

INDY

The Goof-Off Guide to



Photo courtesy of Indiana Convention & Visitors Assoc

Trade shows can be exhausting.

You work hard all day, meeting people, wheeling and dealing, walking the aisles. After a long day of working the show, sometimes you just need to relax for awhile. With Gear Expo '95 fast approaching, *Gear Technology* has gone ahead and done some of the legwork for you. We've come up with some places to go and things to do that have absolutely nothing to do with gears.

For starters, you'll need someplace to eat. We spoke with our Indiana correspondent, "Dave," to find out the best places for good Hoosier food. Dave says you can find good eats at

the following restaurants, all located within walking distance or a short cab ride of the Convention Center.

- **Iaria's Italian Restaurant.** This is a "pretty good Italian restaurant" that's off the beaten path, on the Southeast edge of the downtown area, says Dave. The tourists don't know about it, so it's where the locals go for good pasta. 317 S. College Ave.

- **St. Elmo's Steakhouse.** A very nice steakhouse, with very nice prices, so bring your expense accounts. Also, this restaurant is "cigar-friendly" for anyone interested in lighting up a stogie after dinner, says Dave. 127 S. Illinois Ave.

- **Shapiro's Deli.** At this cafeteria-style eatery, you can request your

favorite deli meats on your favorite deli breads with your favorite deli spreads. Dave's review: "Not a quiet dinner by any means, but it's good food." 808 S. Meridian St.

- **Rick's Cafe Americain.** If you're tired of fast food and eating on the run, this is a sit-down restaurant that's basically a "fancy hamburger place," (with somewhat fancy prices) Dave says, but the menu has a wide selection, and the food is very good. Located in Union Station.

- **Sports Bar.** For night life, Dave recommends the bars on Meridian Street near Union Station. The Sports Bar features several individual connected bars, each with its own variety of live music. 225-233 S. Meridian.

Fun Facts About Indy

- Population: 818,000, the 12th largest U.S. city.
- Average Temperature in November: 41.8°F
- Taxi Fares: \$2.70 for the first mile, \$1.80 each additional mile (prices may vary).
- Approximately half the population of the U.S. is within a day's drive of Indianapolis.

Cool Places Within Walking Distance of the Convention Center

• **Indianapolis City Center.** A 13-by-13-foot model of the downtown area comes alive at the touch of a button to give you the highlights of the city. More than 300 free maps, schedules and brochures are available. Also has a souvenir gift shop. On Capital Avenue, across from the dome.

• **Circle Centre.** The city's newest shopping center opened in September with approximately 100 stores on 4 levels. The center is connected to area hotels and the convention center by skywalk. Also features the Arts Garden, an 8-story glass rotunda suspended over the street. Two blocks East of the convention center on Maryland Street.

• **The Indiana State Capitol.** Tour the Indiana Supreme Court and the House and Senate Chambers. Feel the history. Across from the convention center.

• **Union Station.** Built in 1888, this was America's first union railway depot. Recently renovated with 20 fast food restaurants, seven full-service restaurants and 45 specialty shops. Connected to the convention center by skyway, through the Crowne Plaza Hotel.

Hot Times In Indy While You're Here

November 9-11 — Bands of America, Grand Nationals high school marching band competition. At the RCA Dome, (800) 848-BAND.

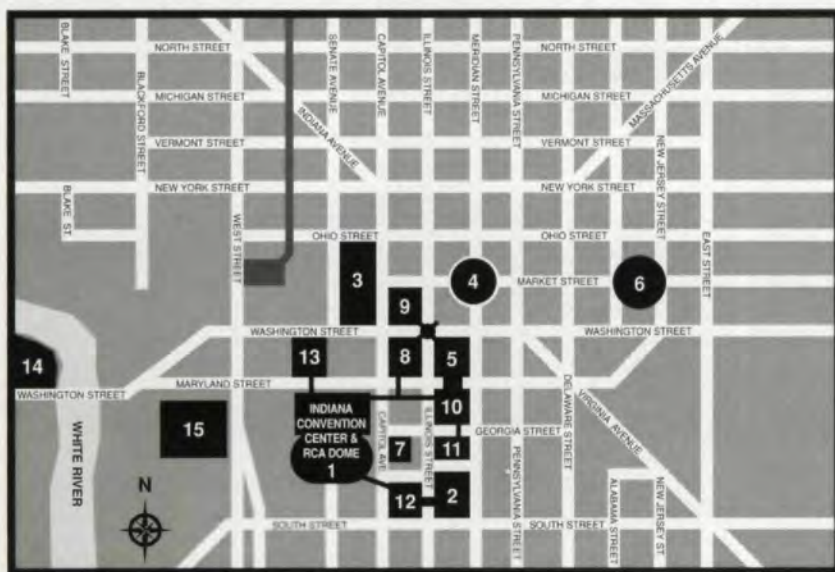
November 10 — Sacramento Kings at Indiana Pacers. Market Square Arena, (317) 263-2100.

November 10 — Winterland Christmas display begins. A drive-through park featuring more than 400 themed, lighted displays. More than 2 million lights will decorate a 2 1/2-mile drive. At the Indiana State Fairgrounds, (317) 927-7500.

November 12-15 — Gear Expo '95. Meet gear enthusiasts and professionals from around the world. Be there.

November 13 — Victorian Christmas display begins at the President Benjamin Harrison Home, (317) 631-1898.

November 18 — Carquest Dodge Monster Drags. Don't miss this exciting monster truck action! At the RCA Dome, (317) 236-6515.



Key to Buildings

1. Indiana Convention Center & RCA Dome
2. Union Station
3. Indiana State Capitol
4. Monument Circle

5. Circle Center Mall
6. Market Square Arena
7. City Center
8. Hyatt Regency Hotel
9. Embassy Suites Hotel
10. Canterbury Hotel

11. Omni Severin Hotel
12. Crowne Plaza Hotel
13. Westin Hotel
14. Indianapolis Zoo
15. Indianapolis Indians Baseball Park

SAVE WARRANTY COSTS WITH
DiamondBLACK®
Amorphatec® Ceramics

7 TIMES GEAR LIFE

DiamondBLACK® coated gears have provided 7 times the gear life vs. uncoated.

93-95Rc HARDNESS

LOW TEMPERATURE

Applied at under 250°F

AMORPHOUS STRUCTURE

No chipping,
cracking & peeling

HIGH ADHESION

Will not transfer

AFFINITY FOR LUBRICANTS

CHEMICAL RESISTANT

Impervious to most harsh
chemicals, acids and bases

UNIFORMITY

Surface replication with
no build up (2 µm)

TEMPERATURE RESISTANT TO 2282°F

EXTREMELY THIN
(80 Millionths)

US & FOREIGN PATENTED



P. O. Box 190
100 Somerset Drive
Conover, NC 28613-0190
1-800-368-9968
FAX 704-322-4636

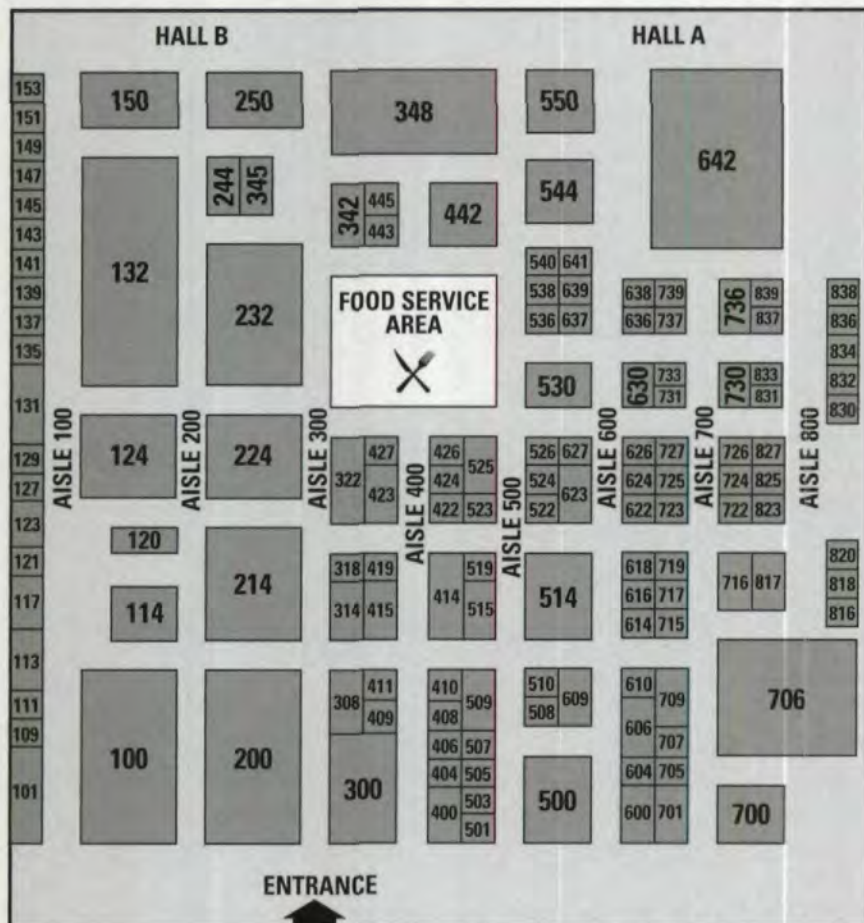
The World Of Gearing
INDIANAPOLIS, NOVEMBER 12-15, 1995
SEE US AT BOOTH 406



CIRCLE A-23 on READER REPLY CARD

GUIDE TO THE GOODS

Gear Expo '95 promises to be the biggest show ever put on by the American Gear Manufacturers Association. The following Gear Technology advertisers are exhibiting at the show. All booth and exhibitor information valid as of 9/25/95.



SHOPPING THE SHOW

Booth #100 — American Pfauter, L.P., will introduce to North America the unique Pfauter P100 wet/dry hobbing machine. Also in the booth is the Zeiss Höfler ZP400/630 gear measuring system and the Kanzaki gear shaving machine. Kapp-Coburg will display a unique grinding module for topological gear grinding. **Pfauter Maag Cutting Tools, L.P.**, will display its complete line of hobs, shaper cutters and form cutters. The company will show its new TiN, TiCN and TiAlN coating unit.

Booth #101 — Sunnen Products Company will feature its EC-3500 high production honing machines for the sizing and finishing of gear bores. In addition, visitors will see the CGM-5000 Krossgrinding® System for precision gear honing and bore sizing.

Booth #121 — Nye Lubricants, Inc., a manufacturer of specialty lubricants for

more than 150 years, will be exhibiting a line of synthetic gear greases and oils. Visitors can stop by and ask about Nye's exclusive ultra-filtration service for contaminated greases and oils.

Booth #124 — Fellows Corp. Representatives will discuss the increasing integration of CNC capabilities into their unique Hydrostroke gear shaping machines to optimize feed rates and production cycles. Also featured will be the Fellows line of cutters.

Booth #127 — Perry Technology Corporation specializes in shaped internal and external helicals, face gears, aircraft splines cut in exotic materials, short lead-time prototypes, helical broaching and copper and graphite gear electrodes compensated for shrinkage and overburn.

Booth #131 — Welduction Corporation. Meet Pat Anderson, Gil Traverse and Dan

Williams from this manufacturer of induction heat treating equipment. They will discuss induction heat treatment of gears, sprockets and splines and how you can manufacture complete turnkey systems with cell-type concepts.

Booth #132 — The Gleason Works. The Gleason exhibit has a theme of "Process Flexibility for Spur and Helical Gears." It features the new Phoenix 200GH CNC hobber for gears up to 205 mm OD, the TAG 400 gear grinder and the latest Hurth CNC shaving machine. Process options such as wet vs. dry hobbing and contour dressing for gear grinding will also be addressed at the booth.

Booth #150 — Reishauer Corporation is unveiling its newest large machine, the RZ 820. The machine includes many new features that the company says will improve quality, reduce setup times and reduce grinding times by as much as 20-25%.

Booth #200 — Star Cutter Company will exhibit a complete line of hobs and shaper cutters, including carbide hobs for dry cutting. Also on display will be its thin-film PVD coatings, such as TiN, TiCN and TiAlN. The booth will feature a universal CNC sharpening machine, model #UTG-600, with demonstrations of hob, shaper cutter and broach sharpening.

Booth #214 — SU America Inc. will feature the SCT3 universal gear chamfer/deburr machine, along with master gears and SU America's full line of gear cutting tools, including chamfering tools, deburring tools, hobs, shaving cutters and shaper cutters. In addition, visitors will be able to see worms, screws, rotors and internal and external gears ground on SU America's CNC grinding machinery.

Booth #224 — American Sykes Company will display its model AMS-250-1AL gear metrology system, which allows non-contact motion of its measurement axes through the use of aerostatic bearings. In addition, the booth will feature James deburring and chamfering systems and American Sykes' full line of gear cutting tools.

Booth #232 — M & M Precision Systems will show how its line of gear inspection machines can be networked with an off-site PC for SPC and data gathering. In addition, M&M will introduce a new version of its machines with a smaller footprint, and the Master Gears/Spline Gages division will show a new dimensions-over-pins gage.

Booth #244 — Oberlin Filter Company will demonstrate a completely automatic filtration system for oil, water-based or synthetic coolants that company officials

Wind

Energy with a Future

More and more wind turbines are being used around the world to supply us with economical electric energy, without harm to our environment.

The requirements placed on wind turbine drive systems are extraordinarily high. They must be compact and operate with absolute reliability. Noise must be held to a mere whisper.

Today, most of the gears used in wind turbine drive systems are ground on HÖFLER machines. They satisfy all the special requirements to the industry's fullest satisfaction.

**HÖFLER gears,
quiet as a whisper.**



Höfler
gear grinding machines
from specialists,
for specialists



HÖFLER Corp.
P.O. Box 127
Sky Manor Rd.
Pittstown, N.J. 08867
Phone: (908) 996-6922
Telefax: (908) 996-6977

HÖFLER GmbH
P.O. Box 0452
76258 Ettlingen
Germany
Phone: -49-7243-599-0
Telefax: -49-7243-599-165

say improves quality and reduces "cake" disposal, media usage and coolant replacement costs. The system is applicable to gear grinding, surface grinding, creep-feed grinding and related operations.

Booth #300 — GMI will display gear deburring machines utilizing wheels and brushes. In addition, the booth will have gear cutting tools, including bevel gear tools, hobs, Maag cutting tools, shaving cutters, etc., and special tools for hard gear finishing machines, including honing wheels and diamond dressing devices.

Booth #318 — Gear Technology. If this isn't your very own copy of *Gear Technology*, stop by and fill out a qualification form for a FREE subscription. We'll have extra copies of the November/December Show Issue and a limited quantity of the September/October Buyers Guide. Stop by and say "Hello" to our entire gear gang.

Booth #348 — Mitsubishi Machine Tool presents its MMT (Minimum for Maximum Thru-put) technology, featuring the GD20CNC Gear Hobber with simplified setup by quick-change tooling and

rigid construction for maximum cutting capabilities. The FB 30 CNC Gear Shaver and the TC 8 BCNC Turning Center will be on display.

Booth #406 — Diamond Black Technologies. Increase power density, increase gear life and reduce warranty costs using Diamond Black's high volume physical vapor deposition process for boron carbide. According to company representatives, this process can extend the life of gears sevenfold at 50% of the cost of grinding.

Booth #414 — American Gear Manufacturers Association, the sponsor of Gear Expo '95, is an organization for the manufacturer of gears and gear products and those with a direct interest in the engineering and application of gears and flexible couplings. Representing 350 international companies, AGMA develops standards for ANSI and is an active participant in ISO.

Booth #415 — Multi-Arc Inc. is a leading supplier of physical vapor deposition (PVD) coatings, technology and equipment. Stop by its booth to learn more about ION BOND® coatings, which provide increased wear and corrosion resistance to industrial cutting tools, metal forming dies, plastic molds, wear parts and medical devices.

Booth #422 — Niagara Gear Corporation. On exhibit will be illustrations of its state-of-the-art gear grinding equipment, including the Gleason TAG-400, enlarged Cpk charts and other SPC-related systems. Visit the booth to receive free golf tees and a chance for Top Flite golf balls or the grand prize of a genuine "Big Bertha" Callaway golf club.

Booth #423 — Sytec Corp./Benemac S.A. will feature Benemac cages, which accurately locate the pitch diameter of the gear and allow the machining of surfaces concentric and perpendicular to the P.D. The staff will be demonstrating hard turning of a gear on an OJUMA LCC15-2S, showing how the cages increase productivity and accuracy.

Booth #442 — Colonial Tool Group, a broaching tool manufacturer, will feature its complete line of broaching tools and spline rolling racks, including the company's new helical spline broaches. Also, the company will feature machine spindles and a turnkey setup for broaching keyways, internal gears and other parts.

Booth #500 — JRM International, Inc., will exhibit a Kesel CNC rack milling machine with auto leveling, Kesel high pressure centering and standard vises, Schrem hydraulic locknuts, Saaor inserted blade hobs and Baublys marking machines.

IF YOU CUT GEARS, WE CAN SHOW YOU HOW TO CUT DOLLARS WITH

SAAZOR HOBS

- 7-10 Week Delivery
- Reduce Cost Per Piece
- More Regrinds/Hob
- Reduce Tooling Budget
- No Need to Recoat
- Reduce Tool Inventory

SCHREM HYDRAULIC LOCKNUTS

- Improve Gear Quality
- Improve Machine Life
- Improve Set-up Time
- Eliminate Injury

Come see us at Booth 500!

JRM International, Inc.

1214 Shappert Drive, Rockford, IL 61115
PH: 815-282-9330 FX: 815-282-9150

CIRCLE A-45 on READER REPLY CARD

Booth #509 — WMW Machinery Company, Inc. will highlight its complete line of gear machinery, including gear generating and profile grinding machines from Niles (Germany), gear hobbing machines from HURTH MODUL (Germany) and gear hobbing and shaping machines from TOS CELAKOVICE (Czech Republic).

Booth #514 — ITW Heartland will show its complete line of inspection and burnishing equipment. Featured will be high-speed automatic inspection and burnishing machines, manual gear rollers, DOP units, computerized gear rollers and master gears.

Booth #523 — Amarillo Gear Co., specializing in spiral bevel gears, hypoid gears, right-angle pump drives and cooling tower fan drives, will have on display samples of its products, including loose spiral bevel gears, a cutaway right-angle drive and a segment from a 74" diameter ring gear.

Booth #524 — Bourn & Koch Machine Tool Co. will demonstrate its model 25H gear hobbing machine, which can hob gears of 1" diameter. The 25H is designed for high production of small gears or shafts. Bourn & Koch will also show other machines and capabilities.

Booth #525 — Profile Engineering, Inc., will demonstrate the PC-20 Composite Gear Analyzer®, a double-flank composite gear measuring instrument with a computer data acquisition and analyzing system. The PC-20 has a rotary encoder that monitors the circumferential position of the master gear. It can display center distance variations in either manual or automatic mode.

Booth #530 — Basic Incorporated Group is the national distributor for Wolf gear machines. Its product line includes shapers, shavers, hobbers, honers, test equipment and more. Basic also offers service for Wolf gear machines and other makes. Stop by the company's booth to see a program-controlled hobber, a 20" shaper, a 12" honer and various test equipment.

Booth #606 — Global Gear is an OE manufacturer of high quality, precision helical and spur gears. Representatives at the booth will discuss with you their "modern, flexible manufacturing systems" and how they strive to provide "the best value" and "on-time delivery."

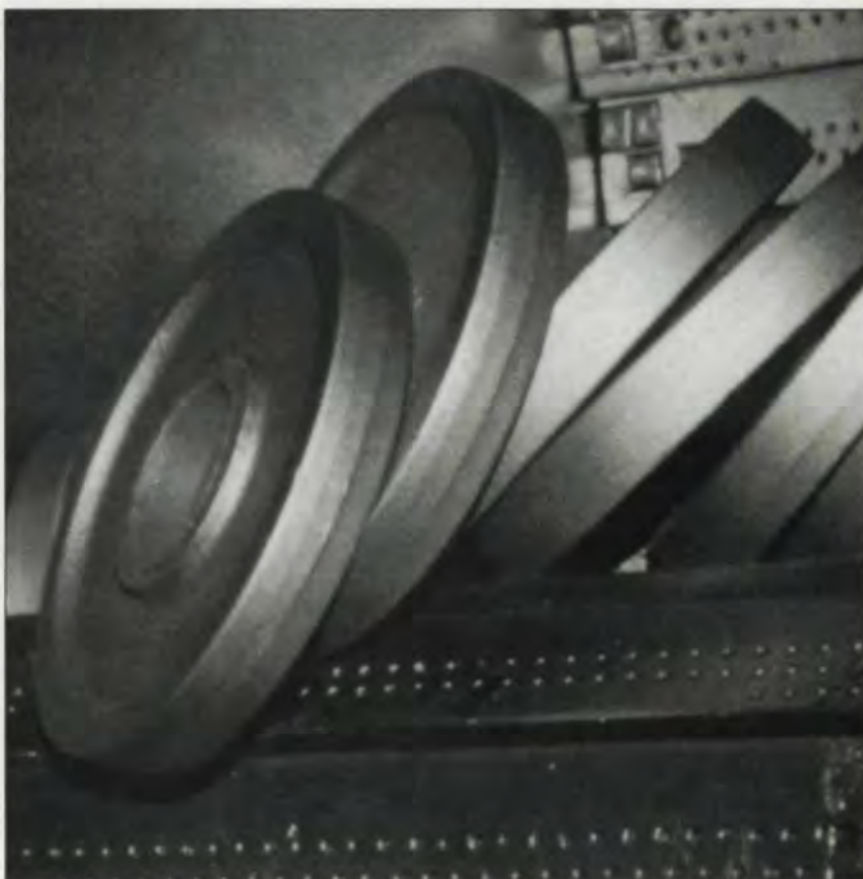
Booth #609 — Dura-Bar. Continuous cast gray and ductile iron from Dura-Bar offers many advantages to manufacturers of gears. Dura-Bar's continuous casting process eliminates the scrap that results from shrinkage, porosity and tool wearing inclusions. Dura-Bar round bars are available in diameters ranging from 5/8" to 20".

Booth #614 — American Metal Treating Co. will be displaying sectioned single-tooth induction hardened gears. The company's capabilities include single-tooth contour hardening and submerged induction hardening using the Delapena process. Technical staff will be on hand to discuss your heat treat and distortion problems.

Booth #622 — Schunk Intec will have on display its line of precision hydraulic expansion arbors and chucks in standard and special designs, with repeatability of .00004" and TIR < .00012". Also, see cus-

tom designed tools, Schunk gripping systems and vacuum components and the TANDEM two-jaw clamping system which offers centering repeatability of .0004", available with integrated base plates and top jaws.

Booth #642 — Sigma Pool will demonstrate a range of gear production machines including the Liebherr LC 82 CNC hobbing machine, capable of dry cutting; the Klingelnberg PNC 33 CNC gear checking machine; and the Oerlikon L20 CNC lapping machine.



Forging partnerships of value in the gear market!

For over 75 years, Clifford-Jacobs Forging Company has been providing high-quality forgings to gear manufacturers throughout the world, with an unmatched level of customer satisfaction! For carbon, alloy, stainless steel or aerospace grade gear blanks and other components ranging in size from a few pounds up to 600 pounds and up to 30 inches in diameter, we can meet your toughest requirements. In addition, we offer design and

engineering services, heat treating, rapid turnaround on orders, and inventory storage facilities for JIT manufacturing. Call today — learn firsthand why we are "forging partnerships of value!"

Clifford-Jacobs
FORGING COMPANY

P.O. Box 830 • Champaign, IL 61824
217-352-5172 • FAX 217-352-4629

CIRCLE A-32 on READER REPLY CARD

Booth #700 — Höfler Maschinenbau GmbH will present its line of high performance, high accuracy gear grinding machines, including innovative gear grinding processes such as Höfler's deep feed grinding process—HDF. The booth will feature a variety of actual grinding examples, photographic material and process literature.

Booth #705 — Windsor Gear & Drive will display gears ranging in quality from AGMA 6 to AGMA 15 as well as several specialty gear drives, including a marine drive for a light-armored amphibious

vehicle, components from a drive unit used in electric vehicles and a helicopter camshaft with exotic gear work and cam grinding.

Booth #706 — National Broach & Machine Co. has plenty of new ideas for Gear Expo visitors. The SPIRALGLIDE broach tool offers increased tool life; the CNC BVT workpiece transfer broaching machines allow loading at either the top or bottom of the stroke; and the VBM pot broach features automatic pot changing. Also on display will be the KA-80 hobber

for hard finish hobbing and the RED RING gear checker.

Booth #715 — Merit Gear Corporation, a full service gear producer and manufacturer of custom powertrain components, specializes in spur and helical gears, OEM enclosed drives and ground gearing to AGMA class 12. Merit also has full service in-house heat treating, including NATCO submerged tooth-by-tooth contour hardening.

Booth #722 — Six Star Gears (Yieh Chen Co.) started manufacturing precision gears in 1975 and has become a leading gear maker in Taiwan. Its products include spur gears, helical gears, chain sprockets, straight bevel gears, worm wheels, splined shafts, pins, clutch flanges, gearboxes, gear pumps and gear grinding services.

Booth #726 — A/W Systems will present its line of finisher cutters with interchangeable blades for ring gear production. Made in the U.S.A., the complete finisher package includes bodies from 5" through 9" diameter, hardware and finisher blades designed and precision manufactured to be quickly exchanged as needed.

Booth #730 — Roto-Technology, Inc., will be demonstrating two machines—the standard RC-400-12 and the Micro-6 gear inspection machine. Both machines will run Roto-Technology's complete software library and both have the new rotary probe with an AGMA 15 level of accuracy. There will be other technological improvements and innovations, including testing fine pitch gear inspection with the Micro-6 and adding camshaft testing.

Booth #736 — Bevel Gears (India) Pvt. Ltd. manufactures spiral and straight bevel gears from 0.5 module to 20 module, with spiral bevel grinding capabilities. The company also provides complete gearboxes for applications such as machine tools, railroad equipment, mining equipment, automobiles, hand tools and others. Its booth will have samples of gears and gearboxes.

Booth #817 — Redin Corporation will demonstrate its dual-purpose cleaning and deburring machine. Without a cleaning process, the mixture of cutting oils and grinding dust created by deburring can cause problems for the finished part. Redin integrated the cleaning and deburring processes, using a self-contained filtration system. ⚙



Amarillo Gear Company combines years of experience with quality materials and workmanship to create spiral bevel gears that are a cut above the field.

Amarillo builds high quality spiral bevel gears up to 100 inches in diameter for industries across the globe. Each set is manufactured for quiet operation and durability to suit the exact production requirements of our customers.

Contact Amarillo Gear about your custom application. You'll find a ready ear and a quick response to your needs.



You can count on it.
Amarillo Gear Company

P.O. Box 1789 Amarillo, Texas 79105 (806) 622-1273
TWX 910-898-4128/Amadrive FAX (806) 622-3258



© AGC 1995

Tell Us What You Think... If you found this article of interest and/or useful, please circle Reader Service **Number A-106**.