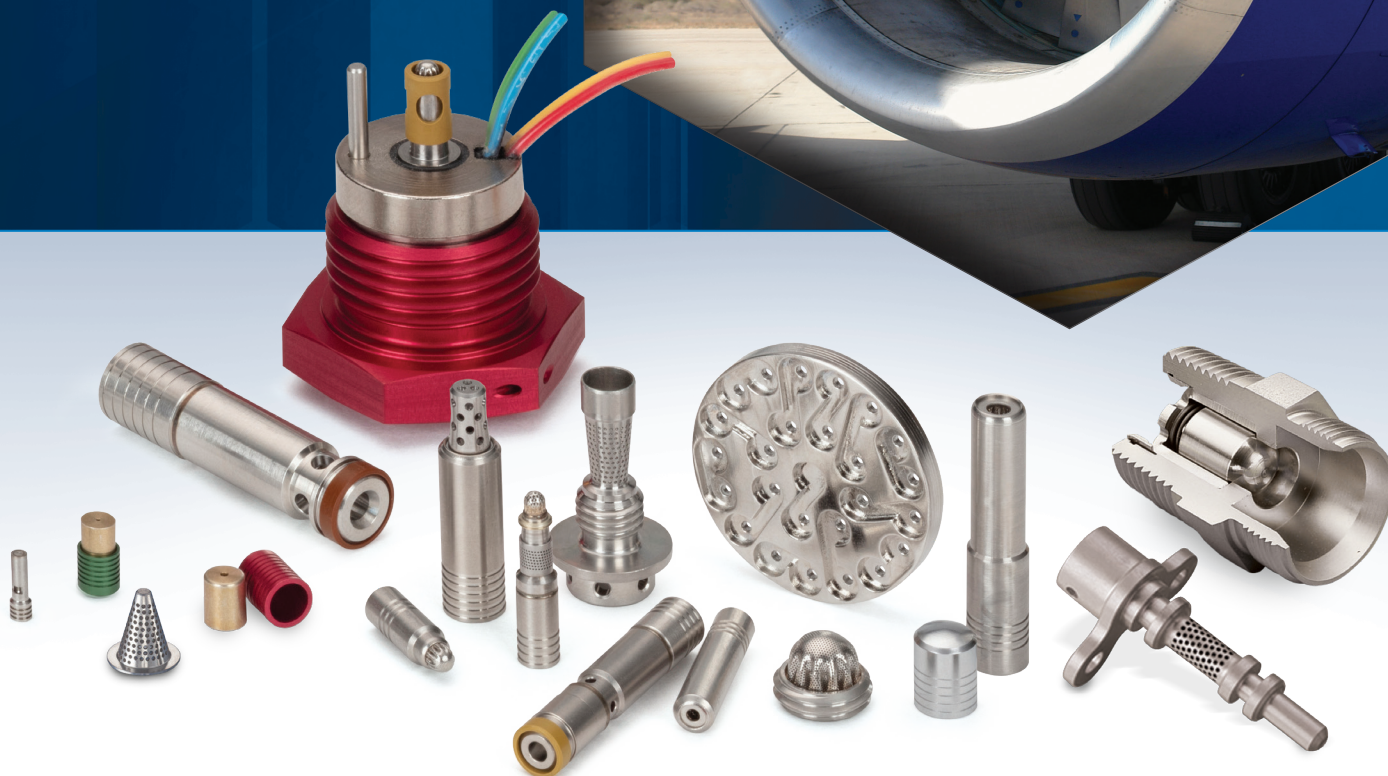


# AIRCRAFT ENGINE SOLUTIONS



**Boost performance.  
Control costs.**







# SAVE TIME AND MONEY ON THE GROUND AND IN THE AIR

With Lee  
Fluid Control  
Components

## THE BEST CHOICE FOR THE ENTIRE JOURNEY



### LOW COST OF OWNERSHIP

Engine development is challenging. Hardware needs to be maintained. Parts need to be replaced. The Lee Company helps minimize risks and control costs from initial concept through a safe landing at your destination.

We don't just promise performance that leads to savings,  
we deliver where you need it most.

### DEVELOPMENT

With thousands of our products flying overhead every minute, we have the proven ability to design the right customized solution for your application. Our expertise reduces the burden on your engineering resources and helps ensure success in qualification. Lee products perform where others may fail and force you to start over.

### MAINTENANCE AND REPAIR

Lee products are routinely qualified through rigorous endurance testing with prolonged exposure to high temperatures and extreme vibration. When an engine needs to be rebuilt, most Lee components can be kept in place, helping you direct MRO costs and effort elsewhere.

### OVERHAUL

If Lee products need to be replaceable, they can be designed as LRUs with custom envelopes that allow quick and easy installation and extraction.



# OPTIMIZE ENGINE EFFICIENCY

## FUEL CONTROL

### OPTIMIZE ENGINE EFFICIENCY

Optimal fuel control is a process, one that begins at the tank and ends in the combustion chamber. Every component within that journey plays a critical role in engine performance – not just in fuel delivery, but also in the management of fuel consumption to maximize efficiency and savings. The precise, repeatable performance of Lee products benefits aircraft operators and passengers alike by helping to control the cost of travel, maintenance, and time at the gate waiting to board.

#### PRESSURE SWITCHES AND TRANSDUCERS

- Restrictors
- Lee Plugs

#### FUEL NOZZLES

- Restrictors
- Check Valves
- Safety Screens

#### ECOLOGY VALVES

- Restrictors
- Check Valves
- Safety Screens
- Vent Valves
- Lee Plugs

#### FUEL METERING UNIT

- Restrictors
- Check Valves
- Flow Metering Valves
- Solenoid Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### FUEL PUMPS

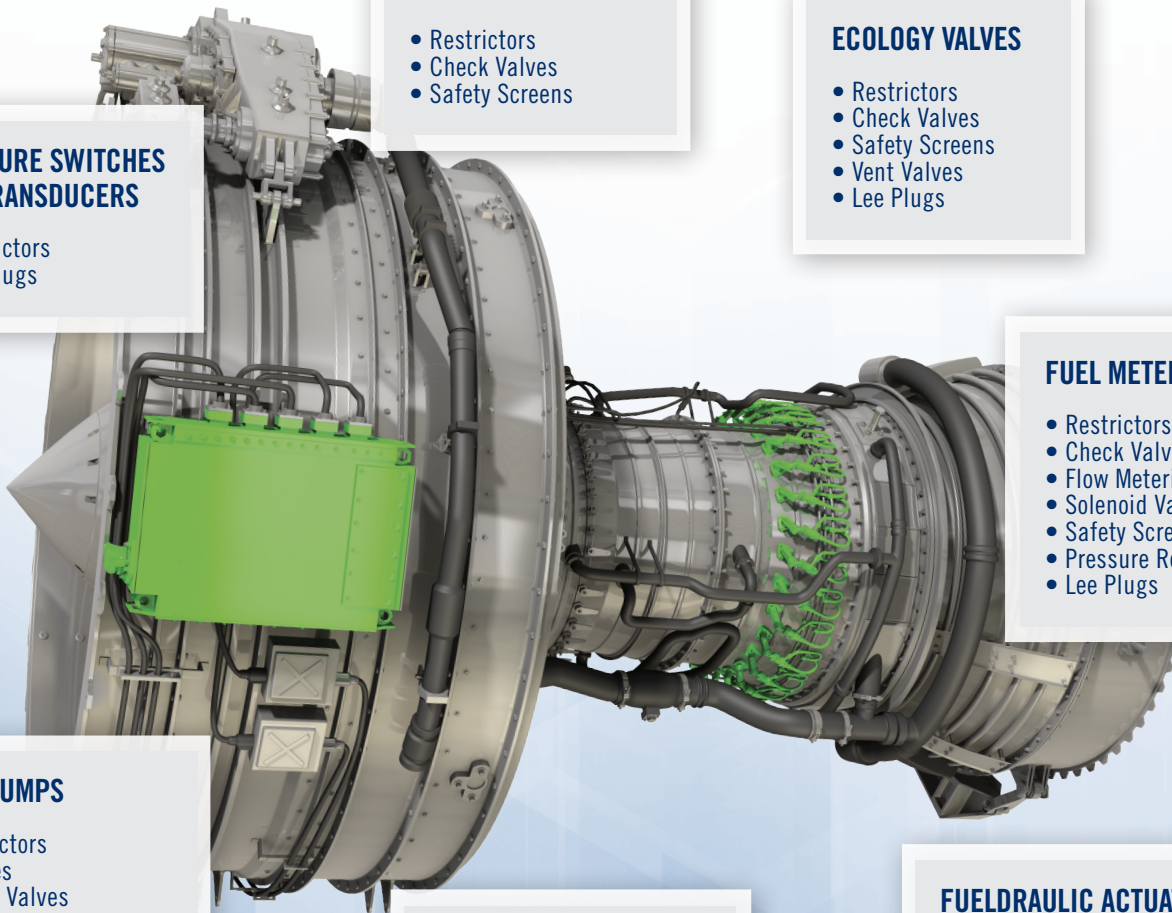
- Restrictors
- Nozzles
- Check Valves
- Flow Metering Valves
- Solenoid Valves
- Safety Screens
- Pressure Relief Valves
- Vent Valves
- Lee Plugs

#### FLOW DIVIDER

- Restrictors
- Nozzles
- Check Valves
- Flow Metering Valves
- Solenoid Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### FUEL DRAULIC ACTUATORS AND SERVO VALVES

- Restrictors
- Nozzles
- Check Valves
- Safety Screens
- Pressure Relief Valves
- Shuttle Valves
- Lee Plugs



# AT EVERY TURN.

## LUBRICATION

### EXTEND ENGINE LIFE

Lube system components are an investment that protect and extend the life of your engine. Lee safety screens offer protection against debris created within the system. Our restrictors and lube nozzles are tested to ensure the right amount of oil cools and lubricates its target. And Lee check valves are proven to withstand extreme vibration in dampening applications. They all work together to conserve oil and reduce the size and weight of pumps and tanks.

#### LUBE AND SCAVENGE PUMPS

- Check Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### FILTER MODULES

- Check Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### GEAR BOXES

- Restrictors
- Nozzles
- Check Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### HEAT EXCHANGERS

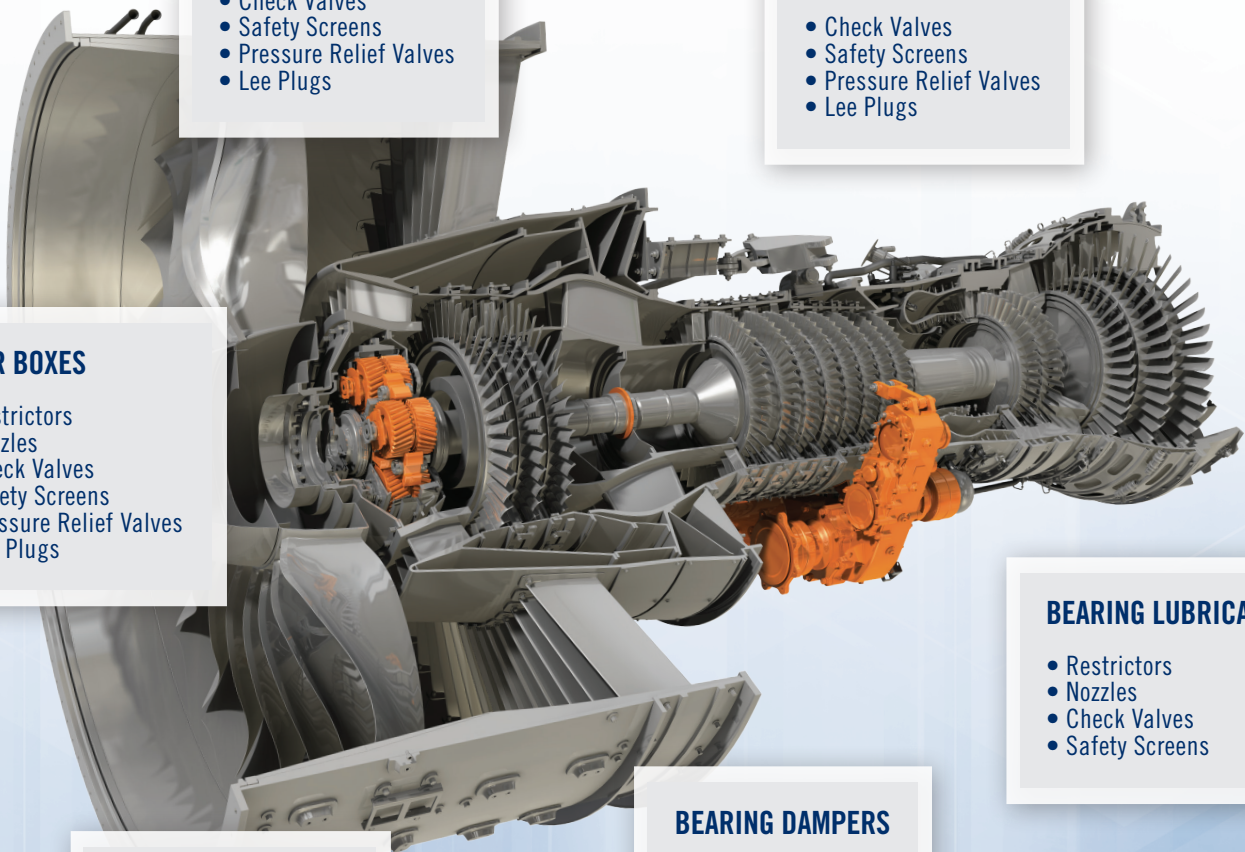
- Restrictors
- Check Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### BEARING DAMPERS

- Restrictors
- Nozzles
- Check Valves

#### BEARING LUBRICATION

- Restrictors
- Nozzles
- Check Valves
- Safety Screens





## BLEED AIR

### MAINTAIN CABIN COMFORT

Bleed air drives critical functions like engine start, anti-icing, air conditioning, pressurization of the cabin and reservoirs, and fuel tank inerting. Lee products ensure the controlled, leak-free distribution of air and gas that these systems depend on. And because they're rated to withstand extreme temperatures, they can be installed anywhere, even in the hottest sections of the engine.

#### ANTI-ICE AND DE-ICING VALVES

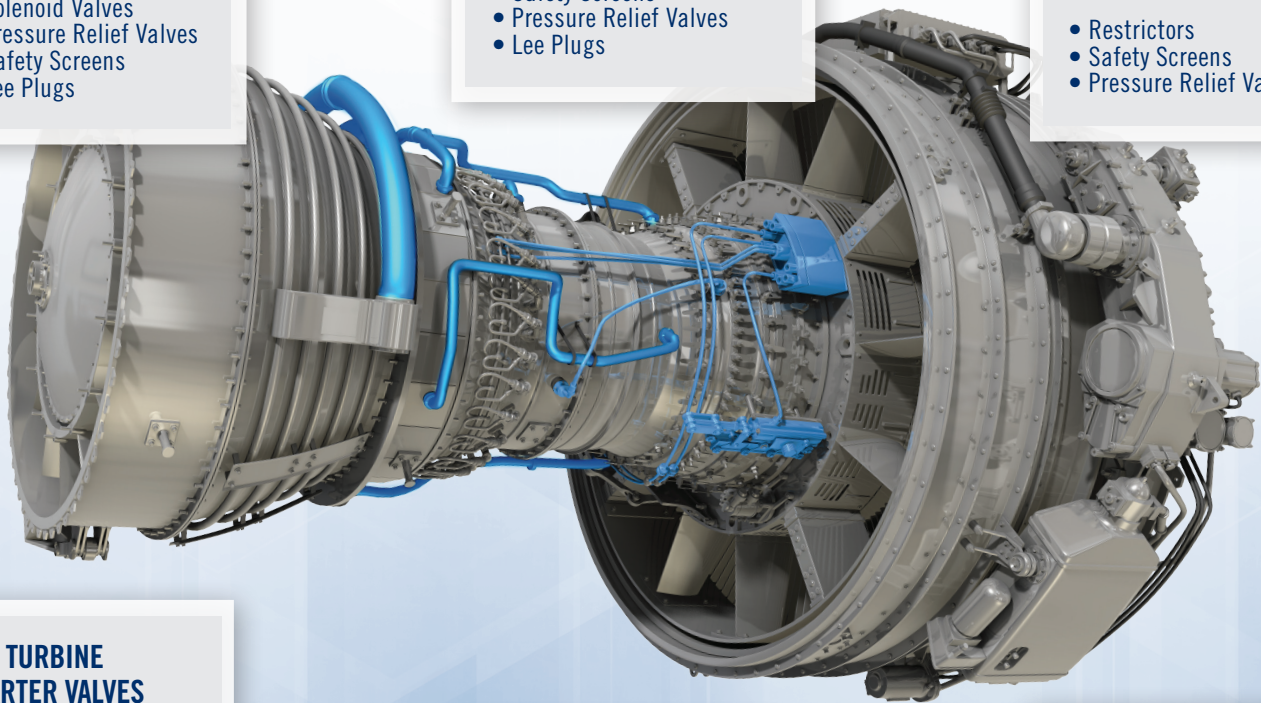
- Restrictors
- Check Valves
- Solenoid Valves
- Pressure Relief Valves
- Safety Screens
- Lee Plugs

#### VARIABLE BLEED VALVES AND ACTUATORS

- Restrictors
- Check Valves
- Flow Metering Valves
- Solenoid Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### ENVIRONMENTAL CONTROL SYSTEM

- Restrictors
- Safety Screens
- Pressure Relief Valves



#### AIR TURBINE STARTER VALVES

- Restrictors
- Flow Metering Valves
- Solenoid Valves
- Safety Screens
- Pressure Relief Valves
- Vent Valves
- Lee Plugs

#### RESERVOIR PRESSURIZATION

- Restrictors
- Check Valves
- Flow Metering Valves
- Safety Screens
- Pressure Relief Valves
- Lee Plugs

#### EXTERNALS

- Check Valves
- Safety Screens
- Restrictors
- Flow Metering Valves



# SOLUTIONS FOR AEROSPACE AND BEYOND

The Lee Company offers an extensive product portfolio, with proven experience on turbofan, turbojet, turboprop, and turboshaft engines as well as auxiliary power units. It's likely that we already have the precise flow control solution you need. If not, our dedicated sales force of degreed engineers can help design one for your specific requirements. Standard or custom, all Lee products have one thing in common – construction that helps aircrafts spend less time in the hangar and more time in the air.



## Plugs

- Lee Plug® expansion plugs seal drilled holes without the need for welds, sealants or o-rings
- Wide range of sizes and materials for critical applications
- Proof pressures exceeding 30,000 psid available
- Certified to Boeing and SAE standards



## Restrictors

- Single and multi-stage orifices for accurate flow metering
- 100% tested within tolerances as tight as  $\pm 2\%$
- Integral safety screens
- Multi-orifice configurations increase resistance to contamination and reduce the potential for cavitation



## Nozzles

- Lubrication Jets produce an accurate, solid stream of fluid
- Tested for flow and target-hitting ability
- Spin Jets produce a pressure-atomized hollow-cone spray pattern
- Integral safety screens available



## Check Valves

- Lee Chek® valves eliminate backflow with minimal flow restriction in the smallest package
- Screened, side exit and pilot-operated configurations available
- Sizes from 0.093" to 1.5" diameter
- Soft seat options when leakage is critical



## Flow Metering Valves

- Lee Restrictor Chek® valves function as a restrictor and check valve in series
- Directional flow control valves function as a restrictor and check valve in parallel
- Lee Flosert® valves provide a constant flow rate across a wide range of differential pressures



## Shuttle Valves

- Provide emergency system isolation or mode select functions
- Selective, spring-biased, detented and inverse configurations available
- Sizes from 0.187" to 0.5" diameter
- Soft seat options when leakage is critical



## Relief Valves

- Satisfy a variety of specific pressure relief needs
- Low hysteresis and stable performance
- Offered in a wide range of envelopes, cracking pressures and flow rates
- Thermal relief, soft seat or added dampening features available



## Safety Screens

- Provide last chance protection against contamination
- Etched screens maximize open area in an economical design
- Hi-Bar® drilled screens provide high-strength and highly customizable designs
- Variety of sizes, materials, configurations and retention methods available



## Solenoid Valves

- Utilize the patented Lee Multiseal™ for the smallest solenoid valves on the market
- Fast response times with low power consumption
- Proven reliability
- High flow, soft seat and latching options available



## Positive Displacement Pumps

- Radial piston design with integrated brushless DC motor
- Flow capability up to 235 PPH
- Qualified for 1,000 hours of operation
- Capable of self-priming



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