



# Southern Minnesota Section Newsletter

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## **Domaille Engineering, Inc.**

by Jim Scheu

Domaille Engineering, Inc. (DEI) is an ultra-precise design and manufacturing firm, specializing in tooling, equipment and technical solutions for the fiber optics industry. We typically hold tolerances down to as small as 10 millionths of an inch, in some cases even less. To aid us in doing this kind of work we make use of several types of electrical and/or electronic technological tools.

We use a CAD (Computer Aided Design) system to help us develop designs from first concept all the way to completion. We also use the CAD system for generating finished assembly and individual detail drawings. We then use a CAM (Computer Aided Manufacturing) system to take the geometry developed in the CAD system and use it to generate machine programs for each operation required on our CNC (Computer Numerically Controlled) machines. These machine programs tell our machining centers what to do to produce the required parts.

In order to transfer the machine programs from the CAD system to the machine controls, we make use of a LAN (Local Area Network) Ethernet connection. The CAD system stores the programs on a central server. This server functions as the database and can be accessed by a central control workstation out on the manufacturing floor. This central control workstation is hard wired with an RS-232 communication line to each machine. When a program is needed at a specific machine, it can then be downloaded to the machine, and after making the part it can be saved back to the server with any modifications made to the program at the machine.

Besides standard chip cutting machines we use a wire EDM machine (Electrical Discharge Machining) to generate complex shapes in various materials, including hardened steel and even carbides. Basically the wire generates an arcing action that burns away the material as the wire travels along the part outlines.

Most of our work is in connection with the fiber optics industry, part of which involves the transfer of information accomplished by sending coded pulses of light through a glass fiber. The light is identified by color, as determined by its wavelength, so the receiver knows which information to sort out of the continuous stream of information sent simultaneously through these glass fibers. The transfer of information through fiber optic cable is also classified by the degree of acceptable loss, termed multi-mode vs. single-mode, which occurs at each splice or termination along the fiber

## **IEEE Section Event**

### **Tour of Domaille Engineering, Inc.**

**Monday, February 21, 6:00 pm**  
**Domaille Engineering, Inc.**  
**Highway 63 North & Dresser Drive NE**  
**Rochester, MN**

*If you plan to participate in this tour, please contact Ron Jensen (r.jensen@ieee.org, 253-3887) so that he can tally the number of people attending.*

*Domaille Engineering is located on the east side of Highway 63 North, three miles north of Shopko (37<sup>th</sup> Street).*

*Please note the 6:00 starting time. Pizza will not be served at this event.*

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optic cable. These cables end in connectors, which must be polished to a very strict shape requirement, and must be aligned precisely to limit signal loss at these splices and terminations. DEI makes the premier equipment in the industry for polishing the ends of fiber optic cable connector ends, due to our designs and the accuracy we are able to maintain during manufacturing. We make several different versions of polishing machines, as well as polishing fixtures to hold the various connector styles. The fixtures are designed to fit on our polishing machines, enabling the user to polish various connector styles with the same machine.

DEI has been in business since 1990. We are a fast growing company, and need to continue our growth to keep pace with the growing fiber optics industry. We ranked #16 in Minnesota's "Fast 50" (the fastest growing technology companies in Minnesota) and continue to lead our industry in ultra-precise solutions to technical challenges.

**IEEE Section Event**

**Tour of IBM Powerhouse &  
Energy Management Systems.**

*Monday, March 6, 7:00 pm  
IBM Rochester  
Highway 52 North & 37<sup>th</sup> Street NW*

*The IBM Powerhouse (Bldg. 301) is the building directly east of IBM's water tower. Enter the IBM site via 37<sup>th</sup> Street and take an immediate left turn (just after the guard shack). Follow the perimeter road around the south side of the building complex and head for the water tower. Park in the adjacent lot. Pizza will not be served at this event.*



**The Institute of Electrical  
and Electronics Engineers, Inc.  
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