

GEAR 2005 EXPO DETROIT, MICHIGAN



Gear Expo 2005—The Worldwide Gear Industry Event

October 16–19, 2005

Cobo Conference/Exhibition Center

1 Washington Blvd., Detroit, MI 48226

As always, Gear Expo will be the only chance in two years for much of the industry to meet face-to-face, but this year the American Gear Manufacturers Association is emphasizing the educational component of the event.

New content for 2005 includes the Gear Expo Solutions Center, an on-floor educational exhibit where companies can give 20-minute presentations that are free to attendees. As of July 8, 26 companies had reserved time to promote the latest in equipment, processes and technology in gear manufacturing.

AGMA is sponsoring other training opportunities at the Cobo Center as well. The classroom portion of the Basic Gear Training Course will be led by Ron Green of The Gear Consulting Group. Half-day courses will be offered from Oct.

16–18. It includes standards; nomenclature; gear involute geometry; inspection procedures and interpretation of results; manufacturing processes, including hobbing, shaping and shaving; troubleshooting the gear manufacturing process; improvements in productivity; and discussion of common problems.

Other associations are getting in the education game as well, appealing to both gear manufacturers and those in related industries.

The Forging Industry Association and Forging Defense Manufacturing Consortium will hold a seminar titled “Gear Forging Solutions—Simulation and Rapid Tooling.” A segment of the program will cover a rapid tooling process, including its capabilities, applications and benefits.

Also, the American Bearing Manufacturers Association, along with NSK and SKF, is scheduled to hold a primer seminar titled “Why Bearings Fail.” End users and OEMs will provide insight on bearing design, features and proper bearing application.

Finally, the Society of Manufacturing Engineers will hold three seminars, as it has every Gear Expo for the past decade. The first is titled “Understanding Gear Metrology & Inspection” and focuses on those metrology issues unique to the gear industry.

On Tuesday, Oct. 18, the SME seminar on “Effective Heat Treating and Hardening of Gears” will include speeches on evaluating alternative heat treating methods and controlling the process.

The following day, SME will introduce a discussion on “Advanced Gear Processing and Manufacturing.” Participants will discuss the investigation of chronic problems, factors that impact tool life and performance, as well as compare the latest technologies.

Specific times, locations, dates and prices of seminars will be available at www.gearexpo.com as Gear Expo nears.



For those who also want the personal interaction of a trade show, Gear Expo 2005 promises not to disappoint. According to Kurt Medert, AGMA vice president—business management division, the figures are adding up. In 2003, there were 152 companies exhibiting at the show. As of July 8, 2005, already 148 companies had made deposits guaranteeing booth space.

“Our goal for 2005 is to get 175 exhibitors,” he says. “The economy is good and people are busy, so we are very optimistic.”

The registration fee for Gear Expo is \$15 through September 30. After that date, registration is on-site and costs \$30. For more information, visit www.gearexpo.com.



AGMA's Fall Technical Meeting Beefs Up Programming

This year's AGMA Fall Technical Meeting, which will be held Oct. 16–18 in conjunction with Gear Expo at Detroit's Cobo Center, will have a record-breaking 21 presentations.

Bill Bradley, vice president of AGMA's technical division, says that this year's format has been adjusted to accommodate the increased number of presentations. In previous years, the Fall Technical Meeting has consisted of four sessions with four to five papers each. In 2005, each of the four sessions will cover five to six topics. In addition, the first session will be held Sunday, Oct. 16 to allow time on Monday for visiting the exhibition floor.

The exact content of each technical session is yet to be determined, but is tentatively arranged as:

Session I—Manufacturing and Testing Gears

“Molded Plastic Face Gears: Design and Manufacture” by I. Laskin and E. Reiter.

“The Effects of Pre-Rough Machine Processing on Dimensional Distortion During Carburizing” by G. Blake.

“Modeling Gear Distortion” by P.C. Clarke.

“The Development of a Three Disc Micropitting Test Method” by M.G. Talks.

“Tooth Meshing Stiffness Optimization Based on Gear Tooth Form Determination for a Production Process Using Different Tools” by U. Kissling.

Session II—Hypoid and Bevel Application Design

“Simulation of Face-Hobbing Process for Hypoid Gears: Surface Generation, Contact Analysis and Fillet Stress Calculation” by A. Piazza and M. Vimercati.

“A Model to Predict Friction Losses of Face Hobbed Gears” by H. Xu, A. Kahraman and D.R. Houser.

“Spiral Bevel and Hypoid Gear Cutting Update” by T.J. Maiuri

“New Developments in Tooth Contact Analysis for Bevel Gear Drives: A Universal Surface Generation Algorithm and Finite Element Model” by Qi Fan and Lowell Wilcox.

“Hypoid Gear Lapping Wear Coefficient and Simulation” by C. Gosselin and Q. Jiang.

Special presentation of the new AGMA bevel gear rating suite by the AGMA Computer Software Committee at the end of Session II.

Session III—Innovative Application Solutions

“Finite Element Study of the Ikona Gear Tooth Profile” by J.R. Colbourne and S. Liu.

“Low Loss Gears” by B.-R. Höhn, K. Michaelis and A. Wimmer.

“Modal Failure Analysis of a Gear and Drive Ring Assembly” by D.D. Behlke.

“Evaluation of the Scuffing Resistance of Isotropic Superfinished Precision Gears” by P.W. Niskanen, B. Hansen and L. Winkelmann.

“Determining the Shaper Cut Helical Gear Fillet Profile” by G. Lian.

Session IV—Making Gears Work for Life

“Repair of Helicopter Gears” by S. Rao, D. McPherson and G. Sroka.

“H47D Engine Transmission Input Pinion Seeded Fault Testing” by J. Petrella, J. Kachelries and S. Holder.

“Influences of Bearing Life Considerations on Gear Drive Design” by F.C. Uherek.

“The Application of Very Large, Weld Fabricated, Carburized, Hardened and Hard Finishing Advanced Technology Gears in Steel Mill Gear Drives” by R. Drago.

“Planet Pac: Increasing Epicyclic Power Density and Performance Through Integration” by D. Lucas.

“Analysis of a Dual Drive Conveyor Failure” by M. Konruff.

The registration fee for the Fall Technical Meeting is \$525 for AGMA members and \$795 for non-members. For additional registration information, contact the AGMA by telephone at (703) 684-0211 or on the Internet at www.agma.org.

DETROIT

Michigan



A Model T accelerates through Greenfield Village. Credit: The Henry Ford.



Comerica Park welcomes the All-Star game. Credit: Vito Palmisano.



A good investment for show-based Commissions. Credit: DMCVB.



The underwater Polar Passage. Credit: Vito Palmisano.

“The World is Coming” is plastered on billboards throughout downtown Detroit, and that’s never been more true than in the next six months—when thousands of sports fans will descend on the town for Major League Baseball’s All Star Game and the NFL’s Super Bowl XL. Another important group to hit the new Northwest terminal at Detroit’s Metro Airport? The gear manufacturing community!

The face of downtown Detroit has changed since Gear Expo 2001. Notably, a \$500 million redevelopment of the GM headquarters at the Renaissance Center (200 Renaissance Center) is now complete. The Marriott Renaissance Center, an AGMA-approved hotel for Gear Expo, is situated in Michigan’s tallest structure and opens up to an unobstructed view of the Detroit River. The lower levels of the Renaissance Center include a vehicle center housing 35 GM production or vintage vehicles. The electric-powered cars on the floor can make for great conversation tidbits on the Cobo Center floor or at the Renaissance Center’s Coach Insignia restaurant. It’s worth a trip to the 72nd floor just to hop on the famous Lily Tomlin (Detroit native) chairs or check out the GM logo that actually stretches more than 20 stories high.

While sipping martinis or swishing wine at the Coach Insignia’s lounge, visitors are treated to an uncompromised view of Casino Windsor, located just across the river. This year, gamblers don’t need passports to play the slots. The MGM Casino, MotorCity Casino and Greektown are all Las Vegas-sized and bustling with activity at any hour.

Greektown Casino (555 E. Lafayette Ave.) houses Detroit’s only blackjack room—perfect for company bonding at the tables. When you cash in your winnings, stop for some saganaki in one of Detroit’s most vibrant neighborhoods.

Family-friendly entertainment options are available as well. The Henry Ford Museum (20900 Oakwood Blvd., Dearborn) is home to the vehicle in which JFK took his last ride, as well as the famous Rosa Parks bus.

The Ford Rouge Factory Tour is housed within The Henry Ford Museum and debuted to the public in May 2004.

Visitors take a walkway to the Ford F-150 truck assembly plant for a panoramic view of the 2-million-square-foot facility. Approximately one-third of a mile through the plant, visitors can see key points in the final assembly process. The Legacy Lobby houses a 1929 Ford Model A Roadster, a 1932 Ford V8 Victoria, a 1949 Ford Club Coupe, a 1956 Thunderbird and a 1965 Mustang.

In that same vein, the Detroit Historical Society (5401 Woodward Ave.) contains a car body slowly dropping on the assembly line, using the actual machinery from the Clark St. Cadillac plant. Accompanying exhibits break down each Detroit community's unique contribution to 100 area automobile companies.

Mexican muralist Diego Rivera expanded on life at the Rouge plant in his 1932 fresco that occupies two entire walls at the Detroit Institute of Arts (5200 Woodward Ave.). The mural was commissioned by the Ford Motor Co. and Edsel Ford, president of the Arts Commission, to provide a glimpse into the daily production and manufacturing operations for the 1932 Ford V8.

No doubt, Gear Expo will be time-consuming, but dozens of additional entertainment options exist beyond the boundaries of the exhibition hall. For more information, visit www.visitdetroit.com.

Where the Gear Industry Sleeps

**To receive the negotiated group rate, all hotel reservations must be made by September 26, 2005.*

- Detroit Marriott Renaissance Center—\$149/night. Reservations: (313) 568-8000 or (800) 352-0831. AGMA discount code: gexgexa. Three blocks from the Cobo Center with indoor access to the People Mover.
- Detroit Downtown Courtyard by Marriott—\$139/night. Reservations: (313) 222-7700 or (800) 321-2211. AGMA discount code: AGMAGMA. Located across the street from the Detroit Marriott Renaissance Center and complex. Indoor access to the People Mover. Room renovations currently underway.
- Hotel Pontchartrain—\$129/night. Reservations: (313) 965-0200. AGMA discount code: AMGEA. Located directly across the street from the Cobo Center. Guest rooms, common areas, lobby currently under renovation.
- Holiday Inn Express Hotel & Suites—\$109/night. Reservations: (313) 877-7000 or (800) HOLIDAY. AGMA discount code: AGM. Located within two blocks from the Cobo Center and a half block from the People Mover. Renovation completed in 2003.

Room reservations can also be made at www.garexpo.com.

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