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DIE CASTING ENGINEER

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2024 ANNUAL REPORT

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NADCA
NORTH AMERICAN DIE CASTING ASSOCIATION

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Chairman's Note

NADCA is Committed to Seeking Improvements for You - Our Members

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Welcome to another informative issue of Die Casting Engineer. This month, we are focusing on developments in Cast Materials and High Integrity Processes & Alloys. Thank you to our membership and staff for providing industry-changing developments that can expand our addressable market, increase global competitiveness, and potentially impact business profitability.

Constantly seeking improvements in people, processes, and products is a key component to propel each of our organizations' continuous transformation. NADCA can assist in our journey for transformation through many different channels. One topic that continuously is raised in our industry discussions revolves around building our teams for the future and the difficulties of finding new employees. Attracting new team members is a challenge for most organizations, which can be aided by developing a clear channel to reach potential employees.

Starting the recruitment process early with junior high school and high school students provides exposure to exciting industry opportunities and can help students realize their desire to follow a trade school or university pathway. Having company leaders of all ages speak in schools not only showcases the opportunities but also gives real life success stories. Another fantastic way to attract students to our industry is by opening your plant for tours, which highlights new technology such as automated casting cells, robots, lasers, and autonomous vehicles.

Additionally, NADCA has developed short videos and other tools to help people understand the die casting industry's overall products, as well as to see how castings impact and improve our daily lives. Illustrating that die castings are used in cars, boats, ATV's, satellites, rockets, and medical devices, can be powerful as students contemplate career selection. NADCA will soon have a small portable tabletop die casting machine available for members to use at career day events to assist in explaining the die casting process.

Hiring can also be aided by highlighting some of the financial incentives NADCA can provide for your future team members, which can offset education expenses. Several local chapters of NADCA provide scholarships for members and members' families who are pursuing educational opportunities. Michigan's NADCA Chapter 3, for example, offers up to $3,000 in scholarships annually, to student members or family members of a NADCA member company.

The Lane Scholarship fund, managed by an NADCA oversight board, offers individual scholarships of up to $10,000 for those who participate in internships at member companies and submit required documentation and project reports. Learn more about this by visiting the NADCA website or contacting NADCA staff.

As an organization, NADCA is here to support your efforts in attracting great team members for the future. Take advantage of this support to help build your team!

"NADCA is here to support your efforts in attracting skilled team members for the future."

A Flurry of Actions Leading to Optimism, Uncertainty - What Will 2025 Bring?

Andrew Ryzner
Editor
North American Die Casting Association

"Hopefully the end-of-year economic optimism will lead to good things for your company and our industry as a whole.."

The year 2025 sure has started out with a flurry of seemingly endless change, orders, turbulence, disasters, and so on. And by the time this editorial goes to print, who knows what will have happened by then. At the time of this writing, the proposed tariffs on Canada and Mexico have been halted for at least 30 days after President Trump has had conversations with Canadian Prime Minister Justin Trudeau and Mexican President Claudia Sheinbaum Pardo. Now is a good time to start paying attention to NADCA's Government Affairs section of the magazine (page 8 of this publication) and review the things talked about by Inside Beltway, our partners in Washington. Topics this month include the following:

- NADCA Comments on OSHA Heat Rule
- FY25 NDAA Signed into Law
- Bill Revoking China's Permanent Normal Trade Relations Introduced
- Trump Outlines "America First Trade Policy" Calling for USTR Trade Reviews
- Corporate Transparency Act Reporting Voluntary Despite SCOTUS Decision
- TCE & PCE Bans Finalized
- EPA Finalizes Secondary NAAQS Update

As I have alluded to, right now there is never a dull day in world news whether the news is exciting, scary, positive or negative. Do you ever take time away from it for yourself? Put away the laptop? Put down the phone?

I personally find a temporary separation of my digital devices to be quite calming. There are good things happening currently, as well as bad ones. Sometimes one must get away from it all, if even for a half hour to get your body moving. I encourage you to do the same if you have the opportunity.

The upcoming years are filled with potential for our industry. Hopefully the end-of-year economic optimism will lead to good things for your company and our industry as a whole.

NADCA Reports

NADCA NEWS

NADCA Awards 10 Students David Laine Memorial Scholarships

Arlington Heights, IL - NADCA's David Laine Memorial Scholarship has awarded more than $25,000 to 10 undergraduate students across North America for 2024. Our Board hopes to recognize even more this year and will award up to $10,000 per scholarship depending on the application! The scholarship program was established in 1975 and its main objectives are: to provide financial assistance and encouragement to students who are interested in careers in the die casting industry; to foster and improve engineering education in die casting technology; and, to stimulate awareness of and interest in the die casting process.

The scholarship is awarded every year to applicants that have worked internships or co-ops in the die casting industry. Students reported that they gained work experience in process engineering, quality control, die design and maintenance, machine maintenance, part design, automation, scrap reduction and research & development (and more!) A more in-depth story will be in an upcoming issue of DCE.

Nine of the ten scholarship winners worked internships at NADCA Corporate Member companies! If your company is interested in learning more about the process of hiring an intern, we may be able to put you in touch with a colleague that you can speak to.
Contact intern@diecasting.org.

Cast Your Company's Future by Hiring an Intern

Arlington Heights, IL - NADCA has a resume database of engineering students looking for summer internships on its website. Please consider hiring an intern and introduce that student to the world of die casting! Students from universities across North American are currently looking for opportunities and many are willing to relocate for the summer.

The database is password protected, so you will need to login to your MyNADCA account for access. Once logged in, to review the available candidates, visit: www.diecasting.org/intern-resumes. Students may be contacted directly, and if you hire a student, let us know, (intern@diecasting.org) so we can limit their contact information.

Students that complete an internship in the die casting industry are eligible to apply for the David Laine Scholarship Program. That program opens for applications August 1. For additional information, visit: www.diecasting.org/scholarship.

Is there a school close to your plant that you would like to pull candidates from? Send a message to the intern@diecasting.org, and we can reach out to the Engineering Department(s) there.

UPCOMING EVENTS

NADCA Plant Management Conference to Feature Tour of General Motors

Arlington Heights, IL - NADCA is pleased to announce that it will be hosting its annual Plant Management Conference at the Marriott Indianapolis North in Indianapolis, IN on April 29 - May 1, 2025. Featuring a tour of General Motors in Bedford.

The Annual Plant Management Conference provides a venue for operations and plant management personnel to meet and network with peers from other die casting facilities. Together, attendees can share experiences and gain knowledge and information through round table discussions, topical presentations and facility tours.

Hot topic discussions are curated by attendee interest, making this conference both unique and extremely valuable to participants.

For more infomation or to register visit: www.diecasting.org/pm.

Die Casting Excellence Pours into Milwaukee for 2025 Tabletop

Arlington Heights, IL - Mark your calendars for the 2025 Die Casting Congress & Tabletop, the premier event for die casting professionals, happening from October 7 to 9, 2025, at the Baird Center in Milwaukee, Wisconsin.

This three-day conference offers a unique opportunity to delve into the latest advancements in die casting technology, materials, and processes. Attendees can look forward to insightful Congress sessions led by global experts, an exposition featuring over 120 exhibitors, the International Die Casting Design Competition, and the prestigious Die Casting Industry Awards.

Whether you're aiming to enhance your technical knowledge, explore innovative solutions, or network with industry leaders, this event is a must-attend. Registration opens in Spring 2025, with early bird rates available until June 27. For more details, visit the official event website. www.diecasting.org/congress.

TOOLS & RESOURCES

12th Edition of Product Specification Standards for Die Casting Now Available

Arlington Heights, IL - The newest edition of Product Specification Standards for Die Castings is now available.

This manual covers specification, design and production guidance for both users and manufacturers of conventional

high pressure die castings. The manual presents tooling and processes information, alloy properties, standard and precision tolerances, GD&T, design guidelines, quality assurance provisions and more.

Revisions for this edition include: rewrite of the first chapter to focus on an overview of the die casting process; additional information about die technology and sizing; new information about loose inserts; considerations for datum locations; moved around the order of alloy families to cover the more common alloys first; updated alloy reference tables; added P-20 as a possible option for miniature die casting die material; updated casting examples with more recent products; minor typographical errors have been corrected through.

The cost for this essential publication is $70 for Corporate Members, $100 for Individual Members and $140 for Non-Members.

You can order yours by visiting: www.diecasting.org/marketplace and search PUB-402.

Newly Updated for 2025: NADCA's High Integrity Die Casting Standards

Arlington Heights, IL - The Standards for High Integrity and Structural Die Casting Processes has been newly updated for 2025, bringing the latest advancements in die casting technology to the industry.

This essential guide now includes revised alloy property tables, enhanced GD&T guidelines, updated draft specifications, and improved die maintenance protocols. Additionally, new sections on structural quality requirements and simulation best practices provide deeper insights for manufacturers and engineers.

With refreshed imagery and corrections for improved clarity, this 2025 edition is a must-have resource for staying at the forefront of die casting excellence.

Get your copy today! You can order yours by visiting: www.diecasting.org/marketplace and search PUB-207.

Dr. Die Cast

The Cafeteria of Die Casting Alloys

If you ask a die caster which alloy you should select as you design your next product you will undoubtably get an answer something like "depends."

I will keep the focus of this article on the most popular alloys: Aluminum, Magnesium and Zinc.

What are your decision drivers?

- Cost per pound (Kg) versus cost per cubic inch (CC).
- Finished component (and/or assembly) weight.
- Parts per minute, per hour, per day, annual volumes.
- Overhead costs (machine rates, hourly melting/remelting costs).
- In-house recycling costs. Additional costs associated with maintaining alloy specifications that burn off during the melting cycle.
- Die cast tooling life.

Finished Component (and/or Assembly) Weight

Magnesium is the lightest of the three materials. In recent years, automotive companies were incentivized to use more light-weight materials in-order-to reduce government mandated gross vehicle weights and achieving higher fuel efficiency targets. Large magnesium castings provide a higher impact on vehicle weight reduction. Required machine sizes starting at 1,200 ton up to 3,000 ton for the larger castings.

Hand-held devices from electronics to power tools have used aluminum and magnesium for decades. Many of these castings can be produced in machines starting at 100 ton especially when using hot chamber or MIM equipment.

Parts Per Minute, Per Hour, Per Day, Annual Volumes

When discussing parts per minute or per hour, nothing comes close to automated hot chamber zinc machines. Especially, multi-slide machines. Cycle rates of less than one second in an air operated multi-slide machine are achievable with the right product. Two or three second cycle times are possible. Hydraulic multi-slide machines are generally slower but still do operate at several cycles per minute.

Hot chamber magnesium machines share a similar advantage over the cold chamber process as pouring/charging/dossing a cold chamber is a significant step in the total cycle time in the die casting process.

Hot chamber injection times in most cases are measured in milliseconds compared to pour times of seven or more seconds for a thirteen-pound shot in a 1,200 cold chamber machine.

While zinc shot end components are relatively longer lasting than cold chambers plunger rings require replacement when they begin to blow-by.

Overhead Costs (Machine Rates, Hourly Melting/Remelting Costs)

Aluminum maintenance costs for perishable items are generally higher

Cost per pound (Kg) versus cost per cubic inch (CC).[1]

Alloy	Commercial	ANSI AA	Density (lb/in^3)	Est. price/ Lb.	Price/ in^3	Density (G/CM^3)	Kg/Lb.	Price / (G/CM^3)	Price/ Kg
Aluminum	380	380.0	0.099	$1.25	$0.124	2.74	0.4536	$0.0034	$2.76
Magnesium	AZ91D		0.066	$2.20	$0.145	1.81	0.4536	$0.0040	$4.85
Zinc	No. 2, No. 3, No. 5 & No. 7		0.24	$1.65	$0.396	6.6	0.4536	$0.0109	$3.64

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than zinc. Die spray generally consumes more time as does the ladling step. It is not unusual for die spray to require nearly 50% of the entire cycle time. Reducing spray time is a major cost reduction opportunity in most facilities.

Due to its higher melting temperature, melting and remelting aluminum uses more energy. It requires more labor to keep up with drossing and maintaining the furnace linings.

In-house Recycling Costs. Additional Costs Associated with Maintaining Alloy Specifications that Burn Off During the Melting Cycle

If using one of the low iron, ductile alloys, then you will need Spectro-analysis equipment on site with a staff member on all shifts to monitor and maintain the chemistry of the alloy. Some alloys require a dedicated remelt furnace to ensure that the alloy is cleaned and refined to original specification.

Die Cast Tooling Life (By the Alloy)

Zinc provides the longest tool life. A million plus shots on a zinc tool is standard.

Thin-walled Magnesium has been known to achieve similar tool life. Thick-walled magnesium castings will experience heat check like that similar aluminum castings.

Aluminum casting tool life will depend on part geometry and the alloy selected. 380 is the gentlest. (So, tool life of 100,000 to 150,000 depending on operating practices and tool steel, heat treatment and coatings).

Some of the high Silicon alloys like 390 have consumed a die in under 30,000 shots.

References

NADCA Product Specification Standards for Die Castings, 2018, 10th Edition.

1. *Ref: Aluminum, A-3-2-09, Pg. 3.6, Magnesium A-3-11-9, Pg. 3-18, Zinc A-3-14-09, Pg. 30-24.*

NADCA Government Affairs

NADCA Comments on OSHA Heat Rule

NADCA submitted formal comments to the Occupational Safety and Health Administration (OSHA) on January 14, 2025, on the proposed rule to address heat hazards in both indoor and outdoor work environments. The proposed rule, published on August 30 after being announced by OSHA in July 2024, outlines the requirements for employers when the heat index reaches 80˚F or higher.

The proposed rule applies to all indoor workplaces where the heat index hits the "initial heat trigger" of 80˚F, with an exception for workplaces where employee exposure at or above this threshold occurs for short durations, specifically 15 minutes or less per hour. Many of the proposed employer requirement are misguided at best, and in some cases hazardous as OSHA could seek to require cold water at each workstation.

In the submitted comments NADCA stated that while member companies are committed to ensuring the safety of their employees, attempting to eliminate "heat from a die casting facility in the U.S. will result in the inability to manufacture critical components for industries from auto and aerospace to defense and medical devices and both, oil & gas and renewable energy." "The requirements included in the proposed rule will have broad consequences on the workforce and future of die casting, including the further exploration of automation to replace workers subject to the regulation," the comments continued.

NADCA believes that a nationwide indoor heat rule is unnecessary for improving the safety of employees in the die casting industry and that OSHA should withdraw the NPRM. President Trump has imposed a regulatory freeze on all federal Departments and Agencies, possibly delaying consideration of the rule. However, as of this writing, OSHA intends to hold a public hearing this summer as part of its rulemaking process.

FY25 NDAA Signed into Law

On December 23, 2025, President Biden signed the fiscal year (FY) 2025 National Defense Authorization Act (NDAA) into law following passage of the compromise bill in both the House of Representatives and the Senate. The final bill combined the House-passed NDAA and the Senate Armed Services Committee-passed NDAA through a series of negotiations led by the leadership of HASC and SASC rather than the typical conference process.

The negotiated bill authorizes a total of $883.7 billion for national defense funding for FY25, including a base defense budget of $849.9 billion for the Department of Defense and $33.3 billion for the national security programs of the Department of Energy.

Included in the authorization bill is a provision on the qualification of industrial capabilities, establishing a process to "rapidly qualify and approve alternate or additional sources of supply for industrial capabilities" including castings. Under the FY25 NDAA, the DOD has one year to establish the process to expand the industrial capability and capacity to supply castings.

While the House-passed bill contained a section officially authorizing the Project Spectrum program at the DoD, which provides resources to small and medium-sized businesses to help them comply with the cybersecurity requirements included in the recently finalized Cybersecurity Maturity Model Certification (CMMC) rules, the provision was removed during the negotiations.

Included in the joint explanatory materials of the bill, the negotiators state: "We note the importance of protecting our small business industrial base against cyber attacks from the full spectrum of cyber actors, from simple criminal and ransomware attacks to sophisticated national state campaigns. With the finalization of the rules for the Cybersecurity Maturity Model Certification, we believe it is important that the Department of Defense provide additional assistance to small businesses in the defense industrial base navigating this process. We believe such assistance crucial to the more fundamental need to strengthen the overall cyber defense posture of this vulnerable sector. We are aware that the Department has some dedicated programs specific to this issue, such as Project Spectrum, but also note efforts undertaken by Defense Cyber Crime Center and the National Security Agency's Cyber Collaboration Center, among others, that provide various forms of assistance to this community. We believe that the Department should provide comprehensive and coordinated guidance to the military services and defense agencies and field activities in order to ensure unity of effort, reduce opportunities for unwarranted duplication across investments, and simplify entry points into the Department for those seeking to obtain such support."

Bill Revoking China's Permanent Normal Trade Relations Introduced

Chairman John Moolenaar of the House Select Committee on Strategic Competition with the Chinese Communist Party has put forth new legislation aimed at revoking China's Permanent Normal Trade Relations (PNTR). This designation, first awarded in 2000 when China was preparing to join the World Trade Organization, allowed for preferential tariff treatment under U.S. law.

The proposed Restoring Trade Fairness Act seeks to eliminate the PNTR status, imposing a minimum 35% tariff on non-strategic goods and a staggering 100% ad valorem tariff on all strategic goods. These tariffs would align with the Biden administration's Advanced Technology Product List and take into account China's ambitious Made in China 2025 initiative.

While the Select Committee does not have the legislative authority to report bills for a vote on the floor of the House, they have been highly active during the 118th Congress, conducting numerous hearings and rallying support for initiatives aimed at countering threats from China, including the push to revoke its PNTR status. In 2023, the Select Committee voted nearly unanimously to recommend revoking China's PNTR status in statute.

Trump Outlines "America First Trade Policy" Calling for USTR Trade Reviews

On the first day of his new term, President Trump released a memo detailing a vigorous and revitalized trade policy aimed at bolstering investment and productivity. This policy is designed to enhance America's industrial and technological strength, safeguard both economic and national security, and fundamentally benefit American workers, manufacturers, farmers, ranchers, entrepreneurs, and businesses.

The memo tasks the United States Trade Representative (USTR) with investigating unfair trade practices and assessing China's adherence to the commitments made under the phase-one trade agreement established in 2020. This agreement, officially referred to as the Economic and Trade Agreement Between the United States and the People's Republic of China, went into effect on February 14, 2020. It set out expectations for China to increase its purchases of specific U.S. goods and services by $200 billion over a two-year period beginning January 1, 2020, and ending December 31, 2021.

As part of the review, the USTR will evaluate whether China is upholding its commitments outlined in the agreement. In addition, the investigation into unfair trade practices will address any actions that may be unreasonable or discriminatory and might hinder U.S. commerce.

The memo also directs the USTR to revisit tariffs on Chinese products under Section 301, evaluate federal procurement related to trade agreements, assess reciprocity in current trade deals, initiate public consultations for the 2026 U.S.-Mexico-Canada Agreement review, and identify nations with whom the United States can negotiate new agreements to expand market access.

Furthermore, the Commerce and Treasury departments, along with the USTR, are instructed to analyze the factors contributing to the significant and ongoing annual trade deficits in goods. They are to consider the economic and national security implications of these deficits and propose suitable remedies, such as a global supplemental tariff or other policy measures. The Treasury Department is also called upon to evaluate the policies and practices of key trading partners and recommend actions to address currency manipulation.

The President is set to receive reports on all the reviews mentioned in the memo by April 1, 2025.

Corporate Transparency Act Reporting Voluntary Despite SCOTUS Decision

Despite a Supreme Court order on January 23, 2025, reinstating filing requirements under the Corporate Transparency Act (CTA), the Department of the Treasury has clarified that submitting beneficial ownership information is still voluntary.

On December 3, 2024, a Texas federal court issued a nationwide preliminary injunction, voicing concerns about the law's constitutionality and its potential adverse impact on small businesses. The government appealed this ruling, and the motions panel of the Fifth Circuit granted a stay to the injunction on December 23. Following this, the Fifth Circuit's decision vacated the stay, pausing the requirement for beneficial ownership information reports (BOIRs).

On December 26, 2024, a merits panel from the Fifth Circuit nullified the earlier stay, which meant that BOIRs would not be required as the legal challenges regarding the rule continued. Oral arguments for this case are scheduled to start on March 25, 2025.

The January 23 ruling from SCOTUS allowed the federal government to stay the nationwide injunction related to the Texas Top Cop Shop case. However, a separate nationwide order from January 7, 2025, in the case of Smith v. United States Department of the Treasury, remains active. Because of this, reporting beneficial ownership information stays voluntary, and companies won't face penalties for failing to report as long as the Smith order holds.

The CTA, passed by Congress in 2020, requires companies with revenues of $5 million or less and employing twenty or fewer individuals to file beneficial ownership reports with the Financial Crimes Enforcement Network (FinCEN) within the Department of the Treasury.

TCE & PCE Bans Finalized

The Environmental Protection Agency (EPA) finalized regulations concerning trichloroethylene (TCE) and perchloroethylene (PCE) under the Toxic Substances Control Act (TSCA). This new rule will effectively ban TCE by disallowing its manufacture, import, processing, and commercial distribution for all applications, including its use as a solvent in industrial cleaning and degreasing. Similarly, the rule prohibits the manufacture, processing, and distribution of PCE for all consumer uses and many commercial applications.

Originally proposed in October 2023, the rule sets an ambitious timeline to phase out most TCE usages within a year. Certain essential applications will be afforded extended compliance periods, which are subject to specific workplace controls. These critical uses include Federal agencies involved in manufacturing rocket booster nozzles, producing battery separators, and the essential degreasing of military vehicles. Organizations utilizing TCE will need to implement a workplace chemical protection program (WCPP) to monitor inhalation exposure, provide dermal protection, maintain records, and notify downstream users of the limited continued application.

As for the PCE regulation, companies must reduce the manufacturing, processing, and distribution of PCE for all consumer applications and many uses within industrial and commercial environments, excluding dry cleaning. In most cases, PCE usage will be entirely phased out in less than three years, with a longer 10-year phase-out outlined for its use in dry cleaning.

These new TCE and PCE regulations were part of the Biden Administration's efforts to manage halogenated solvents, alongside the already established rules for methylene chloride and carbon tetrachloride (CTC). The final rule for methylene chloride was issued in May, and the CTC regulation was officially published on December 18, 2024. Republican lawmakers on Capitol Hill recently introduced a measure to block a rule from taking effect, in addition to challenges currently pending in the courts challenging the elimination of TCE.

EPA Finalizes Secondary NAAQS Update

The Environmental Protection Agency (EPA) has finalized a regulation leaving the "secondary" air standards for nitrogen oxides (NOx), sulfur oxides (SOx), and particulate matter (PM) mostly unchanged. The final rule, published on December 27, 2024, would slightly tighten the secondary National Ambient Air Quality Standards (NAAQS) for SOx while retaining the secondary standards for NOx and PM. The final rule became effective as of January 27, 2025.

Primary NAAQS are required by the Clean Air Act to protect public health, while secondary standards are designed to protect the environment. The SOx secondary standard stands at 500 parts per billion (ppb) of sulfur dioxide (SO2) over three hours, a level also set in 1971. The proposed rule would lower the standard to10 for SO2, averaged over three years.

The secondary standard for NOx will remain at 53 parts per billion (ppb) of nitrogen dioxide (NO2) annually, the same level it has been at since 1971. The secondary annual PM2.5 standard will continue to stand at 15 ug/m3, and the secondary daily PM2.5 standard at 35 ug/m3. The secondary daily limit for larger "coarse" PM, or PM10, will continue to be 150 ug/m3.

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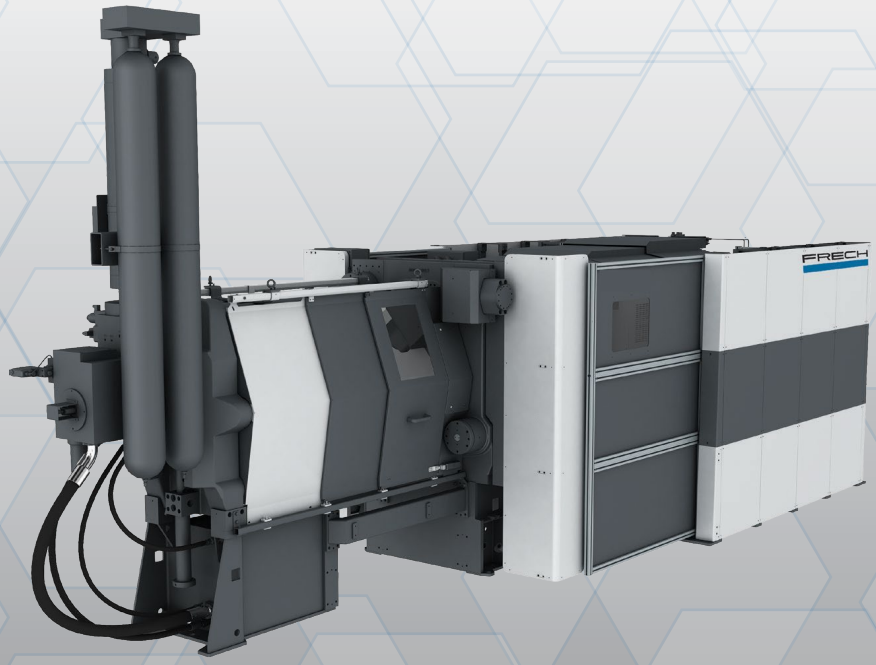

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Innovations in Thermal Management for Mega-/Giga-Castings

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On April 23, 2024, the authors of this article presented a webinar on this same topic "Innovations in Thermal Management for Mega-/Giga-Casting", which is now available as a recorded version in the NADCA online education system. This article is based on the original 2023 NADCA paper "Thermal Control Units for Giga-Castings" with updates.

Introduction

Mega-/Giga-castings are increasingly used by more and more OEMs for replacing a large number of sheet stampings and smaller castings in the front and rear underbody, and for replacing various extrusions, stampings and/or smaller castings for large battery trays. They can help car companies reduce investments (significant reduction of robots), floor space, costs, and complexity of car body assembly by integrating many parts into one giant casting. Some car companies claim also to be able to reduce weight and even carbon footprint by turning to Giga-castings.[1] Some of the problems of Giga-castings are however casting such a huge part (very long flow-length), achieving the mechanical property targets, and at the same time keeping the required tolerances. For castability (flow length and minimum hot tearing) a near-eutectic alloy (as typically used for structural castings) would be ideal, but it requires a T7 heat treatment to achieve the target properties, and precisely the solution heat treatment followed by rapid quenching is causing a lot of distortion and makes it difficult to keep tight tolerances.[2] For this reason, Giga-castings are now typically made from a lower Silicon alloys (AlSi7MnMg), which can achieve good properties as cast or with a simple T5 (or paint bake cycle), but it offers less flow length and is more susceptible to hot tearing. This in turn makes sophisticated, energy efficient thermal management in the Mega-/Giga-die vital, as only directional solidification and extremely well-designed heating and cooling can help produce those large castings with varying wall thickness, integrated ribs, bosses, etc. in this alloy type. The die thermal control units (TCUs) must enable this and at the same time help extend die life (enable minimum die spray to minimize thermal shocks of the die surface), as well as provide optimum thermal management during die heat-up and down-time.

After 20 successful installations of thermal management solutions for Giga-presses, IECI now offers 3 different scenarios for TCUs: (1) Conventional TCUs, (2) Solutions for large castings (MEGATHERMO) and (3) solutions for ultra-large (Mega-/Giga-castings - GIGATHERMO). All of them are managed by smart manifolds controlled with valves and a distribution tower designed for each project, optimizing the connections design. In all these scenarios the devices must be supported by cooling systems for cooling cores or jet cooling. HYPERCOOLING for example is a new concept of Jet Cooling where one device with 16 different outlets is controlling all core cooling from just one source. Each exit can be connected to 8-12 core pins. Monitoring and controlling everything related to this very complex thermal management of large dies is key as well.

The Importance of Thermal Management of the Die

Die casting is all about a very controlled solidification path of liquid metal into a near net-shape contour within a die cavity. Temperature of the metal and die are therefore fundamental variables of this process. Many casting defects are clearly linked to thermal issues in the die and shot sleeve, the injection profile, and to die spraying. In the past, the die was mainly cooled through die spraying (with highly diluted water-based emulsions), which is causing a huge thermo-shock at the die surface at every shot. This is quickly causing heat checking and eventually cracking/failure of the die. The evaporating water also causes high humidity in the cavity, which is very negative for vacuum. For this reason, internal control of the die temperature through thoroughly designed heating and cooling channels has been developed, and the heating and cooling media are controlled by Thermal Control Units (TCUs). If done properly, dies can be preheated before production start and therefore the number of (scrap) warm-up shots minimized, and – more importantly – the die spraying can be minimized to perform only its core functions of lubricating moving die components, extending the melt flow path, and protecting the die surface. The water- and oil-based TCUs therefore make the casting process much more stable, help significantly reduce cycle time (die spraying is typically the largest part of the die casting cycle time) and make it therefore more economical, and extend die life (of very expensive dies). Reduced die spraying is also a big advantage for the environment. Apart from the die itself, thermal control of the shot sleeve and plunger tip are also of great importance, especially for structural die castings using vacuum.

The tasks of TCUs in the die casting process are therefore:

- At production start, heating up the die and shot sleeve to operating temperature (or as close to it as possible)
- Keeping die and shot sleeve temperature controlled during the casting process (at optimum temperature to allow maximum flow length, longest possible feeding and then directional solidification)
- Die temperature control during a production stop
- Shot sleeve temperature control to prevent deformation from molten metal filling
- Optimizing overall cycle time (minimizing dwell/solidification time, reducing/minimizing spray and blow-off time)
- Ensuring a consistent and high quality of the castings
- Extending/maximizing die and shot sleeve life significantly

Die Thermal Management – How is is Done

Within the die we can have a multitude of heating (often with hot oil for highest temperature or hot water) and cooling lines (usually with water) that reduce heat where cooling is needed and heat the die where it is too cold. These thermal lines are drilled into the die steel and are therefore always straight, but several straight lines can be connected in the die in various angles to bring channels as close as possible to the cavity surface where the heating or cooling is needed. If a cavity shows a hot spot in just a limited region a cooling channel can also be directed towards this point and cooling water is fed in and back through a (split) line (a "bubbler" or "fountain"). Those cooling channels can be made also with smaller diameters and water can be pumped to the hot spot with higher pressure. In such cases we are talking about "spot cooling". For squeeze pins or other very small hot spots cold water can be directed with high pressure, which is then commonly also referred to as "jet cooling", "core cooling". 3D printed inserts are used if the hot spot is larger and with a rather complex shape that can't easily be reached with one simple cooling channel. They are typically made with smaller cooling channels close to and along the cavity surface, this is commonly referred to as "contour cooling".[3] All of these technologies are targeting thermal imbalances in the die that would have a negative impact on casting quality and cycle time.

Requirements for Optimum Functioning of Die Thermal Management of Giga-Dies

Giga-dies (for die casting machines > 6000 t locking force) have much greater weight (can be e.g. 55 t for the fixed and 75 t for the moving half) and dimensions than any traditional dies used for die casting machines with up to 4500 ton locking force, and the challenges have certainly exceeded many initial assumptions. After several years of development and after equipping more than 20 Giga-dies with TCUs, IECI engineers have found solutions that can overcome the main challenges of (a) pressure/flow, (b) heating power, (c) cooling requirements, (d) lines/connections/manifolds.

Pressure/Flow

As mentioned before, Giga-dies have weights and dimensions never controlled before. The height of a Giga-die can be up to 3500mm/138'/11.5'. Therefore, the distribution system at that height can be a big challenge: Simply bringing a liquid to this height through very long hoses/tubes requires a significant amount of pressure. And once it is at this height it needs to have the right pressure to achieve the desired flow rate. The pressure differences between channels entering different locations (at different heights of the die) can therefore vary considerably. It is therefore very important to determine the necessary pressure at the distribution points at the die, and not at the TCUs. The pressure losses in the distribution plant (pipes / hoses / manifolds / connectors) are much higher than in conventional die casting dies. The high pressures required at the distribution points cannot be achieved with a conventional TCU system. So, the first engineering task was to develop a system that can handle those different very high pressure levels. Using simply normal fresh water or systems without a forced pressurization are not up for the task. In many trials with hundreds of flow meters on each die it was found that no conventional system (with such a long connection system) is capable to provide the required flow to each channel.

Heating Power

The typical Giga-casting like a front and a rear underbody or structural battery tray is not very thick-walled. Compared to the amount of steel in the die, the shot weight of the liquid aluminum is actually extremely small, and it therefore does not transfer much heat to the entire die. With very few thicker sections (but rather homogeneous wall thicknesses) there is not much need for strong cooling the die, but rather for heating it to guarantee complete filling with liquid metal. Cooling is rather used only very punctual in hot spots. In Giga-dies proper heating with hot oil channels or some hot water channels is the most important task of the TCUs. Initial trials on early Giga-dies were made with a very large number of conventional dual zone water TCUs with more than 80 zones and with a total heating power of more than 2000 kW. Even in this configuration, some TCUs at 70 to 80°C (158 to 176° F) – which would normally be a strong cooling channel – were actually going into heating mode in the TCU (to keep the die at target temperature).

An initial development step was therefore the MEGA-THERMO system as an integrating hybrid solution, which allowed a reduction by 50% of the number of TCUs and of heating power required for a typical Giga-die (with a lot less connections). This is now typically used in large dies:

***Figure 1** – Photo of a MEGATHERMO® TCU unit, 320˚F, with flow rate of 100gpm, 54 kW heating and 300 kW cooling power and a Pioneer® manifold with 10 proportional circuits.*

Through extensive development work, larger, more powerful and much more efficient TCUs were developed specifically for Giga-dies with a reduced size/footprint (now called GIGATHERMO® Compact - GICO), that can perform the required task and supply 20 to 30 different channels with the installed pump capacity. With those improved units the energy consumption was reduced from over 2000 kW to only 900 kW. One standard GICO can provide up to 144 kW of heating power and 600 kW cooling power. This cooling power is achieved with a water temperature of 160˚C (320˚ F) in the closed loop system, and additionally cooling water at 8˚C (46˚ F) at the flow rate is up to 500 l/min. The total of 900 kW heating power was reached with 5 GICOs in combination with 5 dual zone oil units (conventional TCUs).

***Figure 2** – Photo of a GIGATHERMO® Compact (GICO) unit, 320˚F, with flow rate of 127 gpm @ 8 bar, 144 kW heating and 600 kW cooling power, it can feed up to 30 different circuits.*

These TCUs are using compressed air. This allows using pneumatic stainless steel valves (not solenoids, to avoid electrical issues), which makes them much more reliable in a die casting environment. The use of compressed air allows also to blow and clean the circuits, both at the beginning and at the end of a production run. Another crucial advantage provided by compressed air is that the use of precharged expansion tanks can be avoided (those tanks have very often problems related to their membranes managing high pressures).

IECI's external heating elements, never in contact with hot water, extend their life dramatically, allowing years of production with no issues.

Cooling

When designing TCUs for Giga-dies, cooling is overall not the biggest issue, but nevertheless, all the cooling functions of any conventional die must be provided, like cores, fountains/bubblers and jet cooling. A correct cooling solution with a conventional and often also a HYPER-COOLING® system (a very controlled high-pressure system with a 600kW cooling power, with integrity test of all channels) specifically designed for fountains/bubblers and cores is the most efficient way to improve cycle time performances and allowing the use of micro-spraying technologies. It allows to control all (types of) cooling lines with the same equipment.

Connection Plants

The outside of a Giga-die has the same ambient conditions as a conventional die, the difference is only in the size of the die and the amount of heating and cooling channels going in and out of the die. Most of the piping is rigid 2.5" stainless steel, but some 2.5" hoses can also be used. Connection plants can pose a significant issue of heat loss. Rubber could be considered for insultation reasons but clearly poses a significant safety risk. For this reason, the optimum solution was found to be stainless steel coated with sheath in glass wool fiber with silicone (and fireproof) protection. At the high pressures required for Giga-dies and the required temperatures, the whole system must be Pressure Equipment Directive (PED) certified. Only certified welders can do the required work, and radiography on weldments as well as pressure tests on the whole system are performed (by IECI) prior to any delivery to a customer. The key is to create adequate zones and circuits and corresponding connections and manifolds in order to minimize the connection plants. In the initial trials with a Giga-die, about 100 km (about 62 miles) of piping/hoses were used, which was eventually reduced significantly. Using the right technology, this can now be as little as 3 km (about 2 miles). To reduce the number of circuits, a greater flow rate is necessary. To enable this, the diameter of the channels had to be increased to up to ¾". Leak detection is an obvious must in such dies with very big connection plants, and this is now integrated into each GICO TCU with pressure controls on each circuit.

Overview of Function and Design of TCUs

For environmental reasons, efficiency, and safety reasons a water-based system is usually preferred (over an oil-based system). Oil has a lot lower heat capacity than water, but it can be heated to higher temperatures at lower pressures

than water. It is therefore often necessary to combine both for a die when temperatures higher than 200°C (392 F) are required. Water TCUs typically go up to 200°C (392 F), while Oil TCUs can go up to 350°C (662 F). Water channels allow for much faster heating up, but their temperature is limited, while oil can heat up to higher temperature but at a slower speed. An optimum solution must therefore be developed for each individual die/application. Oil is usually optimum to control the shot sleeve temperature as there is rather heating and much less cooling required. The shot sleeve thermal behavior is completely different from the that of the die.

Die-Preheating and Thermal Control During Down-time

For a Giga-die, the majority of the die can be pre-heated to only 160 to 200°C (320 - 392° F) with water pre-heating. Lower temperatures will give less benefit at the start-up and increase thermal shock and scrap-rate. Some parts of the die and the holder blocks will however require pre-heating to higher temperatures that make the additional use of oil-heating circuits often inevitable. The same applies for temperature control during down-time of the die casting machine.

Monitoring and Control of Channels

All channels need flow monitoring at least. It is very important to constantly know if all channels work properly, if any blockage is building up or if there is a leak in the system that might cause water or oil flowing into the cavity. Flow control can be done both for permanent or pulsed flow. In this case any variation is automatically compensated by the TCU system. If any leak is detected and alarm will immediately go off.

HYPERCOOLING

For bubblers/fountains, spot and jet-cooling, water is the used cooling medium. Often process water is used for spot or jet cooling as well, which can cause damages to tools and circuits and can pose a safety concern. In this case the water quality must be monitored constantly. The HYPERCOOLING system uses soft or reverse osmosis water and operates with a boosting (air) pressure system, which can improve performances for the die and the plunger rod/tip.

***Figure 3** - Model of a HYPERCOOLING system with pressurization pump of up to 400 l/min @ 16 bar with variable speed. Pressure, flow and temperature sensors on each circuit. Thermal power (btu/h) and exchanged heat (btu) calculation. Integrated leak test with compressed air with independent detection on each circuit.*

Pressurization

In order to achieve the required pressure at the entrance into the Giga-die (at the given height), typically around 6.5 bar (94 psi), the TCUs have to generate a much higher pressure to overcome both the height difference and pressure drop in the water circuits. Most TCUs work between 8 to 10 bar (116 - 145 psi), high-performance units work at 14 and 18 bar (203 - 261 psi) of pressure. This avoids evaporation and allows the fluid to be always in liquid state for controlling the heat exchange at the maximum level. The GICO has a pump with a working point at 8 bar, but thanks to a forced pressurization system this value is boosted to the 14-18 bar (203 - 261 psi) that will guarantee the required 6.5 bar (94 psi) at the Giga-die manifold.

Number of Units vs Integration

Instead of using over 40 conventional TCUs., most Giga-dies for DCMs of 6100 to over 9000 tons locking force can be thermally managed with a combination of 5 to 9 GICOs and 5 to 10 conventional (oil) TCUs (1 or 2 of those dedicated to the shot sleeve), combined with a cooling system (conventional and HYPERCOOLING). In order to still be able to manage and properly monitor and control the entire thermal management, everything must be integrated into one HMI and into the DCM cell controller or DCM panel. A temperature-controlled quenching tank can be installed and integrated too.

Conclusions

Giga-dies are not only much bigger and heavier, they are also a lot more complex and bring much greater challenges on thermal management and their required TCUs. The size, in particular the height, requires a much higher pres-

sure than normal dies require from TCUs. The number of different zones and individual heating and cooling channels would normally require having 3 to 4 dozen conventional TCUs at every Giga-press, with over 100 km (62 miles) of connecting pipes and hoses. One can easily see the maintenance nightmare this would cause. An initial development step was therefore the MEGATHERMO system as an integrating hybrid solution, which allowed a 50% reduction in the number of TCUs and of heating power required for a typical Giga-die (with a lot less connections). The integration into a single large TCU now known as GIGATHERMO Compact (GICO) allows a reduction to only 5 to 9 systems per Giga-press/die. The amount and length of piping was reduced to only 3 km (about 2 miles). The system offers the highest possible level of simplicity combined with maximum power. Monitoring and control with proper HMI and data storage is vital to detect any leaks, buildups or malfunctions of the process immediately and automatically adjust to any changes. If an optimum thermal management of a Giga-die is therefore designed with the right elements in combination with the right TCUs, a more complex Giga-casting can be produced with improved part quality and much reduced scrap rate, lower production costs (higher productivity through reduced cycle time) and increased die life.

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2024 ANNUAL REPORT

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NADCA
NORTH AMERICAN DIE CASTING ASSOCIATION

LETTER FROM THE PRESIDENT

DEAR DIE CASTING PROFESSIONAL,

Mike Meyer
President, NADCA

Perhaps the most appropriate word for the die casting industry in 2024 is turbulent. It is clear that the predictions for electric vehicle sales in North America did not match actual sales. In fact, most of the automakers have now tempered their predictions for the next several years. This "pause" has caused significant disruption in the production plans for many of our members. Additionally, the world economy was not robust, causing consumer's trepidation for large purchases such as ATV's, boats, motorcycles, and automobiles. This concern, in addition to high interest rates, resulted in lower sales, and as such, lower die casting production. Only at the end of 2024, which coincided with the election of a new administration, did we see some optimism for our economy. Will this optimism turn into more production for our industry? It is too early to tell that, but I am sure it would be welcomed by all of us.

> "WILL THIS OPTIMISM TURN INTO MORE PRODUCTION FOR OUR INDUSTRY? IT IS TOO EARLY TO TELL THAT."

NADCA currently has 19 active research projects with a value of approximately six million dollars. Four projects are focused on additive manufacturing, six on cast materials, five on die materials and surface engineering, one on design tools and computer modeling, and three on process technologies. We plan to review all our written materials and update as many as possible in 2025. Additionally, we are exploring different languages to convert our training into. We have successfully converted many of our courses into Spanish already.

The in-person events that were held in 2024 were the Die Casting Executive Conference, Plant Management Conference (with two fantastic tours of the Tesla operations), Government Affairs Briefing and Fly-In, and our Die Casting Congress & Exposition in Indianapolis (which had attendance just shy of our all-time record!). Additionally, we held many State of the Industry presentations for our chapters. Our plan is to visit every Chapter in 2025. Looking forward to seeing everyone at our Die Casting Congress & Tabletop in Milwaukee this year, October 7-9.

In the Annual Report that follows, you will find additional information and details on the major activities and accomplishments of NADCA during 2024. The information is intended to not only provide a report on 2024, but to heighten the awareness of progress that is being made and all that NADCA has to offer its membership base. Members, ensure that you are utilizing as many of the services and products offered as possible. They are for your company's continued success and your personal success. Non-members gain all the benefits you are missing out on by becoming a member today!

Lastly, I wish to express my sincere thanks and appreciation to the membership base, exhibitors, speakers, researchers, committee chairpersons and committee members, the NADCA Board of Governors, and Chairman of the Board, Mark Los for all the support you provided throughout 2024! Together we can continue to keep our association and our industry strong. Looking forward to seeing as many of you as possible in 2025.

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PLANNING FOR THE FUTURE

NADCA's Commitment

NADCA is committed to promoting industry awareness, domestic growth in the global marketplace and member exposure.

Areas of Concentration

CHAPTER RELATIONS: Foster community and local business relations, attend speaker and networking events, influence both association direction and industry change.

RESEARCH AND DEVELOPMENT: Identify industry needs and expand funding sources that optimize die casting processes and techniques.

EDUCATION: Present industry knowledge for creating improved die cast parts and processes, incorporating the latest standards and educational curriculum.

MEETINGS AND EXPOSITIONS: Provide public and networking opportunities to develop customer relations and position association members as leaders in die casting.

MARKETING: Bring business and engineering focus to die casting as the process of choice.

MEMBERSHIP: Provide member base with industry news, technical information, promotional activities, networking and referral opportunities and trade events.

GOVERNMENT AFFAIRS: Foster strategic alliances and increase grassroots efforts to effectively bring industry matters directly to leaders in legislature and Washington.

GLOBALIZATION: Assert NADCA's member die casters' presence in the global and domestic markets.

MEMBERSHIP
THE ASSOCIATION'S FOUNDATION

As the industry's trade association, NADCA represents a diverse mix of companies connected to die casting—captive and custom die casters, suppliers, OEMs, and job shops. Whether making the parts or supplying the tools, our members keep the industry running strong.

In 2024 NADCA had a near record breaking growth (35 members) in corporate membership. We are very pleased to welcome (or reinstate) the following companies: Rochester Aluminum Smelting Canada Ltd., Sun Metalon, LiCON Mt LP,Sandvik Machining Solutions AB, TRANSVALOR AMERICAS Corp., Nemak Kentucky, Tvarit GmbH, Titus Group / Titus Technologies, FabCast Solutions SRL De CV, Socitec US LLC, Troy Design & Manufacturing, Polaris Inc., LIFT - American Lightweight Materials Manufacturing Innovation Institute,BGH Specialty Steel, Bholster Tech, Rosler Metal Finishing USA LLC, United Tool and Mold, PIAD Precision Casting Corporation, Lamar Tool & Die Casting Inc., HF Manufacturing, Washington, Millison Casting Technology LLC, Leech Industries Division of Leech Holdings, LLC, Transmet Corporation, Zeman Tool & MFG, Delaware Dynamics LLC, JTEKT Automotive - Morristown Plant, Humanscale Corporation, Robert Bosch, PremierMetals, BOLE Machinery, Fill USA, Inc., Rohde Brothers, Inc., Craft Die Casting Corporation, General Die & Engineering Inc. and Storvik Group.

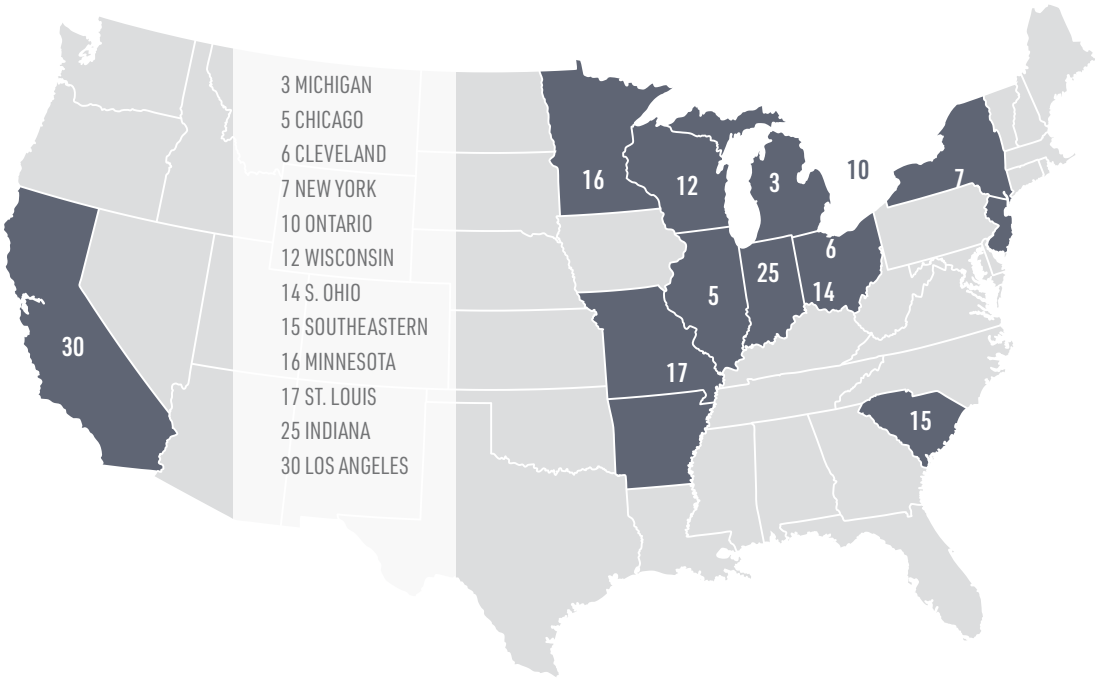
2024 marks one of the largest spikes in corporate membership in a calendar year. Membership closed at 320 for the year. NADCA made a pledge in 2024 that they would be much more active in local chapters and consistently be visiting members and nonmembers throughout the country. We believe that this in-person, hands-on approach to membership services lead to the influx in Corporate Members for 2024.

NADCA individual membership also so a rise in 2024 to a whopping 1915. This can be attributed to membership engagement but also membership roll-in was part of the Die Casting Congress & Exposition registration. Which is directly reflected in the increase in members. Individual members receive discounted pricing to attend other networking events, purchase courses and publications.

NADCA CHAPTERS

MEMBERSHIP AT A LOCAL LEVEL

NADCA membership and resources are represented across the country through the efforts of its 12 active area Chapters. Chapters increased local attendance with new events such as added vendor nights, clay shooting and casino nights. Continuously well-attended events include golf, education offering and state-of-the-industry updates. Active chapters are in:



Chapters receive a special rate for hosting NADCA training and in turn, may charge their attendees what they feel is a reasonable price for courses. Some chapters even offer free courses to any NADCA member.

In addition, NADCA provides its chapters (in good standing) a rebate program, based on total membership. In 2023, NADCA provided each chapter with options for utilizing their rebates such as:

- A Chapter In-Plant Course.
- Events including live webinars, national education courses and conferences.
- Orders including publications and courses through NADCA's Online Education System.

INDUSTRY AWARD WINNERS

HERMAN H. DOEHLER AWARD

Patrick Greene, Cascade Die Casting

NYSELIUS AWARD

Alex Monroe, SpaceX

COMMITTEE MEMBER OF THE YEAR AWARD

Patricia Miller, Uddeholm North America, a division of voestalpine High Performance Metals

BEST CONGRESS PAPER AWARD

Preparation of a High Performance Coating Using Cathodic Vacuum Arc Deposition for Die Casting Molds and its Characterization

Dr. Kazuki Kawata, Noriyuki Inatsu, Rai Iijima, Takasumi Tatsuno

INDUSTRY EDUCATION AWARD

Tesla Motors

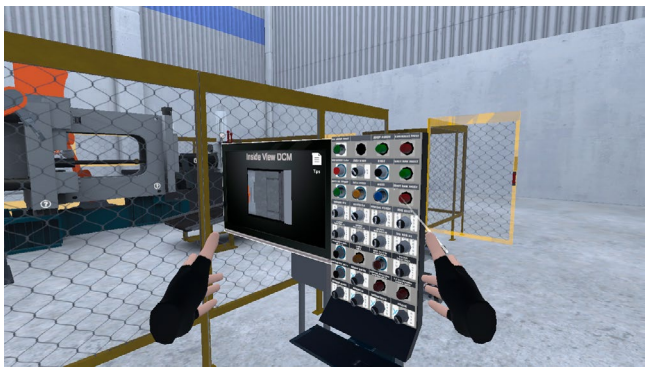
SAFETY, ENERGY & ENVIRONMENT

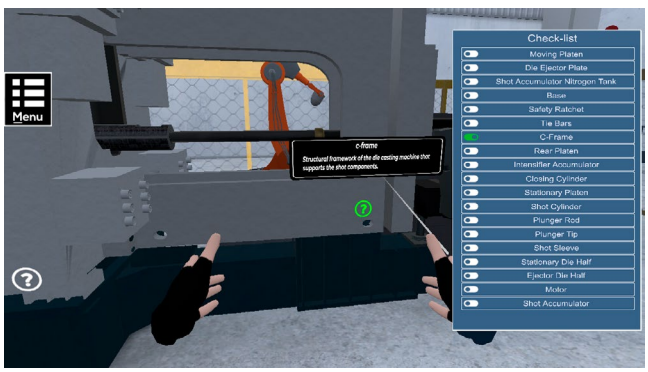
The 2024 US elections saw Donald Trump re-elected President of the United State. As had happened in his first term, it is expected that environmental and safety oversight will be reduced. Although the reduction in paperwork could be beneficial to companies struggling with filing with the government, companies should not lessen their vigilance when it comes to safety and environmental concerns.

The die casting industry continues to look for ways to improve safety. Since the COVID-19 pandemic the Days Away, Restricted, and Transfer (DART) rate for die casting has continued its downward trend. The latest data (2023) saw the DART rate drop to a low of 2.3, compared to the DART rate for all of manufacturing at 1.8. As die casters improve operating procedures and employee training the safety of everyone at the facility is improved.

Many of the countries in the European Union continue to put an emphasis on the carbon footprint of products. European Original Equipment Manufacturers (OEMs) have been asking their suppliers for the carbon footprint of the components they produce. This data is being used to benchmark the carbon footprint for the lifecycle of end product. Eventually there will be a drive to improve this carbon footprint, which could lead to OEMs switching to suppliers with better environmental standards. During the 2024 NADCA Die Casting Congress in Indianapolis, IN, a session discussed ways that die casting can improve sustainability and lower the carbon footprint.

High pressure die casting is a very energy intensive process; with most of the energy being used in the melting on the metal. 2024 saw the start of a project looking to benchmark the energy usage in die casting. Starting with general data – such as: total electricity usage, total natural gas usage, and total pounds of casting produced – the project aims to dive down into how much energy a typical die casting facility requires to cast one pound of metal. Further work on the project will look at energy usage in specific processes in die casting facilities. This will allow die casters to compare where their energy usage is compared to the rest of the industry. It will also lead to identify energy saving technology and processes that would have the greatest impact on energy usage. Any die casters who wish to take part in this project should contact Beau Glim at glim@diecasting.org.





MANAGEMENT AND PERFORMANCE IMPROVEMENTS THROUGH BENCHMARKING, ASSESSMENTS, SURVEYS AND STATISTICS

NADCA's benchmarking, plant assessments, surveys, and statistics generate pertinent information for making wise business decisions and improving overall company performance and profitability. The benchmarking effort captures information on key data and performance indicators and provides a company specific confidential report for each participating company, showing how the company compares to the population. Indicators include revenue and efficiency, average interest to total debt, return on capital, and inventory turns to cite a few. Other data includes capital spend, die cast utilization, scrap levels as a percent of revenue, material cost as a percent of revenue and more. Plant assessments, which are conducted in 1 to 2 days, provide a scorecard for various departments based on a series of questions and observations, and a company specific report showing how the various departments rank among the population and best-in-class. What is revealed are areas that can be improved upon for better performance. What is shared are best practices for driving improvement. Several companies have made improvements through these highly effective assessments. In 2024, a number of Plant assessments were completed. Due to the importance and usefulness of benchmarking information and the effectiveness of the plant assessments, these activities will continue in 2025 in partnership with Harbour Results Inc (now Wipfli). NADCA will fund $5,000 towards the plant assessments for our Corporate Members.

The Wage & Benefits Survey is conducted on an annual basis and covers wage levels for various job functions, health insurance cost, paid vacation and paid leave policies, pension plans, and profit sharing. With attracting and retaining a qualified workforce as one of the top challenges confronting the die casting industry today, the wage and benefits data is invaluable! Also in 2024, NADCA solicited Census data from our members.

In addition to the above surveys and plant assessments, NADCA conducted 12 other surveys in 2024 related to shipments, quoting activity, capacity utilization, personal protective equipment, and events. The surveys were as follows:

- Quarterly Business Barometer (four)
- Board Business Barometer (three)
- Executive Conference Attendee Survey
- Plant Management Conference Attendee Survey
- NADCA Education for Corporate Members Survey
- Congress & Exposition Exhibitor Survey
- Congress & Exposition Attendee Survey

Survey participation ranged from 15-70 companies. We would like survey participation to increase in 2025. More responses gives us richer data to provide to you!

The 2025 Executive Conference will feature presentations on the US Economy, status update on the US Manufacturing Sector, Using AI to reduce scrap, Rising Insurance Costs, an R&D Update, a Washington Update, and a casting automation group presentation.

INTERNATIONAL DIE CASTING COMPETITION

NADCA organized the International Die Casting Competition in 2024. Winning castings were displayed prominently at the 2024 Die Casting Congress and Exposition. Since 1972, the competition has featured the top designed die castings annually. Seven winners in various categories were selected. The list of winners includes:

ALUMINUM – UNDER 1 LBS
GENERAL DIE CASTERS, INC

ALUMINUM – 1 TO 10 LBS
BENDA TOOL & MODEL WORKS

STRUCTURAL ALUMINUM - UNDER 10 LBS
IKD CO., DN AUTOMOTIVE, & GENERAL MOTORS

STRUCTURAL ALUMINUM - OVER 10 LBS
XPENG INC., ALCOA CORP AND CSMET

ALUMINUM - INNOVATIVE DIE TOOLING
BENDA TOOL & MODEL WORKS

MAGNESIUM OVER 0.5 LBS
MERIDIAN LIGHTWEIGHT TECHNOLOGIES

ZINC UNDER 6 OZ
LAKESIDE CASTING SOLUTIONS

MEETINGS & CONFERENCES

In 2024, NADCA conducted the Executive Conference, Plant Management Conference, Government Affairs Briefing, Die Casting Congress & Exposition and Die Casting Congress West. In addition, NADCA launched a Young Professionals Organization.

The Die Casting Executive Conference was in February 2024, in Scottsdale, Arizona at the Fairmont Scottsdale Princess. The annual conference was a three day event that featured presentations on: Culture: Your Competitive Advantage, Washington Update: Taxes, Tariffs, Regulations, and Politics, Creating Flexibility: Preparing Leaders for Next Generation Manufacturing, Advancements in Die Materials, An Update on the US Economy, Navigating the Property & Casualty Insurance Market, Die Casting in the Digital Age: Harnessing Industry 4.0 to Build a Connected Foundry, and Pricing Strategy Is More Than a Numbers Game. This meeting also served as the first ever meeting of the NADCA Young Professionals Organization (YPO).

The 2024 Plant Management Conference was April 30 – May 2 the DoubleTree By Hilton Newark-Fremont in Fremont, California. A special presentation was given on Collaborative Robots - A Paradigm Shift in Automation. The conference also featured Hot Topic break-out discussions. Both the Lathrop and Fremont Tesla facilities provided a tour for conference attendees.

Launched in 2024 NADCA is excited to announce the formation of the Young Professionals Organization (YPO). The YPO first met in conjunction with the Die Casting Executive Conference. They met again independently on May 13-14, 2024 at the Hyatt Regency Bloomington – Minneapolis. The first day of this meeting featured a warm welcome from Todd Olson of Twin Cities Die Casting Co., half day of hot topic discussions and a fun team building event. The second day featured tours of Spectro Alloys, Mo-Tech and Twin Cities Die Castings Co. The group met again in October in conjunction with the Die Casting Congress and Exposition.

Every year, NADCA provides a unique opportunity for some of its members to travel to Washington for meetings with their U.S. Senators and Representatives. The Government Affairs Briefing was held June 11-12, 2024 at the Hyatt Place Washington D.C./National Mall. This is a chance for manufacturers to tell their government officials directly how their policies affect millions of businesses and their employees.

NADCA encourages its members to attend this summit and discuss the top issues of the day including: Requirement to Capitalize as an Asset and Amortize R&D Expenses, Trade, Tariff, and Supply Chain Resiliency Policies, Availability of Globally Priced and Available Raw Materials,

Job Training and Recruitment Incentives and Support, OSHA Workplace Rules (Indoor Heat Regulation) and New/Pending EPA regulations.

The Die Casting Congress & Exposition was held on September 30 – October 2, 2024 at Indiana Convention Center in Indianapolis, Indiana. Sponsored by solely NADCA, the event attracted over 180 exhibiting companies and over 2200 attendees. This event featured three days of Congress sessions during which technical and management presentations were given by experts from around the world. These presentations offered sessions in several different fields of metalcasting, including: Additive Manufacturing Uses in Die Casting, Failure and Quality Analysis of Additively Manufactured Tooling, Die Casting Sustainability, Advanced Tooling Materials and Processes, Protecting the Die from Molten Aluminum, Process Controls through Simulation, Innovative Die Casting Materials, Die Casting with Artificial Intelligence, Post Die Casting: Technologies and Techniques, and Optimizing Die Casting with Computer Modeling.

NADCA returned to the west coast with Die Casting Congress West for the first time post-pandemic. The event was held October 25, 2024 in conjunction with the fall Die Materials and R&D committee meetings. The meeting was held at the Hilton Anaheim in Anaheim, California. The topics covered were Conformal Cooling of Small Inserts, Die Coatings to Increase Productivity & Quality, Die Changeover Technology & Single Minute Exchange of Dies (SMED) and Quality Control Technologies.

TRAVEL-FREE EDUCATION

WEBINARS

In 2024 we reflected on what we want the future of NADCA webinars and education to be. The beginning of the year features a few popular webinar series favorites returning to the rotation. Although these webinars were well attended the program lacked spark and new offerings. In person and in plant training escalated and left very little time for creation of new content.

Converting courses into multiple languages through the help of AI was investigated and was deemed necessary. A program for conversion has now been selected and trial courses are on their way to being converted. The goal is to have several essential training courses to be converted by the end of 2025 in both Spanish and Mung. If your company has a need for courses in other languages, please reach out to us at education@diecasting.org.

For companies looking to implement a comprehensive Online Education program, the administration features remain an excellent option. These features enable assigned administrators to track progress and follow up on course completion efficiently. Purchasing access to an individual course provides one year of access to the recording, presentation, support materials, and quiz. Additionally, new webinars will continue to be added to the Online Education System within one week of their air date.

As part of our commitment to enhancing learning experiences, we have selected our most utilized courses for a major rehaul in 2025. To explore all available courses, visit the NADCA Marketplace and search for “online education.”

Although 2024 was a year of reflection for webinars we know that they are still very valuable and offer an easy way to learn without the cost of travel. In 2025 we already have 3 new series scheduled. We hope that you take advantage of this service and prioritize training in the upcoming year.

MARKETING

Social media marketing is a powerful tool for manufacturing industries, boosting brand visibility and positioning companies as industry leaders. By sharing product demos, behind-the-scenes content, and success stories, manufacturers can showcase expertise, build credibility, and engage potential clients. Platforms like LinkedIn and Facebook are essential for lead generation, allowing companies to connect directly with buyers, distributors, and partners. Social media also plays a key role in customer engagement, offering a space to address inquiries, provide support, and foster trust. Additionally, it serves as a valuable recruitment tool, helping manufacturers attract skilled talent by highlighting company culture, job opportunities, and employee testimonials.

Beyond engagement, social media provides critical market insights and competitor analysis, allowing manufacturers to stay ahead of industry trends. It is a cost-effective marketing strategy that drives website traffic, generates leads, and ultimately increases sales. Digital presence is now a necessity, as buyers increasingly research and make purchasing decisions online. Social media also enables manufacturers to expand their reach globally, breaking geographical barriers and connecting with international markets. By leveraging the power of social media, manufacturers can strengthen their brand, enhance customer relationships, and remain competitive in an ever-evolving industry.

In 2024 NADCA expanded its reach by integrating social media marketing heavily into its repertoire. Through posts about event, interactions and videos highlighting technology and the workforce we were able to start engaging like never before.

Here is just a snapshot of where we stand in November 2024:

SOCIAL MEDIA REACH

	REACH	FOLLOWERS
LINKEDIN	82,992	6,644
INSTRAGRAM	30,900	328
FACEBOOK	11,900	1,400
YOUTUBE	76,800	418
TIKTOK	33,000	30
X		862
TOTAL REACH	235,592	9,682

With our efforts continuing and expanding in 2025 we expect to have additional growth and reach. Interested in having your technology highlight on social media? Please reach out to Athena Catlett at catlett@diecasting.org.

NADCA ONLINE

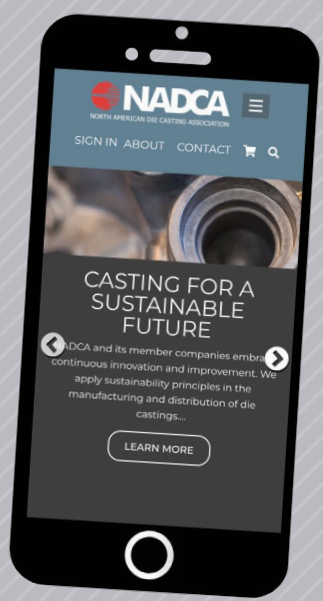
WWW.DIECASTING.ORG

In 2024, NADCA continued to add to its website on a regular basis.

In every year, the Technical Archives are updated continuously. Articles from Die Casting Engineer magazine are added on a bi-monthly basis, and Technical Papers presented at each year's Die Casting Congress are added. NADCA held the Die Casting Congress & Exposition in Indianapolis, Indiana.

Look for updates on the website this year as NADCA staff aims to visit every single NADCA chapter at some point. Presentations such as the State of the Industry report plan to be given. Come engage with NADCA staff and tell us in person what we can do for you!

NADCA continues to be very excited to be able to offer all its services to its members and will continue to keep the website, content and services relevant to your needs. Any feedback and constructive criticism is always welcome as NADCA looks to provide the services that you, the member, would like to see.

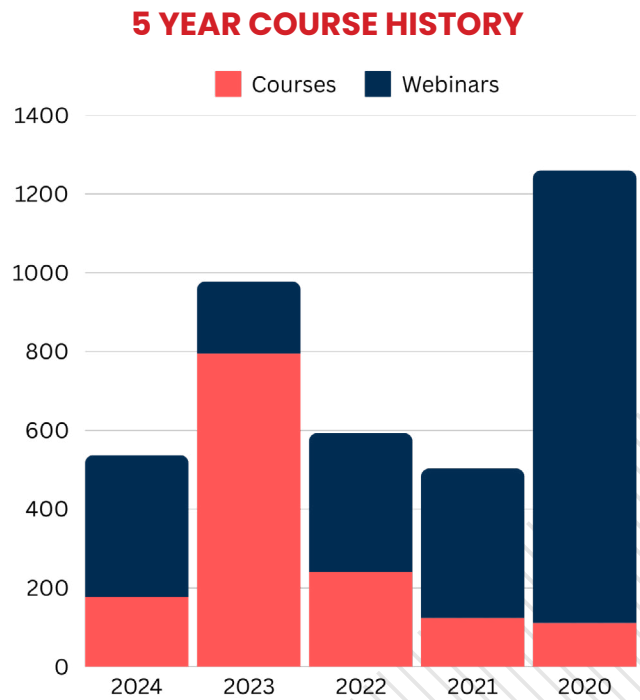


EDUCATION

Chapter, In-Plant, In-House and Train-the-Trainer attendance in 2024 totaled 177 students for 15 course offerings extended by NADCA. There were six Chapter courses with 80 students and five In-Plant courses with 70 students. We did not offer any additional training seminars or workshops in 2024. We continued National Courses held in Arlington Heights, Illinois. We held 5 courses with 27 students. Therefore, the grand total for 2024 attendance was 177.

The online education system uses webinars and existing online courses to make up its catalog of over 300 hours of training. A course in the online education system includes a recording of the course, a PDF of the presentation, any applicable books to support the course, and a test. Courses are sold either in training blocks to companies (available for corporate members only), and job kits or individual courses to individuals in North America. In 2023 NADCA launched an initiative for corporate members to utilize select trainings as part of their dues. In 2023, 26 training blocks and 11 job function kits were utilized by corporate members. 28 individual courses were sold in 2024.

Webinars saw slight increase in attendance in 2024. These hour-long presentations are held throughout the year. Around 360 people attended webinars in 2024. A total of 15 webinars were held, four of which were new topics.



RESEARCH + TECHNOLOGY

There were fourteen (14) R&D projects in the beginning of 2024 with a total leveraged value (direct funding plus cost share) of approximately $2,837,000. During the year three projects were completed. #231 Failure analysis of Additively Manufactured Components, #237 Achieving 100% recycled aluminum in Structural Die Casting Applications, #238 Solder Free Alloys by Optimizing Constitutive Mechanical Behavior

Five Projects were started in 2024, bringing the portfolio to fifteen active projects at the end of 2024. The total portfolio including cost share is approximately $6.0 million. The projects added to the portfolio include:

#246 Failure Analysis of Additively Manufactured Components.

#247 A.I. Vision System for Automated Casting Quality Inspection.

#248 Advanced Thermal Management.

#249 Identifying and Controlling factors to improve the production of Thin-wall Ferrous, High Pressure Die Castings.

#250 Increase fluidity and increase the ductility of HPDC alloys.

2024 ACCOMPLISHMENTS

Project #231: Failure analysis of Additively Manufactured Components was completed by Peter Ried, from Ried and Associates. The project objectives were to determine damage initiation and propagation sites and mechanisms in 3D printed die cast tooling. This project completed testing on several different 3D printed components that had failed in production. The failures determined by the analysis ranged from the roughness of the printed cooling lines creating corrosion pitting and nucleation points for cracks to printing errors creating failures in the 3D printed components. The summary of the results are available on the NADCA website and from Peter Ried.

Project #237: Achieving 100% recycled aluminum in Structural Die Casting Applications was completed by Dr. Alan Luo from The Ohio State University. The goal of this project is to achieve 100% use of recycled aluminum in die casting applications by realizing the following two objectives: 1) substitute 100% secondary materials for primary alloys (e.g., EZCast and Aural-2) in structural die castings with no degradation in properties; and 2) improve the mechanical properties of the current secondary alloys (e.g., A380 and A383) for non-structural applications. The project utilized Thermodynamic Modeling for alloy design. Specifically looking at the role of Sr in aluminum alloys. For recycled alloys containing up to 0.6%Fe, 60 ppm of Sr addition combined with a higher solidification rate offers best refinement of needle shaped eutectic Si and δ-Al3FeSi2 phases. Based on the above thermodynamic simulation results, two structural alloys, RS-1 (containing 0.5%Fe) and RS-2 (containing 0.6%Fe), have been designed with microalloying elements Mn, Cr and Sr (see Table 1 for compositions). Three non-structural alloys, NS-1, NS-2 and NS-3 have also been designed with a base composition Al-7Si-0.4Mg-1.8Cu-0.9Zn-1Fe and some microalloying elements (Figure 2). These materials were then high pressure die cast to evaluate the properties of these alloys. (Figure 1).

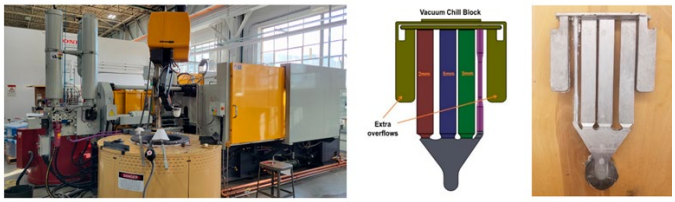


Figure 1 – *Die casting trials of recycled aluminum alloys and baseline alloys at Ohio State University.*

Alloy	% Elongation	YS (MPa)	UTS (MPa)	Sample
NS-1 (Al-7Si-0.4Mg-1.8Cu-0.9Zn-1Fe + microalloying 1)	2.5	161	273	Plate (3 mm)
	3.4	160	288	Plate (5 mm)
	2.2	148	259	Round (6 mm)
NS-2 (Al-7Si-0.4Mg-1.8Cu-0.9Zn-1Fe + microalloying 2)	4	130	266	Plate (3 mm)
	4.4	128	266	Plate (5 mm)
NS-3 (Al-7Si-0.4Mg-1.8Cu-0.9Zn-1Fe + microalloying 3)	3.0	161	277	Plate (3 mm)
	4.0	155	294	Plate (5 mm)
	3.7	142	272	Round (6 mm)
A380 (Al-9Si-0.1Mg-3.4Cu-1Zn-0.9Fe-0.3Mn-0.04Cr)	*2.1*	*151*	*236*	*Plate (3 mm)*
	2.5	*144*	*228*	*Plate (5 mm)*
	2.7	*136*	*281*	*Round (6 mm)*

Figure 2 – *Major compositions and mechanical properties of recycled non-structural die cast alloys (in comparison with baseline A380 alloy).*

Project #238: Solder Free Alloys by Optimizing Constitutive Mechanical Behavior.

The goal of this project is to find the link between die soldering and aluminum alloy mechanical properties. The project uses different levels of magnesium in aluminum alloys to modify the shear strength and affect the solder tendency of aluminum to the die cast die. The hypothesis is to modify the magnesium and increase the volume fraction of the submicron magnesium silicide (Mg2Si) particles to impede dislocation motion. Once the alloy modifications were completed, tensile bars were cast to test the hypothesis. (Figure 3) The tensile bar center sections were used for the shear specimen.

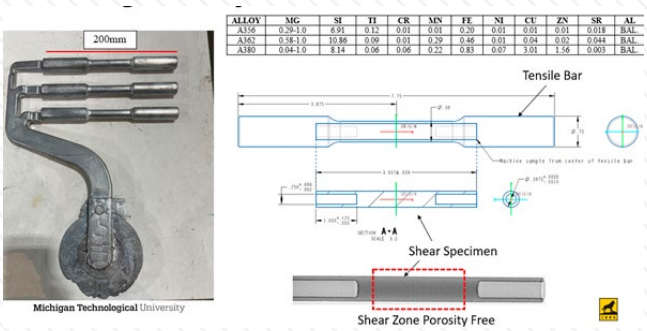
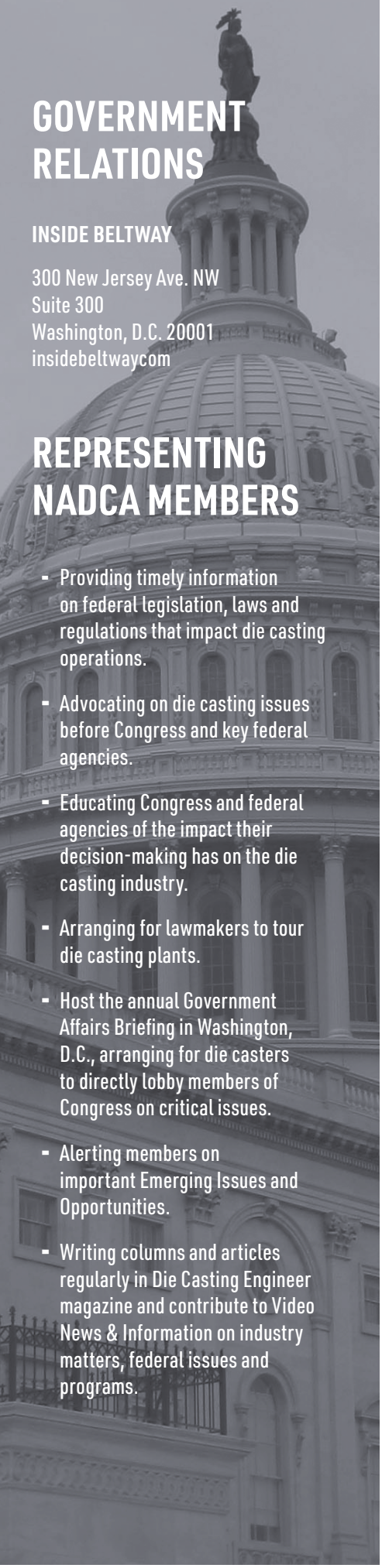


Figure 3 – *Shear specimens being made from die cast tensile bar center sections.*

Summary of conclusions from the project showed:

1. The Tresca Solder modeling accurately predicts soldering.
2. Confirming the hypothesis, that higher magnesium levels increases the shear strength and reduces the Tresca number. Showing that higher magnesium reduces soldering
3. By optimizing shear strength this can be used to mitigate soldering in High pressure die casting. Higher magnesium in A380 (Mg0.6) showed less soldering than standard A380.
4. Skin Thickness correlates directly to soldering. Thin skin areas are more prone to soldering than thicker skin areas in high pressure die cast parts.

The 2025 Research & Development Strategic Plan and Roadmap Overview was published in the July 2024 issue of Die Cast Engineer Magazine.



GOVERNMENT RELATIONS

INSIDE BELTWAY

300 New Jersey Ave. NW
Suite 300
Washington, D.C. 20001
insidebeltwaycom

REPRESENTING NADCA MEMBERS

- Providing timely information on federal legislation, laws and regulations that impact die casting operations.
- Advocating on die casting issues before Congress and key federal agencies.
- Educating Congress and federal agencies of the impact their decision-making has on the die casting industry.
- Arranging for lawmakers to tour die casting plants.
- Host the annual Government Affairs Briefing in Washington, D.C., arranging for die casters to directly lobby members of Congress on critical issues.
- Alerting members on important Emerging Issues and Opportunities.
- Writing columns and articles regularly in Die Casting Engineer magazine and contribute to Video News & Information on industry matters, federal issues and programs.

GOVERNMENT AFFAIRS

NADCA'S VOICE IN WASHINGTON

In 2024, NADCA's relationship switched to Inside Beltway to act as NADCA's representation in Washington, D.C. They are tasked developing Congressional connections for NADCA members among other items, and a section in Die Casting Engineer magazine presented by Omar Nashashibi.

Inside Beltway is a Washington-D.C.-based non-partisan lobbying, strategic consulting, and industry research firm. Helping clients navigate the complexity of public policy is critical for their decision making and strategic planning – whether launching a lobbying campaign, developing a plan for your business, or creating long-term strategies to minimize uncertainty.

Inside Beltway represents clients before the White House, federal departments and agencies, the U.S. Congress, and other government and industry organizations. Serving as the eyes, ears, and voice for clients, Inside Beltway specializes in tax policy, international trade and tariffs, workforce education support, regulatory actions, industrial base support, and supply chain disruptions. Visit www.insidebeltway.com for more information.

NADCA's views and positions are most important in the direction being taken by OSHA and EPA on a host of topics which directly and indirectly impact our industry. Webinars continue to be a popular way for NADCA to communicate with and educate its members and the industry as a whole. Information can be found under the Government Affairs tab of the NADCA website.

NADCA continues to report about the current administration, so members can expect to see updates in NADCA's Government Affairs section over the course of any given year. Top policy areas identified by NADCA through its surveys include: regulatory oversight (EPA, OSHA, NLRB, SEC), energy and raw material costs, tax policy, workforce recruitment/development, and more.

NADCA has been historically successful in obtaining funds for pre-competitive technology development that has resulted in changing the die casting industry. More research is needed and NADCA continues to educate the administration's offices on how die casting technology development would help advance the goals of the nation.

Look for more of this activity on EPA monitoring, OSHA reporting and research needs being conducted in 2025. NADCA needs good stories from the industry and the people in industry to come to Washington, D.C. to tell their stories.

NADCA spends almost 10% of the member dollar on Washington activities. This is a large percentage of your dues. Make that expense pay dividends - get involved in our Washington efforts!

RESOURCES

DCE & ENEWSLETTERS

Die Casting Engineer (DCE) magazine is distributed to all Individual Members, Corporate Members and subscribers. In 2024, more than 12,000 copies of Die Casting Engineer were in circulation, with an average of 1,700 people receiving each issue.

The magazine is a means to promote the die casting industry. It does so by featuring technical articles submitted by the industry's leading educators, scientists, engineers and suppliers. Upcoming educational courses, conferences and industry news are featured monthly. The past year featured numerous technical articles throughout the six bi-monthly issues. The themes for 2024 included die casting machines, high integrity processes & alloys, die & plunger lube/plunger tips, cast materials, die materials, additive manufacturing, computer modeling & simulation, defects, die coatings & surface treatments and post casting & secondary operations.

DCE online is located at www.diecasting.org/dce. The site is also accessible through NADCA's main web site through a link under the Communications tab at the top of the page.

NADCA continues to host its digital edition in its current format. The digital edition features an interactive layout with a page view, content view, a list of advertisers, as well as searchable content. The digital edition has been positively received by readers of Die Casting Engineer magazine. Its features continue to evolve as its hosting service adds innovative functions.

NADCA also regularly sends out weekly eNewsletters. The NADCA Update eNewsletter continues to be sent to over 10,000 different emails. The eNewsletter updates its recipients on news in the industry, news from NADCA, upcoming conferences and meetings, and new products and publications. It is a great way to easily stay connected to the die casting industry.

NADCA also regularly sends out weekly eNewsletters. The NADCA Update eNewsletter continues to be sent to over 13,000 different emails. The eNewsletter updates its recipients on news in the industry, news from NADCA, upcoming conferences and meetings, and new products and publications. It is a great way to easily stay connected to the die casting industry.

PUBLICATIONS

IMPROVING THE INDUSTRY'S KNOWLEDGE

Publications are essential for advancing the knowledge base of the die casting industry. By sharing valuable information, they help improve the industry's collective understanding. Through research findings, insightful articles, and in-depth analyses, these publications drive continuous learning and innovation. They provide a platform for exchanging best practices, groundbreaking ideas, and the latest advancements, fostering a culture of growth and improvement. In 2024, NADCA introduced three publications.

Die Casting Industry Capabilities Directory
Available by download, excel sheet contains information on metal, process, end market served, region of the country,company and several additional search criteria. The downloadable Capabilities Directory has over 463 die casting operations listed, with additional information available for each company: process(es) & metals, machine & casting sizes, and post casting operations.

NADCA Product Specification Standards
This manual covers specification, design and production guidance for both users and manufacturers of conventional high pressure die castings. The manual presents tooling and processes information, alloy properties, standard and precision tolerances, GD&T, design guidelines, quality assurance provisions and more. Revisions for this edition include: rewrite of the first chapter to focus on an overview of the die casting process; additional information about die technology and sizing; new information about loose inserts; considerations for datum locations; moved around the order of alloy families to cover the more common alloys first; updated alloy reference tables; added P-20 as a possible option for miniature die casting die material; updated casting examples with more recent products; minor typographical errors have been corrected through.

Wage & Benefit Survey - 2023
This report is the result of 2023 Wage & Benefits Surveys representing 17 die casting companies nationally. The 2023 report covers information based on the month of September 2023 that was collected during November and December 2023.

The report is organized by category of information. Competition for labor comes from more than just other die casters. Where common positions exist in an organization (i.e., accounting, material handling, etc.) the labor pool expands. The report details hiring strategies, wage increases, insurance offerings, and common wage rates across processes and regions.

BOTTOM LINE

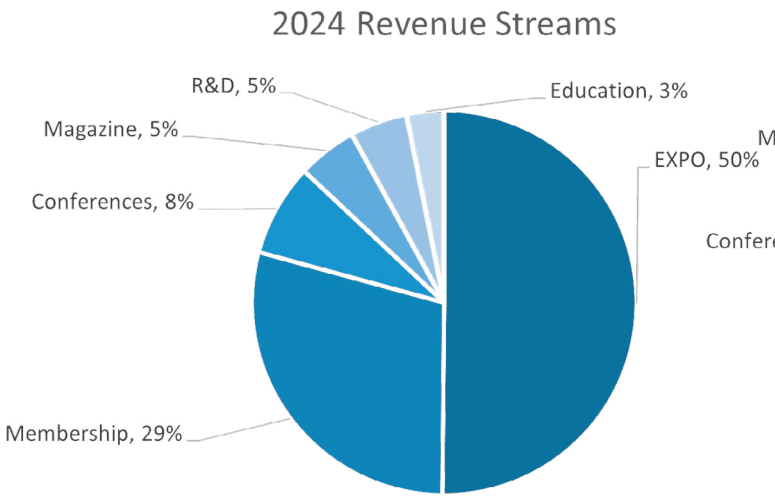
FINANCIAL STANDING

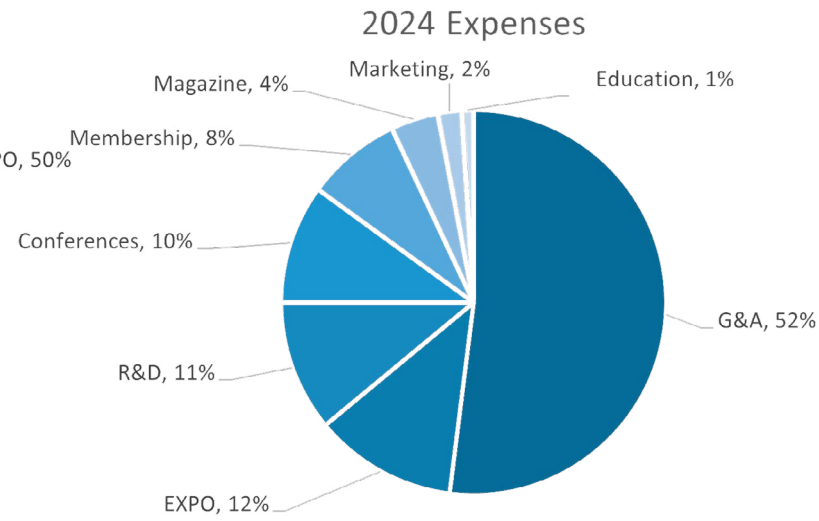
> "IT IS IMPORTANT FOR NADCA TO UNDERSTAND YOUR NEEDS, SO THAT WE MAY BETTER SERVE YOU."

Overall, a solid year for the organization, as revenue came in at 111% of budget. Membership revenue was at 104%, and conference revenue came in at 135%. Attendance at NADCA's show in Indianapolis almost matched its all-time high. Expenses came in under budget at 98%, which illustrates NADCA's commitment to being financially responsible. NADCA spent $215,000 on Research and Development projects in 2024, as advancing our industry technology is critical to our continued growth.

The 2025 budget reflects continued financial stability. NADCA is expecting good attendance at the Tabletop in Milwaukee this year. In fact, booth space is already over 60% sold. If you would like a booth, please reach out soon! We also have plans to continue to grow our membership base as well. NADCA is committed to visiting every chapter this year and looking forward to connecting with as many members as possible. To date, our visits have been very rewarding. It's important for NADCA to understand your needs, so that we can better serve you. Additionally, we have budgeted almost $250,000 for R&D projects in 2025. If you have a project you'd like us to know about, please reach out to us!

Please see revenue and expense graphs below:





LOOKING FORWARD TO 2025

PLANT MANAGEMENT CONFERENCE
APRIL 29-MAY 1, 2025
INDIANAPOLIS, IN

GOVERNMENT AFFAIRS BRIEFING
JUNE 10-11, 2025
WASHINGTON, D.C.

DIE CASTING CONGRESS & TABLETOP
OCTOBER 7- 9, 2025
MILWAUKEE, WI

COURSE TRANSLATION TO VARIOUS LANGUAGES

CROSS PROMOTION OF SOCIAL MEDIA MARKETING FOR MEMBERS

NEW COURSES ON THERMAL DESIGN, HYDRAULICS AND COBOTS

YPO EDUCATIONAL OFFERINGS

EXPAND SCHOLARSHIPS TO MASTER AND DOCTORAL STUDENTS

ESTABLISH A NADCA MEXICO CHAPTER

LAUNCH MEMBERSHIP REFERRAL PROGRAM

Live NADCA CUSTOM WEBINARS

NORTH AMERICAN DIE CASTING ASSOCIATION

Courses can be **created to meet your organization's specific needs and taught live via webinar**. This means the education and training program can more directly improve your "bottom-line".

The **overall costs are lower** than sending students to offsite for training. When we deliver the training to you, the expenses associated with the program are the total cost of the actual education and training — no travel expense.

Timing of the program and scheduling can be **designed to fit your time schedule** and operational hours. This cuts down on time lost by having employees out for extended periods of time.

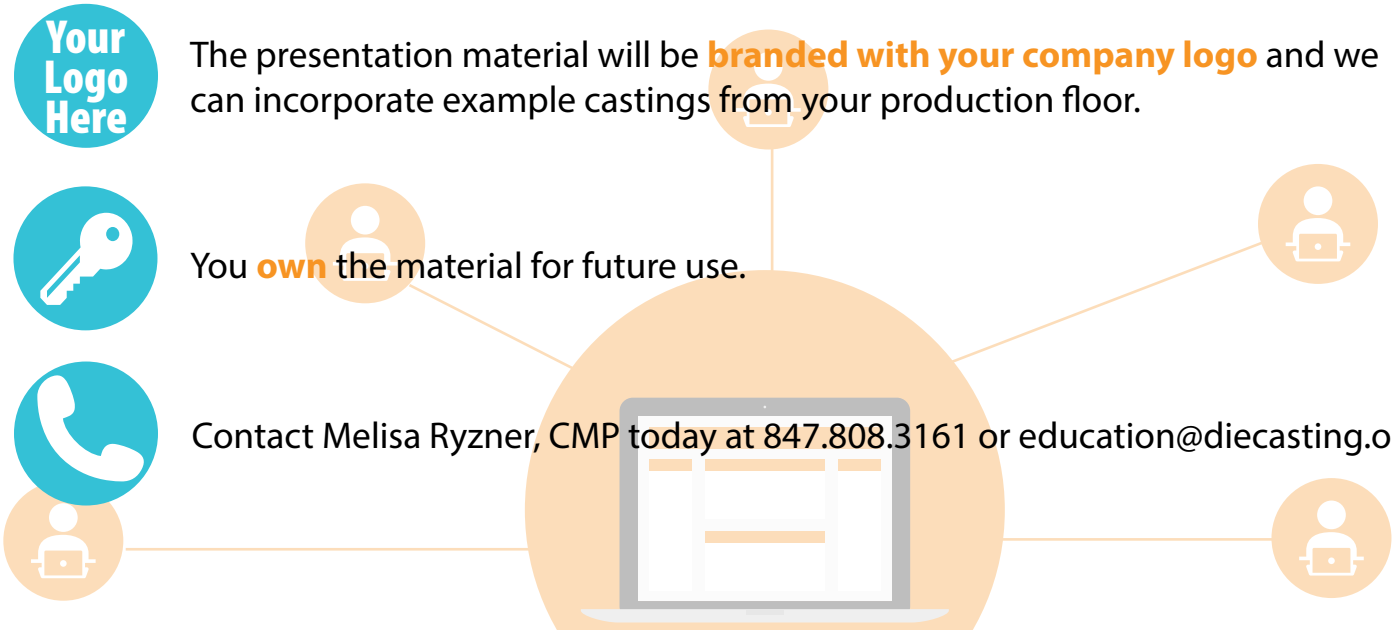
The program can **economically accommodate more people** and is taught by top-notch NADCA instructors. Custom courses can be delivered for as little as $300!

Webinars can be **100% custom** from the length of the webinar to the content to the look and feel of the information presented.

The presentation material will be **branded with your company logo** and we can incorporate example castings from your production floor.

You **own** the material for future use.

Contact Melisa Ryzner, CMP today at 847.808.3161 or education@diecasting.org



2025 Exhibitor Spotlight

Allied Metal Company 202

2059 S Canal St
Chicago, IL 60616
United States
P: (312) 225-2800
www.alliedmetalcompany.com

We are a family-owned secondary aluminum alloy and zinc alloy manufacturer. We will be celebrating 75 years of business and same family ownership in 2027! We have recently moved all of our manufacturing under one roof in Chattanooga, TN. We bring 72 years of experience and expertise to help our customers get the correct material and chemistry they need for the parts they make.

Automation System & Design Inc. 337

3540 Vance Road
Dayton, OH 45439
United States
P: (419) 467-5727
www.asddayton.com

BOHLER 233

1050 Remington Road
Schaumburg, IL 60173
United States
P: (888) 368-3376
www.us.bohler.com

When the job is tough, customers turn to BÖHLER Steels – exclusively represented by EDRO in the USA. Böhler prides itself on providing complete solutions with industry leading grades W360 (highest thermal stability and wear-resistance), W350 (large deep cavities), W403 (heat checking resistance), and W302 (premium H-13). Additionally, we offer full additive manufacturing services from design to part, and superior eifeler coatings that include Crosal-plus and Duplex-Tigral. No matter what the situation calls for, BÖHLER is here.

BuhlerPrince, Inc. 203

670 Windcrest Dr
Holland, MI 49423-5410
United States
P: (616) 394-8248
www.buhlerprince.com

Die Casting Machines and systems made by BuhlerPrince are ideal for the most varied processes. Whether you are interested in aluminum, magnesium, zinc, vacuum, structural or engine block processes – BuhlerPrince has the right solution. BuhlerPrince supports customers throughout the life-cycle of their equipment with global services including process optimization, flow simulations, remanufacturing, retrofits and upgrades.

Castec Corporation 102

7640 Moller Road
Indianapolis, IN 46268
United States
P: (317) 872-3882
www.castec-inc.com

As a company, we specialize in the manufacturing of core pins, inserts, and other key components in die casting molds. Our latest technologies in additive manufacturing and our award winning surface coating to prolong your tool life.

Castool Tooling Systems 328

2 Parratt Road
Uxbridge, ON L9P 1R1
Canada
P: (905) 852-0121
www.castool.com

Any die caster knows how to produce large, thin , convoluted aluminum castings for the automotive industry. It is already being done quite satisfactorily and profitably in large quantities. There are no secrets. Knowing how to do it and actually doing it, however, are two very different things. When theory is finally replaced by reality, the most fundamental precept of die casting can be found in the old adage: a chain is only as strong as its weakest link.
All Castool products promote energy conservation and are environmentally friendly.

Chem-Trend, LP 402

1445 McPherson Park Dr
Howell, MI 48843-3947
United States
P: (517) 302-2962
www.chemtrend.com

At Chem-Trend, we are not simply a supplier. We are a visionary, working alongside you to create solutions that help you today, while forging the way to the future. It starts with our people, who begin each day focused on your business, your challenge, and your success. Die cast solutions have been a part of Chem-Trend since day one. As conditions continue to become more demanding, efficiency becomes more crucial, and materials become even more premium, we work alongside our customers to uncover every possibility.

Diehl Tool Steel 134

3475 Spring Grove Ave
Cincinnati, OH 45217
United States
P: (513) 242-8900
www.diehlsteel.com

Diehl Tool Steel is a fully integrated distributor of specialty tool steels, powder metals, aluminum, carbon and stainless alloys. Diehl Tool Steel is the largest distributor of Yasugi® Specialy Steel proprietary grades in North America and a wholly owned division of Proterial Business Group. Diehl Tool Steel processes orders to exact customer specifications.

DME Company 304

29111 Stephenson Highway
Madison Heights, MI 48071
United States
P: (800) 626-6653
www. DME.net

For over 80 years, DME has been the backbone of the die casting industry, providing unparalleled support and innovation. Our commitment to die casters is stronger than ever, offering a wide range of standard and engineered products, along with cutting-edge aftermarket solutions.
Through our eSTORE, available 24/7, members gain access to a full catalog of innovative components and resources designed to enhance production capabilities. By registering for the DME eSTORE, you're not just getting products – you're partnering with a leader in the field. We make it easy to order what you need when you need it, ensuring you stay ahead in the ever-evolving world of die casting.
Experience the DME difference: expertise, reliability, and support at every step of your manufacturing journey.

Dynamo Inc 116

7-107 Kyoei Street
Seto, Aichi 489-0984
P: 708 261 6492
https://dynamoinc.us/

We are a leading Japanese manufacturer specializing in jet-cooled core pins and mold components for the high-pressure die-casting industry. We efficiently serve users worldwide with a global presence spanning plants in Japan and Vietnam, alongside sales offices in Germany, North America, Mexico, and China.
Our die-cast die components, including jet-cooled core pins, cascades, inserts, bore cores, and water jackets, exemplify our commitment to quality and innovation. Supported by sister companies Nihonseiki Co., LTD. and Tooling Innovation, Inc., we offer complete molds and additive manufacturing products. These utilize HTC45 die steel powder, boasting equivalence to SKD61 (H-13), high thermal conductivity, low thermal expansion, and improved component life through conformal cooling.

EcoShot Inc. 310

5524 Fortune Circle S, Suite F
Indianapolis, IN 46241
United States
P: (317) 912-4498
www.ecoshotinc.com

EcoShot (formerly RYOEI USA) is a full-service industrial automation provider specializing in die-casting that supplies state-of-the-art products and services for OEMs. Our automation systems include die spray systems, sorting equipment, pallet changers, material handling systems, equipment inspection, and much more.

Ellwood Specialty Metals – USA 206

499 Honey Bee Ln
New Castle, PA 16105
United States
P: (800) 932-2188
https://esmusa.elwd.com/

ELLWOOD Specialty Metals Group is the leading tool steel and aluminum distributor for use in die casting dies, plastic molds, forging dies, and many other tooling applications. Our steel and aluminum grades are used to produce parts for automobiles, trucks, aircraft, and consumer products across North America. The variety of our steel products include hot work tool steels, plastic mold steels, cold work tool steels, forging die steels, stainless grades, and heavy plates. We also offer a comprehensive portfolio of aluminum cast, rolled, forged, and extruded products for various industries.

Exco Engineering 332

1314 Ringwell Dr
Newmarket Ontario L3Y 9C6
Canada

Fill USA, Inc 210

44160 Plymouth Oaks Blvd
Plymouth, MI 48170
United States
P: (312) 973-9486
www.fill.co.at/en

Leading through innovation.
As the innovation leader in machining solutions for the aluminum die cast industry, Fill is internationally renowned for developing best-in-class solutions. Fill supports all production processes from the raw part to the machined, cleaned, tested and assembled finished part. Distinguished by many years of experience and technical proficiency, Fill takes overall responsibility for even the most complex automation processes. Working with Fill assures customers a decisive competitive advantage.
Fill your future.

FLOW-3D CAST 415

683 Harkle Rd
Santa Fe, NM 87505
United States
P: (505) 982-0088
www.flow3d.com/products/flow-3d-cast

Based in Santa Fe, New Mexico USA, Flow Science has been a pioneer in CFD software development for over 40 years. Our company mission is to provide our customers with best-in-class flow modeling software and exceptional technical training and support services. The FLOW-3D family of products offer highly accurate and versatile CFD solutions to meet the unique challenges of manufacturing in the 21st century.

Fondarex USA — 106

Route Industrielle 13
St-Legier Vaud, 1806
Canada
P: 0041 21 943 00 00
www.fondarex.com

With the increasing demand of high-quality and complex die-cast parts for E-mobility and MEGA / GIGA- Castings, Fondarex created a complete solution for an integrated system.
Consisting of; FX VAC Vacuum-, FX Squeeze- and FX Jet Cooling units,to improve the quality, reduce costs and expand the range of processable alloys. The devices are controlled by a Central Periphery Management System (PMS) to enhance energy efficiency, process optimization and simplifying maintenance and operation.
Please come and visit Fondarex during the Die Casting Congress & Tabletop in Milwaukee!

Frech USA Inc. — 218

6000 Ohio St
Michigan City, IN 46360-7757
United States
P: (219) 874-2812
www.frechusa.com

Die Casting Systems by the Frech Group offer customers improved productivity we the smart application of the die casting industries leading technologies. Die Casting cells are built to last and simple to operate with intuitive controls and flexible interfaces. The Frech Group also includes important market brands like Robamat, Meltec, VDS, Spesima, and Frech ZPF.

Godfrey & Wing — 302

220 Campus Drive
Aurora, OH 44202
United States
P: (330) 562-1440
www.godfreywing.com

Godfrey & Wing vacuum impregnation technology is engineered to overcome your porosity challenges. We enable you to meet OEM requirements, ensure the quality of your components, and the integrity of your bottom line. As a U.S. based company with industry leading equipment options for in-house impregnation, mil-standard approved sealants for any application, and a vast network of service centers, make or buy, we have you covered. Casting impregnation done, Simply Better.

Hanson International — 104

3500 Hollywood Road
Saint Joseph, MI 49085-9581
United States
P: (269) 429-5555
www.hansoninternational.com

Hanson International specializes in the design, build, sample, and inspection of precision molds and high pressure die cast dies - primarily for the automotive industry. Hanson's campus is located in Saint Joseph, Michigan, and provides the die cast industry with the finest, most efficiently designed and long-lasting tooling available. Hanson's single source assurance and single point of contact approach guarantees outstanding service and support from design to delivery.

Hill and Griffith Company — 215

1085 Summer St
Cincinnati, OH 45204-2037
United States
P: (800) 543-0425
www.hillandgriffith.com

Since its inception in 1896, Hill & Griffith has maintained a top priority around quality and service, using these two fundamental aspects to reach customer satisfaction for 128 years. Investment in people, research, product development, and facilities will ensure we continue to be a leader with our customers and the industries we serve. The integrity of Hill & Griffith is represented in the products and services bearing our name, which is why product quality has been and will always be at the heart of the company. Hill & Griffith continues to make substantial investments in research and development to ensure new technologies and quality supplies are being developed to support our customers' needs, industry trends and compliance with environmental regulations.

IECI SRL — 239

2301 Solona St
Haltom City, TX 76117
United States
P: +39 393 43 23 841
www.iecionline.com

IECI, leading company in the field of temperature control of molds, is an Italian manufacturing firm operating in the sector of aluminum die casting. Our organization was born in 1972 in Passirano, in the province of Brescia (Italy); in these almost 50 years of history it could establish itself as a brand of complete reliability, robustness and high precision.

Inductotherm Corp. 317

10 Indel Ave Po Box 157
Rancocas, NJ 08073
United States
P: (609) 267-9000
www.inductotherm.com

Induction can heat and melt aluminum at very high efficiency rates with very low metal losses as compared to gas or oil-fueled furnaces, which can emit a large amount of carbon dioxide. As we go green, we help our customers meet their decarbonization initiatives through our induction furnaces. With over 70 years of experience, we can be your answer to reducing your carbon footprint. Visit Inductotherm.com to learn more.

Industrial Innovations Inc 409

2936 Dormax St SW
Grandville, MI 49418
United States
P: (616) 249-1525
www.industrialinnovations.com

International Mold Steel 224

1155 Victory Place
Hebron, KY 41048
United States
P: (859) 342-6000
www.imsteel.com

International Mold Steel (IMS) supports the die casting community with NADCA certified grades DH31-EX™ and DHA™-World. These technologically advanced die steels can provide longer tool life, better part quality and lower total cost per part. IMS offers close collaboration with customers on steel selection, production process, machining, polishing, welding, coating and heat treatment.

J&S Chemical Corp 101

170 N Industrial Way
Canton, GA 30115-8217
United States
P: (770) 720-8100
www.jschemical.com

USA-based J&S Chemical is a leading manufacturer of specialty lubricants for the die casting industry. J&S Chemical's business philosophy is to create value for their customers by developing high quality, high performing, value added products. Substantial investment in R&D as well as their Technical Service Team, working on-site with their customers, is driving new product developments. Many of their brands are product leaders in the industry such as, TurboCast® (die release agents and liquid plunger lubricants), ShotBeads® (solid plunger lubricants) and TurboTrim™ (trimming fluids).

Lethiguel USA 110

14800 James Rd
Rogers, MN 55374-9361
United States
P: (763) 428-4229
www.lethiguelusa.com

Lethiguel USA, formerly Midland Technologies, designs/manufactures thermal and vacuum technology solutions. We offer a complete line of immersion heaters to melt/hold non-ferrous metals, jet cooling systems to reduce scrap/cycle time and vacuum systems that monitor die cavity vacuum levels during casting. The Midland name lives on as our brand for chill blocks and jet coolers – both standard and custom designs. We have Europe and US manufacturing facilities and technical staff supporting our solutions.

Lindberg/MPH 309

3827 Riverside Rd
Riverside, MI 49084-0131
United States
P: (269) 849-2700
www.lindbergmph.com

Lindberg/MPH is an industry leader in industrial melting and holding furnaces. Each furnace is designed to be low maintenance and energy efficient. Choose from a variety of custom options and sizes to meet your process and facility requirements. Available configurations include dry hearth, wet hearth, stack melter, and crucible or pot designs. Lindberg/MPH industrial melting furnaces are commonly used for aluminum or zinc and are also used for copper, lead, brass, bronze, and other materials. Our experienced engineers work closely with you to design industrial melting furnaces that meet your specifications.

MAGMA Foundry Technologies Inc. 323

10 N Martingale Rd Suite 425
Schaumburg, IL 60173
United States
P: (847) 252-1668
magmasoft.com

MAGMA stands for robust and innovative casting solutions as well as a strong partnership with the metal casting industry. MAGMA's product portfolio based on Autonomous Engineering™ leads to robust and cost effective solutions in component design, tooling lay-out and production. The application of the MAGMA APPROACH, combined with MAGMA's comprehensive commitment to customer support, competent engineering services and educational offerings through the MAGMAacademy, offers a unique and systematic methodology for optimization and problem-solving in metal casting processes. This allows our customers to effectively integrate and use MAGMA's tools to achieve significant technical benefits and cost savings in their organizations.

NovaCast USA Inc. 338

1952 McDowell RD
Naperville, IL 60563
United States
P: (630) 450-1647
www.novacastusa.com

The innovative casting process simulation tool that helps you work faster, easier and achieve more accurate castings. NovaFlow&Solid simulates mold filling and solidification and also contains much more than that and it really gives you the possibility to simulate the casting production that you dream to have. We want you to be able to find solutions faster and more accurate than before and it should be easy to learn to use the program.

OEE Companies 216

855 Village Center Drive #336
Saint Paul, MN 55127
United States
P: (612) 440-5714
www.oeecompanies.com

OEE Companies supplies tooling, tooling components and peripheral equipment for high pressure die casters.

- Chill vents
- Unit dies
- Conformally cooled inserts
- Custom shot end components
- Standard ejector pins, die springs and consumables
- Jet cool pins
- Small diameter cooling machines
- Vacuum systems

Phygen Coatings Inc 301

1400 Marshall St NE
Minneapolis, MN 55413-1040
United States
P: (612) 767-3242

Phygen's XVD surface enhancement reduces soldering, erosive die wear and minimizes heat checking on core pins and dies with a one-of-kind improved PVD process. Phygen solutions offer extended die life and improved ""as cast"" part quality for your most demanding needs and has been a leader in innovation and research advances the die casting industry. Phygen offers tailored solutions and personal customer service.

Progressive Components 112

235 Industrial Drive
Wauconda, IL 60084
United States
P: (800) 269-6653
www.procomps.com

Progressive Components is a leading source of high-performing standard products for the die-cast industry. With plant managers working to reduce unscheduled production stoppages, Pro has engineered our die-cast line to maximize performance and longevity, and our Black Nitride products are proven to outperform others exponentially. Unlike standard additive process treatments, Pro's Black Nitride is a high-hardness diffusion that won't wear like DLC and other surface coatings and is available on our Pins, Sleeves, Bushings, and more.

Pyrotek Inc 312

705 West 1st Ave
Spokane, WA 99201
United States
P: (866) 797-6835
www.pyrotek.com

Pyrotek® is a global manufacturing leader and technology innovator, engineering advanced systems and delivering experienced consulting services to the aluminum industry. Pyrotek has global resources and dependable local support in more than 35 countries with over 80 locations. Pyrotek's foundry team helps aluminum die casters and foundries improve metal quality and overall operational safety and performance with integrated systems for melting, metal holding, transfer, treatment, and casting.

QuakerHoughton 305

901 Hector Street
Conshohocken, PA 19428-2380
United States
P: (610) 832-4000
www.quakerhoughton.com

With a comprehensive product range and unrivalled process expertise and experience, Quaker Houghton provides the complete solution to improving your die casting performance, including DieCast iQ, an end-to-end intelligent die casting solution. We cover all your die casting needs from die release agents, plunger lubricants, application equipment, quench agents, trim lubricants, and ladle coatings to porosity sealing, metal removal fluids, greases, and fire resistant hydraulic fluids.

Regloplas Corporation 223

4063 Tabor Rd.
Sodus, MI 49126
United States
P: (269) 769-6441
www.regloplas.com

REGLOPLAS is a global leader in the production of temperature control equipment and solutions for the plastics, die casting, food, and other temperature-critical industries. The company is a significant contributor to these industries' continued efficiency and quality advancements. Stringent and diverse customer requirements are met by highly specialized teams in development, production, and international sales. Regloplas owns and runs plants in Switzerland, Germany, France, the United States, and China. Additionally, the company collaborates with a global network of independent representatives in over 50 countries. The company, which was founded in 1961, is family-owned and employs 200 employees worldwide.

SAPP Inc. 321

600 S Kyle St
Edinburgh, IN 46124
United States
P: 00393348108947
WWW.SAPPGROUP.COM

Established in Brescia, Italy in 1957, SAPP manufactures large to ultra large die-casting dies and components for leading powertrain and structural aluminum and magnesium foundries around the world. SAPP has manufacturing facilities worldwide with sites located in Northern Italy, Eastern Europe and the United States. With a dedicated sampling center with die cast machines from 1,600 to 4,000 tons and a vast understanding of die cast process, SAPP is your optimum choice as a casting project development partner for you next large die cast part program.

Sinto America 306

150 Orchard St.
Grand Ledge, MI 48837
United States
P: (517) 371-2460
sintoamerica.com

Sinto America, Inc. is the North American group of companies of Sintokogio, Ltd., a worldwide family of companies with an international reputation for excellence in the manufacturing industry. Sinto offers innovative, top-class solutions to meet the various needs of customers and industries all over the globe. Sinto America, Inc. and its operating companies are dedicated to providing superior customer service by offering practical, cost effective and technologically advanced equipment and service solutions to a variety of industries throughout North America.

Socitec US LLC 319

2443 Braga Drive
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United States
P: (800) 84H35:J35
www.vibro-dynamics.com

Shock and Vibration isolating mounting systems.

Spectro Alloys Corp 303

13220 Doyle Path East
Rosemount, MN 55068-2510
United States
P: (612) 480-6124
www.spectroalloys.com

If it's aluminum in Minnesota and it's not a used beverage container, it's likely recycled by Spectro Alloys. Founded in 1973, Spectro uses industry leading technology to turn what's used into what's new by recycling aluminum for regional die casters and foundries. The recycled material is then made into new products people use every day in the automotive, power sports, home, turf and snow maintenance, and many other industries. Learn more about Recycling for Life and the benefits our aluminum recycling delivers.

StrikoWestofen 405

1606 Executive Drive
Lagrange, GA 30240
United States
P: (248) 790-9364

For 60+ years, StrikoWestofen has been a global leader in manufacturing melting furnaces for the light metal casting industry. Providing energy-efficient solutions for die-, gravity, sand, and low-pressure casting. Our flagship products including the StrikoMelter PurEfficiency® is the most energy efficient solution on the market while the Westomat® Duo delivers higher productivity in less space. Additionally, our IIoT solution, Monitizer® maximizes casting line uptime by gathering historical to real-time data and improves metal supply productivity.

Swiss Steel USA, Inc. 105

365 Village Dr
Carol Stream, IL 60188-1828
United States
P: (800) 323-1233
www.swisssteel-group.com/en/group/locations/usa/swiss-steel-usa

Swiss Steel Group with headquarters in Lucerne (Switzerland) is one of the world's leading producers of special steel long products. Thanks to the exclusive use of steel scrap in electric arc furnaces, the Group is one of the most relevant companies in Europe in the circular economy and is among the market leaders in the field of sustainably produced steel - Green Steel. Swiss Steel Group has its own production and distribution entities in over 30 countries and, through its strong local presence, offers a wide range of individual solutions in the fields of engineering steel, stainless steel, and tool steel.

Techmire 128

185 Voyageur
Pointe-Claire, QC H9R6B2
Canada
P: (514) 694-4110
www.techmire.com

TECHMIRE is the world leader in the design and manufacture of multiple-slide die-casting systems for precision components in zinc, lead and magnesium alloys, including:
- design, manufacture and testing of die-casting machines and tooling
- training of customers' operators and maintenance personnel
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Techmire provides cost-effective solutions to manufacturers of die cast components to cast complex parts with faster cycle speed, higher material utilization and superior part quality.

The Schaefer Group Inc 109

1300 Grange Hall Road
Dayton, OH 45430
United States
P: (937) 253-3342
www.theschaefergroup.com

Uddeholm USA 227

2505 Millennium Drive
Elgin, IL 60124
United States
www.uddeholm.com/us

Uddeholm specializes in innovative die-casting solutions, prioritizing our clients' productivity. Our flagship product, Uddeholm Dievar, is now available as AM powder or a fully 3D printed insert, boasting exceptional toughness and ductility. Our comprehensive offerings encompass tool and die Steels, PVD coatings, Powders for AM, and 3D Printing, coupled with trusted Technical and Engineering Support. Focal steel options include Uddeholm Dievar® (≥18.4 ft-lbs. toughness value) and Uddeholm Orvar Supreme® (≥12 ft-lbs. toughness value), complemented by advanced PVD Coatings (Duplex-TIGRAL®) and innovative Additive Manufacturing solutions.

Visi-Trak Worldwide LLC 401

8400 Sweet Valley Dr Ste 406
Valley View, OH 44125-4244
United States
P: (216) 524-2363
www.visi-trak.com

Great process with relentless repeatability is the cornerstone of successful die casters. Visi-Trak has been building rugged, upgradable, process monitoring and closed loop hydraulic control systems for 50 years so you can access the process insight you need to control your toughest die casting problems. Today we continue to innovate with human-machine interface (HMI) software (process/casting traceability and production reporting), non-contact die temperature monitoring and web-based access to critical production data. Bring us your biggest challenges today!

voestalpine Additive Manufacturing Centers – North America 231

11869 Cutten Road
Houston, TX 77066
United States
P: (800) 638-2520
www.voestalpine.com/highperformancemetals/canada/en/services/additive-manufacturing

voestalpine Additive Manufacturing Centers (vAMC) are your premier destination for comprehensive Additive Manufacturing (AM) services specializing in die-cast tooling. We collaborate closely with clients to deliver personalized solutions, employing our optimized design, powder, and printing methods complemented by enhanced services like heat treatment and coating. Merging cutting-edge AM expertise with a wealth of die-casting experience, we offer the optimal tooling solution. Our services encompass conformal cooling design, process simulation & consultation, turn-key tooling manufacturing, and efficient spare management.

voestalpine eifeler Coatings LLC 229

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Elgin, IL 60124
United States
P: (800) 638-2520
www.eifeler.com/nam

eifeler, part of voestalpine High Performance Metals, has provided advanced PVD coatings since 1983. With eight sites in North America, we enhance tool performance, durability, and productivity. Known for reliable job coating services, we prioritize customer satisfaction with superior surface engineering solutions and cutting-edge technology. Our expertise extends across different industries, delivering innovative coatings that maximize efficiency and lifetime while reducing wear, friction, and maintenance costs for high-performance applications.

YIZUMI-HPM Corporation 219

3424 State Rt 309 PO Box 210
Iberia, OH 43325
United States
P: (740) 382-5600
www.yizumi-hpm.com

Yizumi and Yizumi-HPM are world wide suppliers of high pressure die casting machines and Thixomolding machines. Yizumi-HPM provides Sales, Service, Parts and Engineering in North America. Both Hot Chamber and Cold Chamber Die Castings Machines. Machines range from 100 Ton to 9000 Ton (Metric) for Die Casting Machines and Thixomolding Machines up to 5000 ton (Metric) Complete turn-key solutions are provided. Sales / Parts and Service are provided thru the Iberia, Ohio plant site for both the HPM Legacy Machines and the Yizumi built machines.

NADCA Welcomes Its Newest Corporate Members

GF Casting Solutions

430 Valencia Way
Augusta, GA 30906
W: go.gfcs.com/augusta
E: info.au.cs@georgfischer.com

GF Casting Solutions is one of the leading providers of lightweight components for the automotive, aerospace, and commercial vehicle industries. As a future-oriented company, the division leads R&D activities in early product development, supporting customers globally to be ready for the sustainable and resource-efficient mobility of tomorrow.

Already present in Europe and China, the new plant in Augusta, GA completes GF Casting Solutions' global network of mega-casting machines for large structural parts. Thanks to this investment in the US market, GF Casting Solutions has the competence to deliver tailored solutions globally wherever customers need them.

The new facility is going to be a cutting-edge, highly automated workspace, featuring state-of-the-art production with modern machinery. GF is a reliable and forward-thinking employer with a long corporate history spanning over two centuries. If you want to be part of a company that puts people, sustainability, and innovation at the forefront, then GF is a great choice.

Rohde Brothers, Inc.

W5745 Woodchuck Ln
Plymouth, WI 53073
P: 920.893.5905
W: rohdebros.com
E: sales@rohdebros.com

Rohde Brothers, Inc. is the go-to mechanical contractor for Wisconsin's die casting operations, offering targeted solutions to improve efficiency, safety, and sustainability. Rohde Brothers expertise includes designing and installing mist collection hoods to enhance air quality and maintain clean, compliant facilities. Rohde Brothers, Inc. specializes in process cooling systems that ensure precise temperature control for optimal die casting performance and product quality.

Engineered custom industrial ventilation systems improve airflow, reduce heat stress, and support employee safety, while heat recovery solutions help repurpose energy, lowering operating costs and improving sustainability. With decades of experience and multi-disciplinary engineering talent, Rohde Brothers delivers reliable, high-performance systems tailored to meet the demands of your operation.

Serving key operations in Wisconsin, Rohde Brothers, Inc. provides responsive service, expert engineering, and a collaborative approach to every project. Let Rohde help your die casting business operate more efficiently.

Storvik Group

1310 W Drivers Way - Suite 101 PMB
Tempe, AZ 85284
P: 256.919.9004
W: storvikgroup.com
E: post@storvikgroup.com

Storvik Group is a global leader in engineering services, cast products, machine building, and mechanical maintenance, with over a century of experience in the process industry. Since its establishment in 1913, Storvik has delivered innovative and reliable solutions that enhance operational efficiency, drive sustainability, and support the technological advancement of its clients.

Storvik's four focused business areas—project and engineering, cast products and consumables, machine building and fabrication, and mechanical operations—enable the delivery of multidisciplinary solutions tailored to the aluminum, ferrosilicon, hydropower, and oil and gas industries. Close collaboration with the process industry has built Storvik's extensive expertise in maintenance, modification, EPC (Engineering, Procurement, and Construction), and cast products.

With operations in Norway, the Czech Republic, Iceland, and the US, Storvik serves clients globally. By joining NADCA, Storvik aims to strengthen collaboration within the die casting community, drive industry innovation, and promote sustainable advancements in manufacturing.

2025 Corporate Members

CORPORATE DIE CASTERS

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A & B Die Casting, a division of Benda Tool & Model Works, Inc.
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AAM - American Axle & Manufacturing
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ABCO Die Casters Inc.
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Anderson Die Casting Co.
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Stratford, CT

C

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Oakland, MD

Caldwell Casting Company
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California Die Casting Inc.
Ontario, CA

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High Point, NC

Cascade Die Casting Group - Great Lakes
Sparta, MI

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Cascade Die Casting Group Inc. - Mid-State
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Clackamas, OR

Cosma Casting Michigan, Cosma International, Magna International
Battle Creek, MI

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D

Dalite*
Troy, MI

Dart Casting, Inc.
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DeCardy Diecasting Co.
Chicago, IL

Deco Products Co.
Decorah, IA

DyCast Specialties Corp.
Starbuck, MN

Dyersville Die Cast
Dyersville, IA

Dynacast International, LLC - Elgin Plant
Elgin, IL

Dynacast International, LLC - Germantown Plant
Germantown, WI

Dynacast International, LLC - Global Headquarters
Charlotte, NC

Dynacast International, LLC - Lake Forest Plant
Lake Forest, CA

Dynacast Limited
Peterborough, ON, Canada

Dynacast Mexico SA De CV
Obispo, Cuautitlan, Mexico

E

Empire Die Casting
Macedonia, OH

F

FabCast Solutions SRL De CV *
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Eau Claire, MI

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Fort Recovery Industries Inc.
Fort Recovery, OH

FT Precision
Fredericktown, OH

G

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Wood Dale, IL

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Bedford, IN

General Motors Corporation - R&D Technical Center
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GF Casting Solutions*
Augusta, GA

Gibbs Die Casting Corporation
Henderson, KY

Greenfield Industries Inc.
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H

Heritage Die Casting Co.
Denver, CO

HF Manufacturing*
Union, MO

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Celaya, Mexico

Honda De Mexico - Transmissions
Celaya, Mexico

Honda Development Manufacturing of America - Alabama Auto Plant - ALDC
Lincoln, AL

Honda Development Manufacturing of America - Anna Engine Plant: ALDC
Anna, OH

Honda Development Manufacturing of America - Auto Development Center: Aluminum Division
Raymond, OH

Honda Development Manufacturing of America - Production Engineering
Anna, OH

Honda Development Manufacturing of America - TMPG: ALDC
Tallapoosa, GA

Honda Development Manufacturing of America - TMPO: ALDC
Russells Point, OH

Honda North America - Purchasing
Marysville, OH

Honda of Canada Mfg. Inc. - Engine Plant: ALDC
Alliston, ON, Canada

Honda Power Equipment - Aluminum Die Cast
Swepsonville, NC

Hyatt Die Cast & Engineering Corporation
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J

J&M Precision Die Casting
Elyria, OH

JTEKT Automotive*
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K

Kamtek Casting, Inc. - a Division of Magna International
Birmingham, AL

Kason Industries Inc.
Shenandoah, GA

Kobelt Manufacturing Company Limited
Surrey, BC, Canada

Kwikset Corporation
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L

Lakeside Casting Solutions
Monroe City, MO

Lamar Tool & Die Casting Inc.*
Modesto, CA

Le Sueur Incorporated
Le Sueur, MN

Leech Industries - Division of Leech Holdings, LLC*
Meadville, PA

Linamar Light Metals - Mills River (LLM-MR)
Arden, NC

M

Madison Precision Products
Madison, IN

Madison-Kipp Corp.
Madison, WI

Madison-Kipp Corp. - Richmond
Richmond, IN

Mag-Tec Casting Corp.
Jackson, MI

Marchesi Light Alloy
Jalisco, Mexico

Mercury Castings - Div. of Mercury Marine, WI
Fond Du Lac, WI

Meridian Lightweight Technologies Corporate Head Office
Plymouth, MI

Meridian Lightweight Technologies Inc. - GTC
Strathroy, ON, Canada

Meridian Technologies Inc. - Magnesium Products of America
Eaton Rapids, MI

Meridian Technologies Mexico
Ramos Arizpe, Coahuila, Mexico

Michigan Automotive Compressor, Inc.
Parma, MI

Michigan Die Casting LLC
Dowagiac, MI

Midwest Die Casting Corp.
Milwaukee, WI

Millison Casting Technology LLC*
Sallisaw, OK

Miniature Casting Corp.
Cranston, RI

Mumford Companies - Metal Casting Division
Chicago, IL

N

Nebraska Aluminum Castings Inc.
Hastings, NE

Nemak Alabama
Sylacauga, AL

Nemak Kentucky*
Glasgow, KY

Nemak Wisconsin
Sheboygan, WI

New GLDC LLC
Muskegon, MI

Northern Iowa Die Casting Inc.
Lake Park, IA

O

Omni Die Casting Inc.
Massillon, OH

Ozark Die Casting Co.
Saint Clair, MO

P

Pace Industries, Cambridge
North Billerica, MA

Pace Industries, Chihuahua
Chihuahua, Mexico

Pace Industries, Corporate Headquarters
Rochester, MI

Pace Industries, Grafton
Grafton, WI

Pace Industries, Harrison Aluminum
Harrison, AR

Pace Industries, Harrison Zinc
Harrison, AR

Pace Industries, Jackson
Jackson, TN

Pace Industries, Latrobe
Loyalhanna, PA

Pace Industries, Maple Lake
Maple Lake, MN

Pace Industries, Port City
Muskegon, MI

Pace Industries, Saltillo
Saltillo, Mexico

Pacific Die Casting Corporation
Vancouver, WA

PHB - Die Casting Div.
Fairview, PA

PIAD Precision Casting Corporation*
Greensburg, PA

Polaris Inc. *
Monticello, MN

Prestige Casting Inc.
Englewood, CO

Production Castings Inc.
Fenton, MO

Promatek Research Center - a Division of Cosma Part of Magna Intl.
Brampton, ON Canada

R

RCM Industries Inc. - Aallied Die Casting Co. of Franklin Park
Franklin Park, IL

RCM Industries Inc. - Aallied Die Casting Co. of NC
Rutherfordton, NC

RCM Industries Inc. -Corporate Headquarters
Franklin Park, IL

RCM Industries Inc. - Imperial Die Casting Co.
Liberty, SC

RCM Industries Inc. - Inland Die Casting Co.
Wheeling, IL

Rheocast Company, A Division of The Fall River Group, Inc.
Germantown, WI

Ryobi Die Casting Mexico
Irapuato, Guanajuato, Mexico

Ryobi Die Casting USA Inc.
Shelbyville, IN

S

Schlage De Mexico
Baja California, Mexico

SDC Incorporated
Sullivan, MO

Shawnee Specialties Incorporated
Eau Claire, MI

Simalex Manufacturing Company Ltd.
Langley, BC, Canada

SKS Die Casting & Machining Inc.
Alameda, CA

Soldy Manufacturing Company
Schiller Park, IL

SpaceX
Hawthorne, CA

Spartan Light Metal Products Inc.
Sparta, IL

Spartan Light Metal Products LLC
Hannibal, MO

Spartan Light Metal Products -Corporate Office
Hannibal, MO

Spartan Light Metal Products LLC
Mexico, MO

Spartan Light Metal Products - LMP Plant
Mexico, MO

Stellantis - Kokomo Casting Plant
Yorktown, IN

STRATTEC Component Solutions
Milwaukee, WI

Sundaram - Clayton Limited
Deerfield, IN

T

TAC Manufacturing Incorporated
Jackson, MI

Team Industries - Detroit Lakes
Detroit Lakes, MN

Technical Die-Casting Inc.
Winona, MN

TESLA Motors
Lathrop, CA

Top Die Casting Company
South Beloit, IL

Troy Design & Manufacturing*
Plymouth, MI

TRU Die Cast Corp.
New Troy, MI

Twin City Die Castings Co.
Minneapolis, MN

Twin City Die Castings Co.
Monticello, MN

Twin City Die Castings Co.
Watertown, SD

Twinsburg Manufacturing Facility, a Division of AAM
Twinsburg, OH

W

Walker Die Casting
Lewisburg, TN

Whitehead Die Casting Inc.
Gainesville, GA

Y

Yamada North America
South Charleston, OH

CORPORATE OEM

H

Humanscale Corporation *
Piscataway, NJ

R

Robert Bosch *
Guadalajara, Jalisco, Mexico

CORPORATE SUPPLIERS

A

AarKel Tool & Die Inc.
Wallaceburg, ON, Canada

Absolute Machinery Corporation
Worcester, MA

Alcoa USA Corp.
Alcoa, TN

Allied Metal Co.
Chicago, IL

Anviloy By Astaras Inc.
Largo, FL

Audubon Metals LLC
Henderson, KY

Automation Systems & Design
Dayton, OH

B

B & L Information Systems Inc.
Bridgman, MI

Badger Metal Tech Inc.
Jackson, WI

Bedford Machine & Tool Inc.
Bedford, IN

BGH Specialty Steel*
Macedonia, OH

Bholster Tech*
Toronto, ON, Canada

Blue Ridge Community College
Flat Rock, NC

Bodycote Thermal Processing Inc.
Sturtevant, WI

BOLE Machinery *
Stow, OH

BOHLER
Walnut, CA

Brach Machine
Batavia, NY

Brondolin North America
Benton Harbor, MI

BuhlerPrince Inc.
Holland, MI

C

Cal-Miser Aluminum Systems Inc.
Rock Island, IL

Castec Corporation
Indianapolis, IN

Castool Heat Treat
Newmarket, ON, Canada

Castool Tooling Systems
Uxbridge, ON, Canada

Chem-Trend Ltd. Partnership
Howell, MI

Colosio Die-Casting Machines & Accessories
Minneapolis, MN

Conticast Hormesa LLC
Weston, FL

Cottingham & Butler
Dubuque, IA

Custom Alloy Sales, Inc.
City of Industry, CA

D

Daido Steel Co. Ltd.
Hebron, KY

Daiichi Jitsugyo (America) Inc.
Wood Dale, IL

Delaware Dynamics LLC*
Muncie, IN

Die Cast Press Manufacturing Co.
Paw Paw, MI

Diehl Tool Steel
Cincinnati, OH

Die-Pro LLC
Sheboygan Falls, WI

DieTech & Engineering Inc.
Grand Rapids, MI

DISA Group
LaGrange, GA

DME Company
Madison Heights, MI

DTP Diecast Solutions LLC
Florence, AL

Dynamo Inc.
LaGrange, IL

E

Eastern Alloys Inc.
Maybrook, NY

EcoShot, Inc.
Indianapolis, IN

EKK, Inc.
Farmington Hills, MI

Ellwood Specialty Steel
New Castle, PA

Exco Engineering
Newmarket, ON, Canada

F

Fill USA, Inc. *
Plymouth, MI

Finkl Steel
Chicago, IL

Finkl Steel - Sorel
St-Joseph-De-Sorel, QC, Canada

Fisa North America Inc.
Elk Grove Village, IL

Flow Science
Santa Fe, NM

FONDAREX USA
Schoolcraft, MI

Frech USA Inc.
Michigan City, IN

Fremar Industries
Brunswick, OH

G

General Die & Engineering Inc.*
Grand Rapids, MI

Godfrey & Wing Inc.
Aurora, OH

H

HA International, LLC
Westmont, IL

Hanson International *
Saint Joseph, MI

H Gerber Consulting
Evanston, IL

Henkel Corporation
Madison Heights, MI

Herco, LLC
Auburn Hills, MI

High Temperature Systems Inc.
Chagrin Falls, OH

Hildreth Mfg LLC
Marion, OH

Hill & Griffith Co.
Cincinnati, OH

HTS International Corporation
Knoxville, TN

I

IDRA North America
Kokomo, IN

IECI Srl
Haltom City, TX

Imperial Zinc Corp. & Imperial Aluminum Corp.
Chicago, IL

Inductotherm Corp.
Rancocas, NJ

Industrial Innovations
Grandville, MI

Italpresse Gauss
Lagrange, GA

J

J&S Chemical Corp.
Canton, GA

K

Kind Specialty Alloys LLC
Youngstown, OH

Kirby Metal Recycling
Clinton, MD

L

LaFrance Manufacturing Co.
Maryland Heights, MO

LK World
Edinburgh, IN

Lethiguel USA
Rogers, MN

LiCON Mt LP
Dexter, MI

LIFT - American Lightweight Materials Manufacturing Innovation Institute*
Detroit, MI

Lincoln Electric Automation
Columbus, OH

Lindberg MPH
Riverside, MI

Luke Engineering & Manufacturing Co.
Wadsworth, OH

M

M & I Machine
Benton Harbor, MI

MAGMA Foundry Technologies Inc.
Schaumburg, IL

Mangas-AarKel Tool and Engineering Inc.
Muscle Shoals, AL

Meitler Consulting Inc.
Tonganoxie, KS

Metal Conversions Ltd.
Mansfield, OH

Metal Mechanics Inc.
Schoolcraft, MI

Metalworks Recycle-Reload, LLC
Bowling Green, KY

Mokon
Buffalo, NY

MORESCO USA Inc.
Fountain Inn, SC

N

New Brunswick Plating Inc.
New Brunswick, NJ

Nexthermal Corporation
Battle Creek, MI

Norican Group
LaGrange, GA

Novacast Solutions USA Inc.
Naperville, IL

O

OEE Companies
North Oaks, MN

Oerlikon Balzers Coating USA
Rock Hill, SC

The Oil Gear Company*
Traverse City, MI

P

Patterson Mold & Tool
Saint Charles, MO

Paulo
Saint Louis, MO

PCS Company
Fraser, MI

Phygen Coatings Inc.
Minneapolis, MN

PremierMetals *
Highland Park, IL

Progressive Components
Wauconda, IL

Prolong Surface Technologies
West Chicago, IL

Pyrotek Inc.
Columbia City, IN

Q

Quaker Houghton
Dayton, OH

R

Regloplas Corporation
Sodus, MI

Rochester Aluminum Smelting Canada Ltd.
Concord, ON, Canada

Rohde Brothers, Inc.*
Plymouth, WI

Rosler Metal Finishing USA LLC*
Battle Creek, MI

S

Sandvik Machining Solutions AB*
Mebane, NC

Sanji Industries
Celina, OH

Sanyo Special Steel USA Inc.
New York, NY

SAPP Inc.
Edinburgh, IN

The Schaefer Group Inc.
Dayton, OH

Shibaura Machine Company, America
Elk Grove Village, IL

SIJ Metal Ravne - SIJ Americas
Hazlet, NJ

Sinto America
Grand Ledge, MI

SIR Robotics, Inc.*
Sacramento, CA

Socitec US LLC*
Broadview, IL

Spectro Alloys Corp.
Rosemount, MN

Storvik Group*
Tempe, AZ

Stotek Inc. *
Pewaukee, WI

StrikoWestofen America
Kalamazoo, MI

Sun Metalon
Cambridge, MA

Sun Steel Treating, Inc.
South Lyon, MI

Superior Aluminum Alloys
New Haven, IN

Swiss Steel Canada, Inc.
Mississauga, ON, Canada

Swiss Steel USA, Inc.
Carol Stream, IL

T

Techmire
Pointe-Claire, QC, Canada

Therm-Tech of Waukesha
Waukesha, WI

Titus Group / Titus Technologies*
Columbia City, IN

TOYO Machine America, LLC
The Villages, FL

Transmet Corporation*
Columbus, OH

Trebi North America Inc.*
Muncie, IN

Tvarit GmbH *
Ottawa, IL

U

UBE Machinery Inc.
Ann Arbor, MI

Uddeholm USA
Elgin, IL

Ultraseal America Inc.
Ann Arbor, MI

United Tool and Mold*
Liberty, SC

V

Valor Alloys, LLC
Houston, TX

Visi-Trak Worldwide LLC
Valley View, OH

voestalpine Additive Manufacturing Centre Ltd.
Mississauga, ON, Canada

voestalpine Eifeler Coatings Technology
Saint Charles, IL

voestalpine High Performance Metals Corp.
Elgin, IL

W

The Wasmer Company*
Sheboygan, WI

Wheelabrator Group
LaGrange, GA

Y

YIZUMI-HPM Corp.
Iberia, OH

Yushiro Manufacturing America, Inc.
Shelbyville, IN

Z

Zeman Tool & MFG*
Waukesha, WI

Zitai USA - Die Casting Equipment Group
Highland Park, IL

*New Corporate Member Companies

Chapter News & New Members

Chapter 3 - Michigan

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Erickson Carpenter; Dakota J. Carter, Trine University; Derek Fredenburg, Gentex Corp.; Adam Groseclose; Pete J. Guzman, IDRA North America Inc.; Spenser Issac Hewett, Auto Cast Inc.; Kris Hoffman, BuhlerPrince, Inc.; Craig Karman, Doug Kukulis, Charles S. Kukulis, all from General Die & Engineering Inc.; Dennis Laakso, Shape Corp. ; Troy Monroe, General Die & Engineering Inc.; Adam Parker, AAM - American Axle & Manufacturing; Kevin J. Ramirez, B&L Information Systems, Inc.; Suraj R. Revankar, University of Michigan-Ann Arbor; Heath J. Weich, Hanson International*

Chapter 5 - Chicago

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Andy Cohen, Metal Conversions Ltd.; Thomas Derengowski, Shure Inc; Tanner Donahue, Al Krajecke, both with Bodine Electric Co.; John McBride, Cal-Miser Aluminum Systems Inc.; Roger Mucci, Integrity Light Metals LLC; Ana Salinas, Craft Die Casting Incorporated; Heather M. Smith, Cast Products, Inc.*

Chapter 6 - Cleveland

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Beau McElfresh, Ellwood Specialty Metals – USA; Brad Roark, Metal Conversions Ltd.*

Chapter 7 - New York

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Ed Chmielecki, Jr., Inductotherm Corp.; Nichelas Dunmire; Thomas Leary, The Aluminum Association; Claudia Wagner, Sun Metalon*

Chapter 10 - Ontario

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Peter Smith, Meridian Lightweight Technologies Inc. (High Street)*

Chapter 12 - Wisconsin

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Craig Bahr, Rohde Brothers, Inc.; Connor J. Buchanan, Tri-State Industries; Mitchell Hainstock; Todd Hammond, Erik Johnsen, Rudy McCormick, Rohde Brothers, Inc.; Michaelle Nourse, Timothy Wasmer, The Wasmer Company*

Chapter 14 - S. Ohio

Chapter 14 kicked off the 2025 season on a cold snowy evening at the Boathouse Restaurant in Troy, OH. However, a good social period with great discussions followed by some tasty food, and an interesting topic and speaker kept things hot in our meeting room.

***Chapter 14** – Attendees listen in on the presentation.*

Chris Mazeika, Director of Sales & Supply Chain for the aluminum supplier Real Alloy (Cleveland, OH), did an excellent job explaining the process of converting aluminum scrap and by-products into reusable aluminum. He also hit on sustainability of the aluminum industry plus we all

learned about their challenges of working within today's industry EPA standards.

Chapter 14 *– Thank you to Chris for making the trek for this presentation for our members.*

A big thanks goes out to Chris for making the 4 hour drive from NW OH to deliver his message to our SW OH Chapter. He did a wonderful job.

Chapter 14 *– Listening intently to Chris' presenttion on aluminum scrap.*

Next month (February) we will be making a road trip to south Dayton OH to take a Plant Tour of The Schaefer Group Inc, Dayton, OH. We will hold our meeting and meal at the plant followed by a plant tour.

Our March 12th meeting will feature NADCA's own Beau Glim who will be presenting on the State of the Die Casting Industry. This meeting will take place at Smith's Boat House in Troy, OH.

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

Chapter 15 - Southeastern

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Victoria Biascoechea, GF Casting Solutions - Augusta, LLC; Robin Bogan, Tatsurou Hamano, MORESCO USA Inc.; Patrick Henson, Ellwood Specialty Metals – USA; Jeremy Jackson, Gabrielle Poole, American Metalcasting Consortium (AMC) - Advanced Technology Institute (ATI); Brandon Allen Rogers; Allen Rundle, HTS International Corporation; Daniel Vollkopf, Zackary Welch, GF Casting Solutions - Augusta, LLC*

Chapter 16 - Minnesota

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Darrick Close, MORESCO USA Inc.; Don J. Larson, Le Sueur Inc.*

Chapter 17 - St. Louis

January 21, 2025 was a good day for Chapter 17. Education Chairman Kevin Voss, Hellebusch Tool and Die, put together educational seminar EC-515 Die Casting Defects, presented by National's Paul Brancaleon. Good job, Kevin and we appreciate Paul's time and effort very much. In the evening, we hosted National President Mike Meyer to deliver a very informative State of the Industry presentation. We're grateful to Mike for joining us and value his opinions on our industry.

Chapter 17 *– Chapter 17 members listening intently to Paul Brancaleon's presentation of Die Casting Defects.*

Also, Chapter 17's new website is now up and running. Thanks to Rick Spillman, Davis Tool and Die for his time and energy to pull all the details together. We encourage you visit www.nadcachapter17.org and check it out. Most importantly, upcoming events will be posted thereon so if you ever have questions about what's on the horizon, www.adcachapter17.org will provide the answers!!

***Chapter 17** - NADCA President Mike Meyer delivering the State of the Industry to Chapter 17 members and guests.*

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Garrett Christian Lange, Missouri University of Science and Technology; Christian Mendoza, Millison Casting Technology LLC*

Chapter 25 - Indiana

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Hunter Guinn, Gibbs Die Casting; Matthew Lee Pressley, Walker Die Casting; Andy Senser, Metal Conversions Ltd.; Christopher Talarico, Trebi North America Inc.*

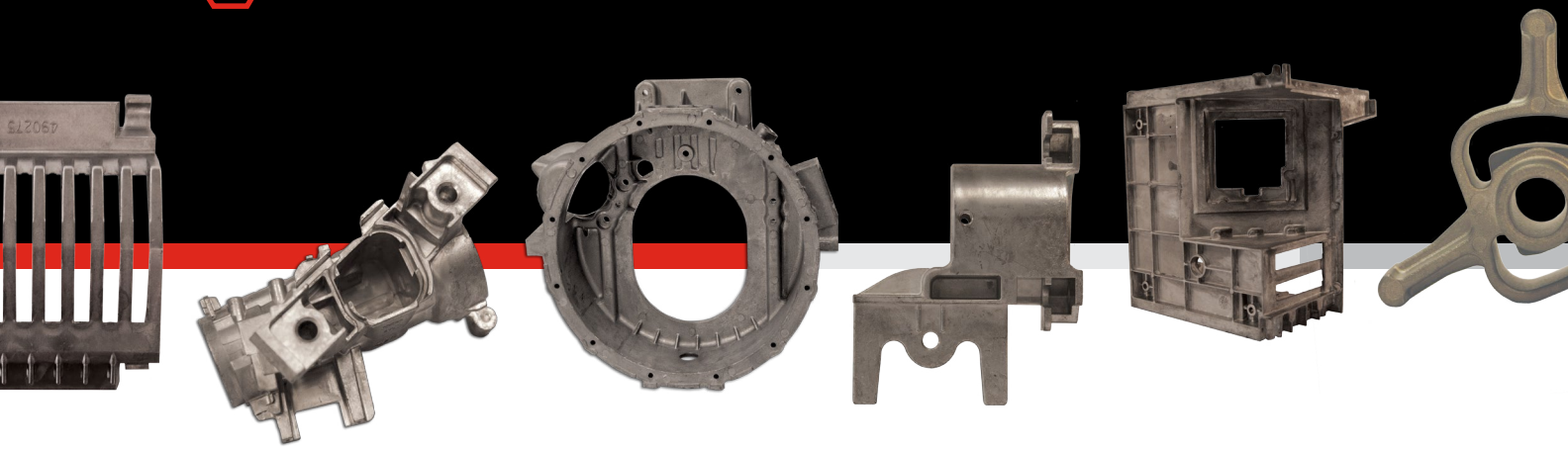
Chapter 30 - Los Angeles

Please visit www.diecasting.org and click on Chapters under the Become a Member tab for details on upcoming events.

New Members: *Brandon Cox, Custom Alloy Sales, Inc.; Evan Landry, Astronics PECO Inc.; Simone Mulargia, SIR Robotics Inc.; Anne Riudavets Lee, CASS, Inc.; Marek Varadinek, Storvik Group*

Interntional Members: *Gerardo Cruz, Ashland Hardware; Mario Alberto Estrada, Schlage De Mexico*

Align Your Company With The Best.



NORTH AMERICAN DIE CASTING ASSOCIATION

Corporate Membership

The North American Die Casting Association (NADCA) is the sole trade and professional society of the die casting industry. Membership consists of both corporate and individual members from over 1000 companies located in every geographic region of the United States, Canada and Mexico.

Why do so many companies invest in NADCA Corporate Membership?

- To Stay Current on News/Technology
- Training/Education
- Networking Opportunities
- Retain Competitive Edge
- Visibility to OEMs
- Inclusion in R&D Projects
- Access Member-only Information
- Recognition
- Source Staff
- Save Money on Conferences/ Shows/Advertising/Training

NADCA
North American Die Casting Association
P: 847.279.0001 F: 847.279.0002
www.diecasting.org

People in Die Casting

Can-Eng Furnaces Kicks Off the New Year with Two New Leadership Promotions

Jason Clay, Manufacturing Operations Manager

These promotions reflect CAN-ENG's continued commitment to strengthening its leadership team, with a focus on advancing state-of-the-art thermal processing systems and enhancing our ability to serve our customers worldwide.

Jason Clay has been promoted to Manufacturing Operations Manager. Jason joined CAN-ENG in 2004 as a Project Leader within the Engineering group. Through his dedication to improving equipment designs and customer service, Jason has progressed through several key roles, including Project Leader, Project Manager, Quality Manager, and Senior Project Manager. He holds a Mechanical Engineering Technologist diploma from Niagara College and a Bachelor of Technology degree from McMaster University. As Manufacturing Operations Manager, Jason will oversee the future direction of CAN-ENG's manufacturing strategies, further improving our ability to exceed customer expectations.

Adam DeCiccio, Purchasing and Logistics Manager

Adam DeCiccio has been promoted to Purchasing and Logistics Manager. Adam has been with CAN-ENG since 2003, initially joining the Application Engineering and Sales group. His ability to support customers and contribute to the company's success led to roles as Senior Technical Buyer, Purchasing Manager, and now, Purchasing and Logistics Manager. Adam holds a diploma in Electronics Engineering Technology from Niagara College and has completed Planning & Scheduling programs at Ryerson University. In his new role, Adam will focus on implementing innovative strategies and improvements within purchasing, supply chain, and inventory planning to support the ongoing growth CAN-ENG has experienced over the past decade.

CAN-ENG and its leadership team are eager to leverage the experience and expertise these two individuals bring to the table, as we look forward to the future and the continued commitment to service and support CAN-ENG's Customers worldwide.

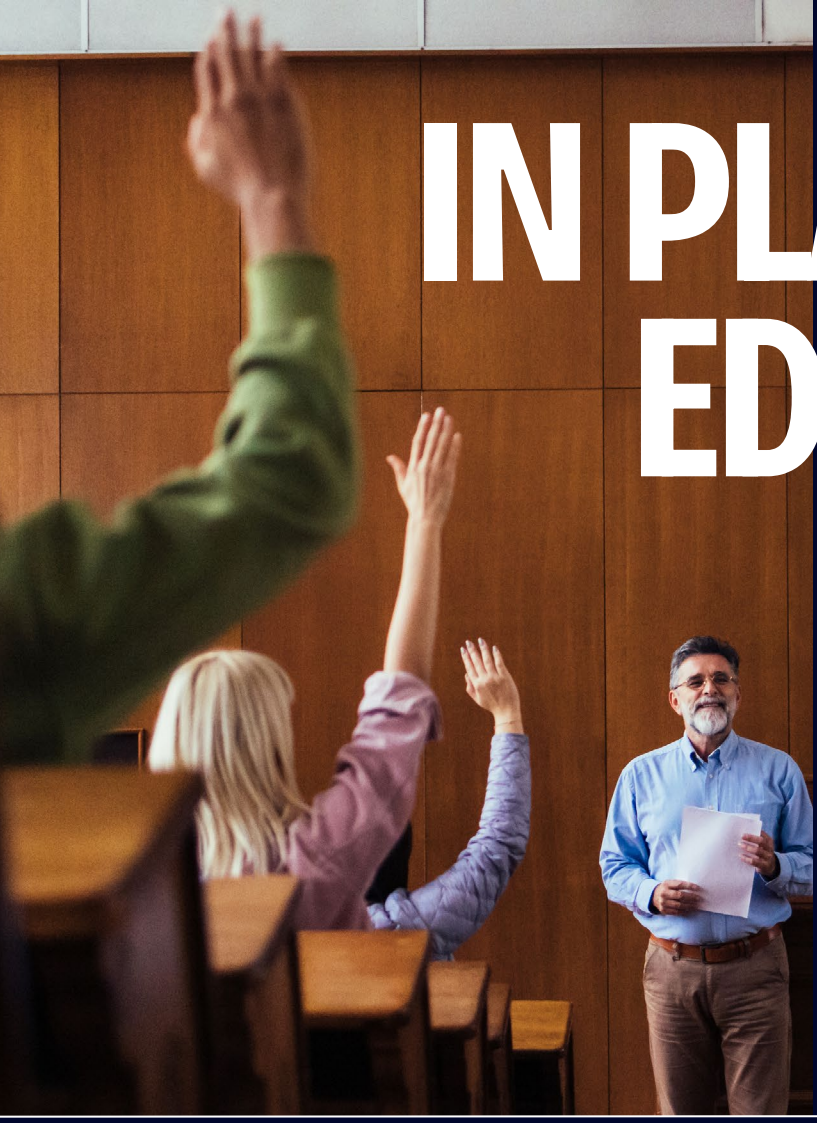
Dan Twarog Retires from RCM Industries

Dan Twarog has recently retired from RCM Industries, Inc. as its Chief Executive Officer (CEO). Dan has had an illustrious career in both the foundry and die casting industries.

He started his career as a degreed metallurgist in the foundry industry. He then led the North American Die Casting Association for over twenty years, where his metal casting expertise provided a multitude of different products and services to the die casting industry in order to improve the efficiencies and effectiveness of many operations.

Dan's services extended beyond the die cast floor and encompassed improved process controls, new technologies, governmental affairs, education and safety. He worked at RCM for almost eight years, and brought his array of die casting industry expertise to help RCM maintain its position as one of the top aluminum die casting companies in the United States.

For those of us who know Dan, he is one of the hardest, most dedicated employees you will see. We thank Dan for his service and wish him, his wife and family a healthy, happy and long retirement.



IN PLANT EDUCATION

Scan here to contact us about an In Plant!

NADCA
NORTH AMERICAN
DIE CASTING ASSOCIATION

DID YOU KNOW?

NADCA's **in plant education** programs bring expert training directly to die casting facilities, offering a **convenient and tailored** approach to workforce development. NADCA ensures that the training is highly relevant and immediately applicable to the **specific challenges** and equipment used by the facility. This **hands-on** approach allows employees to engage with **practical demonstrations,** ask questions relevant to their processes, and explore real-world solutions alongside their peers, fostering collaboration and a **deeper understanding** of the material. NADCA ensures that participants not only grasp the concepts but can also implement them effectively to **improve productivity, quality, and efficiency** at their facility.

Industry News

MAGMA FOUNDRY TECHNOLOGIES INC. OF NORTH AMERICA IS EXPANDING ITS OPERATIONS

Schaumburg, IL - MAGMA Foundry Technologies, Inc. is pleased to announce the opening of its newest office location in San Pedro Garza Garcia, Mexico. The new branch office, MAGMA Tecnologías de Software de México S. de R.L de C.V, marks a significant milestone for MAGMA and represents its commitment to the Mexican metal casting industry, the office is targeted to open in the first quarter of 2025.

The new office, located at Torre Comercial América, Av. Batallón de San Patricio Nª. 111, Colonia Valle Oriente C.P. 66269, San Pedro Garza García, Nuevo León—Floor 29, will serve as a center of excellence, providing services for developing and educating current customers while building strategic partnerships and client engagement initiatives. With this strategic expansion, MAGMA aims to strengthen ties within the metal casting community and accelerate our growth in key markets in Mexico.

SUNDARAM CLAYTON BOOSTS MANUFACTURING CAPACITY WITH NEW DIE-CASTING PLANT

Pune, India - Sundaram Clayton Limited (SCL) has launched a new die-casting facility in Thervoy Kandigai, near Chennai, Tamil Nadu, while also expanding its operations in the U.S. with the installation of a 4,400-ton die-casting machine. The company revealed these updates alongside its quarterly financial results on January 31, 2025.

The Chennai plant will focus on producing aluminium die-cast components for automotive applications, including engine parts and structural components for electric vehicles. Featuring advanced digital manufacturing capabilities, the facility aims to serve both domestic and international markets. The company reported a positive financial performance, with standalone EBITDA rising by 1.3% to reach 14.7%, while consolidated EBITDA increased by 4.4%, reaching 7.8% compared to the previous quarter.

Founded in 1962, SCL has established a strong foothold in the automotive components sector, with exports accounting for over half of its revenue. The company supplies products to North America, Europe, and India, serving both commercial and passenger vehicle manufacturers.

Sundaram Clayton has been expanding its global presence, with the new die-casting machine in its U.S. facility enhancing its ability to meet the growing demands of the North American market with additional product offerings. As the automotive industry increasingly shifts toward lightweight solutions, particularly in the growing electric vehicle market, SCL's new facilities are positioned to capitalize on these trends with its die-casting expertise. These developments align with the broader industry transformation, as automakers worldwide focus on sustainability and lightweight materials to improve vehicle efficiency and minimize environmental impact.

MEGACASTING TO START AT HONDA IN OHIO

Anna, OH - A series of six "gigacasting" presses have been installed by Honda of America at the Anna (Ohio) Engine Plant as a core manufacturing element of the EV Hub the automaker will launch later this year.

Announced in late 2022, the Ohio EV Hub includes retooling and new capabilities now projected at $1 billion for the engine plant and nearby Marysville, OH, assembly plant. Honda projects it have capacity for roughly 220,000 units across all vehicle types at Marysville once the Hub is complete.

Later this year Honda will start assembling the new Acura RSX EV at Marysville, which will be followed by electric vehicles based on prototypes Honda unveiled in January at the 2025 Consumer Electronics Show, the Honda 0 SUV and Honda 0 Saloon. Honda's goal is for all its products to be zero-emissions vehicles by 2040.

"The Honda EV Hub provides Honda with the flexibility to produce ICE, hybrid-electric, and EV models on the same production lines so we can quickly respond to shifting customer needs and market conditions," stated Bob Schwyn, senior vice president, Honda Development & Manufacturing of America, LLC. "Beyond adding the capability to produce EVs, we completely reimagined our approach to manufacturing, transforming the Honda production environment with more human-friendly processes and sustainable manufacturing practices."

The Hub also will include a joint-venture EV battery plant starting up later this year, L-H Battery Co., where Honda and LG Energy Solution have committed to invest $3.5 billion and plant to produce approximately 40 GWh annually.

The EV batteries will be enclosed in high-pressure diecast aluminum cases that will be gigacast on the new, 6,000-ton machines – independently reported to have been supplied by BühlerPrince – and will be the largest parts Honda has ever produced, it noted. Future Honda EVs are expected to incorporate gigacast front and rear vehicle structures, which is similar to Tesla's breakthrough use of gigacastings in its electric vehicles.

Gigcasting, or megacasting, are generic terms of high-pressure diecasting operations developed to produce large-dimension parts that allow automakers to minimize subassembly for vehicle structures, saving production time and labor costs. Honda suggested that future gigacast parts could include body frames and internal-combustion or hybrid-electric engine components.

New Products, Services & Solutions

MAGMASOFT® 6.1 – Advancing Low Pressure Die Casting and Sustainability

MAGMASOFT®
autonomous engineering

MAGMA, a leading German developer and supplier of software for the simulation and optimization of casting designs and processes, introduces MAGMASOFT® 6.1, the latest version of its casting process simulation software. With extensive revisions and new functionalities, the software enhances the simulation of low pressure die casting processes, and expands the capabilities for die casters and users of MAGMA CC and MAGMA C+M.

For the first time, MAGMASOFT® includes a dedicated process module for rheocasting and thixomolding. In addition, a new ECONOMICS perspective enables users to quantitatively assess costs and CO2 emissions based on already defined geometry, material, and process data. These innovations provide faster, more precise results, promoting sustainable and economically optimized casting processes.

For more information visit: www.magmasoft.com/en/solutions

Streamline your grinding team with DISA GRIND automation

DISA, a Norican technology, has launched DISA GRIND, an automated grinding solution specifically designed for foundries. It can finish all alloys, from iron and aluminum to steel, bronze, and copper.

Fast, flexible and incredibly easy to operate, DISA GRIND is perfect for short and medium runs at small and medium-sized foundries.

"In today's job market, it is hard to find employees that want to work in manual grinding," says Kasper Paw Madsen, Vice President Portfolio Development & Marketing at DISA. "Automated grinding with DISA GRIND is cleaner and safer, so it's much easier to recruit operators and you can train them quickly too. DISA GRIND's output is accurate, consistent and highly productive, with fixtures that are inexpensive and easy to fabricate."

Easy-to-use auto grinding: productive, consistent and safe

DISA GRIND's fully automated grinding process is simple to understand. Unlike conventional auto grinding equipment, it does not require CNC programming skills. Anyone can quickly learn to program it using its intuitive touchscreen and handheld control box.

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For more information, visit: www.disagroup.com/GRIND

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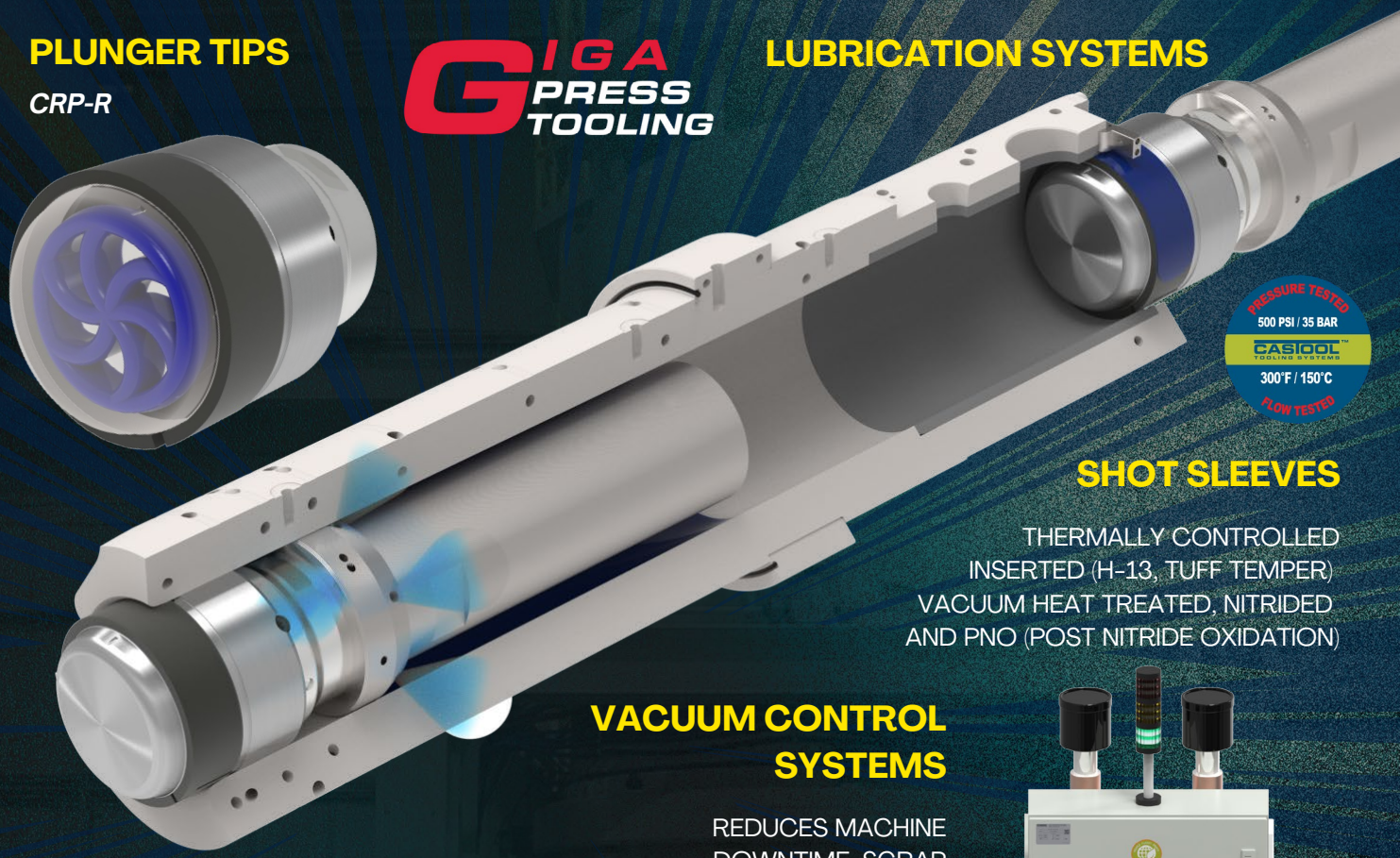

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