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National Fluid Power Association part of new \$21 million research center

National Science Foundation announces five-year grant to support a new Engineering Research Center for fluid power

May 22, 2006—Discovering ways to reduce fuel consumption, developing devices for people with mobility impairments and designing state-of-the-art rescue robots are just three of the goals of a new multimillion-dollar research center involving a nationwide network of engineering researchers and educators; manufacturers, suppliers and distributors in the fluid power industry; and the National Fluid Power Association (NFPA).

The National Science Foundation (NSF) recently announced a \$15 million, five-year grant to support the new Engineering Research Center for Compact and Efficient Fluid Power. Industry partners will augment NSF funding with \$3 million, and seven universities involved in the center will contribute an additional \$3 million. The center will be based at the University of Minnesota Twin Cities campus.

"This center will advance fundamental knowledge, providing a platform for technology that will spawn new industries. We are impressed with the ambitious goals of the center for research and education and the strong partnership with industry," said Lynn Preston, leader of the Engineering Research Centers Program at NSF.

Fluid-power technology encompasses most applications that use liquids or gases to transmit power in the form of pressurized fluid. The complexity of these systems ranges from a simple automobile jack to sophisticated airplane flight control actuators that rely on high-pressure hydraulic systems. Fluid power is a \$33 billion industry worldwide.

With help from NFPA, more than 50 companies have agreed to provide support for the research center, a level unprecedented in ERC grant history. According to Linda Western, NFPA's Executive Director, "Companies of every size throughout the fluid power industry's supply chain rallied around the concept of establishing the center from its inception, consulting with the research team members as they developed the proposal while pledging financial and in-kind support through an association-led drive. That broad base of industry support proved to be a key factor in NSF's decision to award this grant."

Research conducted through the Center will be multi-dimensional. Engineering faculty and their students will study ways to use fluid power

more efficiently in manufacturing, agriculture, construction and mining. Each 10 percent improvement in efficiency of current uses of fluid power in these industries will save about \$7 billion a year in U.S. energy costs. Researchers will also work to develop hydraulic-hybrid passenger cars that are less expensive and more efficient than current electric hybrids. A 10 percent improvement in efficiency in national passenger-car energy use will save about \$10 billion a year.

Another goal of the research center is to develop portable, wearable and autonomous fluid-power devices capable of operating for long periods of time without external energy sources. This technology could lead to new medical and rehabilitation devices and robots that could be used in rescue missions.

In addition to research, the center will be involved in developing youth education programs, improving efforts to increase student diversity in engineering, designing internship and exchange programs for undergraduate and graduate students, and offering short courses and labs for industry workers.

“The center’s research agenda is impressive, but so are the plans for education. Taken together, these innovative new programs should be very effective in interesting young people in engineering and technical careers,” said Martin Berardi, Vice President and General Manager of Moog Inc., and Chairman of NFPA’s Board. “This would be an achievement in itself, but we also hope that many of them will choose careers in the fluid power industry because of the ERC.”

Core universities involved in the center are the University of Minnesota-Twin Cities, University of Illinois at Urbana-Champaign, Georgia Institute of Technology, Purdue University and Vanderbilt University. Outreach universities include the Milwaukee School of Engineering and North Carolina A&T State University. Outreach institutions include the National Fluid Power Association, Project Lead The Way, and the Science Museum of Minnesota.

NSF-funded Engineering Research Centers conduct pioneering research in emerging technologies and train the next generation of engineers to be leaders in innovation. Each center, while based at one university, is a collaborative partnership drawing together individuals and resources from other universities, industry partners, and pre-college teachers and students.

The National Fluid Power Association (NFPA) is a forum for all of the fluid power industry’s channel partners—manufacturers, distributors, suppliers, customers and educators. Its 300+ U.S. and multinational members work together to better serve their customers, while maximizing the power of association to advance hydraulic and pneumatic motion control technology. NFPA is headquartered in Milwaukee, WI. Additional information about NFPA and the Engineering Research Center for Compact and Efficient Fluid Power is available at www.nfpa.com

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