

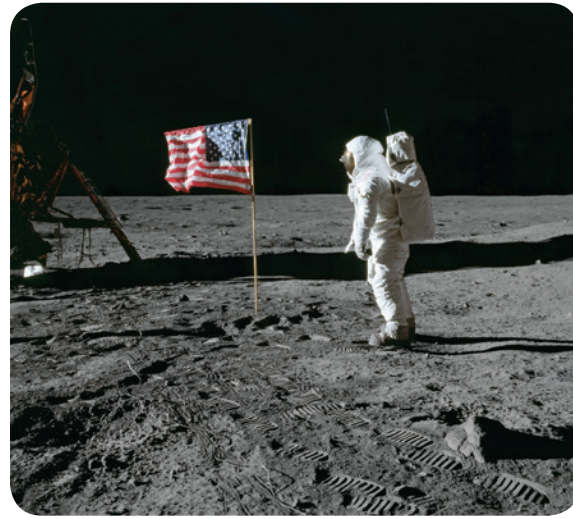


WHEN PERFORMANCE
REALLY MATTERS

MOOG

2019 | ANNUAL REPORT

SPACE HERITAGE: CELEBRATING APOLLO 11



Fifty years ago, on July 20, 1969, four days after launching on a Saturn rocket, the Lunar Module (LM) landed on the surface of the Moon. Moog employees designed and built the Thrust Vector Control (TVC) actuation on all three stages of the Saturn rocket on that historic flight—as well as the earlier Mercury and Gemini space programs.

While Apollo 11 Commander Neil Armstrong and Pilot Edwin “Buzz” Aldrin Jr. descended to the Moon’s surface, Pilot Michael Collins remained with the Command and Service Modules in lunar orbit. The Moon’s uneven surface required Armstrong to steer the LM using semi-automated controls. To train for the landing, Armstrong used the Lunar Landing Research Vehicle (LLRV) which was designed and built by Bell Aerosystems in Niagara Falls, now part of Moog. The LLRV used small jet engines to provide lift and hydrogen peroxide monopropellant rocket engines to simulate how the actual Lunar Module would respond during landing.

On July 21st, the upper portion of the LM separated and returned Armstrong and Aldrin to the orbiting Command Module. The Ascent Engine, also built by Bell Aerosystems, had no back-up and could not fail. It worked flawlessly.

Artemis, NASA’s new lunar exploration program, will send a crew with the first woman and the next man to land on the Moon. We are proud to once again be counted on to meet the challenge of returning to the Moon by 2024.

“The highlight of Moog’s accomplishments in the aerospace market in fiscal 1969 was the successful Apollo Program. Eight Moog actuators steered the second stage of the Saturn V launch vehicle and two actuators controlled the critical SIVB stage. Moog steering controls have been used on every major space shot to date.”

Bill Moog in Moog’s 1969 Annual Report

FINANCIAL HIGHLIGHTS

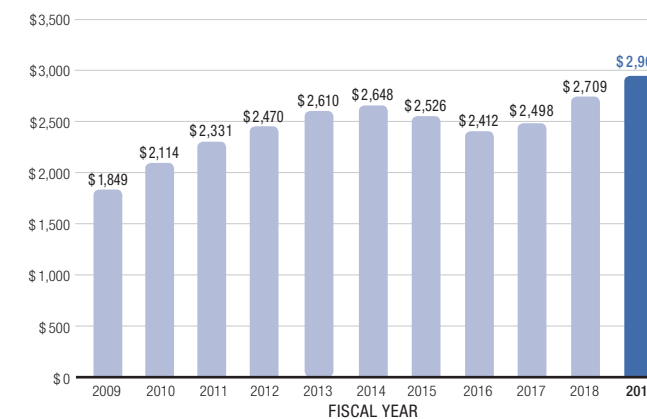
RECENT FINANCIAL PERFORMANCE

(Dollars and shares in millions, except per share data)

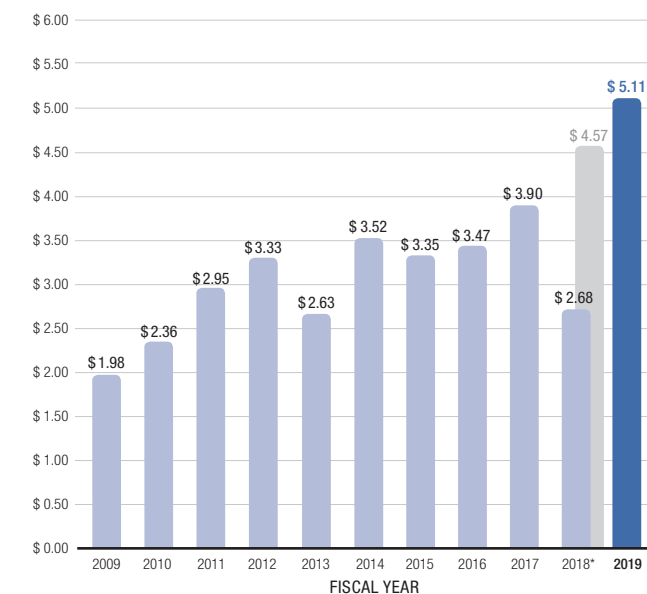
	2019	2018
NET SALES	\$2,905	\$2,709
NET EARNINGS	\$180	\$97
DILUTED EARNINGS PER SHARE	\$5.11	\$2.68
ADJUSTED EARNINGS PER SHARE*	–	\$4.57
EQUITY MARKET CAPITALIZATION	\$2,847	\$2,985
AVERAGE SHARES OUTSTANDING	35.2	36.1

Measured as of fiscal year end

SALES (Dollars in millions)



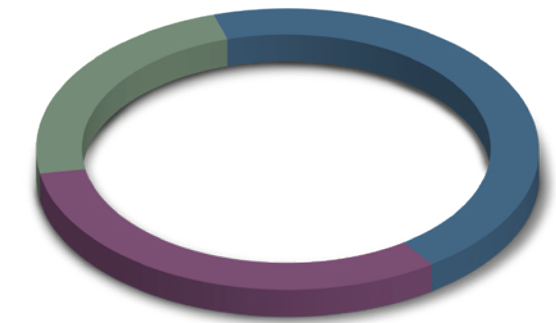
DILUTED EARNINGS PER SHARE (In dollars)



*2018 adjusted EPS of \$4.57 excluded the impact of charges associated with exiting the wind pitch control business and special impacts from the U.S. Tax Act.

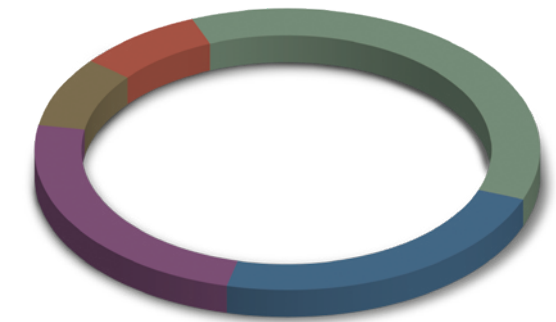
Financial results for fiscal year 2019 are available in Moog’s 10-K. The report was filed on November 12, 2019, pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended September 28, 2019. The 10-K can be viewed at www.moog.com/investors/10K.

REVENUE BY SEGMENT



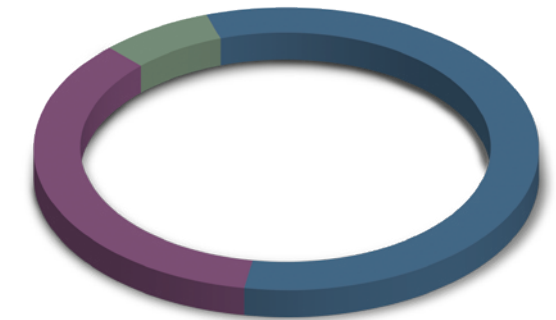
- Aircraft Controls 45%
- Industrial Systems 32%
- Space and Defense 23%

REVENUE BY MARKET



- Defense 37%
- Commercial Aircraft 23%
- Industrial Automation 24%
- Space 8%
- Medical 8%

REVENUE BY MARKET DISTRIBUTION



- Industrial and Commercial 58%
- U.S. Military and Government Funded 35%
- Foreign Government 7%

Moog’s geographic revenue distribution is 61% U.S. and 39% international.

CHAIRMAN'S LETTER

To Our Shareholders, Employees and Friends,

I'd like to begin by thanking the 13,000 Moog employees around the globe for their dedication and commitment. This report is a testimony to their work and your company's success.

2019 was a record year for our company. Sales were up 7%, building on the 8% growth in the prior year. Sales in our Aircraft segment were up 9% over fiscal '18 as commercial sales saw strong growth across our Boeing, Airbus and business jet portfolios. Early production on the next generation Embraer E2 regional jet also contributed. In the military aircraft market, sales growth was led by the Lockheed Martin F-35 Joint Strike Fighter program, Bell V-22 and various international programs. Our engineering teams continued to win content on next generation military aircraft platforms, driving funded development.

In Space and Defense, sales were up a very impressive 18% organically, with our entire portfolio of missiles, ground vehicles, naval applications and general components businesses seeing increases. On the space side, sales increased on NASA programs as the U.S. plans for a return to the Moon in 2024. Funded development programs for hypersonic applications were also strong.

In our Industrial Systems segment, higher sales into industrial automation and medical applications compensated for lower energy sales. Our decision to exit the wind pitch control business in 2018 drove the lower energy sales. For the segment in total, it was a flat year for sales but a significant shift in the portfolio to more profitable product lines.

Both Space and Defense and Industrial segments saw margin increases as a result of our portfolio refinements over the last few years. Margins in our Aircraft segment were down due to challenges in our supply chain. These challenges taught us that we need to build a more robust set of operating processes and systems to meet the demands of being a tier one supplier on major aerospace programs. We are investing accordingly in internal talent, outside consulting and capital improvements to drive significant operational gains over the coming years.

For fiscal '20 we're anticipating another year of sales growth, continued margin expansion and higher earnings per share. We continue to be optimistic about our business. Our portfolio of defense programs is very strong and our funded development work on future platforms continues to grow. Our commercial aircraft revenues will see some legacy programs wind down next year, but our space business will be higher on increased NASA activity. We anticipate our industrial businesses will be about even with fiscal '19.

When making forecasts for our business, macroeconomic uncertainty is always the biggest unknown. To date, the impact of global trade disputes and Brexit on our businesses has been muted. We're hopeful 2020 will bring an easing of trade tensions and a clearer path forward for the U.K. Defense will continue to be strong as the U.S. rebuilds its military capability from the sequestration era and the threat of near-peer adversaries continues to be the top of the defense agenda.

"We remain focused on our key technologies and, within this niche, believe we can be competitive with any player in the industry."

Within the Aerospace & Defense industry, the trend towards industry consolidation through mergers and acquisitions continued unabated in 2019. From our perspective, we believe that size and scope are less important for an aerospace supplier than deep expertise and capability. We remain focused on our key

technologies and, within this niche, believe we can be competitive with any player in the industry.

In the face of a changing external environment, our internal strategy has not changed. We work to create value for our customers by tailoring our products to meet their specific needs and solving their most difficult technical challenges. Customer intimacy is at our core and we enjoy multi-generational relationships with most of our customers. When there's a problem, we always seek to do the right thing by our customer, sometimes at the expense of short-term financial results. We believe this is key to building a great company over time.

We have a laser focus on our core technologies of motion and fluid control, but a wide lens on end markets which can benefit from our capabilities. We seek to be prudent stewards of our shareholders' capital by maintaining a strong balance sheet and a disciplined approach to capital allocation. We believe growth is a core element of long-term value creation and continue aggressively to pursue adjacent acquisitions. However, we remain disciplined in terms of pricing and strategic fit. As a result, we've walked away from many opportunities in the last year instead of overpaying.

We have three corporate-wide initiatives around talent, lean and innovation. Our innovation spending is focused around three key themes which cut across all our major markets—electrification, autonomy and connectivity. Finally, our culture of trust and collaboration remains the cornerstone of our business.

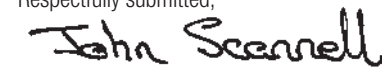
"As we look out over the coming decades, we remain very excited about our business."

In 1969, Moog provided the actuators which steered the Apollo 11 rocket into space, helping put the first humans on the Moon. Over the last 50 years we have built on that heritage by taking our technologies to an ever wider set of customers and markets. As we look out over the coming decades, we remain very excited about our business.

Rising concern about global warming is driving the need for new and more efficient motion technologies. An aging population and lack of skilled labor in many industries is increasing the need for more advanced robotics. In addition, advances in sensors, artificial intelligence and autonomous systems are making it possible to introduce new types of automation into old industries such as construction and agriculture. Moog is ideally positioned to take advantage of these macro trends. Our deep expertise in motion components and high reliability systems, combined with our continuing investments in innovation, give us the tools to meet this emerging demand.

At the end of calendar 2019, Don Fishback is retiring from our company. Don joined the company in 1981 and spent a career in our finance organization, rising to the role of CFO in 2010. Over the years, he has made an enormous contribution to the success of our business through active engagement in strategic decisions and prudent management of our capital. He has always put the interests of our company first, living the culture and being a team player at all times. We will miss a great CFO. Don will remain on the board as a director for many years to come so we will continue to benefit from his insights and wisdom. We wish him well in the next chapter of life.

Respectfully submitted,



John Scannell
Chairman and Chief Executive Officer



Left to Right, Top to Bottom: Paul Wilkinson, Pat Roche, Don Fishback, John Scannell, Maureen Athoe, Mark Trabert

DIRECTORS

John R. Scannell
Chairman of the Board
Chief Executive Officer

Donald R. Fishback
Director
Vice President
Chief Financial Officer

William G. Gisel, Jr.
Director
President and CEO
Rich Products Corp.

Peter J. Gundermann
Director
President and CEO
Astronics Corp.

Kraig H. Kayser
Director
President and CEO
Seneca Foods Corp.

R. Bradley Lawrence
Director
Retired Chairman and CEO
Esterline Technologies

Brian J. Lipke
Director
Retired Chairman and CEO
Gibraltar Industries

Brenda L. Reichelderfer
Director
Retired Group President, ITT Corp.

OFFICERS

Mark J. Trabert
President
Aircraft Controls

Maureen M. Athoe
President
Space and Defense

Patrick J. Roche
President
Industrial Systems

Paul Wilkinson
Vice President
Chief Human Resources Officer

Jennifer Walter
Vice President
Finance

Michael J. Swope
Controller
Principal Accounting Officer

Timothy P. Balkin
Treasurer
Assistant Secretary

Robert J. Olivieri
Secretary
Partner
Hodgson Russ, LLP

2019 HIGHLIGHTS



F-35A Down Under

Moog Australia has been named as Australia's preferred, in-country repair, overhaul and upgrade facility for the F-35A Lightning II Joint Strike Fighter Electrohydrostatic Actuators, Leading Edge Flap Actuation System, and Wingfold Actuation System. The work will be performed at Moog's facility in Melbourne.



Lycos Video Tracker

The Defense sector introduced its new Lycos Long Range Precision Tracking System. The Lycos is engineered to provide best-in-class tracking of targets at long range. The system, designed and produced in the U.S., includes high-definition EO/IR cameras with simultaneous video output in a rugged, user-friendly design. It is ideally suited for applications requiring high accuracy and precision, such as counter-Unmanned Aerial Systems (c-UAS), trajectory analysis, weapons scoring and border security.



New Aircraft Facility Completed

Moog's newly completed 95,000 square foot manufacturing facility includes machinery and equipment to support a growing aerospace business. Located on the Moog campus in Elma, New York, the site houses design engineering, R&D, manufacturing and support functions, as well as military and commercial product assembly and test labs. Built with the energy efficient LED lighting, light harvesting and other efficient building concepts and components, employees work in an open-space office environment with collaborative work centers throughout. The project interconnected three adjacent and multi-era constructed buildings and included an extensive brownfield clean-up program on the construction site.

Commercial Aftermarket Collaboration

Moog and Abu Dhabi-based Etihad Aviation Group announced a strategic 15-year collaboration that will provide Etihad Airways with global access to the Moog component spares pool, as well as complete repair support from Moog on a range of part numbers fitted to the airline's fleet. Moog will also support Etihad Airways Engineering, the largest MRO service provider in the Middle East, as the company establishes a center of excellence for component repair and overhaul.



Valor V-280™

Bell's V-280 Valor completed flight demonstrations of its low-speed agility testing. Moog is designing, manufacturing and qualifying the integrated flight control system, including three flight control computers with support software, six triplex swashplate actuators to control the rotors, and the flaperon and ruddervator actuators that control the wing and tail. The V-280 Valor has demonstrated that it has the raw control power in pitch, roll, and yaw maneuvers to meet the Army's handling requirements. The U.S. Army-led Joint Multi-Role Technical Demonstrator (JMR-TD) program is the precursor to the Department of Defense's Future Vertical Lift program – the expected next-generation replacement for all DoD helicopters.

KC-46 Pegasus Tanker

The U.S. Air Force completed refueling certification and testing for the KC-46 Pegasus tanker aircraft in June. Moog's Aircraft Controls segment supplies the fly-by-wire refueling boom actuators for the tanker. The actuators allow the boom operator to control the deployment and positioning of the aerial refueling boom. The KC-46, derived from Boeing's commercial 767 airframe, is built in Boeing's Everett, WA facility. Boeing plans to build 179 of the 767-based refueling aircraft to replace older KC-135 Stratotankers. The first Pegasus tankers were delivered to the Air Force in January 2019.



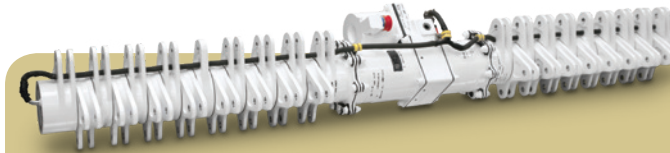
Digital Control Servovalves – FM Certification

Moog digital control servovalve products received FM Approvals certification according to National Electric Code 505. FM is accredited as a nationally recognized third-party testing laboratory with a certification mark that is globally recognized. Oil and gas manufacturers, operators and technology suppliers are required to meet NEC 505 – the electric code for locations where hazardous, flammable gases may exist. Explosion-proof digital control servo and proportional valves provide intelligent closed-loop motion control and optimize equipment functionality in offshore and onshore oil and gas exploration and production, power generation and chemical processing control applications.



Level D Certified Full Flight

Moog was selected by Havelsan A.S. to provide motion bases with control loading systems and software for five Level D Certified Full Flight Simulators. Turkish Airlines awarded a contract to Havelsan to support pilot training for its Airbus and Boeing aircraft. Moog's simulator solutions increase simulation fidelity making Moog the world-leader in providing motion systems for Level D Full Flight Simulators.



Moog Torrance Celebrates 25 Years

Moog celebrated the 25th anniversary of the Moog Aircraft Controls segment's facility in Torrance, CA. Acquired in 1994 from the Allied Signal Company for \$69 million, the acquisition added a hydraulic actuation product suite and mechanical rotary actuation used for positioning leading edge flaps – helping Moog grow into an industry leader and one-stop supplier for advanced flight control systems. The Torrance site has grown to include 700+ employees supporting programs that include the Airbus A350, Boeing 787 and F-18, and Lockheed Martin F-35 Joint Strike Fighter.



Outstanding Achievement in Aviation

Moog was awarded Aviation Week's Laureate Award for outstanding achievement in aviation, aerospace, and defense. Moog received the award in collaboration with the U.S. Air Force and the South Dakota School of Mines and Technology. Moog's cold spray technology, used for B-1 bomber repairs, saved over \$200,000 per repair on B-1B forward equipment bay panels. Cold spray technology provides an economical repair solution for corroded and damaged parts, including hard-to-repair magnesium and aluminum parts.



Gulfstream G600™

Gulfstream's all-new Gulfstream G600 earned both its type and production certificates from the U.S. Federal Aviation Administration (FAA). The certifications were followed by the first G600 deliveries to customers in August. Type certification is granted after an aircraft's design proves compliance with aviation regulations. A production certificate is granted once the manufacturer demonstrates its manufacturing facilities and quality management system meet the agency's requirements for safety and reliability. Moog supplies the high lift system and the pilot directional control system for the G600. The G600 can fly up to 6,500 nautical miles/12,038 kilometers and can carry passengers nonstop from Paris to Los Angeles or Hong Kong.

U.S. Navy MQ-25A Stingray

Moog's Aircraft Controls segment was awarded a contract by The Boeing Company to supply the wing flight control actuation and wingfold actuation systems for the U.S. Navy's unmanned refueling program. The MQ-25A is the U.S. Navy's first carrier-based unmanned refueling aircraft. The contract supports Boeing's engineering and manufacturing development program for four U.S. Navy MQ-25A aircraft and initial operational capability by 2024. In September, Boeing and the U.S. Navy successfully completed the refueler's first test flight.



LAV-AT for U.S. Marine Corps

Moog completed its Line of Sight Control (LOSC) contract deliveries to Raytheon in McKinney, TX. Raytheon integrates the LOSC, which includes Moog's turret and control electronics, with their targeting system, missile launcher, and controls. Completed units are delivered to the Marines as part of their Light Armored Vehicle Anti-Tank (LAV-AT) weapons system. Initial development systems were delivered for testing by the Marines in 2013, followed by a 2015 contract award for 102 systems. The turrets will be in service for 20+ years and Moog will provide sustainment services for the program with LAV-AT spare parts.

AEHF-5 Satellite and 80th Atlas V Mission

The U.S. Air Force and United Launch Alliance successfully launched the fifth AEHF satellite on an Atlas V rocket in August. The Advanced Extremely High Frequency (AEHF) is a series of communications satellites operated by the U.S. Air Force Space Command. They are used to relay highly-secure, jam-proof communications for the United States and international partners including Canada, the Netherlands and the United Kingdom. The AEHF-5 launch marked the 80th Atlas V mission since the inaugural launch in 2002.



AIRCRAFT CONTROLS

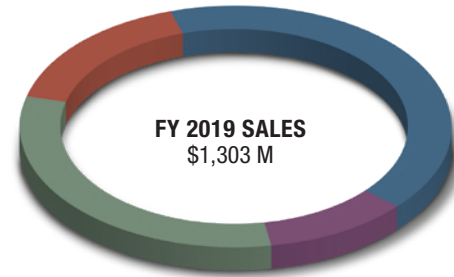
Our broad technology portfolio and collaborative customer relationships deliver high value-added, tailored solutions to commercial and military customers.

Product Portfolio

- Flight control computers and flight-critical software
- Primary and secondary flight control actuation – all technologies
- High lift/flap actuation systems
- Specialty actuation systems
- Critical control components

Competitive Advantages

- State-of-the-art technology and intellectual property in flight controls, engine controls, door drive controls, active vibration controls and engineered components
- Critical component knowledge
- Complete flight control system design and integration capability
- World-class manufacturing facilities and skilled, experienced, team-based workforce
- Focused, highly-responsive global aftermarket support organization



- Commercial Aircraft OEM \$540 M
- Commercial Aircraft Aftermarket \$141 M
- Military Aircraft OEM \$415 M
- Military Aircraft Aftermarket \$207 M

Aftermarket Support

As a leading supplier to aircraft OEMs, Moog's portfolio includes a broad range of electrical, hydraulic and mechanical aircraft control components and systems. We offer the latest enhancements and support for our products over the life cycle of a platform – from idea conception and design to aftermarket. Moog's customer commitment includes a staffed 24/7 Aircraft on Ground (AOG) service for commercial programs.

An unserviceable aircraft, grounded due to lack of spare parts, is costly for an airline or operator of freighters or business jets. When lack of a part keeps an aircraft from being released to service, the aircraft is considered AOG. Operators then dispatch emergency spares from their inventory, part manufacturers, or other open market sources. Shifting airline strategies has streamlined hub-to-hub passenger routing and consolidated maintenance operations.

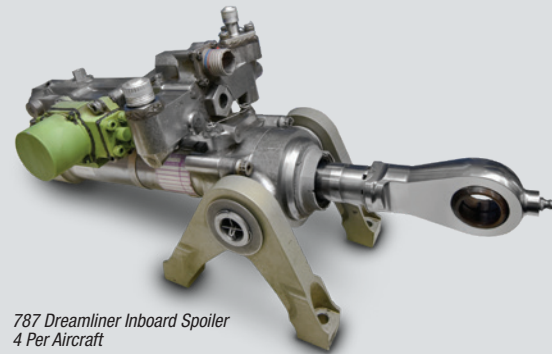
Moog's Total Support (MTS) quickly supplies new and overhauled components from Moog's forward-stocking inventory locations around the globe. Airlines on contract for Power by the Hour (PBH) services have access to spares pooling, maintenance and on-site technical support. On average, Moog's 24/7 aftermarket response team manages 75 AOG and PBH events each month, with a turnaround time of less than four hours. Moog aftermarket support employees interact with customers over 5,000 times a month when ordering spares, inquiring about repair and overhaul services, and arranging advance exchanges.

On military aircraft, Moog is positioned on virtually every platform in the marketplace. With aircraft in service many years beyond intended design life, Moog provides modern solutions with upgrades and life extension programs that utilize next generation technologies.

Moog engineers also work in conjunction with military aircraft repair depots to support fighter, helicopter and tiltrotor aircraft stationed around the globe. As the OEM legacy supplier of F-15, F-16 and F-18 flight control components, our aftermarket and sustainment teams routinely provide spare parts and repair and overhaul services to U.S. and international military users, supporting Moog legacy and non-Moog products.



Testing of 787 Dreamliner Outboard Spoiler – 6 Per Aircraft



787 Dreamliner Inboard Spoiler
4 Per Aircraft

Supplier of integrated systems and critical control products for military, commercial and business aircraft.

Military Aircraft

F-35, F-15, F/A-18E/F, EA-18G, F-16, KC-46, A400M, Korea KFX and T-50, C-27J, C-295, CN-235, Eurofighter, JAS 39, India LCA, Japan C-2, P-1, Hawk, AJT, M346, MQ-25A

Military and Commercial Helicopters

H-60/S-70, H-53, EH-101, S-76, S-92, V-22, V-280, AH-64, A109, A129, AB139, AW159, AW609, Future Lynx, B525

Commercial Airplanes

Boeing 737, 747, 767, 777, 787, Airbus A320, A330, A350, A380, Embraer E-Jets E2 Family, COMAC C919

Business Jets

Bombardier Challenger 350, 605 and Global Express, Gulfstream G280, G500, G550, G600, G650, G700

Customer Support

All current production programs above plus legacy programs including A-7, A-10, A300, A340, AH-64, AMX, B-1B, B-2, B-52, BAE-146, C-5, C-130, C-141, CH-46, CH-47, CH-53, Cessna Citation X, Bombardier Challenger 300, 604, DC-8, DC-9, DC-10, E-2C, EA-6B, F-2, F-4, F-100, F/A-18C/D, F/A-22, Gulfstream, G350, G400, G450, Hawk, KC-10, KC-135, MD-11, MD-80, MD-90, P-3, T-45, Tornado, U-2, VC-10, 757



F-35C Lightning II – VFA 125 "Rough Raiders"
Courtesy of U.S. Navy / Lt. Cmdr. Darin Russell



Airbus A350-900
Courtesy of Szabó Gábor



Boeing 787-9 Dreamliner
Courtesy of Chris Pitchacaren



CV-22 Osprey
Courtesy of U.S. Air Force / Sr. Airman Luke Kitterman



KC-46 Pegasus and F-35A Lightning II
Courtesy of U.S. Air Force / 412th Test Wing



Embraer E195-E2
Courtesy of Michel van Bokhoven



SPACE AND DEFENSE

We provide reliable hardware, integration and launch support to the space industry, and components and systems that are critical to the U.S. war fighter and our global military allies.

Space Product Portfolio

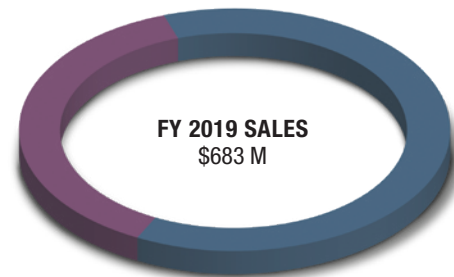
- Multi-tier provider capable of components, systems and prime level integration
- Thrust vector control and flight control actuation systems, avionics, propulsion controls and structures for missiles and launch vehicles
- Liquid rocket engines, tanks, chemical and electric propulsion systems, subsystems and components for spacecraft and launch vehicles
- Satellite integrated avionics, solar array drives, antenna pointing mechanisms and vibration isolation systems

Defense Controls Product Portfolio

- Fin and Thrust Vector Control actuation systems and divert and attitude control components for tactical, hypersonic and interceptor missiles
- Weapon Stores Management Systems (SMS) and launchers for the deployment of missiles, guns and rockets
- Turreted weapon systems, precision motion controls and slip rings for gun laying/stabilization, ammunition handling and expeditionary radar
- Electromechanical and electrohydraulic actuation products for Naval ships, submarines and Unmanned Underwater Vehicles (UUVs)
- Integrated counter-Unmanned Aerial Systems (c-UAS), sensor-based security systems and sensor positioning sub-systems
- Product training, aftermarket and field-service support

Competitive Advantages

- 65+ years of heritage with highly-skilled engineers, technologists and rocket scientists
- Strong customer relationships based on decades of defense and space mission expertise
- Focus on delivering 100% quality products, on-time, utilizing lean manufacturing principles
- A one-stop resource for space and defense actuation plus control electronics



● Defense Controls \$464 M
 ● Space \$219 M

Additive Manufacturing for Space

Moog has a strong heritage of providing thrusters and associated components to global satellite customers. To prepare for the ever-evolving space market, Moog has invested in a state-of-the-art metal Additive Manufacturing (AM) facility and a new engine testing facility.

Currently, Moog engineers are developing technologies to support the next generation of monopropellant and bi-propellant small thrusters, utilizing AM and other advanced manufacturing methods. AM offers unique geometries that increase propellant flow efficiencies and provide unparalleled thermal management. Within one-half inch, a thruster could have a surface that will be greater than 2500° F and another feature that needs to be maintained to less than 100° F. The additive configuration allows for these temperatures to be accommodated where traditional manufacturing methods would not meet the expected package requirements.

When compared to a conventional design method, additive offers the advantages of weight reduction, overall part-count reduction, reduced special processes such as welding and brazing, faster design iteration with shorter lead-times, and improved performance with a potential for lower cost products. Moog has recently manufactured, and hot-fire tested AM rocket engine injectors made of titanium and INCONEL®. Traditional or subtractive machined parts have a lead-time of 12-15 months. Moog's AM rapid product development reduced the lead-time to 4-6 months, with a replacement part lead-time of 4 days. Complex geometry due to injector complexity, envelope, and mass constraints made AM development the answer for a hardware design that had to meet strict customer performance specifications.



Completed Rocket Engine Assembly



Post-Processed Additive Rocket Engine Injector

Additive Rocket Engine Injector

Extensive heritage and industry expertise with a focus on mission critical solutions.

Space

Satellite Controls: MAXAR 1300-Class and Legion-Class, Eurostar, Spacebus, LM2100, DS-1000/2000, GEOStar, James Webb Space Telescope, GPS III, Galileo, H2 Transfer Vehicle

Launch Vehicles, Hypersonic Vehicles, Manned Space and Strategic Missile Controls: Atlas V, Delta IV, Ariane 5, Minuteman III, Falcon 9, NASA Space Launch System and Orion, CST-100 Starliner Commercial Crew Vehicle, Trident D-5, Omega, New Glenn, and LauncherOne



Space Launch System Rocket and Orion Spacecraft
Courtesy of NASA

Defense

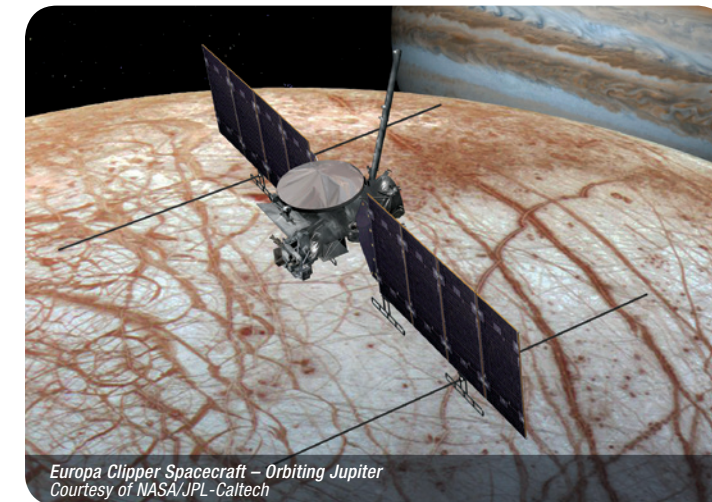
Missile Systems: HELLFIRE®, TOW, Tomahawk, MALD, EKV, THAAD

Defense Control Systems: Abrams, AC-130J, AJAX, Aegis Combat System, CV90 family, FLW 100/200 RWS, G/ATOR Radar, LAV-25, LAV-AT, Littoral Combat Ship MK46, U.S. Army MLIDS and USMC MADIS c-UAS, Multi-Mission Launcher, Stryker

Naval Systems: Virginia and Columbia-class submarines, USS Gerald R. Ford aircraft carrier
Sensor & Surveillance Systems: Ground Based Operational Surveillance System, Mine Resistant Ambush Protection (MRAP), RQ-7 Shadow



Moog Reconfigurable Integrated-weapons Platform – RIWP



Europa Clipper Spacecraft – Orbiting Jupiter
Courtesy of NASA/JPL-Caltech



Littoral Combat Ship USS Milwaukee (LCS 5)
Courtesy of U.S. Navy / MC Spec. 2nd Class Zachary A. Anderson



Moog's Mercury Tracking System – Medium Range c-UAS, installed Atlanta, GA



Virginia-Class Attack Submarine USS Delaware (SSN 791)
Courtesy of U.S. Navy / HII-Ashley Cowan



INDUSTRIAL SYSTEMS

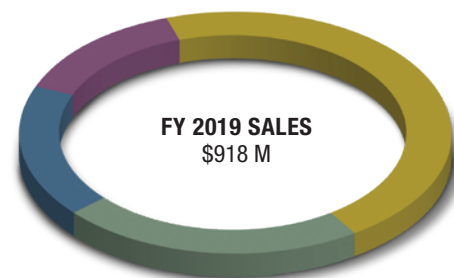
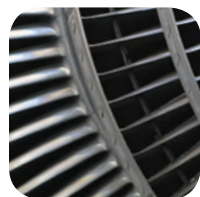
We create a competitive advantage for our customers by providing unique motion control solutions.

Product Portfolio

- Slip ring assemblies for industrial automation, construction equipment and Floating Production, Storage and Offloading (FPSO) vessels
- Hydraulic servovalves, including valves with embedded intelligence
- Brush, brushless DC and servo electric motors for material handling and industrial automation
- Highly reliable electric, electro-hydraulic and hydraulic actuation systems for industrial motion control, simulation, and test applications
- Ball and roller screws for injection and blow molding machinery and harsh environment industrial systems
- Controllers, servo drives and software for a broad range of motion control applications
- High-performance servo pumps for a wide range of high-end industrial applications
- Fiber optic rotary joints, acoustic sensors, sonars, and video cameras for subsea imaging and Remotely Operated Vehicles (ROVs)
- Medical OEM air detection sensors, surgical handpieces, ambulatory care infusion pumps and enteral feeding pumps
- Motors and blowers for sleep therapy, ventilators and portable oxygen concentrators

Competitive Advantages

- Global reach with sales, engineering and operations across 22 countries
- Engineering heritage and experience in our customers' machines, motion design challenges and industrial applications
- Ability to customize our technology and leverage system engineering expertise to create unique solutions
- Low to high volume manufacturing complemented by supplier partnerships
- Expert global aftermarket services including spares, repairs and overhaul, field service and training



- Industrial Automation \$447 M
- Medical \$227 M
- Energy / Marine \$121 M
- Simulation and Test \$123 M

Rotary Transfer Systems

Rekofa's rotary transfer product portfolio, acquired by Moog in 2017, includes customized electromechanical systems that transfer current, signals and data in rotating devices or structures. The products are used wherever there is a need for continuous rotating transfer of currents, data and media to a stationary component. Slip ring transmitters, often called rotary joints or transfer systems, are electromechanical products used on fixed angle and continuously rotating parts.

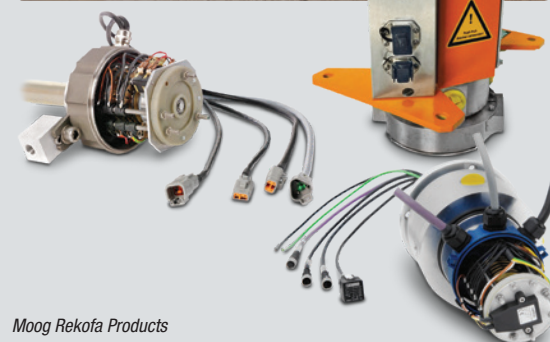
For over 90 years, Rekofa has been designing and manufacturing slip rings for most major OEM equipment manufacturers. Slip rings are designed into construction excavators, port and mobile cranes, turntable ladder vehicles and elevating platforms to deliver reliable performance in harsh environments. Most of these applications require robust bandwidth that reflects equipment type, data usage and jobsite conditions.

The technology can also be combined to include electrical, pneumatic, hydraulic and multi-channel fiber optic transfers typically used in tower cranes and cabs, radar systems and automotive manufacturing. Rekofa engineers work with customers to incorporate custom designs into new products, specializing in matching components to specific environmental conditions for temperature, sea water and oil resistance, and vibration.

The Rekofa acquisition extended Moog's existing line of industrial slip rings and rotary transfer solutions to Rekofa's customer base in Europe, Asia and North America. In addition to excavators, slip ring rotary transmitters are designed into industrial automation applications for packaging, printing, bottling and automotive plant welding turntables.



Construction Machinery Slip Rings



Moog Rekofa Products

Recognized brand in key markets with capabilities in motion control, sensing, power and data transmission.

Industrial Automation

Plastic injection and blow molding machine controls – both hydraulic and electric, steel production, metal forming and presses, packaging, robotics, construction, material handling and industrial automation

Energy / Marine

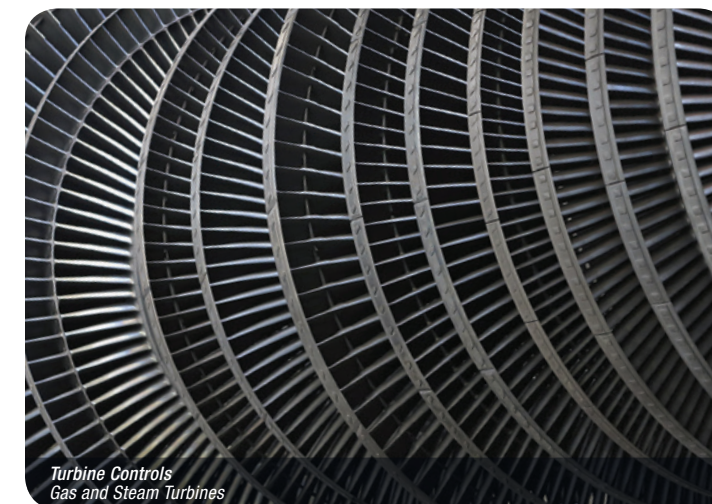
Gas and steam turbine solutions, oil and gas exploration and production solutions, Remotely Operated Vehicles (ROVs), Floating Production, Storage and Offloading Vessels (FPSO), wind energy turbine components

Simulation and Test

Flight simulation motion systems including Level D certified motion bases and G-seats for realistic pilot training, hydraulic and electric automotive turnkey testing systems for component performance and structural testing, aerospace turnkey testing systems for iron bird, structural and components

Medical

Oxygen therapy, sleep therapy, computed tomography (CAT scan), IV pumps, enteral pumps, sensors, surgical handpieces



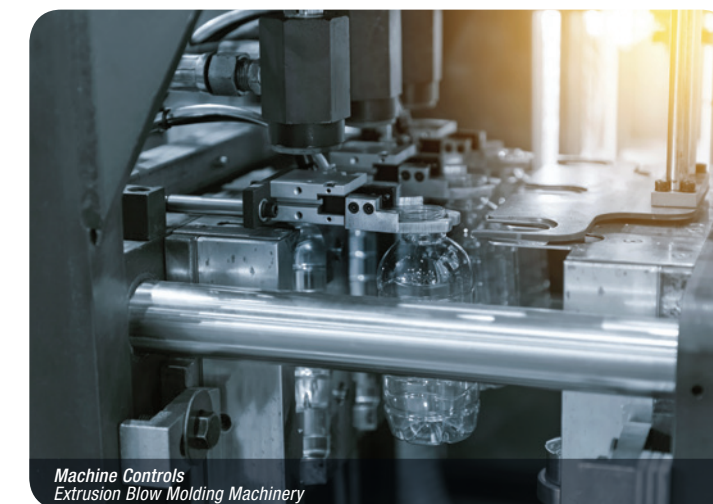
Turbine Controls
Gas and Steam Turbines



Flight Simulation – Level D Full Flight Simulators
Courtesy of Reiser Simulation and Training GmbH



Sub-miniature High-performance Controls
Motorsports



Machine Controls
Extrusion Blow Molding Machinery



Slip Rings – Medical Computer Tomography (CT)



Moog IV and Enteral Medical Pumps

FINANCIAL REVIEW

(Dollars and shares in millions, except per share data)

	2019	2018	2017	2016	2015	2014	2013	2012*	2011*	2010*	2009*
SEGMENT SALES											
AIRCRAFT CONTROLS	\$ 1,303	\$ 1,194	\$ 1,125	\$ 1,064	\$ 1,087	\$ 1,118	\$ 1,060	\$ 964	\$ 850	\$ 757	\$ 663
SPACE AND DEFENSE CONTROLS ¹	\$ 683	\$ 581	\$ 529	\$ 499	\$ 381	\$ 395	\$ 396	\$ 359	\$ 356	\$ 325	\$ 275
INDUSTRIAL SYSTEMS ¹	\$ 918	\$ 935	\$ 843	\$ 849	\$ 522	\$ 591	\$ 592	\$ 634	\$ 629	\$ 546	\$ 455
COMPONENTS ¹	–	–	–	–	\$ 536	\$ 545	\$ 563	\$ 514	\$ 495	\$ 487	\$ 457
NET SALES	\$ 2,905	\$ 2,709	\$ 2,498	\$ 2,412	\$ 2,526	\$ 2,648	\$ 2,610	\$ 2,470	\$ 2,331	\$ 2,114	\$ 1,849
EARNINGS BEFORE TAXES	\$ 234	\$ 184	\$ 182	\$ 173	\$ 184	\$ 219	\$ 165	\$ 209	\$ 184	\$ 149	\$ 111
NET EARNINGS	\$ 180	\$ 97	\$ 141	\$ 127	\$ 132	\$ 158	\$ 120	\$ 152	\$ 136	\$ 108	\$ 85
NET RETURN ON SALES	6.2%	3.6%	5.7%	5.3%	5.2%	6.0%	4.6%	6.2%	5.8%	5.1%	4.6%
EARNINGS PER SHARE											
BASIC EPS	\$ 5.16	\$ 2.71	\$ 3.94	\$ 3.49	\$ 3.39	\$ 3.57	\$ 2.66	\$ 3.37	\$ 2.99	\$ 2.38	\$ 2.00
DILUTED EPS	\$ 5.11	\$ 2.68	\$ 3.90	\$ 3.47	\$ 3.35	\$ 3.52	\$ 2.63	\$ 3.33	\$ 2.95	\$ 2.36	\$ 1.98
ADJUSTED EPS ²	–	\$ 4.57									
DILUTED WEIGHTED-AVERAGE SHARES OUTSTANDING (in millions)	35.2	36.1	36.2	36.5	39.3	45.0	45.8	45.7	46.0	45.7	42.9
RESEARCH AND DEVELOPMENT	\$ 126	\$ 130	\$ 145	\$ 147	\$ 132	\$ 139	\$ 135	\$ 116	\$ 106	\$ 103	\$ 100
CAPITAL EXPENDITURES	\$ 118	\$ 95	\$ 76	\$ 67	\$ 81	\$ 79	\$ 93	\$ 107	\$ 84	\$ 66	\$ 82
DEPRECIATION AND AMORTIZATION	\$ 85	\$ 89	\$ 90	\$ 99	\$ 104	\$ 109	\$ 108	\$ 101	\$ 96	\$ 91	\$ 76
AT YEAR END											
TOTAL ASSETS	\$ 3,114	\$ 2,964	\$ 3,091	\$ 3,005	\$ 3,037	\$ 3,140	\$ 3,151	\$ 3,106	\$ 2,843	\$ 2,712	\$ 2,634
WORKING CAPITAL	\$ 901	\$ 796	\$ 997	\$ 938	\$ 931	\$ 849	\$ 834	\$ 885	\$ 834	\$ 813	\$ 764
INDEBTEDNESS	\$ 833	\$ 863	\$ 957	\$ 1,006	\$ 1,070	\$ 872	\$ 706	\$ 765	\$ 725	\$ 765	\$ 833
SHAREHOLDERS' EQUITY	\$ 1,332	\$ 1,225	\$ 1,214	\$ 988	\$ 995	\$ 1,347	\$ 1,536	\$ 1,305	\$ 1,192	\$ 1,121	\$ 1,065
RETURN ON SHAREHOLDERS' EQUITY	13.8%	7.8%	13.3%	12.6%	11.3%	10.4%	8.6%	12.1%	11.4%	9.8%	8.3%
SHAREHOLDERS' EQUITY PER COMMON SHARE OUTSTANDING	\$ 38.12	\$ 35.20	\$ 33.94	\$ 27.56	\$ 27.09	\$ 32.51	\$ 33.86	\$ 28.80	\$ 26.38	\$ 24.70	\$ 23.53
BACKLOG (12 month)	\$ 1,502	\$ 1,481	\$ 1,212	\$ 1,225	\$ 1,273	\$ 1,340	\$ 1,296	\$ 1,279	\$ 1,325	\$ 1,181	\$ 1,098
NUMBER OF FULL-TIME EMPLOYEES	12,809	11,787	10,675	10,497	10,691	11,031	11,152	10,976	10,320	10,117	10,005

¹ The former Components segment has been divided and merged into Space and Defense Controls and Industrial Systems segments.

² 2018 adjusted EPS of \$4.57 excludes the impact of charges associated with exiting the wind pitch controls business and special impacts from the U.S. Tax Act.

* Not restated for Total Assets, Working Capital and Indebtedness. Amounts may not equal the total due to rounding.

INVESTOR INFORMATION

Annual Meeting

Our Annual Meeting of Shareholders will be held on February 11, 2020 at 9:00 am PST at The Intercontinental Hotel, 901 Bayfront Ct., San Diego, CA 92101.

Reports

Shareholders have electronic access to our annual report / Form 10-K and Proxy Statement. Copies of these and our other public reports are available on our website or by contacting us via email, telephone or letter at:

Investor Relations

Moog Inc.

East Aurora, New York 14052-0018

Phone: 716-687-4225

Email: investorrelations@moog.com

Shareholders who hold Moog stock with a broker or bank nominee and wish to receive press releases via e-mail should contact Investor Relations.

Transfer Agent and Registrar

Equiniti (EQ) Shareowner Services is the stock transfer agent and registrar maintaining shareholder accounting and ownership records, dividend history and tax forms.

Please direct inquiries to:

EQ Shareowner Services MAC N9173-010

1110 Centre Pointe Curve, Suite 101

Mendota Heights, MN 55120

Toll Free: 1-800-468-9716

Secure online access is available at www.shareowneronline.com.

Independent Auditors

Ernst & Young LLP

Front Cover:

TOP ROW

Construction Crane Slip Rings

F-35B Lightning II Courtesy of U.S. Marine Corps / Warrant Officer Bobby J. Yarbrough

UH-60 Black Hawk Courtesy of U.S. Air Force / Alejandro Peña

Delta IV Heavy Rocket Courtesy of U.S. Air Force

Steel Mill Controls

MIDDLE ROW

Computer Tomography-CT

EA-18G Growler Courtesy of U.S. Navy / MC Spec. 3rd Class Michael Singley

View of Earth 1969 Courtesy of NASA / Astronaut-Command Module Pilot Michael Collins

Oil and Gas Exploration

BOTTOM ROW

Stryker 3rd Cavalry Regiment Courtesy of U.S. Army / Staff Sergeant Matthew Johnson

Gulfstream G600 Courtesy of Phil Hosking

GPS III Navstar GPS Satellite Courtesy of SMP/GP

COVER BACKGROUND IMAGE

Original Patent Drawing of Electrohydraulic Servovalve

Patent No. 2,767,689 – William C. Moog, Jr., East Aurora, New York

New York Stock Exchange

Our two classes of common shares are traded on the New York Stock Exchange under the ticker symbols MOG.A and MOG.B.

Electronic Information

We have a website for investors which includes:

- Press releases
- Financial results and archived webcasts
- SEC filings
- Corporate governance and ESG information
- Answers to frequently asked questions
- Transfer agent information

Please visit <http://www.moog.com/investors>

Note that not all information contained on our website is incorporated into this annual overview or our other SEC filings.

Affirmative Action Program

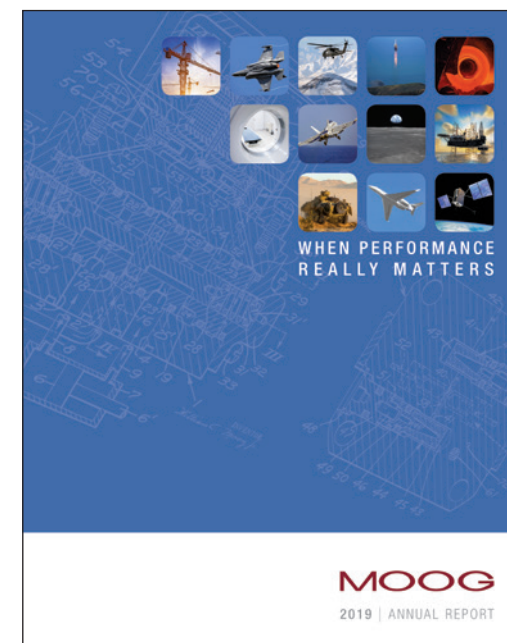
In recognition of our role as a contributing corporate citizen, we have adopted all programs and procedures in our Affirmative Action Program as a matter of Corporate policy.

Data Privacy

Moog is committed to protecting personal data in accordance with its responsibilities under U.S. and worldwide privacy regulations, including the General Data Protection Regulation (GDPR).

Photographic Images

The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.



MOOG

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