring Minco and thereby eliminating Minco’s production capacity," Justice Department officials wrote in a complaint filed Jan. 2 in U.S. District Court for the District of Columbia.

The break-up is necessary due to the importance of the testing equipment in steelmaking, Justice Department officials said. The elimination of Hartland, Wis.-based Minco as an "independent and strong competitor" to Heraeus likely would lead to higher prices, poorer service and less innovation for steelmakers, the complaint alleged, noting that Heraeus began cutting marketing and service staff immediately after the acquisition of Minco, which had manufacturing facilities in Hartland, Johnson City, Tenn., and Monterrey, Mexico.

"The proposed settlement will benefit consumers in the single-use sensors and instruments market by facilitating the entry of a new competitor into this market," said Deputy Assistant Attorney General Renata B. Hesse of the Justice Department’s Antitrust Division.

**Keystone Sensors** was formed in May 2013 with the purpose of entering the U.S. market for sensors and instruments and to offer customers an additional alternative to Heraeus, the Justice Department said. It is headquartered in Cranberry Township, Pa., but its principal place of business will be in Johnson City, Tenn. Heraeus Holding GmbH, Hanau, Germany, parent company of Langhorne, Pa.-based Heraeus Electro-Nite, did not respond to a request for comment. The settlement will be effective following a 60-day public comment period, according to the Justice Department.
NEWS BRIEF

FOUNDRY EDUCATION FOUNDATION

FOR IMMEDIATE RELEASE                        PRESS CONTACT: Pam Lechner

January 10, 2014

FEF is happy to announce the establishment of the Henry M. Rowan Family Foundation Endowment. This endowment will be used for scholarships and discretionary funding for FEF’s certified schools.

Henry M. Rowan Bio

Henry M. (Hank) Rowan is founder and Chairman of Inductotherm Group, the leading manufacturer of melting, thermal processing and production systems for the metals and materials industry, worldwide. Headquarters are located in Rancocas, New Jersey. As a business leader, Hank has contributed in various ways, particularly in southern New Jersey and the Delaware Valley, and particularly in the area of education. He not only made a significant donation to a local state college, known today as Rowan University, for the establishment of an engineering school, but he also provides scholarships at Rowan University for children of Inductotherm Group and Diversified Group employees both in the U.S. and abroad.

Hank’s commitment to the industry has not gone unnoticed. Among his many awards are: the AFS William J. Grede Award (1995); a Distinguished Service Award from the Consulting Engineers Council of New Jersey (1997); the William Hunt Eisenman Award, Philadelphia Chapter ASM International (1997); induction into the prestigious National Academy of Engineering (1998); and in 2003, he was inducted into the Hall of Honor, Foundry Management & Technology magazine’s highest award.

FEF’s Mission

The Foundry Educational Foundation strengthens the metal casting industry by supporting unique partnerships among students, educators and industry, helping today’s students become tomorrow’s leaders.
SinterCast secures process control contract for new purpose-built Compacted Graphite Iron foundry in China

- Greenfield foundry with initial capacity for 300,000 Engine Equivalents per year
- System 3000 Plus to be commissioned during second quarter of 2014
- Series production expected to begin during 2014

[Stockholm, 16 January 2014] - One of China’s largest automotive component conglomerates has entered into a long term technology supply agreement with the Swedish process control specialist SinterCast for the production of Compacted Graphite Iron (CGI) engine components. Under the terms of the agreement, SinterCast will install a System 3000 Plus process control system at the company’s new purpose-built CGI foundry in China. SinterCast will also supply the mechanical infrastructure for the cored-wire base treatment and correction operations and will provide technical support during the installation and start of production. The System 3000 Plus will be commissioned at the greenfield foundry during the second quarter of 2014. Series production is expected to begin during 2014, with an initial capacity of approximately 300,000 Engine Equivalents per year for commercial vehicle, off-road and stationary power engine applications.

"This new foundry is the world’s first purpose-built CGI facility and has been designed from a clean sheet of paper, taking advantage of the latest technology in every aspect of the foundry process" said Dr. Steve Dawson, President & CEO of SinterCast. "The installation becomes the fifth commitment for our new System 3000 Plus technology, incorporating automatic base treatment together with the security of SinterCast’s patented measure-and-correct process control strategy. The order also marks SinterCast's seventh installation commitment in China, following our strongest ever year for installations, and providing a running start to our 2014."
Tupy begins series production of CGI cylinder head for MTU industrial power engine

- Industrial power engine upgrade with Compacted Graphite Iron cylinder head
- Series production underway at the Tupy foundry in Joinville, Brazil
- MTU Series 2000 engine available in several cylinder versions

[Joinville and Stockholm, 29 January 2014] - MTU Friedrichshafen, a subsidiary of Rolls-Royce Power Systems AG and one of the world's most advanced diesel engine technology and power systems providers, has introduced an upgrade of its class-leading Series 2000 engine with several new technology features, including a Compacted Graphite Iron cylinder head. The CGI cylinder head upgrade, compared to the previous generation head, was specified to enable increased power and to ensure durability in the demanding duty cycles experienced by marine, mining, construction and stationary power generating engines. Following successful product development and pre-production support, series production of the Series 2000 CGI cylinder head has begun at the Tupy foundry in Joinville Brazil, using the SinterCast process control technology. The engine is available worldwide in several cylinder configurations.

"The MTU order represents another important step forward for CGI and for Tupy, and further reinforces the transition toward CGI in state-of-the-art engine applications. The MTU cylinder head becomes our eighteenth CGI product in series production, and establishes an important reference as Tupy's first industrial power engine production.
"The MTU Series 2000 cylinder head provides yet another example of the contribution provided by CGI in achieving performance, durability, refinement and emissions targets" said Dr. Steve Dawson, President & C.E.O. of SinterCast. "At present, industrial power components and products other than automotive cylinder blocks and heads comprise approximately 10% of our production volume. We are confident that the growth opportunities in the industrial power sector can allow us to maintain this balance as the core automotive block and head sector continues to ramp up."
**NEWS BRIEF**

**Bremen Castings Celebrates 75 Years**  
*President JB Brown Available for Comment*

The iron industry has been around for generations but over the years, the face of foundries has shifted away from small, family-run businesses to large corporations. Bremen Castings Inc. (BCI) in Bremen, Indiana, is not one of them.

The family-owned foundry will be celebrating its 75th anniversary in March and James (JB) Brown, President of Bremen Castings, credits the longevity and success of the company to its forward thinking business model, streamlined day-to-day operations, and above all, having each employee feel as though they are a member of the Bremen family.

“It is crucial for everyone to be a team member and an active citizen within our communities so we strive to cast each employee into a valuable and responsible individual,” says Brown. “We have a set of core values that we want everyone to have and appreciate.”

Originally named, Bremen Gray Iron foundry (the name was changed to Bremen Castings Inc. in 1972), the company was established on March 17, 1939 by Ellis Brown, Charles W. Kling and Harold Heckamen with an initial investment of $10,000. Some of the first customers included Bendix Corporation, Clark Equipment, and Ford Motor Company.

Since its inception, Bremen Castings has grown from an 800 square foot building to its current 125,000 square feet with more additions planned for the future. The company has continued to stay at the forefront of the foundry industry, having won numerous awards for its safety, technology and environment-friendly manufacturing. Today, Bremen is still privately owned and operated by the Brown family.
NEWS BRIEF

Benton Foundry Adds Robotic Finishing

Two new Vulcan grinding/cut-off work cells at ferrous casting operation

Feb 17, 2014 Issue  FOUNDERY M&T  -  Robert Brooks

Foxall robot-powered work cells are designed by Vulcan Engineering for fast and consistent casting cut-off and finishing.

Benton Foundry reported it recently purchased two more Foxall finishing cells driven by ABB Robotics automation devices with Force Control functionality for its ferrous casting plant in Benton, PA. The cells, integrated by Vulcan Engineering, have a target start-up date in July.

The Pennsylvania foundry specializes in producing castings from one to 250 lb. in gray and ductile iron grades (as well as ADI) for products like pumps and valves, compressors, motors, drives fluid power components, and so on. Its castings are used in agricultural, construction, marine, mining, railroad, and similar equipment.

Vulcan Engineering will deliver the Model 434FS and 636FS automated cells in time to coincide with start-up of a new, 60,000-CFM dust collector for the foundry’s grinding and cleaning operations.

The dust collector will be powered by a 300-hp Baldor SuperE motor and return-air system to supply the foundry with clean tempered air during winter months. All the new equipment is part of a five-year plan to revamp the cleaning and finishing operations at Benton Foundry, to match its melting and molding capacity of up to 300 tons per day.
Benton, Cont’d.........

Vulcan’s Foxall robot-powered work cells are designed for fast and consistent casting cut-off and finishing.

Both the Foxall 424FS and 636FS systems have an HMI interface to log and store production data, (e.g. part numbers, quantities produced, and wheel changes) that can be accessed via a company network. It has a large work envelop, viewports for easy visual inspection, full 6-axis flexibility, 90-degree part fixture rotator, and an optional high-speed turntable.

These will be the third and fourth robotic finishing cells at Benton Foundry, the customer indicated. It noted that it was the first foundry to adopt the ABB Robotics' Force Control feature for the 424FS model finishing cell it installed in September 2010, and now it will be the first foundry to adopt that feature on the 636FS. Force Control reportedly reduces cycle time by as much as 30% for the work cell, improves finishing quality and consistency, and can reduce manual touch-up.
NEWS BRIEF

Davron Technologies, Inc.

(Chattanooga, Tenn.) March 18, 2014 — Davron Technologies, Inc. designed and manufactured a gas-powered continuous conveyor oven to dry moisture from slurry on ceramic filters manufactured in a lost foam casting process and used in aluminum manufacturing. With a 15-minute drying cycle, the DTI-223 continuous conveyor oven evaporates 1,121 pounds of moisture every hour. Typically, 190 filters per hour are processed through the oven and drying time can be adjusted depending on product requirements.

To dry the ceramic slurry, the DTI-782’s conveyor system moves products through three separate temperature-controlled zones on a polypropylene mesh belt. Each zone utilizes one full modulating natural gas burner, two circulation fans, and one exhaust fan. Each zone can be programmed to operate between 180°F and 400°F, with a maximum temperature of 450°F. The conveying system utilizes a variable frequency drive (VFD) for speed adjustment, and the entire oven is controlled by a PLC.

The usable dimensions of DTI-223 are 3’2” wide x 0’6” high x 98’4” long. The continuous conveyor oven interior is made out of 16-gauge aluminized steel backed by four inches of eight-pound-density mineral wool insulation. The structural steel frame that holds the interior chamber is covered in 16-gauge carbon-steel and finished with high-temperature paint.

Davron designed the DTI-223 based on two criteria provided by the client: the amount of moisture to be removed from each filter and the production rate. Davron did extensive testing to determine the temperature profile needed to meet these requirements and used this information as the basis for the custom design of the DTI-223. Once the continuous conveyor oven was manufactured, Davron did acceptance testing and training with the customer at Davron headquarters in Chattanooga, Tenn., prior to shipment.

Visit www.davrontech.com for more information about Davron’s continuous conveyor oven capabilities. Or, if you’d like to discuss your own industrial oven project, please call Davron’s Vice President, Jimmy Evans, at (888) 263-2673, or fill out Davron’s online spec submission form.
NEWS BRIEF

Bremen Castings Receives Quality Management System Registration

(March 24, 2014): Bremen Castings, Inc. (BCI) is pleased to announce they are registered to continue maintaining Bremen’s Quality Management System. The facility was awarded the certification ISO/TS 16949: 2009. Obtaining this registration allows BCI to serve Tier 1 Automotive and Heavy Truck clients and to grow their existing customer base. The TS 16949 is in addition to their ISO 9001: 2008 registration.

Bremen Castings, Inc. (BCI) focuses on the manufacturing of machined complete, assembled components and products and the fabrication maintenance of production tooling and fixtures.

News Brief

Leth Iron To Host Annual Ductile Iron Society meeting!

Lethbridge Iron Works has for years been a proud member of the Ductile Iron Society, and this June will be the host of the annual DIS meeting in Lethbridge. The society is made up of leading foundries from around the world that produce ductile iron, and will be holding the annual meeting at Leth Iron for the first time. DIS members will spend June 4th to 6th attending valuable meetings and education sessions revolving around the ever-evolving ductile iron industry. Topics for the sessions range from industry analysis, ductile alloy advancements, packaging options, and much more.

The members will also be treated to a tour of Leth Iron to see how the foundry operates and the exciting progress on the current capital reinvestment projects. Leth Iron installed the SPO line in 2009, and is currently in the process of installing a dedicated sand and melt system to ultimately give the SPO complete autonomy. This will allow the SPO to be run as a completely separate foundry, freeing up the existing sand and melt systems and giving way to a significant increase in future capacity. It’s an exciting time for Lethbridge Iron Works and the entire team is looking forward to hosting the Ductile Iron Society and proudly displaying one of the world’s premiere foundries.
ASM International Repositions Brand and Introduces New Logo; Looks to Future of Materials Science Innovation

New logo celebrates organization’s history and provides fresh elements for future growth

MATERIALS PARK, OHIO – APRIL 21, 2014 – ASM International (ASM), the world’s largest association of metals-focused materials professionals, unveiled today a repositioned brand and new logo to celebrate the beginning of another century of innovation in materials. Founded in 1913, ASM was originally known as the American Society for Metals. Today, the Ohio-based organization has more than 30,000 members and nearly 100 worldwide chapters. ASM is dedicated to informing, educating, and connecting the materials community to solve problems and stimulate innovation around the world.

“Our new logo illustrates ASM’s continual progression, honoring our history while embracing our focus on being modern and perpetually relevant today and in the future,” said Thom Passek, managing director of ASM International. The hexagon shape of the new logo incorporates elements of previous logo iterations over ASM’s past 100 years. The arrows signify connecting and establishing relationships within the materials science community and disseminating information within the group and industry to advance innovation.

About ASM International
ASM International is the world’s largest association of metals-focused materials engineers, scientists, technicians, educators and students. A member and volunteer based organization, ASM serves as a central resource that gathers the latest applied information from the field and disseminates it back to industry, academia and government through published content, classes, conferences, expositions, and local chapter engagement. To learn more visit: www.asminternational.org.
NEWS BRIEF

NEW TECHNOLOGY. FRESH MINDS. FEF

As your company looks for its next employee, discover the benefits of hiring a graduate from an FEF school. FEF works with universities to prepare graduates for careers in metal casting. Over the next four months we will highlight the skills a graduate from the 19 certified FEF schools will bring to your company.

**Cal Poly-Pomona**—This program is "very hands on"; casting design, pattern making, solidification simulation, gating & risering and multiple casting processes are just some of the areas that Pomona students will master while in the Industrial & Manufacturing Engineering Department.

**Kent State**—The program objectives for Kent's students are: develop technical competencies based on engineering principles, integrate communications with social & physical sciences to develop critical thinking & quantitative skills, and develop the skills necessary to solve complex technological problems from a systems and sustainability perspective.

**Northern Iowa**—UNI's metal casting program is focused on training students in the fundamental knowledge of foundry processes and products with a strong developmental integration of managerial, leadership, and communications skills through the manufacturing technology core curriculum and the university's liberal arts program.

**UAB**—The emphasis of the Alabama-Birmingham program is in manufacturing process development and material analysis including composition and non-destructive testing. The skills of the students after completion of the program will set them apart by being capable and conversant in computer modeling, design, and process capability for metal casting technologies.

www.fefinc.org  info@fefinc.org  847.490.9200

NEW TECHNOLOGY. FRESH MINDS. FEF.

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**Michigan Tech Materials Science & Engineering** (mtu.edu/materials) emphasizes process-structure-property relationships with hands-on learning using modern equipment & real-world challenges through industry-sponsored senior design and enterprise projects (MichiganTechEAM.com).

**Missouri Univ. of Science & Tech's MetE program** provides a quality, comprehensive education in both traditional & modern metallurgical engineering including structure-processing-property relationships, with focus on metal casting, steelmaking, extractive & physical metallurgy.

**Pittsburgh State's** curriculum is an applied engineering technology program including both engineering sciences & practical manufacturing processes. Core metal casting classes include Principles of Metal Casting, Principles of Metal Casting Lab, Casting Design & Simulation, and Heat Treatment & Metallurgy.

**Trine** students work in a variety of alloys in the lab: molding is performed in green sand, supplemented with chemically bonded sands, lost foam, and permanent molds. Students graduate as Mech Engineers, Elec Engineers, Chem Engineers & Design Engineering Techs with metalcasting experience.

**Western Michigan Engineering & Technology** students are required to take a Processes and Materials in Manufacturing course with hands-on metalcasting laboratory activities. Students may take additional course work to gain a metalcasting minor.

For a list of all 19 FEF certified schools, visit our website - www.fefinc.org
NEW TECHNOLOGY. FRESH MINDS. FEF.

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Upon graduation, Univ. of Alabama MTE students will be familiar with: casting and mold design assisted by solidification modeling, sand testing, foundry equipment, solidification science & processing of metallic alloys, 3D sand mold printing technology, & alloy selection, as well as microstructure and casting defects and their influence on mechanical properties.

The Mech Engineering Tech program at Mohawk College provides a solid background in applications & theory in mechanical engineering, including design, manufacturing, automation and robotics, energy conversion and transmission, and engineering materials. Our mission is to prepare our students to be "future ready".

The Materials Engineering program at Tec Saltillo has foundry specialty which includes classes related to iron foundry, non-ferrous foundry, sand technology, feeding and casting system, and process simulation. Each of these classes includes a lab experience where the students can put into practice all they learn in the classroom.

Tennessee Tech's Engineering Tech "Principles of Metal Casting" requires that students make their own molds, pour metal, and clean and inspect their castings. They are required to design and build their own tool, submit engineering drawings of the part with their own gating system design, and pour their casting as a final culminating experience.

Wisconsin-Platteville foundry classes require the design and production of sound castings and most require solidification modeling, flow analysis, pattern making, rigging and metallurgical analysis. The foundry has capabilities in cast iron, steel, and non-ferrous melting, sand, EPC, no-bake, permanent mold, and investment casting processes.

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Penn State curriculum includes patterns, casting design, molding process control, solidification process control, gating & risering and cast metals & alloys. Students also experience complementary training that includes machining, inspection, production engineering, and statistical quality control including lean six-sigma tools.

The Purdue metalcasting program focuses on training students on the sand casting, lost foam casting, and die casting processes. Students also have opportunities to be involved in research programs in the areas of metallurgy of cast alloys and computational simulation of phase diagrams/ equilibria and casting processes.

Tennessee State's metalcasting program focuses on the technical & practical aspects of metalcasting and heat treatment, gating system design, computer aided design, solidification modeling, and microstructure-mechanical property relationships. Labs cover all aspects of manufacturing, metalcasting, metallurgy & material testing of a variety of ferrous & non-ferrous alloys.

At VA Tech, students are taught the technical aspects of metallurgy and metalcasting in the classroom and then practice on the foundry floor using the same equipment as the metalcasting industry. Students also learn how to use the latest equipment and processes to prepare them for developing the materials and processes of tomorrow. Photo courtesy: Jim Sloop.

Handson experiences at the Univ. of Wis-Milwaukee teach students to apply basic science and engineering to understand and predict the type of solidification structure in castings. Classes also cover understanding the relationships between processing, using different casting techniques, and the structures and properties obtained to select optimum casting alloy.

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