OUR MISSION

In a biennial survey, members of the National Fluid Power Association (NFPA) consistently rank the recruitment of a skilled workforce as the most challenging issue their companies face. This is likely because not enough technical colleges or universities are teaching hydraulics and pneumatics, nor preparing their students for careers in the fluid power industry.

As a result, NFPA has identified growing the fluid power workforce as one of its primary strategic priorities. It is central to its mission of strengthening the fluid power industry. NFPA seeks to increase the number of technical college and university students educated in fluid power, and to connect them to jobs in our industry.

The NFPA Education and Technology Foundation is a tax-exempt, charitable organization, affiliated with NFPA, that is dedicated to meeting this workforce development need. Through the generous support of our donors, we are:

- Creating more educated fluid power technicians, by funding student outreach and education programs, designed to create a pathway into the fluid power industry; and
- Creating more educated fluid power engineers, by funding research and education programs, designed to better engage academic faculty in the teaching of fluid power.

Because of your support, our programs are helping to change the talent pool available to our industry. More young people are aware of the fluid power industry. More 2-year technical college and 4-year university graduates have specific training in fluid power. More universities have research facilities and education programs focused on fluid power. And more partnerships between these schools and our industry are increasing access to highly talented candidates.

This is truly our mission—yours and ours—and it is working. Your donations will make sure it works for many years to come.

Best Regards,

Eric Lanke
President and CEO
NFPA Education and Technology Foundation

Eric Lanke
President and CEO
NFPA Education and Technology Foundation
In total, our Fluid Power Action Challenge Champions have organized 124 EVENTS IMPACTING 11,935 STUDENTS

Outreach and Education Programs Building a Pathway into the Fluid Power Industry

**FLUID POWER ACTION CHALLENGE**

Engages thousands of middle school students in learning about and having fun with fluid power. It raises awareness among students, educators, and parents. Industry partners serve as coaches and judges.

**FAST TRACK HIGH SCHOOLS**

Are each equipped with fluid power lab equipment and curriculum. They teach real-world fluid power and generate interest in fluid power careers. Industry partners visit the schools frequently and provide mentorship and career encouragement.

**FLUID POWER SCHOLARSHIPS**

A variety of scholarships are offered to graduating high school students in order to pursue fluid power degrees or certificates at designated technical colleges and universities. Industry partners serve on the scholarship review committee that makes funding decisions.

**FAST TRACK TECHNICAL COLLEGES**

Are schools with a 2-year degree program validated to teach core fluid power competencies. Industry partners provide ongoing curriculum guidance and student internship opportunities.

**FLUID POWER ACTION CHALLENGE 25,000+ Engaged Through Events and Classroom Activities**

The Fluid Power Action Challenge is a competition that challenges middle- or high school students to solve an engineering problem using fluid power. The students work in teams to design and build a fluid power mechanism and then compete against other teams in a timed competition.

The Fluid Power Action Challenge has many benefits:

- Actively engages students in learning about fluid power.
- Gives support and resources to teachers for science and technology curriculum.
- Creates a learning environment where math and science are fun.
- Encourages students to practice teamwork, engineering, and problem-solving skills.
- Introduces students to careers in the fluid power industry.

Hundreds of individuals in NFPA member companies and education partner institutions have been involved in membership, classroom activities, and events related to the Fluid Power Action Challenge, which have engaged more than 25,000 students to date.

**Fluid Power Action Challenge Champions**

Thirty-two NFPA member companies and education partner institutions across the country have been recognized as Fluid Power Action Challenge Champions for their efforts in organizing and running Fluid Power Action Challenge events in their local communities. In doing so, they have not only made serious investments of both time and money, but have also helped spread important information about our fluid power industry and created the benefits that come with connecting our organizations to the schools and science classrooms where our industry’s future employees are learning fluid power for the first time.

**These Fluid Power Action Challenge Champions are:**

- Bennett-Wilson Middle School - 2 annual events, engaging 84 total students
- Caterpillar - 2 annual events, engaging 372 total students
- Cleveland Community College - 4 annual events, engaging 199 total students
- Cooper Middle School - 4 annual events, engaging 192 total students
- Dondino Products Company - 10 annual events, engaging 904 total students
- Delnor Fluid Power Systems - 7 annual events, engaging 2,208 total students
- Deur Generator - 1 annual event, engaging 66 total students
- Eisenhower Junior High - 2 annual events, engaging 36 total students
- Florida Technology Student Association - 3 annual events, engaging 32 total students
- FORC America - 5 annual events, engaging 346 total students
- Georgia Tech University - 2 annual events, engaging 136 total students
- Gulliver Preparatory School - 1 annual event, engaging 60 total students
- Husco and Walworth STEM Academy - 4 annual events, engaging 127 total students
- Hydrotech - 1 annual event, engaging 23 total students
- Hydromech - 1 annual event, engaging 31 total students
- Irving Middle School - 4 annual events, engaging 466 total students
- Kenyon-W ming Corp Group - 2 annual events, engaging 80 total students
- Linnell Community College - 2 annual events, engaging 58 total students
- Master Pneumatic - 6 annual events, engaging 594 total students
- Minnetonka School District - 1 annual event, engaging 36 total students
- Midwest Mobile - 1 annual event, engaging 22 total students
- Milwaukee School of Engineering - 12 annual events, engaging 1,270 total students
- Park Tool - 2 annual events, engaging 44 total students
- Pennsylvania Small Business Education Fund - 5 annual events, engaging 604 total students
- Price Engineering - 5 annual events, engaging 716 total students
- Purdue University - 6 annual events, engaging 334 total students
- University of Minnesota - 5 annual events, engaging 502 total students
- Tribune Girls Summer Camp - 2 annual events, engaging 80 total students
- Whey Supply Company - 7 annual events, engaging 311 total students
- Wiley Business Accelerator - 2 annual events, engaging 224 total students
- Valley View Junior High School - 2 annual events, engaging 256 total students
As each "FAMTEN: Fast Track to Fluid Power" program comes online in communities around the country, the NFPA Foundation provides grants so area high schools can purchase the fluid power training platforms they need to offer targeted fluid power education to their students.

In our 2019-20 fiscal year, the second Fast Track Technical College was established at Triton College in River Grove, Illinois. Triton engaged three local high schools as part of that Fast Track network, bringing hands-on fluid power instruction to their students:

- Ridgewood High School
- Leyden East High School
- Leyden West High School

And, for the second year, our first Fast Track Technical College, Waukesha County Technical College (WCTC) in suburban Milwaukee, Wisconsin, continued to engage seven local high schools as part of that Fast Track network.

- Hamilton High School
- Hartland Arrowhead High School
- Kettle Moraine High School
- Menomonee Falls High School
- New Berlin Eisenhower High School
- New Berlin West High School
- Oconomowoc High School

WCTC and Triton, as the affiliated Fast Track Technical Colleges, are providing training to the teachers in their area high schools so that they can more effectively teach the fluid power curriculum associated with their chosen training platform.

In addition, members of our industry donor coalition, who are helping to support these activities and the growth of future Fast Track networks, are visiting the high school classrooms, and offering mentorship and information on careers in fluid power. Companies in this industry partner network include:

- Bimba
- Deltrol Fluid Products
- Festo
- FORCE America
- Haceco
- All Precision Engineering
- Poclain Hydraulics
- Price Engineering
- Quality Control Corporation
- SunSource

As a result, students have expressed interest in continuing their fluid power education at the Fast Track Technical Colleges following their high school graduation. This is confirmation that the Fast Track pathway is working, leading students into fluid power careers.
FLUID POWER SCHOLARSHIPS

29 Scholarships Awarded to Further Fluid Power Education

Fluid Power Scholarships are offered to graduating high school students in order to pursue fluid power degrees or certificates at designated technical colleges and universities. Thanks to a transfer of assets from the now-defunct Fluid Power Educational Foundation, and an ongoing series of annual gifts from the International Fluid Power Society, the NFPA Foundation has set up a dedicated scholarship fund that has already awarded twenty-five $2,000 scholarships to students interested in studying fluid power at one of our education partner institutions. 2019-20 Fluid Power Scholarship Awardees:

- Brian Adam
  University of Denver
- Trevor Bortel
  Southern Methodist University
- Felikko Clark
  Spokane Community College
- Wendie Bunte
  Ivy Tech Community College
- William Kjerling
  SUNY Cobleskill
- Koyal McGee
  University of Colorado Boulder (Raymond F. Hanley Memorial Award)
- Mike Jones
  Spokane Community College
- Kristine Postiglione
  Central Connecticut State University

STUDENT TESTIMONIALS

- Matthew Morris, our 2019 recipient is using his scholarship to pursue a degree in mechanical engineering at Northeastern University in Boston, Massachusetts. Matthew impressed the judges by his knowledge of pneumatics and his sincere interest in fluid power studies that he had in school. He is looking forward to taking part in Northeastern University’s strong engineering program where he will participate in student-run industry-sponsored co-ops.
- Paul Norton, our 2019 recipient is using his scholarship to pursue a double major in mechanical and aeronautics engineering at Case Western Reserve University. Paul attended the 2020 Annual Meeting and impressed members with his knowledge and interest in fluid power.
- Jacob Shames, our 2018 recipient, is using his scholarship to pursue an electrical engineering degree at Columbia University. He is pursuing a Masters Degree and intends to apply his degree to his new found interest in fluid power. Jacob attended the 2019 NFPA Annual Meeting and made many connections with attending members.
- Dylan Tong, our 2017 recipient, has been very busy since winning his scholarship. Not only is he attending the Milwaukee School of Engineering for mechanical engineering as part of this University Scholars Honors Program, he also continues to support another FIRST Robotics high school student and is a part of the Formula Hybrid team at MSOE. Sponser recently completed an internship at Husco.

Industry partners serve on the scholarship review committee that makes funding decisions.

As a result of these investments, more than 3,400 students are taught fluid power each and every year.

TEACHING AND LABORATORY GRANTS:

Many more 2-year technical colleges are teaching fluid power to their student bodies as a result of Teaching and Laboratory Grant programs. These grants provide schools with the teaching materials and state-of-the-art teaching laboratories that are needed to embed fluid power into their training curriculum. To date, 8 schools have received Teaching Grants and 9 schools have received Laboratory Grants. As a result of these investments, more than 3,400 students are taught fluid power each and every year.

TEACHING GRANTS:

- Central Georgia Technical College
  Green Island, NE
- Cheyenne Community College
  Shelby, WY
- Washougal Technical College
  Forest Grove, MN
- Ivy Tech Community College
  Columbus, IN
- Rock Valley College
  Centralia, IL
- Texas State Technical College
  San Antonio, TX
- Tribeca College
  River Grove, IL
- Harris College
  Muncie, IN
- Dallas College
  Dallas, TX
- Shadow Technical College
  Warren, MI
- Midland Technical College
  Marion, WV
- South Central College
  North Mankato, MN
- Tri-C College
  Cleveland, OH
- Reed College
  Portland, OR
- Gavilan College
  Gilroy, CA
- Fullerton College
  Fullerton, CA

LABORATORY GRANTS:

- Associated College
  Lubbock, TX
- Central Georgia Technical College
  Green Island, NE
- Cheyenne Community College
  Shelby, WY
- Eastern Iowa Community College
  Waterloo, IA
- Washougal Technical College
  Forest Grove, MN
- Washougal Community College
  Washougal, WA
- Midland Technical College
  Marion, WV
- Midland Technical College
  Marion, WV
- South Central College
  North Mankato, MN
- Tri-C College
  Cleveland, OH
- Reed College
  Portland, OR
- Gavilan College
  Gilroy, CA
- Fullerton College
  Fullerton, CA

FAST TRACK TECHNICAL COLLEGES

Connecting Tech School Grads to Fluid Power

Fast Track Technical Colleges are schools with a 2-year degree program validated to teach core fluid power competencies. As determined by NFPA’s Tech School Education Committee, these core competencies are:

- Read circuit diagrams and understand the function of components in fluid power systems
- Determine and perform calculations to move loads in fluid power systems (e.g., torque, speed, power)
- Specify and use components for fluid power systems (e.g., pumps, valves, cylinders, hoses, filters, reservoirs, accumulators)
- Analyze and troubleshoot problems with fluid power systems
- Program and connect controls, controls for fluid power systems

In the second year of operation, the Fluid Power degree programs at WCTC and Tri-C have provided advanced level training to 319 students. Those students were supported by the coalition of industry partners, who actively engaged to provide internship and employment opportunities. Companies in this industry coalition include:

- Bimba
- Dillon Fluid Products
- Festo
- POWERAmerica
- Husco
- PR Precision Engineering
- Parker Hydraulics
- Price Hydraulics
- Quality Control Corporation
- SunSource

As a result of these investments, more than 3,400 students are taught fluid power each and every year.
To create more fluid power educated university engineers, the NFPA and the NFPA Foundation conduct a number of research and education programs, designed to better engage academic faculty in the teaching of fluid power.

Truth be told, there are plenty of engineering students in our nation’s universities. The problem is getting more kids to study engineering in college, the problem is teaching those kids fluid power when they’re in college.

NFPA’s focus is increasingly on helping funded research faculty build more fluid power education into their undergraduate engineering courses. To educate these students in fluid power and produce graduates that are attractive hires for the fluid power engineering courses. To educate these students in fluid power.

NFPA’s focus is increasingly on helping funded research faculty build more fluid power education into their undergraduate engineering courses. To educate these students in fluid power and produce graduates that are attractive hires for the fluid power engineering courses.

RESEARCH SUPPLEMENTS
Connecting Academic Faculty to Fluid Power Education

Research and Education Programs Creating Educated Fluid Power Engineers

Research Supplements provide funds to academic faculty with fluid power research grants to facilitate their presentation at and the participation of their graduate students in designated industry conferences and research summits. In doing so, the program helps achieve two goals:

- Support an industry-academic forum where research and education topics in fluid power can be explored and action taken for mutual benefit.
- Support the careers of current and future academic faculty who are and who will be in a position to teach fluid power to undergraduate engineering students.

A total of 21 Research Supplements have been awarded. In our 2019-20 fiscal year, we awarded eleven Research Supplements to the following university faculty members:

- **Georgia Institute of Technology**
  - Michael von Renner – “Dynamics of Rolling Friction in Soft-Rigid Interfaces”

- **Milwaukee School of Engineering**
  - Paul Michael – “Polymers Enhanced Fluids Effects on Mechanical Efficiency of Hydraulic Pumps”

- **Purdue University**
  - Andrea Vasca – “Individual Electro-Hydraulic Actuators for Off-Road Machines”
  - Juan Barria – “Flow-Induced Compartmental Hydraulically Regenerative Breaking for Heavy Duty Transport Vehicle”

- **University of Minnesota**
  - Thomas Otsuka – “High Efficiency Hydraulic Pump-Motors Employing Partial Stroke Piston/Pump Proportioning (PSP)”
  - Penny Li – “Hydraulic-Electric Architecture for Mobile Machines”
  - Ken Stimson – “Increasing the Efficiency of Wind Turbines through Understanding of Their Turbulent Response”
  - Zhegouan Sun – “Modeling and Optimization of Trajectory-Based HCCI Combustion”

- **University of Wisconsin – Madison**
  - Eric Giesemann – “Geometrically Enclosed Hydraulic Conversion”
  - An Investigation of Dielectric Spectroscopic Contamination Sensing
  - Dielectric Spectroscopic Sensor Development for Hydraulic Fluid
  - An Investigation of Dielectric Spectroscopic Contamination Sensing
  - Dielectric Spectroscopic Sensor Development for Hydraulic Fluid
  - An Investigation of Dielectric Spectroscopic Contamination Sensing
  - Dielectric Spectroscopic Sensor Development for Hydraulic Fluid
  - An Investigation of Dielectric Spectroscopic Contamination Sensing
  - Dielectric Spectroscopic Sensor Development for Hydraulic Fluid

To date, 7 universities have received 14 of these research grants.

**Iowa State University**
- Hybrid MEMS Proportional Fluid Control Valve
- Investigation of Noise Transmission through Pump Casing
- University of Minnesota
- Portable Pneumatically Powered Orthoses
- University of Wisconsin – Madison
- Portable Pneumatically Powered Orthoses
- Vanderbilt University
- Pneumatic Exhaled Gas Recovery
- Controlled Standing Power Unit

Through these research projects, the NFPA Foundation is engaging current and helping to build the careers of future academic faculty who will be in a position to teach fluid power to thousands of undergraduate engineers on their campuses.

**Research Grants**

In addition to our Research Supplements, the NFPA Foundation has also funded individual, pre-competitive research projects designed to connect graduate students to the study of fluid power and expand the capabilities of their host institutions to research and teach fluid power.

**Research Grants**

- **Research Grants**
  - **Iowa State University**
    - Hybrid MEMS Proportional Fluid Control Valve
  - **University of Wisconsin – Madison**
    - Portable Pneumatically Powered Orthoses
  - **Vanderbilt University**
    - Pneumatic Exhaled Gas Recovery
    - Controlled Standing Power Unit

Through these research projects, the NFPA Foundation is engaging current and helping to build the careers of future academic faculty who will be in a position to teach fluid power to thousands of undergraduate engineers on their campuses.
EDUCATION GRANTS
7,500 + Undergraduate Students Taught Fluid Power Each Year

Thanks to the efforts of our University Education Committee, we’ve defined
the nine fluid power competencies that our member companies are most looking
for in entry-level engineers coming out of our nation’s universities. Using those
competencies as a guide, we have sorted all our curriculum products and placed
them online in a curriculum tree. This is providing university faculty who wish to
add fluid power to one or more of their undergraduate engineering courses with
a quick reference, not only for which competencies industry believe belong in
their curriculum, but with the downloadable teaching products that will allow
them to quickly and easily incorporate them.

Curriculum Grants allow academic faculty to either develop or acquire the
necessary educational tools or resources to teach validated fluid power curriculum
in their undergraduate engineering programs. As determined by NFPA’s University
Education Committee, the validated curriculum is designed to teach at least one
of the following core competencies:
• Understand fluid power benefits and limitations
• Conceptual and theoretical understanding of fluid power laws and principles
  (including energy transfer and power efficiency)
• Understand fluid power components and circuits
• Understand machine level requirements and translate into fluid power
  system requirements
• Apply design, simulation and analysis tools to fluid power components
  and systems
• Appropriately size components in fluid power systems
• Integrate sensing and electronic control functions with fluid power components
  and systems
• Cite hands-on experience with fluid power components and systems
• Inspect, analyze and develop corrective action for product failure

A variety of different funding programs support this model curriculum. To date,
3 schools have received Fluid Power University Grants, 16 schools have received
teaching grants, 2 schools have received laboratory grants, and 4 schools have
received curriculum grants.

FLUID POWER UNIVERSITY GRANTS
• Murray State University
  Murray, KY
• Purdue University Northwest
  Hammond, IN
• University of Kentucky
  Lexington, KY

TEACHING GRANTS
• Georgia Institute of Technology
  Atlanta, GA
• Illinois Institute of Technology
  Chicago, IL
• Iowa State University
  Ames, IA
• Lawrence Technological University
  Southfield, MI
• Marquette University
  Milwaukee, WI
• Massachusetts Institute of Technology
  Cambridge, MA
• Milwaukee School of Engineering
  Milwaukee, WI
• Montana State University
  Bozeman, MT
• Purdue University
  West Lafayette, IN
• Rochester Institute of Technology
  Rochester, NY
• University of Illinois at Chicago
  Chicago, IL
• University of Illinois at Urbana-Champaign
  Urbana-Champaign, IL
• University of Minnesota
  Minneapolis, MN
• Western Michigan University
  Kalamazoo, MI
• Western New England University
  Springfield, MA
• Worcester Polytechnic Institute
  Worcester, MA

LABORATORY GRANTS
• Milwaukee School of Engineering
  Milwaukee, WI
• Western Michigan University
  Kalamazoo, MI

CURRICULUM GRANTS
• Lawrence Technological University
  Southfield, MI
• Ohio University
  Athens, OH
• University of Missouri
  Columbia, MO
• Western Michigan University
  Kalamazoo, MI

Each grant creates curriculum that facilitates the teaching of
fluid power to dozens or hundreds of students on each campus.

At last count, NFPA’s 4-year university
school education partners collectively report
TEACHING FLUID POWER
TO MORE THAN 7,500
STUDENTS
The Fluid Power Vehicle Challenge is a unique engineering design/build competition that embeds in the capstone design course at participating universities. It strives to promote original thinking in a competitive setting by combining two technology platforms that are not normally associated with one another – human-powered vehicles and fluid power.

The first, as exemplified by the bicycle, is recognized as extremely efficient in terms of input vs. output. The second presents more of a challenge in terms of efficiency, especially at low speeds. A fluid powered vehicle, then, presents undergraduate engineers with a familiar yet challenging platform for change. By combining this unlikely pair, the Vehicle Challenge creates an environment that results in uncommon connections and breakthroughs, while supporting learning and the growth of fluid power industry knowledge.

Student teams from 15 universities participated in the fourth year of the NFPA Vehicle Challenge:
- Arizona State University
- California Polytechnic State University
- Cleveland State University
- Colorado State University
- Colorado State University
- Connecticut University
- Delft University of Technology
- Georgia Institute of Technology
- Georgia Institute of Technology
- Illinois Institute of Technology
- Iowa State University
- Kansas State University
- Kalamazoo, MI
- Kent State University
- Lake Erie College
- University of Akron
- University of Delaware
- University of Denver
- University of Florida
- University of Georgia
- University of Maryland
- University of Miami
- University of Michigan
- University of Missouri
- University of Notre Dame
- University of North Carolina
- University of North Texas
- University of Oklahoma
- University of Pennsylvania
- University of Pittsburgh
- University of Portland
- University of Rhode Island
- University of South Carolina
- University of Tennessee
- University of Texas
- University of Utah
- University of Virginia
- University of Wisconsin
- West Virginia University

The Fluid Power Vehicle Challenge is a unique engineering design/build competition with teams from multiple universities placing competitively in the program’s other award categories, including best presenters; three Judges Choice awards for design, teamwork and use of components; and for the first time, a best use of pneumatics award, sponsored by Bimba.

Additional support for this year’s program was provided by:
- Bimba Manufacturing (as part of IM Precision Engineering), event host
- LubeTech, the program’s official fluid supplier
- Parker Hannifin
- SunSource/Eaton Corporation/Source Fluid Power, the program’s official parts suppliers
- Walvoil Fluid Power
- Walvoil Fluid Power

Many student participants admitted that the Vehicle Challenge was their only exposure to fluid power in their four-year engineering curriculum, greatly underscoring the need for this program. This year, the Vehicle Challenge again achieved all four of its key objectives:
- Stimulate education in practical hydraulics, pneumatics, and sustainable energy devices for motion control.
- Provide students with experience in real world engineering under a strict timeline of designing, simulating, ordering, building, testing and demonstrating their designs.
- Stimulate innovative thinking for designing and testing potential new technologies or concepts integrated into a vehicle platform.
- Provide an industry recruitment opportunity for high potential engineering seniors by engaging directly with practitioners in the field.

The Fluid Power Vehicle Challenge Community is the volunteer structure tasked with mentoring, coaching, and judging the student teams participating in the Vehicle Challenge. Its membership includes major donors to the NFPA Foundation, with mentoring, coaching, and judging the student teams participating in the Vehicle Challenge. It strives to by companies in our industry network, greatly enhancing the value of the program to industry participants.

As a result of these interactions, several Vehicle Challenge students have been hired by companies in our industry network, greatly enhancing the value of the program to industry participants.

Eighteen companies participated in the community’s year-long mentoring program or dedicated representatives to act as competition judges or lead career information sessions during the final event.

- Bimba
- Bosch Rexroth
- Delta Hydraulic Products
- Eaton
- FISIC America
- Gates
- NIBBI-Hydraulik
- IFPS
- IM Precision Engineering
- Iowa Fluid Power
- JM Glimstad
- LubeTech
- Parker Hannifin
- Source Fluid Power
- SunSource
- Trivadis Sealing Solutions
- Walker Fluid Power

In 2019, NFPA launched a Fluid Power Club program on university campuses to expose fluid power to a greater number of students to fluid power education and career possibilities. Nine universities have newly established clubs impacting 98 engineering students across the country. NFPA provides annual funding to support these clubs. Students have been organizing fluid power study groups and social events, launching student job fairs and resume building workshops, collaboration with Vehicle Challenge students and including industry professionals to speak with them about career opportunities in fluid power.

**FLUID POWER CLUBS**

Connecting Students to Fluid Power Careers

**FLUID POWER CLUB UNIVERSITIES:**
- Colorado State University
- Fort Collins, CO
- Iowa State University
- Ames, IA
- Milwaukee School of Engineering
- Milwaukee, WI
- Ohio University
- Athens, OH
- Purdue University
- West Lafayette, IN
- Purdue University Northwest
- Hammond, IN
- University of Cincinnati
- Cincinnati, OH
- Western Michigan University
- Kalamazoo, MI

The Fluid Power Club program provides an industry recruitment opportunity for high potential engineering seniors by engaging directly with practitioners in the field.

**FLUID POWER CLUB OBJECTIVES:**

- Provide an industry recruitment opportunity for high potential engineering seniors by engaging directly with practitioners in the field.
- Stimulate innovative thinking for designing and testing potential new technologies or concepts integrated into a vehicle platform.
- Provide an industry recruitment opportunity for high potential engineering seniors by engaging directly with practitioners in the field.
The Pascal Society is the NFPA Foundation’s annual giving society that has raised more than $3.6 million for fluid power outreach, education, and research programs. Pascal Society funds support the full range of Foundation programs highlighted in this report.

Pascal Society donors combine their financial and volunteer contributions in one concerted effort, developing the resources, tools, and people needed to meet the future technology and workforce needs of the U.S. fluid power industry.

Pascal Society Donors as of June 30, 2020

GOLD DONORS
- Danfoss
- IFPS
- IMI Precision Engineering
- Iowa Fluid Power
- Parker Hannifin

SILVER DONORS
- Bosch Rexroth
- Deltrol Fluid Products
- Evonik Oil Additives
- FORCE America
- Gates
- OEM Controls
- Poclain Hydraulics
- GCC
- Trelleborg Sealing Solutions

BRONZE DONORS
- Airo Steel
- Applied Industrial Technologies
- Bailey International
- Casappa
- Caterpillar
- Clippard
- Continental Hydraulics
- Damari Products
- Delta Computer Systems
- FastTest
- Festo
- HAWE North America
- Helios Technologies
- Husco
- HYDAC/Schneider
- Hydra-Power Systems
- Hydraulics & Pneumatics
- Idemitsu Lubricants America Corporation
- Industrial Hard Chrome
- JARP Industries
- JEM Technical
- Kaiser Aluminum Corporation
- Kawasaki GTF
- Kepner Products Company
- Lehigh Fluid Power
- Linde Hydraulics
- Lubrizol
- Main Manufacturing Products
- Micromatic
- Mosey’s Production Machinists
- Muncie Power Products
- National Tube Supply Company
- Orange Seal
- PARTsolutions
- ROSS Controls
- Schmalz
- Stauff Corporation
- Steelhead Composites
- SunSource
- Walvoil Fluid Power
- Wandfluh of America
- Yates Industries
- Zinga Filtration Group
The NFPA Education and Technology Foundation extends gratitude to the many generous donors who share our mission of meeting the workforce development needs of the U.S. fluid power industry.

The following organizations have achieved Legacy Builder status—cumulative giving of $25,000 or more—as of our last recognition year, ending April 30, 2020.

CLASS OF 2020
• Daman Products Company
• Kawasaki Precision Machinery
• Muncie Power Products, Inc.
• Norgren & Bimba

CLASS OF 2019
• Clippard Instrument Laboratory
• Festo
• Hitachi
• Iowa Fluid Power

CLASS OF 2018
• FORCE America
• Husco
• International Fluid Power Society
• Quality Control Corporation

CLASS OF 2017
• Lindo Hydraulics
• Lufkin
• Proportion Air
• Woodward

CLASS OF 2016
• Akron Chemical Company
• Bobcat Company
• Dover
• Donaldson Company
• Eaton
• Evonik Oil Additives USA
• EatonMobil
• HAYES Technology Corporation / Schaeffler Industries LLC
• Hydra-Power Systems
• Hydroquip
• Netshape Technologies
• Poclain Hydraulics

CLASS OF 2015
• CNH Industrial
• Danfoss
• Eaton
• Gates
• Kepner Products Company
• Lehigh Fluid Power, Inc.
• Linde Hydraulics Corp.
• Muncie Power Products, Inc.

CLASS OF 2014
• Danfoss
• Eaton
• Gates
• ROSS Controls

CLASS OF 2013
• Domino Manufacturing Company
• Bosch Rexroth
• Casterpillar
• Continental Fluid Products
• Parker Hannifin Corporation

CLASS OF 2012
• Elmeido Technologies

TO MAKE A DONATION, VISIT: bit.ly/Give_NFPAfoundation